Special Report

by

Progroup AG

to holders of our

€450,000,000 3.000% Senior Secured Notes due 2026 (the "Fixed Rate Notes")

and our

€150,000,000 Senior Secured Floating Rate Notes due 2024 (the "Floating Rate Notes")

in connection with the proposed issuance of an additional €150,000,000 aggregate principal amount of 3.000% senior secured notes due 2026 (the "Additional Notes") to fund the proposed redemption of all the Floating Rate Notes

June 11, 2019

TABLE OF CONTENTS

FORWARD-LOOKING STATEMENTS i
CERTAIN DEFINITIONS iii
PRESENTATION OF FINANCIAL INFORMATION vi
INDUSTRY AND MARKET DATA vii
CURRENCY PRESENTATION AND EXCHANGE RATE INFORMATION viii
OVERVIEW 1
SUMMARY CONSOLIDATED FINANCIAL AND OTHER INFORMATION 12
RISK FACTORS 17
SELECTED FINANCIAL AND OTHER INFORMATION 39
MANAGEMENT'S DISCUSSION AND ANALYSIS OF FINANCIAL CONDITION AND RESULTS OF OPERATIONS 44
INDUSTRY AND COMPETITION 97
BUSINESS 109
SHAREHOLDERS 139
MANAGEMENT 140
CERTAIN RELATIONSHIPS AND RELATED PARTY TRANSACTIONS 148
DESCRIPTION OF CERTAIN FINANCING ARRANGEMENTS 149

FORWARD-LOOKING STATEMENTS

This special report includes forward-looking statements within the meaning of the securities laws of certain applicable jurisdictions. These forward-looking statements include, but are not limited to, all statements other than statements of historical facts contained in this special report, including, without limitation, those regarding our future financial position and results of operations, our strategy, plans, objectives, goals and targets, future developments in the markets in which we participate or are seeking to participate or anticipated regulatory changes in the markets in which we operate or intend to operate. In some cases, you can identify forward-looking statements by terminology such as “aim”, “anticipate”, “believe”, “continue”, “could”, “estimate”, “expect”, “forecast”, “guidance”, “intend”, “may”, “ongoing”, “plan”, “potential”, “predict”, “projected”, “propose”, “seek”, “should”, “targets” or “will” or the negative of such terms or other variation or comparable terminology.

By their nature, forward-looking statements involve known and unknown risks, uncertainties and other factors because they relate to events and depend on circumstances that may or may not occur in the future. We caution you that forward-looking statements are not guarantees of future performance and are based on numerous assumptions and that our actual results of operations, including our financial condition and liquidity and the development of the industry in which we operate, may differ materially from (and be more negative than) those made in, or suggested by, the forward-looking statements contained in this special report. In addition, even if our results of operations, including our financial condition and liquidity and the development of the industry in which we operate, are consistent with the forward-looking statements contained in this special report, those results or developments may not be indicative of results or developments in subsequent periods. Important risks, uncertainties and other factors that could cause these differences include, but are not limited to:

- the level of economic growth and activity and fluctuations in the demand for our products;
- the cyclical nature of the containerboard and corrugated board industry and industry-wide production capacity;
- operational disruptions at our facilities;
- risks associated with our expansion and other investment projects, in particular our new paper machine project;
- pricing pressure, consolidation of our customers, product substitution and competition in the markets in which we operate;
- fluctuations in the costs of our raw materials and other input costs and our ability to pass on increases to our customers;
- our ability to secure a reliable supply of raw materials, including recycled paper;
- the availability of, and increases in the costs of transportation;
- increases in energy costs and loss of financial privileges in this respect;
- failure to successfully continue our Continuous Improvement Program and to further improve our operational efficiency and asset utilization and to successfully implement our business strategy;
- adverse effects arising from costs and difficulties of acquiring and integrating complementary businesses;
- our ability to comply with numerous environmental, health and safety laws and regulations as well as changes to such laws and regulations;
- currency exchange rate fluctuations;
- insufficient insurance coverage;

- loss of key customers or key personnel;
- risks arising from uncertainties regarding the European Monetary Union;
- IT and communication system failure or data loss;
- tax risks attributable to previous tax assessment periods and risks associated with restrictions on the deduction of interest expense or forfeiture of interest carry forwards under German tax laws;
- our substantial leverage and debt service obligations;
- limited operating flexibility due to financial and restrictive covenants in our debt agreements;
- risks of a default under our debt agreements, which could result in an acceleration of repayment;
- risks associated with our capital structure and the terms of our indebtedness;
- force majeure and other unforeseeable events; and
- other factors discussed in "*Risk Factors*".

The risks described in the "*Risk Factors*" section of this special report are not exhaustive. Other sections of this special report describe additional factors that could adversely affect our business, financial condition and results of operations. Moreover, we operate in a highly competitive industry. New risks may emerge from time to time, and it is not possible for us to predict all such risks; nor can we assess the impact of all such risks on our business or the extent to which any factor, or combination of factors, may cause actual results to differ materially from those contained in any forward-looking statements.

We urge you to read carefully the sections of this special report entitled "*Risk Factors*", "*Management's Discussion and Analysis of Financial Condition and Results of Operations*", "*Industry and Competition*" and "*Business*" for a more complete discussion of the factors that could affect our future performance and the markets in which we operate. In light of these risks, uncertainties and assumptions, the forward-looking statements described in this special report may not be accurate or occur at all.

Accordingly, prospective investors should not place undue reliance on these forward-looking statements, which speak only as of the date on which the statements were made (and in any case no later than the date of this special report). In addition, from time to time, we and our representatives, acting in respect of information provided by us, have made or may make forward-looking statements orally or in writing. These forward-looking statements may be included in, but are not limited to, press releases (including on our website), reports to our security holders and other communications. Although we believe that the expectations reflected in such forward-looking statements are reasonable, there can be no assurance that such expectations will prove to be correct.

We undertake no obligation, and do not intend, to update or revise any forward-looking statements or risk factors, whether as a result of new information, future events or developments or otherwise. All subsequent written and oral forward-looking statements attributable to us or to persons acting on our behalf are expressly qualified in their entirety by the cautionary statements referred to above and contained elsewhere in this special report.

CERTAIN DEFINITIONS

Unless otherwise specified or the context requires otherwise in this special report (and except as otherwise defined in "*Description of Certain Financing Arrangements*" for purposes of that section only), references to:

- "**we**", "**us**", "**our**" and the "**Group**" are to Progroup AG together with its consolidated subsidiaries;
- "**Board**" are to our corrugated board production at our ten corrugated board production sites in the Czech Republic, France, Germany, Italy, Poland and the United Kingdom;
- "**CHP**" are to the combined heat and power plant adjacent to our paper mill in Eisenhüttenstadt, Germany;
- "**CHP Acquisition**" are to our acquisition from EnBW and certain of its subsidiaries of Progroup Power 1 GmbH, the CHP and certain related assets effective as of midnight on December 31, 2015;
- "**Collateral**" mean the collateral that secures or will secure, as applicable, the Super Senior Revolving Credit Facility, the Senior Secured Facilities and the Senior Secured Notes;
- "**Company**" are to Progroup AG, a stock corporation (*Aktiengesellschaft*) incorporated under the laws of Germany and the issuer of the Senior Secured Notes;
- "**Continuous Improvement Program**" are to the Continuous Improvement Program described under "*Management's Discussion and Analysis of Financial Condition and Results of Operations—Key Factors Affecting Our Results of Operations—Continuous Improvement Program*";
- "**EnBW**" are to EnBW Energie Baden-Württemberg AG;
- "**Executive Board**" are to the executive board of Progroup AG;
- "**Existing Senior Secured Commerzbank Facilities**" means the EUR 75,000,000 senior secured facilities agreement dated July 13, 2018, entered into among the Company as company, Progroup Paper PM3 GmbH as borrower, the other Guarantors as original guarantors and Commerzbank Aktiengesellschaft as lender and agent, as amended from time to time;
- "**Existing Senior Secured Facilities**" are to the Existing Senior Secured IKB Facilities, the Existing Senior Secured GBP Facility, the Existing Senior Secured PLN Facilities, the Existing Senior Secured Commerzbank Facilities, the Existing Senior Secured SaarLB Facility and the Existing Senior Secured HSBC Facility;
- "**Existing Senior Secured GBP Facility**" are to the GBP 70,000,000 senior secured GBP facility agreement dated December 21, 2017, entered into among the Company as company and original guarantor, Progroup Board Ltd. as borrower and original guarantor, the other Guarantors as original guarantors, Goldman Sachs Bank USA as original lender, Goldman Sachs Lending Partners LLC as agent, and Wilmington Trust (London) Limited as security agent, and as amended from time to time;
- "**Existing Senior Secured HSBC Facility**" means the EUR 30,000,000 senior secured EUR facility agreement dated August 6, 2018, entered into among the Company as company and original guarantor, Progroup Paper PM3 GmbH as borrower, the other Guarantors as original guarantors and HSBC Trinkaus & Burkhardt AG as lender and agent, and as amended from time to time;
- "**Existing Senior Secured IKB Facilities**" are to the EUR 63,500,000 senior secured facilities agreement dated December 21, 2017 as last amended and restated on July 13, 2018, entered into among the Company as company and borrower, Progroup Board PM3 GmbH as borrower, Progroup Board GmbH and the other Guarantors as original guarantors and IKB Deutsche Industriebank AG as original lender and agent, and as amended from time to time;

- "**Existing Senior Secured PLN Facilities**" are to (i) the PLN 107,000,000 senior secured PLN facility agreement dated December 1, 2015 (the "**2015 Senior Secured PLN Facility**") and (ii) the PLN 107,000,000 senior secured PLN facility agreement dated May 31, 2016 (the "**2016 Senior Secured PLN Facility**"), in each case (i) entered into among the Company, as company and original guarantor, Progroup Board sp. z o.o. as borrower and original guarantor, the other Guarantors as original guarantors, Commerzbank Aktiengesellschaft as mandated lead arranger, original lender and agent, and Wilmington Trust (London) Limited as security agent and (ii) in each case as amended from time to time;

- "**Existing Senior Secured SaarLB Facility**" means the EUR 25,000,000 senior secured facility agreement dated July 13, 2018, entered into among the Company as company, Progroup Paper PM3 GmbH as borrower, the other Guarantors as original guarantors and Landesbank Saar as lender and agent, as amended from time to time;

- "**Fixed Rate Notes**" are to the Company's €450,000,000 aggregate principal amount outstanding of its 3.000% senior secured notes due 2026 that were issued by the Company on March 27, 2018;

- "**Floating Rate Notes**" are to the Company's €150,000,000 aggregate principal amount outstanding of the Company's senior secured floating rate notes due 2024;

- "**German GAAP**" are to generally accepted accounting principles (*Grundsätze ordnungsmäßiger Buchführung*) in the Federal Republic of Germany as in effect from time to time;

- "**Guarantors**" are to Progroup Logistics GmbH, Progroup Board GmbH, Progroup Board s.r.o., Progroup Board sp. z o.o., Progroup Board Ltd., Progroup Paper PM1 GmbH, Progroup Paper PM2 GmbH, Progroup Paper PM3 GmbH, Progroup Power 1 GmbH, as guarantors of the Senior Secured Notes and under the Senior Secured Facilities;

- "**IFRS**" are to International Financial Reporting Standards as adopted by the European Union;

- "**Intercreditor Agreement**" are to the intercreditor agreement entered into on April 29, 2015 among, *inter alia*, the Company and any other entity which has acceded or accedes to the intercreditor agreement as a debtor, the Security Agent, the lenders under the Super Senior Revolving Credit Facility, the agent under the Super Senior Revolving Credit Facility and the holders' representative of each series of the Senior Secured Notes, as confirmed and/or amended from time to time which is described in more detail under "*Description of Certain Financing Arrangements—Intercreditor Agreement*";

- "**JH-Holding**" are to JH-Holding GmbH, a limited liability company *(Gesellschaft mit beschränkter Haftung*) organized under the laws of Germany, the direct parent company of the Company and our controlling shareholder;

- "**Logistics**" are to our own logistics operations, including a fleet of trucks we operate primarily to service the business operations of Paper and Board;

- "**New Senior Secured Erste Bank Facility**" means the EUR 30,000,000 senior secured facility agreement dated May 31, 2019, entered into among the Company as company, borrower and guarantor, the Guarantors as original guarantors, and Erste Bank Group AG as lender and agent, as amended from time to time;

- "**New Senior Secured Facilities**" are to the New Senior Secured Erste Bank Facility, the New Senior Secured LBBW Facilities and the New Senior Secured SaarLB Facility;

- "**New Senior Secured LBBW Facilities**" means the EUR 30,000,000 senior secured facilities agreement dated May 31, 2019, entered into among the Company as company, borrower and guarantor, the Guarantors as original guarantors, and Landesbank Baden-Württemberg as lender and agent, as amended from time to time;

- "**New Senior Secured SaarLB Facility**" means the EUR 15,000,000 senior secured facility agreement dated May 31, 2019, entered into among the Company as company, borrower and guarantor, the Guarantors as original guarantors, and Landesbank Saar as lender and agent, as amended from time to time;

- "**Paper**" are to our containerboard production activities at our two paper mills in Burg (PM1) and Eisenhüttenstadt (PM2) (both located in Germany), including the related energy production of Power at the CHP adjacent to our paper mill in Eisenhüttenstadt;

- "**Power**" are to our energy production at the CHP in Eisenhüttenstadt (Germany);

- "**Senior Secured Facilities**" are to the Existing Senior Secured Facilities and the New Senior Secured Facilities, collectively;

- "**Senior Secured Notes**" are to the Fixed Rate Notes, the Floating Rate Notes or the Additional Notes;

- "**Super Senior Revolving Credit Facility**" are to our super senior revolving credit facility as defined in "*Description of Certain Financing Arrangements—Super Senior Revolving Credit Facility*";

- "**Supervisory Board**" are to the supervisory board of Progroup AG;

- "**United Kingdom**" or "**UK**" are to the United Kingdom of Great Britain and Northern Ireland;

- "**United States**" or "**U.S.**" are to the United States of America; and

- "**U.S. Securities Act**" are to the U.S. Securities Act of 1933, as amended.

PRESENTATION OF FINANCIAL INFORMATION

In this special report, the term "financial statements" refers to the audited consolidated financial statements and the notes thereto of the Company and its consolidated subsidiaries as of and for the fiscal years ended December 31, 2016, 2017 and 2018 and the unaudited condensed consolidated interim financial statements and notes thereto of the Company and its subsidiaries as of and for the three-month period ended March 31, 2019 ("**2019 Unaudited Three Months Condensed Consolidated Financial Statements**").

This special report includes certain unaudited consolidated financial information for the 12 months ended March 31, 2019. This information was derived by adding our consolidated financial information for the year ended December 31, 2018 derived from our audited consolidated financial statements to our unaudited consolidated financial information for the three months ended March 31, 2019 and subtracting our unaudited consolidated financial information for the three months ended March 31, 2018.

Our historical consolidated financial statements discussed in this special report have been prepared in accordance with German GAAP, which differs in certain significant respects from IFRS. For a discussion of significant differences between German GAAP and IFRS, see "*Management's Discussion and Analysis of Financial Condition and Results of Operations—Summary of Significant Differences between German GAAP and IFRS*".

The financial information included in this special report is not intended to comply with the reporting requirements of the SEC.

Certain numerical figures set out in this special report, including financial data and operational volumes presented in million or thousand and percentages describing market shares, have been subject to rounding adjustments and, as a result, the totals of the data in this special report may vary slightly from the actual arithmetic totals of such information. The financial information and financial statements included in this special report are presented in euro. Amounts presented in euro per ton are not part of the financial statements but are taken from the management reporting of the Group.

Non-GAAP Financial Measures

In this special report, we present certain non-GAAP measures and ratios, including total output, gross profit, EBITDA, EBITDA margin, consolidated net income/(net loss) before income tax, trade working capital, free cash flow, net cash flow, cash flow available for debt service, adjusted cash flow available for debt service, cash flow from change in trade working capital and cash flow from change in total working capital, capital expenditures, total financial debt as well as net financial debt and other *pro forma* data that are not required by, or presented in accordance with, German GAAP. Our management believes that the presentation of these non-GAAP measures is helpful to investors because these and other similar measures are widely used by certain investors, security analysts and other interested parties as supplemental measures of performance and liquidity. However, you should not construe these non-GAAP measures as an alternative to net income determined in accordance with German GAAP or to cash flows from operating activities, investing activities or financing activities. In addition, the non-GAAP measures and ratios, including total output, gross profit, EBITDA, EBITDA margin, consolidated net income/(net loss) before income tax, trade working capital, free cash flow, net cash flow, cash flow available for debt service, adjusted cash flow available for debt service, cash flow from change in trade working capital and cash flow from change in total working capital, capital expenditures, total financial debt as well as net financial debt and other *pro forma* data presented by us may not be comparable to similarly titled measures used by other companies.

INDUSTRY AND MARKET DATA

We operate in an industry for which it is difficult to obtain precise industry and market information. Market data and certain economic and industry data and forecasts used, and statements regarding our position in the industry made, in this special report are based upon market research, government and other publicly available information, reports prepared by independent industry consultants and independent industry publications. These include information published by RISI, Inc. ("**RISI**") and Vision Hunters Ltd. Oy ("**Vision Hunters**"). The information in this special report that has been sourced from third parties has been accurately reproduced and, as far as we are aware and able to ascertain from the information published by such third parties, no facts have been omitted that would render the reproduced information inaccurate or misleading. While we believe the statements included in such third-party publications to be reliable, they have not been independently verified, and neither we nor the Initial Purchasers make any representation or warranties as to the accuracy or completeness of such information set forth in this special report. Additionally, industry publications and such reports generally state that the information contained therein has been obtained from sources believed to be reliable, but that the accuracy and completeness of such information is not guaranteed and in some instances state that they do not assume liability for such information. See also "*Risk Factors—Risks Related to Our Industry and Our Business—The information available to market analysts varies in its degree of comparability*". Some industry publications publish or provide projections or other forward looking statements that, by their very nature, involve inherent risks and uncertainties and past projections or forward looking statements have turned out to be inaccurate. See "*Forward-Looking Statements*". Neither we nor the Initial Purchasers can therefore assure you of the accuracy and completeness of such information as we have not independently verified such information.

In addition, certain information in this special report regarding our industry and our market position is not based on published statistical data or information obtained from independent third parties. Such information and statements reflect our estimates based upon information obtained from trade and business organizations and associations and other contacts within the industry in which we compete, internal surveys and assumptions we deem reasonable, as well as information published by our competitors. To the extent that information in this special report is identified as being our belief, that information is based on the following: (i) in respect of industry trends, our senior management's general business experience, as well as their experience in our industry and the markets in which we operate, and (ii) in respect of the performance of our operations, our internal analysis of our audited and unaudited financial and other information. As some of the foregoing information was compiled or provided by our management and is not publicly available, such information accordingly may not be considered to be as independent as that provided by other third-party sources.

CURRENCY PRESENTATION AND EXCHANGE RATE INFORMATION

In this special report, all references to "**euro**", "**EUR**" or "**€**" are to the single currency of the participating member states of the European and Monetary Union of the Treaty Establishing the European Community, as amended from time to time, and all references to "**U.S. dollars**" and "**US$**" are to the lawful currency of the United States of America. All references to "**British pounds**", "**GBP**" or "**£**" are to the lawful currency of the United Kingdom, all references to "**CZK**" or "**Czech koruna**" are to the lawful currency of the Czech Republic and all references to "**PLN**" or "**Polish zloty**" are to the lawful currency of the Republic of Poland.

The following table sets forth, for the periods set forth below, the high, low, average and period end Bloomberg Composite Rate expressed as U.S. dollars per €1.00. The Bloomberg Composite Rate is a "best market" calculation, in which, at any point in time, the bid rate is equal to the highest bid rate of all contributing bank indications and the ask rate is set to the lowest ask rate offered by these banks. The Bloomberg Composite Rate is a mid-value rate between the applied highest bid rate and the lowest ask rate. The rates may differ from the actual rates used in the preparation of our financial statements and other financial information appearing in this special report. We do not make any representation that the euro amounts referred to in this special report have been, could have been or could, in the future, be converted into U.S. dollars at any particular rate, if at all.

The average rate for a year means the average of the Bloomberg Composite Rates on the last day of each month during a year. The average rate for a month, or for any shorter period, means the average of the daily Bloomberg Composite Rates during that month, or shorter period, as the case may be.

The Bloomberg Composite Rate of the euro on June 6, 2019 was US$1.1276 per €1.00.

	U.S. dollars per €1.00			
	Period end	Average	High	Low
Year				
2016	1.0520	1.1070	1.1532	1.0389
2017	1.2005	1.1303	1.2036	1.0406
2018	1.1469	1.1808	1.2509	1.1218
Month				
December 2018	1.1469	1.1376	1.1469	1.1304
January 2019	1.1448	1.1418	1.1543	1.1303
February 2019	1.1371	1.1347	1.1459	1.1268
March 2019	1.1217	1.1299	1.1414	1.1194
April 2019	1.1216	1.1233	1.1304	1.1133
May 2019	1.1170	1.1183	1.1235	1.1129
June 2019 (through June 6, 2019)	1.1276	1.1248	1.1276	1.1221

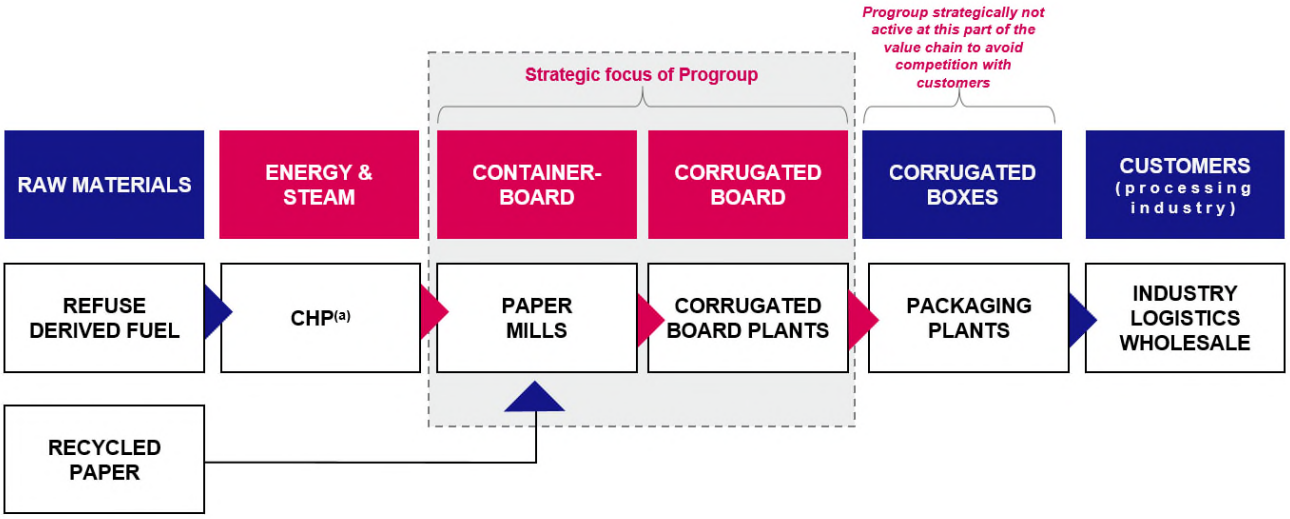
For information on the impact of fluctuations in exchange rates on our operations, see "*Risk Factors—Risks Related to Our Industry and Our Business—We are exposed to currency exchange rate fluctuations*".

OVERVIEW

The following overview is qualified in its entirety by, and should be read in conjunction with, the more detailed information and the historical financial information appearing elsewhere in this special report. You should read carefully the entire special report to understand our business.

OUR COMPANY

We are a leading, family-owned producer and supplier of containerboard and corrugated board in Central Europe and are headquartered in Landau, Germany. According to Vision Hunters, we are the third largest producer of corrugated board in Europe (by production capacity) through our corrugated board business ("**Board**") and the sixth largest producer of recycled containerboard in Europe (by production capacity) through our containerboard business ("**Paper**"). We focus on the highly efficient production and processing of standardized grades and customized small batch series of corrugated board sheets for our mostly family-owned box manufacturing customers. In this core market segment, we are the market leader by volumes sold in Germany, Austria, Belgium, the Czech Republic and the Netherlands, according to Vision Hunters. We believe we differentiate ourselves from other market participants (*i.e.*, fully integrated paper and packaging producers) through our strategic focus on those elements of the value chain that bring added-value to our customers in the packaging industry, *i.e.* the automated and integrated production of containerboard and corrugated board. Our customers serve various end markets, including industrial/manufacturing, consumer durables, processed foods, non-food manufactured consumer goods and fresh food. Unlike many fully integrated market players, we do not produce boxes and therefore do not compete with our box manufacturing customers but instead focus solely on the production of containerboard and corrugated board.



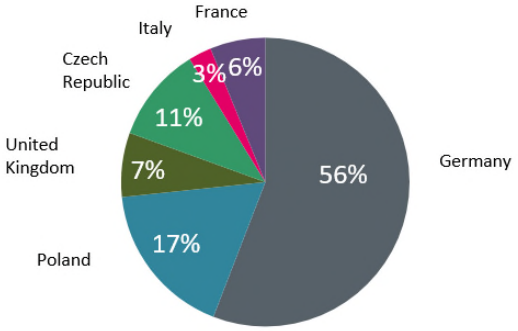
(a) Combined heat and power plant

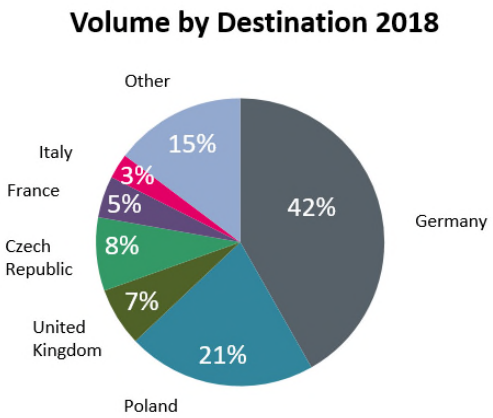
Through our large scale and highly flexible production, built up primarily via a greenfield approach, we are able to realize significant economies of scale. Since we commenced operations in 1992, we have carefully selected the locations of our production sites and have grown organically by pursuing primarily a greenfield strategy to create an optimal geographic set-up of our production sites across the markets in which we operate. As a result, we benefit from a well-invested asset base and production sites with high technological standards, resulting in a relatively low cost base compared to many of our competitors and relatively low requirements for additional capital expenditures in the short- to medium-term. Given the high technological standards of our production facilities, we believe we are well-positioned to benefit from major growth trends in our industry, such as (i) increasing demand for light-weight packaging, (ii) the increasing importance of small-size packaging due to the growing importance of e-commerce, and (iii) the general trend towards a more efficient and sustainable use of raw materials and energy, which can help reduce costs, CO_2 emissions and fresh water consumption.

Our core business comprises Paper and Board. The focus of Paper's operations is highly flexible containerboard production using almost exclusively recycled paper, with high output volumes to increase cost efficiency and short delivery times. In 2016, 2017, 2018 and the first three months of 2019, containerboard produced by Paper accounted for most of the containerboard sourcing requirements of our corrugated board production within Board. We believe that a high degree of vertical integration and the ability of Board to internally source consistently high-quality containerboard in a cost-efficient and highly flexible manner creates significant synergies for our business. In addition, our customers benefit from our integrated approach through short lead times, just-in-time delivery and online ordering and tracking options.

Paper manufactures containerboard at our two paper mills in Germany, with an envisaged total annual production capacity of approximately 1,100,000 tons of containerboard. Our two existing paper machines, PM1 in Burg and PM2 in Eisenhüttenstadt, have complementary production layouts which allow us to produce brown containerboard with grammages between 60-230g/m^2 using almost exclusively recycled paper. This, in turn, allows us to internally source consistently high-quality containerboard with the appropriate widths for Board's ten existing corrugated board production sites in the Czech Republic, France, Germany, Italy, Poland and the United Kingdom, with a total annual production capacity of approximately 1,440,000 tons of corrugated board, including our latest corrugated board "mega plant" (PW12) at Ellesmere Port, United Kingdom. Our historic greenfield location strategy ensures close customer proximity and high production flexibility. Effective as of midnight on December 31, 2015, we further acquired Progroup Power 1 GmbH, the combined heat and power plant (the "**CHP**") adjacent to our paper mill in Eisenhüttenstadt and certain related assets (the "**CHP Acquisition**"). As a result thereof, we started producing a significant portion of the energy required for the operation of our paper machine PM2 ourselves ("**Power**").

In 2018, we sold approximately 1,151,000 tons of corrugated board and approximately 176,000 tons of containerboard to external customers across Europe, resulting in external corrugated board and containerboard sales, respectively, of €840.0 million (86.9% of total sales) and €84.5 million (8.7% of total sales). Paper's total sales in 2018 include €17.9 million (1.9% of total sales) in revenues from the sale of electricity and revenues from the incineration of refuse-derived fuel resulting from the integration of the CHP as well as €9.7 million (1.0% of total sales) in sales from passing purchased fuel costs to Sales and Solutions GmbH. Total external sales by Board and Paper in 2018 (including sales other than corrugated board or containerboard sales, respectively) amounted to €840.8 million (87.0% of total sales) and €112.9 million (11.7% of total sales). Our total sales and EBITDA in 2018 amounted to €966.1 million and €275.5 million, respectively. Sales in Germany (origin), our core market, accounted for 55.8% of total sales and 42.0% of sales by volume in 2018.





Primarily to support our core business, Paper and Board, we have established our own logistics operations, including a fleet of currently 59 trucks ("**Logistics**"). Most of the remaining €12.4 million in sales (1.3% of total sales) in 2018 were generated by Logistics.

Founded in 1991, we are indirectly majority-owned by Jürgen Heindl, our founder and chief executive officer.

OUR STRENGTHS

We believe we benefit from the following competitive strengths.

Differentiated business model with leading market positions in attractive market environment

Our founder, Jürgen Heindl, designed a business model differentiating us from our competitors. Through our strategic value chain positioning in containerboard and corrugated board production only, we do not compete with our targeted customers, who are primarily family-owned, small and medium-sized businesses. Our core customers focus on packaging solutions for the end-customer and typically do not have their own corrugated board production capability. Many of our competitors are fully integrated and focus on serving larger end-customers in large batch sizes, including global consumer corporates. Our differentiated business model allows us to serve a higher number of customers, process a higher number of orders and maintain higher production volumes per production site (up to 370 million square meters of corrugated board

per annum), thereby generating economies of scale. We are solely focused on the production process as opposed to many of our competitors, who also focus on more complex and customer-specific packaging requirements for a smaller number of larger customers and, hence, only have an average production output of typically 70-80 million square meters per production site per annum.

In 27 years since our foundation, we have achieved leading market positions in the countries in which we operate. We are among the top three corrugated board producers in Europe (by production capacity) and our market share in our specific segment, the corrugated sheet market in Europe, was approximately 15% according to a March 2018 market study by Vision Hunters. In our core market segment, namely corrugated board sheets, we were the market leader by volumes sold in Germany, Austria, Belgium, the Czech Republic and the Netherlands, according to Vision Hunters, and we hold considerably higher market shares in those markets compared to our position in the overall European containerboard and corrugated board market. Following the fast and successful ramp-up of our corrugated board production site (PW10) in Trzcinica, Poland, we have also become a very significant player in the Polish market, and we have further become a significant player in the UK market, as a result of the commencement of production in January 2019 and ongoing ramp-up at our newest corrugated board production site (PW12) in Ellesmere Port, United Kingdom, which replaced the much smaller and now decommissioned production site PW8. In addition, the commencement of production at our corrugated board production site (PW11) in Drizzona, Italy in early March 2018, with an annual corrugated board production capacity of approximately 100,000 tons, marked our entry into the largest corrugated sheet board market in Europe. In containerboard production, we had a market share of approximately 4% by production capacity in Europe, according to the March 2018 market study by Vision Hunters.

While we believe our differentiated business model, high reliability and quality of product supply, significant scale, internal sourcing and geographic coverage provide us with a competitive advantage in our core market segment, we also benefit from attractive market fundamentals of the overall industry.

The paper and packaging industry is experiencing overall growing demand from industrial economies in Central Europe, and we believe that Germany and Central Europe, our key markets, generally provide a positive economic outlook. From a product perspective, the increasing significance of light-weight paper and packaging solutions as well as small-size packaging and the increasingly online and mail order-driven retail sector is expected to further stimulate packaging growth. We believe our modern production facilities, particularly PM2, which is capable of producing light-weight paper grades economically on a commercial scale, position us well to benefit from these growth trends in the industry. Furthermore, production is driven by the strong increase in demand from emerging economies, where production and packaging standards are adapting to the standards of developed countries, from which we also benefit with our production in Poland and the Czech Republic

Uniquely designed, best-in-class and strategically located, low-cost production asset base built up via greenfield strategy

Since our foundation in 1991, we have carefully designed and selected our production operations and locations via a dedicated greenfield strategy to establish highly efficient, flexible and technologically advanced production facilities, which were ahead of the existing market standard at the time. We believe we are the fastest organically growing corrugated board producer in Europe and have developed a unique track record and expertise in successfully establishing new greenfield corrugated board production sites. This includes a dedicated and experienced in-house projects team tasked with identifying attractive market opportunities for profitable growth, completing the planning and construction phases of the relevant projects on time and on budget and managing fast and successful ramp-ups of production at the relevant sites.

Designing our production set-up primarily via a greenfield strategy allowed us to invest in the best available production specifications and optimize the alignment and compatibility of our paper machines, PM1 and PM2, with our corrugators. The current 2.5m, 2.8m and 3.3m trim widths of our various existing corrugated board plants can be very efficiently combined with the 5.8m trim width of PM1 (2 × 2.8m or 2.5m + 3.3m), the 10.2m trim width of PM2 (4 × 2.5m or 3 × 3.3m) and the 9.2m trim width of our proposed new paper machine PM3 (2 x 3.3m + 2.5m or 2 x 2.8m + 3.3m), resulting in low volumes of cutting scrap and higher productivity.

Our corrugated board production sites have been purposefully located approximately 500 kilometers from each other. This footprint ensures close customer proximity with full regional coverage of our customers and limited overlap to limit the transportation distance in most circumstances to 250-300 kilometers. Our strategic footprint also allows us to achieve high production flexibility and reliable just-in-time delivery with short lead times. Furthermore, we are able to serve our customers from different locations, thereby optimizing transportation costs and capacity utilizations on a plant-by-plant basis, which is coordinated centrally from our headquarters in Landau following a “one mill approach”. We believe our location layout and organization give us a competitive advantage in terms of cost efficiency and customer orientation. On average, we serve approximately 50-80 customers per corrugated board production site and each of our production sites offers the entire range of customer services (e.g., 24 hour delivery and online ordering and tracking).

We believe that all of our plants are equipped with state-of-the-art technology, which is the foundation of our low-cost and efficient production. According to Vision Hunters, the asset quality of our paper machines is characterized as high and above comparable European containerboard and corrugated board producers. Performance metrics of PM1, such as capacity and technical age, are well above the industry average. PM2, which we believe to be among the world's most advanced paper machines for recycled super-light-weight paper and which specializes in the production of super-light-weight to medium-weight containerboard with grammages of 60-130g/m^2, ranks best in class for all metrics and has set five new world records since its launch in 2010.

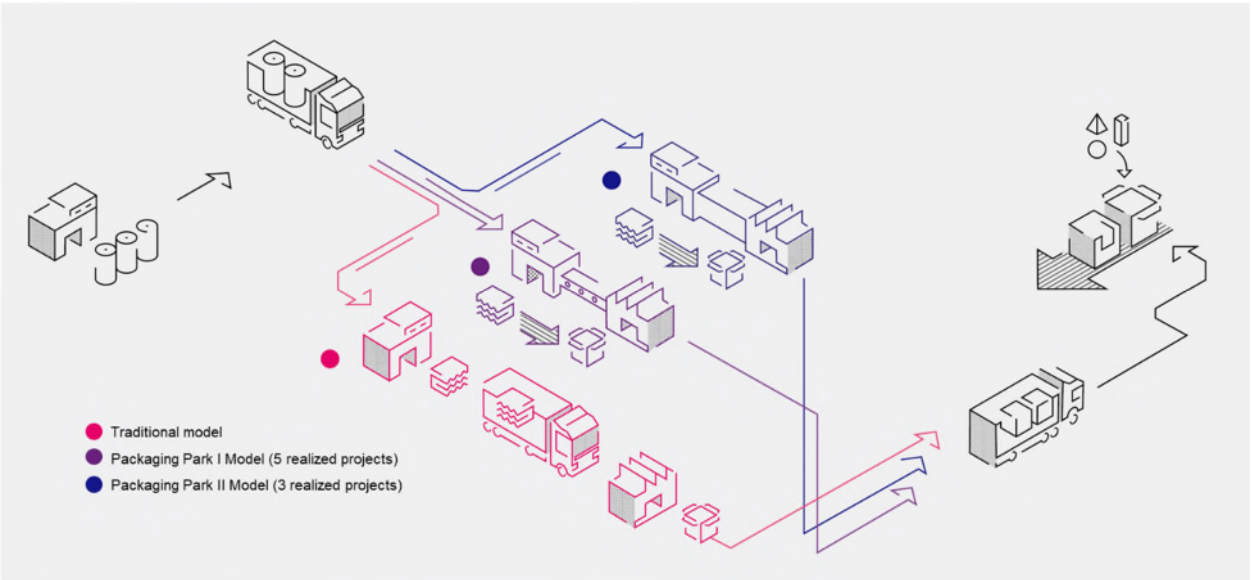
Unlike many of our competitors, who grew historically over many decades or had to integrate production infrastructures inorganically through acquisitions, we differentiate ourselves through our well-invested asset base and high-quality, complementary, modern and strictly aligned, high capacity production facilities placed purposefully in strategic locations.

Strong, diversified and long-standing customer base

We have long-standing relationships with many of our customers, some of which date back to the start of our operations in 1992. We have grown with our large German customers as they have expanded across Europe and have successfully entered into new relationships with key customers outside of Germany. We currently supply 350 to 400 different Board customers, with a strategic focus on family-owned, small and medium-sized companies. Our top five Board customers accounted for approximately 7%, 4%, 3%, 3% and 2%, respectively, of our total corrugated board sales, by tons, in 2018, while our top five external Paper customers accounted for approximately 28%, 12%, 11%, 8% and 5%, respectively, of our total external containerboard sales, by tons, in 2018.

We believe that our ability to provide reliable delivery of high-quality, cost-effective and tailor-made products and being a family-owned business have enabled us to foster strong partnerships of mutual dependence with our mostly family-owned customers, operating as a fundamental part of their supply chains by improving inventory management, security of supply and customer service.

Our strong customer relationships are reinforced through a combination of our geographic reach, our manufacturing and logistics excellence, and the limited availability of alternative suppliers with the capacity and geographic proximity to provide a competitive offering. At some of our corrugated board production sites, certain long-standing customers have established their own box manufacturing plants in immediate proximity to our site, either on our own land or on land adjacent to our site (so-called "**Packaging Park I Model**"). As a variation of this original packaging park model, we commenced production in October 2015 at our corrugated board production site (PW9) in Plössberg, Germany, which we established in immediate proximity to an existing packaging plant of our customer, Liebensteiner Kartonagenwerk, on land owned by our customer. As a further variation of the packaging park model, we commenced production in the first quarter of 2017 at our corrugated board production site (PW10) in Trzcinica, Poland on land we purchased from our large customer Janmar Centrum adjacent to its existing packaging plant. We refer to these variations were we establish our own corrugated board production sites close to our customers as the "**Packaging Park II Model**". Following the success of these two packaging park projects (PW9 and PW10), we also established our corrugated board production site (PW11) in Drizzona, Italy as a packaging park project in immediate proximity to the existing packaging plant of our new customer, Italian packaging specialist Imbal Carton S.r.l.



All versions of the packaging park model help us to further strengthen our relationships with key customers (or win significant new customers, as in the case of Imbal Carton S.r.l.) and benefit both us and the relevant customers. The high level of integration between our own corrugated board production and the box production of our customers also made possible through the packaging park model creates a number of efficiencies and largely eliminates freight and other logistics costs between Board and our packaging park customers. Our packaging park customers also typically purchase a very high percentage (up to 100%) of their corrugated board requirements for the relevant box plant from us, which means predictable, high volume orders and consistently high utilization levels for the relevant corrugated board production sites. Index pricing arrangements with our packaging park customers ensure a predictable pricing mechanism for all parties. It typically takes approximately two to three months for containerboard mills to pass on their raw material price increases to their customers, *i.e.* manufacturers of corrugated board. In turn, the manufacturers of corrugated board generally attempt to raise prices to recover containerboard cost increases. It generally takes approximately two to three months for corrugated board manufacturers, including us, to pass these increases on to their customers.

Technology and innovation leader

There are general industry trends towards lighter and more functional packaging and towards a more efficient use of resources. The trend towards "light paper" (*i.e.*, containerboard) has been particularly strong in Germany and has been further strengthened by the increasingly online and mail order-driven retail sector, which is expected to further stimulate demand growth for light packaging solutions. We believe that we are particularly well-positioned to capitalize on these trends with our paper mill in Eisenhüttenstadt, Germany, which specializes in the production of super-light-weight to medium-weight containerboard with grammages of 60-130g/m^2. As demand for super-light-weight containerboard (with a grammage below 90g/m^2) is increasing, we believe that PM2 gives us a significant advantage over many of our competitors, both in terms of efficiency and product quality. Our proposed further paper machine PM3, on the other hand, is designed to provide standard containerboard grades with grammages of 90-130g/m². Once this newest paper machine will commence operation, we believe it will give us the ability to put an even stronger focus on the production of super-light-weight containerboard (i.e. 70 – 80g) at PM2 and to focus production at PM1 on specialty containerboard such as kraftliner substitutes and containerboard with a higher grammages above 130g/m². We believe the expected further specialization of our paper machines will further enhance the productivity of all our paper machines as each paper mill will be able to focus on clearly defined paper categories. For more detail on our proposed new paper machine (PM3), see also "*—Our Strategy—Maintain and strengthen our position as a leading, low-cost corrugated board producer in Europe through controlled investments*" below.

In addition, we continuously work to improve our product designs, optimize the utilization of our assets and explore new ways to further reduce our input costs and secure the long-term sustainability of our core businesses, both from an economic and environmental perspective. In particular, we are focused on further reducing the use of fibre (*i.e.*, recycled paper) in our products as well as the amount of energy required for our production processes and the shipment of our products, in order to both maintain a competitive cost position in our industry and to reduce emissions and waste.

We believe that, at the time of its launch in 2001, our paper machine PM1 was the world's technologically most advanced containerboard paper machine setting new technology standards, including with the use of a closed water cycle, thereby minimizing the creation of waste water. Launched in 2010, we believe that PM2 is among the world's most advanced paper machines, which we believe has allowed us to set new industry standards with respect to raw material efficiency. As described in more detail under "*—Our Strategy—Maintain and strengthen our position as a leading, low-cost corrugated board producer in Europe through controlled investments*" below, we further decided to make certain significant additional investments in connection with the proposed establishment of our newest paper machine (PM3), which we expect will result in significant cost savings in the mid- to long-term as well as significant reductions of CO_2 emissions, waste water and natural gas consumption. These investments include a state-of-the-art waste overall waste-heat concept as well as a "first-of-its-kind" closed cycle waste water treatment system.

We have invested significantly in the development of a "green" range of "next generation" products working in close cooperation with BHS Corrugated GmbH, one of our equipment suppliers, and a team of researchers at the University of Applied Sciences (*Hochschule für angewandte Wissenschaften*) in Regensburg, Germany. We market these products under our own brands next fibre®, next board® and next box®. All of these product innovations involve the use of super-light-weight containerboard produced by our paper machine PM2 as well as innovative flute designs of our corrugated board formats, intended to further reduce raw material input and thereby further reduce weight, input costs and CO_2 emissions.

Significant synergies through high degree of vertical integration

In 2018, containerboard produced by Paper accounted for approximately 75% of the containerboard, by volume, used by our corrugated board production within Board. As a result of the steady expansion of our corrugated board production capacity in recent years, internal containerboard sales to Board have increased from approximately 62% (or 67%, if we include containerboard sales to swap partners) of total containerboard sales, by volume, of Paper in 2016 to approximately

82% (or 93%, if we include containerboard sales to swap partners) of total containerboard sales, by volume, of Paper in 2018. With the fast and successful ramp-up of production at our corrugated board production site (PW10) in Trzcinica, Poland during 2017 and early 2018, we had already accomplished one of our long-standing strategic goals and had already been operating at the top end of our long-term target corridor with regard to the level of integration between Paper and Board. We expect that the start of production at our new corrugated board production site (PW11) in Drizzona, Italy in early March 2018, the significantly increased capacity of the new corrugated board "mega plant" (PW12) in Ellesmere Port, United Kingdom as well as further improved utilization of our other corrugated board production sites alone will lead to a significant further increase in the corrugated board production of Board, so that we will remain a net purchaser of containerboard in 2019, i.e. we expect that the recycled containerboard sourcing requirements of our corrugated board production within Board will significantly exceed the internal supply capacities of Paper. As we have already commenced construction of a further corrugated board production site (PW13) in Eisfeld, Germany (with test production expected to start in the fourth quarter of 2019 or the first quarter of 2020) and plan to establish up to three further corrugated board production sites in Central Europe between 2020 and 2023 (including a further corrugated board "mega plant" (PW14) which is envisaged to commence production in late 2020 or early 2021), we expect to successively increase this net short position with regard to containerboard even further at least in the short-term. We therefore currently do not expect the volume of our external containerboard sales to significantly increase again unless and until we complete our proposed further paper machine project (PM3) in the second half of 2020. For more details on our expansion projects and investment program, see also "*—Our Strategy—Maintain and strengthen our position as a leading, low-cost corrugated board producer in Europe through controlled investments*" below. With an envisaged total annual containerboard capacity of approximately 1,100,000 tons, Paper produced approximately 1,020,000 tons and 1,035,000 tons of containerboard in 2018 and 2016, respectively. In 2018, approximately 811,000 tons were sold internally to Board (2016: 738,000 tons of internal containerboard sales), and a further approximately 111,500 tons were sold pursuant to swap agreements with other containerboard producers (2016: 106,000 tons of sales to swap partners), which allow us to reduce transportation costs, optimize our production program and swap internally produced containerboard for certain containerboard grades we do not produce in sufficient quantities, such as kraftliner. The remaining approximately 64,000 tons of containerboard we sold in 2018 were sold externally (2016: approximately 198,000 tons of external containerboard sales, excluding sales to swap partners). With a total annual corrugated board production capacity of approximately 1,440,000 tons (including (i) 100,000 tons of capacity of our new corrugated board production site (PW11) in Drizzona, Italy, which commenced production in early March 2018 and (ii) more than 200,000 tons of capacity of our newest corrugated board "mega plant" (PW12) in Ellesmere Port, United Kingdom, which commenced production in January 2019) as of the date of this special report (2016: total annual corrugated board production capacity of approximately 1,130,000 tons), Board produced approximately 1,151,000 tons of containerboard in 2018, compared to approximately 930,000 tons of corrugated board in 2016. We believe that a high degree of vertical integration and making full use of the ability to internally source consistently high-quality containerboard in a cost-efficient and highly flexible manner creates significant synergies for our business. At the same time, we believe that the high share of internal containerboard sales may help us stabilize or improve our overall Group margins by reducing our exposure to lower or more volatile margins (compared to corrugated board margins) of certain external containerboard sales. Our customers benefit from our integrated approach through short lead times, just-in-time delivery and online ordering and tracking options. The steady increase in the degree of vertical integration between Paper and Board over the last few years has also been allowing us to further optimize our internal logistics and supply chain. See also "*—Our Strategy—Achieving further cost-savings and efficiency improvements through further increased external containerboard purchases*" below.

Strong track record of profitable growth

Since 2015, we successfully completed a number of recent expansion and other investment projects, including the CHP Acquisition as well as the successful establishment of four new corrugated board production sites (PW9, PW10, PW11 and PW12), with the construction of our new corrugated board production site (PW13) in Eisfeld, Germany progressing on schedule and earthworks for our third paper machine (PM3) in Sandersdorf-Brehna, Germany having started in January 2019. In addition, we successfully implemented a series of initiatives in recent years as part of our Continuous Improvement Program to improve the effectiveness of our sales and marketing activities, optimize (*i.e.*, minimize) our variable costs and stabilize our specific fixed costs in order to achieve sales excellence and maintain our position as one of the cost leaders in our industry.

As a result of these and other factors, we have managed to continue to significantly improve our profitability and cash position and moved the Group to a structurally enhanced level of profitability in recent years. In particular, we have managed to increase our EBITDA from €81.7 million in 2013 to €125.1 million in 2014, €152.9 million in 2015, €154.7 million in 2016, €180.4 million in 2017 and €275.5 million in 2018. During the same period, our EBITDA margin (calculated by dividing EBITDA by sales) improved from 14.0% in 2013 to an exceptional 28.5% in 2018. Combined with our controlled investment strategy, which should normally allow us to adapt the amount of our expansion capital expenditures in line with our projected mid-term cash requirement, we believe we are in a strong financial condition to weather and/or adapt to challenges that may face us or our industry as a whole.

Committed family shareholders and experienced management team for long-term stability

Our company was founded in 1991 by Jürgen Heindl, our chief executive officer, and continues to be controlled by him and his two sons, Maximilian Heindl and Vinzenz Heindl. We believe this family link and the strong personal and long-standing financial commitment of our owners ensures our focus on stability, long-term value generation and prudent investment strategies. Jürgen Heindl's expertise is supported by a strong and growing management team with extensive industry experience, including within our Group. Our management team has impressively demonstrated its abilities by creating one of Europe's leading containerboard and corrugated board players in 27 years while withstanding economic downturns and restructurings. In response to the increasing size and complexity of the Group and to free up management capacity to allow Jürgen Heindl to focus on the strategic development of the Group, we have successfully professionalized and expanded our senior management team, including our Executive Board. Dr. Volker Metz rejoined the Group as our chief financial officer in November 2016, after previously having served as our head of controlling between 2009 and January 2016. Similarly, after spending seven years with one of our largest international competitors, Philipp Kosloh rejoined the Group in November 2016 and was appointed a deputy member of our Executive Board, with a view to becoming our first chief operating officer. Mr. Kosloh had previously served in various capacities within the Group between 2001 and 2009. Effective January 1, 2019, Mr. Kosloh became a regular member of the Executive Board and assumed the role of chief operating officer. In addition, after gaining several years of relevant work and management experience in the paper industry outside the Group, Maximilian Heindl joined the Group in August 2016 as the manager in charge of production and technology at Paper (PM1 and PM2) and with overall responsibility for Power. From August 1, 2017, Maximilian Heindl took over further responsibility within the Group as a deputy member of the Executive Board and, effective January 1, 2019, he became a regular member of the Executive Board and assumed the role of chief development officer. Maximilian Heindl's work and management experience outside the Group, his management roles at Paper and Power, his appointment to the Executive Board and gradual assumption of further responsibilities are all part of a deliberate, long-term succession plan for our founder and chief executive officer Jürgen Heindl with the goal of securing our future as a successful family-owned business into the next generation.

OUR STRATEGY

Maintain and strengthen our position as a leading, low-cost corrugated board producer in Europe through controlled investments

To maintain and further strengthen our position as a leading, low-cost corrugated board producer in Europe in the long-term and to allow us to successfully meet ongoing and expected future market growth and the requirements of our customers with regard to supply certainty and product quality, we intend to continue to make prudent and controlled investments to further expand and improve the efficiency of our production facilities as part of our long-term "Two Twentyfive" strategy, as long as (i) we are confident we can achieve payback periods for our investments that are aligned with the maturity profile and relevant headroom under our financing arrangements, (ii) we maintain sufficient financial flexibility to weather and/or adapt to challenges that may face us or our industry as a whole, and (iii) any such investments would be consistent with our long-term target leverage. In addition to further capacity expansion, our "Two Twentyfive" strategy, among other things, also contemplates a gradual technological transition and generation change away from the use of corrugators with a trim width of 2.5m, which are installed and currently in use at some of our older corrugated board production sites, to the use of more modern corrugators with trim widths of 2.8m or 3.3m at most of our corrugated board production sites.

Following the successful completion of the ramp-up of production at our corrugated board production site (PW9) in Plössberg, Germany, which commenced production in October 2015, we had already accomplished one of our long-standing strategic goals in 2016 and were already operating within our target corridor with regard to the level of integration between Paper and Board. However, in the short-term to mid-term, we still intend to continue to focus our investment activities on further expanding our corrugated board production capacity to be able to seize what we believe are numerous further market opportunities for profitable growth, similar to those that led to the successful establishment of our most recent production sites (PW9, PW10, PW11 and PW12) in Plössberg (Germany), Trzcinica (Poland), Drizzona (Italy) and Ellesmere Port (United Kingdom). In continuation of our organic growth strategy, we intend to primarily achieve further growth by pursuing further expansion opportunities via greenfield projects.

In addition to the fast and successful ramp-up at our corrugated board production site (PW10) in Trzcinica, Poland during 2017 and early 2018 following commencement of commercial production in April 2017, we commenced production at our corrugated board production site (PW11) in Drizzona, Italy, in early March 2018 and at our newest corrugated production site (PW12) in Ellesmere Port, United Kingdom, in January 2019. As with our corrugated board production site (PW9) in Plössberg, Germany and our corrugated board production site (PW10) in Trzcinica, Poland, we established our production site (PW11) in Drizzona, Italy, as a packaging park project in immediate proximity to the existing packaging plant of a customer, Italian packaging specialist Imbal Carton S.r.l., which allows us to supply this new customer largely without freight and other logistics costs. The commencement of production at our corrugated board production site (PW11) in Drizzona, Italy, with an annual corrugated board production capacity of approximately 100,000 tons, also marked our entry

into the largest corrugated sheet board market in Europe. With a total investment of approximately €85-€90 million into the establishment of our new corrugated board "mega plant" (PW12) in Ellesmere Port, United Kingdom to replace our now decommissioned corrugated board production site (PW8) located just a few kilometers from the new site, we have now also become a significant player in the UK market. This newest corrugated board production site operates with a 3.35m trim width and has an annual corrugated board production capacity of more than 200,000 tons, more than double the production capacity of approximately 85,000 tons of the old site (PW8), which we established in 2009 with a used corrugator with a 2.5m trim width. We believe that the new production site, with its large capacity and state-of-the-art equipment, is one of the largest and most efficient corrugated sheet board plants globally and positions us well to further grow in the United Kingdom, a market in which we have historically been able to achieve above average EBITDA margins.

While we have historically pursued a pure greenfield growth strategy, including the three packaging park projects (PW9, PW10 and PW11), our newest corrugated board production site (PW12) in the United Kingdom as well as the proposed new corrugated board production sites (PW13 and PW14), we are also evaluating and will continue to evaluate opportunities to acquire attractive assets from competitors which would complement our existing network of production sites, advance our goal of further increasing our corrugated board production capacity and meet the other internal investment and financing criteria described above. In addition, in order to maintain and/or strengthen our relationships with certain large and long-standing customers or in response to opportunities to establish relationships with significant new customers, we will consider additional packaging park projects whereby we would establish corrugated board production sites at or in proximity to the packaging plants of the relevant customers.

With the fast and successful ramp-up at our corrugated board production site (PW10) in Trzcinica, Poland, we had already accomplished one of our long-standing strategic goals and had already been operating at the top end of our long-term target corridor with regard to the level of integration between Paper and Board. We expect that the start of production at our new corrugated board production site (PW11) in Drizzona, Italy in early March 2018, the significantly increased capacity of the new corrugated board "mega plant" (PW12) in Ellesmere Port, United Kingdom as well as further improved utilization of our other corrugated board production sites alone will lead to a significant further increase in the corrugated board production of Board, so that we will remain a net purchaser of containerboard in 2019, i.e. we expect that the recycled containerboard sourcing requirements of our corrugated board production within Board will significantly exceed the internal supply capacities of Paper. In the short-term to mid-term, we nevertheless intend to continue to focus our investment activities on further expanding our corrugated board production capacity. We have already commenced construction of a further corrugated board production site (PW13) in Eisfeld, Germany, with test production expected to start in the fourth quarter of 2019 or the first quarter of 2020. We expect to make total net investments (net of subsidies) of approximately €60 million at this site, which is slightly higher than our earlier estimates of approximately €50 million. This cost increase primarily relates to additional investments which will increase the annual corrugated board production capacity of the new site to approximately 175,000 tons, from the originally proposed capacity of approximately 140,000 tons. Higher than originally expected civil engineering costs (due to the booming construction sector) also contributed to the expected overall cost increase. In addition, we plan to establish up to three further corrugated board production sites in Central Europe between 2020 and 2023, including a further corrugated board "mega plant" (PW14), which we expect will operate with a 3.35m trim width and have an annual corrugated board production capacity of up to 215,000 tons. We expect to invest approximately €70-75 million into this new plant, which will have capabilities similar to our "mega plant" (PW12) in Ellesmere Port, United Kingdom and, we plan, will commence production in late 2020 or early 2021. Primarily to fund our expected investments into this new site, we entered into the New Senior Secured Erste Bank Facility, the New Senior Secured LBBW Facilities and the New Senior Secured SaarLB Facility, with total commitments of €75 million. For more details about these New Senior Secured Facilities, see "*Description of Certain Financing Arrangements—New Senior Secured Erste Bank Facility*", "*Description of Certain Financing Arrangements—New Senior Secured LBBW Facilities*" and "*Description of Certain Financing Arrangements—New Senior Secured SaarLB Facility*". As a result of these proposed additional corrugated board production sites, we expect our annual corrugated board production capacity to increase from approximately 3.0 billion square meters (including our corrugated board production sites (PW11 and PW12) in Drizzona, Italy and Ellesmere Port, United Kingdom) to approximately 4.2 billion square meters.

Preserve our ability to internally source consistently high-quality containerboard in a cost-efficient and highly flexible manner through our new paper machine project

In order to preserve our ability to internally source consistently high-quality containerboard in a cost-efficient and highly flexible manner in sufficient quantities to meet the majority of the sourcing requirements of the expanding corrugated board production within Board, we have also begun to actively pursue the realization of a further paper machine project (PM3) in Sandersdorf-Brehna, Germany. Earthworks for the new paper machine already started in January 2019 and, subject (among other things) to obtaining the missing regulatory approvals and construction proceeding according to plan, we currently expect this further state-of-the-art paper machine to start production in the second half of 2020, with a total annual containerboard capacity of approximately 750,000 tons. Following completion of the ramp-up phase of this potential further paper mill, this would mean an increase of the total annual containerboard capacity of Paper from currently approximately 1,100,000 tons to approximately 1,850,000 tons. The new paper machine (PM3) will have a 9.2m trim width, which would

allow us to optimize containerboard production to meet the requirements of the more modern corrugators with trim widths of 2.8m or 3.3m at most of our newer corrugated board production sites, which would result in low volumes of cutting scrap and higher productivity. Once PM3 has commenced operations, we also plan for further specialization of our then three paper machines which we expect will further enhance the productivity of all our paper machines as each paper mill will be able to focus on clearly defined paper categories. See also "*—Our Strengths—Technology and innovation leader*" above. We currently expect total net investment costs (i.e. net of expected subsidies) of approximately €465 million for this new paper machine project over a several year period, including approximately €116.7 million of initial expenditures (e.g. for advanced payments for the paper machine and certain preliminary work) we had already incurred as of the end of the first quarter of 2019. We expect to fund any such investments with a combination of cash on hand, cash generated from our operating activities and additional borrowings, including drawings under the Existing Senior Secured Commerzbank Facilities, the Existing Senior Secured IKB Facilities, the Existing Senior Secured SaarLB Facility and the Existing Senior Secured HSBC Facility. The currently expected total net investment costs of approximately €465 million in connection with the proposed establishment of our newest paper mill (PM3) significantly exceed our earlier estimates of €375-400 million, primarily due to certain additional strategic and value accretive investments we decided to make, which we expect to have significant economical as well as ecological benefits once the new paper mill will be operational. A large portion of the increase in the expected total net investment costs relates to investments into more energy-efficient components as part of our overall waste-heat concept from the new paper mill. The installation of these components is not legally mandated, but we expect it will result in significant cost savings in the mid- to long-term as well as a reduction of CO_2 emissions of up to 151,000 tons per year. In addition, we decided to install a closed cycle waste water treatment system. Once our new paper mill is operating at the full intended capacity of 750,000 tons of containerboard, we expect that this closed cycle waste water treatment system will help us to avoid approximately 3,775,000 m^3 of waste water per year, cut the fresh water consumption of the new paper mill by 3,750,000 m^3 and reduce CO_2 emissions by approximately a further 19,900 tons per year. At full capacity, the system is expected to produce approximately 65,000,000 kWh per year of bio gas as part of the waste water treatment process. The paper mill will use this bio gas in connection with its production process, cutting its natural gas consumption by approximately 7-8%. We further believe that the proposed closed cycle waste water system will minimize our reliance on third party waste water treatment facilities (which have led to capacity constraints at our existing paper machine (PM2) in Eisenhüttenstadt, Germany in the past) and result in significant related cost savings in the future. We further decided to install (i) a steam turbine which will allow us to produce a portion of the electricity requirements of the new paper mill in an environmentally friendly manner and (ii) a direct rail connection, which will give us the option to ship a portion of our future production in an environmentally friendly manner by rail and, we believe, result in savings of freight cost and other operational benefits. An increase in the expected costs of the necessary civil engineering works, due to the booming construction sector, also contributed to the overall increase in the expected total net investment costs.

Achieving further cost-savings and efficiency improvements through further increased external containerboard purchases

We expect that the start of production at our new corrugated board production site (PW11) in Drizzona, Italy in early March 2018, the significantly increased capacity of the new corrugated board "mega plant" (PW12) in Ellesmere Port, United Kingdom as well as further improved utilization of our other corrugated board production sites alone will lead to a significant further increase in the corrugated board production of Board, so that we will remain a net purchaser of containerboard in 2019. As already described in more detail above, apart from a further corrugated board production site (PW13) in Eisfeld, Germany which we have already commenced construction, we currently expect to establish up to three further corrugated board production sites between 2020 and 2023 (including a further corrugated board "mega plant" (PW14) which is envisaged to commence production in late 2020 or early 2021). See also "*—Maintain and strengthen our position as a leading, low-cost corrugated board producer in Europe through controlled investments*" above. Unless and until we complete the proposed new paper machine project (PM3), this expected increase in our corrugated board production may cause us to further increase the level of internal containerboard sales to Board (and thereby the level of integration between Paper and Board) in 2019 and to increasingly rely on purchasing containerboard from third party suppliers. We believe that targeted external containerboard purchases that meet the specific sourcing requirements of Board will give us additional flexibility and provide us with opportunities to further optimize (i.e., minimize) our variable costs, for example, by allowing us to purchase containerboard that matches the specific grade and optimal trim-width required for our corrugated board production from time to time, from external suppliers located in close proximity to the relevant Board plants. We hope this will allow us to further reduce cutting scrap, further optimize logistics expenses and give us additional flexibility to optimize the utilization of our existing paper machines (PM1 and PM2).

Maintain cost leadership through continuous efficiency and profitability improvements

In order to maintain profitability throughout the economic cycle, we have implemented a comprehensive profitability improvement program (the "**Continuous Improvement Program**") to ensure the long-term success of our Group. Our Continuous Improvement Program focuses on (i) improving the effectiveness of our sales and marketing activities, (ii) optimizing (*i.e.*, minimizing) our variable costs and (iii) stabilizing our specific fixed costs in order to achieve sales

excellence and maintain our position as one of the cost leaders in our industry. Since 2012, our main focus in connection with our goal of achieving sales excellence has been on (i) growing our external sales in excess of the general growth in market volumes (and thereby increasing our market share), (ii) maximizing the impact of the introduction of our "next generation" products into the market and (iii) optimizing our sales portfolio. As part of our efforts to optimize our variable costs, we have focused on (i) reducing our consumption of raw materials, (ii) optimizing our energy consumption and energy costs, especially at our paper mill in Eisenhüttenstadt (PM2), and (iii) reducing the purchase prices of our key production factors, such as recycled paper, starch and freight services. Overall, we have met or exceeded our targeted benefits through our Continuous Improvement Program. We intend to continue to implement our Continuous Improvement Program and identify and realize further improvement opportunities. See also "*—Achieving further cost-savings and efficiency improvements through further increased external containerboard purchases*" above.

RECENT DEVELOPMENTS AND TRADING UPDATE

Market Update

We experienced an exceptionally strong performance during most of 2018, with a €95.1 million or 52.7% increase in our EBITDA from €180.4 million in 2017 (22.4% of sales) to an exceptional €275.5 million in 2018 (28.5% of sales). Following this extraordinary performance in 2018, which was the result of our strong operating performance and supported by unusual favorable market conditions, price levels for both containerboard and corrugated board started to normalize towards the end of the fourth quarter of 2018, a trend which continued in the first and second quarters of 2019. During the same period, prices for recycled paper (our main raw material) remained stable at a relatively low level.

In April and May 2019, we saw a further softening of the prices for recycled containerboard of approximately €40 per ton in total across Central and Western Europe. In line with historic market price trends (i.e. the typical time lag between changes in input costs and the corresponding changes to the prices for our products), we expect to continue to see at least a temporary impact on our margins and EBITDA from the softening of price levels in recent months. Nevertheless, our EBITDA margin in the first quarter of 2019 (27.4% of sales) was still significantly above our own five-year average (23% of sales for the period between 2014 and 2018) and, we believe, also significantly above the industry average. Furthermore, as a sign that containerboard prices appear to be stabilizing, two European containerboard producers recently announced price increases for recycled containerboard of €60 per ton, effective as of June 2019. We also see good availability of recycled paper, which may result in price reductions for recycled paper.

New Senior Secured Facilities

On May 31, 2019, the Company and the Guarantors entered into the €30.0 million New Senior Secured Erste Bank Facility, the €30.0 million New Senior Secured LBBW Facilities and the €15.0 million New Senior Secured SaarLB Facility (together the "**New Senior Secured Facilities**"), primarily to fund the approximately €70-75 million of expected total investment into our proposed new corrugated board "mega plant" (PW14). The utilization of the New Senior Secured Facilities is subject to certain conditions precedent. We expect to satisfy all remaining conditions precedent on or around the issue date of the Additional Notes. As a result, the New Senior Secured Facilities will remain undrawn on the issue date of the Additional Notes. We may utilize the New Senior Secured Erste Bank Facility, the New Senior Secured LBBW Facilities and the new Senior Secured SaarLB Facility until June, 2021, May, 2020 and May, 2020, respectively. For more details about the New Senior Secured Facilities, see "*Description of Certain Financing Arrangements—New Senior Secured Erste Bank Facility*", "*Description of Certain Financing Arrangements—New Senior Secured LBBW Facilities*" and "*Description of Certain Financing Arrangements—New Senior Secured SaarLB Facility*".

Trading Update

Based on management accounts, our operating performance for the month of April 2019 showed a strong corrugated board volume increase of 9.0% compared to April 2018, supported by (i) the successful and ongoing ramp-up following the commencement of production at our production site (PW11) in Drizzona, Italy in early March 2018, (ii) the commencement of production in January 2019 and subsequent ramp-up at our newest corrugated board "mega plant" (PW12) in Ellesmere Port, United Kingdom and (iii) strong volume growth at our corrugated board operations in Poland. However, this increase in the volume of corrugated board sold was more than offset by a lower volume of externally sold containerboard and lower sales prices for both corrugated board and containerboard, which resulted in an approximately 3.8% decrease in sales from approximately €78.6 million in April 2018 to approximately €75.6 million in April 2019.Our EBITDA remained basically stable at €19.1 million in April 2019 compared to approximately €19.2 million in April 2018.

The foregoing financial information is based on internal unaudited consolidated monthly accounts for the months of April 2019 and 2018, respectively, which were prepared by and are the responsibility of our management. This financial information has not been audited, reviewed, compiled or the subject of any procedures by our independent auditors or any other audit firm and no opinion nor any other form of assurance is expressed with respect thereto. The foregoing financial

information is inherently subject to modification during the preparation of our financial statements as of and for the three months ended June 30, 2019. The presented financial information is not representative for any three-month or twelve-month period and should not be regarded as an indication, forecast or representation by us or any other person regarding our future financial performance for the three months ended June 30, 2019 or the fiscal year ended December 31, 2019. See "*Forward-Looking Statements*" and "*Risk Factors*" for a more complete discussion of certain factors that could affect our future performance and results of operations.

We currently also expect a strong increase in corrugated board volume for the full second quarter of 2019, compared to the second quarter of 2018. However, any potential future decreases in corrugated board prices as a result of the recent containerboard price decreases (see "*—Market Update*" above) would have a negative impact on our results of operations.

SUMMARY CONSOLIDATED FINANCIAL AND OTHER INFORMATION

Progroup AG Financial Information

The financial information contained in the following tables is derived from the audited consolidated financial statements of the Company as of and for the fiscal years ended December 31, 2016, 2017 and 2018, from the unaudited condensed consolidated interim financial statements of the Company as of and for the three-month period ended March 31, 2019 as well as from the accounting records and other internal documents of the Company. The results of operations for prior periods are not necessarily indicative of the results to be expected for the full year or any future period.

In addition, we present certain unaudited consolidated financial information for the 12 months ended March 31, 2019. This information was derived by adding our consolidated financial information for the year ended December 31, 2018 derived from our audited consolidated financial statements to our unaudited consolidated financial information for the three months ended March 31, 2019 and subtracting our unaudited consolidated financial information for the three months ended March 31, 2018.

	Year ended December 31,			Three months ended March 31,		Twelve months ended March 31,
	2016	2017	2018	2018	2019	2019
	(audited, unless otherwise stated)				(unaudited)	
	(€ in thousands)					
INCOME STATEMENT AND OTHER DATA						
Sales	**733,228**	**804,256**	**966,118**	**243,786**	**245,356**	**967,688**
Increase/(decrease) in finished goods and work in process	(6,554)	10,298	23,361	(3,608)	(2,573)	24,396
Other operating income	14,713	17,603	17,725	1,573	3,335	19,487
Other own work capitalized	1,116	2,637	7,573	1,521	3,077	9,130
Total output (unaudited)[1]	**742,502**	**834,795**	**1,014,778**	**243,273**	**249,196**	**1,020,701**
Cost of materials	(371,550)	(430,481)	(493,641)	(119,321)	(117,791)	(492,112)
Gross profit (unaudited)[2]	**370,952**	**404,314**	**521,137**	**123,952**	**131,405**	**528,589**
Personnel expenses	(61,423)	(68,326)	(78,925)	(18,367)	(21,352)	(81,910)
Other operating expenses	(154,293)	(160,425)	(168,800)	(42,355)	(42,501)	(168,946)
Other taxes	(1,479)	(1,449)	(1,453)	(350)	(328)	(1,431)
EBITDA (unaudited)[3]	**154,679**	**180,354**	**275,479**	**69,780**	**67,289**	272,988
Amortization and depreciation of fixed intangible and tangible assets	(47,372)	(50,032)	(51,753)	(12,293)	(13,839)	(56,699)
Extraordinary net income/(loss)	—	—	—	—	—	—
Other interest and similar income	144	65	86	10	19	95
Interest and similar expenses	(25,334)	(23,678)	(32,062)	(6,007)	(6,089)	(32,144)
Consolidated net income/(net loss) before income tax (unaudited)[4]	**81,197**	**100,469**	**181,830**	**44,591**	**47,314**	**184,554**
Taxes on income	(19,793)	(28,058)	(54,865)	(12,310)	(13,903)	(56,457)
Consolidated net income/(loss) for the period	**61,404**	**72,412**	**126,965**	**32,280**	**33,411**	**128,096**

	As of December 31,			As of March 31,
	2016	2017	2018	2019
	(audited, unless otherwise stated) (€ in thousands)			(unaudited) (€ in thousands)
BALANCE SHEET AND OTHER DATA				
Cash-in-hand, bank balances	37,370	117,946	148,431	135,993
Trade working capital (unaudited)(5)	75,486	114,199	169,481	181,800
Fixed assets	639,855	640,980	742,184	807,648
Total assets	**836,815**	**946,356**	**1,147,504**	**1,223,949**
Total liabilities (unaudited)(6)	**577,206**	**669,042**	**831,986**	**873,660**
Total financial debt (unaudited)(7)	**455,327**	**537,519**	**674,033**	**702,007**
Net financial debt (unaudited)(8)	**417,957**	**419,572**	**525,602**	**566,014**

	Year ended December 31,			Three months ended March 31,		Twelve months ended March 31,
	2016	2017	2018	2018	2019	2019
	(audited, unless otherwise stated) (€ in thousands)			(unaudited)		
CASH FLOW AND OTHER DATA						
Cash flows from operating activities	152,564	122,706	197,214	31,220	32,075	198,069
Cash flows from investing activities	(23,201)	(47,735)	(158,949)	(18,714)	(70,907)	(211,142)
Free cash flow (unaudited)(9)	**129,363**	**74,971**	**38,265**	**12,506**	**(38,832)**	(13,073)
Cash flows from financing activities	(110,257)	3,818	(6,267)	423,267	25,875	(403,659)
Net cash flow(10)	**19,106**	**78,789**	**31,998**	**435,773**	**(12,957)**	**(416,732)**
Effect on cash funds of exchange rate movements	(2,498)	1,787	(1,513)	(319)	519	(675)
Adjusted cash flow available for debt service (unaudited)(11)	**140,267**	**60,846**	**10,735**	**6,761**	**(42,810)**	**(38,836)**

(1) Total output (not a German GAAP measure) is calculated as the sum of sales, increase/(decrease) in finished goods and work in process, other operating income and other own work capitalized.

(2) Gross profit (not a German GAAP measure) is calculated by deducting cost of materials from total output.

(3) EBITDA (not a German GAAP measure) is calculated as sales, *plus* increase/(decrease) in finished goods and work in process, *plus* other operating income (excluding any extraordinary income), *plus* other own work capitalized, *minus* costs of materials, *minus* personnel expenses, *minus* other operating expenses (excluding any extraordinary expenses), *minus* other taxes. In response to changes to German GAAP, which have resulted in certain changes to the presentation of our financial information for the fiscal year ended December 31, 2016 in the table above, we have adjusted the way we calculate EBITDA to ensure consistency and comparability with our EBITDA reported for prior periods. While our reported EBITDA therefore excludes the impact of any "extraordinary" items for all periods presented, it has not yet been adjusted for "items of exceptional size or incidence", which is a new concept under German GAAP introduced by the BilRUG. Excluding the negative effect of €16.0 million in "items of exceptional size or incidence" (including €13.9 million in additional costs as expenditure of exceptional size or incidence and €2.1 million in lost sales) related to a longer than scheduled shutdown of the CHP in 2016, our EBITDA for the fiscal year ended December 31, 2016 would have been €170.7 million.

(4) Consolidated net income/(net loss) before income tax (not a German GAAP measure) is calculated by adding taxes on income back to consolidated net income/(net loss) for the period.

(5) We define trade working capital (not a German GAAP measure) as inventories plus trade receivables, minus trade payables.

Our calculation of trade working capital can be reconciled to the balance sheet as follows:

	As of December 31,			As of March 31,
	2016	2017	2018	2019
	(audited, unless otherwise stated) (€ in thousands)			(unaudited) (€ in thousands)
TRADE WORKING CAPITAL				
Inventories	73,944	86,864	110,512	108,001
Trade receivables	59,562	78,859	108,756	128,229
Trade payables	(58,020)	(51,524)	(49,787)	(54,430)
Trade working capital (unaudited)	**75,486**	**114,199**	**169,481**	**181,800**

(6) Total liabilities is calculated as investment grants for fixed assets, plus provisions, plus liabilities, plus deferred income.

(7) Total financial debt (not a German GAAP measure) means bank loans plus finance leases plus bonds, including the Senior Secured Notes.

(8) Net financial debt (not a German GAAP measure) is calculated by deducting cash-in-hand, bank balances from total financial debt.

(9) Free cash flow (not a German GAAP measure) is defined as cash flows from operating activities plus cash flows from investing activities.

(10) Net cash flow (not a German GAAP measure) is defined as net change in cash funds as presented in the Consolidated Cash Flow Statement.

(11) We present adjusted cash flow available for debt service (not a German GAAP measure) as a measure of normalized free cash flow which can be used to service debt. We calculate adjusted cash flow available for debt service as cash flow available for debt service adjusted for the effects of extraordinary net income/(loss) as well as for the €16.0 million in "items of exceptional size or incidence" (including €13.9 million in additional costs as expenditure of exceptional size or incidence and €2.1 million in lost sales) related to a longer than scheduled shutdown of the CHP in 2016.

Our calculations of adjusted cash flow available for debt service is as follows:

	Year ended December 31,			Three months ended March 31,		Twelve months ended March 31,
	2016	2017	2018	2018	2019	2019
	(audited, unless otherwise stated) (€ in thousands)					
ADJUSTED CASH FLOW AVAILABLE FOR DEBT SERVICE						
EBITDA (unaudited)	154,679	180,354	275,479	69,780	67,289	272,988
Cash flow from change in total working capital (unaudited)[(a)]	13,032	(42,487)	(50,100)	(32,331)	(26,161)	(43,930)
– *thereof cash flow from change in trade working capital (unaudited)*	*24,348*	*(38,713)*	*(55,282)*	*(28,531)*	*(12,319)*	*(39,070)*
Taxes on income	(19,793)	(28,058)	(54,865)	(12,310)	(13,903)	(56,457)
Extraordinary net income/(loss)	(921)	(6,240)	(3,519)	(6,900)	(65)	(3,316)
Cash flows from investing activities	(23,201)	(47,735)	(158,949)	(18,714)	(70,907)	(211,142)
Other[(b)]	(496)	(1,228)	(830)	336	872	(294)
Cash flow available for debt service (unaudited)[(c)]	123,300	54,607	7,215	(139)	(42,875)	(35,521)
adding back extraordinary net income/(loss)	(921)	(6,240)	(3,519)	(6,900)	(65)	(3,316)
adding back items of exceptional size or incidence	16,046	—	—	—	—	—
– *thereof additional costs as expenditure of exceptional size or incidence*	*13,914*	—	—	—	—	—
– *thereof lost sales*	*2,132*	—	—	—	—	—
Adjusted cash flow available for debt service (unaudited)	**140,267**	**60,846**	**10,735**	**6,761**	**(42,810)**	**(38,836)**

(a) Cash flow from change in total working capital (not a German GAAP measure) is calculated as (increase)/decrease in inventories, trade receivables and other assets plus increase/ (decrease) in trade payables and other liabilities as presented in the Consolidated Cash Flow Statement.

(b) Other includes other non-cash expense/(income).

(c) Cash flow available for debt service (not a German GAAP measure) means EBITDA adjusted for the effects of changes in total working capital, extraordinary income/(expense), cash flows from investing activities and other, minus taxes on income.

Pro Forma and Other Financial Data

The following tables also set forth certain *pro forma* consolidated financial information, after giving effect to the proposed issuance of the Additional Notes and use of proceeds therefrom. It is being provided solely for illustrative purposes.

	As of and for the three months ended March 31, 2019
	(unaudited) (€ in millions, except for ratios)
PRO FORMA AND OTHER FINANCIAL DATA	
Pro Forma Senior Secured Debt[1]	702.0
Pro Forma Senior Secured Net Debt[2][3][4]	569.0
Ratio of *Pro Forma* Senior Secured Debt to EBITDA	2.6x
Ratio of *Pro Forma* Senior Secured Net Debt to EBITDA	2.1x

(1) Pro Forma Senior Secured Debt is calculated as total financial debt as of March 31, 2019, adjusted to give effect to the proposed issuance of the Additional Notes and use of proceeds therefrom, including the redemption of the Floating Rate Notes as if they had occurred on March 31, 2019.

(2) Pro Forma Senior Secured Net Debt is calculated as total financial debt minus cash-in-hand, bank balances, as of March 31, 2019, adjusted to give effect to the proposed issuance of the Additional Notes and use of proceeds therefrom, including the redemption of the Floating Rate Notes as if they had occurred on March 31, 2019.

(3) Figures do not reflect any drawings under Facility C of the Existing Senior Secured IKB Facilities, the Existing Senior Secured SaarLB Facility, Facility A of the Existing Senior Secured Commerzbank Facilities or the Existing Senior Secured HSBC Facility. Facility C of the Existing Senior Secured IKB Facilities, the Existing Senior Secured SaarLB Facility, Facility A of the Existing Senior Secured Commerzbank Facilities and the Existing Senior Secured HSBC Facility will remain undrawn on the date of this special report. We may utilize the €25.0 million Facility C under the Existing Senior Secured IKB Facilities, the €25.0 million Existing Senior Secured SaarLB Facility and the €45.0 million Facility A under the Existing Senior Secured Commerzbank Facilities until August 10, 2019. For more details about the Existing Senior Secured IKB Facilities, the Existing Senior Secured SaarLB Facility and the Existing Senior Secured Commerzbank Facilities, see "*Description of Certain Financing Arrangements—Existing Senior Secured IKB Facilities*", "*Description of Certain Financing Arrangements— Existing Senior Secured SaarLB Facility*" and "*Description of Certain Financing Arrangements— Existing Senior Secured Commerzbank Facilities*". We may utilize the €30.0 million Existing Senior Secured HSBC Facility until one month before December 31, 2023. For more details about the Existing Senior Secured HSBC Facility, see "*Description of Certain Financing Arrangements—Existing Senior Secured HSBC Facility*".

(4) Figures also do not reflect any drawings under the New Senior Secured Facilities. The utilization of the New Senior Secured Facilities is subject to certain conditions precedent. We expect to satisfy all remaining conditions precedent on or around the issue date of the Additional Notes. As a result, the New Senior Secured Facilities will remain undrawn on the issue date of the Additional Notes. We may utilize the €30 million, €30 million and €15 million under the New Senior Secured Erste Bank Facility, the New Senior Secured LBBW Facilities and the New Senior Secured SaarLB Facility until June, 2021, May, 2020 and May, 2020, respectively. For more details about the New Senior Secured Facilities, see "*Description of Certain Financing Arrangements—New Senior Secured Erste Bank Facility*", "*Description of Certain Financing Arrangements—New Senior Secured LBBW Facilities*" and "*Description of Certain Financing Arrangements—New Senior Secured SaarLB Facility*".

	Year ended December 31,			Three months ended March 31,		Twelve months ended March 31,
	2016	2017	2018	2018	2019	2019
			(unaudited)			
SELECTED OPERATING DATA						
Volumes sold (in 1,000 tons)	1,972	2,029	2,138	560	566	2,145
—Containerboard	1,042	1,018	987	265	259	981
—Corrugated board	930	1,011	1,151	295	307	1,164
Externally sold (in 1,000 tons)	1,234	1,252	1,327	348	342	1,320
—Containerboard	304	242	176	54	34	156
—Corrugated board	930	1,011	1,151	295	307	1,164
Average net selling price (ASP) per ton						
—Containerboard (€ per ton)	376	413	480	470	446	476
—Corrugated board (€ per ton)	634	657	730	709	715	731
Total recycled paper costs per ton (€ per ton)	130	150	108	122	103	103

RISK FACTORS

If any of the events described in the risk factors below occur, our margins and results of operations and financial condition could be materially and adversely affected. The risks described below are not the only risks we face. Additional risks and uncertainties not currently known to us or that we currently deem to be immaterial may also materially adversely affect our business, financial condition, operating results or prospects. In any such case, we may not be able to pay interest or principal on the Senior Secured Notes when due and you may lose all or part of your investment in the Senior Secured Notes.

This special report also contains forward-looking statements that involve risks and uncertainties. Our actual results may differ materially from those anticipated in these forward looking statements as a result of various factors, including the risks described below and elsewhere in this special report. See "Forward-Looking Statements".

RISKS RELATED TO OUR INDUSTRY AND OUR BUSINESS

Demand for our products is generally driven by the level of economic growth and activity, which is dependent upon factors beyond our control.

Demand for our products is generally driven by the level of economic growth and activity. Increased levels of economic growth and activity typically result in higher per-capita use of packaging materials, both with respect to transportation of goods and consumer presentation. This increase in the use of packaging materials (including paper-based packaging materials), in turn, results in an increase in the demand for our recycled containerboard and corrugated board products. Because the markets for containerboard and corrugated board products in the developed economies in which we primarily operate are generally mature, historically there has been a close correlation between general economic growth and demand for packaging products such as corrugated containers and, therefore, for their component materials such as containerboard and corrugated board. As a result, our industry is affected by economic conditions in our markets, including changes in national, regional and local unemployment levels, shifts in consumer spending patterns, credit availability, and business and consumer confidence. Disruptions in the overall economy and volatility in the financial markets could reduce consumer confidence, negatively affecting consumer spending, which could be harmful to our financial position and results of operations. We have been impacted by difficult economic conditions in the past. The European debt crisis, for example, resulted in market uncertainty generally and in weak economic conditions, particularly in the Eurozone, which had a significant negative impact on our results of operations and financial condition. We are unable to predict the timing or duration of any downturn in the economy that may occur in the future or the timing or rate at which economic conditions in our markets may recover in the case of any such downturn. While we experienced historically strong operating results in 2016, 2017 and in particular 2018, we believe it is unlikely that our exceptionally strong operating performance in 2018 will continue or that our margins and/or EBITDA will not materially decline.

The cyclical nature of our industry often results in overcapacity which negatively impacts our results of operations.

We principally generate revenue through the sale of containerboard and corrugated board. Our mills primarily sell the containerboard we produce to Group-owned corrugated board plants, and we sell our corrugated board to our third-party customers in the packaging industry. Our operating results are therefore impacted by the packaging industry's historical cyclical pattern, with periods of overcapacity and resulting pressure on pricing of packaging products such as corrugated containers and, in turn, their component materials such as containerboard and corrugated board. This cyclicality results, in part, from significant imbalances in supply and demand for containerboard. On the one hand, containerboard production capacity cannot be readily adapted to reflect changing market conditions, due to the high capital intensity of facilities such as containerboard mills (which generally continue production as long as paper prices are sufficient to cover their marginal costs), the long lead time between the planning and completion of new containerboard mills and the fact that new additions of containerboard capacity tend to be large relative to the overall demand for the product. On the other hand, significant containerboard and corrugated board price reductions and inventory growth have resulted when capacity has exceeded demand. In addition, there is the potential to convert graphic and newsprint paper machines into containerboard machines which has happened recently both in Europe and the United States, and which may contribute to overcapacity. Consequently, the containerboard and corrugated board industry has from time to time experienced periods of substantial overcapacity and there can be no assurance that this will not reoccur. Overcapacity in the European market has generally had a negative impact on prices. See "*Industry and Competition—End-Markets Dynamics*" and "*Industry and Competition—Key Market Developments*".

In the absence of sufficient economic growth to generate increased demand or the closure of facilities (either temporarily or permanently) to mitigate the effect, new capacity can cause a period of regional overcapacity which may lead to downward pricing and margin pressure. In periods of overcapacity, industry participants may stop operating certain of their production facilities periodically to reduce inventory levels. In the past, many leading paper manufacturers have reacted to reduced demand by taking downtime and by rationalizing high-cost and inefficient capacity. Due to the high level of

integration between our two mills and our corrugated board production sites, it is unlikely that we would take downtime at our mills for any significant length of time, but even if we did so and our competitors continue production at high levels, our sales volumes could be adversely affected without any significant offsetting benefit of improved prices in the market. In the event that the industry as a whole does not take sufficient downtime or other measures to reduce capacity during any periods of overcapacity, this could have a material adverse effect on our margins and results of operations and financial condition.

Overcapacity in the European containerboard and/or corrugated board markets could be further exacerbated by an increase of imports from other regions and/or a decrease of exports by European producers to other regions, as a result of a variety of factors. For example, in the event that producers in other regions (particularly the United States and China) experience overcapacity within their own local and regional markets, they may seek to increase their level of exports to Europe and do so at lower pricing levels. This could adversely affect our selling prices and profitability. In addition, the level of exports of containerboard from or to Europe also depends on relevant freight rates and currency rates. A strong euro, for example, can have a negative effect on (U.S. dollar-denominated) exports by European containerboard manufacturers with a negative (for our business) effect on the supply and demand balance and an immediate effect on the pricing of containerboard in Europe. In addition, a weak U.S. dollar over a sustained period has, in the past, also resulted in lower sales by other European manufacturers who ship products in corrugated packaging, resulting in lower European demand for corrugated packaging, and therefore for our containerboard and corrugated board. See also "*—We are exposed to currency exchange rate fluctuation*s".

We could be adversely affected by the loss of one or more important customers and the nature of, and close relationships with, our small and medium-sized customers exposes us certain risks.

In 2016, 2017, 2018 and in the first three months of 2019, no single customer represented more than 5% of our total sales. However, our level of customer concentration may increase in the future as a number of industries have experienced consolidation in the past and the packaging industry in which our customers operate may also be affected by consolidation in the future. In addition, while no particular customer is significant to our Group as a whole, a number of our customers account for a significant portion of the sales volumes of one or more of our individual corrugated production sites. Therefore, a loss of one or more of those customers could have a material adverse effect on the utilization and results of operation of the affected corrugated board production sites and negative impact our Group's total sales. For example, one of our largest customers, which accounted for 4% of our total sales in 2016, commenced production at its own, newly-established corrugated board production facility at the end of 2016. As a result, we lost approximately 90% of our related corrugated board sales with that customer in 2017. If other Board customers similarly establish their own corrugated board production facilities, it is likely that we would also lose most or all of our related corrugated board sales to any such customers. In addition, a large proportion of our customers are small- or medium-sized, family-owned businesses that are managed by members of the owner family. A sale of any of those businesses to one of our competitors or to a box manufacturer with its own corrugated board production, either in connection with a succession event or otherwise, may therefore lead to a loss of the relevant customer. Furthermore, our own performance and potential future growth generally depends, to a large extent, on the performance of our customers, which are exposed to many of the same risks as our own business. Our small- and medium-sized customers may also be particularly vulnerable (i) to competition from larger competitors with greater financial resources and which are able to capitalize on their economies of scale and (ii) to pricing pressure from their own, often much larger customers.

The standardized nature of containerboard could result in downward pressure on pricing and, as a consequence, lower earnings.

Containerboard cannot generally be differentiated by producer, and this standardization has led to intensified price competition. This, in turn, creates significant downward pressure on the prices of our products during periods of market overcapacity or weak demand, which could reduce sales and have a material adverse effect on our margins and results of operations and financial condition. Our business has in the past faced significant downward pricing pressure, including as a result of standardization in the markets in which we operate. Given the general upward trend in almost all our input costs and the potential for an increase in the currently stable energy prices, we expect we will need to further increase prices in the mid- to long-term to ensure that earnings from recycled containerboard remain at a long-term sustainable economic level. We are likely to continue to be exposed to such factors in the future. If we are unable to adjust our cost base or achieve economies of scale comparable to our competitors, pricing pressure could have a material adverse effect on our margins and results of operation and financial condition.

Operational disruptions at our facilities, in particular our two mills, could have a material adverse effect on our margins, results of operations and financial condition.

We currently operate two containerboard mills in Germany, which account for all of our containerboard production. Each of them is, therefore, critical to our business. If operations at either of our two mills were interrupted for any significant

length of time, either because of natural disasters (such as flooding or fire), man-made disruptions (such as labor strikes), failure to obtain raw materials, technical defects, accidents or for any other reason, it would have a material adverse effect on our business, results of operations and financial position. For example, a technical defect at our mill in Eisenhüttenstadt caused multiple shutdowns during 2011 and 2012, resulting in significant loss of containerboard production and significant financial loss, which was only partly covered by compensation payments from one of our equipment manufacturers in the following year. In addition, due to the high level of integration between our two mills and our corrugated board production sites, any significant interruption of our containerboard production at one or both of our mills would also have a significant adverse effect on our corrugated board production and our ability to supply our corrugated board customers. Any significant disruptions at one or more of our corrugated board production sites, either because of problems with our containerboard supply (either from our two mills or from external suppliers) or for any of the other reasons listed above, could also have a material adverse effect on our business, results of operations and financial condition. Due to the currently very high level of utilization of most our production sites, our ability to fulfill customer orders from alternative sites in case of a significant disruption at one of more production sites is limited. Finally, the operation of most of our production sites also depends on key services and infrastructure provided by third parties. For example, we rely on highly specialized employees of our equipment suppliers to ensure the proper maintenance and repair of our production equipment. In addition, the uninterrupted operation of our paper mill in Eisenhüttenstadt depends, among other things, on the availability of a waste water treatment plant operated by the local municipal utility and a secure supply of production steam either by the CHP and/or by a neighboring power plant which we use as a back-up solution. In 2016, 2017 and 2018, capacity limitations of the local waste water treatment plant in Eisenhüttenstadt due to technical faults have led to temporary reductions in the containerboard production capacity of our paper machine PM2. Significant future capacity limitations of the local waste water treatment plant or a shutdown of the local waste water treatment plant would require us to reduce or shutdown containerboard production at our paper machine PM2, as there are no alternative local water treatment options. In addition, due to technical faults in the steam pipeline that connects our mill in Eisenhüttenstadt to the neighboring power plant, there is no guarantee that this back-up solution will be available in the event of maintenance or other shutdowns of the CHP. Furthermore, our insurance coverage may be inadequate or not cover all losses. See "*—Our insurance coverage may not be adequate to cover all the risks we may face and if we were no longer covered by our existing insurance, it may be difficult to obtain replacement insurance on acceptable terms or at all*". If one or more of the aforementioned risks materializes, this could have a material adverse effect on our business, results of operations and financial condition.

We are exposed to intense competition in the containerboard and corrugated board industry.

We operate in a highly competitive and fragmented industry. The containerboard and corrugated board industry is characterized by a high level of price competition as well as other competitive factors, including innovation, design, quality and service. To the extent that any of our competitors are more successful with respect to any key competitive factor, our margins, results of operations and financial condition could be adversely affected. Pricing pressure could arise from, among other things, limited demand growth and existing overcapacity in the market in question, new competitors entering the market, capacity increases by competitors, including by converting, enhancing or intensifying the use of existing production facilities or by setting up additional production facilities, price reductions by competitors, the ability of competitors to capitalize on their economies of scale and create excess product supply, the ability of competitors to operate or successfully relocate or open production facilities in countries where production costs are lower than those in which we operate and the access of competitors to new technology which we do not possess.

We are exposed to the risk of product substitution.

The products of our customers in the paper-based packaging industry compete with other forms of packaging, principally reusable plastic containers. Substitution of plastic containers for corrugated containers may increase in the future and other substitute products may be introduced. Future packaging developments and trends may drive further substitution. Substitution is also possible between solidboard packaging and corrugated containers, with the generally lower cost of corrugated containers offset by the moisture and temperature handling characteristics of solidboard packaging. In addition, there has generally been increasing scrutiny of single-use packaging, its sustainability and impact on the environment. While the primary focus of this increasing scrutiny has, so far, been on plastic packaging, there can be no guarantee that paper-based packaging will not also face increasing scrutiny, which may result in regulatory action and/or changes in customer preferences in favor of reusable forms of packaging. Any significant substitution away from paper-based packaging products or from corrugated board to solidboard may adversely affect the demand for our products and therefore our results of operation and profitability.

Price fluctuations in raw materials and our ability to pass on price increases could affect our results of operations.

Our margins and overall profitability are significantly affected by the price of raw materials and the length of time it takes us to translate price increases in raw materials and other input costs into prices we charge for third-party sales of containerboard and corrugated board. To the extent our containerboard is sold internally, our profitability will only be affected by the ability to recover any price increases from third-party sales of corrugated board to our third party customers

in the packaging industry. Furthermore, to the extent that selling prices fall, if we are unable to generate cost savings through producing products more efficiently or lower our fixed costs, our results may be negatively affected.

In total, raw materials accounted for 75.2%, 73.5% and 71.6%, respectively, of our cost of materials in the year ended 2017 and 2018 and the first three months of 2019. Our primary raw materials are recycled paper, particularly old corrugated containers, and containerboard. The prices for these raw materials tend to be volatile, and price fluctuations affect our margins. Recycled paper is used in the manufacture of our containerboard products and is purchased in increasingly competitive, price-sensitive markets. Recycled paper has historically exhibited price and demand cyclicality and high price volatility over short periods and may do so again in the future. In particular, the price of recycled paper depends on a variety of factors over which we have no control, including environmental and conservation regulations, natural disasters and weather. A decrease in the supply of such raw materials has caused, and any such decrease in the future can be expected to cause, higher costs of materials. In addition, the increase in demand for products manufactured, in whole or in part, from recycled paper has in the past caused an occasional supply or demand imbalance in the market for recycled paper. Chinese purchasers have been in the recycled paper market for a number of years and have become material purchasers in the sector due to significant ongoing expansion of their recycled containerboard mills' capacity. Other important drivers of recycled paper prices are collection rates of recycled paper as well as freight rates and exchange rates, which both affect the level of exports of recycled paper from Europe to other markets. In the past, significant decreases in the prices for recycled paper have led to a reduction in collection activity, which, in turn, can lead to supply shortages. The effect of these and other factors has been to create volatility with respect to the price of recycled paper, and we expect recycled paper prices to continue to fluctuate based upon supply and demand characteristics.

In addition to recycled paper, which we use extensively in our containerboard production at our two mills, we also purchase containerboard from external suppliers as a raw material for our corrugated board production. The prices of containerboard can also be highly volatile. See also "*—Demand for our products is generally driven by the level of economic growth and activity, which is dependent upon factors beyond our control" and "—The cyclical nature of our industry often results in overcapacity which negatively impacts our results of operations" above, as well as "—We are exposed to currency exchange rate fluctuations*" below.

An important driver of recycled paper prices is the balance of supply and demand for paper products in general as well as collection rates of recycled paper. When the price of recycled paper begins to rise, containerboard manufacturers attempt to raise their prices to preserve profit margins, which generally narrow as a result of increased raw material costs. It typically takes approximately two to three months for the containerboard mills to pass on their raw material price increases to the corrugated board manufacturers. In turn, the manufacturers of corrugated board generally attempt to raise prices to recover containerboard cost increases. It generally takes approximately two to three months for manufacturers, including us, to pass these increases on to their customers. In particular during periods of rising recycled paper prices, our profitability has therefore historically been adversely affected.

However, our ability to pass the costs of our raw materials and other input costs on to our packaging customers depends on a number of other factors, including the supply and demand balance for containerboard and corrugated board in a particular region and the ability of our customers to maintain or increase prices with their own customers. We generate almost all of our sales through purchase orders from our customers based on our price lists which we adjust in response to market price movements and only have very few contracts with our customers which provide minimum purchase obligations and/or pricing clauses that would allow us to automatically pass increased costs on to our customers. As a result of these factors, there can be no guarantee that the price of recycled paper and the prices for our containerboard and corrugated board products will always be closely correlated. Any extended mismatch between the price of recycled paper and the market prices for our products could have a significant effect on our margins and results of operations and financial condition.

For example, between 2009 and 2010, our results of operations and financial condition deteriorated. There were two main reasons for this deterioration. First, the global financial and economic crisis led to a significant drop in the price of recycled paper, our main raw material, in the second half of 2008, but also to a significant decrease in the demand for our products and a corresponding decrease in the market prices for both containerboard and corrugated board. Following the significant drop in the prices for recycled paper in the second half of 2008, the prices for recycled paper started to recover in the first half of 2009, notwithstanding the continuing economic weakness and contrary to historic trends. This, in turn, led to a compression of our margins up to a point during the third quarter of 2009 when the sales prices for some of our finished products were insufficient to cover our variable input costs. As a result, we incurred significant losses and a few of our competitors were forced to close or mothball less efficient production facilities, which led at least temporarily to a drop in market-wide containerboard and corrugated board capacity. Our margins only returned to near sustainable levels towards the end of 2010, following multiple rounds of price increases for recycled paper, containerboard and corrugated board.

Increased energy costs could have a material adverse effect on our business, financial condition and results of operation.

Our production processes, in particular our containerboard production at our two mills, are energy intensive, and energy costs, including costs for electricity, gas and steam, represent a significant portion of our total cost of materials. As described in more detail under "*Management's Discussion and Analysis of Financial Condition and Results of Operations—Key Factors Affecting our Results of Operations—The CHP Acquisition*", effective as of midnight on December 31, 2015, we acquired Progroup Power 1 GmbH from EnBW, the CHP and certain related assets outright. As a result thereof, we started producing a significant portion of the energy required for the operation of our paper machine PM2 ourselves. Despite the completion of the CHP Acquisition our production processes are nevertheless reliant on third parties for the supply of energy. Market prices for energy, in particular for electricity, oil and natural gas, have historically been volatile and have had a corresponding effect on our production costs. If energy prices increase in the future, this would increase our production costs, which could consequently have a material adverse effect on our profitability. See also "*—Our energy costs, in particular in Germany, are dependent on the regulatory framework for the electricity sector, which is subject to constant change and, in addition, we may face material cost increases if we lose certain financial privileges which we benefit from in Germany with regard to the Renewable Energies Act (Erneuerbare Energien Gesetz, "EEG") surcharge and network access fees and other fees*" below.

Although we expect that the CHP Acquisition will lead to a sustained reduction of our energy costs, as described in more detail under "*Management's Discussion and Analysis of Financial Condition and Results of Operations—Key Factors Affecting our Results of Operations—The CHP Acquisition*", neither the CHP Acquisition nor the other measures we have taken to reduce our exposure to fluctuating energy prices may be adequate and they may even be counter-productive. Following completion of the CHP Acquisition, we have become directly responsible for, and are bearing all risks related to, the day-to-day operation of the CHP, which includes responsibility for unexpected repair costs, for any shutdowns of the CHP as well as the operational risks associated with the disposal of the ash generated by the CHP (*i.e.*, that we are unable to procure the proper disposal of the ash and may therefore be forced to shut down the CHP). There can be no guarantee that the operating expenses for the CHP will not increase in the future. See also"*—We may not be successful in operating the CHP ourselves in the long run*". In addition, we bear the full economic risk related to the procurement of refuse-derived fuels for the CHP. Further, our outside suppliers may default on their obligations under our refuse-derived fuel supply agreements with them. Any significant increase in market prices, transportation costs, grid fees or taxes (including by reduction of tax benefits) associated with the supply of energy would also increase our operating costs. Any inability or delay in passing on increases in energy costs to our customers or any interruption or shortage of energy supply may negatively impact our margins and results of operations and financial condition.

Our energy costs, in particular in Germany, are dependent on the regulatory framework for the electricity sector, which is subject to constant change and, in addition, we may face material cost increases if we lose certain financial privileges which we benefit from in Germany with regard to the Renewable Energies Act (Erneuerbare Energien Gesetz, "EEG") surcharge and network access fees and other fees.

In addition to general market dynamics, our energy costs are influenced by the relevant regulatory framework for the electricity sector both on the European and the national level. In the past years, this regulatory framework has been subject to substantial change and it will continue to be subject to change in the future. Such change is not only due to legislative reforms, but is also prompted by administrative and judicial decisions.

In Germany, where both our mills are located, our energy costs have been strongly impacted by regulatory decisions related to the so-called "*Energiewende*", a significant shift in government policy following the nuclear accident in Fukushima, Japan in 2011. This new German energy policy focuses on promoting the development of renewable energy sources and contemplates the complete cessation of the production of nuclear power by 2021. To mitigate the impact of the resulting significant increases in electricity prices for energy-intensive industries, the German government adopted rules that provide for various businesses, including us, to be reimbursed for certain infrastructure investment surcharges necessary for the implementation of the "*Energiewende*". However, those rules have not only been subject to challenges in German courts and EU scrutiny as potentially illegal subsidies, but also continue to be the subject of political scrutiny by various interest groups. Although the relevant rules have been modified to address certain of these concerns, there is no guarantee that they will not change again or that we will continue to be able to benefit from current accommodations, reimbursement rules and/or energy tax refund schemes. In particular, it cannot be ruled out that the EU may introduce more stringent conditions for any such accommodations, reimbursement rules and/or energy tax refund schemes in the future and/or may further restrict the ability of companies to combine benefits of different reduction schemes (so-called "cumulation"). As an "energy-intensive enterprise", we have historically benefitted, and in 2019 we continued to benefit, from considerable reductions of the so-called EEG surcharge (*EEG Umlage*), a charge which is levied on electricity consumers to fund the financial promotion of renewable energy sources. In 2016, 2017, 2018 and the first three months of 2019, for example, such reductions decreased our energy costs by approximately €28.6 million, €30.4 million, €30.3 million and €7 million, respectively.

Other countries in which we operate production facilities or may operate production facilities in the future, may adopt similar policies in order to promote the usage of renewable energy sources. As a consequence thereof, the energy price could increase and there can be no guarantee that we will be reimbursed to the extent to which the price increased, to the same extent as currently in Germany or even at all. This could consequently adversely affect the revenue of our production facility and may force us to adopt capital-intensive countering measures or ultimately close the plant. In addition, we currently benefit from various other privileges and exemptions from energy-related laws and regulations in Germany, including benefits pursuant to § 19 of the German Ordinance on Electricity Network Access Fees (*Stromnetzentgeltverordnung*), the German Electricity Tax Act (*Stromsteuergesetz*) and other laws and regulations. Should we lose any or all of these privileges and exemptions, this could have a material adverse effect on our margins and results of operations and financial condition. Finally, compliance with the EU Emission Trading Scheme Directive (the "**ETS**") could significantly increase our costs. Our two existing mills are, and our proposed third mill (PM3) will be, subject to the ETS.

The paper industry was granted the status as a so-called "Carbon Leakage" sector and our existing two mills have therefore been allocated a certain amount of CO_2 emission certificates for free. Historically, the collective CO_2 allocations granted to our two existing mills have exceeded our collective annual CO_2 emissions. The revised ETS Directive for the period 2013-2020, however, has been slowly reversing this excess position over time. The free allocation rules for the fourth trading period (2021-2030), which were adopted in December 2018, still contemplate the allocation of free CO_2 emission certificates for Carbon Leakage industries, and the latest Carbon Leakage list for the years 2021-2030 adopted by the European Commission effective as of May 2019 still lists the paper industry as threatened by Carbon Leakage for this upcoming trading period. As a result, we currently expect that our two existing mills and our proposed new mill (PM3) will continue to be allocated at least a portion of the CO_2 emission certificates required for their operation free of charge. However, even with these expected free CO_2 allocations, there is considerable risk that in the future our costs will significantly increase and will not be recovered through higher prices for our end products. See also "*Business—Regulatory Environment—Regulation governing the operation of the CHP*".

We may fail in successfully implementing our business strategy.

In order to continue to realize cost savings or process optimizations, we must continue to optimize our costs, improve our procurement process, realize certain operating efficiencies and improve the efficiency of our sales force. Key focus areas of our Continuous Improvement Program involve (i) improving the effectiveness of our sales and marketing activities, (ii) optimizing (*i.e.*, minimizing) our variable costs and (iii) stabilizing our specific fixed costs in order to achieve sales excellence and maintain our position as one of the cost leaders in our industry. As we are unable to influence commodity and energy prices directly, our competitiveness and long-term profitability are, to a significant degree, dependent upon our ability to reduce costs (including the costs of raw materials and consumables such as power, labor and transport) and maintain low-cost, efficient operations. Our production costs are also significantly affected by production volumes and, therefore, our ability to maintain production levels and maximize capacity utilization will be a key factor in determining our overall cost competitiveness. Our ability to maintain earnings and undertake capital expenditure could be adversely affected in the event of a sustained material fall in prices for our products, an appreciable rise in our production costs or a decline in our production volumes. A number of factors beyond our control, such as operating disruptions, personnel turnover, competition, unforeseen delays in implementing initiatives and general economic and industry conditions as well as future development on the energy markets, could have an adverse effect on our ability to implement our strategy by limiting our ability to grow or our ability to reduce costs and increase efficiency which could have a material adverse effect on our business. We may not be successful in achieving cost savings, generating growth and increasing our cash flows and profitability.

Efforts to improve our operational efficiency in accordance with our business plan may not be effective and may adversely impact our sales and marketing operations, product development and production processes.

We have implemented and are continuing to implement various projects to improve our operational efficiency, including our production network and processes as well as sales, marketing, procurement and product development. Some of these operational improvement initiatives and cost reduction measures represent important aspects of our business plan, in particular our initiatives in connection with the continuing optimization of our paper machine PM2 and our continuing efforts to further optimize production of our paper machine PM1 and our corrugators. See also "*Management's Discussion and Analysis of Financial Condition and Results of Operations—Key Factors Affecting Our Results of Operations—Continuous Improvement Program" and "Business—Our Strategy—Maintain cost leadership through continuous efficiency and profitability improvements*".

If our ongoing efforts to improve our operational efficiency fail or the implementation of cost improvement measures are not effective, sustainable or achievable within the anticipated time frame, the quality and cost of our products and our competitive position in the industry may suffer. Additionally, because we have factored the expected benefits of these improvement initiatives and cost reduction measures into our business plan, our inability to successfully execute these

plans or our failure to realize the expected economic benefits of these plans could have a material adverse effect on our margins and results of operations and financial condition.

The costs and difficulties of integrating complementary businesses through organic and acquisitive expansion could impede our future growth and adversely affect our competitiveness.

To maintain and further strengthen our position as a leading, low-cost corrugated board producer in Europe in the long-term and to allow us to successfully meet ongoing and expected future market growth and the requirements of our customers with regard to supply certainty and product quality, we intend to continue to make prudent and controlled investments to further expand and improve the efficiency of our production facilities as part of our long-term "Two Twentyfive" strategy. In addition to the fast and successful ramp-up at our corrugated board production site (PW10) in Trzcinica, Poland in 2017 and early 2018 following commencement of commercial production in April 2017, we commenced production at our new corrugated board production site (PW11) in Drizzona, Italy in early March 2018, and our newest corrugated board "mega plant" (PW12) in Ellesmere Port, United Kingdom in January 2019. In the short-term to mid-term, we intend to continue to make significant further investments in expanding our corrugated board production capacity, and we have already commenced construction of a further corrugated board production site (PW13) in Eisfeld, Germany (with test production expected to start in the fourth quarter of 2019 or the first quarter of 2020) and currently expect to establish up to three further corrugated board production sites in Central Europe between 2020 and 2023, including a further corrugated board "mega plant" (PW14) which is envisaged to commence production in late 2020 or early 2021. In order to preserve our ability to internally source consistently high-quality containerboard in a cost-efficient and highly flexible manner in sufficient quantities to meet the majority of the sourcing requirements of the expanding corrugated board production within Progroup Board, we have also begun to actively pursue the realization of a further paper machine project (PM3) in Sandersdorf-Brehna, Germany. We currently expect total net investment costs (i.e. net of expected subsidies) of approximately €465 million for just this new paper machine project over a several year period, including approximately €116.7 million of initial expenditures (e.g. for advance payments for the paper machine and certain preliminary work) we had already incurred as of the end of the first quarter of 2019. See also "*Business—Our Strategy—Maintain and strengthen our position as a leading, low-cost corrugated board producer in Europe through controlled investments*" below.

Risks that we could face with respect to any those proposed and any potential further expansion project may include:

- greater than expected costs and management time and effort involved in identifying, completing and integrating expansions, acquisitions, packaging park projects or joint ventures;
- potential disruption of our ongoing business and difficulties in maintaining our internal control environment, information systems and procedures;
- the inability to successfully integrate the services, products and personnel of any acquisition into our operations or to realize any expected cost savings or other synergy benefits from any acquisition;
- customer overlap/loss of customers supplied prior to the acquisition by both us and the acquired group;
- incurrence of unexpected, actual or contingent liabilities;
- a need to incur debt, which may reduce our cash available for operations and other uses due to increased debt service obligations; and
- lack of return on our investment, including as a result of increased competition for acquisition targets and higher purchase prices for such acquisitions.

The impact of any such proposed and potential future expansion projects, acquisitions or joint ventures on us cannot be predicted and any of the risks outlined above, should they materialize, could have a material adverse effect on our margins and results of operations and financial condition.

The successful implementation of our proposed new paper machine project (PM3) poses significant challenges.

Due to the much larger size, higher level of complexity and longer implementation timeframe of a paper machine project, compared to the establishment of a new corrugated board production site, the risks related to our new paper machine project (PM3) are proportionately higher and manifold. This includes significant risks related to the actual technical start-up of the paper machine as a whole, as each paper machine project involves a certain level of customization, which means that spare parts and/or replacement parts for key components may not be readily available and that (sometimes significant) start-up delays are not uncommon. In addition, certain features of our paper machine project, in particular the proposed closed cycle waste water treatment system, represent "industry firsts", which means that the technology and equipment we are proposing to install are not yet fully proven, at least not on the scale of our proposed paper machine project. Should we encounter any significant technical problems in connection with the start up of the paper machine itself and/or the proposed closed cycle water treatment system, this could lead to a significantly delayed start-up of the paper machine. This, in turn, could have

severe follow-on consequences, such as (i) a potential loss of an expected aggregate total of up to €15 million in repayment grants in relation to Facility C of the Existing Senior Secured IKB Facilities, Facility A of the Existing Commerzbank Facilities and the Existing SaarLB Facility; (ii) the loss of approximately €22.0 million in reductions of the so-called EEG surcharge (*EEG Umlage*) with regard to 2021 under the German Renewable Energy Act (*Erneuerbare-Energien-Gesetz*, "**EEG**") as well as (iii) the loss of production volume of containerboard and related supply to our corrugated board operations.

Once our new paper mill has commenced operation, among other risks, we will further face (i) the risk of having to procure the very large volumes of recycled paper required to operate our new paper machine at full capacity, (ii) the risk of potentially having to purchase additional CO_2 allowances as we do not yet know the number of free CO_2 allowances we will get allocated as well as (iii) the significant risk of a temporary overcapacity in the European containerboard market as a number of our competitors have also commenced or announced paper machine projects with a similar completion timetable. Should any of these (or other) risks in connection with the implementation of our new paper machine project materialize, this could have a material adverse effect on our margins and results of operations and financial condition.

In addition, a final approval under the German Emissions Act (BImSchG), which is required for the operation of the proposed new paper mill, remains pending. Based on our interactions with the relevant authorities, we currently expect to receive the relevant approval in July 2019. Failure to receive this final approval could cause us to significantly delay our paper machine project, abandon the currently proposed site for the project and/or incur significant write-offs in connection with the proposed project.

We are exposed to currency exchange rate fluctuations.

Given the growing geographic spread of our operations, we are increasingly exposed to currency exchange rate fluctuations. For example, the United Kingdom, the Czech Republic and Poland do not use the euro as their national currency. During the year ended December 31, 2018, 7%, 7% and 16% of our total sales derived from sales in British pounds, Czech koruna and Polish zloty, respectively. In addition, we currently finance several of our foreign subsidiaries, including subsidiaries outside the euro zone, through borrowings in euro.

To reduce (but not eliminate) our exposure to exchange rate fluctuations between the euro and the Polish zloty, Progroup Board sp. z o.o. entered into the 2015 Senior Secured PLN Facility on December 1, 2015 to pay back euro denominated intra Group loans. To finance the investment in our corrugated board production site (PW10) in Trzcinica, Poland, Progroup Board sp. z o.o. entered into the 2016 Senior Secured PLN Facility on May 31, 2016. As of March 31, 2019, PLN 58.9 million (carrying amount at March 31, 2019: €13.7 million, calculated based on an exchange rate of €1.00 = PLN 4.3006, which was the exchange rate of the zloty against the euro reported by the National Bank of Poland on March 31, 2019) in borrowings under the 2015 Senior Secured PLN Facility remained outstanding, and PLN 76.0 million (carrying amount at March 31, 2019: €17.7 million, calculated based on an exchange rate of €1.00 = PLN 4.3006) in borrowings under the 2016 Senior Secured PLN Facility remained outstanding. As of the date of this special report, the same amounts of borrowings remain outstanding under the 2015 Senior Secured PLN Facility and under the 2016 Senior Secured PLN Facility. The adjusted figures do not reflect PLN 5.4 million and PLN 4.0 million, respectively, in scheduled repayments under the 2015 Senior Secured PLN Facility and the 2016 Senior Secured PLN Facility we will be required to make on June 30, 2019. For more details about the Existing Senior Secured PLN Facilities, including scheduled repayments on the Existing Senior Secured PLN Facilities, see "*Description of Certain Financing Arrangements—Existing Senior Secured PLN Facilities*".

To reduce (but not eliminate) our exposure to exchange rate fluctuations between the euro and the British pound, Progroup Board Ltd. entered into the Existing Senior Secured GBP Facility on December 21, 2017. As of March 31, 2019, we had drawn GBP3.0 million under the Existing Senior Secured GBP Facility (carrying amount at March 31, 2019: €3.495 million, calculated based on an exchange rate of €1.00 = GBP 0.8583, which was the exchange rate of the British pound against the euro reported by the European Central Bank on March 31, 2019). The Existing Senior Secured GBP Facility was fully utilized as of the date of this special report. For more details about the Existing Senior Secured GBP Facility, see "*Description of Certain Financing Arrangements—Existing Senior Secured GBP Facility*".

Prior to our refinancing in 2015, we were not permitted under our former financing arrangements to hedge for currency risks. As a result, fluctuations in the value of local currencies against the euro have had, and may have in the future, a significant effect on our operations and on our reported results in euro and the comparability of our performance between financial periods can be significantly affected by fluctuations in local currencies against the euro. We have since started to implement foreign currency risk management in order to monitor our foreign currency risk and to enable us to consider taking action if we decide to do so, but there is no assurance that any such foreign currency risk management will be effective. As a result, fluctuations in the value of these local currencies against the euro may have a significant adverse effect on our operations and on our reported results in euro.

The relative strength or weakness of the U.S. dollar is also important for the European containerboard industry, because exports from the European market influence the balance of supply and demand and the price development of containerboard in Europe. Movements in the U.S. dollar exchange rate may also have an effect on trading. A weak U.S. dollar over a sustained period has historically resulted in lower (U.S. dollar-denominated) exports by European containerboard manufacturers with a negative (for our business) effect on the supply demand balance and an immediate effect on the pricing of containerboard in Europe. In addition, a weak U.S. dollar over a sustained period has, in the past, also resulted in lower sales by other European manufacturers who ship products in corrugated packaging, resulting in lower European demand for corrugated packaging, and therefore for our containerboard and corrugated board. A weak U.S. dollar may also result in additional competition in the European market from U.S. manufacturers that have an incentive to sell more products in Europe, due to increased European demand for the relatively lower-priced U.S. goods over higher-priced European goods.

The success of our business relies on certain key personnel (in particular, our chief executive officer Jürgen Heindl), and our ability to attract and retain key personnel, other qualified management personnel and skilled workers.

The success of our business relies to a considerable extent on the efforts, abilities and reputation of our executive board and our senior management team, especially our chief executive officer, Jürgen Heindl. Mr. Heindl has been responsible to a significant extent for our historical growth and strategic development. The loss of Mr. Heindl or other key personnel could significantly disrupt our business and have a material adverse effect on our margins and results of operations and financial condition. Further, if we lost any of our key personnel, there can be no assurance that we will be able to successfully find a suitable replacement in a timely manner, or at all. We currently expect Jürgen Heindl to step down from his role as chief executive officer at the end of 2022, to be succeeded by his son, and our current chief development officer, Maximilian Heindl.

In addition, the success of our business depends on our ability to attract and retain qualified management personnel and skilled workers in the long-term. We compete with a large number of other companies when recruiting qualified employees. There is an increasing shortage of qualified personnel in the markets in which we operate, especially personnel with technical, IT or engineering skills. If we are unable to continue to attract and/or train qualified employees sufficiently and to retain those employees, this could have a material adverse effect on our business, results of operations and financial condition. See also "*——Our ability to successfully operate the CHP depends on our ability to attract and retain experienced personnel*".

Failure to maintain good employee relations may affect our operations and the success of our business.

Future developments in relation to our business or otherwise could adversely affect relations with our employees and their works councils. Labor disputes, strikes or work stoppages could lead to a substantial interruption to our business operations or otherwise adversely affect the Group and have a material adverse effect on our operating results and financial condition.

We may be adversely affected by increasing costs in maintaining our required level of workforce.

During 2018, we had an average of 1,096 employees (excluding trainees) and personnel expenses constitute a significant proportion of our cost base. Accordingly, inflationary pressures, changes in applicable laws and regulations or other factors resulting in increased labor costs could have a material adverse effect on our margins and results of operations and financial condition.

We are subject to numerous environmental, health and safety laws and regulations, and the cost of compliance or the failure to comply with, and any liabilities under, current and future laws and regulations may negatively affect our business.

We are subject to a wide range of international, national, state and local environmental, health and safety laws and regulations in the jurisdictions where we operate, including those governing the discharge of pollutants into the air and water, the use, storage and disposal of hazardous substances and wastes and the clean-up of contaminated properties. We could incur significant costs, including fines, penalties, civil and criminal sanctions, investigation and clean-up costs, third-party claims for property damage or personal injury or enforcement actions, including regulatory or judicial orders enjoining or curtailing operations or requiring corrective measures, the installation of pollution control equipment or other mandated actions, as a result of violations of or liabilities under environmental, health and safety laws and regulations or otherwise.

These laws and regulations are complex, frequently change and have tended to become more stringent over time. There can be no assurance that the costs of complying with such laws and regulations, or future environmental, health and safety laws and regulations, will not increase. Such cost increases could have a negative impact on the results of our margins and results of operations and financial condition.

There can be no assurance that we will be at all times in compliance with applicable environmental and health and safety requirements, which may lead to the incurrence of material costs or liabilities in the future or impede our ability to obtain and maintain all licenses, consents or other permits necessary to operate our business. Similarly, there can be no assurance that we will not experience an environmental spill or accident or discover or otherwise become liable for environmental contamination in the future. We may incur significant expenditure in connection with the required remediation of past environmental conditions at both currently-owned and formerly-owned facilities. For example, the land on which we have constructed our newest corrugated board "mega plant" (PW12) in Ellesmere Port, United Kingdom is a legacy industrial site with known asbestos contamination which required environmental remediation. There can be no assurance that the contractually agreed remediation measures that were undertaken by the seller of the land have been successful and sufficient and that those remediation efforts, together with relevant environmental insurance policies, will fully protect us from having to incur any future expenditures in connection with further required remediation.

There can be no assurance that environmental pressure groups and similar organizations will not mount campaigns against us which, were they to occur, could have an adverse effect on our reputation.

Failure to maintain good health and safety practices may have an adverse effect on our business.

Our employees carry out relatively difficult and specialized tasks, and a serious incident affecting the health and safety of any of our employees could disrupt our operations and have a negative impact on our reputation. We may also be subject to fines or litigation if a health and safety incident occurs. Furthermore, disruption of operations caused by a major incident could have a material adverse effect on our business, results of operations and financial condition.

Our licenses may be suspended, amended or terminated prior to the end of their terms or may not be renewed.

Our licenses and permits required to conduct our business operations, including for the operation of CHP, could be revoked, withdrawn or amended by the relevant authorities under certain circumstances. For example, a license or permit could be revoked, withdrawn or amended if there is a subsequent change of facts or a relevant regulation, such permit is found to be contrary to the public interest, or it is deemed necessary to prevent severe harm to the common good.

Moreover, private individuals and the public have the right to comment upon the process, raise objections to proposed permits and initiate court proceedings to intervene and prevent the granting of requested permits. In addition, environmental organizations, residents or other third parties may raise objections to our current or proposed activities or file suits challenging our operations and the granting or existence of permits and licenses to conduct our operations.

The permitting rules are complex and may change over time, making our ability to comply with the applicable requirements more difficult or even impossible, thereby precluding continuing or future operations. Regulatory authorities exercise considerable discretion in the timing and scope of permit issuance. Requirements imposed by these authorities may be costly and time-consuming and may result in delays in the continuation of our operations.

If any of our licenses or permits is revoked, withdrawn or amended, or if we have difficulty renewing a license or permit, we may experience delays in our operations which could adversely impact our business, financial condition, results of operations and cash flows.

We are exposed to the particular risks related to our increasingly international operations.

Our operations have become increasingly international. In addition to our home market, Germany, we currently operate facilities in the Czech Republic, France, Italy, Poland and the United Kingdom. As a result, we are vulnerable to risks in these countries and to the particular risks inherent in international operations, including:

- increased difficulties in the collection of accounts receivable, including longer collection periods;
- inconsistent regulations and unexpected changes in legislation or regulatory requirements and increased difficulty and expense in hiring and dismissing employees; work stoppages, transport interruptions and difficulties in managing international operations;
- adverse tax consequences, including as a result of complex transfer pricing regulations; and
- adverse currency fluctuations or restrictions on the transfer of cash.

The occurrence of any of the foregoing could have a material adverse effect on our results of operations due to the related delays or increased costs in the production and delivery of products and services.

We are subject to antitrust and similar legislation in the jurisdictions in which we operate.

We are subject to a variety of antitrust and similar legislation in the jurisdictions in which we operate. In Germany as well as in some of our other markets, we have a market position that may make potential future acquisitions difficult and may limit our ability to expand by acquisition or merger, if we wished to do so.

In addition, we are subject to legislation in all the jurisdictions in which we operate relating to unfair competitive practices and similar behavior, both on an EU level and on a national level. There can be no assurance that we will not be subject to allegations of, or regulatory investigations or proceedings into, such practices or behavior. In the event that such allegations are made or investigations or proceedings are initiated (irrespective of merit), we may be required to devote significant management resources to our defense against such allegations. In the event that such allegations are proved, we may be subject to significant fines, damages awards and other expenses, any of which could have a material adverse effect on our business, results of operations and financial condition.

Our results may be adversely affected if we are unable to implement our strategy to optimize utilization of assets.

Our results of operations are materially influenced by the degree to which we are able to optimize the utilization of our assets in order to achieve the necessary production volumes to achieve our business plans. We cannot guarantee that we will be able to optimize the utilization of assets in accordance with our plans, or at all, due to, among other things, unforeseen disruptions which are beyond our control. For example, we continuously work to further optimize production of our paper machines PM1 and PM2. If we are not able to optimize the usage of our two paper mills and other production facilities, the expected return on our related investments may not be realized. Any other inability to optimize and sustain the capacity utilization of our production facilities or achieve cost efficiencies through improvements in production processes may have a material adverse effect on our margins and results of operations and financial condition.

Our business operations are capital intensive, and we may be required to make significant capital expenditures to maintain our competitive position.

The operation and expansion of our business requires substantial capital expenditures. In addition to our significant investment in PM2 in Eisenhüttenstadt, primarily between 2008 and 2010, we have ongoing capital expenditure requirements relating to, among other things, the modernization and maintenance of our existing production plants. Furthermore, we have incurred (and expect to continue to incur) significant capital expenditures in connection with the launch and ramp-up of our corrugated board production sites in Trzcinica, Poland (PW10), Drizzona, Italy (PW11) , and Ellesmere Port, United Kingdom (PW12), and the ongoing establishment of our proposed corrugated board sites in Eisfeld, Germany (PW13) and our proposed further corrugated board "mega-plant" (PW14) as described above. In the short-term to mid-term, we intend to continue to focus our investment activities on further expanding our corrugated board production capacity, and we have already commenced construction of a further corrugated board production site (PW13) in Eisfeld, Germany (with test production expected to start in the fourth quarter of 2019 or the first quarter of 2020) and currently expect to establish up to three further corrugated board production sites in Central Europe between 2020 and 2023, including a further proposed corrugated board "mega plant" (PW14) which is envisaged to commence production in late 2020 or early 2021). We currently expect to make total net investments (i.e. net of expected subsidies) of approximately €60 million and €70-75 million, respectively, for these two additional corrugated board production sites (PW13 and PW14). In addition, we have also begun to actively pursue the realization of a further paper machine project (PM3) in Sandersdorf-Brehna, Germany. We currently expect total net investment costs (i.e. net of expected subsidies) of approximately €465 million for just this paper machine project over a several year period, approximately €116.7 million of initial expenditures (e.g. for advance payments for the paper machine and certain preliminary work) we had already incurred as of the end of the first quarter of 2019. For further details on our proposed expansion projects and investment program, see "*Management's Discussion and Analysis of Financial Condition and Results of Operations—Key Factors affecting our Results of Operations—Expansion Projects and Investment Program*".

Our ability to expand our business and fund our ongoing operations depends on our ability to generate cash and access financing. In addition, our liquidity and capital requirements may increase if we decide to pursue further expansion projects or if we make future acquisitions. We may not generate sufficient cash flow or have access to sufficient funding to meet these requirements.

Further, we may require information technology enhancements in order to continue providing high-quality IT support for our production processes. Failure to implement such enhancements may result in reduced quality of processes and loss of orders and customers. If one or more of the aforementioned risks were to materialize, this could have a material adverse effect on our business, results of operations and financial condition.

Furthermore, even successful expansion (or acquisition) projects can have a negative impact on our profitability in the short-term. For example, our reduced profitability between 2009 and 2010 following the global financial and economic

crisis coincided with the launch of production at our corrugated board production sites in Strykow, Poland (PW7) and Ellesmere Port, United Kingdom (PW8) and at our paper mill in Eisenhüttenstadt, Germany (PM2), which involved significant start-up and ramp-up costs. The related costs were largely expected and are normal in our industry, but their timing further exacerbated our financial condition. In addition, even in a positive market environment, it typically takes two to three years from the launch of a new corrugated board production site until the production site is fully utilized. For example, we launched our corrugated board production site in Strykow, Poland (PW7) in 2009, but the site only completed its ramp-up phase in 2012 and therefore, did not operate at a three-shift capacity for an entire year until 2013. Our corrugated board production site (PW9) in Plössberg, Germany commenced production in October 2015 and completed its ramp-up phase in 2017, while our corrugated board production site (PW10) in Trzcinica, Poland completed a very fast and successful ramp-up and will likely already operate at a full, three-shift capacity for an entire year for the first time in 2018. Our corrugated board production site (PW11) in Drizzona, Italy commenced production in March 2018 and we expect the ramp up of production to continue through the end of 2020. We expect our newest corrugated board "mega-plant" (PW12) in Ellesmere Port, United Kingdom (which commenced production in January 2019), our proposed new corrugated board production site (PW13) in Eisfeld, Germany and our proposed further corrugated board "mega-plant" (PW14) described above to also undergo ramp-up phases of different durations with a corresponding impact on our result of operations. The start-up and ramp-up costs and short-term to mid-term impact on our profitability of our latest paper machine project (PM3) will be proportionately higher, due to the much larger size, higher level of complexity and longer implementation timeframe of such a project, compared to the establishment of a new corrugated board production site. For our paper mill in Eisenhüttenstadt (PM2), for example, we executed some of the definitive agreements with our main project partners (including the related financing arrangements) as early as the summer of 2008, before starting initial ground works later that year. In addition, even though our paper mill in Eisenhüttenstadt (PM2) commenced operations in March 2010, it only completed its initial ramp-up phase in 2013. Since then, we have been continuing our efforts to further optimize our operations at our mill in Eisenhüttenstadt, which involves not only the optimization of the performance of PM2, but also the optimization of connected processes, including the operation of the CHP we acquired from EnBW effective as of midnight on December 31, 2015. See also *"—The successful implementation of our proposed new paper machine project (PM3) poses significant challenges."*

The availability of, or any significant increase in, the cost of transportation represents a significant risk for our business.

Transportation plays an important part in our supply chain as we transport a majority of our products, mainly by truck and to a lesser extent by rail or ship, to our customers. Deliveries are generally made as full truck loads. In addition, most of the raw materials need to be transported to our production facilities and we also transport large rolls of containerboard from our two paper mills in Burg and Eisenhüttenstadt (both Germany) to our ten other corrugated board production sites in the Czech Republic, France, Germany, Italy, Poland and the United Kingdom. We meet our freight and logistics requirements mainly through the use of external logistics companies and, to a much lesser extent, our own fleet of currently 59 trucks through which we carry out approximately 6.8% of our total transportation requirements. Due to the relatively large size and weight of our products compared to value, freight and logistics expenses play an important role in our business, and fluctuations in freight prices can have a significant impact on our profitability. In 2018, our freight expenses, which include freight for deliveries from our production plants or other stocks to customers as well as containerboard shipments from our two mills to our various corrugated board plants, amounted to a total of 67.0 million, or 6.9%, of our sales.

Any material disruption in or lack of availability of transportation or significant increases in fuel or energy prices, road tolls or demand driven market prices resulting in higher transportation costs, may have a material adverse effect on our margins and results of operations and financial condition. In addition, increased costs relating to vehicle emissions control requirements that have been or may be imposed in the future, particularly due to climate change related legislation, may also lead to such effects on our margins and results of operations and financial condition.

We depend on the uninterrupted operations of our information and communication technology.

The operation of our production plants and our sales and service activities depend on the uninterrupted operation of complex and sophisticated computer, telecommunication and data processing systems. Between each step along our internal value chain and our production processes, we must coordinate and monitor complex logistics processes to ensure the efficient flow of materials and products. In addition, in 2018, approximately 69% of purchase orders for corrugated board from our Progroup Board customers were received electronically, and all material core processes, which must be coordinated to ensure the smooth and efficient operation of our production processes, are controlled by our proprietary core ERP system, WEPAFORM. WEPAFORM implements our internal know-how in the form of best practices and rules of conduct. The functionality of WEPAFORM covers all our core processes, including order processing, raw material planning, production planning, production control as well as warehousing, shipment and invoicing. See also "*Business—Information Technology and Process Management*".

Computer and data processing systems and related information technology infrastructure (data center, hardware and wide and local area networks) are generally exposed to the risk of disturbances, damage, electricity failures, computer viruses,

fire, other disasters, hacker attacks, unauthorized or improper access or abuse by employees and similar events. In addition, we rely on a small number of key employees within our IT department who are familiar with WEPAFORM and have been involved in its development. Disruptions to operations or interruptions in operations involving key software applications (in particular, WEPAFORM) and/or our IT hardware have occurred, in individual cases, in the past and may occur in the future. Although administration and production networks are separated, such disruptions or interruptions could have a material adverse effect on our ability to maintain our core processes, could lead to production downtime and result in significant lost sales. Some of the software products we use are hosted by a third party off site, in which case we depend on the hosting company's infrastructure, and any interruption, disruption or security breaches at the hosting company's data center may have an adverse effect on our operations. If one or more of these risks were to materialize, this could have a material adverse effect on our business, results of operations and financial condition.

We are subject to risks from legal proceedings.

We are involved in litigation in the ordinary course of business and could become involved in additional legal and arbitration disputes in the future, which may involve substantial claims for damages or other payments. The outcome of pending or potential future proceedings is difficult to predict with any certainty. In the event of a negative outcome of any material legal or arbitration proceeding, whether based on a judgment or a settlement agreement, we could be obligated to make substantial payments. In addition, the costs related to litigation and arbitration proceedings may be significant. The realization of any of these risks could have a material adverse effect on our business, results of operations and financial condition.

Our insurance coverage may not be adequate to cover all the risks we may face and if we were no longer covered by our existing insurance, it may be difficult to obtain replacement insurance on acceptable terms or at all.

Although we maintain insurance policies, including fire, explosion, radiation, electrical damage, machinery breakdown, fuel or power shortages, third party liability insurance, transport insurance, computer insurance and directors' and officers' insurance, not all risks are insured or insurable (and may have significant deductibles on policies). Accordingly, our insurance policies do not provide coverage for all losses related to our business, and the occurrence of losses, liabilities or damage not covered by such insurance policies could have a material adverse effect on our results of operations and financial condition. Due to variable insurance market conditions, there can be no assurance that the insurance that we carry will continue to be available, will be available at economically acceptable premiums or will be adequate to cover any resulting liability, and we may be required to enforce insurance coverage or pay high deductibles. In some cases, coverage is not available or is considered too expensive relative to the perceived risk. If we experience a loss in the future, the proceeds of the applicable insurance policies, if any, may not be adequate to cover replacement costs, lost sales, increased expenses and/or liabilities to third parties. This could have a material adverse effect on our results of operations and financial condition.

Our risk management and internal controls may not prevent or detect violations of law.

Our existing compliance processes and controls may not be sufficient to prevent or detect inadequate practices, fraud and violations of law by our intermediaries and employees. Due to our business operations in multiple countries in Europe, we are subject to a number of laws and regulations in various countries. These include, among others, regulations concerning competition and antitrust law, international trade and customs, licensing and permits, commercial intellectual property and its enforcement, warranty and product liability, environmental, building and zoning law, energy law, hazardous substances and chemicals law, labor and work protection law, tax law and regulations related to purchasing and acquisitions.

In the event that any intermediaries, consultants, sales agents or employees with whom we cooperate either receive or grant inappropriate benefits or generally use corrupt, fraudulent or other unfair business practices, we could be confronted with legal sanctions, penalties and loss of orders and harm to our reputation. Especially given our increasingly international profile, the size and the extent of our cooperation with intermediaries, consultants, sales agents and employees, our internal controls and procedures, policies and our risk management may not be adequate to identify or prevent such practices, which could have a material adverse effect on our results of operations and financial condition.

We may have to repay investment grants and subsidies, or previously awarded investment grants may not be disbursed in part or at all.

A part of our investment requirements for developing and expanding our production capacity is covered by public aid, such as investment grants, subsidies, loans at favorable conditions or tax reductions or exemptions, both in Germany and abroad. The decisions on granting public aid received by us contain various conditions such as regarding the use of funds for certain energy efficiency measures, the creation of jobs, the total investment amount or the duration of our investment. If these conditions are not fulfilled during the commitment period, which generally exceeds the specified investment period, this could result in a repayment claim by the relevant authorities for the public aid received by us. During the commitment

period, such conditions may no longer be satisfied and we could be subsequently exposed to considerable repayment and interest claims. This could have a material and adverse effect on our business, financial condition and results of operations.

Pending and future tax audits within our Group and changes in fiscal regulations could lead to additional tax liabilities.

We are subject to routine tax audits by local tax authorities. Tax audits in Germany for the Group for corporate income tax (*Körperschaftsteuer*), trade tax (*Gewerbesteuer*) and VAT (*Umsatzsteuer*) relating to the years 2016 and 2017 are currently ongoing. There can be no guarantee that these tax audits will not result in any materially higher tax assessments.

Tax audits for later periods not yet subject to a tax audit or tax audits in other countries may lead to higher tax assessments in the future. For example, we operate a number of tax groups (*Organschaften*) in Germany and we are therefore exposed to the risk of a challenge of the existence and due operation of tax groups in the course of future tax audits. A non-recognition of our tax groups could lead to additional tax liabilities. The same could apply if we do not comply with our tax reporting obligations.

Any additional tax payments could have a material adverse effect on our margins and results of operations and financial condition. In addition, changes in fiscal regulations or the interpretation of tax laws by the courts or the tax authorities may also have a material adverse effect on our business.

The international scope of our operations and our corporate and financing structure may expose us to potentially adverse tax consequences.

We are subject to taxation in, and to the tax laws and regulations of, multiple jurisdictions as a result of the international scope of our operations and our corporate and financing structure. We are also subject to intercompany pricing laws, including those relating to the flow of funds among our companies pursuant to, for example, purchase agreements or other arrangements. Adverse developments in these laws or regulations, or any change in position by the relevant authority regarding the application, administration or interpretation of these laws or regulations in any applicable jurisdiction, could adversely affect our business, financial condition and results of operations.

In addition, the tax authorities in any applicable jurisdiction may disagree with the positions we have taken or intend to take regarding the tax treatment or characterization of any of our transactions, including the tax treatment or characterization of our indebtedness, including the Senior Secured Notes, payments or other distributions to our shareholders, existing and future intercompany loans and guarantees or the deduction of interest expenses. We could also fail, whether inadvertently or through reasons beyond our control, to comply with tax laws and regulations relating to the tax treatment of various of our financing arrangements, which could result in unfavorable tax treatment for such arrangements. If any applicable tax authorities were to successfully challenge the tax treatment or characterization of any of our intercompany loans or transactions, it could result in the disallowance of deductions, a limitation on our ability to deduct interest expenses, the imposition of withholding taxes, the application of significant penalties and accrued interest on intercompany loans or internal deemed transfers, the application of significant penalties and accrued interest or other consequences that could have a material adverse effect on our business, financial condition and results of operations.

Due to restrictions of the deduction of interest expenses or forfeiture of interest carry forwards under German tax laws, we may be unable to fully deduct interest expenses on our financial liabilities.

Interest payments on the Senior Secured Notes, the Super Senior Revolving Credit Facility, the Senior Secured Facilities and on our other debt may not be fully deductible for tax purposes, which could adversely affect our financial results. Subject to certain prerequisites, the German interest barrier rules (*Zinsschranke*) impose certain restrictions on the deductibility of interest for tax purposes. Since 2008, the German interest barrier rules in general have disallowed the deduction of net interest expenses exceeding 30% of tax adjusted EBITDA. For purposes of the interest barrier rules, all businesses belonging to the same tax group (*Organschaft*) for corporate income and trade tax purposes, *i.e.*, the Company and certain Guarantors, are treated as one single business. Such consolidation is, *inter alia*, relevant for the calculation of the tax adjusted EBITDA.

There are certain exemptions from the restrictions of the German interest barrier rules allowing for a tax deduction of the entire annual interest expenses, which, however, may not be available to the Company. To the extent our net interest expenses exceed 30% of our tax adjusted EBITDA in any given year, we may therefore not be able to deduct the excess in our net interest expense in calculating our taxable earnings for the relevant year. This may have an adverse effect on our liquidity and financial condition and on our ability to meet our obligations under the Senior Secured Notes.

Any non-deductible amount of interest expenses exceeding the threshold of 30% is carried forward and may, subject to the interest barrier rules, be deductible in future fiscal years. In the past, our interest expenses were not entirely deductible.

Accordingly, we used to have an interest carry forward (*Zinsvortrag*) from previous years. In the meantime all interest carry forwards have been used until December 31, 2018. Any future interest carry forwards could be forfeited in part or in full in connection with certain measures, such as a change of our ownership structure.

If the European Monetary Union ceases to exist or one or more countries leave the European Monetary Union, our margins and results of operations and financial condition may be materially adversely affected.

In recent years, economic events affecting the European economies have raised a number of questions regarding the overall stability of the European Monetary Union. Despite measures taken by countries in the European Monetary Union and the European Central Bank to alleviate credit risk, concerns persist with respect to the ability of certain European Monetary Union countries to meet future financial obligations, the overall stability of the euro and the suitability of the euro as a single currency given the diverse economic and political circumstances in individual European Monetary Union member states. The economic outlook is adversely affected by the risk that one or more European Monetary Union countries could come under increasing pressure to leave the European Monetary Union, or that the euro could cease to be the single currency of the European Monetary Union. The legal and contractual consequences of such a development for the business of the Group and for holders of the Senior Secured Notes, would be determined by applicable laws in effect at such time. Any of these developments, or a perception that any of these developments may be likely to occur, could have a material adverse effect on the economic development of the affected countries or lead to economic recession or depression that could jeopardize the stability of financial markets or the overall financial and monetary system. This, in turn, may have a material adverse effect on our margins and results of operations and financial condition.

The result of the United Kingdom's withdrawal from the European Union may have a negative effect on our business.

The United Kingdom's initiation of the process to withdraw from the European Union pursuant to Article 50 of the Treaty on European Union following the national referendum in June 2016 ("**Brexit**"), has created significant uncertainty about the future relationship between the United Kingdom, one of our current markets, and the EU and its remaining member states, which may constitute an additional risk for the financial markets and the European economy. Further, as the negotiation process for the exit is still ongoing, there is a great amount of uncertainty on the specific terms to be agreed between the negotiating parties. The United Kingdom's withdrawal from the European Union will take effect on the effective date of the withdrawal agreement, or, unless a further extension is granted, on October 31, 2019 if no agreement is reached by then. The effects of Brexit are uncertain, and Brexit has and may continue to contribute to volatility in the prices of securities of companies located in Europe. An extension of the October 31, 2019 deadline, a second referendum or other developments may result in additional volatility in the financial markets and the European economy. The overall impact of Brexit, especially without a withdrawal agreement, may create further global economic uncertainty. A downturn in the European economy could have adverse effects on our business in the markets in which we operate. In addition, with the establishment of our new corrugated board "mega plant" (PW12) in Ellesmere Port, United Kingdom, we have substantially increased our presence in the United Kingdom (a market in which we have historically been able to achieve above average EBITDA margins), which has increased our exposure to any negative outcomes of Brexit. In 2018 and the first three months of 2019, sales in the United Kingdom accounted for 7.5% and 7.0%, respectively, of our sales by volume. Possible negative outcomes resulting from Brexit include: significantly disrupted trade between the United Kingdom and the EU; political and economic instability in other countries of the EU, which covers the majority of our markets; and instability in the global financial and foreign exchange markets, including volatility in the value of the euro and the pound sterling. The depreciation of the pound sterling against the euro has caused, and may continue to cause, an increase in the price of goods in the United Kingdom that are sourced from the EU. Therefore, Brexit might also affect our ability to maintain the current level of sales, as expressed in euros, in the United Kingdom. Given the lack of comparable precedent, it is unclear what financial, trade and legal implications Brexit will have and whether, and to what extent, our business might be affected. Therefore, Brexit could have a material adverse effect on our business, financial condition and results of operations.

The interests of our controlling shareholder may be inconsistent with our interests and/or the interests of holders of the Senior Secured Notes.

Jürgen Heindl, our chief executive officer and founding shareholder, controls JH-Holding, our controlling shareholder. The interests of our controlling shareholder, in certain circumstances, may conflict with our interests or with your interests as holders of the Senior Secured Notes. Mr. Heindl has, directly or indirectly, the power, among other things, to affect our legal and capital structure and our day-to-day operations, the payment of dividends, asset sales and other significant corporate transactions as well as the ability to elect and change our management and to approve any other changes to our operations. The interests of our controlling shareholder could conflict with your interests as holders of the Senior Secured Notes, particularly if we encounter financial difficulties or are unable to pay our debts when due, including under the Senior Secured Notes. Mr. Heindl and our controlling shareholder could also have an interest in pursuing acquisitions, joint ventures, divestitures, financings, dividend distributions or other transactions that, in their judgment, could enhance their investments although such transactions might involve risks to the holders of the Senior Secured Notes.

The information available to market analysts varies in its degree of comparability.

This special report contains information regarding market positions, market shares, growth rates and other industry data pertaining to our business drawn from reports and other materials compiled by independent professional organizations and analysts. This includes reports prepared by RISI and Vision Hunters. The analysts compiling these reports base their estimates and conclusions on a variety of sources, some of which may be more comparable than others. These sources may include:

- official information published by government agencies,
- reports published by exchange listed companies with public reporting obligations,
- information offered voluntarily by privately held companies, and
- analysts' own estimates based on information obtained in conversations with competitors, suppliers, customers and other market participants.

Although our industry uses these reports as a standard source of market data, we cannot determine the level of reliability and comparability of the data in the reports. The analysts' estimates and conclusions can vary, and have in the past varied, materially from the true figures and as a result their reports can under or overstate market size, market share, growth rates and other important industry data. Accordingly, you should use caution in using these estimates and any information regarding market position or shares contained in this special report and you should not place undue reliance on such estimates or information.

We may not be successful in operating the CHP ourselves in the long-run.

Under the former contracting arrangement with EnBW, we were already closely involved in the operation of the CHP and already bore a significant portion of the economic risks associated with the operation of the CHP. However, we did not have any experience operating the CHP ourselves when we started to do so in 2016. Upon completion of the CHP Acquisition, effective as of December 31, 2015, we were directly responsible for a number of aspects of the operation of the CHP that were previously performed by EnBW, and we are now bearing certain additional risks associated with the ownership and operation of the CHP that were previously being borne by EnBW. In particular, we became directly responsible for, and will bear all risks related to, the ownership and day-to-day operation of the CHP, which includes the risk of any further unexpected repair and maintenance costs, the risk of any further significant unscheduled or longer than scheduled shutdowns of the CHP, the operational risks associated with the disposal of the ash generated by the CHP (i.e., that we are unable to procure the proper disposal of the ash and may therefore be forced to shut down the CHP) as well as certain other operational and regulatory risks. See also "*—We could be exposed to risks related to the CHP which have not been detected during the due diligence process preceding the CHP Acquisition*" and "*Management's Discussion and Analysis of Financial Condition and Results of Operations—Key Factors Affecting our Results of Operations—The CHP Acquisition*".

Our ability to successfully operate the CHP depends on our ability to attract and retain experienced personnel.

Our ability to successfully operate the CHP depends, in part, on certain key personnel and on our ability to attract and retain a highly skilled workforce for the management and operation of the CHP over the long term. Such employees with appropriate knowledge and experience are scarce, and the employment market for such personnel is very competitive. As a result, we might not be able to retain key CHP employees with specialized knowledge or to attract and retain a highly-skilled workforce for the CHP. Any of these factors could have a material adverse effect on our business, results of operations and financial condition and our ability to fulfill our obligations under the Senior Secured Notes.

The CHP employees are represented by a works council and wage discussions between us and representatives of the CHP employees may result in increased personnel expenses in the future.

Other than our other employees in Germany, the CHP employees are represented by a works council (*Betriebsrat*). Future wage negotiations may result in higher personnel expenses for the operation of the CHP compared to the historical personnel expenses for the CHP employees.

We could be exposed to risks related to the CHP which have not been detected during the due diligence process preceding the CHP Acquisition.

The operation of the CHP may be subject to risks or problems that we may not be aware of, which may not have been detected or which have not been disclosed to us in the due diligence process or derived from the financial information of Progroup Power 1 GmbH and that may only emerge over time as we continue to operate the CHP ourselves. The CHP purchase agreement provides us with limited protection against the existence of such problems or the materialization of any such risks. The existence of any such risks or problems could lead to significant additional costs in operating the CHP, require us to incur significant costs for repairs or to make significant additional investments into the CHP in an attempt to remedy such risks or problems. For example, in connection with a scheduled maintenance shutdown of the CHP in the third quarter of 2016, we discovered certain technical faults within the CHP that we were not previously aware of. Because of our long-term economic interest in the efficient and uninterrupted (except for necessary maintenance shutdowns we schedule on a regular basis) operation of the CHP, we decided to significantly extend the originally scheduled maintenance shutdown period to allow us to make certain repairs and replace certain faulty components. This decision led to a significantly longer than scheduled maintenance shutdown of the CHP in the third and fourth quarters of 2016 and caused us to incur €16.0 million in "items of exceptional size or incidence", including €13.9 million in additional costs as expenditure of exceptional size or incidence and €2.1 million in lost sales in 2016. We may learn additional information about the CHP that adversely affects us in the future, such as unknown or contingent liabilities, technical problems and issues relating to compliance with applicable laws. Any such liabilities or problems, individually or in the aggregate, could prevent us from realizing the expected benefits from the CHP Acquisition and could have a material adverse effect on our business, financial condition and results of operations.

Our ability to supply electricity to the public power grid will be dependent upon transmission and distribution systems and our reliance on third parties.

The sale and supply of electricity produced by the CHP to the public grid is dependent upon the infrastructure of the local power grid systems. We have no control over the operation of these power grid systems and we must rely on independent third-party power grid system operators. Different companies operate the transmission grids and the distribution grids in Germany. The transmission grid in the region where the CHP is located is operated by E.DIS AG and there are a number of different operators of distribution grids.

Any failure of such power grid systems or reduction of available capacity, including as a result of grid congestion, natural disasters, insufficient maintenance or inadequate development, could prevent us from selling and supplying electricity from the CHP. In Germany, grid congestion has recently caused operational issues for certain power generation plants, as the increase of co-generation and renewable energy in Germany that has a priority feed-in right to German power distribution networks has led to a reduction of available grid capacity for conventional power plants. In addition, as these power grid systems are operated by independent third parties who will not be our contractual partners, we will not carry insurance in this regard which would compensate us in the event of an operational failure. Additionally, under the German Energy Industry Act (*Energiewirtschaftsgesetz*— EnWG), network operators are responsible for the security and reliability of the power supply system and required to balance differences between generation and consumption. Therefore, if the safety or reliability of the transmission system is endangered, particularly in the case of grid bottlenecks, network operators are required to take remedial grid-related or market-related action, including changes to current electricity feed-in, transit and output. In doing so, under the EnWG and the German Renewable Energies Act *(Erneuerbare Energien Gesetz*—EEG*)*, network operators may choose to disconnect power plants from the grid temporarily to reduce or prevent congestion. In any such case, conventional power plants would be the first to be disconnected, followed by co-generation plants and renewable power plants. We would not be entitled to compensation by the network operator for the losses incurred as a consequence of such measures. Due to the nuclear power phase-out and as renewable power generation and cogeneration increases rapidly in Germany and the capacity of affected transmission and distribution grids is often not expanded sufficiently to accommodate this increase, there is an increasing risk of grid congestion and subsequent regulation of feed-in power capacity of conventional power plants during certain hours.

Any failure of the power grids or a disconnection of the CHP from the power grid, e.g., due to congestion and respective measures by the network operator, could negatively impact our electricity sales, and could have a material adverse effect on our business, financial condition, results of operations and cash flows.

As a result of the CHP Acquisition, we are directly subject to a wide range of laws and regulations specifically governing the German energy sector and the disposal of waste, which are subject to constant change.

As a result of the CHP Acquisition, we are directly subject to a wide range of laws and regulations specifically governing the German energy sector and the disposal of waste. See "*Business—Regulatory Environment—Regulation governing the Operation of the CHP*".

The operating costs and results of operations of Progroup Power 1 GmbH and the CHP will be significantly impacted by the relevant regulatory framework for the electricity sector both on the European and the national level. In the past years, this regulatory framework has been subject to substantial change and it will continue to be subject to change in the future. Such change is not only due to legislative reforms, but is also prompted by administrative and judicial decisions. See also "*—Our energy costs, in particular in Germany, are dependent on the regulatory framework for the electricity sector, which is subject to constant change and, in addition, we may face material cost increases if we lose certain financial privileges which we benefit from in Germany with regard to the Renewable Energies Act (Erneuerbare Energien Gesetz, "EEG") surcharge and network access fees and other fees*".

Any such changes, in particular any loss or significant reduction of certain financial privileges we currently enjoy under the German Renewable Energies Act or the German Ordinance on Electricity Network Access Fees, could have a material adverse effect on our business, financial condition, results of operations and cash flows. As another example, the fluidized bed boiler (*Wirbelschichtkessel*) of the CHP for the thermal utilization of refuse-derived fuels currently benefits from an exemption under the CO_2 emissions trading scheme under the German Greenhouse Gas Emission Trading Act *(Treibhausgas-Emissionshandelsgesetz, "**TEHG**")*. A partial or outright loss of this exemption, as a result of either the CHP Acquisition or legal changes in the future, would result in significant additional administrative expenses as well as costs for purchasing CO_2 emission certificates. Any further tightening of general emission limits under relevant EU or German laws and regulations may require us to incur significant capital expenditure and ensure continued compliance by the CHP with all relevant laws and regulations. Since the CHP primarily uses refuse-derived fuels (including processed household and commercial waste), the operation of the CHP is particularly tightly regulated and is subject to a high level of regulatory scrutiny. Any breach of emissions limits under applicable laws and regulations, for example, due to equipment malfunction or a failure of the procedures for screening the waste before it is being incinerated, may force us to temporarily shut down the CHP or cause the relevant regulators to impose administrative sanctions and/or modify the operating permits for the CHP, which could result in significant costs.

In addition, the reduction or elimination of certain energy-related tax credits and exemptions or other changes in tax laws, in particular under the German Electricity Tax Act (*Stromsteuergesetz*—StromStG) and the German Energy Tax Act (*Energiesteuergesetz*—Energie StG), could have a material adverse effect on our business, financial condition, results of operations and cash flows. Finally, we may be adversely affected by any regulatory changes that may favor recycling over the thermal utilization of the refuse-derived fuels used in the operation of the CHP. For example, certain counties (*Landkreise*) in which one of our suppliers of refuse-derived fuels operates have recently adopted a new scheme for the collection of certain recyclables and organic waste. As a result of this change, other regulatory changes or similar developments in other regions, the amount and quality of household waste our supplier will be able to collect will likely decrease which will make it more difficult for our supplier to supply us with the agreed amount of refuse-derived fuels under the supply agreement, it may become more difficult to obtain the required quality and/or quantities of refuse-derived fuels to ensure the operation of the CHP in the future and/or the waste disposal fees we are able to charge for the thermal utilization of the refuse-derived fuels may decrease, which could have a material adverse effect on our business, financial condition, results of operations and cash flows.

Furthermore, we are subject to various compliance, reporting and audit requirements under applicable laws and regulations, which require us to incur additional costs, including for the services of external advisers. Under the German Energy Services Act (EDLG), for example, certain larger companies are required to carry out an energy audit, unless they have implemented an energy management system (EnMS). Since the CHP has implemented an EnMS, it is currently exempt from the energy audit requirement. However, the requirements of the EDLG also apply to current members of the Group and the Company as well as certain of its subsidiaries will still be required to carry out an energy audit under the EDLG. Failure to comply with these and other requirements and any relevant laws or regulations could also expose us to fines. *See* "*Business—Regulatory Environment—Regulation governing the Operation of the CHP—Energy Services Act (EDLG)*".

RISKS RELATED TO OUR STRUCTURE AND FINANCIAL POSITION

Our debt agreements contain customary financial and restrictive covenants that limit our operating flexibility.

The conditions of issue of the Senior Secured Notes, the Super Senior Revolving Credit Facility, the Existing Senior Secured Facilities and the New Senior Secured Facilities contain, or will contain, covenants significantly restricting our ability to, among other things:

- incur or guarantee additional indebtedness and issue certain preferred stock,
- create or incur liens,
- prepay or redeem subordinated debt or equity,

- make certain restricted payments and certain investments or sell or transfer certain assets,
- engage in certain transactions with affiliates or subsidiaries,
- create encumbrances or restrictions on the payment of dividends or other distributions, loans or advances to, and on the disposal, transfer or lease of assets by subsidiaries,
- sell, lease or transfer certain assets, including capital stock of subsidiaries,
- consolidate or merge with other entities, and
- impair the security interest for the benefit of the holders of the Senior Secured Notes, respectively.

In addition, the Super Senior Revolving Credit Facility contains a financial covenant as described under "*Description of Certain Financing Arrangements—Super Senior Revolving Credit Facility*".

Any future debt agreements that we enter into may have covenants that are even more restrictive. The requirement that we comply with these and any future provisions may materially adversely affect our ability to react to changes in market conditions, take advantage of business opportunities we believe to be desirable, obtain future financing, fund needed capital expenditures, or withstand a continuing or future downturn in our business.

If we are unable to comply with the financial and restrictive covenants included in the conditions of issue of the Senior Secured Notes, the Super Senior Revolving Credit Facility, the Existing Senior Secured Facilities, the New Senior Secured Facilities or any future debt agreements, there could be a default under such agreements, which could result in an acceleration of repayment.

As described in the preceding risk factor, the conditions of issue of the Senior Secured Notes, the Super Senior Revolving Credit Facility, the Existing Senior Secured Facilities and the New Senior Secured Facilities contain, and any future debt agreements we enter into may contain, certain financial and restrictive covenants. Our ability to comply with these covenants, including meeting financial ratios and tests, depends on a number of factors, some of which may be beyond our control, such as a deterioration of the industry and markets in which we operate or a deviation from the assumptions contained in our business plan. As a result, we may be unable to comply with our financial and restrictive covenants, and any failure may materially adversely affect our margins and results of operations and financial condition.

The breach of a financial or other covenant or our failure to meet any of our obligations under any of the agreements governing our debt may result in a default under such agreements, which in turn could result in a number of adverse consequences including, prohibiting us from drawing additional funds under credit facilities, significant increases in interest rates and other financing costs, the acceleration of all outstanding amounts under such agreements requiring us to immediately repay the related debt in whole or in part, and/or the commencement of foreclosure or other enforcement actions against any of our assets securing such debt. In addition, any default may expose us to requests by our suppliers for advance payments for deliveries and a reduction or cancellation by credit insurers of their commitments. Defaults may also trigger cross-default and cross-acceleration clauses contained in our other debt agreements, including the conditions of issue of the Senior Secured Notes, and our liquid funds and short-term cash flow may be insufficient to service any of the debts in the circumstances described above. Accordingly, any failure by us to service our debts may have a materially adverse effect on our ability to satisfy our obligations, including under the Senior Secured Notes.

Our substantial leverage may make it difficult for us to operate our business.

As we execute our various ongoing and proposed expansion projects and utilize the available facilities under our various financing arrangements, including under Facility C of the Existing Senior Secured IKB Facilities, Existing Senior Secured SaarLB Facility, Facility A of the Senior Secured Commerzbank Facilities, the Senior Secured HSBC Facility and the New Senior Secured Facilities, we expect our indebtedness to increase significantly over the next few years, and we have, and expect to continue to have, increasingly significant debt service obligations. See "*Description of Certain Financing Arrangements*", "*Management's Discussion and Analysis of Financial Condition and Results of Operations*" and "*Summary Consolidated Financial and Other Information*". We further have the ability to borrow an additional €50 million under our Super Senior Revolving Credit Facility. As of March 31, 2019, after giving *pro forma* effect to the proposed issuance of the Additional Notes and the redemption of the Floating Rate Notes, we would have had *pro forma* senior secured net debt of €569.0 million and a *pro forma* senior secured net debt to adjusted EBITDA ratio of 2.1x.

The expected increase in our leverage could have important consequences, including:

- making it more difficult for us to satisfy our obligations with respect to our debt and liabilities;
- increasing our vulnerability to, and reducing our flexibility to respond to, general adverse economic and industry conditions;
- requiring the dedication of a substantial portion of our cash flow from operations to the payment of principal of, and interest on, our indebtedness, thereby reducing the availability of such cash flow to fund working capital, capital expenditures, acquisitions, joint ventures, product research and development, or other general corporate purposes;
- restricting us from pursuing acquisitions or exploiting business opportunities;
- limiting our flexibility in planning for, or reacting to, changes in our business, the competitive environment and the industry in which we operate;
- negatively impacting credit terms with our suppliers and other creditors;
- exposing us to increases in interest rates with respect to our floating rate debt instruments, such as the Super Senior Revolving Credit Facility, the Existing Senior Secured GBP Facility, the Existing Senior Secured HSBC Facility and the New Senior Secured Erste Bank Facility;
- placing us at a competitive disadvantage compared to our competitors that are not as highly leveraged; and
- limiting our ability to obtain additional financing to fund future operations, capital expenditures, business opportunities, acquisitions and other general corporate purposes and increasing the cost of any future borrowings.

Any of these or other consequences or events could have a material adverse effect on our margins and results of operations and financial condition, which in turn, could have a material adverse effect on our ability to satisfy our obligations, including under the Senior Secured Notes.

Furthermore, we may incur substantial additional indebtedness in the future. Although our Super Senior Revolving Credit Facility and the conditions of issue of the Senior Secured Notes contain restrictions on the incurrence of additional indebtedness, the restrictions are subject to a number of significant qualifications and exceptions and, under certain circumstances, the amount of indebtedness that could be incurred in compliance with these restrictions could be substantial. In addition, under the "*Limitation on Restricted Payments*" covenant in each of the conditions of issue and the Super Senior Revolving Credit Facility we are permitted to make significant dividend payments and other distributions, which could also increase our leverage. To the extent we become even more leveraged than anticipated or incur additional obligations, the risks described above will intensify.

Borrowings under our Super Senior Revolving Credit Facility, the Existing Senior Secured GBP Facility, the Existing Senior Secured HSBC Facility and the New Senior Secured Erste Bank Facility will bear interest at floating rates that could rise significantly, increasing our interest cost and debt and reducing our cash flow.

A substantial part of our indebtedness, including our borrowings under the Existing Senior GBP Facility and potential future borrowings under the Super Senior Revolving Credit Facility, the Existing Senior Secured HSBC Facility and the New Senior Secured Erste Bank Facility, will be at variable rates of interest, which could rise significantly in the future. Although we may enter into and maintain certain hedging arrangements designed to fix a portion of these rates, there can be no assurances that hedging will continue to be available on commercially reasonable terms. Hedging itself carries certain risks including that we may need to pay a significant amount (including costs) to terminate any hedging arrangements. If interest rates rise in the future, our interest expense associated with any variable rate obligations that are not hedged would increase, even though the amounts borrowed would remain the same, reducing cash flow available to fund future operations, capital expenditures, business opportunities, acquisitions and other general corporate purposes, including satisfying our debt service obligations, including under the Senior Secured Notes. Please also see "*Management's Discussion and Analysis of Financial Condition and Results of Operations—Quantitative and Qualitative Disclosures about Market Risk—Interest rate risk*".

Changes in, or uncertainty relating to, the EURIBOR, LIBOR, WIBOR, PRIBOR or BUBOR calculation process may adversely affect the interest we pay on our Super Senior Revolving Credit Facility, our Existing Senior Secured GBP Facility, our Existing Senior Secured HSBC Facility and our New Senior Secured Erste Bank Facility.

The Super Senior Revolving Credit Facility will bear interest at interest rates based on EURIBOR, LIBOR, WIBOR, PRIBOR or BUBOR, as applicable, the Existing Senior Secured GBP Facility bear interest at interest rates based on LIBOR and the Existing Senior Secured HSBC Facility and the New Senior Secured Erste Bank Facility will bear interest rates based on EURIBOR.

Following allegations of manipulation of LIBOR, regulators and law enforcement agencies from a number of governments and the European Union have been conducting investigations into whether the banks that contribute data in connection with the calculation of daily EURIBOR or the calculation of LIBOR may have been manipulating or attempting to manipulate EURIBOR and LIBOR. In addition, LIBOR, EURIBOR and other interest rates or other types of rates and indices which are deemed to be "benchmarks" are the subject of ongoing national and international regulatory reform, including the implementation of the IOSCO Principles for Financial Market Benchmarks (July 2013) and the new European regulation on indices used as benchmarks in financial instruments and financial contracts or to measure the performance of investment funds, which entered into force on June 30, 2016. Following the implementation of any such reforms, the manner of administration of benchmarks may change, with the result that they may perform differently than in the past, or benchmarks could be eliminated entirely, or there could be other consequences which cannot be predicted. For example, on July 27, 2017, the UK Financial Conduct Authority announced that it will no longer persuade or compel banks to submit rates for the calculation of the LIBOR benchmark after 2021 (the "**FCA Announcement**"). The FCA Announcement indicates that the continuation of LIBOR on the current basis cannot and will not be guaranteed after 2021. The potential elimination of the LIBOR benchmark or any other benchmark, changes in the manner of administration of any benchmark, or actions by regulators or law enforcement agencies could result in changes to the manner in which EURIBOR, WIBOR, PRIBOR, BUBOR or LIBOR is determined, which could require an adjustment to the terms and conditions, or result in other consequences, in respect of any debt linked to such benchmark (including but not limited to the Super Senior Revolving Credit Facility, the Existing Senior Secured GBP Facility, the Existing Senior Secured HSBC Facility and the New Senior Secured Erste Bank Facility, whose interest rates are linked to LIBOR and/or EURIBOR). Any such change, as well as manipulative practices or the cessation thereof, may result in a sudden or prolonged increase in reported EURIBOR, WIBOR, PRIBOR, BUBOR or LIBOR, which could have an adverse impact on our ability to service debt that bears interest at floating rates of interest. To the extent that interest rates were to increase significantly, our interest expense could correspondingly increase, thereby reducing our cash flow.

We require a significant amount of cash to service our debt, and our ability to generate sufficient cash depends on factors that may be beyond our control.

Our ability to service and refinance our debt and to fund future operations and capital expenditures is highly dependent on our future operating performance and our ability to generate sufficient cash flow. To a significant degree, our future operating performance and ability to generate cash flows is, in turn, dependent on various general economic, financial, competitive, market, legislative, regulatory and other factors which are outside our control. Due to any of these factors, we may be unable to generate sufficient cash flows from our operating activities, anticipated sales growth, cost saving or operational efficiency improvements, and any future debt or equity financing may not be available to us in amounts which would enable us to pay the principal premium and interest of our indebtedness, including the Senior Secured Notes.

To the extent our cash flow from operating activities is insufficient to meet our liquidity needs and service our debt, we would have to seek additional debt or equity financing. In addition, our subsidiaries may be restricted in certain jurisdictions within which they operate from paying dividends or making other distributions to us. If our future cash flows from operating activities and other capital resources are insufficient to pay our various obligations as they mature or to fund our ongoing liquidity needs, we and our subsidiaries may be forced, among other things, to reduce or delay business activities and capital expenditure, sell assets, or forego opportunities such as acquisitions of other businesses. There can be no assurance that any of these alternatives can be accomplished on a timely basis or on satisfactory terms, if at all. Further, we may be compelled to restructure or refinance all or a portion of our debt, including the Senior Secured Notes, on or before their maturity. We may face the additional risk that in order to refinance our debt, we could be required to agree to more onerous covenants, which would further restrict our business operations. The occurrence of any event described above may have a materially adverse effect on our margins and results of operations and financial condition.

We may be unable to extend or refinance our debt on favorable terms or at all.

Amounts outstanding under our Super Senior Revolving Credit Facility, the Existing Senior Secured Facilities and the New Senior Secured Facilities and other future borrowings must potentially be repaid before the maturity date of the Senior Secured Notes. Our ability to pay and refinance our debt or our ability to fund our working capital and capital expenditures is heavily reliant on our future operating performance and our ability to generate a sufficient cash flow. We may be unable

to achieve any refinancing on a timely basis or on satisfactory terms. We may also be limited in our ability to pursue refinancing alternatives by the terms and conditions of our existing debt agreements. Our inability to refinance our debt obligations on or prior to their maturity on favorable terms or at all could have a material adverse effect on our ability to service and repay the Senior Secured Notes.

SELECTED FINANCIAL AND OTHER INFORMATION

The financial information contained in the following tables is derived from the audited consolidated financial statements of the Company as of and for the fiscal years ended December 31, 2016, 2017 and 2018, from the unaudited consolidated interim financial statements of the Company as of and for the three-month period ended March 31, 2019 as well as from the accounting records and other internal documents of the Company. The results of operations for prior periods are not necessarily indicative of the results to be expected for the full year or any future period.

In addition, we present certain unaudited consolidated financial information for the 12 months ended March 31, 2019. This information was derived by adding our consolidated financial information for the year ended March 31, 2018 derived from our audited consolidated financial statements to our unaudited consolidated financial information for the three months ended March 31, 2019 and subtracting our unaudited consolidated financial information for the three months ended March 31, 2018.

The historical consolidated financial statements and the other historical consolidated financial information presented below have been prepared on the basis of German GAAP, which differs in certain significant respects from IFRS. For a discussion of significant differences between German GAAP and IFRS, see "*Management's Discussion and Analysis of Financial Condition and Results of Operations—Summary of Significant Differences between German GAAP and IFRS*".

In the following tables, we also present certain non-GAAP measures and ratios, including total output, gross profit, EBITDA, EBITDA margin, consolidated net income/(net loss) before income tax, trade working capital, free cash flow, net cash flow, cash flow available for debt service, adjusted cash flow available for debt service, cash flow from change in trade working capital and cash flow from change in total working capital, capital expenditures, total financial debt as well as net financial debt and other *pro forma* data that are not required by, or presented in accordance with, German GAAP. Our management believes that the presentation of these non-GAAP measures is helpful to investors because these and other similar measures are widely used by certain investors, security analysts and other interested parties as supplemental measures of performance and liquidity. However, you should not construe these non-GAAP measures as an alternative to net income determined in accordance with German GAAP or to cash flows from operating activities, investing activities or financing activities. In addition, the non-GAAP measures and ratios, including total output, gross profit, EBITDA, EBITDA margin, consolidated net income/(net loss) before income tax, trade working capital, free cash flow, net cash flow, cash flow available for debt service, adjusted cash flow available for debt service, cash flow from change in trade working capital and cash flow from change in total working capital, capital expenditures, total financial debt as well as net financial debt and other *pro forma* data presented by us may not be comparable to similarly titled measures used by other companies.

You should read the information set forth below in conjunction with the sections "*Presentation of Financial Information*", "*Summary Consolidated Financial and Other Information*" and "*Management's Discussion and Analysis of Financial Condition and Results of Operations*" and the financial statements and the accompanying notes included elsewhere in this special report.

	Year ended December 31,			Three months ended March 31,		Twelve months ended March 31,
	2016	2017	2018	2018	2019	2019
	(audited, unless otherwise stated)			(unaudited)		
	(€ in thousands)					
INCOME STATEMENT AND OTHER DATA						
Sales	**733,228**	**804,256**	**966,118**	**243,786**	**245,356**	**967,688**
Increase/(decrease) in finished goods and work in process	(6,554)	10,298	23,361	(3,608)	(2,573)	24,396
Other operating income	14,713	17,603	17,725	1,573	3,335	19,487
Other own work capitalized	1,116	2,637	7,573	1,521	3,077	9,130
Total output (unaudited)[1]	**742,502**	**834,795**	**1,014,778**	**243,273**	**249,196**	**1,020,701**
Cost of materials	(371,550)	(430,481)	(493,641)	(119,321)	(117,791)	(492,112)
Gross profit (unaudited)[2]	**370,952**	**404,314**	**521,137**	**123,952**	**131,405**	**528,589**
Personnel expenses	(61,423)	(68,326)	(78,925)	(18,367)	(21,352)	(81,910)
Other operating expenses	(154,293)	(160,425)	(168,800)	(42,355)	(42,501)	(168,946)
Other taxes	(1,479)	(1,449)	(1,453)	(350)	(328)	(1,431)
EBITDA (unaudited)[3]	**154,679**	**180,354**	**275,479**	**69,780**	**67,289**	272,988
Amortization and depreciation of fixed intangible and tangible assets	(47,372)	(50,032)	(58,153)	(12,293)	(13,839)	(59,699)
Extraordinary net income/(loss)	—	—	—	—	—	—
Other interest and similar income	144	65	86	10	19	95
Interest and similar expenses	(25,334)	(23,678)	(32,062)	(6,007)	(6,089)	(32,144)
Consolidated net income/(net loss) before income tax (unaudited)[4]	**81,197**	**100,469**	**181,830**	**44,591**	**47,314**	**184,554**
Taxes on income	(19,793)	(28,058)	(54,865)	(12,310)	(13,903)	(56,457)
Consolidated net income/(loss) for the period	**61,404**	**72,412**	**126,965**	**32,280**	**33,411**	**128,096**

	As of December 31,			As of March 31,
	2016	2017	2018	2019
	(audited, unless otherwise stated) (€ in thousands)			(unaudited) (€ in thousands)
BALANCE SHEET AND OTHER DATA				
Cash-in-hand, bank balances	37,370	117,946	148,431	135,993
Trade working capital (unaudited)[5]	75,486	114,199	169,481	181,800
Fixed assets	639,855	640,980	742,184	807,648
Total assets	**836,815**	**946,356**	**1,147,504**	**1,223,949**
Total liabilities (unaudited)[6]	**577,206**	**669,042**	**831,986**	**873,660**
Total financial debt (unaudited)[7]	**455,327**	**537,519**	**674,033**	**702,007**
Net financial debt (unaudited)[8]	**417,957**	**419,572**	**525,602**	**566,014**

	Year ended December 31,			Three months ended March 31,		Twelve months ended March 31,
	2016	2017	2018	2018	2019	2019
	(audited, unless otherwise stated)			(unaudited)		
	(€ in thousands)					
CASH FLOW AND OTHER DATA						
Cash flows from operating activities	152,564	122,706	197,214	31,220	32,075	198,069
Cash flows from investing activities	(23,201)	(47,735)	(158,949)	(18,714)	(70,907)	(211,142)
Free cash flow (unaudited)[9]	**129,363**	**74,971**	**38,265**	**12,506**	**(38,832)**	(13,073)
Cash flows from financing activities	(110,257)	3,818	(6,267)	423,267	25,875	(403,659)
Net cash flow[10]	**19,106**	**78,789**	**31,998**	**435,773**	**(12,957)**	**(416,732)**
Effect on cash funds of exchange rate movements	(2,498)	1,787	(1,513)	(319)	519	(675)
Adjusted cash flow available for debt service (unaudited)[11]	**140,267**	**60,846**	**10,735**	**6,761**	**(42,810)**	**(38,836)**

(1) Total output (not a German GAAP measure) is calculated as the sum of sales, increase/(decrease) in finished goods and work in process, other operating income and other own work capitalized.

(2) Gross profit (not a German GAAP measure) is calculated by deducting cost of materials from total output.

(3) EBITDA (not a German GAAP measure) is calculated as sales, *plus* increase/(decrease) in finished goods and work in process, *plus* other operating income (excluding any extraordinary income), *plus* other own work capitalized, *minus* costs of materials, *minus* personnel expenses, *minus* other operating expenses (excluding any extraordinary expenses), *minus* other taxes. In response to changes to German GAAP, which have resulted in certain changes to the presentation of our financial information for the fiscal year ended December 31, 2016 in the table above, we have adjusted the way we calculate EBITDA to ensure

consistency and comparability with our EBITDA reported for prior periods. While our reported EBITDA therefore excludes the impact of any "extraordinary" items for all periods presented, it has not yet been adjusted for "items of exceptional size or incidence", which is a new concept under German GAAP introduced by the BilRUG. Excluding the negative effect of €16.0 million in "items of exceptional size or incidence" (including €13.9 million in additional costs as expenditure of exceptional size or incidence and €2.1 million in lost sales) related to a longer than scheduled shutdown of the CHP in 2016, our EBITDA for the fiscal year ended December 31, 2016 would have been €170.7 million.

(4) Consolidated net income/(net loss) before income tax (not a German GAAP measure) is calculated by adding taxes on income back to consolidated net income/(net loss) for the period.

(5) We define trade working capital (not a German GAAP measure) as inventories plus trade receivables, minus trade payables.

Our calculation of trade working capital can be reconciled to the balance sheet as follows:

	As of December 31,			As of March 31,
	2016	**2017**	**2018**	**2019**
	(audited, unless otherwise stated) (€ in thousands)			**(unaudited) (€ in thousands)**
TRADE WORKING CAPITAL				
Inventories	73,944	86,864	110,512	108,001
Trade receivables	59,562	78,859	108,756	128,229
Trade payables	(58,020)	(51,524)	(49,787)	(54,430)
Trade working capital (unaudited)	**75,486**	**114,199**	**169,481**	**181,800**

(6) Total liabilities is calculated as investment grants for fixed assets, plus provisions, plus liabilities, plus deferred income.

(7) Total financial debt (not a German GAAP measure) means bank loans plus finance leases plus bonds, including the Senior Secured Notes.

(8) Net financial debt (not a German GAAP measure) is calculated by deducting cash-in-hand, bank balances from total financial debt.

(9) Free cash flow (not a German GAAP measure) is defined as cash flows from operating activities plus cash flows from investing activities.

(10) Net cash flow (not a German GAAP measure) is defined as net change in cash funds as presented in the Consolidated Cash Flow Statement.

(11) We present adjusted cash flow available for debt service (not a German GAAP measure) as a measure of normalized free cash flow which can be used to service debt. We calculate adjusted cash flow available for debt service as cash flow available for debt service adjusted for the effects of extraordinary net income/(loss) as well as for the €16.0 million in "items of exceptional size or incidence" (including €13.9 million in additional costs as expenditure of exceptional size or incidence and €2.1 million in lost sales) related to a longer than scheduled shutdown of the CHP in 2016.

Our calculations of adjusted cash flow available for debt service is as follows:

	Year ended December 31,			Three months ended March 31,		Twelve months ended March 31,
	2016	**2017**	**2018**	**2018**	**2019**	**2019**
	(audited, unless otherwise stated) (€ in thousands)				**(unaudited) (€ in thousands)**	
ADJUSTED CASH FLOW AVAILABLE FOR DEBT SERVICE						
EBITDA (unaudited)	154,679	180,354	275,479	69,780	67,289	272,988
Cash flow from change in total working capital (unaudited)[(a)]	13,032	(42,487)	(50,100)	(32,331)	(26,161)	(43,930)
– *thereof cash flow from change in trade working capital (unaudited)*	*24,348*	*(38,713)*	*(55,282)*	*(28,531)*	*(12,319)*	*(39,070)*
Taxes on income	(19,793)	(28,058)	(54,865)	(12,310)	(13,903)	(56,457)
Extraordinary net income/(loss)	(921)	(6,240)	(3,519)	(6,900)	(65)	(3,316)
Cash flows from investing activities	(23,201)	(47,735)	(158,949)	(18,714)	(70,907)	(211,142)
Other[(b)]	(496)	(1,228)	(830)	336	872	(294)
Cash flow available for debt service (unaudited)[(c)]	123,300	54,607	7,215	(139)	(42,875)	(35,521)
adding back extraordinary net income/(loss)	(921)	(6,240)	(3,519)	(6,900)	(65)	(3,316)
adding back items of exceptional size or incidence	16,046	—	—	—	—	—
– *thereof additional costs as expenditure of exceptional size or incidence*	*13,914*	—	—	—	—	—
– *thereof lost sales*	*2,132*	—	—	—	—	—
Adjusted cash flow available for debt service (unaudited)	**140,267**	**60,846**	**10,735**	**6,761**	**(42,810)**	**(38,836)**

(a) Cash flow from change in total working capital (not a German GAAP measure) is calculated as (increase)/decrease in inventories, trade receivables and other assets plus increase/ (decrease) in trade payables and other liabilities as presented in the Consolidated Cash Flow Statement.

(b) Other includes other non-cash expense/(income).

(c) Cash flow available for debt service (not a German GAAP measure) means EBITDA adjusted for the effects of changes in total working capital, extraordinary income/(expense), cash flows from investing activities and other, minus taxes on income.

MANAGEMENT'S DISCUSSION AND ANALYSIS OF FINANCIAL CONDITION AND RESULTS OF OPERATIONS

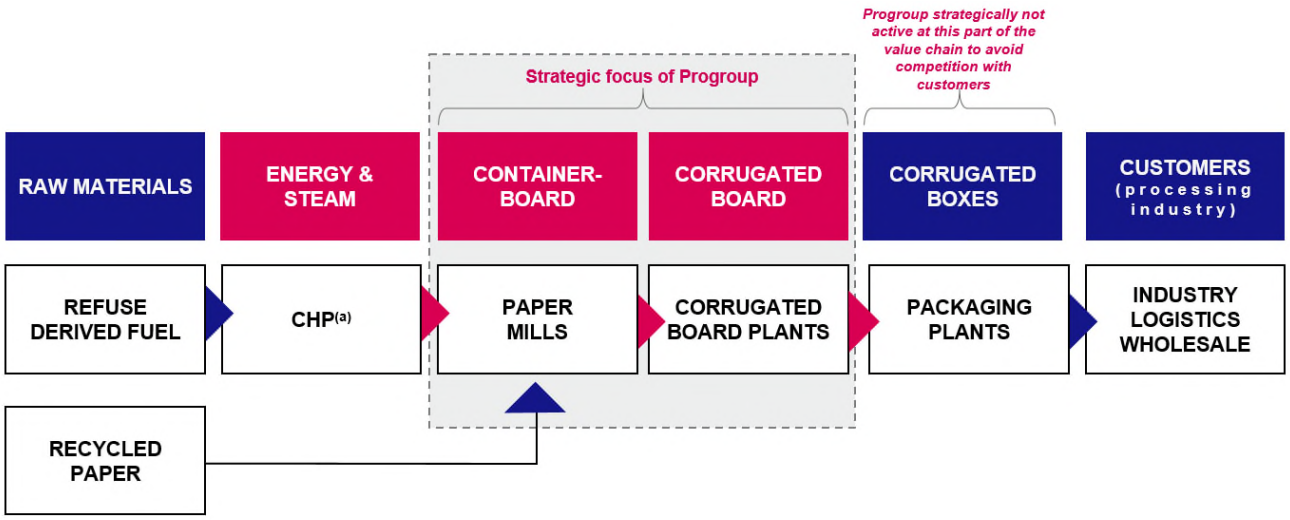
*The following is a discussion of the results of operations and financial condition of the Company as of and for the financial years ended December 31, 2016, 2017 and 2018. The financial information contained in the following section is derived from the audited consolidated financial statements of the Company as of and for the fiscal years ended December 31, 2016, 2017 and 2018, from the unaudited condensed consolidated interim financial statements and notes thereto of the Company as of and for the three-month period ended March 31, 2019 ("**2019 Unaudited Three Months Condensed Consolidated Financial Statements**") as well as from the accounting records and other internal documents of the Company.*

Our historical consolidated financial statements discussed in this special report have been prepared in accordance with German GAAP, which differs in certain significant respects from IFRS. For a discussion of significant differences between German GAAP and IFRS, see "—Summary of Significant Differences between German GAAP and IFRS". In this special report, the term "financial statements" refers to the audited consolidated financial statements and the notes thereto of the Company and its subsidiaries as of and for the fiscal years ended December 31, 2016, 2017 and 2018 and the 2019 Unaudited Three Months Condensed Consolidated Financial Statements.

The following discussion should be read in conjunction with "Selected Financial and Other Information" and our audited consolidated financial statements. In addition, some of the information contained in this discussion, including information with respect to our plans and strategies for our business and our plans for future capital expenditures, contain forward-looking statements that involve risks and uncertainties. You should read "Forward-Looking Statements" for a discussion of the risks related to those statements. You should also read "Business" and "Risk Factors" for more information about us, including a discussion of certain factors that may adversely affect our business, results of operations and financial condition.

OVERVIEW

We are a leading, family-owned producer and supplier of containerboard and corrugated board in Central Europe and are headquartered in Landau, Germany. According to Vision Hunters, we are the third largest producer of corrugated board in Europe (by production capacity) through our corrugated board business ("**Board**") and the sixth largest producer of recycled containerboard in Europe (by production capacity) through our containerboard business ("**Paper**"). We focus on the highly efficient production and processing of standardized grades and customized small batch series of corrugated board sheets for our mostly family-owned box manufacturing customers. In this core market segment, we are the market leader by volumes sold in Germany, Austria, Belgium, the Czech Republic and the Netherlands, according to Vision Hunters. We believe we differentiate ourselves from other market participants (*i.e.*, fully integrated paper and packaging producers) through our strategic focus on those elements of the value chain that bring added-value to our customers in the packaging industry, *i.e.* the automated and integrated production of containerboard and corrugated board. Our customers serve various end markets, including industrial/manufacturing, consumer durables, processed foods, non-food manufactured consumer goods and fresh food. Unlike many fully integrated market players, we do not produce boxes and therefore do not compete with our box manufacturing customers but instead focus solely on the production of containerboard and corrugated board.



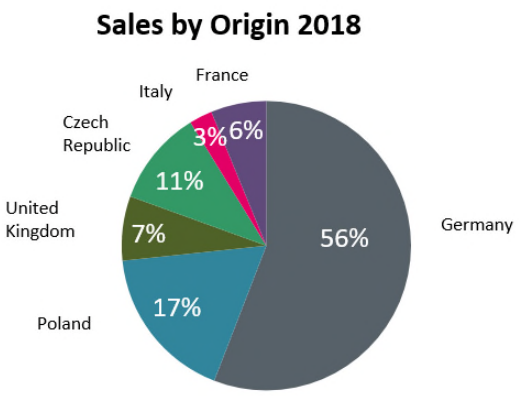
(a) Combined heat and power plant

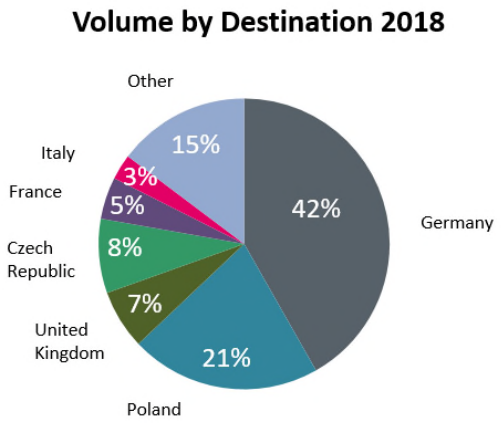
Through our large scale and highly flexible production, built up primarily via a greenfield approach, we are able to realize significant economies of scale. Since we commenced operations in 1992, we have carefully selected the locations of our production sites and have grown organically by pursuing primarily a greenfield strategy to create an optimal geographic set-up of our production sites across the markets in which we operate. As a result, we benefit from a well-invested asset base and production sites with high technological standards, resulting in a relatively low cost base compared to many of our competitors and relatively low requirements for additional capital expenditures in the short- to medium-term. Given the high technological standards of our production facilities, we believe we are well-positioned to benefit from major growth trends in our industry, such as (i) increasing demand for light-weight packaging, (ii) the increasing importance of small-size packaging due to the growing importance of e-commerce, and (iii) the general trend towards a more efficient and sustainable use of raw materials and energy, which can help reduce costs, CO_2 emissions and fresh water consumption.

Our core business comprises Paper and Board. The focus of Paper's operations is highly flexible containerboard production using almost exclusively recycled paper, with high output volumes to increase cost efficiency and short delivery times. In 2016, 2017, 2018 and the first three months of 2019, containerboard produced by Paper accounted for most of the containerboard sourcing requirements of our corrugated board production within Board. We believe that a high degree of vertical integration and the ability of Board to internally source consistently high-quality containerboard in a cost-efficient and highly flexible manner creates significant synergies for our business. In addition, our customers benefit from our integrated approach through short lead times, just-in-time delivery and online ordering and tracking options.

Paper manufactures containerboard at our two paper mills in Germany, with an envisaged total annual production capacity of approximately 1,100,000 tons of containerboard. Our two existing paper machines, PM1 in Burg and PM2 in Eisenhüttenstadt, have complementary production layouts which allow us to produce brown containerboard with grammages between 60-230g/m^2 using almost exclusively recycled paper. This, in turn, allows us to internally source consistently high-quality containerboard with the appropriate widths for Board's ten existing corrugated board production sites in the Czech Republic, France, Germany, Italy, Poland and the United Kingdom, with a total annual production capacity of approximately 1,440,000 tons of corrugated board, including our latest corrugated board "mega plant" (PW12) at Ellesmere Port, United Kingdom. Our historic greenfield location strategy ensures close customer proximity and high production flexibility. Effective as of midnight on December 31, 2015, we further acquired Progroup Power 1 GmbH, the combined heat and power plant (the "**CHP**") adjacent to our paper mill in Eisenhüttenstadt and certain related assets (the "**CHP Acquisition**"). As a result thereof, we started producing a significant portion of the energy required for the operation of our paper machine PM2 ourselves ("**Power**").

In 2018, we sold approximately 1,151,000 tons of corrugated board and approximately 176,000 tons of containerboard to external customers across Europe, resulting in external corrugated board and containerboard sales, respectively, of €840.0 million (86.9% of total sales) and €84.5 million (8.7% of total sales). Paper's total sales in 2018 include €17.9 million (1.9% of total sales) in revenues from the sale of electricity and revenues from the incineration of refuse-derived fuel resulting from the integration of the CHP as well as €9.7 million (1.0% of total sales) in sales from passing





purchased fuel costs to Sales and Solutions GmbH. Total external sales by Board and Paper in 2018 (including sales other than corrugated board or containerboard sales, respectively) amounted to €840.8 million (87.0% of total sales) and €112.9 million (11.7% of total sales). Our total sales and EBITDA in 2018 amounted to €966.1 million and €275.5 million, respectively. Sales in Germany (origin), our core market, accounted for 55.8% of total sales and 42.0% of sales by volume in 2018.

Primarily to support our core business, Paper and Board, we have established our own logistics operations, including a fleet of currently 59 trucks ("**Logistics**"). Most of the remaining €12.4 million in sales (1.3% of total sales) in 2018 were generated by Logistics.

Founded in 1991, we are indirectly majority-owned by Jürgen Heindl, our founder and chief executive officer.

KEY FACTORS AFFECTING OUR RESULTS OF OPERATIONS

We principally generate revenue through the sale of containerboard and corrugated board. We sell our corrugated board only to third-party customers in the packaging industry. Our mills primarily supply the containerboard we produce to Group-owned corrugated board plants; however, only third-party sales are reflected in our revenue. We also sell, to a lesser degree, containerboard to third parties. In 2018, corrugated board sales and external containerboard sales accounted for 86.9% and 8.7%, respectively, of our total sales.

Key factors that affect our operating results are:

- changes in demand and industry production capacity;
- the cost of recycled paper, other raw materials and other costs of manufacturing;
- changes in energy costs, both as a result of market price movements and regulatory changes, including energy tax refund schemes and other statutory accommodations for energy intensive industries;
- changes in freight and transportation costs;
- our ability to pass on price increases in raw materials and other input costs into the prices we charge for third-party sales of containerboard and corrugated board;
- the performance and the utilization of our production sites as well as the performance of certain facilities owned and operated by us, such as the CHP;
- the level of vertical integration between Paper and Board;
- currency exchange rate movements;
- our ability to achieve cost savings; and
- our ability to successfully complete ongoing and future expansion projects.

Because many of these factors are beyond our control and certain of these factors have historically been volatile, past performance is not necessarily indicative of future performance and it is difficult to predict future performance with any degree of certainty.

Cyclical Nature of our Industry and Movement in Market Prices, Raw Materials and Input Costs

Fluctuations in Demand and Industry Capacity

Demand for our products is generally driven by the level of economic growth and activity. Increased levels of economic growth and activity typically result in higher per capita use of packaging materials, both with respect to transportation of goods and consumer presentation. This increase in the use of packaging materials (including paper-based packaging materials), in turn, results in an increase in the demand for our recycled containerboard and corrugated board products. Because the markets for containerboard and corrugated board products in the developed economies in which we primarily operate are generally mature, historically there has been a close correlation between general economic growth and demand for packaging products such as corrugated containers and, therefore, for their component materials such as containerboard and corrugated board. Less developed economies, including those in Eastern Europe, have a lower per capita consumption of packaging materials and therefore also of containerboard and corrugated board products but also, as a result, have the potential for higher growth as per capita consumption of packaging materials increases towards levels of developed economies.

To a lesser degree, demand for corrugated containers and their component materials, including our containerboard and corrugated board, is affected by changes in their market prices. Significant increases in the price of corrugated containers have, on occasion, resulted in decreased demand as end-customers elected to purchase substitute products, such as reusable plastic containers, wooden crates or shrink-wrap.

Historically, prices for containerboard and corrugated board have tended to be cyclical. This cyclicality has resulted from significant imbalances in supply and demand for containerboard. On the one hand, containerboard production capacity cannot be readily adapted to reflect changing market conditions due to the high capital intensity of paper production facilities and the long lead time between the planning and construction of a new containerboard mill. On the other hand, significant containerboard and corrugated board price reductions and inventory growth have resulted when capacity has exceeded demand. In the past, many leading paper manufacturers have reacted to reduced demand by taking downtime and by rationalizing high-cost and inefficient capacity.

Fluctuations in Raw Material Costs

Because the primary raw material for the production of recycled containerboard is recycled paper, the price of which tends to fluctuate, our two recycled containerboard mills (*i.e.*, our paper machines PM1 and PM2) can experience temporary increases and decreases in profits. Except for the period between 2009 and 2010 following the financial and economic crisis, our paper mill in Burg (PM1) has historically generated a relatively stable margin, in part because we primarily sell our containerboard to our own corrugated board plants. As a result of the steady expansion of our corrugated board production capacity in recent years, internal containerboard sales to Board have increased to approximately 82% (or 93%, if we include containerboard sales to swap partners) of the total sales, by volume, of Paper in 2018. With the fast and successful ramp-up of production at our corrugated board production site (PW10) in Trzcinica, Poland, we had already accomplished one of our long-standing strategic goals and had already been operating at the top end of our long-term target corridor with regard to the level of integration between Paper and Board. We expect that the start of production at our new corrugated board production site (PW11) in Drizzona, Italy in early March 2018, the significantly increased capacity of the new corrugated board "mega plant" (PW12) in Ellesmere Port, United Kingdom as well as further improved utilization of our other corrugated board production sites alone will lead to a significant further increase in the corrugated board production of Board, so that we will remain a net purchaser of containerboard in 2019,, i.e. we expect that the recycled containerboard sourcing requirements of our corrugated board production within Board will significantly exceed the internal supply capacities of Paper. As we have already commenced construction of a further corrugated board production site (PW13) in Eisfeld, Germany (with test production expected to start in the fourth quarter of 2019 or the first quarter of 2020) and plan to establish up to three further corrugated board production sites in Central Europe between 2019 and 2021 (including a further corrugated board "mega plant" (PW14) which is envisaged to commence production in late 2020 or early 2021), we expect to successively increase this net short position with regard to containerboard even further at least in the short-term to mid-term. We therefore currently do not expect the volume of our external containerboard sales to significantly increase again unless and until we complete our proposed further paper machine project (PM3). For more details on our expansion projects and investment program, see also"*—Expansion Projects and Investment Program*" below.

Our overall profitability is also affected by the length of time it takes us to translate price increases in raw materials and other input costs into prices we charge for third-party sales of containerboard and corrugated board. To the extent our containerboard is sold internally, our profitability will only be affected by the ability to recover any price increases from third-party sales of corrugated board to our third party customers in the packaging industry. Furthermore, to the extent that selling prices fall, if we are unable to generate cost savings through producing products more efficiently or lower our fixed costs, our results may be negatively affected.

An important driver of recycled paper prices is the balance of supply and demand for paper products in general as well as collection rates of recycled paper. When the price of recycled paper increases, containerboard manufacturers attempt to raise their prices to preserve profit margins, which generally narrow as a result of higher raw material costs. It typically takes approximately two to three months for mills to pass on their raw material price increases to corrugated board manufacturers. In turn, the manufacturers of corrugated board generally attempt to raise prices to recover containerboard cost increases. It generally takes approximately two to three months for these manufacturers, including us, to pass these increases on to their customers.

In a down cycle, as recycled paper prices fall, manufacturers of paper and paper-based packaging products (including manufacturers of containerboard and corrugated board) attempt to maintain prices. In the past, we have typically been able to maintain our prices for two to three months in such a down cycle. As a result, the effect of price fluctuations on our mills and corrugated board operations varies, depending on the relevant point in the industry cycle. During periods of rising containerboard prices, our profitability can therefore be adversely affected. Conversely, during periods of declining containerboard prices, our profitability can be positively affected.

However, our ability to pass the costs of our raw materials and other input costs on to our packaging customers depends on a number of other factors, including the supply and demand balance for containerboard and corrugated board in a particular region and the ability of our customers to maintain or increase prices with their own customers. We generate almost all of our sales through purchase orders from our customers based on our price lists which we adjust in response to market price movements and only have very few contracts with our customers which provide minimum purchase obligations and/or pricing clauses that would allow us to automatically pass increased costs on to our customers. As a result of these factors, there can be no guarantee that the price of recycled paper and the prices for our containerboard and corrugated board products will always be closely correlated. Any extended mismatch between the price of recycled paper and the market prices for our products could have a significant effect on our margins and overall profitability.

For example, between 2009 and 2010, our results of operations and financial condition deteriorated. There were two main reasons for this deterioration. First, the global financial and economic crisis led to a significant drop in the price of recycled paper in the second half of 2008, followed by a significant decrease in the demand for our products and a corresponding decrease in the market prices for both containerboard and corrugated board. Following the significant drop in the prices for recycled paper in the second half of 2008, the prices for recycled paper started to recover in the first half of 2009, notwithstanding the continuing economic weakness and contrary to historic trends. This, in turn, led to a compression of our margins during the third quarter of 2009 when the sales prices for some of our finished products were insufficient to cover our variable input costs. As a result, we incurred significant losses and a few of our competitors were forced to close or mothball less efficient production facilities, which led at least temporarily to a drop in market-wide containerboard and corrugated board capacity. Our margins only returned to more sustainable levels towards the end of 2010, following multiple price increases for recycled paper, containerboard and corrugated board. Conversely, due to a combination of (i) a higher level of integration between our containerboard and corrugated board businesses, (ii) positive effects from measures we took as part of our Continuous Improvement Program and the immediate measures we took at the time in response to the deterioration of our results of operations and financial condition, and (iii) sustained economic growth in Germany in 2014 and 2015, we were able to increase the average selling price for both our containerboard and corrugated board products in 2014 and 2015, while the price of recycled paper generally remained stable throughout 2014 and only moderately increased in the second and third quarters of 2015, which had a significant positive impact on our margins and general profitability. During the course of 2016, corrugated board and containerboard prices slowly and steadily decreased from 2015 price levels. At the same time prices for recycled paper increased throughout the first three quarters of 2016, before decreasing slightly in the fourth quarter of 2016. As a result, following a strong improvement in our operating results in 2014 and 2015, we experienced a leveling of our operating results in 2016.

Due to strong demand, especially from Asia, prices for recycled paper were significantly higher during 2017 compared to 2016, especially during the first half of 2017. The average price per ton for recycled paper grades we purchased was approximately €150 during 2017, compared to €130 during 2016. During the third quarter of 2017, however, prices for recycled paper started to gradually decline again, a trend which continued through the end of 2017, in part as a result of policy changes and stricter import controls in China, which resulted in decreasing recycled paper exports to China. During the fourth quarter of 2017, the average price per ton for recycled paper grades we purchased was approximately €142 per ton, compared to €136 per ton in the fourth quarter of 2016. Partly as a result of the increases in recycled paper prices, prices for recycled containerboard in Europe also steadily increased again during the course of 2017. The average prices for our containerboard increased from €376 per ton (for the overall product portfolio mix sold externally) during 2016 to €413 per ton during 2017. During the course of 2017, we were able to achieve aggregate price increases for our containerboard of €90-100 per ton in total, which are not fully reflected in the average sales figures. On the other hand, the average price per ton for the containerboard we were required to purchase externally also increased in 2017. Party as a result of the increases in recycled containerboard prices, corrugated board prices also increased again during 2017, following the increases in containerboard prices with a slight time lag. During the course of 2017, the average prices for our corrugated board increased from approximately €634 per ton during 2016 to €657 per ton during 2017. During the course of 2017, we were able to achieve aggregate price increases for our corrugated board products of €90-100 per ton in total, which are not fully reflected in the average sales figures.

Due to decreases in demand from outside Europe, resource price levels for recycled paper declined in the first and second quarter of 2018. Since then, prices for recycled paper remained at a favorable level for the rest of the year. The average price per ton for recycled paper grades we purchased was approximately €108 during 2018, compared to €150 during 2017. In the first three months of 2019, the purchasing price for recycled paper remained at an almost stable low price point. On the other hand, prices for both corrugated board and containerboard increased in the first quarter of 2018, remaining elevated for the remainder of the year but with a slight trend towards normalisation in the fourth quarter. The average prices for our containerboard increased from €413 per ton (for the overall product portfolio mix sold externally) during 2017 to €480 per ton during 2018, while the average price per ton for the containerboard we were required to purchase externally also increased in 2018. After a continuously upward trend in 2017 and the first quarter of 2018, prices for recycled containerboard were primarily stable in the second and third quarter of 2018. In the fourth quarter of 2018, prices for recycled containerboard started to decline. This development usually follows the price development of recycled paper. In 2018, we observed an opposite development since purchasing prices for recycled paper declined in the first and second

quarter of 2018 and remained at a low level for the rest of the year 2018. Corrugated board prices increased again during 2018, following the increases in containerboard prices with a slight time lag. During the course of 2018, the average prices for our corrugated board increased 11.1% from approximately €657 per ton during 2017 to €730 per ton during 2018. Following the containerboard market price development, prices for corrugated board increased since March 2017. In March and April 2018, the earlier containerboard price increase was passed on to the corrugated board customers, which led to a price peak in May and a slightly decreasing trend since the beginning of the third quarter.

During the fourth quarter of 2018 and the first quarter of 2019, both containerboard and corrugated board experienced a considerable price normalization, i.e. prices for both containerboard and corrugated board started to decline. Due to the typical time lags in passing on price developments to customers, we expect this normalization of containerboard and corrugated board price levels to further negatively impact our performance in 2019. In the short-to-mid term, we anticipate further potential downward price adjustments as part of the ongoing normalization of the market conditions, which is likely to have a negative impact on our margins and EBITDA.

Fluctuations in Energy Costs

Another important input for us is energy. Our production processes, in particular the production of containerboard at our two mills, are energy intensive. In 2008, we entered into certain framework and ancillary agreements with EnBW for the supply of steam to PM2 via the CHP, which reduced our exposure to fluctuations in gas prices. As described in more detail under "*—The CHP Acquisition*" below, effective as of midnight on December 31, 2015, we acquired Progroup Power 1 GmbH from EnBW, the CHP and certain related assets outright. As a result thereof, we started producing a significant portion of the energy required for the operation of our paper machine PM2 ourselves. The completion of the CHP Acquisition constituted a significant milestone in our efforts to optimize our cost structure and allowed us to significantly reduce our energy costs. However, our production processes are nevertheless reliant on third parties for the supply of energy. Market prices for energy, in particular for electricity, oil and natural gas, have historically been volatile and have had a corresponding effect on our production costs. As a result, we have undertaken significant efforts in recent years to decrease our energy consumption and costs throughout our business. For further information, see "*Business—Procurement/Purchasing—Energy*" and "*Business—Sustainability Focus; Research and Development*".

The key drivers of our energy expenses have been, and will continue to be, fluctuations in the market prices for energy, the performance of the CHP adjacent to our paper mill in Eisenhüttenstadt as well as regulatory decisions. Any extended shutdowns of the CHP may have a negative impact on our results of operations. For example, a longer than scheduled maintenance shutdown of the CHP in the third and fourth quarters of 2016 resulted in €16.0 million in items of exceptional size or incidence, including €13.9 million in exceptional expenses and €2.1 million in lost sales. In addition, in Germany, our core market, energy prices have been strongly impacted by regulatory decisions related to the so-called "*Energiewende*", a significant shift in government policy following the nuclear accident in Fukushima, Japan in 2011. The energy policy in Germany focuses on promoting the development of renewable energy sources and contemplates the complete cessation of the production of nuclear power by 2021. To mitigate the impact of the resulting significant increases in electricity prices for energy-intensive industries, the German government adopted rules that provide for various businesses, including us, to be reimbursed for certain infrastructure investment surcharges necessary for the implementation of the "*Energiewende*". However, those rules have not only been subject to challenges in German courts and EU scrutiny as potentially illegal subsidies, but also continue to be the subject of political scrutiny by various interest groups. Although the relevant rules have been modified to address certain of these concerns, there is no guarantee that they will not change again or that we will continue to be able to benefit from current accommodations, reimbursement rules and/or energy tax refund schemes.

Notwithstanding increases in production volumes, our energy costs have declined in recent years for a variety of reasons, including (i) our efforts to reduce energy consumption, in particular with regard to PM2, (ii) falling energy prices, (iii) the optimization of our energy procurement processes, (iv) the optimization of the operating costs of the CHP, in particular with regard to ash disposal, as well as (v) the full utilization of all available accommodations, credits and refunds under applicable energy laws and regulations. For more information about our energy management efforts, see "*—Sustainability Focus; Research and Development*".

Fluctuations in Freight/Logistics Costs

Our production operations require us to coordinate and monitor complex logistics processes between each step of our internal value chain and our production processes to ensure the efficient flow of materials and products. This includes the shipment of large rolls of containerboard from our two paper mills in Germany to our ten corrugated board production sites in the Czech Republic, France, Germany, Italy, Poland and the United Kingdom as well as the shipment of our finished corrugated board to our customers in the packaging industry (box plants). We meet our freight and logistics requirements mainly through the use of external logistics companies and, to a much lesser extent, our own fleet of currently 59 trucks.

Due to the relatively large size and weight of our products compared to value, freight and logistics expenses play an important role in our business, and fluctuations in freight prices can have a significant impact on our profitability.

Currency Fluctuations

Given the growing geographic spread of our operations, we are increasingly exposed to currency exchange rate fluctuations. For example, the United Kingdom, the Czech Republic and Poland do not use the euro as their national currency. During the year ended December 31, 2018, 7%, 7% and 16% of our total sales derived from sales in British pounds, Czech koruna and Polish zloty, respectively. In addition, we currently finance several of our foreign subsidiaries, including subsidiaries outside the euro zone, through borrowings in euro.

To reduce (but not eliminate) our exposure to exchange rate fluctuations between the euro and the Polish zloty, Progroup Board sp. z o.o. entered into the 2015 Senior Secured PLN Facility on December 1, 2015 to pay back euro denominated intra-Group loans. To finance the investment in our corrugated board production site (PW10) in Trzcinica, Poland, Progroup Board sp. z o.o. entered into the 2016 Senior Secured PLN Facility on May 31, 2016. As of March 31, 2019, PLN 58.9 million (carrying amount at March 31, 2019: €13.7 million, calculated based on an exchange rate of €1.00 = PLN 4.3006, which was the exchange rate of the zloty against the euro reported by the National Bank of Poland on March 31, 2019) in borrowings under the 2015 Senior Secured PLN Facility remained outstanding, and PLN 76.0 million (carrying amount at March 31, 2019: €17.7 million, calculated based on an exchange rate of €1.00 = PLN 4.3006) in borrowings under the 2016 Senior Secured PLN Facility remained outstanding. As of the date of this special report, the same amounts of borrowings remain outstanding under the 2015 Senior Secured PLN Facility and under the 2016 Senior Secured PLN Facility. For more details about the Existing Senior Secured PLN Facilities, including scheduled repayments on the Existing Senior Secured PLN Facilities, see "*Description of Certain Financing Arrangements—Existing Senior Secured PLN Facilities*".

To reduce (but not eliminate) our exposure to exchange rate fluctuations between the euro and the British pound, Progroup Board Ltd. entered into the Existing Senior Secured GBP Facility on December 21, 2017. As of March 31, 2019, the Existing Senior Secured GBP Facility was fully utilized with drawings of GBP3 million (carrying amount at March 31, 2019: €3.5 million, calculated based on an exchange rate of €1.00 = GBP 0.8583, which was the exchange rate of the British pound against the euro reported by the European Central Bank on March 31, 2019). The Existing Senior Secured GBP Facility was fully utilized as of the date of this special report. For more details about the Existing Senior Secured GBP Facility, see "*Description of Certain Financing Arrangements—Existing Senior Secured GBP Facility*".

Prior to 2015, we were not permitted under our former financing arrangements to hedge for currency risks. As a result, fluctuations in the value of local currencies against the euro have had, and may have in the future, a significant effect on our operations and on our reported results in euro and the comparability of our performance between financial periods can be significantly affected by fluctuations in local currencies against the euro. We have since started to implement foreign currency risk management in order to monitor our foreign currency risk and to enable us to consider taking action if we decide to do so, but there is no assurance that such measures will be effective.

The relative strength or weakness of the U.S. dollar is also important for the European containerboard industry, because exports from the European market influence the balance of supply and demand and the price development of containerboard in Europe. Movements in the U.S. dollar exchange rate may also have an effect on trading, because a strong U.S. dollar tends to make U.S. dollar exports less competitive, while a weak euro may create export opportunities for European containerboard producers, which can reduce containerboard supplies in the European market and promote price stability. Conversely, a weak U.S. dollar over a sustained period has historically resulted in lower (U.S. dollar-denominated) exports by European containerboard manufacturers with a negative (for our business) effect on the supply and demand balance and an immediate effect on the pricing of containerboard in Europe. In addition, a weak U.S. dollar over a sustained period has, in the past, also resulted in lower sales by other European manufacturers who ship products in corrugated packaging, resulting in lower European demand for corrugated packaging and, therefore, for our containerboard and corrugated board. A weak U.S. dollar may also result in additional competition in the European market from U.S. manufacturers that have an incentive to sell more products in Europe, due to increased European demand for the relatively lower-priced U.S. goods over higher-priced European goods.

Significant Synergies through High Degree of Vertical Integration between Paper and Board

In 2018, containerboard produced by Paper accounted for approximately 75% of the containerboard, by volume, used by our corrugated board production within Board. As a result of the steady expansion of our corrugated board production capacity in recent years, internal containerboard sales to Board have increased from approximately 62% (or 67%, if we include containerboard sales to swap partners) of total containerboard sales, by volume, of Paper in 2016 to approximately 82% (or 93%, if we include containerboard sales to swap partners) of total containerboard sales, by volume, of Paper in 2018. With the fast and successful ramp-up of production at our corrugated board production site (PW10) in Trzcinica,

Poland during 2017 and early 2018, we had already accomplished one of our long-standing strategic goals and had already been operating at the top end of our long-term target corridor with regard to the level of integration between Paper and Board. We expect that the start of production at our new corrugated board production site (PW11) in Drizzona, Italy in early March 2018, the significantly increased capacity of the new corrugated board "mega plant" (PW12) in Ellesmere Port, United Kingdom as well as further improved utilization of our other corrugated board production sites alone will lead to a significant further increase in the corrugated board production of Board, so that we will remain a net purchaser of containerboard in 2019, i.e. we expect that the recycled containerboard sourcing requirements of our corrugated board production within Board will significantly exceed the internal supply capacities of Paper. As we have already commenced construction of a further corrugated board production site (PW13) in Eisfeld, Germany (with test production expected to start in the fourth quarter of 2019 or the first quarter of 2020) and plan to establish up to three further corrugated board production sites in Central Europe between 2020 and 2023 (including a further corrugated board "mega plant" (PW14) which is envisaged to commence production in late 2020 or early 2021), we expect to successively increase this net short position with regard to containerboard even further at least in the short-term. We therefore currently do not expect the volume of our external containerboard to significantly increase again unless and until we complete our proposed further paper machine project (PM3) in the second half of 2020. For more details on our expansion projects and investment program, see also"—*Expansion Projects and Investment Program*" below

With an envisaged total annual containerboard capacity of approximately 1,100,000 tons, Paper produced approximately 1,020,000 tons and 1,035,000 tons of containerboard in 2018 and 2016, respectively. In 2018, approximately 811,000 tons were sold internally to Board (2016: 738,000 tons of internal containerboard sales), and a further approximately 111,500 tons were sold pursuant to swap agreements with other containerboard producers (2016: 106,000 tons of sales to swap partners), which allow us to reduce transportation costs, optimize our production program and swap internally produced containerboard for certain containerboard grades we do not produce in sufficient quantities, such as kraftliner. The remaining approximately 64,000 tons of containerboard we sold in 2018 were sold externally (2016: approximately 198,000 tons of external containerboard sales, excluding sales to swap partners). With a total annual corrugated board production capacity of approximately 1,440,000 tons (including (i) 100,000 tons of capacity of our new corrugated board production site (PW11) in Drizzona, Italy, which commenced production in early March 2018 and (ii) more than 200,000 tons of capacity of our new corrugated board "mega plant" (PW12) in Ellesmere Port, United Kingdom, which commenced production in January 2019) as of the date of this special report (2016: total annual corrugated board production capacity of approximately 1,130,000 tons), Board produced approximately 1,151,000 tons of containerboard in 2018, compared to approximately 930,000 tons of corrugated board in 2016. We believe that a high degree of vertical integration and making full use of the ability to internally source consistently high-quality containerboard in a cost-efficient and highly flexible manner creates significant synergies for our business. At the same time, we believe that the high share of internal containerboard sales may help us stabilize or improve our overall Group margins by reducing our exposure to lower or more volatile margins (compared to corrugated board margins) of certain external containerboard sales. Our customers benefit from our integrated approach through short lead times, just-in-time delivery and online ordering and tracking options. The steady increase in the degree of vertical integration between Paper and Board over the last few years has also been allowing us to further optimize our internal logistics and supply chain.

Expansion Projects and Investment Program

To maintain and further strengthen our position as a leading, low-cost corrugated board producer in Europe in the long-term and to allow us to successfully meet ongoing and expected future market growth and the requirements of our customers with regard to supply certainty and product quality, we intend to continue to make prudent and controlled investments to further expand and improve the efficiency of our production facilities as part of our long-term "Two Twentyfive" strategy. In addition to further capacity expansion, our "Two Twentyfive" strategy, among other things, also contemplates a gradual technological transition and generation change away from the use of corrugators with a trim width of 2.5m, which are installed and currently in use at some of our older corrugated board production sites, to the use of more modern corrugators with trim widths of 2.8m or 3.3m at most of our corrugated board production sites. Following the successful completion of the ramp-up of production at our corrugated board production site (PW9) in Plössberg, Germany, which commenced production in October 2015, we had already accomplished one of our long-standing strategic goals in 2016 and were already operating within our target corridor with regard to the level of integration between Paper and Board. However, in the short-term to mid-term, we still intend to continue to focus our investment activities on further expanding our corrugated board production capacity to be able to seize what we believe are numerous further market opportunities for profitable growth, similar to those that led to the successful establishment of our most recent production sites (PW9, PW10, PW11 and PW12) in Plössberg (Germany), Trzcinica (Poland), Drizzona (Italy) and Ellesmere Port (United Kingdom). In continuation of our organic growth strategy, we intend to primarily achieve further growth by pursuing further expansion opportunities via greenfield projects.

In addition to the fast and successful ramp-up at our corrugated board production site (PW10) in Trzcinica, Poland during 2017 and early 2018 following commencement of commercial production in April 2017, we commenced production at our corrugated board production site (PW11) in Drizzona, Italy, in early March 2018 and at our newest corrugated production

site (PW12) in Ellesmere Port, United Kingdom, in January 2019. As with our corrugated board production site (PW9) in Plössberg, Germany and our corrugated board production site (PW10) in Trzcinica, Poland, we established our production site (PW11) in Drizzona, Italy, as a packaging park project in immediate proximity to the existing packaging plant of a customer, Italian packaging specialist Imbal Carton S.r.l., which allows us to supply this new customer largely without freight and other logistics costs. The commencement of production at our corrugated board production site (PW11) in Drizzona, Italy, with an annual corrugated board production capacity of approximately 100,000 tons, also marked our entry into the largest corrugated sheet board market in Europe. With a total investment of approximately €85-90 million into the establishment of our new corrugated board "mega plant" (PW12) in Ellesmere Port, United Kingdom to replace our now decommissioned corrugated board production site (PW8) located just a few kilometers from the new site, we have now also become a significant player in the UK market. This newest corrugated board production site operates with a 3.35m trim width and has an annual corrugated board production capacity of more than 200,000 tons, more than double the production capacity of approximately 85,000 tons of the old site (PW8), which we established in 2009 with a used corrugator with a 2.5m trim width. We believe that the new production site, with its large capacity and state-of-the-art equipment, is one of the largest and most efficient corrugated sheet board plants globally and positions us well to further grow in the United Kingdom, a market in which we have historically been able to achieve above average EBITDA margins.

While we have historically pursued a pure greenfield growth strategy, including the three packaging park projects (PW9, PW10 and PW11), our newest corrugated board production site (PW12) in the United Kingdom as well as the proposed new corrugated board production sites (PW13 and PW14), we are also evaluating and will continue to evaluate opportunities to acquire attractive assets from competitors which would complement our existing network of production sites, advance our goal of further increasing our corrugated board production capacity and meet the other internal investment and financing criteria described above. In addition, in order to maintain and/or strengthen our relationships with certain large and long-standing customers or in response to opportunities to establish relationships with significant new customers, we will consider additional packaging park projects whereby we would establish corrugated board production sites at or in proximity to the packaging plants of the relevant customers.

With the fast and successful ramp-up at our corrugated board production site (PW10) in Trzcinica, Poland, we had already accomplished one of our long-standing strategic goals and had already been operating at the top end of our long-term target corridor with regard to the level of integration between Paper and Board. We expect that the start of production at our new corrugated board production site (PW11) in Drizzona, Italy in early March 2018, the significantly increased capacity of the new corrugated board "mega plant" (PW12) in Ellesmere Port, United Kingdom as well as further improved utilization of our other corrugated board production sites alone will lead to a significant further increase in the corrugated board production of Board, so that we will remain a net purchaser of containerboard in 2019, i.e. we expect that the recycled containerboard sourcing requirements of our corrugated board production within Board will significantly exceed the internal supply capacities of Paper. In the short-term to mid-term, we nevertheless intend to continue to focus our investment activities on further expanding our corrugated board production capacity. We have already commenced construction of a further corrugated board production site (PW13) in Eisfeld, Germany, with test production expected to start in the fourth quarter of 2019 or the first quarter of 2020. We expect to make total net investments (net of subsidies) of approximately €60 million at this site, which is slightly higher than our earlier estimates of approximately €50 million. This cost increase primarily relates to additional investments which will increase the annual corrugated board production capacity of the new site to approximately 175,000 tons, from the originally proposed capacity of approximately 140, 000 tons. Higher than originally expected civil engineering costs (due to the booming construction sector) also contributed to the expected overall cost increase. In addition, we plan to establish up to three further corrugated board production sites in Central Europe between 2020 and 2023, including a further corrugated board "mega plant" (PW14), which we expect will operate with a 3.35m trim width and have an annual corrugated board production capacity of up to 215,000 tons. We expect to invest approximately €70-75 million into this new plant, which will have capabilities similar to our "mega plant" (PW12) in Ellesmere Port, United Kingdom and, we envisage, will commence production in late 2020 or early 2021. Primarily to fund our expected investments into this new site, we entered into the New Senior Secured Erste Bank Facility, the New Senior Secured LBBW Facilities and the New Senior Secured SaarLB Facility, with total commitments of €75 million. For more details about these New Senior Secured Facilities, see "*Description of Certain Financing Arrangements—New Senior Secured Erste Bank Facility*", "*Description of Certain Financing Arrangements—New Senior Secured LBBW Facilities*" and "*Description of Certain Financing Arrangements—New Senior Secured SaarLB Facility*". As a result of these proposed additional corrugated board production sites, we expect our annual corrugated board production capacity to increase from approximately 3.0 billion square meters (including our corrugated board production sites (PW11 and PW12) in Drizzona, Italy and Ellesmere Port, United Kingdom) to approximately 4.2 billion square meters.

Furthermore, in order to preserve our ability to internally source consistently high-quality containerboard in a cost-efficient and highly flexible manner in sufficient quantities to meet the majority of the sourcing requirements of the expanding corrugated board production within Board, we have also begun to actively pursue the realization of a further paper machine project (PM3) in Sandersdorf-Brehna, Germany. Earthworks for the new paper machine already started in January 2019 and, subject (among other things) to obtaining the missing regulatory approvals and construction proceeding according to plan, we currently expect this further state-of-the-art paper machine to start production in the second half of 2020, with a

total annual containerboard capacity of approximately 750,000 tons. Following completion of the ramp-up phase of this potential further paper mill, this would mean an increase of the total annual containerboard capacity of Paper from currently approximately 1,100,000 tons to approximately 1,850,000 tons. The new paper machine (PM3) will have a 9.2m trim width, which would allow us to optimize containerboard production to meet the requirements of the more modern corrugators with trim widths of 2.8m or 3.3m at most of our newer corrugated board production sites, which would result in low volumes of cutting scrap and higher productivity. Once PM3 has commenced operations, we also plan for further specialization of our then three paper machines which we expect will further enhance the productivity of all our paper machines as each paper mill will be able to focus on clearly defined paper grades. We currently expect total net investment costs (i.e. net of expected subsidies) of approximately €465 million for this new paper machine project over a several year period, including approximately €116.7 million of initial expenditures (e.g. for advance payments for the paper machine and certain preliminary work) we had already incurred as of the end of the first quarter of 2019. We expect to fund any such investments with a combination of cash generated from our operating activities and additional borrowings, including drawings under the Existing Senior Secured Commerzbank Facilities, the Existing Senior Secured IKB Facilities, the Existing Senior Secured SaarLB Facility and the Existing Senior Secured HSBC Facility. The currently expected total net investment costs of approximately €465 million in connection with the proposed establishment of our newest paper mill (PM3) significantly exceed our earlier estimates of €375-400 million, primarily due to certain additional strategic and value accretive investments we decided to make, which we expect to have significant economical as well as ecological benefits once the new paper mill will be operational. A large portion of the increase in the expected total net investment costs relates to investments into more energy-efficient components as part of our overall waste-heat concept from the new paper mill. The installation of these components is not legally mandated, but we expect it will result in significant cost savings in the mid- to long-term as well as a reduction of CO_2 emissions of up to 151,000 tons per year. In addition, we decided to install a closed cycle waste water treatment system. Once our new paper mill is operating at the full intended capacity of 750,000 tons of containerboard, we expect that this closed cycle waste water treatment system will help us to avoid approximately 3,775,000 m^3 of waste water per year, cut the fresh water consumption of the new paper mill by 3,750,000 m^3 and reduce CO_2 emissions by approximately a further 19,900 tons per year. At full capacity, the system is expected to produce approximately 65,000,000 kWh per year of bio gas as part of the waste water treatment process. The paper mill will use this bio gas in connection with its production process, cutting its natural gas consumption by approximately 7-8%. We further believe that the proposed closed cycle waste water system will minimize our reliance on third party waste water treatment facilities (which have led to capacity constraints at our existing paper machine (PM2) in Eisenhüttenstadt, Germany in the past) and result in significant related cost savings in the future. We further decided to install (i) a steam turbine which will allow us to produce a portion of the electricity requirements of the new paper mill in an environmentally friendly manner and (ii) a direct rail connection, which will give us the option to ship a portion of our future production in an environmentally friendly manner by rail and, we believe, result in savings of freight cost and other operational benefits. An increase in the expected costs of the necessary civil engineering works, due to the booming construction sector, also contributed to the overall increase in the expected total net investment costs.

Even successful expansion (or acquisition) projects can have a negative impact on our profitability in the short-term. For example, our reduced profitability between 2009 and 2010 following the global financial and economic crisis coincided with the launch of production at our corrugated board production sites in Strykow, Poland (PW7) and Ellesmere Port, United Kingdom (PW8) and at our paper mill in Eisenhüttenstadt, Germany (PM2), which involved significant start-up and ramp-up costs. The related costs were largely expected and are normal in our industry, but their timing further exacerbated our financial condition. In addition, even in a positive market environment, it typically takes two to three years from the launch of a new corrugated board production site until the production site is fully utilized. For example, we launched our corrugated board production site in Strykow, Poland (PW7) in 2009, but the site only completed its ramp-up phase in 2012 and therefore, did not operate at a three-shift capacity for an entire year until 2013. Our corrugated board production site (PW9) in Plössberg, Germany commenced production in October 2015 and completed its ramp-up phase in 2017, while our corrugated board production site (PW10) in Trzcinica, Poland completed a very fast and successful ramp-up and will likely operate at a full, three-shift capacity for an entire year for the first time in 2018. Our corrugated board production site (PW11) in Drizzona, Italy commenced production in March 2018 and we expect the ramp up of production to continue through the end of 2020. We expect our newest corrugated board production site (PW12) in Ellesmere Port, United Kingdom (which commence production in January 2019) and our proposed new corrugated board production site (PW13) in Eisfeld, Germany and proposed further corrugated board “mega-plant” (PW14) described above to also undergo ramp-up phases of different durations with a corresponding impact on our result of operations. The start-up and ramp-up costs and short-term to mid-term impact on our profitability of our latest paper machine project (PM3) will be proportionately higher, due to the much larger size, higher level of complexity and longer implementation timeframe of such a project, compared to the establishment of a new corrugated board production site. For our paper mill in Eisenhüttenstadt (PM2), for example, we executed some of the definitive agreements with our main project partners (including the related financing arrangements) as early as the summer of 2008, before starting initial ground works later that year. In addition, even though our paper mill in Eisenhüttenstadt (PM2) commenced operations in March 2010, it only completed its initial ramp-up phase in 2013. Since then, we have been continuing our efforts to further optimize our operations at our mill in Eisenhüttenstadt, which involves not only the optimization of the performance of PM2, but also the optimization of connected processes, including the operation of the CHP we acquired from EnBW effective as of

midnight on December 31, 2015. For more information about the risks associated with the integration of potential expansion projects and acquisitions, see also "*Risk Factors—Risks Related to our Industry and our Business—The costs and difficulties of integrating complementary businesses through organic and acquisitive expansion could impede our future growth and adversely affect our competitiveness*".

Achieving further cost-savings and efficiency improvements through further increased external containerboard purchases

We expect that the start of production at our new corrugated board production site (PW11) in Drizzona, Italy in early March 2018, the significantly increased capacity of the newest corrugated board "mega plant" (PW12) in Ellesmere Port, United Kingdom in January 2019 as well as further improved utilization of our other corrugated board production sites alone will lead to a significant further increase in the corrugated board production of Board, so that we will remain a net purchaser of containerboard in 2019. As already described in more detail above, apart from a further corrugated board production site (PW13) in Eisfeld, Germany (for which we have already commence construction and expect test production to start in the fourth quarter in 2019 or the first quarter of 2020), we currently expect to establish up to three further corrugated board production sites in Central Europe between 2020 and 2023. See also "*—Expansion Projects and Investment Program*". Unless and until we complete the proposed new paper machine project (PM3), this expected increase in our corrugated board production may cause us to further increase the level of internal containerboard sales to Board (and thereby the level of integration between Paper and Board) in 2019 and to increasingly rely on purchasing containerboard from third party suppliers. We believe that targeted external containerboard purchases that meet the specific sourcing requirements of Board will give us additional flexibility and provide us with opportunities to further optimize (i.e., minimize) our variable costs, for example, by allowing us to purchase containerboard that matches the specific grade and optimal trim-width required for our corrugated board production from time to time, from external suppliers located in close proximity to the relevant Board plants. We hope this will allow us to further reduce cutting scrap, further optimize logistics expenses and give us additional flexibility to optimize the utilization of our existing paper machines (PM1 and PM2).

Continuous Improvement Program

As described above, we operate in a cyclical industry where the price of our containerboard and corrugated board as well as recycled paper, our primary raw material, is subject to cyclical fluctuations. Other major cost items, such as personnel expenses, are the subject of annual increases, and the costs of energy and freight, which are also significant expenses, have partly trended upwards. In order to maintain profitability throughout the economic cycle, we have implemented a comprehensive profitability improvement program (the "**Continuous Improvement Program**") to ensure the long-term success of our Group. Our Continuous Improvement Program focuses on (i) improving the effectiveness of our sales and marketing activities, (ii) optimizing (*i.e.*, minimizing) our variable costs and (iii) stabilizing our specific fixed costs in order to achieve sales excellence and maintain our position as one of the cost leaders in our industry.

Since 2012, our main focus in connection with our goal of achieving sales excellence has been on (i) growing our external sales in excess of the general growth in market volumes (and thereby increasing our market share), (ii) maximizing the impact of the introduction of our "next generation" products into the market, and (iii) optimizing our sales portfolio. As part of our efforts to optimize our variable costs, we have focused on (i) reducing our consumption of raw materials, (ii) optimizing our energy consumption and energy costs, especially at our paper mill in Eisenhüttenstadt (PM2), and (iii) reducing the purchase prices of our key production factors, such as recycled paper, starch and freight services. Our continued ability to implement these and other efficiency improvement projects successfully may have a significant impact on our profitability. For more information about our past and ongoing efforts to ensure the sustainability of our business and to maintain our position as a cost leader, see also "*—Significant Synergies through High Degree of Vertical Integration between Paper and Board*", "*—Achieving further cost-savings and efficiency improvements through increased external containerboard purchases*" and "*Business—Sustainability Focus; Research and Development*".

The CHP Acquisition

Effective as of midnight on December 31, 2015, we acquired Progroup Power 1 GmbH from EnBW, the combined heat and power plant adjacent to our paper mill in Eisenhüttenstadt, Germany (the "**CHP**"), and certain related assets (such acquisition, the "**CHP Acquisition**"). As a result thereof, we started producing a significant portion of the energy required for the operation of our paper machine PM2 ourselves. The completion of the CHP Acquisition constituted a significant milestone in our efforts to optimize our cost structure and allowed us to significantly reduce our energy costs.

However, following completion of the CHP Acquisition, we are bearing certain additional risks associated with the ownership and operation of the CHP that were previously being borne by EnBW. In connection with a scheduled maintenance shutdown of the CHP in the third quarter of 2016, for example, we discovered certain technical faults within the CHP that we were not previously aware of. See also "*Risk Factors—Risks Related to Our Industry and our Business—We could be exposed to risks related to the CHP which have not been detected during the due diligence process preceding*

the CHP Acquisition". Because of our long-term economic interest in the efficient and uninterrupted (except for necessary maintenance shutdowns we schedule on a regular basis) operation of the CHP, we decided to significantly extend the originally scheduled maintenance shutdown period to allow us to make certain repairs and replace certain faulty components. This decision led to a significantly longer than scheduled maintenance shutdown of the CHP in the third and fourth quarters of 2016 and caused us to incur €16.0 million in "items of exceptional size or incidence", including €13.9 million in additional costs as expenditure of exceptional size or incidence and €2.1 million in lost sales. We took this decision in the expectation that it would reduce the risk of future unscheduled shutdowns related to the faulty components, which could have resulted in even higher costs in the future. There were no significant unscheduled shutdowns of the CHP in 2017, 2018 or the first three months of 2019.

There can be no guarantee that will be able to realize any cash savings as a result of the CHP Acquisition in future periods. For example, there can be no guarantee that the actual annual personnel expenses, repair and maintenance costs and insurance costs for the CHP will not be higher than previously estimated, that these expenses will not increase further in the future or that the actual requirements for capital investments per annum will not be higher than our previous estimates. Furthermore, following completion of the CHP Acquisition, we became directly responsible for, and we are now bearing all risks related to, the ownership and day-to-day operation of the CHP, which includes the risk of any further unexpected repair costs, the risk of any further significant unscheduled or longer than scheduled shutdowns of the CHP, the operational risks associated with the disposal of the ash generated by the CHP (*i.e.*, that we are unable to procure the proper disposal of the ash and may therefore be forced to shut down the CHP) as well as certain other operational and regulatory risks. See also "*Risk Factors— We could be exposed to risks related to the CHP which have not been detected during the due diligence process preceding the CHP Acquisition*".

KEY INCOME STATEMENT ITEMS

The following is a description of certain line items in our consolidated income statement.

Sales

Sales primarily include income derived from the sale of corrugated board and external sales of containerboard. We report sales as sales in Germany and sales abroad, respectively, based on the country in which the invoicing entity within the Group is located. As a result, this geographic split does not necessarily reflect the location of our customers. Other sales primarily include freight sales of Logistics, for example, when we hire out trucks from our own fleet to avoid empty trips or to make use of opportunities in the freight market.

Increase/(decrease) in finished goods and work in process

Increase/(decrease) in finished goods and work in process records the increase/(decrease) in finished goods and work in process at manufacturing cost. The manufacturing costs include direct material and labor costs as well as material and production overheads allocated proportionally on the assumption of normal utilization of production capacity.

Other operating income

Other operating income consists of all income from ordinary business activities not already recognized under other income items. Other operating income includes, among other things, income from investment subsidies, income from other periods, income from the release of provisions, refunds of energy tax, income from insurance refunds from damage events, income from reduction of bad debt allowance, and exchange rate gains.

Cost of materials

Cost of materials consists of costs of raw materials, consumables and supplies and purchased goods such as recycled paper, externally purchased containerboard, costs of chemicals, costs for auxiliary materials as well as pallet costs. It also includes costs of purchased services, including energy (*i.e.*, for electricity, gas and steam) and costs of waste disposal. In 2018, we also reclassified costs for water and waste water treatment from part of "other operating expenses" to costs of materials.

Personnel expenses

Personnel expenses include all expenses for wages and salaries (including bonuses) and other employment benefits, contributions to pension plans and social security contributions. Personnel expenses also include the costs of hiring new personnel and training costs.

Other operating expenses

Other operating expenses primarily include freight expenses (39.6% of total other operating expenses in 2016, 38.4% of total other operating expenses in 2017 and 39.7% of total other operating expenses in 2018), maintenance costs, costs of replacing paper machine clothing's, other production costs, expenses for external labor, waste water treatment costs, expenses from exchange rate differences, rental and leasing costs, legal and consulting expenses and expenses from other periods. In 2018, we also reclassified costs for water and waste water treatment from part of "other operating expenses" to "costs of materials".

Amortization and depreciation of fixed intangible and tangible assets

We incur expense for depreciation and amortization of property, plant and equipment and intangible fixed assets as a result of both scheduled depreciation and impairment losses on these assets. Depreciation and amortization are usually charged on a straight-line basis over the expected useful life of the assets.

Interest income/(expenses), net

Interest income/(expenses), net includes other interest and similar income as well as interest and similar expenses. Interest and similar expenses primarily include interest expense and other financing costs related to long-term loans, short-term bank liabilities as well as bank and bank guarantee provisions.

Taxes

Taxes comprise trade taxes, corporate taxes, foreign taxes, deferred taxes as well as other taxes, such as taxes on substance (mainly real estate taxes as well as motor vehicle taxes).

RESULTS OF OPERATIONS

Three-Month Period Ended March 31, 2019 Compared to Financial Year Ended March 31, 2018

The following table sets out certain information with respect to our unaudited consolidated income statement for three-month periods ended March 31, 2018 and March 31, 2019:

	Three-month period ended March 31,		
	2018	2019	Change
	(unaudited)		
	(€ in thousands)		(%)
Sales	**243,786**	**245,356**	**0.6**
Increase/(decrease) in finished goods and work in process	(3,608)	(2,573)	-
Other operating income[1]	1,573	3,335	112.0
Other own work capitalized	1,521	3,077	102.3
Total output[2]	**243,273**	**249,196**	**2.4**
Cost of materials	(119,321)	(117,791)	(1.3)
Gross profit[3]	**123,952**	**131,405**	**6.0**
Personnel expenses	(18,367)	(21,352)	16.3
Other operating expenses[1]	(42,355)	(42,501)	0.3
EBITDA[4]	**69,780**	**67,289**	**(3.6)**
Amortization and depreciation of fixed intangible and tangible assets	(12,293)	(13,839)	12.6
Other interest and similar income	10	19	83.2
Interest and similar expenses	(6,007)	(6,089)	1.4
Taxes on income	(12,310)	(13,903)	12.9
Earnings after taxes	**32,630**	**33,739**	**3.4**
Other taxes	(350)	(328)	(6.3)
Consolidated net income/(net loss) for the period	**32,280**	**33,411**	**3.5**
Consolidated unappropriated retained earnings brought forward	193,358	233,817	20.9
Consolidated net retained profits	**225,639**	**267,229**	**18.4**

(1) In response to certain changes to German GAAP with regard to the preparation of financial information for any period beginning after December 31, 2015, we do not report "income/(loss) on ordinary activities" and "extraordinary net income/(loss)" separately anymore. As a result, effective as of January 1, 2016, we report as "other operating income" and "other operating expenses" certain items we would previously have reported as "extraordinary income" and "extraordinary expenses", as applicable. "Other operating expenses" for the three-month periods ended March 31, 2018 and 2019 as presented in the table above includes €6.9 million and €65 thousand, respectively, we would previously have reported as "extraordinary expenses".

(2) Total output (not a German GAAP measure) is calculated as the sum of sales, increase/(decrease) in finished goods and work in process, other operating income and other own work capitalized.

(3) Gross profit (not a German GAAP measure) is calculated by deducting cost of materials from total output.

(4) EBITDA (not a German GAAP measure) is calculated as sales, *plus* increase/(decrease) in finished goods and work in process, *plus* other operating income (excluding any extraordinary income), *plus* other own work capitalized, *minus* costs of materials, *minus* personnel expenses, *minus* other operating expenses (excluding any extraordinary expenses), *minus* other taxes. While our reported EBITDA excludes the impact of any

"extraordinary" items for all periods presented, it has not yet been adjusted for "items of exceptional size or incidence".

Sales

Total sales increased slightly by €1.6 million or 0.6%, from €243.8 million in the first three months of 2018 to €245.4 million in the first three months of 2019 due to further strong growth in our corrugated board sales as a result of a higher volume sold and a slightly higher price level. Total corrugated board sales increased by €11.0 million or 5.2% in the first three months in 2019 compared to the first three months of 2018. Corrugated board sales volumes increased by approximately 12,700 tons, from approximately 294.600 tons in the first three months of 2018 to approximately 307,300 tons in the first three months of 2019. This increase in sales volumes was primarily attributable to our new corrugated board production site (PW11) in Drizzona, Italy, which only commenced operations in March 2018. External sales of containerboard decreased by approximately 19,300 tons or 36.0% from approximately 53,700 tons in the first three months of 2018 to approximately 34,400 tons in the first three months of 2019 due to scheduled maintenance shutdowns of both our existing paper machines (PM1 and PM2) in March 2019. Additionally, the increased sales volume of corrugated board sold led to a higher internal usage of containerboard by 5.2% or 16,000 tons and therefore to a further decrease in the external volume sold. See also "*—Key Factors Affecting our Results of Operations—Significant Synergies through High Degree of Vertical Integration between Paper and Board*" above.

The following table shows our sales by geographic origin and by product

	Three-month period ended March 31,		
	2018	2019	Change
	(unaudited)		
	(€ in thousands)		(%)
Sales in Germany (origin)	140,584	129,393	(8.0)
Corrugated board	105,547	103,742	(1.7)
Containerboard	25,265	15,338	(39.3)
Other	9,772	10,313	5.5
Sales abroad (origin)	103,202	115,963	12.4
Corrugated board	103,202	115,963	12.4
Containerboard	-	-	-
Other	-	-	-
Total sales	**243,786**	**245,356**	**0.6**

In the first three months of 2019, sales in Germany accounted for 52.7% of total sales compared to 57.7% of total sales in the first three months of 2018. Sales in Germany decreased by €11.2 million or 8.0%, from €140.6 million in the first three months of 2018 to €129.4 million in the first three months of 2019, primarily due to a €9.9 million or 39.3% decrease in external containerboard sales for the reasons described above. Sales of corrugated board in Germany decreased by €1.8 million or 1.7%, and other sales in Germany increased by €0.5 million or 5.5%, primarily as a result of sales of electricity produced by the CHP, sales related to the incineration of refused derived fuel and other sales at our paper machine PM1. Corrugated board sales abroad increased by €12.8 million or 12.4%, from €103.2 million in the first three months in 2018 to €116.0 million in the first three months in 2019 for the reasons described above.

	Three-month period ended March 31,		
	2018	2019	Change
	(unaudited)		
	(€ in thousands)		(%)
Corrugated board	208,749	219,705	5.2
Containerboard	25,265	15,338	(39.3)
Other	9,772	10,313	5.5
Total sales	**243,786**	**245,356**	**0.6**

Total corrugated board sales increased by €11.0 million or 5.2% in the first three months of 2019 compared to the first three months of 2018, with the main growth momentum coming from our new Italian operations. External sales of containerboard decreased by €9.9 million or 39.3%, from €25.3 million in the first three months of 2018 to €15.3 million in the first three months of 2019, while other sales increased by €0.5 million or 5.5%, from €9.8 million in the first three months of 2018 to €10.3 million in the first three months of 2019. As a result, corrugated board sales as a percentage of total sales further increased from 85.6% in the first three months in 2018 to 89.5% in the first three months of 2019, while containerboard sales as a percentage of total sales further decreased from 10.4% in the first three months of 2018 to 6.3% in the first three months of 2019.

Increase/(decrease) in finished goods and work in process

Primarily due to planned maintenance downtimes at both paper mills, our finished goods and work in progress decreased by €1.0 million in the first three months in 2019.

Other operating income

	Three-month period ended March 31,		
	2018	2019	Change
	(unaudited)		
	(€ in thousands)		(%)
Investment subsidies	63	99	56.8
Income from other periods	820	1,267	54.5
Exchange rate differences	537	1,606	199.2
Extraordinary Income	0	1	-
Other income	153	362	136
Other operating income	**1,573**	**3,335**	**112.0**

Other operating income increased by €1.8 million or 112.0% from €1.6 million in the first three months of 2018 to €3.3 million in the first three months of 2019, mainly as a result of higher income from exchange rate differences which increased by €1.1 million or 199.2%, from €0.5 million in the first three months of 2018 to €1.6 million in the first three months of 2019. Income from other periods also increased by €0.4 million or 54.5%, from €0.8 million in the first three months of 2018 to €1.3 million in the first three months of 2019, primarily due to bonus credits from our suppliers for the previous year.

Income from investment subsidies amounted to €63 thousand in the first three months of 2018 and €99 thousand in the first three months of 2019 and relates to (i) subsidies we received in connection with the construction of our corrugated board production sites in Schüttorf and Plössberg (both Germany) and (ii) a €1.3 million KfW repayment grant we were awarded with regard to Facility A under the Existing Senior Secured IKB Facilities, the proceeds of which we used to fund certain investments that promote energy efficiency at our paper machine (PM1) in Burg, Germany, all of which we recognize as other operating income in line with the depreciation of the relevant assets.

Cost of materials

	Three-month period ended March 31,		
	2018	2019	Change
	(unaudited)		
	(€ in thousands)		(%)
Cost of raw materials, consumables and supplies	(97,850)	(94,808)	(3.1)
Cost of purchased services	(21,471)	(22,983)	7.0
Cost of materials	**(119,321)**	**(117,791)**	**(1.3)**

Cost of materials decreased slightly by €1.5 million or 1.3%, from €119.3 million in the first three months of 2018 (48.9% of sales, or 49.0% of total output) to €117.8 million in the first three months of 2019 (48.0% of sales, or 47.3% of total output), mainly as a result of lower costs of raw materials, consumables and supplies. The main driver for this decrease was declining prices for recycled paper. Contrary effects came from a higher quantity of externally purchased containerboard within the growth of our corrugated board business and a higher average price level for the externally purchased containerboard. See also *"—Key Factors Affecting our Results of Operations—Significant Synergies through High Degree of Vertical Integration between Paper and Board" and "—Key Factors Affecting our Results of Operations —Cyclical Nature of our Industry and Movement in Market Prices, Raw Materials and Input Costs—Fluctuations in Raw Material Costs*" above.

The cost of purchased services increased by €1.6 million or 7.0%, from €21.5 million in the first three months of 2018 to €23.0 million in the first three months of 2019, due to higher costs for freight brokerage at Logistics (€2.8 million in the first three months of 2018 compared to €3.3 million in the first three months of 2019) and energy costs (i.e. electricity, gas and steam), which amounted to €14.5 million in the first three months of 2018 and €16.0 million in the first three months of 2019. Costs for waste water treatment decreased to €1.7 million in the first three months of 2019 compared to €2.3 million in the first three months of 2018, while costs for disposal of ash and rejects (€1.9 million in the first three months of 2018 compared to €1.9 million in the first three months of 2019) and other external services purchased remained broadly stable.

Gross profit

Gross profit increased by €7.5 million or 6.0%, from €124.0 million (50.8% of sales, or 51.0% of total output) in the first three months of 2018 to €131.4 million (53.6% of sales, or 52.7% of total output) in the first three months of 2019. This increase of our gross profit is primarily due to a further strong operating performance with growth in sales volume of corrugated board.

Personnel expenses

	Three-month period ended March 31,		
	2018	2019	Change
	(unaudited)		
	(€ in thousands)		(%)
Wages and salaries	(15,548)	(18,178)	16.9
Social security and pensions	(2,819)	(3,174)	12.6
—of which for pension expenses:	*(49)*	*(98)*	100.0
Personnel expenses	**(18,367)**	**(21,352)**	**16.3**

Personnel expenses in the first three months of 2018 increased by €3.0 million or 16.3%, from €18.4 million in the first three months of 2018 to €21.4 million in the first three months of 2019, reflecting a €2.6 million or 16.9% increase in wages and salaries and a €0.4 million or 12.6% increase in social security and pensions. These increases were due to an increase in the average number of employees (from 1,064 in the first three months of 2018 to 1,128 in the first three months of 2019), primarily related to the hiring of new employees starting in the first quarter of 2019 in connection with the ongoing

establishment of our new corrugated board production site (PW13) in Eisfeld, Germany, and our paper machine project (PM3) in Sandersdorf-Brehna, Germany as well as, to a lesser extent, the creation of additional administrative and Group positions, which reflect the strong growth within the Group.

	Three-month period ended March 31,		
	2018	2019	Change
	(unaudited)		(%)
Administrative employees	254	296	16.5
Factory workers	810	832	2.7
Average number of employees	1,064	1,128	6.0

Both the average number of administrative employees and the average number of factory workers increased from 254 and 810, respectively, in the first three months of 2018 to 296 and 832, respectively, in the first three months of 2019, for the reasons described above.

Other operating expenses

	Three-month period ended March 31,		
	2018	2019	Change
	(unaudited) (€ in thousands)		(%)
Expenses from exchange rate differences	(780)	(199)	(74.5)
Expenses from other periods	(258)	(580)	124.8
Maintenance and repair	(7,642)	(10,965)	43.5
Freight expenses	(17,126)	(18,779)	9.7
Paper machine clothing's	(1,670)	(1,813)	8.6
Rental and leasing costs	(1,865)	(2,208)	18.4
Legal and consulting fees	(779)	(1,235)	58.5
Extraordinary expenses	(6,900)	(65)	(99.1)
Others	(5,335)	(6,657)	24.7
Other operating expenses	**(42,355)**	**(42,501)**	**0.3**

Other operating expenses increased slightly by €0.1 million or 0.3%, from €42.4 million in the first three months of 2018 to €42.5 million in the first three months of 2019, mainly due to increases in the expenses for maintenance and repair and freight expenses, which more than off-set a significant decrease in extraordinary expenses.

Expenses for maintenance and repair increased significantly by €3.3 million or 43.5%, from €7.6 million in the first three months of 2018 to €11.0 million in the first three months of 2019, primarily due to the scheduled downtimes of both our existing paper machines (PM1 and PM2), while freight expenses increased by €1.7 million or 9.7%, from €17.1 million in the first three months of 2018 to €18.8 million in the first three months of 2019, due to a higher freight volume and higher freight rates. Rental and leasing costs increased by €0.3 million or 18.4%, from €1.9 million in the first three months of 2018 to €2.2 million in the first three months of 2019, expenses for paper machine clothing's increased by €0.1 million or 8.6%, expenses from other periods also increased by €0.3 million or 124.8% and legal and consulting fees increased by €0.5 million or 58.5% from €0.8 million in the first three months of 2018 to €1.2 million in the first three months of 2019. Finally, "others" increased by €1.3 million or 24.7%, from €5.3 million in the first three months of 2018 to €6.7 million in the first three months of 2019, primarily due to planned maintenance shut downs of both our existing paper machines (PM1

and PM2).Extraordinary expenses of €6.9 million in the first three months of 2018 primarily relate to the expenses we incurred in connection with the offering of the Senior Secured Notes in March 2018.

EBITDA

	Three-month period ended March 31,		
	2018	2019	Change
	(unaudited)		
	(€ in thousands)		(%)
EBITDA[1]	69,780	67,289	3.6

(1) EBITDA (not a German GAAP measure) is calculated as sales, *plus* increase/(decrease) in finished goods and work in process, *plus* other operating income (excluding any extraordinary income), *plus* other own work capitalized, *minus* costs of materials, *minus* personnel expenses, *minus* other operating expenses (excluding any extraordinary expenses), *minus* other taxes. While our reported EBITDA excludes the impact of any "extraordinary" items for all periods presented, it has not yet been adjusted for "items of exceptional size or incidence".

Our EBITDA decreased slightly by €2.5 million or 3.6% from €69.8 million in the first three months of 2018 (28.6% of sales) to €67.3 million in the first three months of 2019 (27.4% of sales), as a result of the factors described above.

Amortization and depreciation of fixed intangible and tangible assets

	Three-month period ended March 31,		
	2018	2019	Change
	(unaudited)		
	(€ in thousands)		(%)
Depreciation on intangible assets	(696)	(713)	2.4
Depreciation on tangible assets	(11,597)	(13,126)	13.2
Total amortization and depreciation of fixed intangible and tangible assets	**(12,293)**	(13,839)	12.6

Amortization and depreciation expenses increased by €1.5 million or 12.6% from €12.3 million in the first three months of 2018 to €13.8 million in the first three months of 2019. This increase was primarily due to (i) amortization charges with regard to our new corrugated board production site (PW11) in Drizzona, Italy, which commenced production in March 2018, and our new corrugated board "mega plant" (PW12) in Ellesmere Port, United Kingdom, which commenced production in January 2019, as well as (ii) certain maintenance capital expenditure in the first three months of 2019.

Interest income/(expenses), net

	Three-month period ended March 31,		
	2018	2019	Change
	(unaudited)		
	(€ in thousands)		(%)
Other interest and similar income	10	19	83.2
Interest and similar expenses	(6,007)	(6,089)	1.4
Interest income/(expenses), net	**(5,996)**	**(6,070)**	1.2

Our net interest expense in the first three months of 2019 increased slightly by €0.1 million or 1.2% from net expenses of €6.0 million in the first three months of 2018 to net expenses of €6.1 million in the first three months of 2019, due to the amortization of €19.3 million in lump sum fee payments we made to JH-Holding and our minority shareholders on March 8, 2018 in consideration for granting security over their shares in the Company to secure our obligations under our various financing arrangements, as described in more detail under "*Certain Relationships and Related Party Transactions—Provision of Share Pledges by JH-Holding GmbH and our Minority Shareholders*". Liabilities represented by bonds and bank loans were €600 million and €102.0 million, respectively, as of March 31, 2019 compared to liabilities represented by bonds and bank loans of €945 million and €40.2 million, respectively, as of March 31, 2018.

Taxes

	Three-month period ended March 31,		
	2018	2019	Change
	(unaudited)		
	(€ in thousands)		(%)
Taxes on income	(12,310)	(13,903)	12.9
Other taxes	(350)	(328)	(6.3)
Total taxes (unaudited)	**(12,660)**	**(14,231)**	**12.4**

Total taxes increased by €1.6 million or 12.4%, from €12.7 million in the first three months of 2018 to €14.2 million in the first three months of 2019, primarily because of our strong financial performance. Total taxes mainly include trade tax and corporate income tax for the current financial year. Furthermore, total taxes include expenses arising from the adjustment of deferred tax assets, which amounted to €0.8 million in the first three months of 2019.

Consolidated net income/(net loss)

	Three-month period ended March 31,		
	2018	2019	Change
	(unaudited)		
	(€ in thousands)		(%)
Consolidated net income/(loss) for the period	**32,280**	**33,411**	**3.5**
Consolidated unappropriated retained earnings brought forward	193,358	233,817	20.9
Consolidated net retained profits	**225,639**	**267,229**	**18.4**

Consolidated net income/(loss) for the period increased by €1.1 million or 3.5% from a profit of €32.3 million in the first three months of 2018 to a profit of €33.4 million in the first three months of 2019. This was the result of the factors described above.

Financial Year Ended December 31, 2018 Compared to Financial Year Ended December 31, 2017

The following table sets out certain information with respect to our audited consolidated income statement for the financial years ended December 31, 2017 and December 31, 2018:

	Year ended December 31,		
	2017	2018	Change
	(audited, unless otherwise stated)		
	(€ in thousands)		(%)
Sales	**804,256**	**966,118**	**20.1**
Increase/(decrease) in finished goods and work in process	10,298	23,361	128.9
Other operating income[1]	17,603	17,725	0.7
Other own work capitalized	2,637	7,573	187.1
Total output (unaudited)[2]	**834,795**	**1,014,778**	**21.6**
Cost of materials	(430,481)	(493,641)	14.7
Gross profit (unaudited)[3]	**404,314**	**521,137**	**28.9**
Personnel expenses	(68,326)	(78,925)	15.5
Other operating expenses[1]	(160,425)	(168,800)	5.2
EBITDA (unaudited)[4]	**180,354**	**275,479**	**52.7**
Amortization and depreciation of fixed intangible and tangible assets	(50,032)	(58,153)	16.2
Other interest and similar income	65	86	32.2
Interest and similar expenses	(23,678)	(32,062)	35.4
Taxes on income	(28,058)	(54,865)	95.5
Earnings after taxes	**73,861**	**128,418**	**73.9**
Other taxes	(1,449)	(1,453)	0.2
Consolidated net income/(net loss) for the period	**72,412**	**126,965**	**75.3**
Consolidated unappropriated retained earnings brought forward	120,947	106,852	(11.7)
Consolidated net retained profits	**193,358**	**233,817**	**20.9**

(1) In response to certain changes to German GAAP with regard to the preparation of financial information for any period beginning after December 31, 2015, we do not report "income/(loss) on ordinary activities" and "extraordinary net income/(loss)" separately anymore. As a result, effective as of January 1, 2016, we report as "other operating income" and "other operating expenses" certain items we would previously have reported as "extraordinary income" and "extraordinary expenses", as applicable. "Other operating income" for the fiscal year ended December 31, 2018 as presented in the table above includes €4.0 million we would previously have reported as "extraordinary income". "Other operating expenses" for the fiscal years ended December 31, 2017 and 2018 as presented in the table above includes €6.2 million and €7.5 million, respectively, we would previously have reported as "extraordinary expenses".

(2) Total output (not a German GAAP measure) is calculated as the sum of sales, increase/(decrease) in finished goods and work in process, other operating income and other own work capitalized.

(3) Gross profit (not a German GAAP measure) is calculated by deducting cost of materials from total output.

(4) EBITDA (not a German GAAP measure) is calculated as sales, *plus* increase/(decrease) in finished goods and work in process, *plus* other operating income (excluding any extraordinary income), *plus* other own work capitalized, *minus* costs of materials, *minus* personnel expenses, *minus* other operating expenses (excluding any extraordinary expenses), *minus* other taxes. While our reported EBITDA excludes the impact of any

"extraordinary" items for all periods presented, it has not yet been adjusted for "items of exceptional size or incidence".

Sales

Total sales increased significantly by €161.9 million or 20.1%, from €804.3 million in 2017 to €966.1 million in 2018. This increase in sales was primarily attributable to a significant increase in corrugated board sales, both in Germany and abroad, which significantly exceeded general market growth. Total corrugated board sales increased by €176.0 million or 26.5% in 2018 compared to 2017. Corrugated board sales volumes increased strongly by approximately 140,000 tons, from approximately 1,011,000 tons in 2017 to approximately 1,151,000 tons in 2018. This significant increase in sales volumes was attributable to (i) the successful ramp-up at our corrugated board production site (PW10) in Trzcinica, Poland following commencement of commercial production in April 2017, (ii) the successful (but on-going) ramp-up at our corrugated board production site (PW11) in Drizzona, Italy, following commencement of commercial production in March 2018 (iii) our ongoing efforts to improve the effectiveness of our sales and marketing activities as part of our Continuous Improvement Program as well as (iv) our continuing efforts to further optimize production of our corrugated board plants. See also "*—Key Factors Affecting our Results of Operations —Expansion Projects and Investment Program*" and "*—Key Factors Affecting our Results of Operations —Continuous Improvement Program*" above. At the same time, our total containerboard sales volume slightly decreased by approximately 31,000 tons or 3.1%, from approximately 1,018,000 tons in 2017 to approximately 987,000 tons in 2018, primarily due to deliberate build-up of inventories. External sales of containerboard significantly decreased by approximately 66,000 tons or 27.2% from approximately 242,000 tons in 2017 to approximately 176,000 tons in 2018 as we managed to further increase the share of internal containerboard sales to our corrugated board operations within Board. This was due to further improved utilization of our existing corrugated board production sites, the successful ramp-up at our corrugated board production site (PW10) in Trzcinica, Poland as well as the successful (but ongoing) ramp-up at our corrugated board production site (PW11) in Drizzona, Italy. As a result, the average grade of integration between Paper and Board, including swap agreements, increased from 87% in 2017 to 93% in 2018. The average price of corrugated board in 2018 was significantly above the average price of 2017 (+11.1%). During the course of 2017 and the first half of 2018, price level for corrugated board increased following the recycled containerboard's price development. The average price per ton for externally sold containerboard in 2018 was significantly above the average price in 2017 (+16.4%), which also had a positive impact on our total sales in 2018. After a continuously upward trend during 2017 and the first quarter of 2018, prices for recycled containerboard were primarily stable in the second and third quarter of 2018 and declined in the fourth quarter of 2018. See also "*—Key Factors Affecting our Results of Operations—Cyclical Nature of our Industry and Movement in Market Prices, Raw Materials and Input Costs —Fluctuations in Raw Material Costs*" above.

The following table shows our sales by geographic origin and by product:

	Year ended December 31,		
	2017	**2018**	**Change**
	(audited, unless otherwise stated)		
	(€ in thousands)		**(%)**
Sales in Germany (origin) (unaudited)	**484,291**	**539,086**	**11.3**
Corrugated board	343,957	412,940	20.1
Containerboard	99,729	84,456	(15.3)
Other	40,605	41,690	2.7
Sales abroad (origin)	**319,965**	**427,032**	**33.5**
Corrugated board	319,965	427,026	33.5
Containerboard	—	—	—
Other	—	6	—
Total sales	**804,256**	**966,118**	**20.1**

In 2018, sales in Germany accounted for 55.8% of total sales compared to 60.2% of total sales in 2017. Sales in Germany increased by €54.8 million or 11.3%, from €484.3 million in 2017 to €539.1 million in 2018, primarily due to a €69.0 million or 20.1% increase in corrugated board sales for the reasons described above. In contrast, external sales of

containerboard in Germany decreased by €15.3 million or 15.3%, also for the reasons described above. Other sales in Germany increased by €1.1 million or 2.7%, primarily as a result of income from external freight brokerage. Corrugated board sales abroad also increased by €107.1 million or 33.5%, from €320.0 million in 2017 to €427.0 million in 2018 following strong growth of corrugated board described above.

	Year ended December 31,		
	2017	2018	Change
	(audited, unless otherwise stated)		
	(€ in thousands)		(%)
Corrugated board (unaudited)	663,922	839,966	26.5
Containerboard	99,729	84,456	(15.3)
Other	40,605	41,696	2.7
Total sales	**804,256**	**966,118**	**20.1**

Total corrugated board sales increased by €176.0 million or 26.5% in 2018 compared to 2017, due to the €54.8 million increase in sales in Germany and €107.1 million increase in sales abroad. External sales of containerboard decreased significantly by €15.3 million or 15.3%, from €99.7 million in 2017 to €84.5 million in 2018, while other sales increased by €1.1 million or 2.7%, from €40.6 million in 2017 to €41.7 million in 2018. As a result, corrugated board sales as a percentage of total sales further increased from 82.6% in 2017 to 86.9% in 2018, while containerboard sales as a percentage of total sales further decreased from 12.4% in 2017 to 8.7% in 2018.

Increase/(decrease) in finished goods and work in process

Primarily due to higher stocks of containerboard as work in process in 2018, our finished goods and work in progress increased by €13.1 million in 2018.

Other own work capitalised

Other own work capitalised in 2017 and 2018 relates to our two new corrugated board production sites (PW11 and PW12) in Drizzona, Italy and Ellesmere Port, United Kingdom, as well as the ongoing establishment of a further corrugated board production site (PW13) in Eisfeld, Germany, and our further paper machine project (PM3) in Sandersdorf-Brehna, Germany.

Other operating income

	Year ended December 31,		
	2017	2018	Change
	(audited, unless otherwise stated)		
	(€ in thousands)		(%)
Investment subsidies	252	251	(0.4)
Income from other periods	12,567	13,268	(28.4)
Thereof extraordinary income	*0*	*3,972*	-
Exchange rate differences	3,930	2,929	(25.5)
Other income (unaudited)	854	1,277	49.5
Other operating income	**17,603**	**17,725**	**0.7**

Other operating income increased slightly by €0.1 million or 0.7% from €17.6 million in 2017 to €17.7 million in 2018, primarily due to extraordinary income which amounted to €4.0 million in 2018 and more than off-set significant decreases

in income from other periods and income from exchange rate differences. Extraordinary income in 2018 includes, among other things, a release of provisions for finance costs and indemnity claims against EnBW in relation to additional tax payments regarding the fiscal year 2013. The income from EnBW relates to certain tax indemnities we received from EnBW in connection with the CHP Acquisition which cover tax liabilities with regard to periods prior to the acquisition date. We have recorded a corresponding tax expense under "income tax". Other income also increased by €0.4 million or 49.5%, from €0.9 million in 2017 to €1.3 million in 2018.

Contrary effects came from lower income from other periods which increased by €0.7 million or 5.6% from €12.6 million in 2017 to €13.3 million in 2018, primarily due to a different timing of refunds for grid charges and energy taxes. Income from exchange rate differences also decreased by €1.0 million or 25.5% from €3.9 million in 2017 to €2.9 million in 2018.

Income from investment subsidies amounted to €0.3 million in 2017 and €0.3 million in 2018 and relates to subsidies we received in connection with the construction of our corrugated board production sites in Schüttorf and Plössberg (both Germany) and the construction of our paper machine in Burg. We recognize these subsidies as other operating income in line with the depreciation of the relevant assets over a period of up to 33 years.

Cost of materials

	Year ended December 31,		
	2017	2018	Change
	(audited)		
	(€ in thousands)		(%)
Cost of raw materials, consumables and supplies	(361,659)	(400,079)	10.6
Cost of purchased services	(68,822)	(93,563)	35.9
Cost of materials	**(430,481)**	**(493,641)**	**14.7**

Cost of materials increased significantly by €63.2 million or 14.7%, from €430.5 million in 2017 (53.5% of sales, or 51.6% of total output) to €493.6 million in 2018 (51.1% of sales, or 48.6% of total output), mainly as a result of a significant increase of €38.4 million or 10.6% in the cost of raw materials, consumables and supplies as a result of the significant increase in our corrugated board production as described under "*–Sales*" above. The increase in costs of materials was significantly below the 20.1% increase in total sales in 2018. The price of recycled paper declined between the fourth quarter of 2017 and the second quarter of 2018 and remained at a comparatively low level for the rest of the year. As a result, our own average costs per ton for the recycled paper grades we purchased during 2018 were significantly lower (28.0%) compared to 2017. These considerable lower recycled paper prices and the unchanged production volume resulted in a decrease of recycled paper costs from €163.1 million in 2017 to €116.4 million in 2018. Costs of raw materials also include the costs of externally purchased containerboard as raw material for our corrugated board plants, which significantly rose from €160.5 million in 2017 to €246.4 million in 2018. This increase was attributable to significantly higher production and sales volumes of corrugated board, higher average purchase prices for external containerboard and a higher quantity of externally sourced containerboard. See also "*—Key Factors Affecting our Results of Operations—Cyclical Nature of our Industry and Movement in Market Prices, Raw Materials and Input Costs—Fluctuations in Raw Material Costs*" above.

The cost of purchased services also increased significantly by €24.7 million or 35.9%, from €68.8 million in 2017 to €93.6 million in 2018, due to the reclassification of costs for waste water treatment from other operating expenses to cost of materials. These costs amounted to €5.8 million in 2017 and €14.2 million in 2018. The significant increase in costs of waste water treatment resulted from provisions for potential exceptional charges for waste water treatment in 2018.

Energy costs (i.e. electricity, gas and steam) increased significantly from €50.5 million in 2017 to €60.3 million in 2018 due to higher prices for energy consumption and power network charges, in particular at our two existing paper machines (PM1 and PM2). Costs for freight brokerage at Logistics increased from €10.3 million in 2017 to €11.5 million in 2018.

Gross profit

Gross profit increased by €116.8 million or 28.9%, from €404.3 million (50.3% of sales, or 48.4% of total output) in 2017 to €521.1 million (53.9% of sales, or 51.4% of total output) in 2018. This increase of our gross profit is primarily due to the increase in sales volumes of corrugated board and higher margins in both our containerboard and corrugated board businesses.

Personnel expenses

	Year ended December 31, 2017	Year ended December 31, 2018	Change
	(audited)		
	(€ in thousands)		(%)
Wages and salaries	(58,294)	(67,541)	15.9
Social security and pensions	(10,032)	(11,385)	13.5
—*of which for pension expenses:*	(258)	(266)	3.1
Personnel expenses	**(68,326)**	**(78,925)**	**15.5**

Personnel expenses in 2018 increased by €10.6 million or 15.5%, from €68.3 million in 2017 to €78.9 million in 2018, reflecting a €9.2 million or 15.9% increase in wages and salaries and a €1.4 million or 13.5% increase in social security and pensions. These increases were due to (i) a 5.4% increase in the average number of employees (from 1,040 in 2017 to 1,096 in 2018), primarily related in the hiring of new employees in connection with the launch and subsequent ramp-up at our corrugated board production site (PW11) in Drizzona, Italy, starting in the third quarter of 2017, and the creation of additional administrative and Group positions, which reflect the strong growth within the Group, as well as (ii) regular annual salary and wage increases.

	Year ended December 31, 2017	Year ended December 31, 2018	Change
	(audited)		(%)
Administrative employees	248	276	11.3
Factory workers	792	820	3.5
Average number of employees	**1,040**	**1,096**	**5.4**

Both the average number of administrative employees and the average number of factory workers increased from 248 and 792, respectively, in 2017 to 276 and 820, respectively, in 2018, for the reasons described above.

Other operating expenses

	Year ended December 31,		
	2017	2018	Change
	(audited, unless otherwise stated) (€ in thousands)		(%)
Freight expenses	(61,653)	(66,954)	8.6
Maintenance and repair	(41,405)	(45,239)	9.3
Paper machine clothing's	(6,557)	(6,344)	(3.3)
Rental and leasing costs	(6,624)	(7,832)	18.2
Legal and consulting fees	(2,571)	(4,043)	57.2
Expenses from exchange rate differences	(3,340)	(4,566)	36.7
Expenses from other periods	(1,935)	(1,352)	(30.1)
Extraordinary expenses	(6,240)	(7,492)	20.1
Others	(30,100)	(24,978)	(17.0)
Other operating expenses	**(160,425)**	**(168,800)**	**5.2**

Other operating expenses increased by €8.4 million or 5.2%, from €160.4 million in 2017 to €168.8 million in 2018. Freight expenses increased by €5.3 million or 8.6%, from €61.7 million in 2017 to €67.0 million, mainly due to increased freight volumes as a result of our increased sales volume of corrugated board. In addition, expenses for maintenance and repair increased by €3.8 million or 9.3%, from €41.4 million in 2017 to €45.2 million in 2018, primarily due to the replacement of the sizer at our paper machine PM1 and some higher maintenance costs at our corrugated board plants.

Legal and consulting fees increased by €1.5 million or 57.2%, from €2.6 million in 2017 to €4.0 million in 2018, primarily due to consulting costs for supporting organizational change. The €1.3 million or 20.1% increase in extraordinary expenses, from €6.2 million in 2017 to €7.5 million in 2018, primarily relates to expenses we incurred in connection with the issuance of the Senior Secured Notes in March 2018 and the negotiation and execution, in the third quarter of 2018, of Facility C of the Existing Senior Secured IKB Facilities, the Existing Senior Secured Commerzbank Facilities and the Existing Senior Secured SaarLB Facility to finance a portion of our paper machine project (PM3) at Sandersdorf-Brehna, Germany. Expenses from exchange rate differences increased by €1.2 million or 36.7%, from €3.3 million in 2017 to €4.6 million in 2018. Rental and leasing costs increased by €1.2 million or 18.2%, from €6.6 million in 2017 to €7.8 million in 2018, primarily due to rental costs for the building housing our new corrugated board production site (PW11) in Drizzona, Italy.

These increases more than offset the decreases in other expenses, expenses from other periods and expenses for paper machine clothing's. Other expenses significantly decreased by €5.1 million or 17.0%, from €30.1 million in 2017 to €25.0 million in 2018, mainly due to the reclassification of costs for waste water treatment from other operating expenses to costs of materials. Expenses from other periods decreased by €0.6 million or 30.1%, from €1.9 million in 2017 to €1.4 million in 2018. Expenses for paper machine clothing's decreased by €0.2 million or 3.3%, from €6.6 million in 2017 to €6.3 million in 2018.

EBITDA

	Year ended December 31,		
	2017	2018	Change
	(unaudited)		
	(€ in thousands)		(%)
EBITDA[1]	180,354	275,479	52.7

(1) EBITDA (not a German GAAP measure) is calculated as sales, *plus* increase/(decrease) in finished goods and work in process, *plus* other operating income (excluding any extraordinary income), *plus* other own work capitalized, *minus* costs of materials, *minus* personnel expenses, *minus* other operating expenses (excluding any extraordinary expenses), *minus* other taxes. While our reported EBITDA therefore excludes the impact of any "extraordinary" items for all periods presented, it has not yet been adjusted for "items of exceptional size or incidence".

Our EBITDA increased significantly by €95.1 million or 52.7% from €180.4 million in 2017 (22.4% of sales) to an exceptional €275.5 million in 2018 (28.5% of sales), as a result of the factors described above, following the strong operating performance and supported by favorable market conditions.

Amortization and depreciation of fixed intangible and tangible assets

	Year ended December 31,		
	2017	2018	Change
	(audited)		
	(€ in thousands)		(%)
Depreciation on intangible assets	(2,821)	(2,795)	(0.9)
Depreciation on tangible assets	(47,212)	(48,957)	3.7
Depreciation on current assets	0	(6,400)	-
Total amortization and depreciation of fixed intangible and tangible assets	**(50,032)**	**(58,153)**	**16.2**

Amortization and depreciation expenses increased by €8.1 million or 16.2% from €50.0 million in 2017 to €58.2 million in 2018. This increase was primarily due to (i) an exceptional write-down of slowly moving spare parts, as well as (ii) certain maintenance capital expenditure in 2018.

Interest income/(expenses), net

	Year ended December 31,		
	2017	2018	Change
	(audited)		
	(€ in thousands)		(%)
Other interest and similar income	65	86	32.2
Interest and similar expenses	(23,678)	(32,062)	35.4
Interest income/(expenses), net	**(23,613)**	**(31,976)**	**35.4**

Net interest expenses in 2018 increase significantly by €8.4 million, or 35.4%, from net interest expenses of €23.6 million in 2017 to net interest expenses of €32.0 million in 2018, due to an increase in interest and similar expenses by €8.4 million or 35.4% from €23.7 million in 2017 to €32.1 million in 2018, mainly due to an earlier redemption premium we were required to pay in connection with the redemption of the Company's €345,000,000 5.125% senior secured fixed rate notes due 2022 in May 2018 with a portion of the proceeds from the issuance of the Senior Secured Notes in March 2018. Liabilities represented by bonds and bank loans were €600 million and €74.0 million, respectively, as of December 31,

2018 compared to liabilities represented by bonds and bank loans of €495 million and €42.5 million, respectively, as of December 31, 2017.

Taxes

	Year ended December 31,		
	2017	2018	Change
	(audited)		
	(€ in thousands)		(%)
Taxes on income	(28,058)	(54,865)	95.5
Other taxes	(1,449)	(1,453)	0.2
Total taxes	**(29,507)**	**(56,318)**	**90.9**

Total taxes increased significantly by €26.8 million or 90.9%, from €29.5 million in 2017 to €56.3 million in 2018. Total taxes mainly include trade tax and corporate income tax for the current financial year. Furthermore, total taxes include deferred payments of trade tax and corporate tax for previous years, which amounted to €3.0 million in 2018 and expenses arising from the adjustment of deferred tax assets, which amounted to €0.8 million in 2018. Taxes on income also include tax expenses for prior years at Progroup Power 1 GmbH in an amount of €2.7 million. This tax expense is the result of a tax audit for the years prior to the CHP Acquisition. Pursuant to certain tax indemnity provisions, EnBW was required to compensate us for such historic tax liabilities, and we have recorded the related indemnification payments under "other operating income" as described above.

Consolidated net income/(net loss)

	Year ended December 31,		
	2017	2018	Change
	(audited)		
	(€ in thousands)		(%)
Consolidated net income/(loss) for the period	**72,412**	**126,965**	**75.3**
Consolidated unappropriated retained earnings brought forward	120,947	106,852	(11.7)
Consolidated net retained profits	**193,358**	**233,817**	**20.9**

Consolidated net income/(loss) for the period increased by €54.6 million or 75.3% from a profit of €72.4 million in 2017 to a profit of €127.0 million in 2018. This was the result of the factors described above.

Financial Year Ended December 31, 2017 Compared to Financial Year Ended December 31, 2016

The following table sets out certain information with respect to our audited consolidated income statement for the financial years ended December 31, 2016 and December 31, 2017:

	Year ended December 31,		
	2016	2017	Change
	(audited, unless otherwise stated)		
	(€ in thousands)		(%)
Sales	**733,228**	**804,256**	**9.7**
Increase/(decrease) in finished goods and work in process	(6,554)	10,298	—
Other operating income[1]	14,713	17,603	19.6
Other own work capitalized	1,116	2,637	136.3
Total output (unaudited)[2]	**742,502**	**834,795**	**12.4**
Cost of materials	(371,550)	(430,481)	15.9
Gross profit (unaudited)[3]	**370,952**	**404,314**	**9.0**
Personnel expenses	(61,423)	(68,326)	11.2
Other operating expenses[1]	(154,293)	(160,425)	4.0
EBITDA (unaudited)[4]	**154,679**	**180,354**	**16.6**
Amortization and depreciation of fixed intangible and tangible assets	(47,372)	(50,032)	5.6
Other interest and similar income	144	65	(54.9)
Interest and similar expenses	(25,334)	(23,678)	(6.5)
Taxes on income	(19,793)	(28,058)	41.8
Earnings after taxes	**62,883**	**73,861**	**17.5**
Other taxes	(1,479)	(1,449)	(2.0)
Consolidated net income/(net loss) for the period	**61,404**	**72,412**	**17.9**
Consolidated unappropriated retained earnings brought forward	117,062	120,947	3.3
Consolidated net retained profits	**178,465**	**193,358**	**8.3**

(1) In response to certain changes to German GAAP with regard to the preparation of financial information for any period beginning after December 31, 2015, we do not report "income/(loss) on ordinary activities" and "extraordinary net income/(loss)" separately anymore. As a result, effective as of January 1, 2016, we report as "other operating income" and "other operating expenses" certain items we would previously have reported as "extraordinary income" and "extraordinary expenses", as applicable. "Other operating expenses" for the fiscal years ended December 31, 2016 and 2017 as presented in the table above includes €0.9 million and €6.2 million, respectively, we would previously have reported as "extraordinary expenses".

(2) Total output (not a German GAAP measure) is calculated as the sum of sales, increase/(decrease) in finished goods and work in process, other operating income and other own work capitalized.

(3) Gross profit (not a German GAAP measure) is calculated by deducting cost of materials from total output.

(4) EBITDA (not a German GAAP measure) is calculated as sales, *plus* increase/(decrease) in finished goods and work in process, *plus* other operating income (excluding any extraordinary income), *plus* other own work capitalized, *minus* costs of materials, *minus* personnel expenses, *minus* other operating expenses (excluding any extraordinary expenses), *minus* other taxes. While our reported EBITDA therefore excludes the impact of any "extraordinary" items for all periods presented, it has not yet been adjusted for "items of exceptional size or incidence". Excluding the negative effect of €16.0 million in "items of exceptional size or incidence" (including

€13.9 million in additional costs as expenditure of exceptional size or incidence and €2.1 million in lost sales) related to a longer than scheduled shutdown of the CHP in 2016, our EBITDA for the fiscal year ended December 31, 2016 would have been €170.7 million.

Sales

Total sales increased significantly by €71.0 million or 9.7%, from €733.2 million in 2016 to €804.3 million in 2017 due to further strong growth of our corrugated board sales as a result of both higher sales volumes and higher average price levels in 2017 compared to 2016. Total corrugated board sales increased by €74.7 million or 12.7% in 2017 compared to 2016, significantly in excess of general market growth. Corrugated board sales volumes increased by approximately 81,000 tons, from approximately 930,000 tons in 2016 to approximately 1,011,000 tons in 2017. This significant increase in sales volumes was attributable to (i) the successful ramp-up at our corrugated board production site (PW9) in Plössberg, Germany during 2016 and 2017 following commencement of commercial production in October 2015, (ii) the quick and successful (but ongoing) ramp-up at our corrugated board production site (PW10) in Trzcinica, Poland following commencement of commercial production in April 2017, (iii) our ongoing efforts to improve the effectiveness of our sales and marketing activities as part of our Continuous Improvement Program as well as (iv) our continuing efforts to further optimize production of our Board plants. See also "*—Key Factors Affecting our Results of Operations——Expansion Projects and Investment Program*" above. Our total containerboard sales volume decreased by approximately 24,000 tons or 2.3%, from approximately 1,042,000 tons in 2016 to approximately 1,018,000 tons in 2017, primarily due to capacity constraints imposed on the operation of our paper machine (PM2) in Eisenhüttenstadt as a result of certain technical limitations of the local waste water treatment plant. The trend towards lighter containerboard impacted the production program of PM2 and led to a substitution of standard weight grades through super-light-weight containerboard. The lower output of super-light-weight containerboard in tons per hour is in general offset by higher sales prices. External sales of containerboard decreased by approximately 62,000 tons or 20.4% from approximately 304,000 tons in 2016 to approximately 242,000 tons in 2017 as we managed to further increase the share of internal containerboard sales to Board through further improved utilization of our existing corrugated board production sites, the successful ramp-up at our corrugated board production site (PW9) in Plössberg, Germany as well as the quick and successful (but ongoing) ramp-up at our corrugated board production site (PW10) in Trzcinica, Poland. During the course of 2017, price levels for both corrugated board and containerboard increased significantly, which also had a positive impact on our total sales in 2017. See also "*—Key Factors Affecting our Results of Operations——Cyclical Nature of our Industry and Movement in Market Prices, Raw Materials and Input Costs—Fluctuations in Raw Material Costs*" above.

The following table shows our sales by geographic origin and by product:

	Year ended December 31,		
	2016	2017	Change
	(audited, unless otherwise stated)		
	(€ in thousands)		(%)
Sales in Germany (origin) (unaudited)	**455,362**	**484,291**	**6.4**
Corrugated board	311,380	343,957	10.5
Containerboard	114,256	99,729	(12.7)
Other	29,726	40,605	36.6
Sales abroad (origin)	**277,866**	**319,965**	**15.2**
Corrugated board	277,866	319,965	15.2
Containerboard	—	—	—
Other	—	—	—
Total sales	**733,228**	**804,256**	**9.7**

In 2017, sales in Germany accounted for 60.2% of total sales compared to 62.1% of total sales in 2016. Sales in Germany increased by €28.9 million or 6.4%, from €455.4 million in 2016 to €484.3 million in 2017, primarily due to a €32.6 million or 10.5% increase in corrugated board sales for the reasons described above. External sales of containerboard in Germany decreased by €14.5 million or 12.7%, and other sales in Germany increased by €10.9 million or 36.6%, primarily as a result

of sales of electricity produced by the CHP. Corrugated board sales abroad also increased by €42.1 million or 15.2%, from €277.9 million in 2016 to €320.0 million in 2017 for the reasons described above.

	Year ended December 31,		
	2016	2017	Change
	(audited, unless otherwise stated)		
	(€ in thousands)		(%)
Corrugated board (unaudited)	589,246	663,922	12.7
Containerboard	114,256	99,729	(12.7)
Other	29,726	40,605	36.6
Total sales	**733,228**	**804,256**	**9.7**

Total corrugated board sales increased by €74.7 million or 12.7% in 2017 compared to 2016, due to the €32.6 million increase in sales in Germany and €42.1 million increase in sales abroad. External sales of containerboard decreased by €14.5 million or 12.7%, from €114.3 million in 2016 to €99.7 million in 2017, while other sales increased by €10.9 million or 36.6%, from €29.7 million in 2016 to €40.6 million in 2017. Increased sales of electricity produced by the CHP, which were negatively affected by the longer than scheduled CHP shutdown in 2016, also contributed to the increase in other sales. As a result, corrugated board sales as a percentage of total sales further increased from 80.4% in 2016 to 82.6% in 2017, while containerboard sales as a percentage of total sales further decreased from 15.6% in 2016 to 12.4% in 2017.

Increase/(decrease) in finished goods and work in process

Primarily due to higher stocks of containerboard as work in process in 2017, our finished goods and work in progress increased by €10.3 million in 2017.

Other operating income

	Year ended December 31,		
	2016	2017	Change
	(audited, unless otherwise stated)		
	(€ in thousands)		(%)
Investment subsidies	252	252	0.0
Income from other periods	11,204	12,567	12.2
Exchange rate differences	1,920	3,930	104.7
Other income (unaudited)	1,337	854	(36.1)
Other operating income	**14,713**	**17,603**	**19.6**

Other operating income increased by €2.9 million or 19.6% from €14.7 million in 2016 to €17.6 million in 2017, mainly as a result of higher income from exchange rate differences which increased by €2.0 million or 104.7%, from €1.9 million in 2016 to €3.9 million in 2017. Income from other periods also increased by €1.4 million or 12.2%, from €11.2 million in 2016 to €12.6 million in 2017, primarily due to a different timing of refunds for grid charges and energy taxes.

Income from investment subsidies amounted to €0.3 million in 2016 and €0.3 million in 2017 and relates to subsidies we received in connection with the construction of our corrugated board production sites in Schüttorf and Plössberg (both Germany) and which we recognize as other operating income in line with the depreciation of the relevant assets over a period of up to 33 years.

Cost of materials

	Year ended December 31, 2016	Year ended December 31, 2017	Change
	(audited)		
	(€ in thousands)		(%)
Cost of raw materials, consumables and supplies	(309,632)	(361,659)	16.8
Cost of purchased services	(61,918)	(68,822)	11.2
Cost of materials	**(371,550)**	**(430,481)**	**15.9**

Cost of materials increased significantly by €58.9 million or 15.9%, from €371.6 million in 2016 (50.7% of sales, or 50.0% of total output) to €430.5 million in 2017 (53.5% of sales, or 51.6% of total output), mainly as a result of a significant increase in the cost of raw materials, consumables and supplies. The main drivers for this increase were predominantly volume based higher costs for externally purchased containerboard, both of a result of the increase in corrugated board sales volumes and higher containerboard prices, and significantly higher prices for recycled paper. See also "*—Key Factors Affecting our Results of Operations —Cyclical Nature of our Industry and Movement in Market Prices, Raw Materials and Input Costs—Fluctuations in Raw Material Costs*" above.

The cost of purchased services also increased significantly by €6.9 million or 11.2%, from €61.9 million in 2016 to €68.8 million in 2017, due to the reclassification (in 2017 only) of costs for disposal of ash and rejects from cost of raw materials, consumables and supplies to cost of purchased services to. These costs amounted to €6.8 million in 2016 and €7.8 million in 2017.

Costs for freight brokerage at Logistics (€10.3 million in 2017 compared to €10.1 million in 2016) and energy costs (i.e. electricity, gas and steam), which amounted to €50.5 million in 2017 and €50.5 million in 2016, remained largely stable, while other external services purchased decreased to €0.1 million in 2017 compared to €1.3 million in 2016, due to the reclassification (in 2017 only) of the cost of services for cleaning and surveillance to other operating costs.

Gross profit

Gross profit increased by €33.4 million or 9.0%, from €371.0 million (50.6% of sales, or 50.0% of total output) in 2016 to €404.3 million (50.3% of sales, or 48.4% of total output) in 2017. This increase of our gross profit is primarily due to the increase in sales volumes of corrugated board and higher margins in both our containerboard and corrugated board business.

Personnel expenses

	Year ended December 31, 2016	Year ended December 31, 2017	Change
	(audited)		
	(€ in thousands)		(%)
Wages and salaries	(52,627)	(58,294)	10.8
Social security and pensions	(8,795)	(10,032)	14.1
—of which for pension expenses:	*(134)*	(258)	92.5
Personnel expenses	**(61,423)**	**(68,326)**	**11.2**

Personnel expenses in 2017 increased by €6.9 million or 11.2%, from €61.4 million in 2016 to €68.3 million in 2017, reflecting a €5.7 million or 10.8% increase in wages and salaries and a €1.2 million or 14.1% increase in social security and pensions. These increases were due to (i) a 6.3% increase in the average number of employees (from 978 in 2016 to 1,040 in 2017), primarily related in the hiring of new employees in connection with the launch and subsequent ramp-up at our corrugated board production sites PW10 and PW11 in Trzcinica, Poland and Drizzona, Italy and a slight increase in the number of overhead group positions and (ii) regular annual salary and wage increases.

	Year ended December 31,		
	2016	2017	Change
	(audited)		(%)
Administrative employees	230	248	7.8
Factory workers	748	792	5.9
Average number of employees	**978**	**1,040**	**6.3**

Both the average number of administrative employees and the average number of factory workers increased from 230 and 748, respectively, in 2016 to 248 and 792, respectively, in 2017. The increase in the number of employees related primarily to the launch and subsequent ramp-up at our corrugated board production site (PW10) in Trzcinica, Poland and the hiring of new employees for our new corrugated board production site (PW11) in Drizzona, Italy.

Other operating expenses

	Year ended December 31,		
	2016	2017	Change
	(audited, unless otherwise stated) (€ in thousands)		(%)
Expenses from exchange rate differences	(3,405)	(3,340)	(1.9)
Expenses from other periods	(2,548)	(1,935)	(24.1)
Maintenance and repair (unaudited)	(46,885)	(41,405)	(11.7)
Freight expenses (unaudited)	(61,174)	(61,653)	0.8
Paper machine clothing's (unaudited)	(5,740)	(6,557)	14.2
Rental and leasing costs	(6,396)	(6,624)	3.6
Water and waste water treatment expenses (unaudited)	(6,044)	(7,222)	19.5
Legal and consulting fees (unaudited)	(2,672)	(2,571)	(3.8)
Extraordinary expenses	(921)	(6,240)	577.5
Others (unaudited)	(18,507)	(22,878)	23.6
Other operating expenses	**(154,293)**	**(160,425)**	**4.0**

Other operating expenses increased slightly by €6.1 million or 4.0%, from €154.3 million in 2016 to €160.4 million in 2017, mainly due to significantly higher extraordinary expenses, partly offset by significantly lower expenses for maintenance and repair.

In connection with the implementation of the changes introduced by the BilRUG, we were required to report as other operating expenses those items we previously reported under a separate line item as "extraordinary expenses" in prior periods. See also "*—Key Income Statement Items—Other Operating Expenses*" above. Extraordinary expenses significantly increased by €5.3 million or 577.5%, from €0.9 million in 2016 to €6.2 million in 2017, primarily as a result of extraordinary expenses we incurred in connection with the offering of the Floating Rate Notes in March 2017 and in connection with the amendments of the Super Senior Revolving Credit Facility and the Existing Senior Secured PLN Facilities and the entry into the Existing Senior Secured IKB Facilities and the Existing Senior Secured GBP Facility in December 2017.

Water and waste water treatment expenses increased by €1.2 million or 19.5%, from €6.0 million in 2016 to €7.2 million in 2017, mainly due to higher fees for waste water treatment at our paper machine (PM2) in Eisenhüttenstadt, Germany. Freight expenses increased slightly by €0.5 million or 0.8%, from €61.2 million in 2016 to €61.7 million in 2017, due to the higher sales volume. Rental and leasing costs increased slightly by €0.2 million or 3.6%, from €6.4 million in 2016 to €6.6 million in 2017 and expenses for paper machine clothings increased by €0.8 million or 14.2%, due to higher requirements to replace paper machine clothings at our paper machine (PM2) in Eisenhüttenstadt, Germany. Finally, "others" increased by €4.4 million or 23.6%, from €18.5 million in 2016 to €22.9 million in 2017, primarily due to (i) the reclassification (in 2017 only) of the cost of services for cleaning and surveillance as "other operating expenses" from "costs of purchased services" within "cost of materials" and (ii) costs incurred in connection with our 25-year anniversary.

Expenses for maintenance and repair decreased by €5.5 million or 11.7%, from €46.9 million in 2016 to €41.4 million in 2017, primarily due to the longer than scheduled maintenance shutdown of the CHP in 2016, while expenses from other periods decreased by €0.6 million or 24.1%, mainly due to scrapping of fixed assets. Legal and consulting fees also decreased by €0.1 million or 3.8% from €2.7 million in 2016 to €2.6 million in 2017.

EBITDA

	Year ended December 31,		
	2016	2017	Change
	(unaudited)		
	(€ in thousands)		(%)
EBITDA[1]	154,679	180,354	16.6

(1) EBITDA (not a German GAAP measure) is calculated as sales, *plus* increase/(decrease) in finished goods and work in process, *plus* other operating income (excluding any extraordinary income), *plus* other own work capitalized, *minus* costs of materials, *minus* personnel expenses, *minus* other operating expenses (excluding any extraordinary expenses), *minus* other taxes. While our reported EBITDA therefore excludes the impact of any "extraordinary" items for all periods presented, it has not yet been adjusted for "items of exceptional size or incidence".

Our EBITDA increased by €25.7 million or 16.6% from €154.7 million in 2016 (21.1% of sales) to €180.4 million in 2017 (22.4% of sales), as a result of the factors described above. Excluding the negative effect of €16.0 million in "items of exceptional size or incidence" (including €13.9 million in additional costs as expenditure of exceptional size or incidence and €2.1 million in lost sales) related to a longer than scheduled shutdown of the CHP in 2016, our EBITDA for the fiscal year ended December 31, 2016 would have been €170.7 million (23.2% of sales).

Amortization and depreciation of fixed intangible and tangible assets

	Year ended December 31,		
	2016	2017	Change
	(audited)		
	(€ in thousands)		(%)
Depreciation on intangible assets	(2,856)	(2,821)	(1.2)
Depreciation on tangible assets	(44,516)	(47,212)	6.1
Total amortization and depreciation of fixed intangible and tangible assets	**(47,372)**	**(50,032)**	**5.6**

Amortization and depreciation expenses increased by €2.7 million or 5.6% from €47.4 million in 2016 to €50.0 million in 2017. This increase was primarily due to (i) amortization charges with regard to our corrugated production site in (PW10) in Trzcinica, Poland (which commenced production in April 2017), (ii) one-off amortization charges we recognized on parts of a used corrugator we were not able to use (as originally planned) in connection with the establishment of our new corrugated board production site (PW11) in Drizzona, Italy, as well as (iii) certain maintenance capital expenditure in 2017.

Interest income/(expenses), net

	Year ended December 31,		
	2016	2017	Change
	(audited, unless otherwise stated)		
	(€ in thousands)		(%)
Other interest and similar income	144	65	(54.9)
Interest and similar expenses	(25,334)	(23,678)	(6.5)
Interest income/(expenses), net (unaudited)	**(25,190)**	**(23,613)**	**(6.3)**

Our net interest expense in 2017 decreased by €1.6 million or 6.3% from net expenses of €25.2 million in 2016 to net expenses of €23.6 million in 2017. This decrease was almost entirely due to a decrease in interest and similar expenses by €1.7 million or 6.5% from €25.3 million in 2016 to €23.7 million in 2017, due to lower average interest rates and notwithstanding higher average gross debt in 2017 than in 2016. Liabilities represented by bonds and bank loans were €495 million and €42.5 million, respectively, as of December 31, 2017 compared to liabilities represented by bonds and bank loans of €420 million and €26.3 million, respectively, as of December 31, 2016.

Taxes

	Year ended December 31,		
	2016	2017	Change
	(audited, unless otherwise stated)		
	(€ in thousands)		(%)
Taxes on income	(19,793)	(28,058)	41.8
Other taxes	(1,479)	(1,449)	**(2.0)**
Total taxes (unaudited)	**(21,272)**	**(29,507)**	**38.7**

Total taxes increased significantly by €8.2 million or 38.7%, from €21.3 million in 2016 to €29.5 million in 2017. Total taxes mainly include trade tax and corporate income tax for the current financial year. Furthermore, total taxes include deferred payments of trade tax and corporate tax for previous years, which amounted to €8 thousand in 2017 and expenses arising from the adjustment of deferred tax assets, which amounted to €4.2 million in 2017.

Consolidated net income/(net loss)

	Year ended December 31,		
	2016	2017	Change
	(audited)		
	(€ in thousands)		(%)
Consolidated net income/(loss) for the period	**61,404**	**72,412**	**17.9**
Consolidated unappropriated retained earnings brought forward	117,062	120,947	3.3
Consolidated net retained profits	**178,465**	**193,358**	**8.3**

Consolidated net income/(loss) for the period increased by €11.0 million or 17.9% from a profit of €61.4 million in 2016 to a profit of €72.4 million in 2017. This was the result of the factors described above.

LIQUIDITY AND CAPITAL RESOURCES

Overview

Our primary sources of financing are cash generated from our operating activities, the Senior Secured Notes and drawings under the Senior Secured Facilities. As of the date of this special report, Facility C of the Existing Senior Secured IKB Facilities, the Existing Senior Secured SaarLB Facility, Facility A of the Existing Senior Secured Commerzbank Facilities, the Existing Senior Secured HSBC Facility and the New Senior Secured Facilities remain undrawn. In addition, we have undrawn capacity of €50 million under the Super Senior Revolving Credit Facility as of the date of this special report. Our cash requirements consist mainly of debt and tax servicing requirements, the purchase of raw materials, energy and freight, working capital, personnel expenses and capital expenditures.

As of March 31, 2019, we had total financial debt (calculated as bank loans plus finance leases plus bonds) of €702.0 million compared to €674.0 million as of December 31, 2018, €537.5 million as of December 31, 2017 and €455.3 million as of December 31, 2016. As of March 31, 2019, we had cash-in-hand, bank balances in the amount of €136.0 million and net financial debt of €566.0 million (calculated as total financial debt less cash-in-hand, bank balances). We drew the remaining GBP67 million of available commitments under the Existing Senior Secured GBP Facility during the course of May 2019. As a result, as of the date of this special report, the GBP70 million Existing Senior Secured GBP Facility was fully drawn.

Our ability to generate cash from our operating activities depends on our future operating performance, which is in turn dependent, to some extent, on general economic, financial, competitive, market, regulatory and other factors, many of which are beyond our control, as well as other factors discussed under "*Risk Factors*". In addition, our ability to draw under the Super Senior Revolving Credit Facility will only be available if, among other things, we meet the financial covenant set out therein. See "*Description of Certain Financing Arrangements—Super Senior Revolving Credit Facility*".

Although we believe that our expected cash flows from operating activities, capacity under the Super Senior Revolving Credit Facility, future drawings under Facility C of the Existing Senior Secured IKB Facilities, the Existing Senior Secured SaarLB Facility, Facility A of the Existing Senior Secured Commerzbank Facilities, the Existing Senior Secured HSBC Facility and the New Senior Secured Facilities and cash-in-hand, bank balances, will be adequate to meet our anticipated liquidity and debt service needs, we cannot assure you that our business will generate sufficient cash flows from operating activities or that future debt and equity financing will be available to us in an amount sufficient to enable us to pay our debts when due, including the Additional Notes, or to fund our other liquidity needs.

We believe that the potential risks to our liquidity include:

- a reduction in operating cash flows due to a decrease of operating profit from our operations, which could be the result of a downturn in our performance or in the industry as a whole;
- the failure or delay of our customers to make payments due to us;
- risks associated with our expansion and other investment projects, in particular our new paper machine project;
- the failure to realize the expected benefits from our Continuous Improvement Program and from further future optimization initiatives;
- the failure to further maintain a lean cost structure;
- the failure to execute capacity expansion projects successfully;
- any significant unplanned downtime of one or more of our production facilities and/or the CHP adjacent to our paper mill (PM2) in Eisenhüttenstadt;
- a failure to maintain low working capital requirements;
- currency exchange rate fluctuations;
- an increase in variable interest payments or taxes; and
- the need to fund capacity expansion, unexpected replacement capital expenditures and other development capital expenditures.

If our future cash flows from operating activities and other capital resources (including borrowings under our current or any future credit facility) are insufficient to pay our obligations as they mature or to fund our liquidity needs, we may be forced to:

- reduce or delay our business activities and capital expenditures;
- sell certain of our assets;
- obtain additional debt or equity financing; or
- restructure or refinance all or a portion of our debt, on or before maturity.

We cannot assure you that we would be able to accomplish any of these alternatives on a timely basis or on satisfactory terms, if at all. In addition, the terms of the Senior Secured Notes, the Super Senior Revolving Credit Facility, the Existing Senior Secured Facilities, the New Senior Secured Facilities and any future debt may limit our ability to pursue any of these alternatives.

Cash flows

The following table sets forth our cash flows for the years ended December 31, 2016, 2017 and 2018 and the three-month periods ended March 31, 2018 and 2019.

	Year ended December 31,			Three months ended March 31,	
	2016	**2017**	**2018**	**2018**	**2019**
	(audited, unless stated otherwise)			**(unaudited)**	
	(€ in thousands)				
Consolidated net income for the period	61,404	72,412	126,965	32,280	33,411
Amortization and depreciation of fixed assets	47,372	50,032	51,753	12,293	13,839
Increase/(decrease) in provisions	(6,709)	6,183	13,102	(3,155)	(597)
Other non-cash expenses/(income)	(496)	(1,228)	(830)	336	872
(Increase)/decrease in inventories, trade receivables and other assets (not attributable to investing or financing activities)	3,049	(32,056)	(53,407)	(34,110)	(23,458)
Increase/(decrease) in trade payables and other liabilities (not attributable to investing or financing activities)	9,983	(10,431)	3,307	1,779	(2,703)
(Gain)/loss on disposal of fixed assets	510	0	166	—	—
Interest expenses/(income)	25,190	23,613	31,976	5,996	6,070
Expenditure/(income) of exceptional size or incidence	14,835	6,240	3,519	6,900	65
Income tax expenses/(income)	19,793	28,058	54,865	12,310	13,903
Cash payments relating to expenditure of exceptional size or incidence	(11,736)	(2,178)	0	—	—
Income taxes paid	(10,631)	(17,939)	(34,202)	(3,409)	(9,327)
Cash flow from operating activities	**152,564**	**122,706**	**197,214**	**31,220**	**32,075**

Proceeds from disposal of intangible and tangible fixed assets	144	150	375	0	0
Payments to acquire intangible fixed assets	(472)	(176)	(407)	(58)	(30)
Payments to acquire tangible fixed assets	(22,976)	(47,762)	(158,965)	(18,666)	(70,899)
Payments to acquire entities included in the basis of consolidation	—	—	—	—	—
Interest received	103	53	48	10	22
Cash flow from investing activities	**(23,201)**	**(47,735)**	**(158,949)**	**(18,714)**	**(70,907)**
Free cash flow (unaudited)[(1)]	**129,363**	**74,971**	**38,265**	**12,506**	**(38,832)**
Proceeds from the issuance of bonds and borrowings	2,081	173,187	490,575	450,000	30,000
Cash repayments of bonds and borrowings	(75,847)	(83,642)	(352,867)	(1,983)	(2,174)
Proceeds from grants received	313	0	1,345	—	—
Cash payments relating to expenditure of exceptional size or incidence	(4,109)	(3,317)	(8,702)	(3,859)	0
Interest paid	(26,473)	(24,891)	(50,112)	(20,891)	(1,951)
Dividends paid to shareholders of the parent entity	(6,222)	(57,519)	(86,506)	0	0
Cash flow from financing activities	**(110,257)**	**3,818**	**(6,267)**	**423,267**	**25,875**
Net change in cash funds	19,106	78,789	31,998	435,773	(12,957)
Effect on cash funds of exchange rate movements	(2,498)	1,787	(1,513)	(319)	519
Cash funds at beginning of period	20,762	37,370	117,946	117,946	148,431
Cash funds at end of period	**37,370**	**117,946**	**148,431**	**553,400**	**135,993**

(1) We define free cash flow (not a German GAAP measure) as cash flow from operating activities less cash outflows from investing activities.

Cash flow from operating activities

In the three-month period ended March 31, 2019, our cash flow from operating activities increased by €0.9 million from €31.2 million in the first three months of 2018 to €32.1 million in the first three months of 2019. This increase follows our strong performance and a lower increase in working capital compared to previous year's first quarter. Contrary effects related to the absence of expenditure of exceptional size or incidence in the reporting period compared to the first quarter in 2018. Furthermore, higher income taxes paid impacted cash flows from operating activities.

In 2018, our cash flow from operating activities increased by €74.5 million from €122.7 million in 2017 to €197.2 million in 2018. The increase in our cash flow from operating activities was primarily attributable to our improved EBITDA as a result of our strong operational performance. Contrary effects resulted from a €55.3 million increase in our trade working capital, from €114.2 million as at December 31, 2017 to €169.5 million as at December 31, 2018, as described in more detail below.

In 2017, our cash flow from operating activities decreased by €29.9 million from €152.6 million in 2016 to €122.7 million in 2017, notwithstanding the significant increase in our net income for the period from €61.4 million in 2016 to €72.4 million in 2017. The decrease in our cash flow from operating activities was primarily attributable to the significant increase in our trade working capital, both as a result of a significant increase in inventories, trade receivables and other assets (not

attributable to investing or financing activities) and a significant decrease in trade payables and other liabilities (not attributable to investing or financing activities), for the reasons discussed below. A significant increase in income taxes paid (from €10.6 million in 2016 to €17.9 million in 2017), due to higher net income in 2017 and a lower amount of tax loss carry-forwards available to off-set our net income, also contributed to the decrease in our cash flow from operating activities in 2017.

Our cash flow from operating activities is significantly affected by changes in our net working capital. As a result, our cash flow from operating activities can be significantly affected by changes in raw material prices or an increase or decrease of sales volumes as well as payment terms, as those factors affect the amount of inventories, trade receivables and trade payables. The following table sets forth our net working capital as of the dates indicated:

	As of December 31,			As of March 31,
	2016	2017	2018	2019
	(audited, unless otherwise stated)			(unaudited)
	(€ in thousands)			
Trade receivables	**59,562**	**78,859**	**108,756**	**128,229**
Inventories	**73,944**	**86,864**	**110,512**	**108,001**
Raw materials, consumables and supplies	51,480	53,985	54,352	54,446
Work in process	18,396	27,671	50,136	46,991
Finished products	4,038	5,061	5,957	6,530
Prepayments	29	147	67	35
Trade payables	**(58,020)**	**(51,524)**	**(49,787)**	**(54,430)**
Trade working capital (unaudited)[1]	**75,486**	**114,199**	**169,481**	**181,800**

(1) Trade working capital (not a German GAAP measure) we define as trade receivables plus inventories, minus trade payables.

We record a liability under trade payables only if we have received the related supplier invoice by the relevant balance sheet date and provided that all other prerequisites for the recognition as a liability have been met. We record liabilities related to goods or services we have received during the relevant period, but for which we have not yet received an invoice, under other provisions on our balance sheet. These provisions for outstanding invoices amounted to €20.6 million, €22.1 million and €26.3 million as of December 31, 2016, 2017 and 2018, and €33.1 million as of March 31, 2019, respectively.

In the first three months of 2019, our trade working capital increased by €12.3 million, or 7.3%, from €169.5 million as of December 31, 2018 to €181.8 million as of March 31, 2019. Trade receivables increased by €19.5 million, or 17.9%, from €108.8 million as of December 31, 2018 to €128.2 million as of March 31, 2019, mainly due to year-end effects based on lower sales in December. At the same time, the amount of trade payables increased by €4.6 million, or 9.3%, from €49.8 million as of December 31, 2018 to €54.4 million as of March 31, 2019. This increase is primarily related to a higher external containerboard purchases to cover the raw material demand of our growing corrugated board business and our ongoing expansion projects.

In 2018, our trade working capital increased by €55.3 million, or 48.4%, from €114.2 million as of December 31, 2017 to €169.5 million as of December 31, 2018, following the increase in our total output, as well as in the amount of income taxes paid. The increase in our trade working capital is attributable to (i) a significant increase in our trade receivables, (ii) a significant increase in our inventories and a slight decrease in our trade payables. Trade receivables increased by €29.9 million, or 37.9%, from €78.9 million as of December 31, 2017 to €108.8 million as of December 31, 2018 following our sales growth especially in countries with longer than average payment terms and as a result of a lower forfaiting volume in the fiscal year 2018 due to an already high cash position. The significant increase of €23.6 million, or 27.2%, in inventories from €86.9 million as of December 31, 2017 to €110.5 million is mainly driven by an increase in work in process by €22.5 million as a result of higher volume of stocks at our paper machines and higher volume of stocks of internal purchased containerboard at our corrugated board plants. Furthermore, a higher amount of spare parts led to an increase in raw materials, consumables and supplies. At the same time, the amount of trade payables decreased slightly by

€1.7 million, or 3.5%, from €51.5 million as of December 31, 2017 to €49.8 million as of December 31, 2018 due to one-off effects as a result of reporting date factors.

In 2017, our trade working capital increased significantly by €38.7 million or 51.3% from €75.5 million as of December 31, 2016 to €114.2 million as of December 31, 2017, notwithstanding the increase in our total output in 2017 of only 12.4%. Trade receivables increased by €19.3 million or 32.4% from €59.6 million as of December 31, 2016 to €78.9 million as of December 31, 2017 due to (i) significantly higher sales volumes towards year end 2017 compared to year end 2016, mainly as a result of our corrugated board production site (PW9) in Plössberg, Germany completing its ramp-up phase in 2017 and the fast ramp-up of our corrugated board production site (PW10) in Trzcinica, Poland during 2017, following commencement of commercial production in April 2017, as well as (ii) significantly higher prices for our corrugated board products at year end 2017 compared to year end 2016, and (iii) timing effects at year end 2016 and 2017. Inventories also increased significantly by €12.9 million or 17.5% from €73.9 million as of December 31, 2016 to €86.9 million as of December 31, 2017, mostly as a result of a €9.3 million or 50.4% increase in work in process from €18.4 million as of December 31. 2016 to €27.7 million as of December 31, 2017. This increase in work in process as of yearend 2017 relates to (i) our additional corrugated board production site (PW10) in Trzcinica, Poland, which commenced production in April 2017 as well as (ii) a planned extended maintenance shutdown of our paper machine (PM1) in Burg, Germany. In anticipation of this planned shutdown, we already started to increase stock levels of the relevant containerboard grades produced by our paper machine (PM1) to be able to continue to meet the relevant containerboard sourcing requirements of our corrugated board production during the planned extended shutdown. Inventories of finished products also increased by €1.0 million or 25.3% from €4.0 million as of December 31, 2016 to €5.1 million as of December 31, 2017, both as a result of the higher volume of finished goods and the increase in the price for our finished goods at year end 2017. At the same time, the amount of trade payables decreased significantly by €6.5 million or 11.2% from €58.0 million as of December 31, 2016 to €51.5 million as of December 31, 2017, notwithstanding a significant increase in our raw material sourcing requirements in 2017 due to the increase in our corrugated board production and significantly higher prices for recycled paper and recycled containerboard in 2017 compared to 2016. The lower amount of trade payables at year end 2017 was primarily due to a high amount of trade payables as of December 31, 2016 related to the construction of our corrugated board production site (PW10) in Trzcinica, Poland.

Cash flow from investing activities

Cash flows from investing activities generally consist of cash outflows for investments in tangible and intangible fixed assets as well as cash inflows from the disposal of fixed assets as well as interest received concerning financial assets and cash in hand.

In the first three months of 2019, our cash outflow from investing activities increased by €52.2 million, or 278.9%, from €18.7 million in the first three months of 2018 to €70.9 million in the first three months of 2019. This increase was primarily due to the start of skeleton construction works for our new paper machine project (PM3) as well as investments into our corrugated board plants (PW12 and PW13) in Ellesmere Port, United Kingdom and Eisfeld, Germany, each as described in more detail below. Smaller investments in different plants as part of our continuous maintenance capital expenditures also contributed to the overall increase.

In 2018, our cash outflows from investing activities significantly increased by €111.2 million, or 233.0%, from €47.7 million in 2017 to €158.9 million in 2018. These cash outflows related to capital expenditures in connection with our new paper machine project (PM3) in Sandersdorf-Brehna, Germany, our new corrugated board "mega plant" (PW12) in Ellesmere Port, United Kingdom, our corrugated board project (PW13) in Eisfeld, Germany, the replacement of the sizer at our paper machine (PM1) in Burg, Germany, our new corrugated board production site (PW11) in Drizzona, Italy and the extension of our existing corrugated board plant (PW6) in Offenbach, Germany, each as described in more detail below. Furthermore, we have made several smaller investments in our other existing production sites as part of our continuous maintenance capital expenditures. As a result, investments in tangible fixed assets significantly increased by €111.2 million from €47.8 million in 2017 to €159.0 million in 2018.

In 2017, our cash outflows from investing activities increased by €24.5 million or 105.7%, from €23.2 million in 2016 to €47.7 million in 2017. This is due to the higher cash outflows due to payments to acquire tangible fixed assets related to the establishment of our corrugated board production sites (PW10, PW11 and PW12) in Trzcinica, Poland, Drizzona, Italy and Ellesmere Port, United Kingdom in 2017. Cash outflows from investing activities in 2016 primarily related to cash outflows due to payments to acquire tangible fixed assets in connection with the establishment of our corrugated board production site (PW10) in Trzcinica, Poland.

We primarily finance our maintenance capital expenditures with cash flow from operating activities. From time to time, we have also financed our expansion capital expenditures through borrowings. The following table sets forth our capital expenditures for the years ended December 31, 2016, 2017 and 2018 and for the three-month periods ended March 31, 2018 and 2019:

	Year ended December 31,			Three months ended March 31,	
	2016	2017	2018	2018	2019
	(audited, unless otherwise stated)			(unaudited)	
	(€ in thousands)				
Payments to acquire fixed assets (capital expenditures) (unaudited).....	**23,448**	**47,938**	**159,372**	**18,724**	**70,929**
Payments to acquire tangible fixed assets	22,976	47,762	158,965	18,666	70,899
Payments to acquire intangible fixed assets	472	176	407	58	30

As discussed in more detail under "*Business—Our Strategy—Maintain and strengthen our position as a leading, low-cost corrugated board producer in Europe through controlled investments*" and "*—Key Factors Affecting our Results of Operations—Expansion Projects and Investment Program*" above, our strategy involves significant additional investments to further expand both our corrugated board and containerboard production capacities.

In the first three months of 2019, capital expenditures increased significantly by €52.2 million, or 278.8%, from €18.7 million in the first three months of 2018 to €70.9 million in the first three months of 2019, primarily due to (i) €53.1 million of capital expenditures in connection with the start of skeleton construction works for our new paper machine (PM3) and (ii) €3.1 million and €6.0 million of capital expenditures related to our corrugated board plant projects (PW12 and PW13) in Ellesmere Port, United Kingdom and Eisfeld, Germany, respectively.

Capital expenditures of €159.4 million in 2018 primarily relate to (i) €63.6 million of capital expenditures in connection with the start of construction works for our new paper machine project (PM3) in Sandersdorf-Brehna, Germany, (ii) €54.0 million of capital expenditures in connection with the establishment of our new corrugated board production "mega plant" (PW12) in Ellesmere Port, United Kingdom (which commenced production in January 2019), (iii) €9.4 million of capital expenditures in connection with the start of construction works for our new corrugated board production site (PW13) in Eisfeld, Germany, (iv) €7.3 million of capital expenditures in connection with the replacement of the sizer at our paper machine (PM1) in Burg, Germany and (v) €3.4 million of capital expenditures in connection with the extension of our existing corrugated board plant (PW6) in Offenbach, Germany.

Capital expenditures of €47.9 million in 2017 primarily reflect (i) €16.0 million of capital expenditures in connection with the establishment of our corrugated board production site (PW10) in Trzcinica, Poland (which commenced production in April 2017), (ii) €8.5 million in 2017 of capital expenditures in connection with the establishment of our new corrugated board production site (PW11) in Drizzona, Italy (which commenced production in early March 2018) and (iii) €11.6 million of capital expenditures in connection with the ongoing construction of our corrugated board production site (PW12) in Ellesmere Port, United Kingdom (following the start of construction in October 2017).

Payments of capital expenditures of €23.4 million in 2016 primarily relate to our €22.1 million investment in connection with the establishment of our corrugated board production site (PW10) in Trzcinica, Poland, on land we purchased from our large customer Janmar Centum adjacent to its existing packaging plant.

Free cash flow

We define free cash flow as cash flow from operating activities less cash outflows from investing activities. Free cash flow comprises the cash surplus or deficit after expenditure on investments and taxes but before net cash used in/provided by financing activities, and before taking into account cash proceeds and payments relating to shareholders' equity and financial liabilities. The reasons for changes in the free cash flow are therefore the same as explained above. In the first three months of 2019, our free cash flow decreased by €51.3 million from a cash inflow of €12.5 million in the first three months of 2018 to a cash outflow of €38.8 million in the first three months of 2019. In 2018, our free cash flow decreased by €36.7 million from a cash inflow of €75.0 million in 2017 to a cash inflow of €38.3 million in 2018. In 2017, our free cash flow decreased by €54.4 million from a cash inflow of €129.4 million in 2016 to a cash inflow of €75.0 million in 2017.

Cash flow from financing activities

In the first three months of 2019, we reported a cash inflow from financing activities of €25.9 million, compared to a cash inflow of €423.3 million in the first three months of 2018. Cash flows from financing activities in the first three months of 2019 mainly related to €30 million of drawings under the Existing Senior Secured Commerzbank Facilities to finance the ongoing construction of our new paper machine (PM3) and interest paid as well as scheduled repayments under the Existing Senior Secured PLN Facilities. The high cash inflows of €423.3 million in the first three months of 2018 primarily relates to the issuance of the Fixed Rate Notes in March 2018, with the majority of the proceeds only used in May 2018 to redeem the Company's €345,000,000 5.125% senior secured fixed rate notes due 2022.

In 2018, we reported a cash outflow from financing activities of €6.3 million, mainly as a result of (i) the €352.9 million repayment of bonds and borrowings, which related to the redemption of the Company's €345,000,000 5.125% senior secured fixed rate notes due 2022 on May 1, 2018 and scheduled repayments under the Existing Senior Secured PLN Facilities (€7.9 million), (ii) a €86.5 million special dividend payment to JH-Holding and our minority shareholders for the purpose of enabling JH-Holding to redeem all of its then-remaining €81.1 million outstanding principal amount of its PIK toggle notes on June 1, 2018, (iii) €50.1 million of interest paid, including interest payments under the Company's senior secured notes as well as bank loans and lump sum fee payments (€19.3 million) to JH-Holding and our minority shareholders in return for granting security over their shares in the Company to secure our obligations under our various financing arrangements, as well as (iv) €8.7 million of cash outflows related to payments relating to expenditure of exceptional size or incidence due to extraordinary expenses (transaction costs, advisory and professional fees and others) we incurred in connection with the issuance of the Fixed Rate Notes in March 2018 and the negotiation and execution, in the third quarter of 2018, of Facility C of the Existing Senior Secured IKB Facilities, the Existing Senior Secured Commerzbank Facilities, the Existing Senior Secured SaarLB Facility and the Existing Senior Secured HSBC Facility to finance a portion of our paper machine project (PM3) at Sandersdorf-Brehna, Germany. These cash outflows from financing activities more than offset cash inflows in 2018 relating to proceeds of bonds and borrowings of €490.6 million, including (i) €450 million from the offering of the Fixed Rate Notes in March 2018, (ii) €38.5 million of borrowings under the Facility A and the Facility B under the Existing Senior Secured IKB Facilities and (iii) GBP3 million (carrying amount as of December 31, 2018: €3.5 million) of borrowings under the Existing Senior Secured GBP Facility. The amount repayable under Facility A under the Existing Senior Secured IKB Facilities was subsequently reduced from €8.5 million to €7.2 million as of December 31, 2018 as a result of a €1.3 million KfW repayment grant, which we reported as proceeds from grants received in 2018.

In 2017, we reported a cash inflow from financing activities of €3.8 million, mainly as a result of (i) the excess proceeds from the €150 million aggregate principal amount of the Floating Rate Notes due 2024 issued in March 2017, after application of a portion of the proceeds to redeem €75 million aggregate principal amount of the Company's senior secured floating rate notes due 2022 and payment of costs, fees and expenses for the offering and (ii) PLN 92.0 million of drawings under the 2016 Senior Secured PLN Facility in 2017 in connection with the completion of our corrugated board production site (PW10) in Trzcinica, Poland. These cash inflows from financing activities more than offset (i) €57.5 million in dividends distributed to our shareholders, including a €55.0 million special dividend in April 2017, which enabled JH-Holding, together with cash-in-hand, bank balances, to purchase €43.9 million aggregate principal amount of the PIK Toggle Notes in a tender offer and subsequently transfer such PIK Toggle Notes to JH-Holding Finance SA for cancellation, (ii) €8.9 million of payments in relation to a former finance lease agreement for the corrugator at our corrugated board production site (PW9) in Plössberg, Germany, including €1.5 million in regular payments during the course of 2017 and €7.4 million in payments upon termination of the financing lease agreement in December 2017, as well as (iii) PLN 36.4 million in scheduled repayments under the Existing Senior Secured PLN Facilities.

In 2016, we reported a cash outflow from financing activities of €110.3 million as a result of the early optional redemption of €75.0 million in principal amount of the Floating Rate Notes, €26.5 million in interest payments and €6.2 million in dividends distributed to our shareholders.

Liquidity management

While we intend to primarily meet our liquidity requirements with cash generated from our operating activities and drawings under Facility C of the Existing Senior Secured IKB Facilities, the Existing Senior Secured SaarLB Facility, Facility A of the Existing Senior Secured Commerzbank Facilities, the Existing Senior Secured HSBC Facility and the New Senior Secured Facilities, we expect to have sufficient capacity available under the Super Senior Revolving Credit Facility to be able to meet any additional operating requirements. As of the date of this special report, we have undrawn capacity of €50 million under the Super Senior Revolving Credit Facility.

Facility C of the Existing Senior Secured IKB Facilities, the Existing Senior Secured SaarLB Facility, Facility A of the Existing Senior Secured Commerzbank Facilities and the Existing Senior Secured HSBC Facility will remain undrawn on the date of this special report. We may utilize the €25.0 million Facility C under the Existing Senior Secured IKB Facilities,

the €25.0 million Existing Senior Secured SaarLB Facility and the €45.0 million Facility A under the Existing Senior Secured Commerzbank Facilities until August 10, 2019. For more details about the Existing Senior Secured IKB Facilities, the Existing Senior Secured SaarLB Facility and the Existing Senior Secured Commerzbank Facilities, see "*Description of Certain Financing Arrangements—Existing Senior Secured IKB Facilities*", "*Description of Certain Financing Arrangements— Existing Senior Secured SaarLB Facility*" and "*Description of Certain Financing Arrangements—Existing Senior Secured Commerzbank Facilities*". We may utilize the €30.0 million Existing Senior Secured HSBC Facility until one month before December 31, 2023. For more details about the Existing Senior Secured HSBC Facility, see "*Description of Certain Financing Arrangements—Existing Senior Secured HSBC Facility*".

The utilization of the New Senior Secured Facilities is subject to certain conditions precedent. We expect to satisfy all remaining conditions precedent on or around the issue date of the Additional Notes. As a result, the New Senior Secured Facilities will remain undrawn on the issue date of the Additional Notes. We may utilize the €30 million, €30 million and €15 million under the New Senior Secured Erste Bank Facility, the New Senior Secured LBBW Facilities and the New Senior Secured SaarLB Facility until June , 2021, May, 2020 and May, 2020, respectively. For more details about the New Senior Secured Facilities, see *"Description of Certain Financing Arrangements—New Senior Secured Erste Bank Facility"*, *"Description of Certain Financing Arrangements—New Senior Secured LBBW Facilities"* and *"Description of Certain Financing Arrangements—New Senior Secured SaarLB Facility"*.

To manage our liquidity, we maintain a largely centralized cash management system, which includes all our subsidiaries. In particular, liquidity plans are prepared with the Group budget on a monthly rolling period for the upcoming 12 months in which the expected cash receipts and payments for the specified time period are set off against each other. The upcoming four weeks are planned two times per month and include a deviation analysis.

OFF-BALANCE SHEET ARRANGEMENTS

The following discussion describes our material off-balance sheet arrangements.

Forfaiting Program

Our subsidiary Progroup Board GmbH finances a portion of its trade receivables through an off balance sheet forfaiting program with CommerzFactoring GmbH. Under the forfaiting program it sells trade receivables to CommerzFactoring GmbH on a non recourse basis in return for immediate cash payments. The forfaiting transactions occur up to a maximum aggregate transaction volume of €15 million. As of March 31, 2019, no trade receivables were sold under the forfaiting program.

CONTRACTUAL OBLIGATIONS

Financing Arrangements

As of March 31, 2019, on a *pro forma* basis to give effect to the proposed issuance of the Additional Notes and the intended use of proceeds therefrom, namely the proposed redemption of our Floating Rate Notes, the third party financing arrangements of the Group would have been as follows:

	Commitments[1][2][3]						
	Total	<1 Year	1 to 2 years	2 to 3 years	3 to 4 years	4 to 5 years	>5 Years
	(unaudited) (€ in thousands)						
Additional Notes[4].....	150,000	—	—	—	—	—	150,000
Fixed Rate Notes[4]	450,000	—	—	—	—	—	450,000
Super Senior Revolving Credit Facility.....	—	—	—	—	—	—	—
Existing Senior Secured Commerzbank Facilities[5]	30,000	—	—	4,000	4,000	4,000	18.000
Existing Senior Secured GBP Facility[6]	3,495	—	—	—	—	—	3,495
Existing Senior Secured IKB Facilities[7]	37,155	1,469	4,813	4,813	4,813	4,813	16,437
Existing Senior Secured PLN Facilities[8].....	31,356	9,045	11,254	11,057	—	—	—
Total indebtedness[9]....	702,006	10,514	16,067	19.870	8,813	8,813	637,932

(1) As adjusted to give effect to the proposed issuance of the Additional Notes and the intended use of proceeds therefrom, namely the proposed redemption of our Floating Rate Notes, in each case as if they had taken place as of March 31, 2019.

(2) Table does not show any drawings under Facility C of the Existing Senior Secured IKB Facilities, the Existing Senior Secured SaarLB Facility, Facility A of the Existing Senior Secured Commerzbank Facilities or the Existing Senior Secured HSBC Facility. Facility C of the Existing Senior Secured IKB Facilities, the Existing Senior Secured SaarLB Facility, Facility A of the Existing Senior Secured Commerzbank Facilities and the Existing Senior Secured HSBC Facility will remain undrawn on the date of this special report. We may utilize the €25.0 million Facility C under the Existing Senior Secured IKB Facilities, the €25.0 million Existing Senior Secured SaarLB Facility and the €45.0 million Facility A under the Existing Senior Secured Commerzbank Facilities until August 10, 2019. For more details about the Existing Senior Secured IKB Facilities, the Existing Senior Secured SaarLB Facility and the Existing Senior Secured Commerzbank Facilities, see "*Description of Certain Financing Arrangements—Existing Senior Secured IKB Facilities*", "*Description of Certain Financing Arrangements—Existing Senior Secured SaarLB Facility*" and "*Description of Certain Financing Arrangements— Existing Senior Secured Commerzbank Facilities*". We may utilize the €30.0 million Existing Senior Secured HSBC Facility until one month before December 31, 2023. For more details about the Existing Senior Secured HSBC Facility, see "*Description of Certain Financing Arrangements—Existing Senior Secured HSBC Facility*".

(3) Table also does not show any drawings under the New Senior Secured Facilities. The utilization of the New Senior Secured Facilities is subject to certain conditions precedent. We expect to satisfy all remaining conditions precedent on or around the issue date of the Additional Notes. As a result, the New Senior Secured Facilities will remain undrawn on the issue date of the Additional Notes. We may utilize the €30 million, €30 million and €15 million under the New Senior Secured Erste Bank Facility, the New Senior Secured LBBW Facilities and the New Senior Secured SaarLB Facility until June, 2021, May, 2020 and May, 2020, respectively. For more details about the New Senior Secured Facilities, see "*Description of Certain Financing Arrangements—New Senior Secured Erste Bank Facility*", "*Description of Certain Financing Arrangements—New Senior Secured LBBW Facilities*" and "*Description of Certain Financing Arrangements—New Senior Secured SaarLB Facility*".

(4) Represents the aggregate principal amount of the Additional Notes we propose to issue and the Fixed Rate Notes, respectively.

(5) As of March 31, 2019, €15 million and €15 million, respectively, in borrowings under Facility B and Facility C of the Existing Senior Secured Commerzbank Facilities remained outstanding. As of the date of this special report,

the same amounts of borrowings remain outstanding under Facility B and Facility C of the Existing Senior Secured Commerzbank Facilities. For more details about the Existing Senior Secured Commerzbank Facilities, including scheduled repayments on the Existing Senior Secured Commerzbank Facilities, see "*Description of Certain Financing Arrangements— Existing Senior Secured Commerzbank Facilities*".

(6) As of March 31, 2019, GBP3 million (carrying amount at March 31, 2019: €3.5 million, calculated based on an exchange rate of €1.00 = GBP 0.8583, which was the exchange rate of the British pound against the euro reported by the European Central Bank on March 31, 2019) in borrowings under the Existing Senior Secured GBP Facility were outstanding. As of the date of this special report, we have fully utilized the Existing Senior Secured GBP Facility and GBP70 million of borrowings were therefore outstanding under the Existing Senior Secured GBP Facility. For more details about the Existing Senior Secured GBP Facility, including scheduled repayments on the Existing Senior Secured GBP Facility, see "*Description of Certain Financing Arrangements— Existing Senior Secured GBP Facility*".

(7) As of March 31, 2019, €7.2 million and €30.0 million, respectively, in borrowings under Facility A and Facility B of the Existing Senior Secured IKB Facilities remained outstanding. As of the date of this special report, the same amounts of borrowings remain outstanding under Facility A and Facility B of the Existing Senior Secured IKB Facilities. For more details about the Existing Senior Secured IKB Facilities, including scheduled repayments on the Existing Senior Secured IKB Facilities, see "*Description of Certain Financing Arrangements— Existing Senior Secured IKB Facilities*".

(8) As of March 31, 2019, PLN 58.9 million (carrying amount at March 31, 2019: €13.7 million, calculated based on an exchange rate of €1.00 = PLN 4.3006, which was the exchange rate of the zloty against the euro reported by the National Bank of Poland on March 31, 2019) in borrowings under the 2015 Senior Secured PLN Facility remained outstanding, and PLN 76.0 million (carrying amount at March 31, 2019: €17.7 million, calculated based on an exchange rate of €1.00 = PLN 4.3006) in borrowings under the 2016 Senior Secured PLN Facility remained outstanding. As of the date of this special report, the same amounts of borrowings remain outstanding under the 2015 Senior Secured PLN Facility and under the 2016 Senior Secured PLN Facility. The adjusted figures do not reflect PLN 5.4 million and PLN 4.0 million, respectively, in scheduled repayments under the 2015 Senior Secured PLN Facility and the 2016 Senior Secured PLN Facility we will be required to make on June 30, 2019. For more details about the Existing Senior Secured PLN Facilities, including scheduled repayments on the Existing Senior Secured PLN Facilities, see "*Description of Certain Financing Arrangements—Existing Senior Secured PLN Facilities*".

(9) Total indebtedness excludes obligations under our off-balance sheet forfaiting program. See "*—Off-Balance Sheet Arrangements*" above.

Other Contractual Obligations

In addition, we have other contractual obligations incurred in the ordinary course of business, such as power supply agreements, maintenance agreements and agreements for the provision of other services. As of December 31, 2018, the minimum amount of undiscounted future payments under operating leases and for other financial obligations (total payment obligations) were as follows:

	As of December 31, 2018 (unaudited) (€ in thousands)
Operating leases	8,239
Other financial obligations	287,584
Total payment obligations	295,823

We lease forklifts and trucks pursuant to operating leases that are not recorded on our balance sheet. These operating leases typically have a term of between three and six years, and the total remaining payment obligations under those leases amounted to €8.2 million as of December 31, 2018. In addition, we have entered into leasing agreements for other property as well as for commercial real estate. The total remaining lease payments under those leasing agreements amounted to €16.1 million as of December 31, 2018.

As of December 31, 2018, we also had contractual off-take obligations under recycled paper and containerboard supply agreements, which amount to €46.3 million for the remainder of 2019. In addition, as of December 31, 2018, our contractual

obligations under energy supply agreements amounted to €8.1million for the remainder of 2019. Furthermore, as of December 31, 2018, we had commitments under open purchase orders amounting to €217.0 million.

QUANTITATIVE AND QUALITATIVE DISCLOSURES ABOUT MARKET RISK

We are exposed to a number of different market risks arising from our normal business activities.

Based on our assets, liabilities and pending and planned transactions, we are particularly exposed to risks arising from changes in exchange rates, interest rates and commodity prices, as well as credit risks, such as the risk of default by counterparties. Furthermore, solvency must be assured at all times (liquidity risk). The objective of risk management is to use appropriate measures to control these risks where they affect our cash flows. Derivative financial instruments are used only for hedging purposes. They are not used for trading or speculative purposes. Exchange effects resulting from the translation of financial statements in foreign currencies into our reporting currency are not hedged. The guidelines for risk hedging and their implementation are defined and continuously monitored by our Group Treasury Management department.

Raw material price risks

Raw material price risks result primarily from increases in the prices of recycled paper and containerboard, which cannot fully be passed on to customers through higher sales prices or can only passed on to customers with a time lag of two to three months.

Energy price risks

Energy price risks result primarily from fluctuations in global energy prices and regulatory risks in Germany and other markets in which we operate.

Currency risk

The foreign currency risk is due to the increasing internationalization of the Group and is an additional risk that has increasing relevance as a result of the increased volatility in global interest rate and currency markets relevance. We primarily generate our sales in euro. In our foreign subsidiaries where the euro is not the local currency, there is a currency risk as these subsidiaries generate their sales mainly in local currencies but their material costs are mainly measured in euro. Currency risk also arises on trade receivables and payables in foreign currencies. Furthermore, there are currency risks due to the euro-financing of foreign subsidiaries. Throughout the years 2016, 2017 and 2018 and the first three months of 2019, there were currency risks mainly in the British pound, Polish zloty and Czech koruna relative to the euro.

Interest rate risk

Currently, interest rate risks arise mainly on interest-bearing liabilities that are denominated in euro.

We expect that our exposure to interest rate fluctuations will relate primarily to potential drawings under our €50 million Super Senior Revolving Credit Facility, our drawings under the GBP70 million Existing Senior Secured GBP Facility as well as potential drawings under our €30 million Existing Senior Secured HSBC Facility and our €30 million New Senior Secured Erste Bank Facility. From time to time, we will evaluate the necessity of future interest rate hedging.

Credit risks

Credit risks arise mainly on trade receivables, bank balances and derivative financial instruments. In view of our relatively diversified customer list, which extends over various regions, the impact arising from credit risk on trade receivables is limited. Further, the trade receivables of some of our subsidiaries are credit insured up to the limit the credit insurer approves.

To minimize the credit risks from the operational business activity, transactions with customers are only entered into after an internal credit check and a credit approval process. Based on the internal credit check, a limit for a maximum credit risk per customer is established.

SIGNIFICANT ACCOUNTING POLICIES

In preparing our consolidated financial statements, assumptions and estimates have been made which affect the amounts and presentation of the assets and liabilities recognized in the statement of financial position, income and expenses, and

contingent liabilities. Uncertainty about these assumptions and estimates could result in outcomes that may require a material adjustment to the carrying amount of our assets and liabilities in future periods.

By "significant", we mean that the following accounting policies are both important to the portrayal of our financial condition and results and require management's subjective judgments, often as a result of the need to estimate the effects of matters that are inherently uncertain. We discuss the impact and risks associated with these significant accounting policies on our business operations throughout this discussion and analysis where such policies affect our reported and expected financial results. You should note that the preparation of our financial statements requires us to make estimates and assumptions that affect the reported amount of assets and liabilities, disclosure of contingent assets and liabilities at the date of our financial statements and the reported amounts of revenue and expenses during each reporting period.

All assumptions and estimates are made according to the best of management's knowledge and belief in order to present a true and fair view of our net assets, financial position and results of operations. Since the actual values may, in individual cases, differ from the assumptions and estimates that were made, these are continuously reviewed. Adjustments to the estimates that are relevant for the financial statements are made in the period in which the change occurs, provided that the change relates only to this period. If the change relates not only to the reporting period but also to subsequent periods, the change is taken into account both in the period of the change and in the subsequent periods.

Tangible Fixed Assets

Tangible fixed assets are measured at cost (including production costs and borrowing costs) less depreciation. Production costs include material cost, manufacturing costs and exceptional manufacturing costs, reasonable and necessary material and production overheads, general and administrative costs and expenses for social services, voluntary social contributions and company pensions. Borrowing costs that are directly attributable to the acquisition, construction or production of a qualifying asset are included in the cost of that asset. Depreciation is generally calculated on a straight-line basis. Straight-line depreciation rates are increased by 50% for fixed assets which are used throughout the year in three-shift operations or more.

Investment Grants

Investment grants (*Investitionszuschüsse*) are separately recorded as special reserve on our balance sheet under "Investment Grants for Fixed Assets" and reversed on a pro rata basis in accordance with useful life of the fixed asset being subsidized. Investment bonuses (*Investitionszulagen*) have been recorded in our income statement as other operating income at the time they are earned.

Emission Allowances

The German government has granted us a certain number of free emission allowances. These were acquired free of charge as part of public allocation. We have recognized these emission allowances at their nominal amount (zero) rather than at their fair market value, which German GAAP would have allowed us to do. The fair value of the allowances recognized at a carrying amount of zero amounted to €3.5 million as of December 31, 2016, €4.7 million as of December 31, 2017 and €15.5 million as of December 31, 2018.

Valuation of Inventories

Raw materials, consumables and supplies are measured at actual cost or, taking into account the principle of lower of cost or market value, at lower market values as of the relevant reporting date. Appropriate valuation allowances are applied to inventories which are obsolete, second-hand, damaged or slow moving (€1.6 million in 2016, €1.8 million in 2017 and €8.7 million in 2018-).

Goods-in-progress and finished goods are measured at production cost. Production costs of goods-in-progress comprises, in addition to direct manufacturing and material costs, appropriate portions of overhead costs. Appropriate valuation allowances are applied to obsolete, second-hand, damaged or slow-moving inventories.

Receivables and Other Assets

Receivables and other assets are recognized at their nominal value or at their lower fair value as of the balance sheet date. Appropriate valuation allowances are provided for receivables whose recoverability is associated with identifiable risks; irrecoverable receivables are written off in full. To cover the general default and credit risk, a global valuation allowance of 1% is recognized on domestic and foreign receivables (net of value added tax) which are not subject to a specific valuation allowance.

Pension provisions

Pension provisions for entitlements and current pension obligations are calculated using the Projected Unit Credit (PUC) Method. They are calculated pursuant to section 253, paragraph 1, clause 2, section 253, paragraph 2 and section 246, paragraph 2 of the German Commercial Code (*Handelsgesetzbuch, HGB*). Actuarial opinions have been furnished. Calculations are based on the "Guide tables 2018 G" of Dr. Klaus Heubeck and an interest rate of 3.21% in 2018 (2017: 3.68%, 2016: 4.03%, in each case based on the "Guide tables 2005 G").

Anticipated salary increases are reflected at a rate of 2.0% for 2018, 2017 and 2016. Pension increases is reflected at a rate of 2.0%, 2.0% and 0.0%, respectively, for 2016, 2017 and 2018. A fluctuation rate of 0.0% was used.

As of December 31, 2018, pension obligations for which provision were required to be recognized amounted to €1.4 million. A pledged pension liability insurance policy was classified as a plan asset. After offsetting the fair value of the plan asset with the present value of the defined benefit obligation the unfunded defined benefit obligation has been disclosed as pension provision (€173 thousand in 2017 and €280 thousand in 2018).

Tax and Other Provisions

Tax and other provisions are recognized for all identifiable risks and uncertain liabilities at settlement amount. They are recorded at an amount in line with a reasonable business assessment. All risks arising up to the balance sheet date and identifiable up to the date of preparation of the financial statements have been taken into account. Provisions with a remaining term in excess of one year are discounted at the average market interest rate for the last seven financial years as published by the German Central Bank (*Deutsche Bundesbank*) corresponding to their remaining maturity.

In order to calculate deferred taxes due to the temporary differences between accounting for assets and liabilities for commercial law purposes and for tax purposes or due to tax loss carry-forwards, the amounts of the resulting tax charges or reductions are measured using the tax rates of the individual companies over the time that the differences are phased out and not discounted. Deferred tax assets and liabilities are offset against each other and are carried in the balance sheet at their nominal amounts.

Deferred tax assets on tax losses carried forward were recognized to the extent that the underlying tax planning confirmed that the amounts recognized could be utilized to reduce tax liabilities in the next five years.

SUMMARY OF SIGNIFICANT DIFFERENCES BETWEEN GERMAN GAAP AND IFRS

Our consolidated financial statements included elsewhere in this special report have been prepared on the basis of German GAAP, which differ in certain respects from IFRS. The following paragraphs summarize certain significant differences between German GAAP and IFRS as of December 31, 2018.

The organizations that promulgate IFRS have ongoing projects that could have a significant impact on future comparisons of German GAAP and IFRS. This description is not intended to provide a comprehensive listing of all such differences specifically related to us or the industry in which we operate. IFRS are generally more restrictive and more comprehensive than German GAAP regarding recognition and measurement of transactions, account classification and presentation and disclosure requirements. We have not attempted to identify all disclosure, presentation or classification differences that would affect the manner in which transactions and events are presented in the consolidated financial statements or the notes thereto included elsewhere in this special report.

We have not prepared audited consolidated financial statements in accordance with IFRS. Accordingly, we cannot assure you that the differences described below would, in fact, be the accounting principles creating the greatest material differences between our consolidated financial statements prepared under German GAAP and under IFRS. In addition, we cannot estimate the net effect that applying IFRS would have on our results of operations or our financial position, or any part of them, in any of the presentations of financial information in this special report. The effect of such differences may be material and, in particular, it may be that the total shareholders' equity (capital deficit) and net income prepared on the basis of IFRS would be materially different due to these differences.

Financial Statement Presentation

Under IFRS, the presentation of the balance sheet is based on a current/non-current distinction of assets and liabilities. IFRS requires the presentation of assets and liabilities in order of liquidity only when a liquidity presentation provides information that is reliable and is more relevant than a current/ non-current presentation. Under German GAAP, the presentation of the balance sheet is based on the liquidity of the assets and liabilities. This results, for example, in the

different presentation of financial assets and liabilities and deferred taxes in the statement of financial position under IFRS and German GAAP.

Unlike IFRS, German GAAP does not require the presentation of the statement of comprehensive income and it is very common (but not required) that the income statement under the German GAAP will be prepared using the "nature of expense" method and not the "cost of sales" method, which is generally used in the IFRS financial statements. In addition, the disclosures required in the explanatory notes to the financial statements are far more extensive under IFRS than under German GAAP.

Consolidation Principles

Under IFRS, capital consolidation has to follow the acquisition method, with identifiable assets and liabilities being measured at their acquisition-date fair values.

Under German GAAP, capital consolidation was required to be reported using the carrying amount method until 2009. From 2010, the acquisition method and valuation by acquisition date fair values was introduced into German GAAP.

Under IFRS, an entity (investor) is required to consolidate another entity (investee), depending on whether it controls the investee. An investor controls an investee when it has power over an investee, is exposed, or has rights to the variable returns from its involvement and due to his power can influence the amount of these variable returns. The consolidation conclusions under IFRS will not differ significantly from the German GAAP regulations for the most straightforward entities. However, some differences may arise where there are complex group structures or where specific entities have been established. Investors that are most likely affected have their involvements, for example, in the following entities:

- Entities with a dominant investor without a majority of the voting or similar rights and where the rest of voting rights belongs to the widely-dispersed shareholders (de-facto control);

- Structured entities (formerly "special purpose entities") where voting or similar rights are not the dominant means to determine the power.

Under German GAAP, an investor is required to consolidate the investee if an investor holds the majority of voting rights, enjoys the right to appoint or dismiss the majority of the management and supervisory board members, enjoys the right to exercise a controlling influence on financial and operating policies or in substance obtains the majority of risks and rewards of an investee that has a narrow, well-defined purpose ("special purpose entity").

Business Combination

Under IFRS 3 acquisition related cost (transaction cost) that incurs to effect a business combination are accounted as expenses in the periods in which the costs are incurred and the services are received.

Acquisition-related costs are not part of the consideration transferred to the seller in return for the business; they are not part of the fair value of the acquired business; they do not represent an asset of the acquirer. Acquisition-related costs represent services that have been rendered to and consumed by the acquirer. As such, IFRS 3 states that they are accounted for as an expense when the acquirer consumes the related service.

Under German GAAP certain cost which have been incurred after the decision to acquire an entity qualify for capitalization and form part of the acquisition cost (e.g. due diligence cost, consultancy cost for valuation reports). All expenses incurred prior to the decision making have to be expensed as incurred.

Costs related to the issuance of financial liabilities are expensed as incurred. Optionally, interest-like expenses are capitalized and amortized over the term of the debt.

For purchase price allocation all identifiable assets, liabilities, and contingent liabilities of the subsidiaries are reflected at their fair value regardless of the level of minority share. Under IFRS 3, goodwill acquired in a business combination, must be allocated to a cash generating unit (CGU) or group(s) of CGUs. A CGU is the smallest identifiable group of assets that generates cash inflows that are largely independent of the cash inflows from other assets or groups of assets. Under German GAAP goodwill is allocated to the respective business unit to which it refers.

Under IFRS goodwill is not amortized but tested for impairment annually and if there is an indication that goodwill may be impaired.

The recoverable amount of the CGU is compared with its carrying amount. Recoverable amount is defined as the higher of an asset's fair value less costs of disposal and its value in use. If the recoverable amount of an asset or CGU is less than its carrying amount, an entity should reduce the carrying amount to the recoverable amount. The reduction is an impairment loss. For assets carried on the depreciated historical cost basis the impairment loss should be recognized in profit or loss immediately. For assets that are carried at revalued amounts an impairment loss is treated as a revaluation decrease. The loss is first set against any revaluation surplus relating to the asset in other comprehensive income to the extent of the surplus and the remaining balance of the loss (if any) is then treated as an expense in profit or loss.

German GAAP requires goodwill to be amortized over its economic life. Goodwill should be reviewed for impairment and its remaining useful life once a year. Goodwill is impaired if its carrying amount exceeds its fair value.

Property, plant and equipment

Under IFRS, the recorded acquisition cost of property, plant and equipment includes appropriate dismantling, removal and restoration costs. Borrowing costs that are directly attributable to the acquisition, construction or production of a qualifying asset as part of the cost of that asset are capitalized as part of the cost of that asset. Overhead costs, such as general and administrative costs and expenses for social services, voluntary social benefits and company pensions are not part of the production cost. Under IFRS, individual items within property, plant and equipment are frequently composed of different component parts with varying useful lives or consumption patterns. These parts are individually replaced during the useful life of an asset. Under IFRS, each such part of an item of property, plant and equipment with a cost that is significant in relation to the total cost of the item is recognized and depreciated separately (component approach). Costs of required and regular major inspections are capitalized and depreciated if it is probable that future economic benefits associated with the item will flow to the reporting entity and the cost of the item can be measured reliably. After initial recognition IFRS further offers an option to value items of property, plant and equipment at either the (lower) cost of the item less any accumulated depreciation and impairment or at its fair value at the date of revaluation less any subsequent accumulated depreciation and impairment.

Under German GAAP, property, plant and equipment is initially valued at purchase or production cost and includes general and administrative costs and expenses for social services, voluntary social benefits and company pensions. Capitalization of costs directly attributable to the acquisition, construction or production of a qualifying asset is permitted, but not required (alternative treatment). The component approach is not specifically contemplated by German GAAP rules, but its use for balance sheet purposes is generally permitted. Costs of regular major inspections are recognized in the income statement as incurred. A revaluation model is not permitted. Costs of demolishing or restoring an item of property, plant and equipment do not qualify for capitalization but are required to be reported as provision over the item's useful life. After initial recognition, property, plant and equipment are accounted for at cost less any accumulated depreciation.

Government Grants

Under IFRS, government grants related to a particular asset are recorded on the balance sheet either as deferred income or by deducting the grant in arriving at the carrying amount of the asset.

Under German GAAP, government grants related to a particular asset are recorded on the balance sheet either as deferred income or by deducting the grant in arriving at the carrying amount of the asset. Alternatively, a grant may be recorded as other income in the income statement on the grant date.

Business Start-up and Expansion Expenses

Under German GAAP, expenses for the start-up and expansion of a business, if incurred prior to the end of 2009, were permitted to be capitalized and amortized over a period of four years in accordance with section 269 of the German Commercial Code (*Handelsgesetzbuch, HGB*). In the subsequent periods, a similar to IFRS accounting approach for recognition of the business start-up and expansion expenses is applied.

Under IFRS, expenses for start-up and expansion of a business do not qualify for capitalization and have to be expensed in the income statement at the time of incurrence.

Impairment of Assets

Under IFRS, an impairment loss is recognized if the recoverable amount of an asset is less than its carrying amount. An asset's recoverable amount is the higher of an asset's or cash generating unit's fair value less cost of disposal and its value in use. The recoverable amount is determined for an individual asset unless the asset does not generate cash inflows that are largely independent of those from other assets or groups of assets.

Under German GAAP, an impairment loss for non-current assets must only be recorded if a permanent impairment in value is anticipated. The concept of cash generating units is not applicable under German GAAP, and the impairment loss is determined on an item-by-item basis. An impairment loss is to be recognized when the carrying amount of an asset exceeds its fair value.

Provisions, Other Liabilities and Contingencies

Some provisions in the financial statements under German GAAP will be required to be reported as other liabilities in accordance with IFRS. Under IFRS, provisions are recognized if an enterprise has a present obligation as a result of a past event, it is probable (*i.e.*, more likely than not to occur) that an outflow of resources will be required to settle the obligation and a reliable estimate can be made of the amount of the obligation. In cases where the outflow of economic resources is expected to occur, an obligation will be reported as a liability. The discount rate used to determine the amount of any provisions is determined by reference to a pre-tax interest rate for a risk-free obligation that matches the maturity of the liability to which the provision relates.

Under German GAAP, the criteria for the recognition of provisions and contingencies are less detailed and prescriptive than under IFRS. Accordingly, there is greater flexibility under German GAAP to record provisions for onerous contracts and restructuring expenses. In addition, German GAAP estimates are typically made in a more conservative manner. The recognition of a provision with a probability lower than 50% is possible. German GAAP requires the recording of provisions for deferred maintenance that is expected to be performed within three month after the end of the reporting period, uncertain liabilities and expected losses from executory contracts. Long-term provisions (*i.e.*, with a maturity of more than one year) are discounted using an average market interest rate for the preceding seven years as published by the German Central Bank (*Deutsche Bundesbank*).

Under IFRS, acquisition costs for property, plant and equipment include the initial estimated costs of dismantling and removing the item and restoring the site on which it is located. The corresponding restructuring provision is required to be made at its present value. Under German GAAP, restructuring provisions are build up incrementally over the useful life of the acquired property, plant or equipment at a discounted settlement amount.

Valuation of Assets and Liabilities; Currency Translation

Under IFRS, initial recognition and subsequent measurement of financial assets and liabilities—if qualified as financial assets and liabilities at fair value through profit and loss—is required at its fair value. Foreign currency receivables and liabilities are measured at fair value.

Under German GAAP, current financial assets are required to be recorded at acquisition cost and financial liabilities are required to be recorded at repayment cost. Current receivables and liabilities in foreign currency are measured at fair value. The valuation of non-current currency receivables and liabilities with a maturity more than one year has to be in line with lower of cost or market principle and higher carrying amount at the balance sheet date respectively.

Interest-Bearing Loans and Borrowings; Prepaid Expenses

Under IFRS, all interest-bearing loans and borrowings are initially recorded at the fair value of the consideration received, less directly attributable transaction costs. After initial recognition, interest bearing loans and borrowings are measured at amortized cost using the effective interest method.

Under German GAAP, interest-bearing loans and borrowings are recorded at their repayment amounts. Transaction costs, except for costs to be paid to the finance providers, are expensed as incurred. Only equivalent to interest transaction costs paid to finance providers are deferred as prepaid expenses and amortized on a straight-line basis to interest expense.

Sales, Trade Receivables

Under German GAAP in effect as of January 1, 2016, the definition of “sales” includes all revenue derived from the regular business activities of the reporting entity.

Under IFRS, “revenue from certain ancillary business activities is recorded as “other operating income”, rather than “sales”.

For IFRS, the standard (IFRS 15) sets a five-step-model for recognizing revenue from contracts with customers 1. Identify the contract with customer, 2. Identify the performance obligations in the contract, 3. Determine the transaction price, 4. Allocate the transaction price to the performance obligations, 5. Recognise revenue when (or as) each performance obligation is satisfied.

Under German GAAP, valuation allowances for losses on individual trade receivables must be recorded. In addition, a general provision for doubtful accounts—reflecting the general default risk of receivables—has to be recorded. Under IFRS, the recording of such a general provision for doubtful allowances would be prohibited.

Leasing

Under IFRS until December 31, 2018, a lease had to be classified either as an operating lease or as a finance lease. A finance lease was a lease that transfers substantially all the risks and benefits incident to ownership of the leased item. For finance leases, the lessee recorded an asset and an obligation at an amount equal to the lower of the fair value of leased property and the present value of the minimum lease payments. Operating leases were expensed as incurred.

With implementation of IFRS 16, starting for periods after January 1, 2019, lessee has a right of use asset and contrary a liability.

The right-of-use asset is a lessee's right to use an asset over the life of a lease. The asset is calculated as the initial amount of the lease liability, plus any lease payments made to the lessor before the lease commencement date, plus any initial direct costs incurred, minus any lease incentives received.

The amortization period for the right-of-use asset is from the lease commencement date to the earlier of the end of the lease term or the end of the useful life of the asset. An exception is when it is reasonably certain that the lessee will exercise an option to purchase the asset, in which case the amortization period is through the end of the asset’s useful life.

If a right-of-use asset is determined to be impaired, the impairment is immediately recorded, thereby reducing the carrying amount of the asset. Its subsequent measurement is calculated as the carrying amount immediately after the impairment transaction, minus any subsequent accumulated amortization.

At the termination of a lease, the right-of-use asset and associated lease liability are removed from the books of the lessee. The difference between the two amounts is accounted for as a profit or loss at that time.

Under German GAAP, accounting for leases is mainly driven by tax regulations, so the lease contracts in Germany typically consider such rules in order to avoid capitalization at the lessee level. These rules differ from the IFRS rules in several respects.

Provisions for Pensions

Under IFRS, provisions for defined benefit pension obligations are accounted for under the projected unit credit method. The defined benefit obligation is measured using various actuarial assumptions, including assumptions as to future compensation and benefits levels. Under IFRS, the discount rate reflects the long-term view of the plan and not current rates that could be used to settle the pension obligation. This discount rate is derived at the reporting date based on then current capital market conditions. Under one of the options provided by IFRS, remeasurement gains and losses that result from changes in actuarial assumptions (including changes in mortality tables) or actual experience that differs from the underlying assumptions do not require recognition of gains and losses as components of net pension cost of the period in which they arise. Rather they are recognized in other comprehensive income, which will never be reclassified in profit or loss in the future.

Pension reserves under German GAAP are also be accounted for under the projected unit credit method since the enactment of the German Accounting Law Modernization Act in 2009. Under German GAAP, the discount rate used represents a ten-year average of market derived interest rates (until 2015: seven-year average market derived interest rate). In addition, German GAAP requires recognition of the remeasurement gain or losses in profit and loss and not as other comprehensive income as required under IFRS.

Deferred Taxes

Deferred tax assets (DTA) and deferred tax liabilities (DTL) are the income taxes recoverable or payable in future years. They are mainly based on the taxable or deductible temporary differences between the carrying amount of an asset or liability and the respective tax base. Due to the IFRS accounting principles, the carrying amount of an asset or liability can differ from the amount under German GAAP. Accordingly the respective deferred tax assets and liabilities change as well.

Under German GAAP, net DTL must be recognized in full, while the recognition of net DTA is optional. Unlike German GAAP, IFRS does not provide an option to capitalize net DTA and, therefore, both net DTA and net DTL have to be recognized in the respective period.

Under IFRS, DTA shall also be recognized for tax loss carryforwards to the extent that it is probable that future taxable profit will be available. Under German GAAP, the capitalization of DTA for loss carryforward shall only be taken into consideration if the tax benefit from the tax loss carryforward can be expected to be recovered within the next five years.

Derivative Financial Instruments and Hedging

Under IFRS, derivative financial instruments are recorded in the consolidated balance sheets at fair value (marked-to-market). Any gains or losses arising from changes in the fair value of derivatives are taken directly to the income statement, except for the effective portion of cash flow hedges, which is recognized in other comprehensive income and reclassified to profit or loss for the period when the forecast transaction being hedged occurs. Under IFRS, the criteria to be met to qualify for hedge accounting are quite strict. This includes stringent documentation requirements.

Under German GAAP, there is more flexibility to include forecast transactions in hedge accounting. Further, there is no need to separately account for fair values of derivative financial instruments that qualify for hedge accounting (net hedge presentation method).

INDUSTRY AND COMPETITION

The following overview of the European market for containerboard and corrugated board was prepared based on independent third-party reports and publicly available data from reputable industry organizations. Certain information in the following overview has been obtained from official and non-official third party sources believed by us to be reliable, including sources not specifically prepared for us and studies commissioned by us. However, since such information is unavoidably subject to certain assumptions and estimates made by third parties, there can be no assurance as to the accuracy or completeness of information included and it should not be relied upon. As certain economic data may have been collected on a sample basis or estimated by the authors of the relevant reports, all figures included in this section should be assumed to include estimated information.

In addition, certain statements below are based on our own proprietary information, insights, subjective opinions or unsubstantiated estimates, and not on any third party or independent source; these statements contain words such as "we estimate", "we expect", "we believe" or "in our view", and as such do not purport to cite to or summarize any third-party or independent source and should not be so read. Some market data is inherently forward-looking and subject to uncertainty and does not necessarily reflect actual market conditions. You should read the following discussion together with the sections entitled "Industry and Market Data", "Risk Factors", "Business" and "Forward-Looking Statements".

INTRODUCTION

Containerboard is one of the principal materials used to manufacture corrugated board and, ultimately, corrugated containers. Containerboard is classified according to the type of raw materials from which it is made (virgin fibres or recycled fibres), whether it is surface treated and whether it is enhanced by coating.

Two types of containerboard can be produced. Containerboard made from virgin fibres (wood pulp) is known as "kraftliner" and is—depending on the type of application—better suited for manufacturing corrugated board and containers intended for the retail and consumer packaging markets, owing to its greater strength, especially its high bursting strength, moisture resistance and purity. Containerboard made from recycled fibres (recycled paper, the primary source of which is old corrugated containers and mixed recycled paper), is known as "testliner" and fluting and is better suited for transportation and industrial packaging, due to its higher stiffness, lower weight and cheaper price.

Containerboard is classified as kraftliner as long as it contains mainly virgin fibres. Several distinct types of containerboard products are available in the market, resulting from different formulations of virgin and recycled fibres. This broad offering of containerboard products serves to address a wide range of potential packaging applications.

Both kraftliner and testliner can be surface treated to improve printing quality through the use of white, mottled or fully bleached pulp as the top layer (white-top liner). The board can also be coated, which makes it more resistant to dirt and moisture, and allows high-gloss printing. This further enhances product appearance and suitability for retail and consumer packaging.

Virtually all containerboard becomes corrugated board, in the form of linerboard and fluting. Linerboard is used for the inner and outer layers of the corrugated board and fluting for the middle section. Corrugated board producers select containerboard grades, specifications and suppliers based on availability, suitability for their own corrugators and converting machines as well as on brand owners' performance requirements. The retail industry, through its own specific requirements, has also been one of the key drivers for containerboard and corrugated board technology and product development.

For corrugated box and sheet producers, containerboard is one uniform market as corrugated board can consist of a mixture of any type of linerboard or fluting depending on end use and quality requirements. Corrugated board can come in a range of types, including single face, single wall, double wall, or triple wall, depending on the ultimate packaging application.

Corrugated board is eventually converted by corrugated box producers into regular slotted containers (RSC), die-cut boxes or other containers, and sold to brand owners or packers before reaching retailers and end-consumers. The main end-use segment in Europe is food and beverages, although the breakdown varies by country. Kraftliner is used especially in the food segment, where strength and purity are important requirements, whereas testliner is generally used in non-food fast-moving consumer goods and consumer durables.

The industry is typically viewed as comprising two main production activities: (i) the production of containerboard and corrugated board; and (ii) the conversion of corrugated board into corrugated containers or other fibre-based packaging products. There are several operating models within the containerboard and corrugated board industry. The majority of containerboard suppliers are forward integrated such that they also operate in corrugated board and box conversion. This

can allow a greater degree of control over raw material flows and pricing. Others keep a more restricted focus on particular high-value sections of the production process, and distribute products to independent sheet plants.

We focus on the highly efficient production and processing of standardized grades and customized small batch series of corrugated board sheets for our mostly family-owned customers in the packaging industry. We believe we differentiate ourselves from other market participants (*i.e.*, fully integrated paper and packaging producers) through our strategic focus on those elements of the value chain that bring added-value to our customers in the packaging industry, *i.e.*, the efficient and integrated production of containerboard and corrugated board. Progroup, although we have the ability to produce kraftliner, focuses on testliner production for the European market.

In Western Europe, recycled paper is the main raw material for the production of recycled containerboard and other fibre packaging boards. Recycled containerboard constitutes approximately 83% of containerboard production, with kraftliner constituting the remainder. In Europe, containerboard manufacturers tend to source the majority of their raw materials from external suppliers.

INDUSTRY FUNDAMENTALS AND DRIVERS

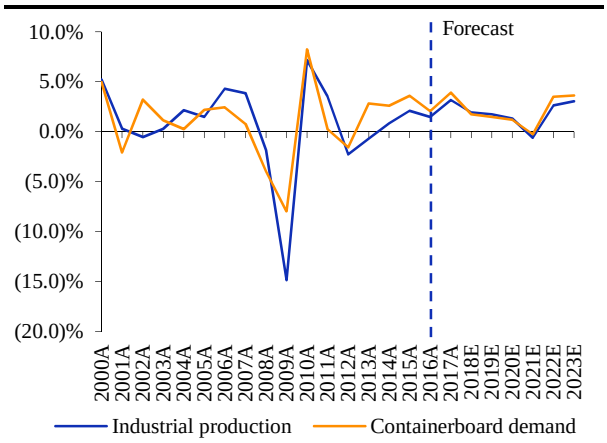
The containerboard and corrugated board industry is relatively capital intensive and competitive. Long-term demand for these products is driven by global economic trends, demographic trends, technological developments and trends in end-user preferences. Profitability is sensitive to changes in prices, and industry profit cycles reflect the constantly shifting balance between supply and demand for individual products.

Macro demand drivers and industry trends

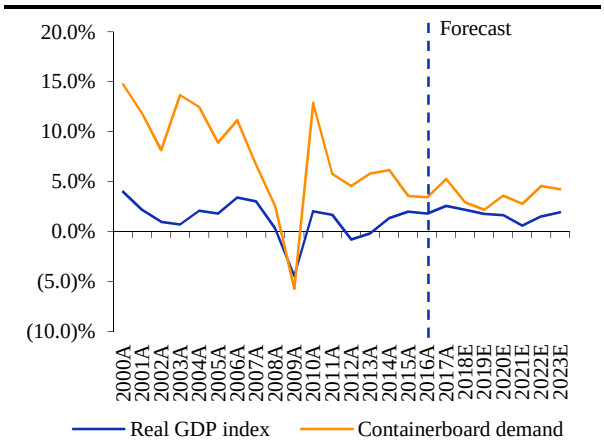
A number of factors underlie the growth of corrugated packaging, the end product of containerboard and corrugated board. In general, the growth of the general economy, industrial production and merchandise trade are the main demand drivers for containerboard and corrugated board packaging. Private consumption as well as the increased use of substitutes (e.g. plastic) also drive the development of retail sales.

The charts below show the evolution of Euro area industrial production and containerboard demand growth in Western Europe, and the evolution of Euro area GDP and containerboard demand growth in Emerging Europe, based on available data from RISI.

Western Europe[(a)]



Emerging Europe[(b)]



(a) Andorra, Austria, Belgium, Denmark, Finland, France, Germany, Greece, Iceland, Ireland, Italy, Luxembourg, Monaco, Netherlands, Norway, Portugal, Spain, Sweden, Switzerland, UK

(b) Albania, Armenia, Azerbaijan, Belarus, Bosnia and Herzegovina, Bulgaria, Croatia, Cyprus, Czech Republic, Estonia, Georgia, Hungary, Latvia, Lithuania, Macedonia, Malta, Moldova, Montenegro, Poland, Romania, Russia, Serbia, Slovakia, Slovenia, Turkey, Ukraine

Source: RISI (European Paper Packaging Forecast—15 years (September 2018))

Historically, there has been a strong correlation between GDP growth, industrial production and demand growth for recycled containerboard. In Western Europe, demand has grown faster than industrial production since 2012 and reached its peak in late 2017/early 2018, with a deceleration in the later part of the year and an expected decrease in growth rates between 2019 and 2020. In Eastern Europe, growth rates have been consistently, and significantly above GDP growth since

2000 and the demand growth is expected to continue in the medium term, despite uncertainties in the shorter term, with demand decelerating in 2018 mainly due to Turkey and slower growth in Central Europe.

Demographic and lifestyle changes, including rising urbanization and demand for convenience, such as take-aways and home deliveries, have driven growth in demand for corrugated packaging, and will continue to do so especially in Emerging Europe (defined as Central, Eastern and Southeastern Europe by RISI). The effect of improvements in living standards and consumer spending in Emerging Europe and other emerging markets will support growth going forward. Development of the retail infrastructure in these markets, including online shopping and mail order, and the development of the logistics market, is expected to increase demand for containerboard products such as die-cut containers, shelf-ready packaging and decorative corrugated pieces. In addition, the booming agro-based sector, for example, will create new demand for containerboards by replacing the traditional wooden boxes with corrugated containers.

Containerboard demand will also be increasingly exposed to the general tendency to reduce packaging costs, with, for example, light weighting and reduced packaging. Plastics and returnable/reusable transit packs (RTP) will increasingly compete with corrugated board packaging, especially in mature markets and especially for the fresh fruit and vegetable markets. The future competitiveness of fibre-based packaging will depend on innovation, product development, cost and the industry's ability in general to respond to changing market requirements.

The competitive position of containerboard and corrugated board is expected to remain relatively strong in comparison with alternative materials. Recyclability, for example, will have a favorable impact on containerboard demand growth. The high recovery and recycling rate of wood fibre-based packaging compared to plastics will benefit the industry. The poor environmental image of plastics coupled with its higher cost are also expected to have a positive impact on the demand prospects for fibre-based packaging in mature markets.

Some of the newer products, such as microflutes, will support the use of containerboards and corrugated boards in the competition against folding cartons. Retail- and shelf-ready packaging has opened new opportunities for corrugated board and has brought it closer to the consumers. Logistic and shelf space planning are key competitive advantages against other packaging substrates.

Recycled containerboard capacity has steadily gained share of the Western European containerboard market over the last 15 years. The share of these grades rose from approximately 77% during the last years of the 1990s to approximately 83% in 2018. The growing importance of recycled containerboard has been driven by a variety of reasons, including i) lower prices of both PfR and recycled containerboard versus virgin grades (partly due to subsidies for energy uses); ii) improving quality of testliner products and kraftliner substitutes; iii) efforts by consumer goods companies to burnish their sustainability and consumer demand for recycled products leading to a surge in kraftliner substitutes; iv) market undersupply of unbleached kraft pulp.

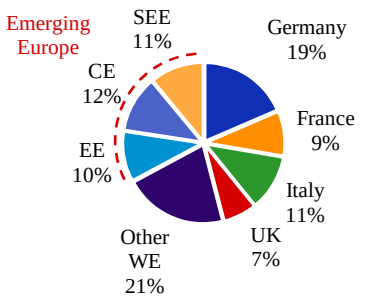
Like Western Europe, the containerboard market in Emerging Europe is dominated by recycled grades. Usage of recycled containerboard has increased substantially as a share of the total over the last 15 years within Emerging Europe. Recycled products represented 60% of regional containerboard consumption in the last years of the 1990s, but the share reached almost 80% in 2018. Expanding availability of high-quality recycled grades, partially from Western European suppliers, and a greater focus on sustainability were major drivers of the rising share of recycled products.

Containerboard is generally a regional business, and the majority of the volumes is traded within Europe. However, some regions, such as the Middle East and North Africa, are net importers of containerboard. Hence, the demand from exports of the containerboard market is partially influenced by the evolution of the EUR/USD exchange rate.

END-MARKETS DYNAMICS

Demand for corrugated containers is primarily driven by the need for (i) packaging products for the transportation of a diverse range of consumer and industrial goods, such as processed and fresh food, agricultural products, beverages, industrial and consumer electronics, chemicals and pharmaceuticals and a range of other products and (ii) higher value-added corrugated products, such as those featuring enhanced graphics used for point-of-sale displays and consumer and shelf-ready packaging.

In Europe, the main markets are the developed Western European countries such as Germany, Italy, France, Spain and the United Kingdom. Poland and other Eastern European countries are much smaller markets, but are anticipated to grow at a faster rate than the more developed markets.



Total demand 36.4 milion tonnes in 2018

Note: Other Western Europe: Andorra, Austria, Belgium, Denmark, Finland, Greece, Iceland, Ireland, Luxembourg, Monaco, Netherlands, Norway, Portugal, Spain, Sweden, Switzerland, Central Europe: Czech Republic, Estonia, Hungary, Latvia, Lithuania, Poland, Slovakia, Slovenia, Eastern Europe: Armenia, Azerbaijan, Belarus, Georgia, Moldova, Russia, Ukraine, Southeastern Europe: Albania, Bosnia, Bulgaria, Croatia, Cyprus, Macedonia, Malta, Montenegro, Romania, Serbia, Turkey

Source: RISI (European Paper Packaging Forecast—5 years (March 2019))

In Europe, fast moving consumer goods account for approximately 55% of corrugated board consumption (according to Vision Hunters), offering certain stability against economic fluctuations. However, there are clear differences between countries. Industrial products are the primary driver in Germany while food and consumer goods dominate in the United Kingdom and France. Germany is expected to remain the largest single market in the Western Europe corrugated box industry over the next 15 years. The continuing strength of the German industrial sector is predicted to boost corrugated box usage by 2.6% annually through 2026 according to Vision Hunters, which is the second highest forecasted growth rate of any country in Western Europe after Austria.

Key supply parameters

Containerboard is manufactured either by treating virgin fibres or by cleaning and screening recycled fibres before passing these through paper machines, which are comprised of a paper-forming section, a press section (where water is squeezed out), a drying section and the finishing. The containerboard is then wound into rolls and shipped to corrugated board plants.

Containerboard mills are large, capital expenditure intensive production facilities and the production landscape is continuously changing as a result of new capacity additions and closures. As there is a significant lead time between the planning and completion of new containerboard machines, the supply side tends to lag behind changes in demand.

Furthermore, the containerboard production process is reasonably specialized, such that there is very limited flexibility to switch from containerboard production to the production of other paperboard grades, or from kraftliner to testliner (or vice versa), in response to market conditions.

Corrugated sheets are interim products manufactured from containerboard at a sheet feeder plant or an integrated corrugated and converting plant. Corrugated sheets are then converted into corrugated containers at integrated converting plants or at sheet plants. The corrugated sheet is first printed, if required, and then formed into the final container (or box) shape usually by some combination of die-cutting, folding, gluing, stapling or stitching the sheet. Corrugated containers are designed specifically to meet individual customer requirements and there is a wide variety of designs available.

Corrugated sheets are bulky products, which tend to be produced and supplied locally due to high transportation costs, requirements of customers for supply chain integration and just-in-time delivery. The economic supply distance for corrugated sheets is typically around 300 kilometers. Therefore, there are many corrugated board plants and the market in Europe is more fragmented than the containerboard market.

Since the early 2000s, there has been a significant development in the European containerboard industry and its asset base: more than 15 new machines have started up, all of which are capable of producing the full range of recycled fibre grades. This is part of a constant push towards increasing efficiency and lowering manufacturing costs in order to ensure

competitiveness. These manufacturing costs are exposed to raw material prices and availability (recycled paper vs. virgin pulp). The response from the suppliers has been to use cheaper raw materials both in containerboard and corrugated packaging production.

There have been shut-downs in Europe, but these have typically been of old and narrow machines with weak cost competitiveness and suboptimal trim fit and/or product portfolio. Shut-downs have typically been part of companies' asset strategy, and their volumes have typically been compensated by capacity increases in other production units. The production landscape is described in greater detail below.

The European containerboard and corrugated board industry has experienced several trends affecting product and product construction as well as production process. Some of the trends originate from the end-users (retail, consumers and brand-owners), but the industry itself has also managed to introduce new concepts. All these trends have raised the status of corrugated board from pure transportation packaging closer to retail and even consumer packaging. The key trends can be listed as follows:

- Light weighting, which has extended to both containerboard and corrugated board. This is a response to transportation cost pressure, as well as industry evolution and a trend towards eco-efficiency;

- Small flutes and multiwall constructions are partly related to the light weighting as the introduction of lower basis weight fluting has enabled the microflute concept and use of corrugated in consumer packages as well as increasing need in heavy duty applications;

- Die-cuts and point-of-sales (POS), which is to satisfy the demand for retail ready packaging;

- White-top liners and high-quality printing are for direct use consumer packages and shelf ready packaging; printing requirements are increasing in industrial packaging; and

- Wider corrugators have been introduced to improve the efficiency at corrugated plants and better fit with new containerboard machines.

Pricing dynamics

Containerboard prices are primarily a function of the prevailing supply-demand balance (in this respect, additional growth has resulted from the strong increase in e-commerce volumes), raw material prices and other operating costs, such as energy, chemicals and transportation.

Demand for containerboard has tended to develop in line with industrial growth rates due to the characteristics of the main end-user markets for corrugated containers. In contrast, the supply side of the containerboard market is fairly inelastic owing to capital intensity, long lead times between planning and completion of a mill and the low versatility of the paper machines. This can result in temporary supply/demand imbalances driving prices up and down, such as those which have been experienced in recent years.

Another driver of containerboard prices is the cost of the principal raw materials: recycled paper or virgin fibre. While wood prices historically have been relatively stable, recycled paper prices can vary widely on a regional basis depending on demand and tend to be volatile even within short time periods. Fluctuations in Asian demand (particularly Chinese demand) and seasonal patterns of collection and demand have been the principal factors driving the recycled paper price in recent years. Given the significant implications of price fluctuations of recycled paper on business performance, we (as well as several other industry participants) have therefore sought better access to recycled paper through a broad supplier portfolio including access to box plant clippings and direct supply contracts with municipalities or retailers from time to time. The cost of producing containerboard is also influenced by the prices of energy, starch, chemicals and transportation. Energy prices, in particular electricity, oil and natural gas, have experienced significant volatility in recent years, with a corresponding effect on paper production costs.

Containerboard is the main cost factor of corrugated sheets and of corrugated packaging overall. Therefore, corrugated sheets price usually follows containerboard price development with some delay, typically by about two to three months.

KEY MARKET DEVELOPMENTS

The corrugated box market in Western Europe has largely recovered from the economic crisis that impacted the region after 2008: the 2007 pre-crisis demand peak for corrugated box was crossed in 2014. Total box shipments amounted to 40.6 billion m2 in 2018, 0.8 billion m2 more than in 2017. RISI is expecting growth to continue albeit at a slower pace in the future, with 1.7% and 1.3% growth forecasted for 2019 and 2020, respectively. Over the long run, European shipments are expected to grow by 2.6% annually between 2016 and 2026 according to Vision Hunters' early 2018 study (with Western Europe, Central Eastern Europe, and Southeastern Europe growing by 2.3% p.a., 4.1% p.a. and 3.8% p.a., respectively).

On the back of this market environment, leading producers of containerboard and corrugated board have announced and implemented several price hikes throughout 2017 and the beginning of 2018. The total price increase in recycled containerboard in 2017 amounted to 100 to 110 €/ton. In the beginning of 2018, only part of the announced 50 to 60 €/ton price increase in recycled containerboard was implemented in Continental Europe. Driven by a slow-down in demand during the latter part of 2018, prices reduced across most of Continental Europe markets during both the end of 2018 and beginning of 2019, with a 120 €/ton decrease between Q4 2018 and May 2019. Prices are expected to stabilise in the second half of 2019.

Demand development in Europe

Western Europe

Containerboard usage in Western Europe had been experiencing solid growth. There was an uptick in demand in 2017 due to accelerating industrial production and increased consumer spending followed by strong growth in the first half of 2018, with the regional apparent consumption reaching 24.6 million tons in 2018, a 2.3% yearly growth in Western Europe. Following a deceleration in demand growth over the second half of 2018, RISI predicts growth in containerboard demand to continue upwards in the following two years, albeit at a slower rate.

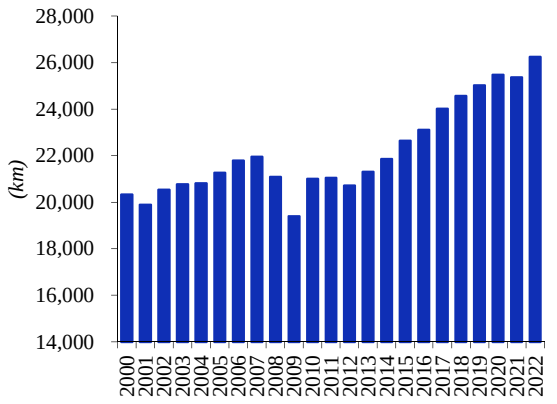
Emerging Europe

Growth in containerboard usage in Emerging Europe has continued over the past several years. However, the rate of increase has fallen to less than half of that registered over the last 17 years as a whole, from 7.3% per year (2000-2017) to 2.9% per year in 2018. Regional containerboard consumption reached 12.0 million tons in 2018 versus only 3.8 million tons in 2000.

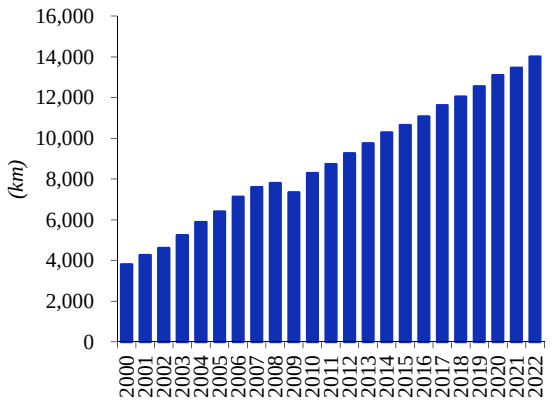
Within Emerging Europe, our core market is the Central European region, which has been the major driving force for Emerging Europe demand in recent years. Apparent containerboard consumption growth in the region was 4.5%, 7.4% and 2.5%, for 2016, 2017 and 2018, respectively, and the region is expected to continue to grow at an average 4% between 2019 and 2023, per RISI.

The charts below show the evolution of containerboard consumption, by volume, in Europe between 2000 and 2020.

Western Europe



Emerging Europe



Source: RISI (European Paper Packaging Forecast—15 years (November 2018))

Corrugated board consumption has grown faster by sheet area than by volume during the past years due to the trend towards lighter basis weights. This trend is expected to continue in the future with corrugated board based on light-weight containerboard showing higher growth rates than the overall market, and future market growth expected to approximate the levels between 2002 and 2007.

Containerboard supply developments and operating rates evolution in Europe

Western Europe

Net capacity expansion in the Western European containerboard industry came to a halt between 2007 and 2013 after expanding rapidly during the 1990s and first half of the last decade. In the past year there has been moderate growth. New capacity has continued to come on stream, mainly in lightweight recycled and white-top grades, but older, inefficient capacity has been shut. Regional capacity hit 24.4 million tons in 2007 and was still 24.6 million tons in 2013, according to RISI; since then it has grown to 27.1 million tons (2017). RISI expects capacity growth of 3.5%, 2.1% and 3.1% in 2019, 2020 and 2021, respectively.

Operating rates peaked in 2006 at 95% in Western Europe before dropping sharply to a bottom of 87% in 2009. Strong capacity management on the part of producers kept operating rates from sliding further, with RISI's numbers showing a 2% reduction in industry capacity in 2009. The continuing focus on capacity management has been instrumental in enabling operating rates to rebound back to the long-term average of 93% in 2010-2017. RISI shows that capacity utilization raised to above 96% in 2017 and reduced slightly to 95% in 2018.

Capacity expansion is expected to continue growing over the next several years, although at a lower rate than previously expected due to a lessening in demand and weaker macro conditions. The majority of the projects announced during the year are converted graphic paper machines, along with incremental upgrades of existing containerboard capacity although less than initially announced. Additional new capacity has been announced, e.g. Progroup's PM3 in Sandersdorf-Brehna (Germany) and Papierfabrik Palm's machine in Aalen (Germany), both adding further 750kt capacity each by 2020 and 2022 respectively.

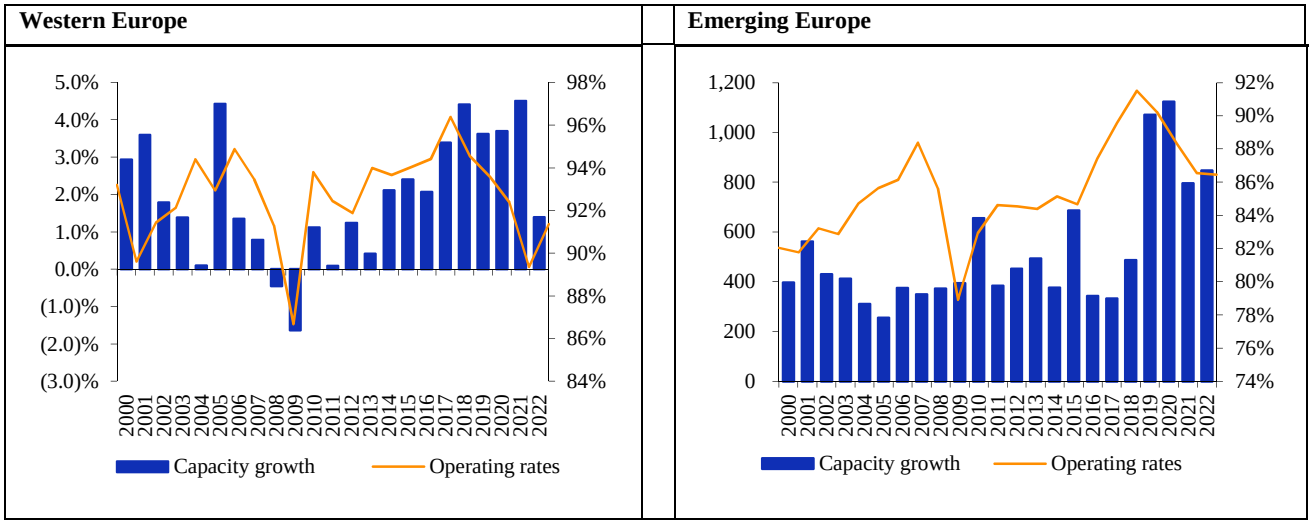
RISI expects containerboard operating rates to decline to 93% in Western Europe in 2019 (from 96% in 2017) with anticipated oversupply in Central Europe and Italy creating downward pressure on containerboard and PfR prices. Operating rates are expected to stabilize to approximately 92% in the long-term, similar to the historical long-term average.

Eastern Europe

Containerboard capacity has expanded steadily in Emerging Europe since 2000, averaging growth of 424,000 tons per year. Most of the investment in the earlier part of this period involved rebuilds of existing machines to both increase capacity and improve quality. Over the past few years, new, state-of-the-art machines have been added, mainly in Central Europe and Turkey. Closures of existing, inefficient capacity offset a substantial portion of the capacity originating from the new machines. Regional containerboard capacity reached more than 12.7 million tons in 2018, up from just 5.1 million tons in 2000. The majority of the total expansion has been in the recycled sector.

Operating rates in Emerging Europe improved consistently from 2000 to 2007, rising from 82% to 89%. The abrupt flattening in domestic demand in 2008-2009, along with a loss of share to imports from Western Europe and continuing investment in new capacity, resulted in regional capacity utilization decreasing to 79% in 2009. However, operating rates rebounded over the next four years, returning to 84% in 2013, and increasing to 90% in 2018. This rate is expected to be at around 89% in the next five years.

Capacity is expected to continue expanding over the next several years in Emerging Europe, although growth in certain sub-regions like Central Europe is expected to be limited due to raw material availability, even if more than 3 million tonnes in capacity growth are expected in the long-term.



Source: RISI (European Paper Packaging Forecast—15 years (November 2018))

Containerboard price development in Europe

Testliner prices have trended upward during the last 15 years, although extreme volatility has tended to mask this trend. Real prices (in 2016 euros) averaged €382/ton in the latter part of the 1990s and have been around €479/ton over 2013 – 2017 and peaked to €552/ton in 2018. The range in real prices during the last 20 years has been from a peak of €552/ton in 2018 to a low of €321/ton in 2009. Both the trend and the range in real prices have been closely related to movements in recycled paper costs, which have been erratic on an annual basis and rising in real terms on a secular basis.

Strong demand for recycled containerboard and relatively low recycled paper costs allowed producers to generate significant profit margins through much of the 1990s. RISI's analysis shows the Western European testliner industry registering a price to total cost ratio of around 0.96 in 1995-2000. Rapidly increasing recycled paper costs and slowing demand growth resulted in profitability declining during the last decade, reaching a low of 0.91 in the recession year of 2009.

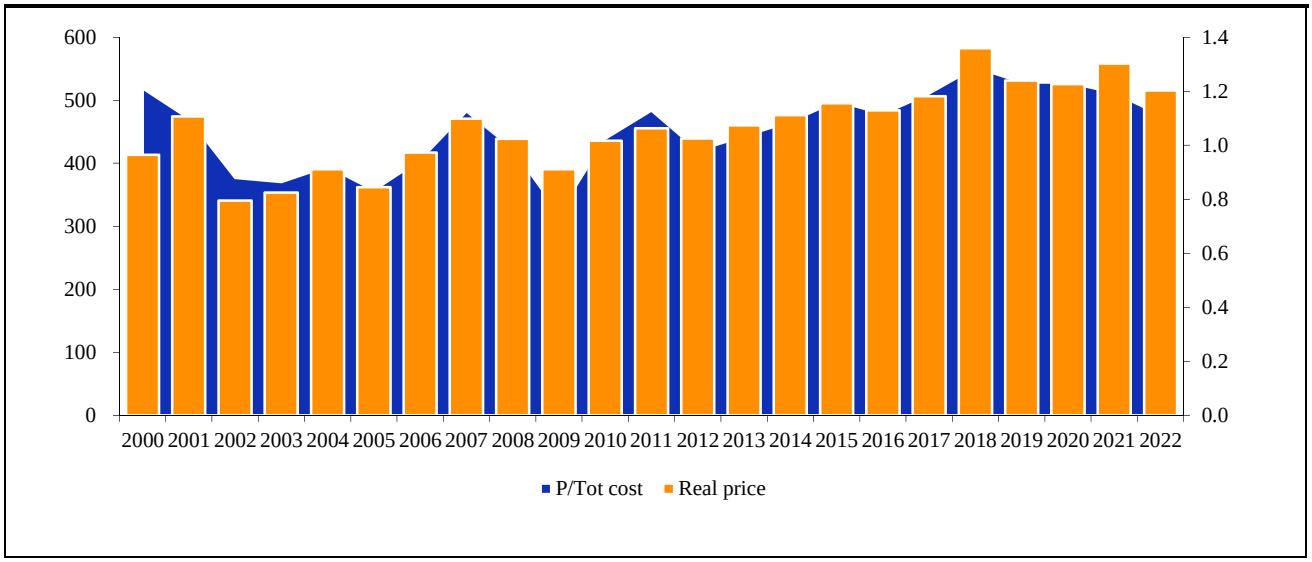
Containerboard prices remained stable until the second quarter of 2008, when prices started to decline as the rapid weakening of the global economy decreased the demand for corrugated boxes (and containerboard). This was reflected in decreased demand and prices for testliner. Containerboard demand started to increase in the end of 2009 and the upturn of the economy was seen in Europe by mid-year 2010. Growth resumed in the international trade from early 2010 and the external demand and prices for containerboard increased as well. The industry price to total cost ratio reached a peak of approximately 1.36 in 2018 and is expected to be closer to 1.1 for 2022 and 2023.

European testliner prices declined by approximately 20% from August 2011 to February 2012 due to the soft supply/demand balance and due to decreased recycled paper prices. Improved demand as well as the increase of recycled paper prices turned testliner prices back to growth track in mid-February 2012; however, with the continuing economic slowdown, the price level was not sustainable and prices declined as a result. In 2016, prices have further decreased by 4.0% in the last year in real terms, before surging by 6.8% in real terms in 2017 and by 8.1% in 2018. All containerboard prices follow each other and recycled paper prices correlate well with them. Price difference between recycled paper and testliner has been on average just above €300. During the recessional years 2008-2010, prices dropped due to weak demand and the prices for testliner also dropped due to decline in raw material prices. After a steady increase in prices between 2013 and 2015, testliner prices have been coming down since the start of 2016 despite of healthy demand and no large capacity additions during 2016.

Whilst European recycled containerboard producers raised prices by approximately €100-110/ton in 2017, they achieved only part of the announced €50-60/ton in early 2018, due to lower production costs and new ramped-up capacity.

Prices have reduced by 120 €/ton between Q4 2018 and May 2019 due to a slow-down in demand, with stabilisation is expected to begin in the second half of 2019 due to an improvement in demand.

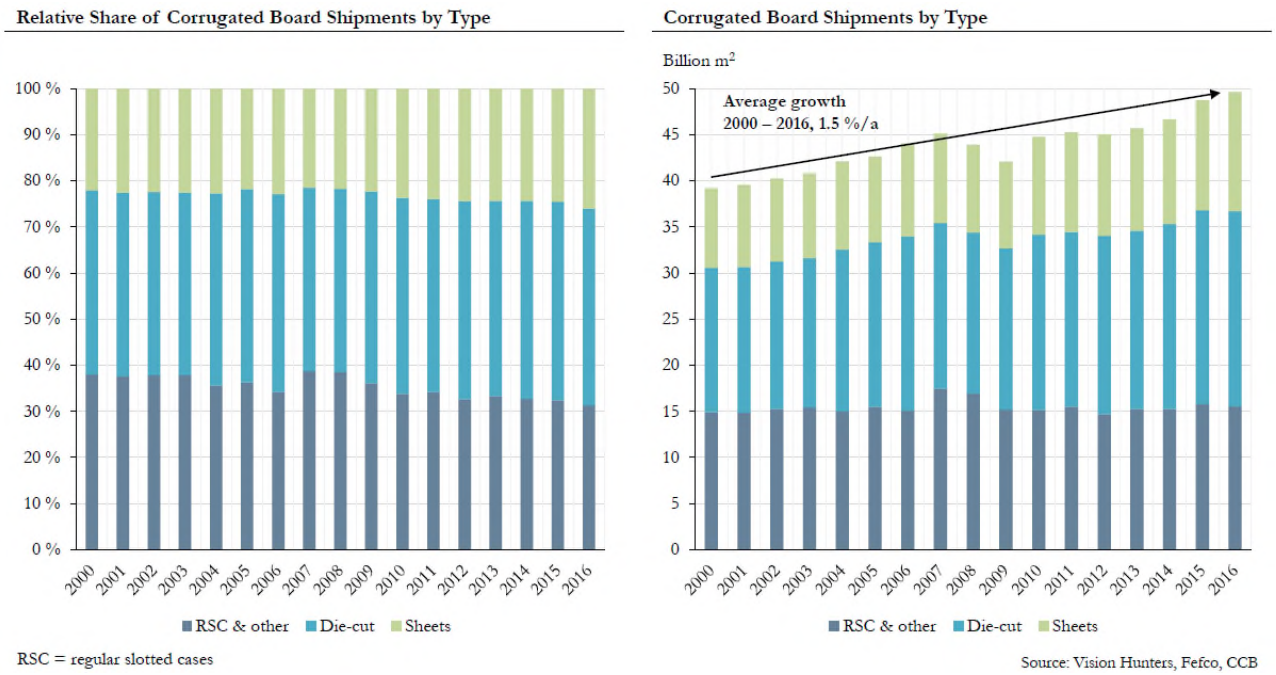
Western Europe Testliner 2 Free Delivered Net-Net Pricing and Profitability



Source: RISI (European Paper Packaging Forecast—15 years (November 2018))

Corrugated board market developments

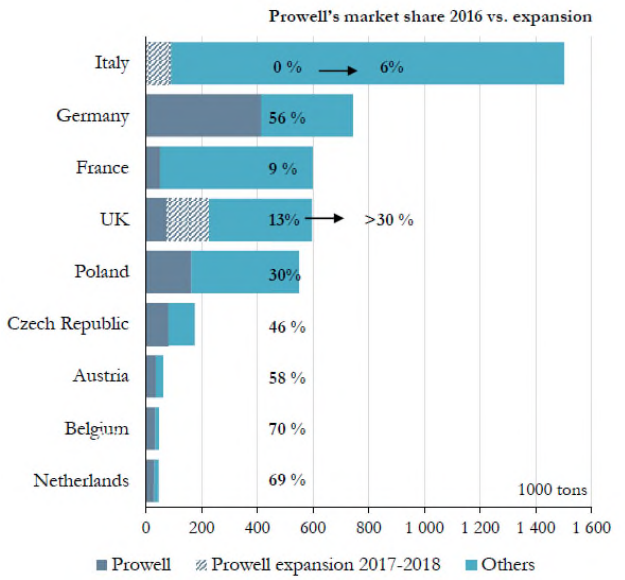
European corrugated board shipments totaled 49.6 billion square meters in 2016, of which 12.9 billion square meters were delivered in sheets, per Vision Hunters; the market has grown by 1.5% p.a. over 2000-2016. Vision Hunters estimates that the sheet market share has been slowly growing along with increased converting capacity and has 26% share of total corrugated shipments as of 2016, up from 22% in 2000. Growth above industry average has resulted in an additional increase of the corrugated sheets market by 2bn square meters since 2000.



Source: Vision Hunters (March 2018)

Progroup Board holds market leader position in sheet markets in Germany, the Czech Republic, Austria, Belgium and the Netherlands, and plans to further expand its footprint, most notably in Italy and the UK:

Prowell market share in its main corrugated sheet markets, 2016



Source: Vision Hunters (March 2018)

MARKET AND COMPETITIVE LANDSCAPE

Containerboard products are largely standardized and, therefore, are subject to substantial price competition. Price is also an important driver of competition in the corrugated market. However, the corrugated market features a greater degree of differentiation than containerboard, with the purchasing decision for customers also being based on a range of other factors, including delivery lead time, quality of service, quality of product, consistency, quality of design and innovation in the packaging itself.

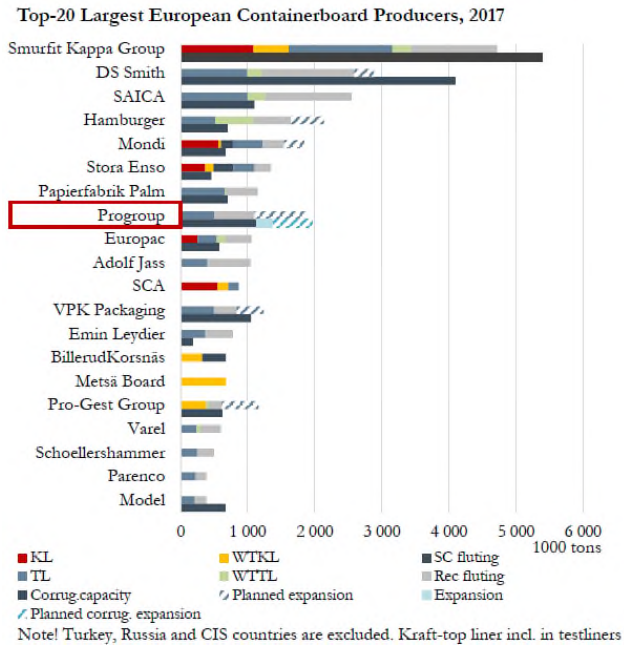
Existing European containerboard producers benefit from certain barriers to entry, including:

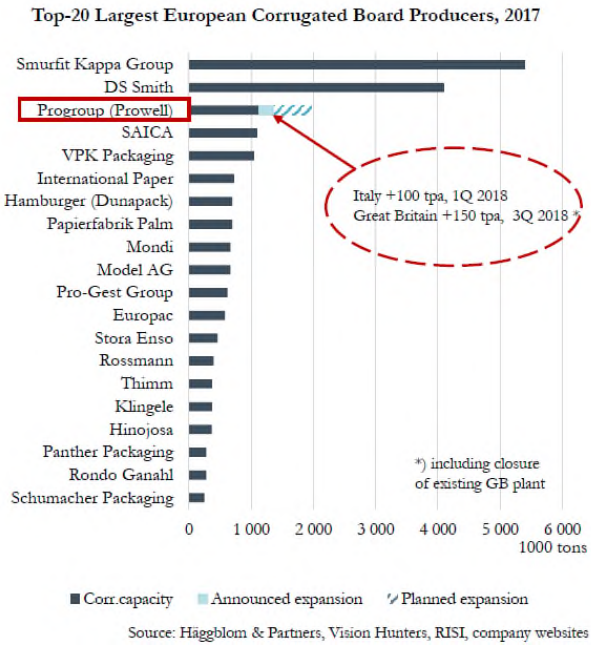
- the difficulty, especially in Western Europe, of finding appropriate locations (including proximity to reliable sources of virgin fibre in the case of kraftliner production and recycled paper in the case of recycled containerboard) to build new mills and obtaining approvals from local governments; and

- substantial capital costs associated with building a new plant of the scale and quality necessary to be cost-competitive with the production platforms of existing producers.

The corrugated board industry is more fragmented than containerboard and is comprised of a large number of small, often family-owned and locally operating companies. Smurfit Kappa and DS Smith are, in terms of scale, significantly larger than any other competitors in the market.

According to Vision Hunters, Progroup Board is the number three producer and largest independent corrugated board producer in Europe by volume produced and Progroup Paper is the number six producer of recycled containerboard in Europe by capacity.





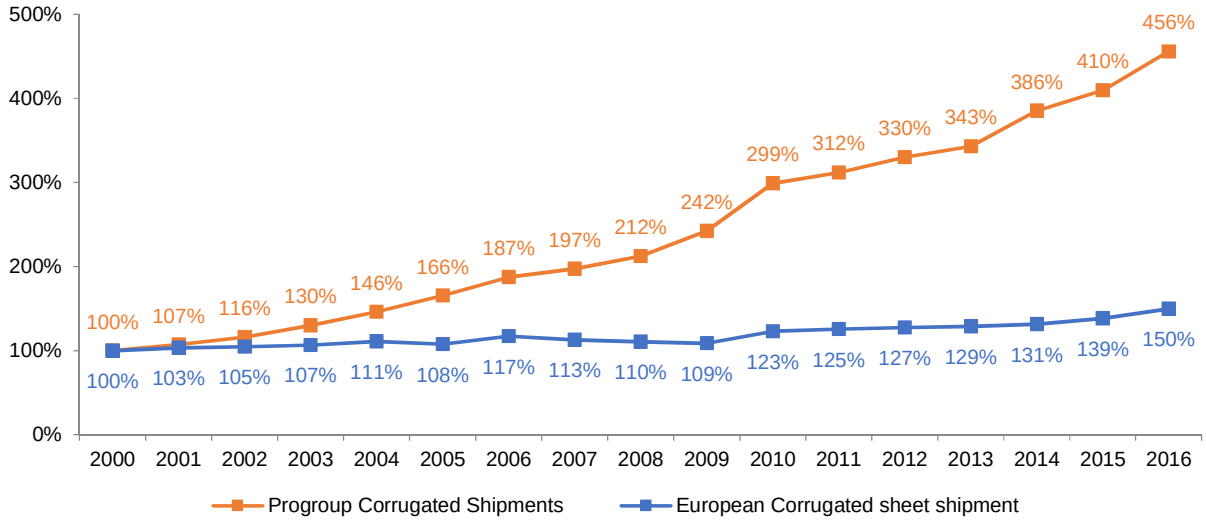
Source: Vision Hunters (March 2018)

Many of our competitors are fully integrated and focus on serving larger end-customers in large batch sizes, including global consumer corporates. Our differentiated business model allows us to serve a higher number of customers, process a higher number of orders and maintain higher production volumes (up to 370 million square meters per annum), thereby generating economies of scale. We are solely focused on the production process as opposed to many of our competitors, who also focus on more complex and customer-specific packaging requirements for a smaller number of larger customers and, hence, only have a production output of typically 70-80 million square meters per annum. Our operational model allows for significantly higher productivity levels compared with industry average, per Vision Hunters.

Over the past 27 years since our foundation, we have achieved leading market positions in the countries in which we operate. We are among the top three corrugated board producers in Europe (by production capacity) and our market share in our specific segment, the corrugated sheet market in Europe, is approximately 15%, according to Vision Hunters. In our core market segment, namely corrugated board sheets, we are the market leader by volumes sold in Germany, Austria, Belgium, the Czech Republic and the Netherlands and hold considerably higher market shares compared to our position in the overall European containerboard and corrugated board market, according to Vision Hunters. In containerboard production, we have a market share of approximately 4% by production capacity, according to Vision Hunters.

Unlike many of our competitors, who grew historically over many decades or had to integrate production infrastructures inorganically through acquisitions, we differentiate ourselves with a well-invested asset base and high-quality, complementary, modern and strictly aligned, high capacity production facilities placed purposefully in strategic locations. Our strategy has enabled us to experience above market growth rates resulting from organic growth alone. The CHP Acquisition allowed us to further expand our asset base with a tailor-made power plant that was specifically designed to meet the steam requirements of our paper machine PM2.

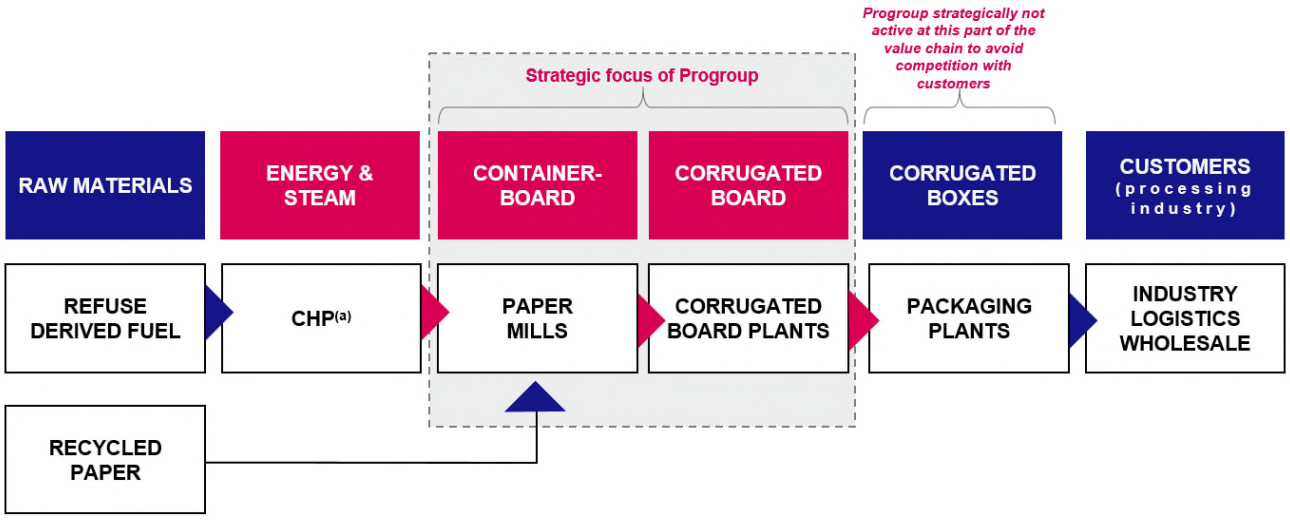
Corrugated shipments – Progroup growth vs. industry (2000-2016)



Source: Progroup

OUR COMPANY

We are a leading, family-owned producer and supplier of containerboard and corrugated board in Central Europe and are headquartered in Landau, Germany. According to Vision Hunters, we are the third largest producer of corrugated board in Europe (by production capacity) through our corrugated board business ("**Board**") and the sixth largest producer of recycled containerboard in Europe (by production capacity) through our containerboard business ("**Paper**"). We focus on the highly efficient production and processing of standardized grades and customized small batch series of corrugated board sheets for our mostly family-owned box manufacturing customers. In this core market segment, we are the market leader by volumes sold in Germany, Austria, Belgium, the Czech Republic and the Netherlands, according to Vision Hunters. We believe we differentiate ourselves from other market participants (*i.e.*, fully integrated paper and packaging producers) through our strategic focus on those elements of the value chain that bring added-value to our customers in the packaging industry, *i.e.* the automated and integrated production of containerboard and corrugated board. Our customers serve various end markets, including industrial/manufacturing, consumer durables, processed foods, non-food manufactured consumer goods and fresh food. Unlike many fully integrated market players, we do not produce boxes and therefore do not compete with our box manufacturing customers but instead focus solely on the production of containerboard and corrugated board.



(a) Combined heat and power plant

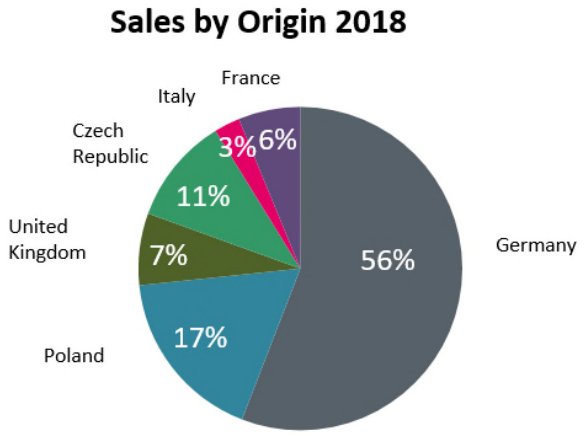
Through our large scale and highly flexible production, built up primarily via a greenfield approach, we are able to realize significant economies of scale. Since we commenced operations in 1992, we have carefully selected the locations of our production sites and have grown organically by pursuing primarily a greenfield strategy to create an optimal geographic set-up of our production sites across the markets in which we operate. As a result, we benefit from a well-invested asset base and production sites with high technological standards, resulting in a relatively low cost base compared to many of our competitors and relatively low requirements for additional capital expenditures in the short- to medium-term. Given the high technological standards of our production facilities, we believe we are well-positioned to benefit from major growth trends in our industry, such as (i) increasing demand for light-weight packaging, (ii) the increasing importance of small-size packaging due to the growing importance of e-commerce, and (iii) the general trend towards a more efficient and sustainable use of raw materials and energy, which can help reduce costs, CO_2 emissions and fresh water consumption.

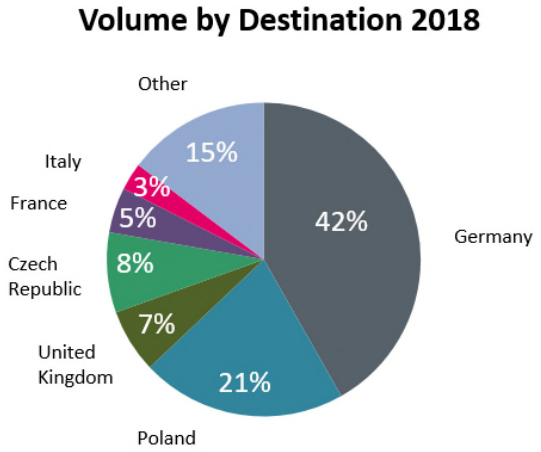
Our core business comprises Paper and Board. The focus of Paper's operations is highly flexible containerboard production using almost exclusively recycled paper, with high output volumes to increase cost efficiency and short delivery times. In 2016, 2017, 2018 and the first three months of 2019, containerboard produced by Paper accounted for most of the containerboard sourcing requirements of our corrugated board production within Board. We believe that a high degree of vertical integration and the ability of Board to internally source consistently high-quality containerboard in a cost-efficient and highly flexible manner creates significant synergies for our business. In addition, our customers benefit from our integrated approach through short lead times, just-in-time delivery and online ordering and tracking options.

Paper manufactures containerboard at our two paper mills in Germany, with an envisaged total annual production capacity of approximately 1,100,000 tons of containerboard. Our two existing paper machines, PM1 in Burg and PM2 in Eisenhüttenstadt, have complementary production layouts which allow us to produce brown containerboard with grammages between 60-230g/m^2 using almost exclusively recycled paper. This, in turn, allows us to internally source consistently high-quality containerboard with the appropriate widths for Board's ten existing corrugated board production

sites in the Czech Republic, France, Germany, Italy, Poland and the United Kingdom, with a total annual production capacity of approximately 1,440,000 tons of corrugated board, including our latest corrugated board "mega plant" (PW12) at Ellesmere Port, United Kingdom. Our historic greenfield location strategy ensures close customer proximity and high production flexibility. Effective as of midnight on December 31, 2015, we further acquired Progroup Power 1 GmbH, the combined heat and power plant (the "**CHP**") adjacent to our paper mill in Eisenhüttenstadt and certain related assets (the "**CHP Acquisition**"). As a result thereof, we started producing a significant portion of the energy required for the operation of our paper machine PM2 ourselves ("**Power**").

In 2018, we sold approximately 1,151,000 tons of corrugated board and approximately 176,000 tons of containerboard to external customers across Europe, resulting in external corrugated board and containerboard sales, respectively, of €840.0 million (86.9% of total sales) and €84.5 million (8.7% of total sales). Paper's total sales in 2018 include €17.9 million (1.9% of total sales) in revenues from the sale of electricity and revenues from the incineration of refuse-derived fuel resulting from the integration of the CHP as well as €9.7 million (1.0% of total sales) in sales from passing purchased fuel costs to Sales and Solutions GmbH. Total external sales by Board and Paper in 2018 (including sales other than corrugated board or containerboard sales, respectively) amounted to €840.8 million (87.0% of total sales) and €112.9 million (11.7% of total sales). Our total sales and EBITDA in 2018 amounted to €966.1 million and €275.5 million, respectively. Sales in Germany (origin), our core market, accounted for 55.8% of total sales and 42.0% of sales by volume in 2018.





Primarily to support our core business, Paper and Board, we
have established our own logistics operations, including a fleet of currently 59 trucks ("**Logistics**"). Most of the remaining €12.4 million in sales (1.3% of total sales) in 2018 were generated by Logistics.

Founded in 1991, we are indirectly majority-owned by Jürgen Heindl, our founder and chief executive officer.

OUR STRENGTHS

We believe we benefit from the following competitive strengths.

Differentiated business model with leading market positions in attractive market environment

Our founder, Jürgen Heindl, designed a business model differentiating us from our competitors. Through our strategic value chain positioning in containerboard and corrugated board production only, we do not compete with our targeted customers, who are primarily family-owned, small and medium-sized businesses. Our core customers focus on packaging solutions for the end-customer and typically do not have their own corrugated board production capability. Many of our competitors are fully integrated and focus on serving larger end-customers in large batch sizes, including global consumer corporates. Our differentiated business model allows us to serve a higher number of customers, process a higher number of orders and maintain higher production volumes per production site (up to 370 million square meters of corrugated board per annum), thereby generating economies of scale. We are solely focused on the production process as opposed to many of our competitors, who also focus on more complex and customer-specific packaging requirements for a smaller number of larger customers and, hence, only have an average production output of typically 70-80 million square meters per production site per annum.

In 27 years since our foundation, we have achieved leading market positions in the countries in which we operate. We are among the top three corrugated board producers in Europe (by production capacity) and our market share in our specific segment, the corrugated sheet market in Europe, was approximately 15% according to a March 2018 market study by Vision Hunters. In our core market segment, namely corrugated board sheets, we were the market leader by volumes sold in Germany, Austria, Belgium, the Czech Republic and the Netherlands, according to Vision Hunters, and we hold considerably higher market shares in those markets compared to our position in the overall European containerboard and corrugated board market. Following the fast and successful ramp-up of our corrugated board production site (PW10) in Trzcinica, Poland, we have also become a very significant player in the Polish market, and we have further become a significant player in the UK market, as a result of the commencement of production in January 2019 and ongoing ramp-up at our newest corrugated board production site (PW12) in Ellesmere Port, United Kingdom, which replaced the much smaller and now decommissioned production site PW8. In addition, the commencement of production at our corrugated board production site (PW11) in Drizzona, Italy in early March 2018, with an annual corrugated board production capacity of approximately 100,000 tons, marked our entry into the largest corrugated sheet board market in Europe. In containerboard production, we had a market share of approximately 4% by production capacity in Europe, according to the March 2018 market study by Vision Hunters.

While we believe our differentiated business model, high reliability and quality of product supply, significant scale, internal sourcing and geographic coverage provide us with a competitive advantage in our core market segment, we also benefit from attractive market fundamentals of the overall industry.

The paper and packaging industry is experiencing overall growing demand from industrial economies in Central Europe, and we believe that Germany and Central Europe, our key markets, generally provide a positive economic outlook. From a product perspective, the increasing significance of light-weight paper and packaging solutions as well as small-size packaging and the increasingly online and mail order-driven retail sector is expected to further stimulate packaging growth. We believe our modern production facilities, particularly PM2, which is capable of producing light-weight paper grades economically on a commercial scale, position us well to benefit from these growth trends in the industry. Furthermore, production is driven by the strong increase in demand from emerging economies, where production and packaging standards are adapting to the standards of developed countries, from which we also benefit with our production in Poland and the Czech Republic

Uniquely designed, best-in-class and strategically located, low-cost production asset base built up via greenfield strategy

Since our foundation in 1991, we have carefully designed and selected our production operations and locations via a dedicated greenfield strategy to establish highly efficient, flexible and technologically advanced production facilities, which were ahead of the existing market standard at the time. We believe we are the fastest organically growing corrugated board producer in Europe and have developed a unique track record and expertise in successfully establishing new greenfield corrugated board production sites. This includes a dedicated and experienced in-house projects team tasked with identifying attractive market opportunities for profitable growth, completing the planning and construction phases of the relevant projects on time and on budget and managing fast and successful ramp-ups of production at the relevant sites.

Designing our production set-up primarily via a greenfield strategy allowed us to invest in the best available production specifications and optimize the alignment and compatibility of our paper machines, PM1 and PM2, with our corrugators. The current 2.5m, 2.8m and 3.3m trim widths of our various existing corrugated board plants can be very efficiently combined with the 5.8m trim width of PM1 (2 × 2.8m or 2.5m + 3.3m), the 10.2m trim width of PM2 (4 × 2.5m or 3 × 3.3m) and the 9.2m trim width of our proposed new paper machine PM3 (2 x 3.3m + 2.5m or 2 x 2.8m + 3.3m), resulting in low volumes of cutting scrap and higher productivity.

Our corrugated board production sites have been purposefully located approximately 500 kilometers from each other. This footprint ensures close customer proximity with full regional coverage of our customers and limited overlap to limit the transportation distance in most circumstances to 250-300 kilometers. Our strategic footprint also allows us to achieve high production flexibility and reliable just-in-time delivery with short lead times. Furthermore, we are able to serve our customers from different locations, thereby optimizing transportation costs and capacity utilizations on a plant-by-plant basis, which is coordinated centrally from our headquarters in Landau following a “one mill approach”. We believe our location layout and organization give us a competitive advantage in terms of cost efficiency and customer orientation. On average, we serve approximately 50-80 customers per corrugated board production site and each of our production sites offers the entire range of customer services (e.g., 24 hour delivery and online ordering and tracking).

We believe that all of our plants are equipped with state-of-the-art technology, which is the foundation of our low-cost and efficient production. According to Vision Hunters, the asset quality of our paper machines is characterized as high and above comparable European containerboard and corrugated board producers. Performance metrics of PM1, such as capacity and technical age, are well above the industry average. PM2, which we believe to be among the world’s most advanced

paper machines for recycled super-light-weight paper and which specializes in the production of super-light-weight to medium-weight containerboard with grammages of 60-130g/m^2, ranks best in class for all metrics and has set five new world records since its launch in 2010.

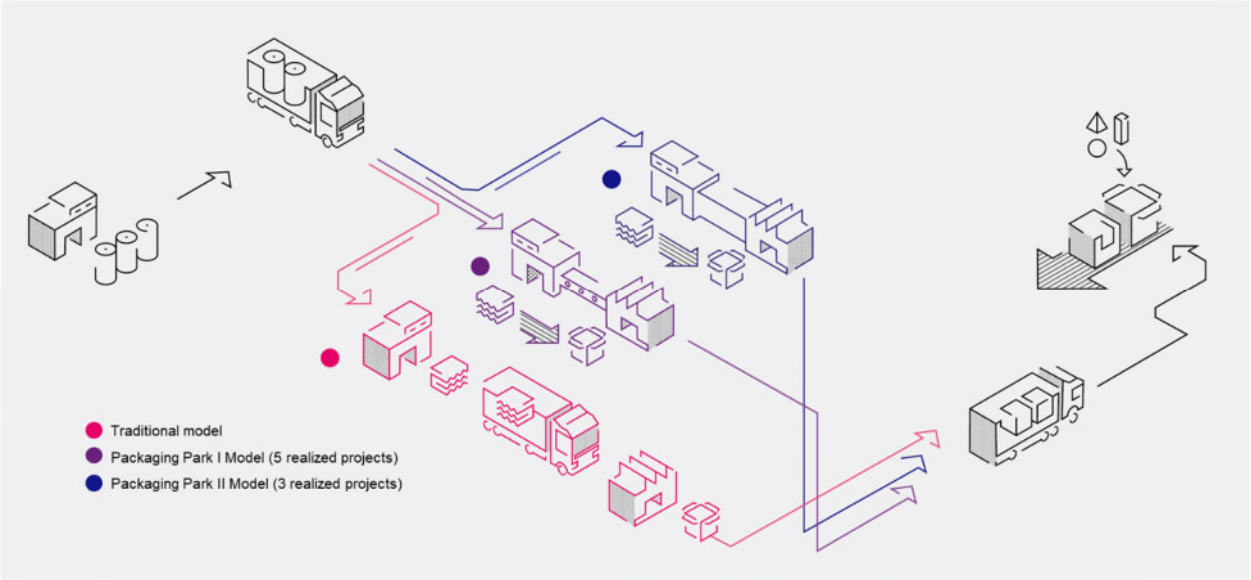
Unlike many of our competitors, who grew historically over many decades or had to integrate production infrastructures inorganically through acquisitions, we differentiate ourselves through our well-invested asset base and high-quality, complementary, modern and strictly aligned, high capacity production facilities placed purposefully in strategic locations.

Strong, diversified and long-standing customer base

We have long-standing relationships with many of our customers, some of which date back to the start of our operations in 1992. We have grown with our large German customers as they have expanded across Europe and have successfully entered into new relationships with key customers outside of Germany. We currently supply 350 to 400 different Board customers, with a strategic focus on family-owned, small and medium-sized companies. Our top five Board customers accounted for approximately 7%, 4%, 3%, 3% and 2%, respectively, of our total corrugated board sales, by tons, in 2018, while our top five external Paper customers accounted for approximately 28%, 12%, 11%, 8% and 5%, respectively, of our total external containerboard sales, by tons, in 2018.

We believe that our ability to provide reliable delivery of high-quality, cost-effective and tailor-made products and being a family-owned business have enabled us to foster strong partnerships of mutual dependence with our mostly family-owned customers, operating as a fundamental part of their supply chains by improving inventory management, security of supply and customer service.

Our strong customer relationships are reinforced through a combination of our geographic reach, our manufacturing and logistics excellence, and the limited availability of alternative suppliers with the capacity and geographic proximity to provide a competitive offering. At some of our corrugated board production sites, certain long-standing customers have established their own box manufacturing plants in immediate proximity to our site, either on our own land or on land adjacent to our site (so-called "**Packaging Park I Model**"). As a variation of this original packaging park model, we commenced production in October 2015 at our corrugated board production site (PW9) in Plössberg, Germany, which we established in immediate proximity to an existing packaging plant of our customer, Liebensteiner Kartonagenwerk, on land owned by our customer. As a further variation of the packaging park model, we commenced production in the first quarter of 2017 at our corrugated board production site (PW10) in Trzcinica, Poland on land we purchased from our large customer Janmar Centrum adjacent to its existing packaging plant. We refer to these variations were we establish our own corrugated board production sites close to our customers as the "**Packaging Park II Model**". Following the success of these two packaging park projects (PW9 and PW10), we also established our corrugated board production site (PW11) in Drizzona, Italy as a packaging park project in immediate proximity to the existing packaging plant of our new customer, Italian packaging specialist Imbal Carton S.r.l.



All versions of the packaging park model help us to further strengthen our relationships with key customers (or win significant new customers, as in the case of Imbal Carton S.r.l.) and benefit both us and the relevant customers. The high level of integration between our own corrugated board production and the box production of our customers also made possible through the packaging park model creates a number of efficiencies and largely eliminates freight and other logistics

costs between Board and our packaging park customers. Our packaging park customers also typically purchase a very high percentage (up to 100%) of their corrugated board requirements for the relevant box plant from us, which means predictable, high volume orders and consistently high utilization levels for the relevant corrugated board production sites. Index pricing arrangements with our packaging park customers ensure a predictable pricing mechanism for all parties. It typically takes approximately two to three months for containerboard mills to pass on their raw material price increases to their customers, *i.e.* manufacturers of corrugated board. In turn, the manufacturers of corrugated board generally attempt to raise prices to recover containerboard cost increases. It generally takes approximately two to three months for corrugated board manufacturers, including us, to pass these increases on to their customers.

Technology and innovation leader

There are general industry trends towards lighter and more functional packaging and towards a more efficient use of resources. The trend towards "light paper" (*i.e.*, containerboard) has been particularly strong in Germany and has been further strengthened by the increasingly online and mail order-driven retail sector, which is expected to further stimulate demand growth for light packaging solutions. We believe that we are particularly well-positioned to capitalize on these trends with our paper mill in Eisenhüttenstadt, Germany, which specializes in the production of super-light-weight to medium-weight containerboard with grammages of 60-130g/m^2. As demand for super-light-weight containerboard (with a grammage below 90g/m^2) is increasing, we believe that PM2 gives us a significant advantage over many of our competitors, both in terms of efficiency and product quality. Our proposed further paper machine PM3, on the other hand, is designed to provide standard containerboard grades with grammages of 90-130g/m^2. Once this newest paper machine will commence operation, we believe it will give us the ability to put an even stronger focus on the production of super-light-weight containerboard (i.e. 70 – 80g) at PM2 and to focus production at PM1 on specialty containerboard such as kraftliner substitutes and containerboard with a higher grammages above 130g/m^2. We believe the expected further specialization of our paper machines will further enhance the productivity of all our paper machines as each paper mill will be able to focus on clearly defined paper categories. For more detail on our proposed new paper machine (PM3), see also "*—Our Strategy—Maintain and strengthen our position as a leading, low-cost corrugated board producer in Europe through controlled investments*" below.

In addition, we continuously work to improve our product designs, optimize the utilization of our assets and explore new ways to further reduce our input costs and secure the long-term sustainability of our core businesses, both from an economic and environmental perspective. In particular, we are focused on further reducing the use of fibre (*i.e.*, recycled paper) in our products as well as the amount of energy required for our production processes and the shipment of our products, in order to both maintain a competitive cost position in our industry and to reduce emissions and waste.

We believe that, at the time of its launch in 2001, our paper machine PM1 was the world's technologically most advanced containerboard paper machine setting new technology standards, including with the use of a closed water cycle, thereby minimizing the creation of waste water. Launched in 2010, we believe that PM2 is among the world's most advanced paper machines, which we believe has allowed us to set new industry standards with respect to raw material efficiency. As described in more detail under "*—Our Strategy—Maintain and strengthen our position as a leading, low-cost corrugated board producer in Europe through controlled investments*" below, we further decided to make certain significant additional investments in connection with the proposed establishment of our newest paper machine (PM3), which we expect will result in significant cost savings in the mid- to long-term as well as significant reductions of CO_2 emissions, waste water and natural gas consumption. These investments include a state-of-the-art waste overall waste-heat concept as well as a "first-of-its-kind" closed cycle waste water treatment system.

We have invested significantly in the development of a "green" range of "next generation" products working in close cooperation with BHS Corrugated GmbH, one of our equipment suppliers, and a team of researchers at the University of Applied Sciences (*Hochschule für angewandte Wissenschaften*) in Regensburg, Germany. We market these products under our own brands next fibre®, next board® and next box®. All of these product innovations involve the use of super-light-weight containerboard produced by our paper machine PM2 as well as innovative flute designs of our corrugated board formats, intended to further reduce raw material input and thereby further reduce weight, input costs and CO_2 emissions.

Significant synergies through high degree of vertical integration

In 2018, containerboard produced by Paper accounted for approximately 75% of the containerboard, by volume, used by our corrugated board production within Board. As a result of the steady expansion of our corrugated board production capacity in recent years, internal containerboard sales to Board have increased from approximately 62% (or 67%, if we include containerboard sales to swap partners) of total containerboard sales, by volume, of Paper in 2016 to approximately 82% (or 93%, if we include containerboard sales to swap partners) of total containerboard sales, by volume, of Paper in 2018. With the fast and successful ramp-up of production at our corrugated board production site (PW10) in Trzcinica, Poland during 2017 and early 2018, we had already accomplished one of our long-standing strategic goals and had already been operating at the top end of our long-term target corridor with regard to the level of integration between Paper and

Board. We expect that the start of production at our new corrugated board production site (PW11) in Drizzona, Italy in early March 2018, the significantly increased capacity of the new corrugated board "mega plant" (PW12) in Ellesmere Port, United Kingdom as well as further improved utilization of our other corrugated board production sites alone will lead to a significant further increase in the corrugated board production of Board, so that we will remain a net purchaser of containerboard in 2019, i.e. we expect that the recycled containerboard sourcing requirements of our corrugated board production within Board will significantly exceed the internal supply capacities of Paper. As we have already commenced construction of a further corrugated board production site (PW13) in Eisfeld, Germany (with test production expected to start in the fourth quarter of 2019 or the first quarter of 2020) and plan to establish up to three further corrugated board production sites in Central Europe between 2020 and 2023 (including a further corrugated board "mega plant" (PW14) which is envisaged to commence production in late 2020 or early 2021), we expect to successively increase this net short position with regard to containerboard even further at least in the short-term. We therefore currently do not expect the volume of our external containerboard sales to significantly increase again unless and until we complete our proposed further paper machine project (PM3) in the second half of 2020. For more details on our expansion projects and investment program, see also "*—Our Strategy—Maintain and strengthen our position as a leading, low-cost corrugated board producer in Europe through controlled investments*" below. With an envisaged total annual containerboard capacity of approximately 1,100,000 tons, Paper produced approximately 1,020,000 tons and 1,035,000 tons of containerboard in 2018 and 2016, respectively. In 2018, approximately 811,000 tons were sold internally to Board (2016: 738,000 tons of internal containerboard sales), and a further approximately 111,500 tons were sold pursuant to swap agreements with other containerboard producers (2016: 106,000 tons of sales to swap partners), which allow us to reduce transportation costs, optimize our production program and swap internally produced containerboard for certain containerboard grades we do not produce in sufficient quantities, such as kraftliner. The remaining approximately 64,000 tons of containerboard we sold in 2018 were sold externally (2016: approximately 198,000 tons of external containerboard sales, excluding sales to swap partners). With a total annual corrugated board production capacity of approximately 1,440,000 tons (including (i) 100,000 tons of capacity of our new corrugated board production site (PW11) in Drizzona, Italy, which commenced production in early March 2018 and (ii) more than 200,000 tons of capacity of our newest corrugated board "mega plant" (PW12) in Ellesmere Port, United Kingdom, which commenced production in January 2019) as of the date of this special report (2016: total annual corrugated board production capacity of approximately 1,130,000 tons), Board produced approximately 1,151,000 tons of containerboard in 2018, compared to approximately 930,000 tons of corrugated board in 2016. We believe that a high degree of vertical integration and making full use of the ability to internally source consistently high-quality containerboard in a cost-efficient and highly flexible manner creates significant synergies for our business. At the same time, we believe that the high share of internal containerboard sales may help us stabilize or improve our overall Group margins by reducing our exposure to lower or more volatile margins (compared to corrugated board margins) of certain external containerboard sales. Our customers benefit from our integrated approach through short lead times, just-in-time delivery and online ordering and tracking options. The steady increase in the degree of vertical integration between Paper and Board over the last few years has also been allowing us to further optimize our internal logistics and supply chain. See also "*—Our Strategy—Achieving further cost-savings and efficiency improvements through further increased external containerboard purchases*" below.

Strong track record of profitable growth

Since 2015, we successfully completed a number of recent expansion and other investment projects, including the CHP Acquisition as well as the successful establishment of four new corrugated board production sites (PW9, PW10, PW11 and PW12), with the construction of our new corrugated board production site (PW13) in Eisfeld, Germany progressing on schedule and earthworks for our third paper machine (PM3) in Sandersdorf-Brehna, Germany having started in January 2019. In addition, we successfully implemented a series of initiatives in recent years as part of our Continuous Improvement Program to improve the effectiveness of our sales and marketing activities, optimize (*i.e.*, minimize) our variable costs and stabilize our specific fixed costs in order to achieve sales excellence and maintain our position as one of the cost leaders in our industry.

As a result of these and other factors, we have managed to continue to significantly improve our profitability and cash position and moved the Group to a structurally enhanced level of profitability in recent years. In particular, we have managed to increase our EBITDA from €81.7 million in 2013 to €125.1 million in 2014, €152.9 million in 2015, €154.7 million in 2016, €180.4 million in 2017 and €275.5 million in 2018. During the same period, our EBITDA margin (calculated by dividing EBITDA by sales) improved from 14.0% in 2013 to an exceptional 28.5% in 2018. Combined with our controlled investment strategy, which should normally allow us to adapt the amount of our expansion capital expenditures in line with our projected mid-term cash requirement, we believe we are in a strong financial condition to weather and/or adapt to challenges that may face us or our industry as a whole.

Committed family shareholders and experienced management team for long-term stability

Our company was founded in 1991 by Jürgen Heindl, our chief executive officer, and continues to be controlled by him and his two sons, Maximilian Heindl and Vinzenz Heindl. We believe this family link and the strong personal and long-

standing financial commitment of our owners ensures our focus on stability, long-term value generation and prudent investment strategies. Jürgen Heindl's expertise is supported by a strong and growing management team with extensive industry experience, including within our Group. Our management team has impressively demonstrated its abilities by creating one of Europe's leading containerboard and corrugated board players in 27 years while withstanding economic downturns and restructurings. In response to the increasing size and complexity of the Group and to free up management capacity to allow Jürgen Heindl to focus on the strategic development of the Group, we have successfully professionalized and expanded our senior management team, including our Executive Board. Dr. Volker Metz rejoined the Group as our chief financial officer in November 2016, after previously having served as our head of controlling between 2009 and January 2016. Similarly, after spending seven years with one of our largest international competitors, Philipp Kosloh rejoined the Group in November 2016 and was appointed a deputy member of our Executive Board, with a view to becoming our first chief operating officer. Mr. Kosloh had previously served in various capacities within the Group between 2001 and 2009. Effective January 1, 2019, Mr. Kosloh became a regular member of the Executive Board and assumed the role of chief operating officer. In addition, after gaining several years of relevant work and management experience in the paper industry outside the Group, Maximilian Heindl joined the Group in August 2016 as the manager in charge of production and technology at Paper (PM1 and PM2) and with overall responsibility for Power. From August 1, 2017, Maximilian Heindl took over further responsibility within the Group as a deputy member of the Executive Board and, effective January 1, 2019, he became a regular member of the Executive Board and assumed the role of chief development officer. Maximilian Heindl's work and management experience outside the Group, his management roles at Paper and Power, his appointment to the Executive Board and gradual assumption of further responsibilities are all part of a deliberate, long-term succession plan for our founder and chief executive officer Jürgen Heindl with the goal of securing our future as a successful family-owned business into the next generation.

OUR STRATEGY

Maintain and strengthen our position as a leading, low-cost corrugated board producer in Europe through controlled investments

To maintain and further strengthen our position as a leading, low-cost corrugated board producer in Europe in the long-term and to allow us to successfully meet ongoing and expected future market growth and the requirements of our customers with regard to supply certainty and product quality, we intend to continue to make prudent and controlled investments to further expand and improve the efficiency of our production facilities as part of our long-term "Two Twentyfive" strategy, as long as (i) we are confident we can achieve payback periods for our investments that are aligned with the maturity profile and relevant headroom under our financing arrangements, (ii) we maintain sufficient financial flexibility to weather and/or adapt to challenges that may face us or our industry as a whole, and (iii) any such investments would be consistent with our long-term target leverage. In addition to further capacity expansion, our "Two Twentyfive" strategy, among other things, also contemplates a gradual technological transition and generation change away from the use of corrugators with a trim width of 2.5m, which are installed and currently in use at some of our older corrugated board production sites, to the use of more modern corrugators with trim widths of 2.8m or 3.3m at most of our corrugated board production sites.

Following the successful completion of the ramp-up of production at our corrugated board production site (PW9) in Plössberg, Germany, which commenced production in October 2015, we had already accomplished one of our long-standing strategic goals in 2016 and were already operating within our target corridor with regard to the level of integration between Paper and Board. However, in the short-term to mid-term, we still intend to continue to focus our investment activities on further expanding our corrugated board production capacity to be able to seize what we believe are numerous further market opportunities for profitable growth, similar to those that led to the successful establishment of our most recent production sites (PW9, PW10, PW11 and PW12) in Plössberg (Germany), Trzcinica (Poland), Drizzona (Italy) and Ellesmere Port (United Kingdom). In continuation of our organic growth strategy, we intend to primarily achieve further growth by pursuing further expansion opportunities via greenfield projects.

In addition to the fast and successful ramp-up at our corrugated board production site (PW10) in Trzcinica, Poland during 2017 and early 2018 following commencement of commercial production in April 2017, we commenced production at our corrugated board production site (PW11) in Drizzona, Italy, in early March 2018 and at our newest corrugated production site (PW12) in Ellesmere Port, United Kingdom, in January 2019. As with our corrugated board production site (PW9) in Plössberg, Germany and our corrugated board production site (PW10) in Trzcinica, Poland, we established our production site (PW11) in Drizzona, Italy, as a packaging park project in immediate proximity to the existing packaging plant of a customer, Italian packaging specialist Imbal Carton S.r.l., which allows us to supply this new customer largely without freight and other logistics costs. The commencement of production at our corrugated board production site (PW11) in Drizzona, Italy, with an annual corrugated board production capacity of approximately 100,000 tons, also marked our entry into the largest corrugated sheet board market in Europe. With a total investment of approximately €85-€90 million into the establishment of our new corrugated board "mega plant" (PW12) in Ellesmere Port, United Kingdom to replace our now decommissioned corrugated board production site (PW8) located just a few kilometers from the new site, we have now also become a significant player in the UK market. This newest corrugated board production site operates with a

3.35m trim width and has an annual corrugated board production capacity of more than 200,000 tons, more than double the production capacity of approximately 85,000 tons of the old site (PW8), which we established in 2009 with a used corrugator with a 2.5m trim width. We believe that the new production site, with its large capacity and state-of-the-art equipment, is one of the largest and most efficient corrugated sheet board plants globally and positions us well to further grow in the United Kingdom, a market in which we have historically been able to achieve above average EBITDA margins.

While we have historically pursued a pure greenfield growth strategy, including the three packaging park projects (PW9, PW10 and PW11), our newest corrugated board production site (PW12) in the United Kingdom as well as the proposed new corrugated board production sites (PW13 and PW14), we are also evaluating and will continue to evaluate opportunities to acquire attractive assets from competitors which would complement our existing network of production sites, advance our goal of further increasing our corrugated board production capacity and meet the other internal investment and financing criteria described above. In addition, in order to maintain and/or strengthen our relationships with certain large and long-standing customers or in response to opportunities to establish relationships with significant new customers, we will consider additional packaging park projects whereby we would establish corrugated board production sites at or in proximity to the packaging plants of the relevant customers.

With the fast and successful ramp-up at our corrugated board production site (PW10) in Trzcinica, Poland, we had already accomplished one of our long-standing strategic goals and had already been operating at the top end of our long-term target corridor with regard to the level of integration between Paper and Board. We expect that the start of production at our new corrugated board production site (PW11) in Drizzona, Italy in early March 2018, the significantly increased capacity of the new corrugated board "mega plant" (PW12) in Ellesmere Port, United Kingdom as well as further improved utilization of our other corrugated board production sites alone will lead to a significant further increase in the corrugated board production of Board, so that we will remain a net purchaser of containerboard in 2019, i.e. we expect that the recycled containerboard sourcing requirements of our corrugated board production within Board will significantly exceed the internal supply capacities of Paper. In the short-term to mid-term, we nevertheless intend to continue to focus our investment activities on further expanding our corrugated board production capacity. We have already commenced construction of a further corrugated board production site (PW13) in Eisfeld, Germany, with test production expected to start in the fourth quarter of 2019 or the first quarter of 2020. We expect to make total net investments (net of subsidies) of approximately €60 million at this site, which is slightly higher than our earlier estimates of approximately €50 million. This cost increase primarily relates to additional investments which will increase the annual corrugated board production capacity of the new site to approximately 175,000 tons, from the originally proposed capacity of approximately 140,000 tons. Higher than originally expected civil engineering costs (due to the booming construction sector) also contributed to the expected overall cost increase. In addition, we plan to establish up to three further corrugated board production sites in Central Europe between 2020 and 2023, including a further corrugated board "mega plant" (PW14), which we expect will operate with a 3.35m trim width and have an annual corrugated board production capacity of up to 215,000 tons. We expect to invest approximately €70-75 million into this new plant, which will have capabilities similar to our "mega plant" (PW12) in Ellesmere Port, United Kingdom and, we envisage, will commence production in late 2020 or early 2021. Primarily to fund our expected investments into this new site, we entered into the New Senior Secured Erste Bank Facility, the New Senior Secured LBBW Facilities and the New Senior Secured SaarLB Facility, with total commitments of €75 million. For more details about these New Senior Secured Facilities, see "*Description of Certain Financing Arrangements—New Senior Secured Erste Bank Facility*", "*Description of Certain Financing Arrangements—New Senior Secured LBBW Facilities*" and "*Description of Certain Financing Arrangements—New Senior Secured SaarLB Facility*". As a result of these proposed additional corrugated board production sites, we expect our annual corrugated board production capacity to increase from approximately 3.0 billion square meters (including our corrugated board production sites (PW11 and PW12) in Drizzona, Italy and Ellesmere Port, United Kingdom) to approximately 4.2 billion square meters.

Preserve our ability to internally source consistently high-quality containerboard in a cost-efficient and highly flexible manner through our new paper machine project

In order to preserve our ability to internally source consistently high-quality containerboard in a cost-efficient and highly flexible manner in sufficient quantities to meet the majority of the sourcing requirements of the expanding corrugated board production within Board, we have also begun to actively pursue the realization of a further paper machine project (PM3) in Sandersdorf-Brehna, Germany. Earthworks for the new paper machine already started in January 2019 and, subject (among other things) to obtaining the missing regulatory approvals and construction proceeding according to plan, we currently expect this further state-of-the-art paper machine to start production in the second half of 2020, with a total annual containerboard capacity of approximately 750,000 tons. Following completion of the ramp-up phase of this potential further paper mill, this would mean an increase of the total annual containerboard capacity of Paper from currently approximately 1,100,000 tons to approximately 1,850,000 tons. The new paper machine (PM3) will have a 9.2m trim width, which would allow us to optimize containerboard production to meet the requirements of the more modern corrugators with trim widths of 2.8m or 3.3m at most of our newer corrugated board production sites, which would result in low volumes of cutting scrap and higher productivity. Once PM3 has commenced operations, we also plan for further specialization of our then three paper machines which we expect will further enhance the productivity of all our paper machines as each paper mill

will be able to focus on clearly defined paper categories. See also "*—Our Strengths—Technology and innovation leader*" above. We currently expect total net investment costs (i.e. net of expected subsidies) of approximately €465 million for this new paper machine project over a several year period, including approximately €116.7 million of initial expenditures (e.g. for advanced payments for the paper machine and certain preliminary work) we had already incurred as of the end of the first quarter of 2019. We expect to fund any such investments with a combination of cash on hand, cash generated from our operating activities and additional borrowings, including drawings under the Existing Senior Secured Commerzbank Facilities, the Existing Senior Secured IKB Facilities, the Existing Senior Secured SaarLB Facility and the Existing Senior Secured HSBC Facility. The currently expected total net investment costs of approximately €465 million in connection with the proposed establishment of our newest paper mill (PM3) significantly exceed our earlier estimates of €375-400 million, primarily due to certain additional strategic and value accretive investments we decided to make, which we expect to have significant economical as well as ecological benefits once the new paper mill will be operational. A large portion of the increase in the expected total net investment costs relates to investments into more energy-efficient components as part of our overall waste-heat concept from the new paper mill. The installation of these components is not legally mandated, but we expect it will result in significant cost savings in the mid- to long-term as well as a reduction of CO_2 emissions of up to 151,000 tons per year. In addition, we decided to install a closed cycle waste water treatment system. Once our new paper mill is operating at the full intended capacity of 750,000 tons of containerboard, we expect that this closed cycle waste water treatment system will help us to avoid approximately 3,775,000 m^3 of waste water per year, cut the fresh water consumption of the new paper mill by 3,750,000 m^3 and reduce CO_2 emissions by approximately a further 19,900 tons per year. At full capacity, the system is expected to produce approximately 65,000,000 kWh per year of bio gas as part of the waste water treatment process. The paper mill will use this bio gas in connection with its production process, cutting its natural gas consumption by approximately 7-8%. We further believe that the proposed closed cycle waste water system will minimize our reliance on third party waste water treatment facilities (which have led to capacity constraints at our existing paper machine (PM2) in Eisenhüttenstadt, Germany in the past) and result in significant related cost savings in the future. We further decided to install (i) a steam turbine which will allow us to produce a portion of the electricity requirements of the new paper mill in an environmentally friendly manner and (ii) a direct rail connection, which will give us the option to ship a portion of our future production in an environmentally friendly manner by rail and, we believe, result in savings of freight cost and other operational benefits. An increase in the expected costs of the necessary civil engineering works, due to the booming construction sector, also contributed to the overall increase in the expected total net investment costs.

Achieving further cost-savings and efficiency improvements through further increased external containerboard purchases

We expect that the start of production at our new corrugated board production site (PW11) in Drizzona, Italy in early March 2018, the significantly increased capacity of the new corrugated board "mega plant" (PW12) in Ellesmere Port, United Kingdom as well as further improved utilization of our other corrugated board production sites alone will lead to a significant further increase in the corrugated board production of Board, so that we will remain a net purchaser of containerboard in 2019. As already described in more detail above, apart from a further corrugated board production site (PW13) in Eisfeld, Germany which we have already commenced construction, we currently expect to establish up to three further corrugated board production sites between 2020 and 2023 (including a further corrugated board "mega plant" (PW14) which is envisaged to commence production in late 2020 or early 2021). See also "*—Maintain and strengthen our position as a leading, low-cost corrugated board producer in Europe through controlled investments*" above. Unless and until we complete the proposed new paper machine project (PM3), this expected increase in our corrugated board production may cause us to further increase the level of internal containerboard sales to Board (and thereby the level of integration between Paper and Board) in 2019 and to increasingly rely on purchasing containerboard from third party suppliers. We believe that targeted external containerboard purchases that meet the specific sourcing requirements of Board will give us additional flexibility and provide us with opportunities to further optimize (i.e., minimize) our variable costs, for example, by allowing us to purchase containerboard that matches the specific grade and optimal trim-width required for our corrugated board production from time to time, from external suppliers located in close proximity to the relevant Board plants. We hope this will allow us to further reduce cutting scrap, further optimize logistics expenses and give us additional flexibility to optimize the utilization of our existing paper machines (PM1 and PM2).

Maintain cost leadership through continuous efficiency and profitability improvements

In order to maintain profitability throughout the economic cycle, we have implemented a comprehensive profitability improvement program (the "**Continuous Improvement Program**") to ensure the long-term success of our Group. Our Continuous Improvement Program focuses on (i) improving the effectiveness of our sales and marketing activities, (ii) optimizing (*i.e.*, minimizing) our variable costs and (iii) stabilizing our specific fixed costs in order to achieve sales excellence and maintain our position as one of the cost leaders in our industry. Since 2012, our main focus in connection with our goal of achieving sales excellence has been on (i) growing our external sales in excess of the general growth in market volumes (and thereby increasing our market share), (ii) maximizing the impact of the introduction of our "next generation" products into the market and (iii) optimizing our sales portfolio. As part of our efforts to optimize our variable

costs, we have focused on (i) reducing our consumption of raw materials, (ii) optimizing our energy consumption and energy costs, especially at our paper mill in Eisenhüttenstadt (PM2), and (iii) reducing the purchase prices of our key production factors, such as recycled paper, starch and freight services. Overall, we have met or exceeded our targeted benefits through our Continuous Improvement Program. We intend to continue to implement our Continuous Improvement Program and identify and realize further improvement opportunities. See also "*—Achieving further cost-savings and efficiency improvements through further increased external containerboard purchases*" above.

HISTORY

Our Group was founded in 1991, when Jürgen Heindl, our controlling shareholder and chief executive officer, established PROWELL Papierverarbeitung GmbH and launched our first plant (PW1) for the production of corrugated board in Offenbach a. d. Queich, Germany, in the following year. From the beginning, we intended to focus on the highly-efficient production of small batch sizes of sheet board for small and medium-sized customers based on high technological standards. In 1996, a second corrugated board production site (PW2) was established in Douvrin, France, and, in 1998, a third corrugated board production site (PW3) was launched in Burg, Germany.

Another key milestone in the development of our Group was the establishment of our first paper mill in Burg with our paper machine PM1 for the production of medium- to heavy-weight containerboard with grammages of 100-230g/m^2. At the time, PM1 introduced a number of new technological features, including a "2 gap former", a "drum pulper", a "speed sizer" and a closed water loop that minimizes the creation of waste water. PM1 represented a significant intermediate step towards the high-speed production of lighter containerboard.

In 2002 and 2005, respectively, we further expanded our corrugated board capacity by launching our fourth and fifth corrugated board production sites in Rokycany, Czech Republic (PW4) and in Schüttorf, Germany (PW5). The corrugators at those two production sites have a width of 3.3 meters, which represented a new technology standard for the industry at the time and resulted in significant productivity gains. In 2007, we established Europe's largest corrugated board production site in Offenbach a. d. Queich, Germany (PW6), replacing the original PW1 facility at the same site. In 2009, we realized another two greenfield projects with the construction of our corrugated board production sites in Strykow, Poland (PW7) and Ellesmere Port, United Kingdom (PW8).

Also in 2009, we commenced construction of our second paper mill in Eisenhüttenstadt, Germany, with our paper machine PM2 commencing production of super-light-weight to medium-weight containerboard in March 2010. To secure a portion of the necessary funding for our €420 million investment in our paper machine PM2, we raised additional equity in 2008 and 2009. In particular, Jürgen Heindl established JH-Holding, our controlling shareholder, in 2007. JH-Holding entered into the Former JH-Holding Facility and used a portion of the proceeds from its borrowings under the Former JH-Holding Facility to subscribe for additional shares in the Company. In addition, the Company issued preference shares to BWK GmbH Unternehmensbeteiligungsgesellschaft.

To secure a reliable supply of energy to our paper machine PM2, we entered into certain framework and ancillary agreements with Progroup Power 1 GmbH and its parent company Sales & Solutions GmbH (formerly EnBW Energy Solutions GmbH) in 2008 for the construction and operation of the CHP adjacent to our paper mill in Eisenhüttenstadt. The CHP commenced operation in 2011.

In July 2014, we announced a strategic investment in the construction of our corrugated board production site (PW9) in Plössberg, Germany adjacent to and connected with a packaging plant of our customer Liebensteiner Kartonagenwerk. This site commenced production in October 2015. At our corrugated board productions sites in Burg, Offenbach, Schüttorf and Ellesmere Port, some of our customers have established their own production sites in close proximity to, or even on, our production sites. With our corrugated board production site (PW9) in Plössberg, Germany, we followed our customer for the first time and set up our facility at the existing site of a customer.

In April 2015, we refinanced all then outstanding amounts under our Former Senior Credit Facility with the proceeds from the issuance of €250,000,000 aggregate principal amount of our Existing Fixed Rate Notes and €150,000,000 aggregate principal amount of the Company's senior secured floating rate notes due 2022, and we also entered into the Super Senior Revolving Credit Facility. At the same time, JH-Holding Finance SA, a newly incorporated finance subsidiary of JH-Holding, the Company's direct controlling shareholder, also issued the PIK Toggle Notes, primarily to fund the acquisition of all rights under the Former JH-Holding Facility and to fund the acquisition of all preference shares in the Company then held by BWK GmbH Unternehmensbeteiligungsgesellschaft.

Effective as of midnight on December 31, 2015, we acquired Progroup Power 1 GmbH, the CHP and certain related assets outright from EnBW. As a result thereof, we started producing a significant portion of the energy required for the operation of our paper machine PM2 ourselves. The completion of the CHP Acquisition constituted a significant milestone in our efforts to optimize our cost structure and allowed us to significantly reduce our energy costs.

As a further variation of the packaging park model, we commenced production in the first quarter of 2017 at our corrugated board production site (PW10) in Trzcinica, Poland on land we purchased from our large customer Janmar Centrum adjacent to its existing packaging plant.

Following the success of the two packaging park projects (PW9 and PW10) in Plössberg, Germany and in Trzcinica, Poland, we also established our new corrugated board production site (PW11) in Drizzona, Italy as a packaging park project in immediate proximity to the existing packaging plant of our new customer, Italian packaging specialist Imbal Carton S.r.l. The commencement of production at this new corrugated board production site (PW11) in Drizzona, Italy in early March 2018, with an annual corrugated board production capacity of approximately 100,000 tons, also marked our entry into the largest corrugated sheet board market in Europe. In addition, with a total investment of approximately €85-€90 million into the establishment of our new corrugated board "mega plant" (PW12) in Ellesmere Port, United Kingdom to replace our now decommissioned corrugated board production site (PW8) located just a few kilometers from the new site, after its commencement of production in January 2019, we have now also become a significant player in the UK market. This newest corrugated board production site operates with a 3.35m trim width and has an annual corrugated board production capacity of more than 200,000 tons, more than double the production capacity of approximately 85,000 tons of the old site (PW8), which we established in 2009 with a used corrugator with a 2.5m trim width. We believe that the new production site, with its large capacity and state-of-the-art equipment, is one of the largest and most efficient corrugated sheet board plants globally and position us well to further grow in the United Kingdom, a market in which we have historically been able to achieve above average EBITDA margins. As we have already commenced construction of a further corrugated board production site (PW13) in Eisfeld, Germany (with test production expected to start in the fourth quarter in 2019 or the first quarter of 2020), we further expect to establish up to three further corrugated board production sites between 2020 and 2023 including a further corrugated board "mega plant" (PW14) which is envisaged to commence production in late 2020 or early 2021).

In 2018, we achieved a milestone in our corporate history by implementing our new branding in order to further strengthen our core brand "Progroup", provide clearer focus and realize the full potential of the "Progroup" brand in the market. The previous individual brands "Prowell", "Propapier" and "Prologistik" were unified under a single umbrella at the end of November 2018. Since then, we have operated under a single uniform and strong Progroup brand:

- **Progroup** refers to the centralized management and administration of the Group by Progroup AG, the Company, from our headquarters in Landau, Germany.

- **Progroup Paper** (formerly Propapier) encompasses our containerboard production activities at our two mills in Burg (PM1) and Eisenhüttenstadt (PM2) (both located in Germany) and also includes the related energy production of Power at the CHP adjacent to our paper mill in Eisenhüttenstadt.

- **Progroup Board** (formerly Prowell) encompasses our corrugated board production at our ten production sites in the Czech Republic, France, Germany, Italy, Poland and the United Kingdom.

- **Progroup Logistics** (formerly Prologistik) encompasses our own logistics operations, including a fleet of trucks we operate primarily to service the business operations of Paper and Board.

To support this rebranding, we also changed the legal entity names of the various entities within our group in the fourth quarter of 2018, except for Progroup AG and Prowell Verwaltungs GmbH.

The following is a brief description of our core business units, Paper and Board.

PAPER

Paper encompasses our containerboard production at our two paper mills in Burg and Eisenhüttenstadt, with a total annual production capacity of approximately 1,100,000 tons of containerboard. Our two paper machines, PM1 in Burg and PM2 in Eisenhüttenstadt, are complementary to each other due to different production layouts and allow us to produce brown containerboard with grammages between 60-230g/m^2 using almost exclusively recycled paper. This, in turn, allows us to internally source consistently high-quality containerboard with the appropriate widths for our corrugated board production sites. To cover the increasing demand for consistently high-quality containerboard, Progroup has begun the realisation of a further paper machine project in Sandersdorf-Brehna, Germany. The new, state-of-the-art paper machine PM3 will start production in the second half of 2020 and provide a further production capacity of around 750,000 tons of containerboard.

The focus of Paper's operations is highly flexible containerboard production, with high output volumes to increase cost efficiency and short delivery times. During 2018, containerboard produced by Paper accounted for approximately 80-85%, by volume, of the containerboard sourcing requirements of our corrugated board production within Board. As a result of

the steady expansion of our corrugated board production capacity in recent years, internal containerboard sales to Board have increased to approximately 82% (or 93%, if we include containerboard sales to swap partners) of the total sales, by volume, of Paper in 2018, which means that we had already accomplished one of our long-standing strategic goals and had already been operating at the top end of our long-term target corridor with regard to the level of integration between Paper and Board. We believe that a high degree of vertical integration and making full use of the ability to internally source consistently high-quality containerboard in a cost-efficient and highly flexible manner creates significant synergies for our business. At the same time, we believe that the high share of internal containerboard sales may help us stabilize or improve our overall Group margins by reducing our exposure to lower or more volatile margins (compared to corrugated board margins) of certain external containerboard sales. Our customers benefit from our integrated approach through short lead times, just-in-time delivery and online ordering and tracking options. The steady increase in the degree of vertical integration between Paper and Board over the last few years has also been allowing us to further optimize our internal logistics and supply chain. In 2018, our Paper operations generated €112.9 million in external sales, which represented 11.7% of our total sales. The majority of these external containerboard sales were generated under one-year contracts with packaging customers. The remainder of our external containerboard sales in 2018 was generated through spot market and multi-year supply agreements. Our external containerboard customers include both other producers of corrugated board as well as commodity traders. In 2018, our five largest Paper customers accounted for approximately 63% and our ten largest Paper customers for approximately 76% of our external containerboard sales by volume.

Paper Machine PM1

Launched in 2001, our paper machine PM1 marked the start of the Group's vertical integration into the production of containerboard. With a trim width of 5.8 meters, it produces medium- to heavy-weight containerboard with grammages of 100-230g/m^2 using recycled fibre and, to a small extent, virgin fibre. We believe that, at the time of its launch in 2001, PM1 was the world's technologically most advanced containerboard paper machine setting new technology standards, including with the use of a closed water cycle, thereby minimizing the creation of waste water. Through a series of investments and optimization measures since its launch, we have been able to significantly improve the annual capacity of PM1 from approximately 287,000 tons of containerboard in 2001 to approximately 420,000 tons in 2018. In addition, since the launch of our paper machine PM2, we further developed PM1 towards the production of heavier paper grades (*i.e.*, grammages of 100-230g/m^2), including testliner, kraftliner, proliner K, fluting paper and promedium S.

Paper Machine PM2

Launched in 2010, our paper machine, PM2, is calibrated to produce super-light-weight to medium-weight containerboard, including testliner and fluting paper, with grammages of 60-130g/m^2 using almost exclusively recycled fibre. We believe that PM2 is among the world's most advanced paper machine based on trim width and designed speed. This allows us to set new industry standards with respect to raw material efficiency, cost leadership as well as containerboard and corrugated board design. With its ability to produce super-light-weight paper grades, PM2 helps us to reduce consumption of recycled paper. For more information about our range of "next generation" products, including next fibre® and next board®, see "—*Sustainability Focus; Research and Development*" below. With a trim width of 10.2 meters, PM2 has an annual containerboard capacity of approximately 680,000 tons, and since its launch in 2010, PM2 has set five new world records for production speed of various lightweight paper grades. We believe that PM2 enables us to generate significant savings in fibre input, which is essential to our ability to improve our competitive position and future profitability.

Paper Machine PM3

Furthermore, in order to preserve our ability to internally source consistently high-quality containerboard in a cost-efficient and highly flexible manner in sufficient quantities to meet the majority of the sourcing requirements of the expanding corrugated board production within Board, we have also begun to actively pursue the realization of a further paper machine project (PM3) in Sandersdorf-Brehna, Germany. Earthworks for the new paper machine already started in January 2019 and, subject (among other things) to obtaining the missing regulatory approvals and construction proceeding according to plan, we currently expect this further state-of-the-art paper machine to start production in the second half of 2020, with a total annual containerboard capacity of approximately 750,000 tons. Once PM3 has commenced operations, we also plan for further specialization of our then three paper machines which we expect will further enhance the productivity of all our paper machines as each paper mill will be able to focus on clearly defined paper categories. Following completion of the ramp-up phase of this potential further paper mill, this would mean an increase of the total annual containerboard capacity of Paper from currently approximately 1,100,000 tons to approximately 1,850,000 tons. The proposed new paper machine (PM3) will have a 9.2m trim width, which would allow us to optimize containerboard production to meet the requirements of the more modern corrugators with trim widths of 2.8m or 3.3m at most of our newer corrugated board production sites, which would result in low volumes of cutting scrap and higher productivity.

BOARD

Board encompasses our production of high-quality corrugated board at our ten production sites in the Czech Republic, France, Germany, Italy, Poland and the United Kingdom, with a total annual production capacity of approximately 1,440,000 tons of corrugated board.

More than 43% of our total corrugated board production capacity is located in Germany where we have a total annual corrugated board production capacity of approximately 620,000 tons at four different production sites. Our German corrugated board production sites primarily serve the German market.

Our production site in Douvrin, France, has an annual corrugated board production capacity of approximately 85,000 tons and primarily serves markets in France and in the Benelux countries.

Our plants in Rokycany, Czech Republic, Strykow and Trzcinica, Poland are well-positioned to serve Eastern European markets. Our Rokycany site has an annual corrugated board production capacity of approximately 140,000 tons and our Polish sites in Strykow and Trzcinica have an annual corrugated board production capacity of approximately 170,000 and 125,000 tons, respectively.

The production at our new corrugated board production site in Drizzona, Italy commenced in early March 2018, with an annual corrugated board production capacity of approximately 100,000 tons. It marked our entry into the largest corrugated sheet board market in Europe.

In addition, with the establishment of our new corrugated board "mega plant" in Ellesmere Port, United Kingdom to replace our now decommissioned corrugated board production site located just a few kilometers from the new site and its commencement of production in January 2019, we have now also become a significant player in the market of the United Kingdom. This newest corrugated board production site operates with a 3.35m trim width and has an annual corrugated board production capacity of more than 200,000 tons, more than double the production capacity of approximately 85,000 tons of the old site, which we established in 2009 with a used corrugator with a 2.5m trim width.

We have already commenced construction of a further corrugated board production site (PW13) in Eisfeld, Germany (with test production expected to start in the fourth quarter in 2019 or the first quarter of 2020). In addition, we further expect to establish up to three further corrugated board production sites between 2020 and 2023 including a further corrugated board "mega plant" (PW14) which is envisaged to commence production in late 2020 or early 2021.

Since the establishment of our Group, we have planned and developed our production sites primarily as greenfield projects and, more recently, as packaging park projects to ensure the optimal geographic location as well as a high technological standard for each site. Our Board operations focus on the efficient and flexible production of customized small batch series, with a high degree of automation at all our production sites, both with respect to the production process itself as well as order handling. We believe we offer significant added value to our customers by offering fully automated online ordering, reliable and just-in-time delivery within 24 hours for selected products and online order tracking. For more information, see "*—Information Technology and Process Management*".

Our range of Board corrugated board products includes all customary single-wall, double-wall and triple-wall flutes, and we have devoted significant time and efforts to developing a range of "next generation" products which feature reduced raw material consumption while maintaining or even improving technical specifications. For more information about these products, including next board® and next box®, see "*—Sustainability Focus; Research and Development*".

In 2018, our Board operations generated €840.8 million in sales or 87.0% of our total sales in 2018. We have established a strong and long-standing customer base, with some of our customer relationships dating back to the beginning of our operations in 1992. We have grown with our large German customers and have also successfully entered into new relationships with key customers outside of Germany. Today we supply 350 to 400 different Board customers. In 2018, our five largest Board customers accounted for approximately 20% and our ten largest Board customers for approximately 28% of our corrugated board sales by volume. The same year, our largest single customer generated approximately 7% of our total corrugated board sales by volume.

We have established long-term strategic business relationships with many of our largest corrugated board customers. We believe that our ability to provide reliable delivery of high-quality, cost-effective and tailor-made products and being a family-owned business have enabled us to foster strong partnerships of mutual dependence with our mostly family-owned customers, operating as a fundamental part of their supply chains by improving inventory management, security of supply and customer service. However, consistent with industry practice, our business relationships are not governed by long-term agreements with fixed prices and sales volumes.

We believe that our differentiated business model is particularly beneficial for many of our small to medium-sized customers with a decentralized production. For some of our larger customers that purchase a high percentage (typically 70% or more) of their corrugated board requirements from us, we offer predictable pricing for our corrugated board products through index pricing arrangements. In addition, at some of our corrugated board production sites, certain long-standing customers have established their own box manufacturing plants in immediate proximity to our site, either on our own land or on land adjacent to our site (so-called "packaging park"). As a variation of this traditional packaging park model, we commenced production in October 2015 at our corrugated board production site (PW9) in Plössberg, Germany, which we established in immediate proximity to an existing packaging plant of our customer, Liebensteiner Kartonagenwerk, on land owned by our customer. As a further variation of the packaging park model, we commenced production in the first quarter of 2017 at our corrugated board production site (PW10) in Trzcinica, Poland on land we purchased from our large customer Janmar Centrum adjacent to its existing packaging plant. All versions of the packaging park model help us to further strengthen our relationships with key customers and benefit both us and the relevant customers. The high level of integration between our own corrugated board production and the box production of our customers also made possible through the packaging park model creates a number of efficiencies and largely eliminates freight and other logistics costs between Board and our packaging park customers. Our packaging park customers also typically purchase a very high percentage (up to 100%) of their corrugated board requirements for the relevant box plant from us, which means predictable, high volume orders and consistently high utilization levels for the relevant corrugated board production sites. To ensure a predictable pricing mechanism for all parties, we also typically have index pricing arrangements with our packaging park customers.

In 2018, approximately 11% of our total volume sales by surface area were generated under index pricing arrangements with our customers. The prices under these arrangements are linked to a containerboard market price index. Although these arrangements generally do not involve minimum sales volumes, demand levels are typically stable and we are in regular contact with our customers to ensure we have reasonable visibility over sales volumes for the upcoming year. In addition, approximately 19% of our volume sales by surface area in 2018 were attributable to packaging park customers. Customers accounting for approximately 69% of our volume sales by surface area in 2018 submitted their orders electronically and communicated directly with our IT systems via e-box, which offers those customers certain benefits in terms of order processing and tracking. It typically takes approximately two to three months for containerboard mills to pass on their raw material price increases to their customers, *i.e.,* manufacturers of corrugated board. In turn, the manufacturers of corrugated board generally attempt to raise prices to recover containerboard cost increases. It generally takes approximately two to three months for corrugated board manufacturers, including us, to pass these increases on to their customers.

PRODUCTION FACILITIES AND THE CHP

The following table provides an overview over our ten corrugated board production sites (PW2 - PW12) as well as our two paper mills (PM1 and PM2) and our combined heat and power plant (CHP):

Site	Size (land)	Property owned/ leased	Approximate Annual Production Capacity (in tons, unless otherwise noted)	Use
Douvrin, France (PW2)	68,323 sqm	Owned	Production Capacity: 85,000	• Office space • Corrugated board production • Warehouse
Burg, Germany (PW3)	53,807 sqm	Owned	Production Capacity: 140,000	• Office space • Corrugated board production • Warehouse
Rokycany, Czech Republic (PW4)	126,704 sqm	Owned	Production Capacity: 140,000	• Office space • Corrugated board production • Warehouse
Schüttorf, Germany (PW5).....	131,581 sqm	Owned	Production Capacity: 180,000	• Office space • Corrugated board production • Warehouse/high rack warehouse
Offenbach/Queich, Germany (PW6).....	155,857 sqm	Owned	Production Capacity: 200,000	• Office space • Corrugated board production • Warehouse/high rack warehouse
Strykow, Poland (PW7)	239,138 sqm	Owned	Production Capacity: 170,000	• Office space • Corrugated board production • Warehouses/high rack warehouse
Plössberg, Germany (PW9).....	27,608 sqm	Leased	Production Capacity: 100,000	• Office space • Corrugated board production • Warehouse
Trzcinica, Poland (PW10).....	27,620 sqm	Owned	Production Capacity: 125,000	• Office space • Corrugated board production • Warehouse
Drizzona. Italy (PW11)	24,722 sqm	Leased	Production Capacity: 100,000	• Office space • Corrugated board production • Warehouse
Ellesmere Port, United Kingdom (PW12).....	178,588 sqm	Owned	Production Capacity: 200,000	• Office space • Corrugated board production • Warehouse
Burg, Germany (PM1)	235,522 sqm	Owned	Production Capacity: 420,000	• Office space • Containerboard production • Warehouse
Eisenhüttenstadt, Germany (PM2)	256,125 sqm	Owned	Production Capacity: 680,000	• Office space • Containerboard production • Warehouse
Eisenhüttenstadt, Germany (CHP)	67,585 sqm	Owned	Energy Generation Capacity: 150 MWth (steam) and 32 MWel (electricity)	• Office space • Combined heat and power plant • Refuse-derived fuel bunker

PROCUREMENT/PURCHASING

Overview

Our most important purchasing items include recycled paper, containerboard, energy and freight, which collectively accounted for 75% of our total procurement volume in 2017 and 77% in 2018. For these purposes, total procurement

volume is defined as cost of material, other operating expenses and income from passing through the cost of gas to Sales & Solutions GmbH.

The following table sets forth the total cost in euros for each of these items in the year ended December 31, 2016, December 31, 2017 and December 31, 2018, the three months ended March 31, 2018 and March 31, 2019 and the twelve months ended March 31, 2019:

	Year ended December 31,			Three months ended March 31,		Twelve months ended March 31,
	2016	2017	2018	2018	2019	2019
	(unaudited) (€ in million)					
Recycled paper	146	163	116	35	29	111
Containerboard	114	160	247	49	55	253
Energy[1]	53	54	70	17	17	71
Freight[2]	61	62	67	17	19	69

(1) In addition to the cost of electricity, gas and steam, "Energy" also includes the cost of water and waste water treatment as well as income from passing through the cost of gas to Sales & Solutions GmbH in 2016, 2017 and 2018. Therefore, energy cost stated above differ from the energy cost shown as part of cost of materials.

(2) In 2016, we re-classified certain accounts within operating expenses in further development of our investor reporting. As a result, the way we calculate freight expenses for the years ended December 31, 2016 as presented in the table above differs slightly from the way we previously calculated them.

Other procurement items, such as starch or maintenance services, accounted for an aggregate of €143 million in 2017 and €152 million in 2018.

Most of our procurement and purchasing activities are concentrated in a centralized purchasing organization at our headquarters in Landau, which is responsible for purchasing containerboard, freight services, energy as well as other supplies. In addition, our two paper mills in Burg and Eisenhüttenstadt have local purchasing departments that are responsible for "technical" purchases, including starch, chemicals, maintenance services as well as other technical supplies. Our local purchasing department at our paper mill in Eisenhüttenstadt also centrally handles all purchases of recycled paper for the Group. By centralizing many of our purchasing activities, we aim to maximize our purchasing power, while at the same time building a high degree of expertise. The markets and prices for the most important production costs in our business, such as containerboard, energy and recycled paper, are driven by international supply and demand and require Group-wide purchasing strategies in order to optimize results. Our strategies include a mixture of mid-term supply contracts and spot purchasing of raw materials.

The main raw material for the production of containerboard is recycled paper. As described above, all recycled paper for the Group is purchased centrally by our local purchasing department at our paper mill in Eisenhüttenstadt. In 2017 and 2018, Paper purchased a total of approximately 1,133,000 tons and 1,121,000 tons, respectively, of recycled paper from a broad portfolio of more than 50 suppliers. Prices for recycled paper have been highly volatile in the past. By improving our supplier portfolio management, we have been able to improve our average purchasing conditions in recent years. In making our purchasing decisions with respect to recycled paper, we can choose from a wide variety of suppliers. For the bulk recycled paper grades B12 and B19, we have entered into long-term supply agreements with a volume of 1,163,200 tons, which we expect to cover effectively all our related requirements. We purchase approximately 9% of our total recycled paper requirements under fixed volume contracts with a term of between one and four years and either fixed prices or index-linked prices. For approximately 49% of our total recycled paper purchases, we renegotiate prices on a monthly basis. Approximately 51% of our recycled paper purchases involve prices linked to relevant indices, such as Euwid or indices published by the German Federal Statistical Office (*Statistisches Bundesamt*).

The main input cost for our production of corrugated board is containerboard. In 2017 and 2018, Board purchased approximately 1,073,000 tons and 1,227,000 tons, respectively, of containerboard. Approximately 75% to 85% of which were supplied internally by Paper. The remainder was purchased from a portfolio of approximately 30 external

containerboard suppliers. External purchases of containerboard primarily involved purchases of kraftliner and white testliner. To reduce transportation costs for shipments of containerboard from our paper mills to our corrugated board production sites, we also enter into swap agreements with other containerboard producers from time to time. By maintaining a high share of internally sourced containerboard, we can ensure a consistently high quality of the containerboard we use, which has a positive impact on the operational performance of the equipment we use in our corrugated board production processes. In addition, our own containerboard production capabilities at Paper allow us to cater to the specific needs of our corrugated board production at Board.

Energy

The production of containerboard is very energy intensive. The operation of our two paper mills accounted for 91% of the total energy consumption of all our production sites (i.e. not including energy consumption of our headquarters in Landau) in 2018, and the operation of our ten corrugated board productions sites at that time together with our CHP accounted for the remainder. Electricity and steam are the primary forms of energy required for our production operations.

Notwithstanding increases in production volumes, our energy costs have declined in recent years for a variety of reasons, including (i) our efforts to reduce energy consumption, in particular with regard to PM2, (ii) falling energy prices, (iii) the optimization of our energy procurement processes, (iv) the optimization of the operating costs of the CHP, in particular with regard to ash disposal, as well as (v) the full utilization of all available accommodations, credits and refunds under applicable energy laws and regulations. For more information about our energy management efforts, see "*—Sustainability Focus; Research and Development*".

In addition, the CHP ensures a reliable, long-term supply of steam to PM2. As a back-up solution for the supply of steam in case of a maintenance or other shutdown of the CHP, a nearby power plant in Eisenhüttenstadt can also supply steam to the PM2. The CHP Acquisition was a significant further step in our efforts to optimize our cost structure as significantly reduced our energy costs as a result of the CHP Acquisition. See "*Management's Discussion and Analysis of Financial Condition and Results of Operations—Key Factors Affecting Our Results of Operations—The CHP Acquisition*". Other energy supply agreements we enter into typically have a maximum term of one year. For larger energy procurement quantities, we may make use of tranche models to contract for annual volumes at different times, for different tranches and prices of our total energy requirements and for different periods. This allows us to maintain a maximum amount of flexibility to respond to changing market conditions.

Freight/Logistics

At each step of our internal value chain and production processes, we coordinate and monitor complex logistics processes to ensure the efficient flow of materials and products. This includes the shipment of large rolls of containerboard from our two paper mills in Germany to our ten corrugated board production sites in the Czech Republic, France, Germany, Italy, Poland and the United Kingdom as well as the shipment of our finished corrugated board to our customers in the packaging industry (box plants).

We meet our freight and logistics requirements mainly through the use of external logistics companies and, to a much lesser extent, our own fleet of currently 59 trucks. Due to the relatively large size and weight of our products compared to value, freight and logistics expenses play an important role in the profitability of our business. The selection and commissioning of our external logistics partners is centrally organized by our logistics department in Landau, supported by our logistics specialists at Logistics in Burg.

The support of our own team of logistics specialists at Logistics also provides us with real-time insight into the latest developments in the market for transportation services, which allows us to strategically employ the use of our own fleet of trucks. In addition, our own fleet gives us the ability to cover temporary capacity constraints in the market. Other targeted optimization measures which have resulted in a reduction of related transportation costs include (i) the development of specialized transport cradles for our containerboard rolls, which allow for a more efficient use of the cargo hold of each truck, (ii) the hiring of trucks with cargo holds best suited for our transportation needs, (iii) improved journey planning and (iv) better coordination of loading and offloading times.

SALES AND MARKETING

Our sales team is tasked with achieving the sales, margin and volume targets defined by our management. A central element of our sales efforts is the provision of strong customer support for our existing customer base and the establishment and maintenance of strong relationships with purchasing managers and other key decision makers within our customers' organizations. Other key elements of our sales efforts involve winning new customers, especially in new markets, and the introduction of new products.

To ensure we meet the targets defined by our management, we have implemented a sales management system within our sales organization that is designed to monitor our performance against our volume targets. In addition, we have implemented a centralized pricing system to ensure a proper framework for achieving our sales and margin targets.

Our marketing team supports our sales team and provides it with market-focused concepts and a full set of marketing tools. In addition to supporting the Group-wide targets defined by our management, our marketing efforts are also aimed at further strengthening our product brands (e.g., Progroup Paper, Progroup Board, Progroup Logistics, next fibre®, next board® and next box®) and maximizing their value.

A key condition for a consistent brand image is the presentation of a clear and consistent external appearance, which we try to ensure through a full package of coordinated marketing tools and marketing activities. We believe this also benefits our packaging customers, as it can help support their own product marketing with their end-customers.

In 2018, our sales and marketing teams employed an average of 42 full-time employees (40 in 2017).

INFORMATION TECHNOLOGY AND PROCESS MANAGEMENT

As described above, we principally generate revenue through the sale of containerboard and corrugated board. Our mills primarily sell the containerboard we produce to Group-owned converting operations and we sell our corrugated board to our third-party customers in the packaging industry. The operation of our production plants as well as our sales and service activities depend on the efficient and uninterrupted operation of complex and sophisticated computer, telecommunication and data processing systems.

Our value chain starts with recycled paper, which is the primary raw material in the production of containerboard. In managing our supply of raw materials, we need to constantly monitor our internal needs for containerboard, which we primarily meet through our own mills in Burg and Eisenhüttenstadt as well as, to a much more limited extent, third party containerboard producers.

Between each of the further steps along the value chain and our production process, we need to coordinate and monitor complex logistics processes to ensure the efficient flow of materials and products. This includes the shipment of large rolls of containerboard from our mills to our corrugated board plants at ten other locations in the Czech Republic, France, Germany, Italy, Poland and the United Kingdom as well as the shipment of our finished corrugated board to our customers in the packaging industry (box plants).

Our corrugated board plants process up to approximately 4,600 individual customer orders for corrugated board each day with a total volume of approximately 9.88 million square meters. At each plant, we prepare and load up to 90 truckloads of corrugated board every day.

Our IT infrastructure needs to be able to support all these processes, including by helping us to optimize:

- our use of raw materials (raw material management);
- our production planning and production control (minimization of cutting scrap);
- our warehouse management for both raw materials and finished products; as well as
- the coordination of loading and offloading times.

In 2018, approximately 69% of purchase orders for corrugated board from our Board customers were received electronically (69% in 2017), and all material core processes, which need to be coordinated and timed efficiently to ensure the smooth and efficient operation of our production processes, are being controlled by our central WEPAFORM-server and by local WEPAFORM servers at each plant.

WEPAFORM is our proprietary core ERP system we use across the Group and which implements our internal know-how in the form of best practices and rules of conduct. The functionality of WEPAFORM covers all our core processes, including order processing, raw materials planning, production planning, production control as well as warehousing, shipment and invoicing. WEPAFORM implements both the rules of conduct of our individual departments as well as those rules of conduct that apply Group-wide, which ensures the implementation of our Group-wide business strategies.

For example, in response to a requested delivery date in a customer purchase order, we try to automate, as much as possible, the confirmation of the actual delivery date for products covered by the relevant order. This actual delivery date will be

determined based on a combination of factors, such as optimal transportation planning (including with regard to load capacity, offloading times and punctuality) as well as optimal production planning (*i.e.*, feasibility and minimization of cutting scrap). This determination, in turn, will take account of all other pending orders at the time as well as the availability of freight options. All these complex determinations are controlled and automated through WEPAFORM.

While all our core processes are covered by our proprietary WEPAFORM system and we use our e-box platform for purchase order related electronic communications with our Board customers, we also use a number of additional software applications to support other business processes, including standard non-proprietary applications for accounting (SAP), payroll processing (LOGA) and equipment maintenance (MAXIMO) and transport management for Logistics (Carlo).

To support the various software applications we use within the Group, including WEPAFORM, we operate our own data centers. Our main data center is located in Offenbach a.d. Queich, Germany, and is connected to our headquarters in Landau, Germany, with a dedicated line. All our German sites are connected via leased MPLS lines to our main data center, while our foreign production sites are connected to our main data center via VPN over the Internet. At our site in Burg, Germany, we operate a local area network (LAN) which connects our local containerboard (Board), corrugated board (Paper) and logistics operations (Logistics) and which, in turn, is connected to our main data center via leased MPLS lines. To reduce the risk of a disruption of individual Internet connections between our various facilities and our main data center, we maintain alternative back-up Internet routes for each facility. Additionally, to ensure business continuity on application level for our core production processes, we operate WEPAFORM manufacturing execution processes edge datacenters in our plants in case of network issues. To host our software applications, we use ESX-Server farm based on NETAPP Storage systems. Relevant software applications are made available remotely to all users with the Progroup network via CITRIX XenApp.

In 2018, our IT department employed an average of 20 employees (16 in 2017), including management positions, team leaders, administrative assistants and software developers. In addition, we worked with five external IT consultants and, with regard to the non-proprietary applications we use, cooperated with the relevant software developers and their partners. Given the strong reliance of our business on information technology, the success of our business depends on our continuing ability to attract and retain qualified IT personnel in the long-term, which has been challenging in the past given an increasing shortage of qualified personnel, especially in Germany.

SUSTAINABILITY FOCUS; RESEARCH AND DEVELOPMENT

Promoting the sustainability of our core businesses, *i.e.*, the production of containerboard and corrugated board, has been a key priority for our Group, not only from an environmental perspective, but also as a matter of pure economic necessity. Containerboard cannot generally be differentiated by producer, and this standardization has led to intensified price competition within our industry. In addition, our operating results are significantly impacted by the containerboard and corrugated board industry's historical cyclical pattern, with periods of overcapacity and resulting pressure on the pricing of our products. These pressures can be further exacerbated by significant volatility in our key input costs, in particular the cost of recycled paper, energy costs and freight costs.

As a result, we are forced to continuously improve our product designs, optimize the utilization of our assets and explore new ways to further reduce our input costs. In practice, this means that we are undertaking significant and ongoing efforts to further reduce the use of fibre (*i.e.*, recycled paper) in our products as well as the amount of energy required for our production processes and the shipment of our products, which helps us both to maintain a cost leadership position within our industry (with the goal of safeguarding our profit margins) and to help the environment by reducing our CO_2 footprint.

As a result of the factors described above, we believe there are general "mega trends" towards lighter and more functional packaging and towards a more efficient use of resources. The trend towards "light paper" (*i.e.*, containerboard) has been particularly strong in Germany and has been further strengthened by high growth rates in e-commerce, which have led to an increase in demand for light and safe packaging solutions.

We believe that we are particularly well-positioned to capitalize on these trends with our paper mill in Eisenhüttenstadt, Germany (PM2), which specializes in the production of super-light-weight to medium-weight containerboard with grammages of 60-130g/m^2. With regard to the production of super-light-weight containerboard (with a grammage below 90g/m^2), which is currently particularly sought-after in the market, we believe that our paper machine PM2 gives us a significant advantage over many of our competitors, both in terms of efficiency and product quality. Based on a study by Vision Hunters, we believe PM2 is among the world's most advanced paper machine for recycled super-light-weight paper and has set five new world records since its launch in 2010. Our subsidiary Progroup Paper PM2 GmbH, which operates our paper mill in Eisenhüttenstadt, is certified under the Eco-Management and Audit Scheme ("**EMAS**"), a voluntary scheme set up by the European Union that is designed to help companies to continuously improve their environmental performance. The EMAS certification of Progroup Paper PM2 GmbH also carries several advantages for our business. Among other advantages, it (i) results in simplified reporting obligations under the German Federal Emission Law (*Bundes-*

Immissionsschutzgesetz, "**BImSchG**"), (ii) allows us to take advantage of certain accommodations and credits under the German Renewable Energy Law (*Erneuerbare-Energien-Gesetz*, "**EEG**") and the German Co-Generation Law (*Kraft-Wärme-Kopplungsgesetz*, "**KWKG**"), (iii) serves as the basis for certain energy tax refunds in Germany, (iv) allows us to take advantage of certain fee discounts in connection with certain regulatory approval processes in Germany, and (v) generally improves our corporate image as an "eco-friendly" company. The current EMAS certification for our mill in Eisenhüttenstadt and Power is valid until July 4, 2020 and June 4, 2020, respectively .

To support the EMAS certification of Progroup Paper PM2 GmbH as well as other environmental certifications and to generally improve our energy management, we have implemented energy management systems ("**EnMS**") at our two paper mills in Eisenhüttenstadt and Burg, the operation of which is particularly energy intensive, as well as all of our corrugated board production sites. In addition to the advantages described above, the implementation of EnMS at our various sites also has the following benefits for our business: (i) it helps us monitor compliance with applicable environmental regulations, (ii) increases the transparency of our internal production processes, (iii) enables a clear allocation of internal responsibilities and tasks, (iv) serves as the basis for potential efficiency improvements by helping us identify potential cost savings, and (v) reduces the risk of potential environmental liability. The containerboard produced by both our two paper mills is also certified by the Forest Stewardship Council (FSC).

In addition, we spent significant time, expense and effort developing a "green" range of "next generation" products working in a close cooperation with BHS Corrugated GmbH, one of our equipment suppliers, and a team of researchers at the University of Applied Sciences (*Hochschule für angewandte Wissenschaften*) in Regensburg, Germany, over a period of several years. We market the resulting products under our own brands next fibre®, next board® and next box®. All these product innovations involve the use of the super-light-weight containerboard produced by our paper machine PM2 as well as innovative flute designs/corrugated board formats.

Next fibre® is the brand under which we market a new generation of super-light-weight containerboard produced by our paper machine PM2. Our goal in developing this new generation of containerboard was to minimize the amount of fibre and energy used in its production, while at the same time maximizing its performance. The result of our efforts is a much lighter containerboard with consistently high paper homogeneity and a much optimized production process in terms of energy consumption, repulping and moisture monitoring. In addition, TÜV Rheinland, an independent German standards organization, certified significant reductions in the CO_2 footprint for our next fibre® containerboard, specifically a 52% reduction in CO_2 emissions per ton of paper produced compared to conventional containerboard. In addition, next fibre® containerboard features significantly more roll weight running meters per containerboard roll during transport as a result of the reduced weight, resulting in further reductions in CO_2 emissions by 11% and 24% for grammages of 90g/m^2 and 80g/m^2, respectively.

Next board® is the brand under which we market our new generation of corrugated board products produced with our next fibre® containerboard. Due to a combination of the use of the lighter containerboard and innovative and improved flute designs and general board architecture, this range of corrugated boards is not only lighter than conventional corrugated board, but also offers our customers better performance characteristics, a better surface and printability, lower logistics costs and a better life-cycle assessment. The improvements due to the new board designs include edge crush resistance (ECT) values which are up to 15% higher compared to conventional corrugated board with the same weight/raw material content. Next board® products also feature an average reduction in CO_2 emissions per ton of corrugated board of 15% compared to conventional corrugated board, as certified by TÜV Rheinland, a 5% reduction in CO_2 emissions during transport and a 16% increase in the loadable corrugated board surface area, meaning that approximately one in every seven truck journey can potentially be avoided.

Next box® is a label we make available to our packaging customers they can use for eco-friendly and sustainable packaging produced with our next board® corrugated board products. Next board® corrugated board allows for more exact processing compared to comparable conventional corrugated board, as well as more reliable machinability and higher running rates. Next box® packaging features a smooth look without any ripple effect and permits optimal printing results due to our improved corrugated board designs. In addition, next box® products allow for more efficient storage and reduce transportation costs due to the reduced raw material content. We believe that sustainability and eco-friendliness are of increasing importance to our customers, especially in Germany. To allow our customers in the packaging industry as well as their end-users to highlight their own commitment to sustainability, we therefore make our next box®—reduced CO_2 label available to them, which can be stamped on all next box® packaging.

EMPLOYEES

In 2018 we employed an average of 1,096 employees (excluding trainees) in six countries (1,040 for the year ended December 31, 2017). Approximately 71% of our employees are employed at our headquarters in Landau, Germany, and at our six production sites in Germany. As of December 31, 2018, we had 314 employees outside of Germany, including 48

employees in France, 60 employees in the Czech Republic, 119 employees in Poland, 61 employees in the United Kingdom and 42 in Italy.

Our workforce is characterized by low fluctuation levels, and the average job tenure of our employees across all our sites is seven years. As a result of our continuous hiring strategy and long-standing training programs, we believe our workforce currently has a well-balanced age structure. As of December 31, 2018, we had 34 trainees.

With the exception of our employees in France and at Progroup Power 1 GmbH, our workforce is not subject to any collective bargaining agreements and there are no works councils. In accordance with the French Works Constitution Act, a works council represents our employees at our corrugated board production site in Douvrin, France. At Progroup Power 1 GmbH our employees are also represented by a works council.

INSURANCE

We maintain various insurance policies for different aspects of our business. These policies are centrally managed by our legal and insurance department in Landau, with the support of our insurance broker S&P Schulz & Partner GmbH, Mannheim. Our insurance coverage includes all-risk policies insuring against property destruction, damage and loss, as well as against any business interruption directly resulting from any property damage. In addition, we maintain liability insurance coverage with regard to general operating liability, radiation liability and environmental liability, as well as transport and accident insurance. We obtain insurance coverage for particular risks based on an internal risk analysis. We believe that we maintain adequate insurance coverage commensurate with our business and production volumes and in line with industry practice, with deductibles and coverage limits that we believe to be reasonable and appropriate. We continuously re-evaluate the appropriateness of our insurance coverage in the ordinary course. There can be no assurance, however, that we will not suffer losses that may either not be covered by insurance or that may exceed the coverage amount under the relevant insurance policies.

REGULATORY ENVIRONMENT

Our business, and in particular the operation of our production sites, is subject to various regulatory requirements. Applicable laws and regulations may differ from site to site due to different national and local laws. The regulatory requirements relate in particular to our production processes and include, *inter alia*, laws and regulations relating to health and safety measures for employees, the technical safety requirements for operating machines, the use and handling of chemicals, air and water emissions, soil contamination and the management and disposal of waste, hazardous and toxic substances and other materials. For our sites and operations, we are required to obtain and hold various permits and to comply with the requirements specified therein. We are further subject to foreign trade laws and may be required to pay export duties or customs duties on materials and products that we export and import. We are subject to further regulations in the various jurisdictions in which we operate, including antitrust laws and zoning and occupancy laws that generally apply to manufacturing businesses and/or govern the promotion and sale of the products we offer, the operation of our facilities and our relationships with customers, suppliers and competitors. The following is an overview of the main laws and regulations that are relevant to our activities in Germany. Local laws and regulations that deal with similar aspects apply in other jurisdictions in which we operate production sites or sell our products.

Environmental Laws

We are required to comply with various environmental laws and regulations. In particular, our operations are subject to laws and regulations designed to limit emissions. In Germany, the construction and operation of our paper mills requires active permits under the Federal Emissions Protection Act (*Bundes-Immissionsschutzgesetz*, "**BImSchG**"), which encompasses various approvals necessary for the construction and operation of facilities pursuant to other laws, including public-law approvals, registrations and consents. The operation of the relevant facility can generally not be challenged or contested by third parties as long as the respective facility operates in compliance with its permit. In such cases, third parties can only require certain measures to mitigate any negative impact of a facility on the environment. To the extent such measures are impossible or uneconomical to implement based on state-of-the-art technology, the relevant third parties may only claim damages. Permits and additional administrative orders under the Federal Emissions Protection Act may impose certain limitations (e.g., stricter requirements with regard to permissible emissions or the use of the relevant facilities), with which we have to comply. To the extent new legal standards are introduced, permits will not be grandfathered but adjusted so they meet the relevant new standards. A violation of the operator's duties as determined in the respective permit (or an additional administrative order) or a modification of the relevant legal standards may also lead to a restriction or, in severe cases, a prohibition of the further operation of the facility and/or the revocation of its permit under certain circumstances. The competent authority may also impose administrative fines or even ask for removal of the facility.

Moreover, the operation of our two paper mills is subject to the various duties of the Federal Water Management Act (*Wasserhaushaltsgesetz*, "**WHG**"), the State Water Acts in each of the German states (*Landeswassergesetze*) and the

respective federal and/or state ordinances (*Rechtsverordnungen*). These regulations govern our use of water during production. According to the Federal Water Management Act, as well as the corresponding State (*Länder*) laws, the use of water generally requires the approval by the competent authority. In particular, the extraction of above-ground water, the discharge of waste water and the pouring and discharge of materials are all aspects of our containerboard production that require regulatory approval. In cases of violations of the relevant provisions, we may be required to pay damages or become subject to penalties. Depending on the type of permit, it may be limited in time and it may either be revoked any time or only under certain circumstances.

The CHP in Eisenhüttenstadt (Power) also requires various regulatory approvals for its operation, particularly under the BImSchG and the 17th Ordinance to the BImSchG on the incineration and co-incineration of waste. Furthermore, operations have to comply with the applicable greenhouse gas emissions caps. See "*—Regulation governing the Operation of the CHP—Environmental laws and other related laws and regulations*" and "*—Regulation governing the Operation of the CHP—Carbon Emission compliance*" below.

Both our paper mills are subject to the German Radiation Protection Ordinance (*Strahlenschutzverordnung*, "**StrlSchV**") due to the fact that our paper machines include various measuring devices (e.g., for measuring paper basis weights, paper moisture and/or paper ash) that rely on the use of a number of slightly radioactive isotopes (*i.e.*, Cobalt-60, Krypton-85, Cesium-137 and/or Iron-55). The use of these materials and devices is common in the paper industry as well as in other industries. They are applied in enclosed form, *i.e.*, isotopes are enclosed by a protective cover to avoid any release of radiation. When the isotopes are not in use, they are further shielded with steel plates. According to Sec. 7 of the Radiation Protection Ordinance, the handling of the relevant radioactive isotopes requires permits, which we have obtained. Even if these permits would be revoked, however, we would be able to switch to using different measuring devices based on different technologies. We also maintain insurance coverage for liability resulting from radiation.

Waste Legislation and Regulations

The use of waste (as a substitute fuel within Power's CHP) is subject to European and German waste legislation. Among others, the German Act on the Federal Waste Management Act (*Kreislaufwirtschaftsgesetz*, "**KrWG**") and corresponding regulation, such as the Packaging Act (*Verpackungsgesetz*, "**VerpackG**") and the List of Wastes Ordinance (*Abfallverzeichnisverordnung*, "**AVV**"), stipulate certain standards and requirements. Apart from that, the use of waste containing Hexabromcyclododecan ("**HBCD**"), which is, *inter alia*, contained in insulation boards that in the past have been used as a substitute fuel within the CHP, was subject to usage restrictions and additional documentation requirements under the Regulation (EC) No. 850/2004 on persistent organic pollutants ("**POP Regulation**"). Power has held meetings with its suppliers to resolve potential issues in this respect.

Chemicals Legislation and Regulations

We use a number of chemicals in our production processes and are therefore subject to Regulation (EC) No. 1907/2006 concerning the Registration, Evaluation, Authorization and Restriction of Chemicals ("**REACH**"). The aim of REACH is to improve the protection of human health and the environment through better and earlier identification of the intrinsic properties of chemical substances. REACH places greater responsibility on industry participants to manage the risks from chemicals and to provide safety information on the substances. As a "downstream user" pursuant to REACH, we are primarily required to adhere to the recommended risk reduction measures, to forward our customers and suppliers the relevant information and, if necessary, to arrange for a chemical safety report to be prepared.

In addition, we are subject to the provisions of the German Chemicals Act (*Gesetz zum Schutz vor gefährlichen Stoffen—Chemikaliengesetz*, "**ChemG**") and related ordinances (*Rechtsverordnungen*). The Chemicals Act is intended to minimize the risks from chemicals for humans and the environment. Based on the Chemicals Act and related regulations, the competent authorities have the power to—among others—require that certain materials or chemicals (i) may either not be produced, marketed or used at all, (ii) may only be produced, marketed or used in a certain manner or for specific purposes, (iii) may only be used under certain circumstances or (iv) may only be distributed to certain persons. We are not aware of any such orders having been issued by the German government authorities that would have an impact on our business.

Soil Contamination

Pursuant to the German Federal Soil Protection Act *(Bundes-Bodenschutzgesetz*, "**BBodSchG**"*)*, the responsibility for residual pollution and harmful changes to the soil lies with the party who caused a harmful soil change or a contaminated site, its universal successor, the relevant property owner, the occupant of the relevant real property and, if the title was transferred after March 1, 1999, the previous owner of the property, if they knew or must have known about the contamination. There is no general statutory ranking as to which of the aforementioned parties is primarily liable. Rather, this decision is made at the discretion of the relevant local authority who will take into account the effectiveness of remediation as a prevailing factor. Thus, the current owner of the contaminated property is usually the first party to be held

responsible because the owner is generally in the best position to undertake the necessary remediation work. However, the other responsible parties are required to indemnify the party that carried out the remediation work, regardless of which party is held liable by the relevant local authority. Where no other arrangements are agreed upon, the obligation to provide compensation and the extent of the compensation to be provided depend on the extent to which the hazard or damage was caused primarily by one party or the other. Liability is not based on fault. Thus, the BBodSchG does not require the relevant local authority to prove negligence or intent on the part of the liable parties.

According to the BBodSchG the competent authority may require risk inspections, investigations, remedial measures and other measures necessary for the prevention of residual pollution or harmful changes in the soil.

Regulation governing the Operation of the CHP

General overview

As a result of the CHP Acquisition, we are subject to a wide range of laws and regulations specifically governing the German energy sector.

The key legislation containing the core provisions of German energy law is the Energy Industry Act (*Gesetz über die Elektrizitäts- und Gasversorgung—Energiewirtschaftsgesetz,* "**EnWG**").

Other laws and ordinances specifically relevant to the energy sector and the CHP include:

(i) the Co-Generation Act (*Kraft-Wärme-Kopplungsgesetz,* "**KWKG**");

(ii) the Ordinance on Tariffs for Electricity Grid Access (*Stromnetzentgeltverordnung,* "**StromNEV**");

(iii) the Ordinance on Incentive Regulation (*Anreizregulierungsverordnung,* "**ARegV**");

(iv) the Federal Emission Protection Act (*Bundes-Immissionsschutzgesetz,* "**BImSchG**");

(v) the Green House Gas Permission Trading Act (*Treibhausgas-Emissionshandelsgesetz,* "**TEHG**");

(vi) the Energy Tax Act/Electricity Tax Act (*Energiesteuergesetz/Stromsteuergesetz,* "**EnergieStG**"/"**StromStG**");

(vii) the Energy Services Act (*Energiedienstleistungsgesetz,* "**EDL-G**") and

(viii) the Electricity Grid Access Ordinance *(Stromnetzzugangsverordnung,* "**StromNZV**"*).*

Energy Industry Act (EnWG) and related regulation

The EnWG provides, inter alia, the legal framework for ensuring competition within the German energy markets, mainly by regulating electricity and gas networks to ensure reliable and efficient supply networks. It also implements relevant EU law in relation to energy supply. Companies that supply third parties with energy or own or operate transmission and distribution networks have to ensure that electricity is supplied in accordance with these aims.

Grid access and network tariffs

As grid operators enjoy a natural monopoly, electricity grid operators are obligated to provide connection to and use of electricity grids without discrimination and in a transparent manner.

Electricity grid operators are required to connect third parties, such as generation facilities (including the CHP), to the grid. The conditions for a connection must be non-discriminatory, proportionate, transparent and not less favorable than the conditions granted to a grid operator's own, affiliated or associated undertakings. A grid operator may refuse the connection if it is, for operational or other economic or technical reasons, impossible or unreasonable. The burden of proving that a connection is economically or technically impossible or unreasonable lies with the grid operator.

Tariffs for grid access are determined by the grid operators in accordance with incentive regulation based on the ARegV and the StromNEV. Under these regulations, revenue caps are set by the regulatory authority for each grid operator for a regulatory period of up to five years based on the cost base of the business three years prior to the start of the regulatory period. The revenue cap displays the average total costs of the grid use in consideration of permanent non influenceable costs (e.g. tax, duties), temporary non influenceable costs, and influenceable costs (also referred to as "inefficiencies").

Besides potential profit from cost reductions, the grid operators can gain a reasonable interest from the used capital. The provisions of the StromNEV and the Ordinance on Tariffs for Gas Grid Access (*Gasnetzentgeltverordnung*) define how to assess the level of the equity interest rate (*Eigenkapitalverzinsung*) before each regulation period. The equity interest rates are set by the German Federal Network Agency (*Bundesnetzagentur*, "**BNetzA**"). For the third regulation periods for gas (2018 to 2022) and for electricity (2019 to 2023), the BNetzA has significantly reduced the equity interest rates. These amendments have led to significant controversies within the energy industry and appeals have been filed at the competent Higher Regional Court of Düsseldorf (*Oberlandesgericht Düsseldorf*, "**OLG Düsseldorf**") by distribution and transmission system operating companies that are or will be affected by the decrease of the equity interest rate. According to the ruling of the OLG Düsseldorf of March 22, 2018 the reduction of the equity interest rates was unlawful. Currently, the case is pending before the German Federal Court of Justice (*Bundesgerichtshof*, "BGH"), after the BNetzA had lodged an appeal against the OLG Düsseldorf's ruling. A decision is announced to be released on July 9, 2019.

Grid operators' rights in case of congestion and emergency

Pursuant to the EnWG, electricity grid operators are obliged to ensure the security and reliability of the grid. Therefore, they are entitled and required to take the necessary actions to avoid any risks to the security or reliability of the grid. If the security or reliability of the grid is endangered or disturbed, grid operators are required and authorized to rectify the problem by making use of (i) grid-related measures, which entail technical measures that do not involve the network users, such as internal energy balancing or pressure adjustment; and/or (ii) market-related measures which involve certain network users. Market-related measures are based on contractual agreements between the grid operator and certain users relating to the feed in and off-take of energy which allow energy balancing and making use of interruptible capacities (capacity bookings which are not firm and, therefore, may be interrupted). If the grid operator cannot eliminate the disturbance by making use of any of these measures, the operator is entitled to adjust and/or reduce feed-ins, electricity transits and electricity off-takes without any obligation to pay compensation. In principle, feed-ins from conventional generation must be reduced before feed-ins from co-generation facilities (such as the CHP) or renewable energy facilities. However, if the grid operator has unreasonably rejected proposals by generation installation operators to conclude agreements on interruptible capacities, compensation must be paid by the grid operator. Furthermore, compensation must be paid to co-generation and renewable energy installations in case of a reduction of feed-ins if disturbances are caused due to grid congestion.

Relevant Amendments of the EnWG and related developments since 2016

In 2016, the EnWG was amended by the Electricity Market Act (*Strommarktgesetz*), inter alia, to strengthen the principle of free pricing in the electricity markets, to establish the basis for further reporting requirements for market participants (including power plant operators) under a central electronic directory of energy-related data (the so-called *Marktstammdatenregister* ("**MaStR**")), and to implement certain safety measures regarding capacity reserves (namely the so-called "*Kraftwerksreserve*", "*Netzreserve*" and the "*Braunkohlereserve*") to ensure the availability of sufficient power capacity. In adopting the amendments, the German legislator essentially affirmed the existing market model (*Energy-only-Market*, "**EOM**"), rejecting calls to implement a wide capacity market in response to recent turbulences for conventional (co-generation) power plant operators caused by the increases in renewable energy generation and the significant drop in prices in the electricity wholesale markets. Based on Sections 111e and 111f of the EnWG, the regulation on the *MaStR* (*Marktstammdatenregisterverordnung*, "**MaStRV**") entered into force on July 1, 2017. All actors in the electricity and gas market must register in the directory (*Marktstammdatenregister*, "**MaSTR**") for all stationary technical facilities that generate, store or consume electricity or gas. The MaStR creates a comprehensive regulatory register for the electricity and gas market that can be used by public authorities and market actors in the energy sectors. The recourse to the master data of the MaStR represents a significant increase in data quality and data simplification for many energy industry processes. Many regulatory reporting requirements can be standardized, simplified or completely abolished by centralized registration. The MaStR is still under construction. Electricity and gas network operators can only currently register their company in the MaStR web portal. The MaStR has been opened to the market players on January 31, 2019. All market players, depending on the date of their commissioning process (before/after July 1, 2017), are obliged to register or to verify the existing data, at the latest by January 31, 2021.

To further support the functioning of electricity markets, the German Renewable Energies Act (*Erneuerbare-Energien-Gesetz*, "**EEG**") has also been revised multiple times. The most significant amendments include the definition of expansion targets and the progressive transition to a comprehensive tendering system for all renewable energy technologies. The EEG provides for certain exemptions from the energy surcharge for energy-intensive industries. In 2016, the EEG was amended, lowering the required electricity cost intensity for such exemptions from 17% to 14% as of 2017 for certain industries, such as the manufacture of paper and containerboard. The exemptions in the EEG have to comply with the European environmental energy state aid guidelines which are valid until 2020 in the current version. Furthermore, the German provisions have to meet the requirements established by the Directive 2009/28/EC on the promotion of the use of energy from renewable sources (Renewable Energy Directive). Further amendments of the EEG 2016 came into force on January 1, 2017 ("**EEG 2017**"). The EEG 2017 contains two essential innovations. The remuneration of renewable electricity will primarily be regulated by tenders in future, i.e. the amount of subsidy will be determined by the market and no longer by

fixed feed-in remuneration. That ensures the continuous expansion of renewable energies and can reduce the costs of funding provided there is enough competition. Furthermore, the expansion of renewable energies is synchronized with grid expansion. For each technology, certain expansion paths have been set in accordance to the available network capacities. In addition, the expansion of wind power on land in areas with network bottlenecks (*Netzengpassgebiete*) was limited. Most recently, the EEG has been amended by a comprehensive legislative package, the so-called *Energiesammelgesetz* ("**EnSaG**"), which includes amendments of different laws in Germany and entered into force at the end of 2018. As regards the EEG, among others, the expansion paths for wind onshore and photovoltaics have been adjusted. Further, additional tenders regarding these technologies for the years 2019 to 2021 have been implemented. Also, the so-called innovation tenders have been upgraded through larger tender volumes, while the funding tariffs for rooftop photovoltaic systems have been cut. For the self-production of electricity, which under certain conditions is (partially) exempt from the so-called EEG-Umlage (the EEG surcharge), provisions on the metering (or estimate) of own and of third-party electricity consumptions have been introduced. In light of a recent judgment of the European Court of Justice of March 28, 2019, according to which the EEG (2012) does not contain subsidies, it is conceivable that the legal framework will further be revised by the German legislator taking into account that the strict requirements under state aid law do not (directly) apply to the German funding system.

Apart from the amendments of the EnWG and the EEG, (already in 2016) the foundation was laid for the digital transformation of the energy system. With the Act on the Digitization of the Energiewende (*Gesetz zur Digitalisierung der Energiewende*—"**GDEW**"), the Metering Point Operation Act (*Messstellenbetriebsgesetz*—"**MSbG**") has been enacted, which contains provisions on the progressive roll-out of intelligent metering systems. However, implementation has so far been slow.

Besides the developments on German national level, the European legislation has also been amended. On November 30, 2016, the European Commission published a proposal for a revised Renewable Energy Directive (COM(2016) 767 final) to make the EU a global leader in renewable energy and ensure that a target of at least 27% renewables in the gross final energy consumption in the EU by 2030 is met. On January 17, 2018 the European Parliament adopted various amendments to the European Commission's proposal, in particular, to achieve an even more ambitious target of 35% renewables in the Union's energy consumption by 2030. On December 11, 2018 the European Parliament and the Council of the European Union passed the Directive (EU) 2018/2001 (Renewable Energy Sources Directive), which entered into force on December 24, 2018. The Member States are now required to implement this Directive by June 30, 2021 at the latest.

In the context of the general reforms of the EnWG and the EEG it is noteworthy for conventional (co-generation) power plant operators, that the BNetzA and the European Regulation Authority (Agency for the Cooperation of the Energy Regulators—"**ACER**") paved the way for a split of the common German-Austrian pricing zone from October 2018 by ordering grid operators to establish a congestion management at the German-Austrian border. This is due to the technical difficulties and the exploding costs regarding renewable energy that is being produced in the northern regions of Germany and transported to the high-consumption centers in the southern regions of Germany. If the common German-Austrian pricing are ultimately split, this may result in higher wholesale electricity prices in the South of Germany.

Network Fees Modernization Act (NEMoG)

On July 22, 2017, the Act on the Modernization of the Grid Tariff Structure (*Netzentgeltmodernisierungsgesetz*, "**NEMoG**") slightly amended the EnWG, the EEG and the StromNEV to align grid tariffs with the "*Energiewende*". The NEMoG contains two important aspects: The gradual standardization of transmission network charges and the abolishment of the privilege of the so-called "avoided grid tariffs" (*vermiedene Netzentgelte*).

The transmission grid tariffs will gradually adjust nationwide. For implementation, the NEMoG contains an authorization for the enactment of a regulation by the German Federal Government (*Bundesregierung*) with consent of the German Federal Council (*Bundesrat*). The standardization of transmission grid tariffs will be effected in five steps starting from January 1, 2019. From January 1, 2023, the charges for the transmission grids will be uniform throughout Germany. The costs of the transmission grids currently amount to approx. 25% of the total costs of electricity grids.

Furthermore, Section 120 EnWG stipulates the gradual reduction of "avoided grid tariffs", the calculation bases of which will be frozen to the level of 2016 starting from 2018. Regarding the gradual reduction, a distinction is made between volatile (sun and wind) plants (*Anlagen mit volatiler Erzeugung*) and controllable generation plants (e.g. CHP). The "avoided grid tariffs" for new volatile plants are completely abolished since 2018 and for existing volatile plants it will be eliminated in three stages from 2018, i.e. that by 2020, volatile plants will no longer be eligible for "avoided grid tariffs" at all. Regarding controllable plants, "avoided grid tariffs" will not be granted to plants, which start their operation after December 31, 2022.

Co-Generation Act (KWKG)

In the interests of energy conservation, environmental protection and achieving the climate protection targets of the German Federal Government, the KWKG aims to increase the share of electricity generated through more environmentally-friendly co-generation facilities, such as the CHP, to 25% of the overall power generation in Germany by 2020. However, due to the drop in the wholesale electricity prices and due to the ongoing discussions on conventional electricity production, the 25%-target – as of now – will not be achieved.

Grid access and off-take

Grid operators are required to give priority grid access to certain co-generation plant operators, including Progroup Power 1 GmbH as operator of the CHP, with the same priority as that granted to renewable energies and to off-take, transmit and distribute their co-generation electricity on a priority basis. Grid operators are required to off-take the electricity at (i) a price either mutually agreed or determined according to the "standard market price" (if no agreement is reached) *plus* (ii) a certain fixed surcharge and a payment for decentralized feed-in. See "*—Off-take pricing*" below.

Notwithstanding the obligation to purchase, transmit and distribute electricity from co-generation plants and producers of renewable energy, a grid operator is required to ensure the technical stability of the grid and, for this purpose, is entitled to avoid an overload of the grid by managing the feed-in of electricity from all parties feeding electricity into its grid (feed-in/grid congestion management). If after exhausting certain grid-related and market-related measures, the grid operator has not successfully reduced the overload in the grid and congestion remains, it is entitled to reduce the electricity which can be fed into the grid. Within this mandatory reduction, the grid operator is required to treat the electricity from certain co-generation sources (including the CHP), from renewable energy sources (such as wind farms or solar energy) and from mine gas preferentially. The grid operator is required to implement congestion management by which, in principle, feed-in from installations using conventional energy resources (gas, coal, nuclear fuel) must be reduced first. The political parties forming the current German Federal Government have indicated in their coalition agreement that they intend to amend the legal framework for congestion management (including the rules for compensation, if any, to be paid) while maintaining the general concept of priority access for electricity from renewable sources, as well as from co-generation.

In December 2016, the European Commission published the so-called Winter Package, which includes numerous proposals on legislative acts for energy efficiency and the energy markets. Among other proposal, the package includes a proposal to cancel the priority feed-in for co-generation and renewable energy plants with a capacity of more than 250 kilowatt, which start operating after the implementation of the legislative acts.

Off-take pricing

The grid operator has an obligation to off-take the electricity produced at co-generation plants within the meaning of the KWKG, such as the CHP, at a price mutually agreed between the grid operator and the operator of the co-generation plant plus a surcharge. See "*—Surcharge*" below. In addition to the surcharge, the grid operator is required to pay so-called "avoided grid fees" due to the decentralized feed-in by the co-generation plant ("*Entgelt für dezentrale Einspeisung*", Section 18 para 1 StromNEV). If no agreement is reached regarding the electricity price, the grid operator has to off-take the electricity at the "standard market price". The "standard market price" for electricity produced by installations depends on their capacity. For installations with a capacity of up to 2 MWe the average price of base-load electricity is determined by the European Energy Exchange (EEX) during the previous quarter of the year or installations with a capacity of more than 2 MWe—like the CHP—the "standard market price" (depends on the circumstances in the individual case, especially the plant's mode of operation and the predictability of electricity production).

If the co-generation plant operator demonstrates that a third party would be willing to pay a certain price for the electricity produced at the co-generation plant, the grid operator is obligated to purchase the electricity from the co-generation plant operator at this price. In turn, the third party is obliged to purchase the electricity at the price quoted from the grid operator. Thus, the sale of electricity to a third party is carried out through the grid operator as intermediary. The purchase price is actually paid by the third party and the grid operator only pays the surcharge. See "*—Surcharge*" below.

Surcharge

In addition to the purchase price and the "avoided grid fees", grid operators are obligated to pay a legally determined surcharge to the co-generation plant operators, depending, inter alia, on the type of plant, the installed capacity and extent/costs of modernization and retrofitting measures. In contrast to the electricity price and the "avoided grid fee", which the grid operator is only required to pay for the electricity actually fed into the grid, the surcharge must be paid for the entire amount of electricity produced in co-generation. Depending on the type of the co-generation plant, the surcharge is payable for a certain maximum period of time. Plants with a capacity larger than 2 MWe receive the surcharge for a total of 30,000 hours of Full-Load equivalent (FLE).

The KWKG places a cap on the annual aggregate level of financial incentives paid as surcharge under the KWKG. If this threshold is exceeded, surcharges for a certain class of co-generation plants are reduced. Subject to the cap, this loss in surcharges is generally paid in the full amount in the course of the following years before payment of the regular surcharge for these co-generation plants is initiated again.

Amendments of the KWKG and Associated Developments

The KWKG was amended in recent time.

- The KWKG 2016, which entered into force on January 1, 2016, amended the previous scheme of funding co-generation, albeit maintaining the rules on grid access and compulsory off-taking of electricity produced in co-generation. For the newly determined expansion paths, the cap for the annual aggregate level of financial incentives was raised from €750 million to €1,500 million.

- On January 1, 2017, an amendment to the KWKG 2016 entered into force. Most importantly, a tendering system similar to the one under the revised EEG has been established for co-generation plants with an electric capacity of 1 to 50 megawatt as well as for innovative CHP systems. This mainly concerns combined heat and power plants (including the CHP), which feed into the general supply network. Furthermore, the scheme for the reduction of the so-called *KWK-Umlage* (a surcharge, which socializes the costs for the funding of CHP to the end consumers of electricity) for the electricity-intensive industries was adapted to the one in place for the so-called *EEG-Umlage.* For more information, see "*Risk Factors—Risks Related to our Industry and our Business—As a result of the CHP Acquisition, we are directly subject to a wide range of laws and regulations specifically governing the German energy sector and the disposal of waste, which are subject to constant change*".

- The most recent amendment of the KWKG was introduced by the above-mentioned EnSaG, which entered into force by the end of 2018. With this act, among others, the funding of the construction and modernization of CHP installations was extended to 2025.

In addition to these KWKG reforms, the German legislator passed the NeMoG, which includes a revision of Section 18 StromNEV regarding "avoided grid tariffs". In particular, a cap was placed on "avoided grid tariffs" to prevent the relevant tariffs from exceeding the 2016 level. Also it was stipulated to progressively cancel the "avoided grid tariffs" for existing respectively for new plants. For details, see "*—NeMoG*" above.

Carbon Emission Compliance

Germany is party to the Kyoto Protocol as well as to the Paris Agreement, and the Emission Trading Directive 2003/87/EC intends to considerably reduce the output of greenhouse gases. It was transformed into German law by implementing it into the German Greenhouse Gas Emission Trading Act (*Treibhausgas-Emissionshandelsgesetz*, "**TEHG**"). The TEHG introduces an emission trading system ("**ETS**") for CO_2 emission allowances which are traded in certain trading periods, which requires certain energy and industry sectors to comply with the applicable greenhouse gas emissions caps. Overall, only a limited number of allowances—determined in advance for the trading period—are available to emission sources, subject to the emission trading system. Participation in this system has been mandatory since 2005 for all industries with high energy consumption levels, including the paper industry. The regulations of the TEHG state that sources under emission trading obligation are required to obtain approval to emit greenhouse gases, to comply with a cap of emission allowances allocated to them and to maintain a monitoring process to determine and to document their emissions. The legislation also provides for the possibility of trading (selling and buying) excess allowances in the open market and allows for offsets from Joint Implementation and Clean Development Mechanism projects as regulated by the German Project Mechanisms Act to be used in place of emission allowances to a certain extent, which is limited for existing installations to the quota granted for the second trading period (22% of the allocation for the second trading period), to the extent not yet used. Like our two paper mills, the CHP is subject to the ETS.

The overall availability of emission allowances allocated free of charge has been significantly reduced during the second trading period (2008 through 2012) and the third trading period that began in January 2013 compared to the amount of allowances allocated free of charge in the first trading period (2005 through 2007). Under the currently applicable ETS, the EU-wide quantity of emission allowances allocated each year reduced by a linear factor of 1.74% annually as compared to the average annual total quantity of emission allowances issued in the EU between 2008 and 2012. To achieve the target of cutting EU emissions by 40% by 2030 compared to 1990, agreed by the European Council in October 2014 as part of the 2030 climate and energy framework, the cap will be lowered by 2.2% per year from 2021. In addition, from 2013 onwards, the auctioning of emission allowances has been and will continue to be introduced for the manufacturing sector. The quantities of emission allowances allocated free of charge will generally be reduced from 80% in 2013 to 30% in 2020.On March 14, 2018, the 2018 Directive (EU) 2018/410 amending the Emissions Trading Directive 2003/87/EC was

adopted. According to the amended version of the Emissions Trading Directive, the free allocation of 30% will continue until 2025. Thereafter, the 30 % of free allocation will subsequently be reduced to 0% until 2030, except for district heating. As a result, affected companies whose emissions exceed their emission allowances will have to purchase a significant, and steadily increasing, share of emission allowances in auctions, which may result in substantial additional cost for such companies.

An exemption from the general auctioning mechanism is available for certain energy-intensive industries which are exposed to a significant risk of relocation of plants to countries with less stringent climate protection laws (a phenomenon known as "Carbon Leakage"). Since 2010, the European Commission will determine every five years which industries are threatened by Carbon Leakage. The designated industries will be allocated emission allowances free of charge for the period determined amounting to 100%. Since the paper industry has been granted the relevant status, our two mills receive CO_2 emission certificates free of charge. On February 15, 2019, the European Commission adopted the Carbon Leakage List for the years 2021-2030. According to this list, the paper industry will continue to be considered threatened by Carbon Leakage for this upcoming period. A part of the Carbon Leakage industry sectors are allowed to apply for financial compensation for the increase of electricity costs due to EU ETS allowance costs passed on in electricity prices, among which is the paper and paperboard industry. The compensation is not enforceable and is granted from funds provided in the federal budget for that purpose for the relevant year.

For the fourth trading period (2021 to 2030), the Free Allocation Rules (FAR- (EU) 2019/331) have been adopted on December 19, 2018. Some details concerning the free allocation of certificates are still missing. For example, there are still no rules for adjusting the level of free allocations given to installations whose operations have increased or decreased, as assessed on the basis of a rolling average of two years, by more than 15 % compared to the level initially used to determine the free allocation for the relevant period.

The product benchmarks, which determine the amount of allowances allocated free of charge, will decline by 0.2 to 1.6% per year, calculated from the year 2008, in order to account for expected emission reductions due to technological progress. Nevertheless, according to an impact assessment of the European Commission, the paper and paperboard sector can still expect an 80% free allocation. It should be noted that the aforementioned Carbon Leakage list has not entered into force yet. After all, a final assessment as to the consequences is not possible yet.

In February 2014, the Commission Regulation (EU) No 176/2014 entered into force postponing the auctioning of 900 million emission allowances from 2014 to 2016 to later in the third trading period.

By Decision (EU) 2015/1814 of October 6, 2015, the European Parliament and the European Council have established a market stability reserve for the Union greenhouse gas emission trading scheme. According to this Decision, the quantity of 900 million allowances deducted from auctioning volumes during the period 2014-2016 will not be added to the volumes to be auctioned in 2019 and 2020 but will instead be placed in the reserve. Also, Decision (EU) 2015/1814 stipulates that each year a number of allowances equal to 12% of the total number of allowances in circulation, as published by the European Commission, will be deducted from the volume of allowances to be auctioned and will be placed in the reserve over a period of 12 months beginning on September 1 of that year, unless the number of allowances to be placed in the reserve would be less than 100 million. In any year, if the total number of allowances in circulation is less than 400 million, 100 million allowances will be released from the reserve and added to the volume of allowances to be auctioned. Where fewer than 100 million allowances are in the reserve, all allowances in the reserve will be released. Considering the need to deliver a credible investment signal to reduce CO_2 emissions in a cost-efficient manner and with the aim of strengthening the EU ETS, Decision (EU) 2015/1814 was amended on March 14, 2018 by Directive (EU) 2018/410 so as to increase the percentage rates for determining the number of allowances to be placed each year in the reserve from 12% to 24% and the abovementioned threshold of 100 million allowances to 200 million allowances by December 31, 2023. Furthermore, allowances held in the reserve above the total number of allowances auctioned during the respective previous year should no longer be valid from 2023.

Energy Tax Act (EnergieStG)/Electricity Tax Act (StromStG)

The EnergieStG contains provisions on the taxation of the consumption of energy products. These include coal and fuel oil, which are used in the thermal power plant. Pursuant to Section 53 EnergieStG, it is possible to apply for tax relief for energy products which are used in stationary generation installations with a nominal capacity exceeding 2 MWe and for which the applicable tax has been duly paid. Only the energy products that are directly involved in the energy conversion process taking place in the electricity generation unit are deemed to be "energy products used for the purpose of energy generation" within the meaning of EnergieStG. The party using energy products for the purpose of energy generation is the party eligible to obtain relief.

The StromStG provides for the taxation of consumed electricity. The tax rate is €20.50 per MWh pursuant to Section 3 StromStG. Anyone supplying electricity is principally deemed to be a supplier; exceptions are laid down in sec. 1a

Ordinance implementing the StromStG (*Stromsteuerdurchführungsverordnung*, "**StromStV**"). Pursuant to Section 4 subs. 1 sentence 1 StromStG, anyone intending to supply electricity as a supplier requires a license granted upon application by the main customs office. The supplier is obliged to submit a tax return for all electricity for which tax has arisen. In the context of this tax return, the supplier itself must calculate the amount of tax to be paid and settle the amount due with the tax office. Electricity that is removed from the grid for the purpose of generating electricity is tax-exempt if a license for removing electricity for the purpose of generating electricity was granted prior to the removal. Manufacturing companies within the meaning of Section 2 no. 3 StromStG may obtain tax relief pursuant to sec. 9b StromStG in the amount of €5.13 per MWh (if the amount of the relief exceeds €250.00 per calendar year) and an electricity tax relief of up to 90% pursuant to Section 10 StromStG (if the tax to be paid in the calendar year exceeds €1,000.00). The party which has removed electricity for operating purposes is the party eligible to obtain relief.

In 2016, the Federal Ministry of Finance (*Bundesministerium der Finanzen*, "**BMF**") published a draft amendment of the EnergieStG and the StromStG, which foresaw certain limitations and restrictions regarding the aforementioned tax releases, among others a prohibition to combine the tax releases with other State aids (so-called cumulation). The draft has been heavily criticized by the BMWi and has therefore been revised by the BMF. It no longer included the problematic provision on the prohibition of cumulation. On January 1, 2018, the new EnergieStG and the StromStG entered into force without the controversial alteration. As a result, the amendments to the StromStV and the EnergieStV have been published on January 8, 2018 with retroactive effect from January 1, 2018. Key adjustments to the legal framework include – *inter alia* – provisions on the scope and conditions for the granting of subsidies to companies in difficulty (*Unternehmen in Schwierigkeiten*, "**UIS**"), exceptions in the definition of suppliers, the regulation for a simplified application and authorization procedure for battery storage and the specification of the definition of "electromobility".

Energy Services Act (EDLG)

Pursuant to the EDLG, companies that do not constitute micro, small or medium-sized enterprises within the meaning of Commission Recommendation 2003/361/EC of May 6, 2003 (Official Journal L 124 of 20/05/2003, page 36) are obliged to carry out an energy audit by December 5, 2015. This obligation does not apply to companies which, by December 5, 2015, have implemented an energy management system in line with the requirements of DIN EN ISO 50 001 (December 2011 edition) or an environmental management system (EnMS). The CHP has implemented an EnMS and is certified under the Eco-Management and Audit Scheme ("**EMAS**"), a voluntary scheme set up by the European Union that is designed to help companies to continuously improve their environmental performance, but the requirements of the EDLG also apply to current members of the Group. For a description of the EMAS certification of Progroup Paper PM2 GmbH and the EnMS we have implemented at our two paper mills as well as EnMS we have implemented (or plan to implement) at some of our corrugated board production sites, see also "*—Sustainability Focus; Research and Development*". The Company as well as certain of its subsidiaries will still be required to carry out an energy audit under the EDLG.

Electricity Grid Access Ordinance (StromNZV)

The StromNZV governs the conditions for the feed-in and removal of electricity. Therefore, these requirements are also relevant and have to be taken into account with particular regard to the power plant's removal of electricity from the grid.

While the StromNZV (along with the EnWG) contains general legal provisions on the feed-in and removal of electricity, specific technical requirements are described in technical standards, which are developed by technical bodies such as the *Verband der Elektrotechnik, Elektronik und Informationstechnik* ("**VDE**"). In 2018, the VDE published new technical standards (*Anwendungsregeln*), which contain the recognized engineering standards for the grid access of, among others, generation units. According to a transitional regulation introduced with the above-mentioned EnSaG, those rules are applicable for generation units with an electric capacity of 0.8 kW and above, for which a grid access request is submitted to the grid operator or for which an approval according to BImSchG has been granted after April 27, 2019. They also apply if existing generation units are significantly changed. Depending on the individual case, new extensive certification obligations have to be fulfilled. However, an exemption applies to generation units, for which a grid access request was launched or a BImSchG approval had been issued by April 27, 2019, if they are put into operation by June 30, 2020.

Environmental laws and other related laws and regulations

Like the operation of our two paper mills, the operation of the CHP requires active permits under the BImSchG, it triggers the various duties and potential liability under the Federal Water Management Act (WHG), the Federal Waste Management Act (KrWG) and the Federal Soil Protection Act (BBodSchG), and it is subject to the rules for the protection of nature and landscape, as well as flora and fauna, that are codified in the Federal Nature Conservation Act (*Bundesnaturschutzgesetz*, "**BNatSchG**") and the State Nature Conservation Acts (*Landesnaturschutzgesetz*) in the Federal State of Brandenburg. For more details, please also see "*—Regulatory Environment—Environmental Laws*" *and* "*—Regulatory Environment—Soil Contamination*" above.

The technological standards applicable in relation to the requirements under the BImSchG are substantiated by technical regulations as determined in ordinances based on the BImSchG or technical regulations, as amended from time to time. For the CHP, the 13th Ordinance (Ordinance on Large Combustion Plants, Gas Turbine Plants and Internal Combustion Engines) and the 17th Ordinance (Ordinance on the Incineration and Co-Incineration of Waste) to the BImSchG are of particular importance, the latter one particularly with regard to the co-incineration of sewage sludge. The legal framework for the utilization/disposal of sewage sludge is currently being revised with the aim of a better recovery of phosphates, which may lead to a declining use of sewage sludge in incineration plants.

The compliance with emission limits, which are stipulated in the permit for the CHP, will be controlled regularly and, if necessary, can be altered subsequently by the authorities. The competent authority may withdraw the permit if the CHP does not comply with the applicable emission limits as determined in the permit.

The BImSchG also specifies the obligations of certain installation operators to notify the competent authorities of operational disruptions and to implement a monitoring following such disruptions. Operators of industry emissions installations have to provide annual reports of their emissions monitoring to the competent authorities and there are environmental inspections on a regular basis for such installations.

The Technical Instructions on Air Quality Control (*Technische Anleitung Luft*—"**TA Luft**"), which have to be followed by any installation falling under the BImschG (such as power plants), are under revision. However, in May 2017 the revision of the TA Luft was postponed by the Federal Ministry for the Environment, Nature Conservation, Building and Nuclear Safety (*Bundesministerium für Umwelt, Naturschutz, Bau und Reaktorsicherheit*, "**BMUB**") for an undefined time. Once the revision will have proceeded, the emission limit values for fine dust will, among other potential changes, likely be tightened and certain adaptions will also likely be implemented with regard to the Best Available Technology (*Beste Verfügbare Technik*, "**BVT**") reference documents.

LEGAL PROCEEDINGS

From time to time, we are involved in administrative, legal and arbitration proceedings that arise in the ordinary course of business. Neither we nor any of our subsidiaries are currently involved in any litigation, administrative proceedings or arbitration relating to claims or amounts that are material to our business and, to our knowledge, no such litigation, administrative proceeding or arbitration is pending or threatened. The outcome of legal proceedings, however, are difficult to predict with any certainty and we can offer no assurances in this regard.

SHAREHOLDERS

91.05% of the registered share capital of the Company are being held by JH-Holding, a holding company controlled by our chief executive officer, Jürgen Heindl. The remaining 8.95% of the registered share capital of the Company are being held by two minority shareholders who are not involved in the management of our business. Pursuant to a shareholders' agreement, the two minority shareholders have the right to jointly designate a member of our Supervisory Board. However, this right is currently suspended until October 2022. As a result, the two minority shareholders are currently not able to influence the composition of the Supervisory Board.

The shareholders of JH-Holding, which has a share capital of €1,000,000, are Jürgen Heindl, who holds 52.0% of JH-Holding's shares (including two shares in a nominal amount of €1,000, which together provide Mr. Heindl with a qualified majority of 75% of the voting rights in the shareholders' meeting of JH-Holding), and his two sons, Maximilian Heindl and Vinzenz Heindl, who each hold 24.0% of JH-Holding's shares.

MANAGEMENT

OVERVIEW

In accordance with the German Stock Corporation Act (*Aktiengesetz*), the Company has a two-tier board system consisting of an Executive Board (*Vorstand*) and a Supervisory Board (*Aufsichtsrat*). The two boards are separate, and, subject to a limited exception, no individual may serve concurrently as a member of both boards.

The Executive Board is responsible for managing our day-to-day business in accordance with applicable German law and the Articles of Association (*Satzung*) as well as its rules of procedure (*Geschäftsordnung*). In addition, the Executive Board must ensure appropriate control of risk within the Company and its subsidiaries in order that any developments jeopardizing the Company's future as a going concern may be identified at an early stage. The Executive Board legally represents the Company in dealings with third parties and in court.

The Supervisory Board advises the Executive Board on the management of the Company, monitors its conduct of business and is responsible for appointing and dismissing the members of the Executive Board for good cause. It also represents the Company in transactions between a member of the Executive Board and the Company. While the Executive Board is responsible for submitting regular reports on our business activities and fundamental issues relating to corporate planning (including financial, investment and personnel planning) to the Supervisory Board, the Supervisory Board has the right to request special reports at any time from the Executive Board. The Executive Board is also obliged to duly report to the Supervisory Board such transactions as may be of considerable importance to the Company's profitability (in particular the return on equity) or liquidity, so that the Supervisory Board may have an opportunity to express its opinion on such transactions before they are concluded. The Supervisory Board may also request a report at any time on matters concerning the Company, on the legal and commercial relationships with affiliated companies or on commercial operations at these companies that may have a significant impact on the Company and its subsidiaries.

The Supervisory Board generally may not exercise management functions. The rules of procedure of the Executive Board, however, require that certain types of transactions may not be carried out by the Executive Board without the prior consent of the Supervisory Board. If the Supervisory Board refuses to approve a certain transaction or business activity contemplated by the Executive Board, the Executive Board can request that the general shareholders' meeting decide on the matter. However, the general shareholders' meeting of a German stock corporation may not issue directives to the Executive Board.

The members of the Executive Board and the Supervisory Board owe duties of loyalty and care *vis-à-vis* the Company. In discharging their duties, the members of these corporate bodies must consider a broad range of interests, including our interests, which in turn include the interests of our shareholders, employees, creditors and, to a certain extent, the general public. The Executive Board must also take due account of the shareholders' right to equal treatment and equal information. The members of the Executive Board or of the Supervisory Board are jointly and severally liable to the Company for any damages that may arise if they fail to discharge their duties.

As a basic principle under German law, a shareholder has no direct recourse against the members of the Executive Board or the Supervisory Board in the event that they breach a duty *vis-à-vis* the Company. Except for certain special circumstances, only the Company itself has the right to bring claims for damages against members of either board, whereby the Company is represented by the Executive Board when bringing claims against the Supervisory Board and by the Supervisory Board when bringing claims against the Executive Board. Pursuant to a ruling by the German Federal Court of Justice (*Bundesgerichtshof*), the Supervisory Board is obliged to bring claims which are likely to be successful against the Executive Board unless material considerations pertaining to the interest of the corporation outweigh or are at least equivalent to those in favor of enforcing such claim. Despite a refusal of the Supervisory Board to pursue a claim for damages, such a claim must be enforced (i) upon a resolution of the general shareholders' meeting, (ii) upon a petition with the competent court by minority shareholders meeting a certain minimum requirement as to their stake in the Company, or (iii) by the Company's creditors whose claims could not be settled by the Company. The Company may only waive or settle such claims for damages if at least three years have passed and if the shareholders approve the waiver or settlement at the general shareholders' meeting with a simple majority of the votes cast, provided that opposing shareholders do not hold, in the aggregate, one tenth or more of the share capital and do not have their opposition formally recorded in the minutes of the shareholders' meeting.

Under German law, no individual shareholder (or any other person) may exert its influence on the Company to cause a member of the Executive Board or the Supervisory Board to engage in any act detrimental to the Company. Shareholders with a controlling interest may not use it to cause the Company to act against its own interest unless the prejudice to its interests is compensated for. Any shareholder using its interest in the Company to cause a member of the Executive Board, a member of the Supervisory Board or a person who holds a power of attorney (*Prokurist*) or is authorized to act for the Company (*Handlungsbevollmächtigter*) to engage in any act detrimental to the Company or to our shareholders must

compensate the Company and the shareholders for any loss sustained thereby. In addition, the members of the Executive Board and the members of the Supervisory Board are jointly and severally liable if they act in breach of their obligations.

Progroup AG provides for a directors and officers liability insurance policy for all members of the Executive Board and the Supervisory Board and for certain other managers with leadership responsibilities within Progroup AG and its subsidiaries.

Executive Board

General Information

The Executive Board is responsible for managing the business of the Company in accordance with the German Stock Corporation Act, the Company's Articles of Association and the rules of procedure (*Geschäftsordnung*) for the Executive Board. The Executive Board also represents the Company in its dealings with third parties and in court. According to the Articles of Association and the provisions of the German Stock Corporation Act, the Executive Board must consist of a minimum of one member. The Supervisory Board determines the number of members of the Executive Board and appoints such members. It may also appoint the Chairman and Deputy Chairman of the Executive Board. Members of the Executive Board are appointed for a maximum term of five years. They may be repeatedly reappointed or their term of office may be extended, in each instance for a period of up to five years. The Supervisory Board may revoke the appointment of a member of the Executive Board before the end of his or her term of office for good cause, such as gross breach of duty or in case of a vote of no confidence by the general shareholders' meeting.

The Executive Board has overall responsibility for the Company's business. In accordance with its allocation-of-responsibilities plan (*Geschäftsverteilungsplan*), each member of the Executive Board is assigned an area of responsibility defined in such plan, which sets out the allocation of responsibilities. Notwithstanding the overall responsibility held by the Executive Board, each member of the Executive Board is responsible for the area allocated to him or her. Pursuant to the rules of procedure (*Geschäftsordnung*) for the Executive Board, certain management actions may only be taken, and certain types of transactions may only be concluded, with the approval of the Supervisory Board. As a rule, the Executive Board should meet every week. The Executive Board has a quorum if a meeting has been called with due notice and all or, in the event that the Executive Board has more than two members, at least half of the members which must include the Chairman are present. If not otherwise required by law, the Executive Board decides by a simple majority of the votes cast. In the event of a tie, the Chairman has the deciding vote. Members of the Executive Board may not deal with, or vote on, measures relating to proposals, arrangements or contracts between him/herself and the Company.

Individual board members serve as representatives with primary responsibility for the Company's various corporate functions and for the fields of business in which the Company operates. Despite this internal allocation of responsibilities, each member of the Executive Board has overall responsibility (*Gesamtverantwortung*) for the Company as a whole.

The Company's Articles of Association provide that the Company can be legally represented by two members of the Executive Board or by one member of the Executive Board in conjunction with an authorized signatory who holds a power of attorney (*Prokurist*). The Supervisory Board has granted the Chairman, Mr. Jürgen Heindl, authorization to solely represent the Company in accordance with the Articles of Association.

The Supervisory Board may appoint deputy members of the Executive Board who, in accordance with the German Stock Corporation Act, have the same rights and responsibilities as the regular members of the Executive Board.

Members of the Executive Board

The following table sets forth the current members of the Company's Executive Board.

Name	Age	Member since	Appointed until	Responsibility	Other principal positions
Jürgen Heindl.....	64	2007	August 28, 2022	Chief Executive Officer	Progroup Paper PM1 GmbH Progroup Paper PM2 GmbH Progroup Paper PM3 GmbH Progroup Power 2 GmbH Progroup Board GmbH Progroup Board S.A.S. Progroup Board s.r.o. Progroup Board sp. z o.o. Progroup Board Ltd. Progroup Board S.r.l. Progroup Board Kft. Prowell Verwaltungs GmbH JH-Holding GmbH
Dr. Volker Metz.....	44	2016	October 31, 2021	Chief Financial Officer	Progroup Paper PM1 GmbH Progroup Paper PM2 GmbH Progroup Paper PM3 GmbH Progroup Power 2 GmbH Progroup Board GmbH Progroup Board S.A.S. Progroup Board s.r.o. Progroup Board sp. z o.o. Progroup Board Ltd. Progroup Board S.r.l. Progroup Board Kft. Prowell Verwaltungs GmbH
Philipp Kosloh	45	2016	October 31, 2021	Chief Operating Officer	Progroup Paper PM1 GmbH Progroup Paper PM2 GmbH Progroup Paper PM3 GmbH Progroup Power 2 GmbH Progroup Board GmbH Progroup Board S.A.S. Progroup Board s.r.o. Progroup Board sp. z o.o. Progroup Board Ltd. Progroup Board S.r.l. Progroup Board Kft.
Maximilian Heindl……	35	2017	July 31, 2022	Chief Development Officer	Progroup Paper PM1 GmbH Progroup Paper PM2 GmbH Progroup Paper PM3 GmbH Progroup Power 2 GmbH Progroup Board GmbH Progroup Board S.A.S. Progroup Board s.r.o. Progroup Board sp. z o.o. Progroup Board Ltd. Progroup Board S.r.l. Progroup Board Kft.

The business address of each member of the Executive Board is Progroup AG, Horstring 12, 76829 Landau, Germany.

Jürgen Heindl. Mr. Heindl studied electrical engineering at the University of Applied Science Dieburg and business engineering at the University of Applied Science Esslingen. He began his career in 1980 at Zewawell GmbH & Co. KG, as assistant of the general management. From 1982 to 1987, he was plant manager conducting a restructuring program and

from 1987 to 1991 he was division manager and member of the board of Zewawell GmbH & Co. KG. In 1991, Mr. Heindl founded PROWELL Papierverarbeitung GmbH, predecessor of today's Progroup AG, and from 1991 to 2007, he was active as sole managing director of PROWELL Papierverarbeitung GmbH. Since establishing Progroup AG in 2007, Mr. Heindl has been a member of the Executive Board. Since 2008, he has served as Chairman of the Executive Board. In 2017, the Supervisory Board extended the appointment of Mr. Heindl for another period of five years until August 28, 2022.

Dr. Volker Metz. Dr. Metz studied business economics at the university of Mannheim, where he obtained his Ph.D. in 2006, and at the university of Wales. He started his professional career in 2001 as consultant at Ernst & Young GmbH Wirtschaftsprüfungsgesellschaft in Mannheim, where he was soon promoted to become project manager in the transaction advisory services department in 2005. From 2007 to 2009 he worked for EnBW Energie Baden-Württemberg AG, Karlsruhe, as senior manager controlling networks. From 2009 to 2016 Dr. Metz was active as head of controlling of Progroup AG. At the beginning of 2016 he opted for a career opportunity to become commercial division manager of GGEW, Gruppen-Gas- und Elektrizitätswerk Bergstraße Aktiengesellschaft, Bensheim. As of November 1, 2016, Dr. Metz returned to Progroup AG and was appointed as member of the Executive Board of Progroup AG and chief financial officer of the Group for a period of five years.

Philipp Kosloh. After completion of an apprenticeship as packaging mechanic Mr. Kosloh studied packaging engineering at the technical college of Berlin, followed by an MBA course at the Southbank University Business School, London. He began his professional career as production engineer at Kellogg's Company of Great Britain Limited, Manchester, in 1999. From 1998 to 2000 he was employed as consultant at Berndt & Partner GmbH, Berlin. From 2001 to 2009 Mr. Kosloh was member of the extended management board of Progroup AG and Progroup AG's predecessor PROWELL Papierverarbeitung GmbH and managing director of the logistics subsidiary Prologistik GmbH. In 2009 he had opted for a career opportunity with Progroup AG's competitor Smurfit Kappa where he was general manager for the region southwest Germany with three integrated corrugated board production sites. As of November 1, 2016, Mr. Kosloh returned to Progroup AG and was appointed as deputy member of the Executive Board of Progroup AG for a period of five years, with a view to becoming our first chief operating officer. Effective January 1, 2019, Mr. Kosloh became a regular member of the Executive Board and assumed the role of chief operating officer.

Maximilian Heindl. Mr. Maximilian Heindl studied industrial engineering at the Karlsruher Institute for Technology (KIT) in Karlsruhe. After completion of apprenticeships with Visy Industries Australia Pty Ltd and EnBW Operations GmbH he started his professional career as international trainee at Voith Papier Holding GmbH & Co. KG in 2012. He became assistant to the President of the Business Line P&S at Voith Papier GmbH & Co. KG in 2014, where he was further promoted to become director of production P&S EMEA in 2015. Picking up the family track, Mr. Maximilian Heindl resumed an appointment as head of Progroup's paper division in 2016 and, since 2017, he also serves as deputy member of Progroup AG's Executive Board. Effective January 1, 2019, Mr. Maximilian Heindl became a regular member of the Executive Board and assumed the role of chief development officer.

Compensation

The members of the Executive Board do not receive any separate remuneration other than their respective remuneration as members of the Executive Board. The remuneration of the members of the Executive Board consists of a fixed component and variable compensation elements. The fixed component comprises a base salary and payments in kind. The variable components include annually recurring components tied to business performance and, except for Mr. Jürgen Heindl, the achievement of certain targets. Further, our chief executive officer, Mr. Jürgen Heindl, is entitled to special bonus payments upon the completion and successful commissioning of new plants by the Company or any of its subsidiaries. The base salaries are paid in twelve equal monthly installments. The payments in kind consist mainly of the use of company vehicles and certain insurance contributions, including contributions to health insurance, whole life insurance, disability insurance and term life insurance, as well as pension contributions. The Company has also granted a pension commitment (*Versorgungszusage*) to our chief executive officer, Mr. Jürgen Heindl, comprising a retirement pension as well as a disability pension and a widow's and orphan's pension.

The total compensation of the members of the Executive Board amounted to €8.2 million in 2018. These amounts included fixed salaries, payments in kind and variable performance and target related compensations. The payments in kind included the use of company cars and premiums for health, accident and life insurance.

The Company has obtained D&O insurance covering, amongst others, the members of the Executive Board.

Supervisory Board

Overview

The Supervisory Board currently consists of three members, which are elected by the Company's shareholders at the general shareholders' meeting by a simple majority of the votes cast.

The Supervisory Board members elect one of the members as Chairman (*Vorsitzender*) and another one as Vice-Chairman (*Stellvertreter*) by a simple majority of the votes cast.

Unless the general shareholder's meeting elects the member for a shorter period, the term of a member of the Supervisory Board elected by the shareholders expires at the end of the fifth general shareholders' meeting following the general shareholders' meeting in which the member was elected. If a member of the Supervisory Board retires, or is removed from office prior to the end of its term of office, the substitute member's term of office expires at the end of the term of the resigning or removed board member, unless the general shareholders' meeting decides otherwise. There is no compulsory retirement age for the members of the Supervisory Board. No former Executive Board members of Progroup AG are currently serving on the Supervisory Board.

Unless otherwise required by applicable law, resolutions of the Supervisory Board are passed by a simple majority of the votes cast. In order to constitute a quorum, all members must be invited with due notice and all members of the Supervisory Board must participate in the voting.

The Supervisory Board is required to meet at least twice in each half of every calendar year.

Members of the Supervisory Board

The following table sets forth the name, age, year of appointment, end of current term and the other principal positions of each of the current members of the Company's Supervisory Board.

Name	Age	Member since	Appointed until	Other principal positions
Rainer Dietmann (Chairman)	62	2007	2022	Chairman of the supervisory board of Global Vermögensberatung AG, Wiesbaden Member of the supervisory board of SSP Deutschland GmbH, Eschborn Chairman of the foundation board of Heinrich-Vetter-Stiftung, Ilvesheim
Prof. Dr. Rudolf Wimmer (Vice Chairman)	73	2008	2022	Vice-Chairman of the supervisory board of PBS-Holding AG, Wels/Austria Chairman of the advisory board of Diagramm Halbach GmbH & Co. KG, Schwerte Member of the advisory board of Karl Wörwag Lack- und Farbenfabrik GmbH & Co.KG, Stuttgart Member of the supervisory board of Hermes Europe GmbH, Hamburg
Christian Buchel.....	56	2019	2022	Member of the board, Director for Customers, Markets, Territories and Europe of Enedis, Paris Chairman of EDSO for Smart Grids Brussels

Prof. Dr. Hermut Kormann resigned as a member of the Supervisory Board on January 24, 2019 for reasons of age and was replaced by Mr. Christian Buchel (until 2022).

The business address of each member of the Supervisory Board is Progroup AG, Horstring 12, 76829 Landau, Germany.

Rainer Dietmann. Mr. Dietmann studied law at the University of Mannheim and the London School of Economics. He began his career as attorney-at-law in Munich in 1985. In 1986, he joined Rittershaus Wissmann & von Rosenstiel, predecessor of today's Rittershaus Rechtsanwälte Partnerschaftsgesellschaft mbB, where he became partner in 1988.

Prof. Dr. Rudolf Wimmer. Prof. Dr. Wimmer studied law and political science at the university of Wien. From 1970 to 1975, he was active as assistant professor at the Institute for Constitutional and Administrative Law at the University of Wien. In the years 1975 to 1977 he enjoyed a research grant at the University of Klagenfurt. Since 1977, Prof. Dr. Wimmer is active as an independent trainer and advisor for organizational development. In 1990, Prof. Dr. Wimmer wrote his professional thesis on group dynamics and organization at the University of Klagenfurt. In 1999, he assumed the professorship for management and organization at the newly established Institute for Family-Owned Enterprises at the University of Witten/Herdecke.

Christian Buchel. Mr. Christian Buchel holds an engineering degree from Ecole Supérieure d'Electricité (Supélec, Paris) and was a research fellow at CERN, Geneva. During his early career, he held both managerial and operational responsibilities, covering the entire value chain of the electricity industry. After serving as an advisor to EDF's CEO in the late 1990s, he held various top-management positions within the EDF Group. He was notably a Member of the Board and COO of Energie Baden-Württemberg (EnBW) in Germany as well as CEO of Electricité de Strasbourg. As Chief Digital Officer of Enedis he managed the digital and big data transformation of the company during three years. Today, Mr. Christian Buchel is a Member of the Board of Enedis, the distribution system operator in charge of operating, developing and maintaining the medium-voltage and low-voltage power grids across 95% of mainland France. Since May 2018, he has been Director for Customer, Markets, Territories and Europe of Enedis. He is also Chairman of EDSO for Smart grids.

Supervisory Board Committees

The Supervisory Board has not formed any committees.

Compensation

Pursuant to a resolution of the Company's shareholders' meeting adopted on November 23, 2017 in accordance with the Articles of Association, members of the Supervisory Board receive a fixed annual compensation in the amount of €24,000, while the Chairman receives a fixed annual compensation in the amount of €60,000 and the vice chairman receives a fixed

annual compensation in the amount of €35,000. In addition, the Company reimburses the members of the Supervisory Board for their out-of-pocket expenses incurred in the performance of their duties as Supervisory Board members.

The Company has obtained D&O insurance covering, amongst others, the members of the Supervisory Board.

Further Information about Members of the Executive Board and the Supervisory Board

During the last five years, no member of the Executive Board or the Supervisory Board has been convicted in relation to fraudulent offenses.

During the last five years, no member of the Executive Board or the Supervisory Board has acted in any capacity at any entity which was subject to any bankruptcies, receiverships or involuntary liquidations.

No official public incrimination and/or sanctions by any statutory or regulatory authority against any member of the Executive Board or the Supervisory Board has occurred. No member of the Executive Board or the Supervisory Board has ever been disqualified by a court from acting as a member of the administrative, management or supervisory bodies of an issuer or from acting in the management or conduct the affairs of any issuer during the last five years.

Progroup has not granted any loans to Executive Board or Supervisory Board members. The members of the two corporate bodies have not concluded any transactions with the Company that lie outside the Company's normal operating activities.

No members of the Executive Board or the Supervisory Board have any conflicts of interest between their duties to the Company and their private or other interests. Rainer Dietmann, however, is partner of Rittershaus Rechtsanwälte Partnerschaftsgesellschaft mbB who provides legal services to the Company and other members of the Group. For information on this relationship, see "*Certain Relationships and Related Party Transactions*".

No Executive Board or Supervisory Board member has concluded any service contract with any of the Group's companies that includes special benefits upon the end of the service. No family relationships exist among the members of the Executive Board and the Supervisory Board or within any of these bodies except between Mr. Jürgen Heindl, Chairman of the Executive Board, and his son Mr. Maximilian Heindl, member of the Executive Board. Further, except for Mr. Jürgen Heindl and Mr. Maximilian Heindl who indirectly hold, together with members of their immediate family, 91.05% of the registered share capital of Progroup AG via their private holding company, JH-Holding, no member of the Executive Board and the Supervisory Board (including persons closely related to them) currently holds shares in the Company. See also "*Shareholders*".

The Company provides management services to JH-Holding, and the D&O insurance of JH-Holding also provides for coverage of the management of the Company. For information on this relationship, see "*Certain Relationships and Related Party Transactions*".

General Shareholders' Meetings

Pursuant to the Articles of Association, general shareholders' meetings are convened by the Executive Board or, in certain instances, by the Supervisory Board. Depending on the choice of the convening body, general shareholders' meetings take place at the Company's registered office, a German city with more than 100,000 inhabitants or the registered office of an affiliated company (*verbundenes Unternehmen*) within the meaning of Article 15 of the German Stock Corporation Code (*Aktiengesetz*). Each of the shares of the Company carries one vote at the Company's general shareholders' meeting. There are no restrictions on voting rights of the shares of the Company.

Unless mandatory provisions of the German Stock Corporation Act or the Articles of Association state otherwise, general shareholders' meeting resolutions are passed with a simple majority of the votes cast. In accordance with the German Stock Corporation Act, resolutions of fundamental importance require, in addition to a simple majority of the votes cast, a majority of at least three quarters of the share capital represented in order to pass such a resolution. Such resolutions of fundamental importance include in particular:

- changes in the Articles of Association;
- share capital increases;
- share capital decreases;
- the creation of authorized or contingent capital;

- divisions or split-offs as well as transfers of the entire assets of the Company;
- conclusions of inter-company agreements (in particular, domination agreements and profit and loss transfer agreements);
- changes in the legal form of the Company; and
- liquidation of the Company.

The general shareholders' meeting can be convened at the request of the Executive Board, the Supervisory Board, or shareholders whose shares together total at least 5% of the share capital. If the best interests of the Company require it, the Supervisory Board must call a general shareholders' meeting. The regular general shareholders' meeting takes place within the first eight months of every financial year.

Neither German law nor the Articles of Association restrict the right to own shares or to exercise the associated voting rights for German non-residents or for foreign owners of shares.

CERTAIN RELATIONSHIPS AND RELATED PARTY TRANSACTIONS

Provision of Share Pledges by JH-Holding GmbH and our Minority Shareholders

On February 26, 2018, the Company entered into three agreements with JH-Holding and its two minority shareholders. The agreements provide for JH-Holding and the two minority shareholders to continue to grant security over their shares in the Company to secure our obligations under the Super Senior Revolving Credit Facility, the Existing Senior Secured PLN Facilities, the Existing Senior Secured IKB Facilities, the Existing Senior Secured GBP Facility and the Senior Secured Notes. On March 8, 2018, we made €19.3 million in lump sum fee payments to JH-Holding and our minority shareholders under the agreements.

Management Services Agreement with JH-Holding

The Company provides management services to its shareholder JH-Holding comprising, in particular, accounting services and assistance in the preparation of financial statements and reporting, pursuant to an agreement dated July 22, 2015, and receives remuneration for the provision of such management services, which, in 2018, amounted to €25,098. Furthermore, the D&O insurance for the Company's management is paid by JH-Holding, which is reimbursed by the Company for the premiums related to such D&O insurance. These transactions between the Company and JH-Holding are carried out at arm's length.

Legal services rendered by Rittershaus Rechtsanwälte Partnerschaftsgesellschaft mbB

The law firm Rittershaus Rechtsanwälte Partnerschaftsgesellschaft mbB, Mannheim, Frankfurt/Main, Munich, has been providing legal advice to Progroup AG and other members of the Group on various matters for a number of years. Rainer Dietmann, who serves as chairman of the Supervisory Board of Progroup AG, is also a partner of Rittershaus Rechtsanwälte Partnerschaftsgesellschaft mbB. The retention of Rittershaus Rechtsanwälte Partnerschaftsgesellschaft mbB as the Group's legal counsel has been approved by the Supervisory Board of Progroup AG in accordance with the applicable provisions of the German Stock Corporation Act.

Services rendered by HHC UG

From time to time Progroup AG or other companies of the Group engage HHC GmbH, a limited liability company under German law solely owned and managed by Mrs. Herta Heindl, the spouse of Mr. Jürgen Heindl, to render certain services for individually specified projects. The conditions of such engagements include an hourly fee of €110 (net) and have been approved by the Supervisory Board of Progroup AG. The total remuneration, including costs to be reimbursed, billed to Progroup AG and other companies of the Group in 2018 amounted to €130,913.

DESCRIPTION OF CERTAIN FINANCING ARRANGEMENTS

The following summary of certain provisions of the documents listed below governing certain of our indebtedness does not purport to be complete and is subject to, and qualified in its entirety by reference to, the underlying documents. Unless otherwise defined in this special report or unless the context otherwise requires, terms defined in the Super Senior Revolving Credit Facility, the Existing Senior Secured Facilities, the New Senior Secured Facilities and the Intercreditor Agreement shall have the same meanings when used in this section.

OVERVIEW

On April 23, 2015, the Company and the Guarantors (other than Progroup Power 1 GmbH and Progroup Paper PM3 GmbH) entered into the Super Senior Revolving Credit Facility which provides for up to €50.0 million of committed credit that may be drawn by certain members of the Group specified therein from time to time. The obligations of the borrowers under the Super Senior Revolving Credit Facility (and certain Hedging Obligations and Cash Management Liabilities) are guaranteed on a senior basis by the Company and the Guarantors and are secured by the same Collateral that secures the Fixed Rate Notes and the Existing Senior Secured Facilities (as defined below) and that will secure all obligations under the New Senior Secured Facilities (as defined below) and, upon issuance of the Additional Notes, the Additional Notes, on a super priority basis pursuant to the terms of the Intercreditor Agreement. On December 21, 2017, among other things, the Company and the Guarantors entered into an amendment and restatement agreement relating to the Super Senior Revolving Credit Facility. Among other amendments, the Super Senior Revolving Credit Facility was amended to include an uncommitted "accordion feature" which will give us the option to increase the total commitments under the Super Senior Revolving Credit Facility from currently €50,000,000 to up to €80,000,000.

On December 1, 2015, Progroup Board sp. z o.o., as borrower, the Company and the then-existing Guarantors, as guarantors, entered into the 2015 Senior Secured PLN Facility which provided for PLN 107 million of committed credit. In addition, on May 31, 2016, Progroup Board sp. z o.o., as borrower, the Company and the Guarantors, as guarantors, entered into the 2016 Senior Secured PLN Facility to fund the establishment of our corrugated board production site (PW10) in Trzcinica, Poland. As of March 31, 2019, PLN 58.9 million (carrying amount at March 31, 2019: €13.7 million, calculated based on an exchange rate of €1.00 = PLN 4.3006, which was the exchange rate of the zloty against the euro reported by the National Bank of Poland on March 31, 2019) in borrowings under the 2015 Senior Secured PLN Facility remained outstanding, and PLN 76.0 million (carrying amount at March 31, 2019: €17.7 million, calculated based on an exchange rate of €1.00 = PLN 4.3006) in borrowings under the 2016 Senior Secured PLN Facility remained outstanding. As of the date of this special report, the same amounts of borrowings remain outstanding under the 2015 Senior Secured PLN Facility and under the 2016 Senior Secured PLN Facility.

On December 21, 2017, the Company and the Guarantors entered into the Existing Senior Secured IKB Facilities and the Existing Senior Secured GBP Facility. The Existing Senior Secured IKB Facilities originally provided for a €8.5 million Facility A and a €30.0 million Facility B, both refinanced by KfW, which we have fully utilized. However, as of December 31, 2018, the amount repayable under Facility A was reduced to €7.155 million as a result of a €1.345 million repayment grant. The GBP70.0 million Existing Senior Secured GBP Facility was also fully utilized as of the date of this special report.

On July 13, 2018, to fund a portion of the expected investment into the establishment of our new paper mill (PM3) in Sandersdorf-Brehna, Germany, the Company and the Guarantors entered into (i) an amendment and restatement of the Existing Senior Secured IKB Facilities, adding an additional €25.0 million Facility C, refinanced by KfW, which may be utilized by Progroup Paper PM3 GmbH until August 10, 2019, (ii) the €25.0 million Existing Senior Secured SaarLB Facility, refinanced by KfW, which may be utilized by Progroup Paper PM3 GmbH until August 10, 2019 and (iii) the €75.0 million Existing Senior Secured Commerzbank Facilities, which consist of a €45.0 million Facility A, refinanced by KfW, which may be utilized by Progroup Paper PM3 GmbH until August 10, 2019, and two separate €15.0 million facilities (Facility B and Facility C), financed by Commerzbank itself, which are fully utilized as of the date of this special report. The €25.0 million Facility C under the Existing Senior Secured IKB Facility, the €25.0 million Existing Senior Secured SaarLB Facility and the €45.0 million Facility A under the Existing Senior Secured Commerzbank Facilities remain undrawn as of the date of this special report, but we expect to fully draw all such facilities by August 10, 2019. On August 6, 2018, to further secure the overall funding of our investment into our proposed new paper mill (PM3), the Company and the Guarantors further entered into the €30.0 million Existing Senior Secured HSBC Facility, which may be utilized by Progroup Paper PM3 GmbH until one month before December 31, 2023. The Existing Senior Secured HSBC Facility remains undrawn as of the date of this special report. We refer to the Existing Senior Secured PLN Facilities, the Existing Senior Secured IKB Facilities, the Existing Senior Secured GBP Facility, the Existing Senior Secured SaarLB Facility, the Existing Senior Secured Commerzbank Facilities and the Existing Senior Secured HSBC Facility collectively as "**Existing Senior Secured Facilities**".

On May 31, 2019, the Company and the Guarantors finally entered into the € 30.0 million New Senior Secured Erste Bank Facility, the € 30.0 million New Senior Secured LBBW Facilities and the € 15.0 million New Senior Secured SaarLB Facility (together the "**New Senior Secured Facilities**", and the New Senior Secured Facilities together with the Existing Senior Secured Facilities, the "**Senior Secured Facilities**"), primarily to fund the approximately €70-75 million of expected total investment into our proposed new corrugated board "mega plant" (PW14). The utilization of the New Senior Secured Facilities is subject to certain conditions precedent. We expect to satisfy all remaining conditions precedent on or around the issue date of the Additional Notes. As a result, the New Senior Secured Facilities will remain undrawn on the issue date of the Additional Notes. We may utilize the New Senior Secured Erste Bank Facility, the New Senior Secured LBBW Facilities and the new Senior Secured SaarLB Facility until June, 2021, May, 2020 and May, 2020, respectively.

All our Senior Secured Facilities are being guaranteed irrevocably and unconditionally, subject to certain customary limitations and agreed security principles, on a joint and several basis, by the Company and the Guarantors. The lenders under each Existing Senior Secured Facility have acceded, and the lenders under the New Senior Secured Facilities will accede, to the Intercreditor Agreement. Any amounts outstanding under the Existing Senior Secured Facilities are, and any amounts outstanding under the New Senior Secured Facilities will be, secured by the same Collateral that secures (or will secure, as applicable) the Super Senior Revolving Credit Facility, each other Senior Secured Facility, the Senior Secured Notes.

The Super Senior Revolving Credit Facility and the Senior Secured Facilities each contain customary information and general loan style covenants and will also include restrictive covenants that closely track those contained in the conditions of issue of the Senior Secured Notes.

The Super Senior Revolving Credit Facility and the Senior Secured Facilities each contain customary events of default (subject in certain cases to agreed grace periods, thresholds and other qualifications) including, a cross default (including with respect to an event of default under, and as defined in, the conditions of issue of the Senior Secured Notes), non-payment, misrepresentation, insolvency and insolvency proceedings, unlawfulness, litigation and material adverse change the occurrence of which would allow the agent under each Senior Secured Facility (who shall do so if directed by the required majority of the lenders) to accelerate all or part of the loan outstanding and/or terminate any available commitments and/or exercise any of its rights and remedies under the Super Senior Revolving Credit Facility or relevant Senior Secured Facility, as applicable, and other related finance documents.

The Super Senior Revolving Credit Facility and the Senior Secured Facilities and any non-contractual obligations arising out of or in connection with them are governed by and construed and enforced in accordance with German law.

SUPER SENIOR REVOLVING CREDIT FACILITY

On April 23, 2015, we entered into the Super Senior Revolving Credit Facility. The Super Senior Revolving Credit Facility provides for €50.0 million of committed financing (the "**Total Commitments**"), which is available for utilization by way of the drawing of cash revolving loans, and by way of ancillary facilities, until the date falling one month prior to the Final SSRCF Maturity Date (as defined below). On December 1, 2015, we entered into an amendment to the Super Senior Revolving Credit Facility to re-set the previous consolidated net leverage ratio test , upon the CHP Acquisition being completed. On December 21, 2017, we further entered into an amendment and restatement agreement relating to the Super Senior Revolving Credit Facility (the "**SSRCF Amendment and Restatement Agreement**"), among other things, to affect significant improved terms, give us greater flexibility and affect the accession of Goldman Sachs International Bank and J.P. Morgan Securities plc as new, additional lenders under the Super Senior Revolving Credit Facility. This description describes the terms of the Super Senior Revolving Credit Facility as amended and restated by the SSRCF Amendment and Restatement Agreement.

The original borrowers under the Super Senior Revolving Credit Facility are the Company, Progroup Board s.r.o., Progroup Board sp. z o.o., and Progroup Board Ltd. The Super Senior Revolving Credit Facility is being guaranteed by the Guarantors (as defined below under "*Security and Guarantees*") and the Company. The facility agent (the "**Agent**") under the Super Senior Revolving Credit Facility is Deutsche Bank Luxembourg S.A.

Increase Option

The Company may, on one or more occasions and subject to certain conditions set out in the Super Senior Revolving Credit Facility, by delivering to the Agent a duly completed increase request no later than thirty (30) business days nor earlier than sixty (60) business days before the date on which such increase is to take effect, request an increase of the total commitments under the Super Senior Revolving Credit Facility in an amount that is €10 million or, if more, an integral multiple of €1 million, provided that the aggregate amount of any such increases of the total commitments must not exceed €30 million. This provision will give us the option to increase the total commitments under the Super Senior Revolving

Credit Facility from currently €50 million to up to €80 million. Each lender under the Super Senior Revolving Credit Facility will have the right, at its sole discretion, to agree or reject (in whole or in part) an increase request. If, following an allocation process set for the Super Senior Revolving Credit Facility, the amount of the increased commitments of the existing lenders under the Super Senior Revolving Credit Facility is less than requested by the Company, the Company may (through the Agent) then request any existing lender under the Senior Revolving Credit Facility which is willing to do so (or another bank or financial institution which is not an existing lender and which is willing to do so) to (additionally) further increase its commitment by such amount notified to it, or part thereof, (or, as the case may be, accede to the Super Senior Revolving Credit Facility as a lender with such new commitment), subject to certain conditions set forth in the Super Senior Revolving Credit Facility.

Ancillary Facilities

A lender (or any of its affiliates) may make available to a borrower under the Super Senior Revolving Credit Facility all or part of that lender's undrawn commitment in the Super Senior Revolving Credit Facility by way of ancillary facilities such as overdraft facilities, guarantees, bonding, documentary or stand-by letter of credit facilities, short-term loan facilities, foreign exchange facilities or any other facility or accommodation required in connection with the business of the Group and which is agreed between the Issuer and the relevant lender (or its affiliate), other than derivative or other transactions where the potential loss may be greater than the relevant Ancillary Lender's commitments under the Ancillary Facility plus customary interest and fees, subject to the satisfaction of certain conditions precedent.

Repayments and prepayments

The Super Senior Revolving Credit Facility will terminate on March 27, 2024 (the "**Final SSRCF Maturity Date**") and any amounts still outstanding at such date will be immediately due and payable.

Subject to certain conditions, we may voluntarily prepay our utilizations and/or permanently cancel all or part of the available commitments under the Super Senior Revolving Credit Facility by giving three business days' prior notice to the Agent (provided that such prepayment or cancellation must be, if in part, in a minimum amount of €1 million) or the remainder if the outstanding loan or the remaining commitments are less than €1 million.

Amounts prepaid or repaid may (subject to the terms of the Super Senior Revolving Credit Facility) be re-borrowed.

In addition to voluntary prepayments, the Super Senior Revolving Credit Facility requires mandatory cancellation and, if applicable, prepayment in full or in part in certain circumstances, including:

- with respect to any lender, if it becomes unlawful for such lender to perform any of its obligations under the Super Senior Revolving Credit Facility; and

- under the circumstances described under the second bullet under "*—Purchase Condition*" below.

Furthermore, upon the occurrence of a Change of Control (as defined below), the Company shall give notice to the Agent describing the transaction or transactions that constituted the Change of Control and offer to repay each lender's participation under the loans on the date specified in such notice (the "**Change of Control Offer**") which date shall be no earlier than 30 days and no later than 60 days from the date such notice is mailed (the "**Change of Control Repayment Date**"), but no later than the respective change of control offer for any of the Senior Secured Debt (as defined below). Pursuant to the Change of Control Offer, each lender will have the right to require the original borrowers to repay such lender's participation in any loans together with accrued and unpaid interest and any additional amounts accrued under the finance documents in respect of any such participation in any such loans on the Change of Control Repayment Date, whereupon the commitment of that lender will be cancelled.

"**Change of Control**" means the occurrence of the following:

(i) for as long as no Public Market exists for the Capital Stock of the Company (or a Holding Company), the Company becoming aware of any "person" or "group" of persons acting in concert in the meaning given to such term in Section 2(5) of the German Securities Acquisition and Takeover Act (*Wertpapiererwerbs- und Übernahmegesetz*) other than a Permitted Holder acquiring and holding, directly or indirectly, the control over more than 50% of the issued and outstanding Voting Stock of the Company measured by voting power rather than number of shares;

(ii) at any time that a Public Market exists for the Capital Stock of the Company (or a Holding Company), the Company becoming aware of (i) any "person" or "group" of persons acting in concert in the meaning

given to such term in Section 2(5) of the German Securities Acquisition and Takeover Act (*Wertpapiererwerbs- und Übernahmegesetz*) other than a Permitted Holder acquiring and holding, directly or indirectly, the control over more than 30% of the issued and outstanding Voting Stock of the Company measured by voting power rather than number of shares and (ii) Permitted Holders holding, directly or indirectly, the control over fewer of the issued and outstanding Voting Stock of the Company measured by voting power rather than number of shares than such other person or group;

(iii) the sale, lease, transfer, conveyance or other disposition (other than by way of merger, or consolidation or other business combination transaction), in one or a series of related transactions, of all or substantially all of the assets of the Company and its Restricted Subsidiaries taken as a whole to a Person other than a Permitted Holder; or

(iv) the adoption of a plan relating to the liquidation, winding up or other disposition of all or substantially all of assets of the Company.

"**Senior Secured Debt**" means the aggregate principal amount outstanding, from time to time, under the Senior Secured Notes, any borrowings under the Senior Secured Facilities and any other liabilities of the Company or the Guarantors in respect of any loan, credit or guarantee facility, notes, indenture or security that rank equally in right of payment with the liabilities under the Senior Secured Notes and the Senior Secured Facilities, as applicable, and which are permitted to be incurred under the terms of the Super Senior Revolving Credit Facility and are permitted under the terms of the Intercreditor Agreement to share (and do share) in the Collateral on an equal and ratable basis as the creditors in relation to the Senior Secured Notes and Senior Secured Facilities.

Interest and Fees

The Super Senior Revolving Credit Facility bears interest at a rate per annum equal to EURIBOR, LIBOR, WIBOR, PRIBOR or BUBOR, as applicable, plus a margin of 2.00% per annum.

We are also required to pay a commitment fee in arrears at the end of each calendar quarter during the availability period, on available but unused commitments under the Super Senior Revolving Credit Facility at a rate of 35% of the applicable margin under the Super Senior Revolving Credit Facility.

We are also required to pay fees related to the issuance of ancillary facilities and certain fees to the arrangers, the Agent and the Security Agent in connection with the Super Senior Revolving Credit Facility.

Security and Guarantees

The Super Senior Revolving Credit Facility is being guaranteed irrevocably and unconditionally, subject to certain customary limitations and agreed security principles, on a joint and several basis, by the Company, Progroup Board GmbH, Progroup Logistics GmbH, Progroup Paper PM1 GmbH, Progroup Paper PM2 GmbH, Progroup Power 1 GmbH, Progroup Board s.r.o., Progroup Board sp. z o.o. and Progroup Board Ltd. (the "**Guarantors**").

The Super Senior Revolving Credit Facility also provides that (subject to certain customary limitations and agreed security principles):

- as at December 31 of each year (the "**Accounting Reference Date**"), the aggregate EBITDA of the Company and the Guarantors (calculated on the same basis as Consolidated EBITDA (as defined in the conditions of issue of the Senior Secured Notes), eliminating the effects of all intra-Group transactions and provided that the EBITDA of any entity that is negative shall be deemed to be zero, must represent at least 80% of the Consolidated EBITDA of the Group (with the EBITDA of any entity that is negative deemed to be zero) determined annually on the basis of the relevant financial statements of the members of the Group (the "**Guarantor Coverage Test**"); provided that no breach of the Guarantor Coverage Test shall occur if within 120 days of the delivery of the audited consolidated financial statements of the Company for the financial year ended on the relevant Accounting Reference Date to the Agent the Company procures, subject to agreed security principles, that additional Restricted Subsidiaries become Guarantors such that if they had been Guarantors on the relevant Accounting Reference Date, the Guarantor Coverage Test would have been satisfied.; and

- (i) any wholly-owned member of the Group that holds shares in an obligor (other than the Company) and (ii) a member of the Group (other than the Company) that has EBITDA (calculated on same basis as Consolidated EBITDA representing 10% or more of Consolidated EBITDA or has total assets or sales representing 10% or more of the total assets or sales of the Group (in each case, after elimination of any effects of any intra-Group

transactions) must become a guarantor under the Super Senior Revolving Credit Facility and grant security as the Agent may require (subject to customary limitations and agreed security principles), within 120 days.

Covenants

The Super Senior Revolving Credit Facility contains customary information and general loan style covenants as well as restrictive covenants that closely track those contained in the conditions of issue of the Senior Secured Notes. The Super Senior Revolving Credit Facility also requires the Company to monitor each member of the Group's financial and operating performance and to ensure that the Company is in compliance with the Interest Coverage Ratio (as defined below) in respect of any period of twelve months ending on a quarter-end date (a "**Testing Period**") during any time during which the aggregate base currency amount of all utilizations (in certain circumstances taking into account proposed utilizations) and cash ancillary outstandings under the Super Senior Revolving Credit Facility will be equal to or greater than 40 per cent. of the total commitments thereunder (a "**Trigger Period**").

"**Interest Coverage Ratio**" in respect of any Testing Period, means the ratio of (i) the aggregate amount of Consolidated EBITDA for such Testing Period to (ii) the aggregate amount of the Consolidated Net Interest Expenses of the Group for such Testing Period.

"**Consolidated Net Interest Expenses**" in respect of any Testing Period means the consolidated interest expenses (*Zinsaufwand*) of the Group for such Testing Period, excluding the consolidated interest-like expenses (*zinsähnlicher Aufwand*) of the Group for such Testing Period, after deducting the consolidated interest income (*Zinsertrag*) of the Group for such Testing Period.

The financial covenant relating to the "Interest Coverage Ratio" will be tested on quarterly test dates as long as a Trigger Period is continuing.

Interest Cover

While a Trigger Period has occurred and is continuing, the Interest Coverage Ratio shall not be less than 3.50:1, provided that, for a maximum of four times during the life of the facilities under the Super Senior Revolving Credit Facility, a breach of Interest Coverage Ratio covenant shall only constitute a default under the Super Senior Revolving Credit Facility if it is not complied with in respect of two successive Testing Periods.

Purchase Condition

The Super Senior Revolving Credit Facility only allows members of the Group to repay, purchase, defease or redeem (or otherwise retire for value) or acquire any Senior Secured Debt (as described under "*—Repayments and Prepayments*" above) prior to its stated maturity (or offer to do so) if either:

- such purchase being funded, directly or indirectly, with the proceeds of any Refinancing Indebtedness (as defined in the conditions of issue of the Senior Secured Notes) or the proceeds of a sale of Capital Stock (as defined in the conditions of issue of the Senior Secured Notes) of the Company, Subordinated Shareholder Debt (as defined in the conditions of issue of the Senior Secured Notes) or a contribution to the equity of the Company (other than by a subsidiary of the Company) in accordance with the restrictive covenants under the Super Senior Revolving Credit Facility (which closely track those that will be contained in the conditions of issue of the Senior Secured Notes;

- at the same time as the relevant purchase, the Company permanently cancels the total commitments and, if applicable, permanently prepays any utilizations in the same proportion as the amount of the purchase bears to the aggregate principal amount of our senior secured debt outstanding on March 27, 2018, provided that the Company shall only be required to cancel any commitments and prepay any utilizations in connection with any purchase until the total commitments (as so reduced) are equal to 40 percent of the total commitments under the Super Senior Revolving Credit Facility (after taking into account any prior increases as described under "*—Increase Option*" above;

- the Interest Coverage Ratio for the last Testing Period ending immediately prior to the date on which such purchase is contractually committed is equal to or higher than 3.50:1 after giving *pro forma* effect to the relevant purchase and any Indebtedness incurred to fund such purchase;

- such purchase is made following the occurrence of a Change of Control and the Company has fully complied with its obligations in relation to such Change of Control as set out under "*—Repayments and Prepayments*" above prior to any such purchase; or

- following the completion of the purchase, Senior Secured Debt (as described under "*—Repayments and Prepayments*" above) with an aggregate principal amount equal to 50% or more of the aggregate principal amount of our senior secured debt outstanding on March 27, 2018 will remain outstanding,

unless, in each case, a default is continuing or would result from the purchase.

EXISTING SENIOR SECURED PLN FACILITIES

On December 1, 2015, Progroup Board sp. z o.o., as borrower, the Company and the then-existing Guarantors, as guarantors, entered into a PLN-denominated senior secured facility agreement (the "**2015 Senior Secured PLN Facility**") with Commerzbank Aktiengesellschaft as facility agent, arranger and original lender. The 2015 Senior Secured PLN Facility provided for PLN 107 million of committed credit that Progroup Board sp. z o.o. could draw as an amortizing term loan until March 31, 2016 (the "**2015 Senior Secured PLN Facility Availability Period**"). As of the date of this special report, PLN 58.9 million in borrowings under the 2015 Senior Secured PLN Facility remained outstanding. The borrowings under the 2015 Senior Secured PLN Facility were used for the partial repayment of a then-existing intra-group loan between Progroup Board GmbH as lender and Progroup Board sp. z o.o. and the payment of related transaction costs.

In addition, on May 31, 2016, Progroup Board sp. z o.o., as borrower, the Company and the Guarantors, as guarantors, entered into another PLN-denominated senior secured facility agreement (the "**2016 Senior Secured PLN Facility**" and together with the 2015 Senior Secured PLN Facility, the "Existing **Senior Secured PLN Facilities**") with Commerzbank Aktiengesellschaft as facility agent, arranger and original lender to fund the establishment of our corrugated board production site (PW10) in Trzcinica, Poland. The 2016 Senior Secured PLN Facility also provides for PLN 107 million of committed credit that Progroup Board sp. z o.o. is required to fully draw as an amortizing term loan until May 31, 2017 (the "**2016 Senior Secured PLN Facility Availability Period**"). As of the date of this special report, PLN 76.0 million in borrowings under the 2016 Senior Secured PLN Facility remained outstanding.

On December 21, 2017, we entered into separate amendment and restatement agreements relating to the Existing Senior Secured PLN Facilities (each a "**2017 PLN Facility Amendment and Restatement Agreement**"). We subsequently cancelled and replaced the 2017 PLN Facility Amendment and Restatement Agreements by certain separate new amendment and restatement agreements, each dated March 26, 2018 (the "**2018 PLN Facility Amendment and Restatement Agreements**") to align the restrictive covenants in the covenant schedule of each Existing Senior Secured PLN Facility with the relevant restrictive covenants contained in the conditions of issue of the Senior Secured Notes. In addition, the 2018 PLN Facility Amendment and Restatement Agreements provided for a cashless conversion and re-borrowing under each Existing Senior Secured PLN Facility. The following descriptions of certain provisions of the Existing Senior Secured PLN Facilities summarize the relevant provisions of the existing Senior Secured PLN Facilities as amended and restated by the 2018 PLN Facility Amendment and Restatement Agreements, as so further amended.

Repayments and prepayments

The 2015 Senior Secured PLN Facility has a six year term and the 2016 Senior Secured PLN Facility has a five year team, each with a final maturity date of December 31, 2021 (the "**Final PLN Facility Maturity Date**").

Following an initial year of no repayments, Progroup Board sp. z. o.o. is required to repay the PLN 107 million in original borrowings under the 2015 Senior Secured PLN Facility in 20 equal, quarterly installments, commencing on March 31, 2017 and ending on the Final PLN Facility Maturity Date.

Progroup Board sp. z. o.o. is required to repay the PLN 107 million in original borrowings under the 2016 Senior Secured PLN Facility by repaying on each repayment date an amount which reduces the amount of the aggregate borrowings outstanding under the 2016 Senior Secured PLN Facility by an amount as set out in the following table:

Repayment Date	Repayment Installment in PLN	Repayment Date	Repayment Installment in PLN
June 30, 2017	5,000,000	December 31, 2019	4,000,000
September 30, 2017	5,000,000	March 31, 2020	5,500,000
December 31, 2017	5,000,000	June 30, 2020	5,500,000
March 31, 2018	3,000,000	September 30, 2020	5,500,000
June 30, 2018	3,000,000	December 31, 2020	5,500,000
September 30, 2018	3,000,000	March 31, 2021	10,500,000
December 31, 2018	3,000,000	June 30, 2021	10,500,000
March 31, 2019	4,000,000	September 30, 2021	10,500,000
June 30, 2019	4,000,000	Final PLN Facility	The remaining
September 30, 2019	4,000,000	Maturity Date	outstanding amount

Progroup Board sp. z o.o. may voluntarily prepay the whole or part of the loan outstanding under the relevant Existing Senior Secured PLN Facility by giving five business days' prior notice to the agent (but if in part, being an amount that reduces the amount of the loan by a minimum of PLN 5 million or the remainder if the outstanding loan is less than PLN 5 million).

In addition to voluntary prepayments, each Existing Senior Secured PLN Facility requires mandatory cancellation and, if applicable, prepayment in full with respect to any lender, if it becomes unlawful for such lender to perform any of its obligations under the relevant Existing Senior Secured PLN Facility.

Furthermore, upon the occurrence of a Change of Control (as defined below), the Company shall give notice to the agent under each Existing Senior Secured PLN Facility describing the transaction or transactions that constituted the Change of Control and offer to repay each lender's participation under the Existing Senior Secured PLN Facilities in the loans and to cancel each lender's commitment on the date specified in such notice (the "**Change of Control Offer**") which date shall be no earlier than 30 days and no later than 60 days from the date such notice is mailed (the "**Change of Control Repayment Date**") but no later than the respective change of control offer for any of the other senior secured debt. Pursuant to the Change of Control Offer, each lender under the Existing Senior Secured PLN Facilities will have the right to require Progroup Board sp. z o.o. to prepay all or any part of the principal amount of such lender's participation in the loans at a prepayment price in cash equal to (i) if the Change of Control occurs on or prior to December 31, 2020, 104.35% of the aggregate principal amount of such lender's participation in the loans; or (ii) if the Change of Control occurs after December 31, 2020, the aggregate principal amount of such lender's participation in the loans plus an indemnity for early repayment (*Vorfälligkeitsentschädigung*) determined by each lender in accordance with applicable law and jurisprudence, plus, in each case, accrued and unpaid interest, and any additional amounts accrued under the finance documents, if any to but excluding the Change of Control Repayment Date, whereupon the commitment of that lender will be cancelled.

"**Change of Control**", for purposes of the Existing Senior Secured PLN Facilities, means the occurrence of the following:

(i) for as long as no public market exists for the capital stock of the Company (or a holding company), the Company becoming aware of any person or group of persons acting in concert in the meaning given to such term in Section 2(5) of the German Securities Acquisition and Takeover Act (*Wertpapiererwerbs- und Übernahmegesetz*) other than a permitted shareholder acquiring and holding, directly or indirectly, the control over more than 50% issued and outstanding voting stock of the Company measured by voting power rather than number of shares;

(ii) at any time that a public market exists for the capital stock of the Company (or a holding company), the Company becoming aware of (i) any "person" or "group" of persons acting in concert in the meaning given to such term in Section 2(5) of the German Securities Acquisition and Takeover Act

(*Wertpapiererwerbs- und Übernahmegesetz*) other than a permitted shareholder acquiring and holding, directly or indirectly, the control over more than 30% issued and outstanding voting stock of the Company measured by voting power rather than number of shares and (ii) permitted shareholders holding, directly or indirectly, the control over fewer of the issued and outstanding voting stock of the Company measured by voting power rather than number of shares than such other person or group;

(iii) the sale, lease, transfer, conveyance or other disposition (other than by way of merger, or consolidation or other business combination transaction), in one or a series of related transactions, of all or substantially all of the assets of the Company and its restricted Subsidiaries taken as a whole to a person other than a permitted shareholder;

(iv) the adoption of a plan relating to the liquidation, winding up or other disposition of all or substantially all of the assets of the Company; or

(v) the Company ceases to hold (directly or indirectly) 100% of the shares in Progroup Board sp. z o.o.

Interest and Fees

The 2015 Senior Secured PLN Facility bears interest at a fixed rate of 4.27% per annum, and the 2016 Senior Secured PLN Facility bears interest at a fixed rate of 3.90% per annum.

Progroup Board sp. z o.o. was also required to pay a commitment fee in arrears at the end of each calendar quarter at a rate of 0.75% per annum with regard to any available but unused commitments under the 2016 Senior Secured PLN Facility during the period starting on July 11, 2016 until the last day of the 2016 Senior Secured PLN Facility Availability Period.

Progroup Board sp. z o.o. also paid upfront fees of €25,000 to Commerzbank Aktiengesellschaft, as arranger in connection with each Senior Secured PLN Facility.

EXISTING SENIOR SECURED IKB FACILITIES

On December 21, 2017, the Company, as company and borrower, Progroup Board GmbH and the other Guarantors as guarantors, entered into a euro-denominated senior secured facility agreement (the "**Existing Senior Secured EUR Facility**") with IKB Deutsche Industriebank AG as agent and original lender. The Senior Secured EUR Facility originally provided for €38,500,000 of total committed credit, including (i) a €8.5 million term loan facility ("**Facility A**") and (ii) a €30.0 million term loan facility ("**Facility B**"). Both Facility A and Facility B are refinanced by funds made available by Kreditanstalt für Wiederaufbau ("**KfW**"), the German government-owned development bank, under certain KfW programs that offer subsidized funding for eligible investments that promote energy efficiency. We have fully utilized both Facility A and Facility B. However, as of December 31, 2018, the amount repayable under Facility A was reduced to €7.155 million as a result of a €1.345 million repayment grant. On July 13, 2018, to fund a portion of the expected investment into the establishment of our new paper mill (PM3) in Sandersdorf-Brehna, Germany, the Company, Progroup Paper PM3 GmbH and the other Guarantors entered into an amendment and restatement of the Existing Senior Secured IKB Facilities, adding an additional €25.0 million term loan facility ("**Facility C**"), also refinanced by KfW, which may be utilized by Progroup Paper PM3 GmbH until August 10, 2019.

The dedicated purposes of the borrowings under the Existing Senior Secured IKB Facilities are (i) to fund the installation of a waste heat system for our paper machine (PM1) in Burg, Germany, in the case of the Facility A, (ii) to fund certain eligible investments in connection with the establishment of our new corrugated board "mega plant" (PW12) in Ellesmere Port, United Kingdom, in the case of the Facility B and (iii) to fund certain eligible investments in connection with the proposed establishment of our new paper mill (PM3) in Sandersdorf-Brehna, Germany, in the case of the Facility C.

Repayments and prepayments

The Facility A has a final maturity date of September 30, 2027, the Facility B has a final maturity date of December 30, 2027 and the Facility C has a final maturity date of 30 June 2028.

Subject to application of the repayment grant (*Tilgungszuschuss*) of €1,344,600 we were awarded as described below, we will be required to repay our borrowings under the Facility A in instalments by repaying on each Facility A repayment date an amount which reduces the amount of the outstanding borrowings under the Facility A by an amount as set out in the following table:

Facility A Repayment Date	Repayment Installment in EUR	Facility A Repayment Date	Repayment Installment in EUR
December 30, 2019	265,625	December 30, 2023	265,625
March 31, 2020	265,625	March 31, 2024	265,625
June 30, 2020	265,625	June 30, 2024	265,625
September 30, 2020	265,625	September 30, 2024	265,625
December 30, 2020	265,625	December 30, 2024	265,625
March 31, 2021	265,625	March 31, 2025	265,625
June 30, 2021	265,625	June 30, 2025	265,625
September 30, 2021	265,625	September 30, 2025	265,625
December 30, 2021	265,625	December 30, 2025	265,625
March 31, 2022	265,625	March 31, 2026	265,625
June 30, 2022	265,625	June 30, 2026	265,625
September 30, 2022	265,625	September 30, 2026	265,625
December 30, 2022	265,625	December 30, 2026	265,625
March 31, 2023	265,625	March 31, 2027	265,625
June 30, 2023	265,625	June 30, 2027	265,625
September 30, 2023	265,625	September 30, 2027	265,625

We will be required to repay our borrowings under the Facility B in instalments by repaying on each Facility B repayment date an amount which reduces the amount of the outstanding borrowings under the Facility B by an amount as set out in the following table:

Facility B Repayment Date	Repayment Installment in EUR	Facility B Repayment Date	Repayment Installment in EUR
March 31, 2020	937,500	March 31, 2024	937,500
June 30, 2020	937,500	June 30, 2024	937,500
September 30, 2020	937,500	September 30, 2024	937,500
December 30, 2020	937,500	December 30, 2024	937,500
March 31, 2021	937,500	March 31, 2025	937,500
June 30, 2021	937,500	June 30, 2025	937,500
September 30, 2021	937,500	September 30, 2025	937,500
December 30, 2021	937,500	December 30, 2025	937,500
March 31, 2022	937,500	March 31, 2026	937,500
June 30, 2022	937,500	June 30, 2026	937,500
September 30, 2022	937,500	September 30, 2026	937,500
December 30, 2022	937,500	December 31, 2026	937,500
March 31, 2023	937,500	March 31, 2027	937,500
June 30, 2023	937,500	June 30, 2027	937,500
September 30, 2023	937,500	September 30, 2027	937,500
December 30, 2023	937,500	December 31, 2027	937,500

We will be required to repay any borrowings under the Facility C in instalments by repaying on each Facility C repayment date an amount which reduces the amount of the outstanding borrowings under the Facility C by an amount as set out in the following table:

Facility C Repayment Date	Repayment Installment in EUR	Facility C Repayment Date	Repayment Installment in EUR
September 30, 2020	781,250	September 30, 2024	781,250
December 30, 2020	781,250	December 30, 2024	781,250
March 31, 2021	781,250	March 31, 2025	781,250
June 30, 2021	781,250	June 30, 2025	781,250
September 30, 2021	781,250	September 30, 2025	781,250
December 30, 2021	781,250	December 30, 2025	781,250
March 31, 2022	781,250	March 31, 2026	781,250
June 30, 2022	781,250	June 30, 2026	781,250
September 30, 2022	781,250	September 30, 2026	781,250
December 30, 2022	781,250	December 31, 2026	781,250
March 31, 2023	781,250	March 31, 2027	781,250
June 30, 2023	781,250	June 30, 2027	781,250
September 30, 2023	781,250	September 30, 2027	781,250
December 30, 2023	781,250	December 31, 2027	781,250
March 31, 2024	781,250	March 31, 2028	781,250
June 30, 2024	781,250	June 30, 2028	781,250

If the Facility A, the Facility B and/or the Facility C is not utilized in full at the end of the relevant availability period the relevant repayment instalments will, subject to the consent of KfW, be reduced *pro rata*. Should KfW withhold such consent, any unutilized amounts will be deducted from the relevant repayment instalments of the relevant facility in inverse chronological order, i.e. beginning with the repayment instalment for the last repayment date. In this case, the final maturity date of the relevant facility will be deemed to be the last repayment date on which a repayment instalment (or any part of it) remains to be made.

Under the terms of the Existing Senior Secured IKB Facilities, we may apply for a repayment grant (*Tilgungszuschuss*) of up to €1,344,600 with regard to Facility A and of up to €3.95 million with regard to Facility C, in each case funded from resources of the German Ministry of Economics and Technology (*BMWi*) on the repayment of all amounts borrowed under the relevant facility (each a "**KfW Repayment Grant**"). The amounts of each KfW Repayment Grant, if granted, are to be offset against the repayment instalments with regard to the relevant facility falling due after the date on which the KfW Repayment Grant is granted. According to the conditions applicable to the KfW Repayment Grant, we may only become entitled to the KfW Repayment Grant if, among other things: (i) KfW has received (via the Agent), in form and substance satisfactory to it, a use of funds certificate together with the relevant application promptly after the investment funded by the relevant facility has been made, subject to certain deadlines. If and to the extent the KfW Repayment Grant is awarded, the amounts granted thereunder are offset against the repayment instalments with regard to the relevant facility in inverse chronological order, i.e. beginning with the repayment instalment for the last repayment date with regard to the relevant facility. As of December 31, 2018, we were awarded the maximum KfW Repayment Grant of €1,344,600 with regard to the Facility A.

Subject to the payment of break costs, we may voluntarily prepay the whole or any part of any loan outstanding under the Existing Senior Secured IKB Facilities by giving ten business days' prior notice to the agent (but if in part, being an amount that reduces the amount of such loan by a minimum amount of €5 million or the remainder).

In addition to voluntary prepayments, the Existing Senior Secured IKB Facilities require mandatory cancellation and, if applicable prepayment in full with respect to any lender, if it becomes unlawful for such lender to perform any of its obligations under the Existing Senior Secured IKB Facilities.

Furthermore, upon the occurrence of a Change of Control (as defined below), the Company shall give notice to the agent under the Existing Senior Secured IKB Facilities describing the transaction or transactions that constituted the Change of Control and offer to repay each lender's participation in any loans under the Existing Senior Secured IKB Facilities in the loans on the date specified in such notice (the "**Change of Control Offer**") which date shall be no earlier than 30 days and no later than 60 days from the date such notice is mailed (the "**Change of Control Repayment Date**") but no later than the respective Change of Control Offer for any of the other senior secured debt. Pursuant to the Change of Control Offer, each lender under the Existing Senior Secured IKB Facilities will have the right to require us to prepay all or any part of the principal amount of such lender's participation in the loans plus break costs determined by each lender in accordance with applicable law and jurisprudence, at least in an amount requested from such lender by KfW, plus, in each case, accrued and unpaid interest, and any additional amounts accrued under the finance documents.

"**Change of Control**", for purposes of the Existing Senior Secured IKB Facilities, means the occurrence of the following:

(i) for as long as no public market exists for the capital stock of the Company (or a holding company), the Company becoming aware of any person or group of persons acting in concert in the meaning given to such term in Section 2(5) of the German Securities Acquisition and Takeover Act (*Wertpapiererwerbs- und Übernahmegesetz*) other than a Permitted Shareholder acquiring and holding, directly or indirectly, the control over more than 50% issued and outstanding voting stock of the Company measured by voting power rather than number of shares;

(ii) at any time that a public market exists for the capital stock of the company (or a holding company), the Company becoming aware of (i) any "person" or "group" of persons acting in concert in the meaning given to such term in Section 2(5) of the German Securities Acquisition and Takeover Act (*Wertpapiererwerbs- und Übernahmegesetz*) other than a permitted shareholder acquiring and holding, directly or indirectly, the control over more than 30% issued and outstanding voting stock of the Company measured by voting power rather than number of shares and (ii) permitted shareholders holding, directly or indirectly, the control over fewer of the issued and outstanding voting stock of the Company measured by voting power rather than number of shares than such other person or group;

(iii) the sale, lease, transfer, conveyance or other disposition (other than by way of merger, or consolidation or other business combination transaction), in one or a series of related transactions, of all or substantially all of the assets of the Company and its restricted subsidiaries taken as a whole to a person other than a permitted shareholder; or

(iv) the adoption of a plan relating to the liquidation, winding up or other disposition of all or substantially all of the assets of the Company;

(v) or in case of Facility C the Company ceases to hold (directly or indirectly) 100% of the shares in Progroup Paper PM3 GmbH.

Interest and Fees

All borrowings under the Facility A and the Facility B bear interest at a fixed rate of 2.45% per annum, and any borrowings under the Facility C will bear interest at a fixed rate of 2.00% per annum.

We are also required to pay a commitment fee in arrears on each March 31, June 30, September 30 and December 30 at a rate of 0.25% per month with regard to any available but unused commitments in relation to the Facility C during the period starting on the date falling one day after August 8, 2019, until the last day of the relevant availability period.

Covenants

In addition to customary information and general loan style covenants and restrictive covenants that closely track those contained in the conditions of issue of the Senior Secured Notes, the Existing Senior Secured IKB Facilities require us to

submit to KfW, via the agent under the Existing Senior Secured IKB Facilities, certain use of funds certificates (*Verwendungsnachweise*), providing evidence that we have made use of the funds borrowed under the Facility A, the Facility B and the Facility C, as applicable, in accordance with the specified purpose described above and relevant KfW program rules. Furthermore, we are required to procure that the investment measures implemented with the borrowings under the Facility A and Facility C are operated in accordance with their designated purpose for a period of at least five (5) years (the "**Minimum Operating Period**"), and during the Minimum Operating Period, no part of the relevant investments may, subject to the principle of proportionality, be abandoned or sold-off (unless the further operation in accordance with the designated purpose is safeguarded).

Application of KfW General Terms and Condition; KfW Events of Default

In addition to the terms set forth in the Existing Senior Secured IKB Facilities, our relationship with the lenders under the Existing Senior Secured IKB Facilities is also governed by the general terms and conditions of KfW, which are incorporated into the Existing Senior Secured IKB Facilities by reference. In case of any conflict between the provisions of the Existing Senior Secured IKB Facilities and the general terms and conditions of KfW, the provisions of the general terms and conditions of KfW will prevail. In particular, in addition to the customary events of the default contained in the Existing Senior Secured IKB Facilities as described under "*Overview*" above, the general terms and conditions of KfW also contain certain bespoke termination rights related to the quasi-governmental nature of the subsidized funding provided by KfW, through IKB Deutsche Industriebank AG, under the Existing Senior Secured IKB Facilities.

EXISTING SENIOR SECURED GBP FACILITY

On December 21, 2017, the Company, as company and guarantor, Progroup Board Ltd. as borrower and guarantor, and the other Guarantors, as guarantors, entered into a GBP-denominated senior secured facility agreement (the "**Existing Senior Secured GBP Facility**") with Goldman Sachs Bank USA, as original lender, and Goldman Sachs Lending Partners LLC, as agent. The Senior Secured GBP Facility provides for a GBP70,000,000 non-amortizing term loan, which Progroup Board Ltd. had fully drawn as of the date of this special report.

The Existing Senior Secured GBP Facility permits the borrowings under it to be used for (i) the partial refinancing of the former PIK toggle notes of our parent JH-Holding and our former senior secured fixed rate notes due 2022; (ii) any minority shareholder payments required in connection with the foregoing; (iii) refinancing investments or costs in connection with the establishment and/or start-up of our proposed corrugated board "mega plant" (PW12) in Ellesmere Port, United Kingdom; (iv) any transaction costs related to any of the foregoing; and (v) towards the repayment of certain intra-group loans granted by the Company which shall use such proceeds for the purpose of the foregoing clauses (i) through (iv).

Repayments and prepayments

The Existing Senior Secured GBP Facility has a final maturity date of June 30, 2025, at which date Progroup Board Ltd. will be required to repay the aggregate loans under the Senior Secured GBP Facility in full.

Progroup Board Ltd. may voluntarily prepay the whole or any part of the loan made available to it under the Existing Senior Secured GBP Facility by giving five business days' notice (or such shorter period as the majority lenders may agree) to the agent (but if in part, being an amount that reduces the amount of the loan by a minimum of GBP1 million or the remainder if the outstanding loan is less than GBP1 million).

In addition to voluntary prepayments, the Existing Senior Secured GBP Facility requires mandatory cancellation and, if applicable, prepayment in full with respect to any lender, if it becomes unlawful for such lender to perform any of its obligations under the Existing Senior Secured GBP Facility.

Furthermore, upon the occurrence of a Change of Control (as defined below), the Company shall give notice to the agent under the Existing Senior Secured GBP Facility describing the transaction or transactions that constituted the Change of Control and offer to repay each lender's participation in any loans under the Existing Senior Secured GBP Facility in the loans and to cancel each lender's commitment on the date specified in such notice (the "**Change of Control Offer**") which date shall be no earlier than 30 days and no later than 60 days from the date such notice is mailed (the "**Change of Control Repayment Date**") but no later than the respective Change of Control Offer for any of the other senior secured debt. Pursuant to the Change of Control Offer, each lender under the Existing Senior Secured GBP Facility will have the right to require Progroup Board Ltd. to prepay such lender's participation in the loans together with accrued and unpaid interest and any additional amounts accrued under the finance documents in respect of any such participation in any such loans on the Change of Control Prepayment Date, whereupon the commitment of that lender will be cancelled.

"**Change of Control**", for purposes of the Existing Senior Secured GBP Facility, means the occurrence of the following:

(i) for as long as no public market exists for the capital stock of the Company (or a holding company), the Company becoming aware of any person or group of persons acting in concert in the meaning given to such term in Section 2(5) of the German Securities Acquisition and Takeover Act (*Wertpapiererwerbs- und Übernahmegesetz*) other than a Permitted Shareholder acquiring and holding, directly or indirectly, the control over more than 50% issued and outstanding voting stock of the Company measured by voting power rather than number of shares;

(ii) at any time that a public market exists for the capital stock of the company (or a holding company), the Company becoming aware of (i) any "person" or "group" of persons acting in concert in the meaning given to such term in Section 2(5) of the German Securities Acquisition and Takeover Act (*Wertpapiererwerbs- und Übernahmegesetz*) other than a permitted shareholder acquiring and holding, directly or indirectly, the control over more than 30% issued and outstanding voting stock of the Company measured by voting power rather than number of shares and (ii) permitted shareholders holding, directly or indirectly, the control over fewer of the issued and outstanding voting stock of the Company measured by voting power rather than number of shares than such other person or group;

(iii) the sale, lease, transfer, conveyance or other disposition (other than by way of merger, or consolidation or other business combination transaction), in one or a series of related transactions, of all or substantially all of the assets of the Company and its restricted subsidiaries taken as a whole to a person other than a permitted shareholder;

(iv) the adoption of a plan relating to the liquidation, winding up or other disposition of all or substantially all of the assets of the Company; or

(v) the Company ceases to hold (directly or indirectly) 100% of the shares in Progroup Board Ltd.

Interest and Fees

The Existing Senior Secured GBP Facility bears interest at a rate per annum equal to LIBOR plus a margin of 3.00% per annum.

EXISTING SENIOR SECURED SAARLB FACILITY

On July 13, 2018, the Company, as company and guarantor, Progroup Paper PM 3 GmbH as borrower, and the other Guarantors as guarantors, entered into a euro-denominated senior secured facility agreement (the "**Existing Senior Secured SaarLB Facility**") with Landesbank Saar as agent and original lender. The Senior Secured SaarLB Facility provides for €25,000,000 of total committed credit (the "**Facility**"). The Facility is refinanced by funds made available by KfW under a certain KfW program that offers subsidized funding for eligible investments that promote energy efficiency. Progroup Paper PM3 GmbH may utilize the Facility until August 10, 2019.

The purpose of the borrowings under the Existing Senior Secured SaarLB Facility is to partially fund certain eligible investments in connection with the proposed establishment of our new paper mill (PM3) in Sandersdorf-Brehna, Germany.

Repayments and prepayments

The Facility has a final maturity date of September 30, 2028.

We will be required to repay our borrowings under the Facility in instalments by repaying on each repayment date an amount which reduces the amount of the outstanding borrowings by an amount as set out in the following table:

Facility Repayment Date	Repayment Installment in EUR	Facility Repayment Date	Repayment Installment in EUR
December 30, 2020	781,250	December 30, 2024	781,250
March 31, 2021	781,250	March 31, 2025	781,250
June 30, 2021	781,250	June 30, 2025	781,250
September 30, 2021	781,250	September 30, 2025	781,250
December 30, 2021	781,250	December 30, 2025	781,250
March 31, 2022	781,250	March 31, 2026	781,250
June 30, 2022	781,250	June 30, 2026	781,250
September 30, 2022	781,250	September 30, 2026	781,250
December 30, 2022	781,250	December 31, 2026	781,250
March 31, 2023	781,250	March 31, 2027	781,250
June 30, 2023	781,250	June 30, 2027	781,250
September 30, 2023	781,250	September 30, 2027	781,250
December 30, 2023	781,250	December 31, 2027	781,250
March 31, 2024	781,250	March 31, 2028	781,250
June 30, 2024	781,250	June 30, 2028	781,250
September 30, 2024	781,250	September 30, 2028	781,250

If the Facility is not utilized in full at the end of the availability period the relevant repayment instalments will be reduced *pro rata*, subject to the consent of KfW. Should KfW withhold such consent, any unutilized amounts will be deducted from the repayment instalments in inverse chronological order, i.e. beginning with the repayment instalment for the last repayment date. In this case, the final maturity date will be deemed to be the last repayment date on which a repayment instalment (or any part of it) remains to be made.

Under the terms of the Existing Senior Secured SaarLB Facility, we may apply for a repayment grant (*Tilgungszuschuss*) of up to €3,944,999.11 funded from resources of the German Ministry of Economics and Technology (*BMWi*) on the repayment of all amounts borrowed under the Facility (the "**KfW Repayment Grant**"). The amount of the KfW Repayment Grant, if granted, is to be offset against the repayment instalments falling due after the date on which the KfW Repayment Grant is granted. According to the conditions applicable to the KfW Repayment Grant, we may only become entitled to the KfW Repayment Grant if, among other things: (i) KfW has received (via the Agent), in form and substance satisfactory to it, a use of funds certificate together with the relevant application promptly after the investment funded by the Facility has been made, subject to certain deadlines. If and to the extent the KfW Repayment Grant is awarded, the amounts granted thereunder are offset against the repayment instalments with regard to the Facility in inverse chronological order, i.e. beginning with the repayment instalment for the last repayment date with regard to the Facility.

Subject to the payment of break costs, we may voluntarily prepay the whole or any part of any loan outstanding under the Existing Senior Secured SaarLB Facility by giving ten business days' prior notice to the agent (but if in part, being an amount that reduces the amount of such loan by a minimum amount of €3 million or the remainder). In case of a prepayment must be made prior to the next Interest Payment no break costs must be paid.

In addition to voluntary prepayments, the Existing Senior Secured SaarLB Facility requires mandatory cancellation and, if applicable prepayment in full with respect to any lender, if it becomes unlawful for such lender to perform any of its obligations under the Existing Senior Secured SaarLB Facility.

Furthermore, upon the occurrence of a Change of Control (as defined below), the Company shall give notice to the agent under the Existing Senior Secured SaarLB Facility describing the transaction or transactions that constituted the Change of Control and offer to repay each lender's participation in any loans and to cancel each Lender's Commitment under the Existing Senior Secured SaarLB Facility in the loans on the date specified in such notice (the "**Change of Control Offer**") which date shall be no earlier than 30 days and no later than 60 days from the date such notice is mailed (the "**Change of Control Repayment Date**") but no later than the respective Change of Control Offer for any of the other senior secured debt. Pursuant to the Change of Control Offer, each lender under the Existing Senior Secured SaarLB Facility will have the right to require us to prepay all or any part of the principal amount of such lender's participation in the loans plus break costs determined by each lender in accordance with applicable law and jurisprudence, at least in an amount requested from such lender by KfW, plus, in each case, accrued and unpaid interest, and any additional amounts accrued under the finance documents whereupon the Commitment of that Lender will be cancelled.

"**Change of Control**", for purposes of the Existing Senior Secured SaarLB Facility, means the occurrence of the following:

(i) for as long as no public market exists for the capital stock of the Company (or a holding company), the Company becoming aware of any person or group of persons acting in concert in the meaning given to such term in Section 2(5) of the German Securities Acquisition and Takeover Act (*Wertpapiererwerbs- und Übernahmegesetz*) other than a Permitted Shareholder acquiring and holding, directly or indirectly, the control over more than 50% issued and outstanding voting stock of the Company measured by voting power rather than number of shares;

(ii) at any time that a public market exists for the capital stock of the company (or a holding company), the Company becoming aware of (i) any "person" or "group" of persons acting in concert in the meaning given to such term in Section 2(5) of the German Securities Acquisition and Takeover Act (*Wertpapiererwerbs- und Übernahmegesetz*) other than a permitted shareholder acquiring and holding, directly or indirectly, the control over more than 30% issued and outstanding voting stock of the Company measured by voting power rather than number of shares and (ii) permitted shareholders holding, directly or indirectly, the control over fewer of the issued and outstanding voting stock of the Company measured by voting power rather than number of shares than such other person or group;

(iii) the sale, lease, transfer, conveyance or other disposition (other than by way of merger, or consolidation or other business combination transaction), in one or a series of related transactions, of all or substantially all of the assets of the Company and its restricted subsidiaries taken as a whole to a person other than a permitted shareholder; or

(iv) the adoption of a plan relating to the liquidation, winding up or other disposition of all or substantially all of the assets of the Company; or

(v) the Company ceases to hold (directly or indirectly) 100% of the shares in Progroup Paper PM3 GmbH.

Interest and Fees

All borrowings under the Facility bear interest at a fixed rate of 2.20% per annum.

We are also required to pay a commitment fee in arrears on each March 31, June 30, September 30 and December 30 at a rate of 0.25% per month with regard to any available but unused commitments in relation to the Facility during the period starting on the date falling one day after August 10, 2019, until the last day of the relevant availability period.

Covenants

In addition to customary information and general loan style covenants and restrictive covenants that closely track those contained in the conditions of issue of the Senior Secured Notes, the Existing Senior Secured SaarLB Facility requires us to submit to KfW, via the agent under the Existing Senior Secured SaarLB Facility, certain use of funds certificates (*Verwendungsnachweise*), providing evidence that we have made use of the funds borrowed under the Facility, as applicable, in accordance with the specified purpose described above and relevant KfW program rules. Furthermore, we are required to procure that the investment measures implemented with the borrowings under the Facility are operated in accordance with their designated purpose for a period of at least five (5) years (the "**Minimum Operating Period**"), and during the Minimum Operating Period, no part of the relevant investments may, subject to the principle of proportionality, be abandoned or sold-off (unless the further operation in accordance with the designated purpose is safeguarded).

Application of KfW General Terms and Condition; KfW Events of Default

In addition to the terms set forth in the Existing Senior Secured SaarLB Facility, our relationship with the lenders under the Existing Senior Secured SaarLB Facility is also governed by the general terms and conditions of KfW, which are incorporated into the Existing Senior Secured SaarLB Facility by reference. In case of any conflict between the provisions of the Existing Senior Secured SaarLB Facility and the general terms and conditions of KfW, the provisions of the general terms and conditions of KfW will prevail. In particular, in addition to the customary events of the default contained in the Existing Senior Secured SaarLB Facility as described under "*Overview*" above, the general terms and conditions of KfW also contain certain bespoke termination rights related to the quasi-governmental nature of the subsidized funding provided by KfW, through Landesbank Saar, under the Existing Senior Secured SaarLB Facility.

EXISTING SENIOR SECURED COMMERZBANK FACILITIES

On July 13, 2018, the Company, as company and guarantor, Progroup Paper PM3 GmbH as borrower and guarantor, and the other Guarantors as guarantors, entered into a euro-denominated senior secured facilities agreement (the "**Existing Senior Secured Commerzbank Facilities**") with Commerzbank Aktiengesellschaft as agent and original lender. The Existing Senior Secured Commerzbank Facilities provide for €75,000,000 of total committed credit, including (i) a €45 million term loan facility ("**Facility A**"), (ii) a €15.0 million term loan facility ("**Facility B**") and (iii) a further €15.0 million term loan facility ("**Facility C**"). Facility A is refinanced by funds made available by KfW under a certain KfW program that offers subsidized funding for eligible investments that promote energy efficiency. We have fully utilized both Facility B and Facility C. Unless previously utilized, Facility A will be automatically utilized on August 10, 2019, provided the proceeds can be used in accordance with the conditions of the KfW program.

The purpose of the borrowings under the Existing Senior Secured Commerzbank Facilities is to fund certain eligible investments in connection with the proposed establishment of our new paper mill (PM3) in Sandersdorf-Brehna, Germany. Borrowings under Facility B and Facility C may also be used for other capital expenditures of the Group if we reasonably conclude that the amounts borrowed count for the purpose of financing PM3.

Repayments and prepayments

The Facility A has a final maturity date of September 30, 2028 and Facility B and Facility C have a final maturity date of September 30, 2028.

We will be required to repay our borrowings under the Facility A in instalments by repaying on each Facility A repayment date an amount which reduces the amount of the outstanding borrowings under the Facility A by an amount as set out in the following table:

Facility A Repayment Date	Repayment Installment in EUR	Facility A Repayment Date	Repayment Installment in EUR
December 30, 2020	1,406,250	December 30, 2024	1,406,250
March 31, 2021	1,406,250	March 31, 2025	1,406,250
June 30, 2021	1,406,250	June 30, 2025	1,406,250
September 30, 2021	1,406,250	September 30, 2025	1,406,250
December 30, 2021	1,406,250	December 30, 2025	1,406,250
March 31, 2022	1,406,250	March 31, 2026	1,406,250
June 30, 2022	1,406,250	June 30, 2026	1,406,250
September 30, 2022	1,406,250	September 30, 2026	1,406,250
December 30, 2022	1,406,250	December 30, 2026	1,406,250
March 31, 2023	1,406,250	March 31, 2027	1,406,250
June 30, 2023	1,406,250	June 30, 2027	1,406,250
September 30, 2023	1,406,250	September 30, 2027	1,406,250
December 30, 2023	1,406,250	December 30, 2027	1,406,250
March 31, 2024	1,406,250	March 31, 2028	1,406,250
June 30, 2024	1,406,250	June 30, 2028	1,406,250
September 30, 2024	1,406,250	September 30, 2028	1,406,250

We will be required to repay our borrowings under the Facility B in instalments by repaying on each Facility B repayment date an amount which reduces the amount of the outstanding borrowings under the Facility B by an amount as set out in the following table:

Facility B Repayment Date	Repayment Installment in EUR	Facility B Repayment Date	Repayment Installment in EUR
June 30, 2021	500,000	March 31, 2025	500,000
September 30, 2021	500,000	June 30, 2025	500,000
December 30, 2021	500,000	September 30, 2025	500,000
March 31, 2022	500,000	December 30, 2025	500,000
June 30, 2022	500,000	March 31, 2026	500,000
September 30, 2022	500,000	June 30, 2026	500,000
December 30, 2022	500,000	September 30, 2026	500,000
March 31, 2023	500,000	December 30, 2026	500,000
June 30, 2023	500,000	March 31, 2027	500,000
September 30, 2023	500,000	June 30, 2027	500,000
December 30, 2023	500,000	September 30, 2027	500,000
March 31, 2024	500,000	December 30, 2027	500,000
June 30, 2024	500,000	March 31, 2028	500,000
September 30, 2024	500,000	June 30, 2028	500,000
December 30, 2024	500,000	September 30, 2028	500,000

We will be required to repay any borrowings under the Facility C in instalments by repaying on each Facility C repayment date an amount which reduces the amount of the outstanding borrowings under the Facility C by an amount as set out in the following table:

Facility C Repayment Date	Repayment Installment in EUR	Facility C Repayment Date	Repayment Installment in EUR
June 30, 2021	500,000	March 31, 2025	500,000
September 30, 2021	500,000	June 30, 2025	500,000
December 30, 2021	500,000	September 30,	500,000
March 31, 2022	500,000	December 30, 2025	500,000
June 30, 2022	500,000	March 31, 2026	500,000
September 30, 2022	500,000	June 30, 2026	500,000
December 30, 2022	500,000	September 30, 2026	500,000
March 31, 2023	500,000	December 30, 2026	500,000
June 30, 2023	500,000	March 31, 2027	500,000
September 30, 2023	500,000	June 30, 2027	500,000
December 30, 2023	500,000	September 30, 2027	500,000
March 31, 2024	500,000	December 30, 2027	500,000
June 30, 2024	500,000	March31, 2028	500,000
September 30, 2024	500,000	June 30, 2027	500,000
December 30, 2024	500,000	September 30, 2028	500,000

If Facility A is not utilized in full at the end of the availability period the repayment instalments will, subject to the consent of KfW, be reduced *pro rata*. Should KfW withhold such consent, any unutilized amounts will be deducted from the repayment instalments of Facility A in inverse chronological order, i.e. beginning with the repayment instalment for the last repayment date. In this case, the final maturity date of Facility A will be deemed to be the last repayment date on which a repayment instalment (or any part of it) remains to be made.

Under the terms of the Existing Senior Secured Commerzbank Facilities, we may apply for a repayment grant (*Tilgungszuschuss*) of up to €7,109,999.85 with regard to Facility A funded from resources of the German Ministry of Economics and Technology (*BMWi*) on the repayment of all amounts borrowed under Facility A (each a "**KfW Repayment Grant**"). The amounts of the KfW Repayment Grant, if granted, are to be offset against the repayment instalments with regard to Facility A falling due after the date on which the KfW Repayment Grant is granted. According to the conditions applicable to the KfW Repayment Grant, we may only become entitled to the KfW Repayment Grant if, among other things: (i) KfW has received (via the Agent), in form and substance satisfactory to it, a use of funds certificate together with the relevant application promptly after the investment funded by Facility A has been made, subject to certain deadlines. If and to the extent the KfW Repayment Grant is awarded, the amounts granted thereunder are offset against the repayment instalments with regard to Facility A in inverse chronological order, i.e. beginning with the repayment instalment for the last repayment date with regard to the Facility A.

Subject to the payment of break costs, we may voluntarily prepay the whole or any part of any loan outstanding under the Existing Senior Secured Commerzbank Facilities by giving ten business days' prior notice to the agent and provided KfW has consented to any voluntary prepayment of a loan under Facility A (but if in part, being an amount that reduces the amount of such loan by a minimum amount of €5.0 million or the remainder).

If we have not been awarded a KfW Repayment Grant by December 31, 2021 in an amount of at least €9.0 million which has been offset against the Facility A repayment instalments; then we will on March 31, 2025, in addition to the Facility A repayment instalment, the Facility B repayment instalment and the Facility C repayment instalment, make a mandatory prepayment (*Sondertilgung*) in an amount equal to any shortfall between (i) the amount of any KfW Repayment Grant actually offset against the Facility A repayment instalments by that date and (ii) €9.0 million. Any such mandatory prepayment shall be applied against any outstanding Facility B repayment instalments, Facility C repayment instalments due on that date in inverse chronological order, i.e. beginning with the repayment instalment for the last relevant repayment date. No Break Costs needs to be paid in case such repayment must be made.

In addition to voluntary prepayments, the Existing Senior Secured Commerzbank Facilities require mandatory cancellation and, if applicable prepayment in full with respect to any lender, if it becomes unlawful for such lender to perform any of its obligations under the Existing Senior Secured Commerzbank Facilities.

Furthermore, upon the occurrence of a Change of Control (as defined below), the Company shall give notice to the agent under the Existing Senior Secured Commerzbank Facilities describing the transaction or transactions that constituted the Change of Control and offer to repay each lender's participation in any loans and to cancel each Lender's Commitment under the Existing Senior Secured Commerzbank Facilities in the loans on the date specified in such notice (the "**Change of Control Offer**") which date shall be no earlier than 30 days and no later than 60 days from the date such notice is mailed (the "**Change of Control Repayment Date**") but no later than the respective Change of Control Offer for any of the other senior secured debt. Pursuant to the Change of Control Offer, each lender under the Existing Senior Secured Commerzbank Facilities will have the right to require us to prepay all or any part of the principal amount of such lender's participation in the loans plus break costs determined by each lender in accordance with applicable law and jurisprudence, at least in an amount requested from such lender by KfW, plus, in each case, accrued and unpaid interest, and any additional amounts accrued under the finance documents, whereupon the Commitments of the Lender will be canceled.

"**Change of Control**", for purposes of the Existing Senior Secured Commerzbank Facilities, means the occurrence of the following:

(i) for as long as no public market exists for the capital stock of the Company (or a holding company), the Company becoming aware of any person or group of persons acting in concert in the meaning given to such term in Section 2(5) of the German Securities Acquisition and Takeover Act (*Wertpapiererwerbs- und Übernahmegesetz*) other than a Permitted Shareholder acquiring and holding, directly or indirectly, the control over more than 50% issued and outstanding voting stock of the Company measured by voting power rather than number of shares;

(ii) at any time that a public market exists for the capital stock of the company (or a holding company), the Company becoming aware of (i) any "person" or "group" of persons acting in concert in the meaning given to such term in Section 2(5) of the German Securities Acquisition and Takeover Act (*Wertpapiererwerbs- und Übernahmegesetz*) other than a permitted shareholder acquiring and holding, directly or indirectly, the control over more than 30% issued and outstanding voting stock of the Company measured by voting power rather than number of shares and (ii) permitted shareholders holding, directly or indirectly, the control over fewer of the issued and outstanding voting stock of the Company measured by voting power rather than number of shares than such other person or group;

(iii) the sale, lease, transfer, conveyance or other disposition (other than by way of merger, or consolidation or other business combination transaction), in one or a series of related transactions, of all or substantially all of the assets of the Company and its restricted subsidiaries taken as a whole to a person other than a permitted shareholder; or

(iv) the adoption of a plan relating to the liquidation, winding up or other disposition of all or substantially all of the assets of the Company; or

(v) the Company ceases to hold (directly or indirectly) 100% of the shares in Progroup Paper PM3 GmbH.

Interest and Fees

All borrowings under the Facility A will bear interest at a fixed rate of 2.3% per annum. All borrowings under the Facility B and the Facility C will bear interest at a fixed rate of 2.3% per annum.

We are also required to pay a commitment fee in arrears on each March 31, June 30, September 30 and December 30 at a rate of 0.25% per month with regard to any available but unused commitments in relation to the Facility A during the period starting on the date falling one day after August 10, 2019, until the last day of the relevant availability period.

Covenants

In addition to customary information and general loan style covenants and restrictive covenants that closely track those contained in the conditions of issue of the Senior Secured Notes, the Existing Senior Secured Commerzbank Facilities require us to submit to KfW, via the agent under the Existing Senior Secured Commerzbank Facilities, certain use of funds certificates (*Verwendungsnachweise*), providing evidence that we have made use of the funds borrowed under the Facility A in accordance with the specified purpose described above and relevant KfW program rules. Furthermore, we are required to procure that the investment measures implemented with the borrowings under the Facility A are operated in accordance with their designated purpose for a period of at least five (5) years (the "**Minimum Operating Period**"), and during the Minimum Operating Period, no part of the relevant investments may, subject to the principle of proportionality, be abandoned or sold-off (unless the further operation in accordance with the designated purpose is safeguarded).

Application of KfW General Terms and Condition; KfW Events of Default

In addition to the terms set forth in the Existing Senior Secured Commerzbank Facilities, our relationship with the lenders with regard to Facility A is also governed by the general terms and conditions of KfW, which are incorporated into the Existing Senior Secured Commerzbank Facilities by reference. In case of any conflict between the provisions of the Existing Senior Secured Commerzbank Facilities and the general terms and conditions of KfW, the provisions of the general terms and conditions of KfW will prevail in relation to the Facility A. In particular, in addition to the customary events of the default contained in the Existing Senior Secured Commerzbank Facilities as described under "*Overview*" above, the general terms and conditions of KfW also contain certain bespoke termination rights related to the quasi-governmental nature of the subsidized funding provided by KfW, through Commerzbank AG, under the Facility A.

EXISTING SENIOR SECURED HSBC FACILITY

On August 6, 2018, the Company, as company and guarantor, Progroup Paper PM3 GmbH as borrower and guarantor, and the other Guarantors as guarantors, entered into a euro-denominated senior secured facility agreement (the "**Existing Senior Secured HSBC Facility**") with HSBC Trinkhaus & Burkhardt AG, as original lender and agent. The Existing Senior Secured HSBC Facility provides for a €30,000,000 non-amortizing loan, which Progroup Paper PM3 GmbH may utilize until November 30, 2023.

The dedicated purpose of our borrowings under the Existing Senior Secured HSBC Facility is to fund or refinance our proposed investments in connection with the proposed establishment of our new paper mill (PM3) in Sandersdorf-Brehna, Germany.

Repayments and prepayments

The Existing Senior Secured HSBC Facility has a final maturity date of December 31, 2023, at which date Progroup Paper PM3 GmbH will be required to repay the any loans under the Senior Secured HSBC Facility in full.

Progroup Paper PM3 GmbH may voluntarily prepay the whole or any part of the loan made available to it under the Existing Senior Secured HSBC Facility by giving not less than three business days' notice (or such shorter period as the majority lenders may agree) to the agent (but if in part, being an amount that reduces the amount of the loan by a minimum of €1.0 million or the remainder if the outstanding loan is less than €1.0 million).

In addition to voluntary prepayments, the Existing Senior Secured HSBC Facility requires mandatory cancellation and, if applicable, prepayment in full with respect to any lender, if it becomes unlawful for such lender to perform any of its obligations under the Existing Senior Secured HSBC Facility.

The Existing Senior Secured HSBC Facility also provides for a voluntary cancellation, upon a three business days' notice, of the whole or any part (being a minimum amount of €1.0 million or the remainder if the commitments are less than €1.0 million) of the available facility under the Existing Senior Secured HSBC Facility.

Furthermore, upon the occurrence of a Change of Control (as defined below), the Company shall give notice to the agent under the Existing Senior Secured HSBC Facility describing the transaction or transactions that constituted the Change of Control and offer to repay each lender's participation in any loans under the Existing Senior Secured HSBC Facility in the loans and to cancel each lender's commitment on the date specified in such notice (the "**Change of Control Offer**") which date shall be no earlier than 30 days and no later than 60 days from the date such notice is mailed (the "**Change of Control Repayment Date**") but no later than the respective Change of Control Offer for any of the other senior secured debt. Pursuant to the Change of Control Offer, each lender under the Existing Senior Secured HSBC Facility will have the right to require Progroup Paper PM3 GmbH to prepay such lender's participation in the loans together with accrued and unpaid

interest and any additional amounts accrued under the finance documents in respect of any such participation in any such loans on the Change of Control Prepayment Date, whereupon the commitment of that lender will be cancelled.

"**Change of Control**", for purposes of the Existing Senior Secured HSBC Facility, means the occurrence of the following:

(i) for as long as no public market exists for the capital stock of the Company (or a holding company), the Company becoming aware of any person or group of persons acting in concert in the meaning given to such term in Section 2(5) of the German Securities Acquisition and Takeover Act (*Wertpapiererwerbs- und Übernahmegesetz*) other than a Permitted Shareholder acquiring and holding, directly or indirectly, the control over more than 50% issued and outstanding voting stock of the Company measured by voting power rather than number of shares;

(ii) at any time that a public market exists for the capital stock of the company (or a holding company), the Company becoming aware of (i) any "person" or "group" of persons acting in concert in the meaning given to such term in Section 2(5) of the German Securities Acquisition and Takeover Act (*Wertpapiererwerbs- und Übernahmegesetz*) other than a permitted shareholder acquiring and holding, directly or indirectly, the control over more than 30% issued and outstanding voting stock of the Company measured by voting power rather than number of shares and (ii) permitted shareholders holding, directly or indirectly, the control over fewer of the issued and outstanding voting stock of the Company measured by voting power rather than number of shares than such other person or group;

(iii) the sale, lease, transfer, conveyance or other disposition (other than by way of merger, or consolidation or other business combination transaction), in one or a series of related transactions, of all or substantially all of the assets of the Company and its restricted subsidiaries taken as a whole to a person other than a permitted shareholder;

(iv) the adoption of a plan relating to the liquidation, winding up or other disposition of all or substantially all of the assets of the Company.

Interest and Fees

The Existing Senior Secured HSBC Facility bears an interest rate per annum equal to EURIBOR plus a margin of 2.5 % per annum.

NEW SENIOR SECURED ERSTE BANK FACILITY

On May 31, 2019, the Company as company, borrower and guarantor, and the other Guarantors as guarantors entered into a euro-denominated senior secured facility agreement (the "**New Senior Secured Erste Bank Facility**") with Erste Bank Group AG as original lender and agent. The New Senior Secured Erste Bank Facility provides for a €30,000,000 non-amortizing term loan (the "**Facility**"), which the Company may utilize until June 30, 2021.

The dedicated purposes of the borrowings under the New Senior Secured Erste Bank Facility are to finance or refinance investments or costs in connection with the proposed establishment and/or the startup of a corrugated board "mega plant" (PM14) or refinancing of investments or costs in connection with other investment projects of the Group.

Repayments and prepayments

The New Senior Secured Erste Bank Facility has a final maturity date of December 31, 2029.

We will be required to repay our borrowings under the Facility in instalments by repaying on each Facility repayment date an amount which reduces the amount of the outstanding borrowings under the Facility by an amount as set out in the following table:

Facility Repayment Date	Repayment Installment in EUR	Facility Repayment Date	Repayment Installment in EUR
September 30, 2021	937,500	September 30, 2025	937,500
December 31, 2021	937,500	December 31, 2025	937,500
March 31, 2022	937,500	March 31, 2026	937,500
June 30, 2022	937,500	June 30, 2026	937,500
September 30, 2022	937,500	September 30, 2026	937,500
December 31, 2022	937,500	December 31, 2026	937,500
March 31, 2023	937,500	March 31, 2027	937,500
June 30, 2023	937,500	June 30, 2027	937,500
September 30, 2023	937,500	September 30, 2027	937,500
December 31, 2023	937,500	December 31, 2027	937,500
March 31, 2024	937,500	March 31, 2028	937,500
June 30, 2024	937,500	June 30, 2028	937,500
September 30, 2024	937,500	September 30, 2028	937,500
December 31, 2024	937,500	December 31, 2028	937,500
March 31, 2025	937,500	March 30, 2029	937,500
June 30, 2025	937,500	Final Maturity Date	937,500

If the Facility is not utilized in full at the end of the availability period the relevant instalments will be reduced *pro rata*.

The Company may voluntarily prepay the whole or any part of any loans made available to it under the New Senior Secured Erste Bank Facility by giving not less than five business days' notice (or such shorter period as the majority lenders may agree) to the agent (but if in part, being an amount that reduces the amount of the loan by a minimum of €1.0 million or the remainder if the outstanding loan is less than €1.0 million).

In addition to voluntary prepayments, the New Senior Secured Erste Bank Facility requires mandatory cancellation and, if applicable, prepayment in full with respect to any lender, if it becomes unlawful for such lender to perform any of its obligations under the New Senior Secured Erste Bank Facility. The New Senior Secured Erste Bank Facility also provides for a voluntary cancellation, upon a three business days' notice, of the whole or any part (being a minimum amount of €1.0 million or the remainder if the commitments are less than €1.0 million) of each available Facility under the New Senior Secured Erste Bank Facility.

Furthermore, upon the occurrence of a Change of Control (as defined below), the Company shall give notice to the agent under the New Senior Secured Erste Bank Facility describing the transaction or transactions that constituted the Change of Control and offer to repay each lender's participation in any loans under the New Senior Secured Erste Bank Facility in the loans and to cancel each lender's commitment on the date specified in such notice (the "**Change of Control Offer**") which date shall be no earlier than 30 days and no later than 60 days from the date such notice is mailed (the "**Change of Control Repayment Date**") but no later than the respective Change of Control Offer for any of the other senior secured debt. Pursuant to the Change of Control Offer, each lender under the New Senior Secured Erste Bank Facility will have the right

to require the Company to prepay such lender's participation in the loans together with accrued and unpaid interest and any additional amounts accrued under the finance documents in respect of any such participation in any such loans on the Change of Control Prepayment Date, whereupon the commitment of that lender will be cancelled.

"**Change of Control**", for purposes of the New Senior Secured Erste Bank Facility, means the occurrence of the following:

(i) for as long as no public market exists for the capital stock of the Company (or a holding company), the Company becoming aware of any person or group of persons acting in concert in the meaning given to such term in Section 2(5) of the German Securities Acquisition and Takeover Act (*Wertpapiererwerbs- und Übernahmegesetz*) other than a Permitted Shareholder acquiring and holding, directly or indirectly, the control over more than 50% issued and outstanding voting stock of the Company measured by voting power rather than number of shares;

(ii) at any time that a public market exists for the capital stock of the company (or a holding company), the Company becoming aware of (i) any "person" or "group" of persons acting in concert in the meaning given to such term in Section 2(5) of the German Securities Acquisition and Takeover Act (*Wertpapiererwerbs- und Übernahmegesetz*) other than a permitted shareholder acquiring and holding, directly or indirectly, the control over more than 30% issued and outstanding voting stock of the Company measured by voting power rather than number of shares and (ii) permitted shareholders holding, directly or indirectly, the control over fewer of the issued and outstanding voting stock of the Company measured by voting power rather than number of shares than such other person or group;

(iii) the sale, lease, transfer, conveyance or other disposition (other than by way of merger, or consolidation or other business combination transaction), in one or a series of related transactions, of all or substantially all of the assets of the Company and its restricted subsidiaries taken as a whole to a person other than a permitted shareholder;

(iv) the adoption of a plan relating to the liquidation, winding up or other disposition of all or substantially all of the assets of the Company; or

(v) the Company ceases to hold (directly or indirectly) 100% of the shares in Progroup AG.

Interest and Fees

The New Senior Secured Erste Bank Facility bears an interest rate per annum equal to EURIBOR plus margin. The initial margin in respect of any loan is 1.85 per cent. per annum. Following September 30, 2019 the margin for each loan will be determined by reference to the consolidated net leverage ratio as set out below:

Consolidated Net Leverage Ratio	Margin per cent. per annum
Greater than 3.50:1	2.60
Equal to or less than 3.50:1	1.85

Any such increase or decrease in the margin for a loan shall take effect on the date which is three business days after receipt by the agent of a relevant compliance certificate and if and for so long as the relevant compliance certificate is not delivered in accordance with the relevant provisions of the New Senior Secured Erste Bank Facility, the margin for each loan will be the highest percentage per annum set out above.

We are also required to pay a commitment fee in arrears at the end of each calendar quarter at a rate per annum which is equal to 35 per cent. of the margin on the available commitments from the signing date to the end of the availability period.

NEW SENIOR SECURED LBBW FACILITIES

On May 31, 2019, the Company as company, borrower and guarantor, and the other Guarantors as guarantors entered into a euro-denominated senior secured facilities agreement (the "**New Senior Secured LBBW Facilities**") with Landesbank Baden-Württemberg as agent and original lender. The New Senior Secured Facilities provide for €30,000,000 of total committed credit, including (i) a €15 million term loan facility ("**Facility A**") and a €15.0 million term loan facility ("**Facility B**"). Facility A is refinanced by funds made available by KfW under a certain KfW program that offers subsidized funding for eligible investments that promote energy efficiency.

The purposes of the borrowings under the New Senior Secured LBBW Facilities is to fund certain eligible investments in connection with the proposed establishment and/or startup of a corrugated board. Borrowings under Facility B may also be

used for the financing or refinancing of investments or costs in connection with other investment projects of the Group or the general corporate purposes of the Group.

Repayments and prepayments

The Facility A has a final maturity date of June 30, 2029 and the Facility B has a final maturity date of June 30, 2029.

We will be required to repay our borrowings under the Facility A in instalments by repaying on each Facility A repayment date an amount which reduces the amount of the outstanding borrowings under the Facility A by an amount as set out in the following table:

Facility A Repayment Date	Repayment Installment in EUR	Facility A Repayment Date	Repayment Installment in EUR
September 30, 2021	468,750	September 30, 2025	468,750
December 30, 2021	468,750	December 30, 2025	468,750
March 31, 2022	468,750	March 31, 2026	468,750
June 30, 2022	468,750	June 30, 2026	468,750
September 30, 2022	468,750	September 30, 2026	468,750
December 30, 2022	468,750	December 30, 2026	468,750
March 31, 2023	468,750	March 31, 2027	468,750
June 30, 2023	468,750	June 30, 2027	468,750
September 30, 2023	468,750	September 30, 2027	468,750
December 30, 2023	468,750	December 30, 2027	468,750
March 31, 2024	468,750	March31, 2028	468,750
June 30, 2024	468,750	June 30, 2028	468,750
September 30, 2024	468,750	September 30, 2028	468,750
December 30, 2024	468,750	December 30, 2028	468,750
March 31, 2025	468,750	March 31, 2029	468,750
June 30, 2025	468,750	June 30, 2029	468,750

We will be required to repay any borrowings under the Facility B in instalments by repaying on each Facility B repayment date an amount which reduces the amount of the outstanding borrowings under the Facility B by an amount as set out in the following table:

Facility B Repayment Date	Repayment Installment in EUR	Facility B Repayment Date	Repayment Installment in EUR
September 30, 2021	468,750	September 30, 2025	468,750
December 30, 2021	468,750	December 30, 2025	468,750
March 31, 2022	468,750	March 31, 2026	468,750
June 30, 2022	468,750	June 30, 2026	468,750
September 30, 2022	468,750	September 30, 2026	468,750
December 30, 2022	468,750	December 30, 2026	468,750
March 31, 2023	468,750	March 31, 2027	468,750
June 30, 2023	468,750	June 30, 2027	468,750
September 30, 2023	468,750	September 30, 2027	468,750
December 30, 2023	468,750	December 30, 2027	468,750
March 31, 2024	468,750	March31, 2028	468,750
June 30, 2024	468,750	June 30, 2028	468,750
September 30, 2024	468,750	September 30, 2028	468,750
December 30, 2024	468,750	December 30, 2028	468,750
March 31, 2025	468,750	March31, 2029	468,750
June 30, 2025	468,750	June 30, 2029	468,750

If a Facility is not utilized in full at the end of its availability period or any loans are repaid or prepaid, the repayment instalments will, subject to the consent of KfW in case of the Facility A, be reduced *pro rata*. Should, in the case of Facility A, KfW withhold such consent, any unutilized amounts will be deducted from the relevant repayment instalments of the relevant facility in inverse chronological order, i.e. beginning with the repayment instalment for the last repayment date. In this case, the final maturity date of the relevant facility will be deemed to be the last repayment date on which a repayment instalment (or any part of it) remains to be made.

Subject to the payment of break costs, we may voluntarily prepay the whole or any part of the loan outstanding under the New Senior Secured LBBW Facilities by giving not less than ten business days' notice (or such shorter period as the majority lenders may agree) (and provided that KfW has consented to any such a voluntary prepayment of any Facility A Loans) to the agent (but if in part, being an amount that reduces the amount of the loan by a minimum of €1 million or the remainder if the outstanding loan is less than €1 million).

In addition to voluntary prepayments, the New Senior Secured LBBW Facilities require mandatory cancellation and, if applicable prepayment in full with respect to any lender, if it becomes unlawful for such lender to perform any of its obligations under the New Senior Secured LBBW Facilities.

Furthermore, upon the occurrence of a Change of Control (as defined below), the Company shall give notice to the agent under the New Senior Secured LBBW Facilities describing the transaction or transactions that constituted the Change of Control and offer to repay each lender's participation in any loans and to cancel each Lender's Commitment under the New Senior Secured LBBW Facilities in the loans on the date specified in such notice (the "**Change of Control Offer**") which

date shall be no earlier than 30 days and no later than 60 days from the date such notice is mailed (the "**Change of Control Repayment Date**") but no later than the respective Change of Control Offer for any of the other senior secured debt. Pursuant to the Change of Control Offer, each lender under the New Senior Secured LBBW Facilities will have the right to require us to repay such lender's participation in any loans together with break costs determined by each lender in accordance with applicable law and jurisprudence, at least in an amount requested from such lender by KfW, plus, in each case, accrued and unpaid interest, and any additional amounts accrued under the finance documents , whereupon the Commitments of the Lender will be canceled in respect of an such participation in any such loans on the Change of Control Repayment Date.

"**Change of Control**", for purposes of the New Senior Secured LBBW Facilities, means the occurrence of the following:

(i) for as long as no public market exists for the capital stock of the Company (or a holding company), the Company becoming aware of any person or group of persons acting in concert in the meaning given to such term in Section 2(5) of the German Securities Acquisition and Takeover Act (*Wertpapiererwerbs- und Übernahmegesetz*) other than a Permitted Shareholder acquiring and holding, directly or indirectly, the control over more than 50% issued and outstanding voting stock of the Company measured by voting power rather than number of shares;

(ii) at any time that a public market exists for the capital stock of the company (or a holding company), the Company becoming aware of (i) any "person" or "group" of persons acting in concert in the meaning given to such term in Section 2(5) of the German Securities Acquisition and Takeover Act (*Wertpapiererwerbs- und Übernahmegesetz*) other than a permitted shareholder acquiring and holding, directly or indirectly, the control over more than 30% issued and outstanding voting stock of the Company measured by voting power rather than number of shares and (ii) permitted shareholders holding, directly or indirectly, the control over fewer of the issued and outstanding voting stock of the Company measured by voting power rather than number of shares than such other person or group;

(iii) the sale, lease, transfer, conveyance or other disposition (other than by way of merger, or consolidation or other business combination transaction), in one or a series of related transactions, of all or substantially all of the assets of the Company and its restricted subsidiaries taken as a whole to a person other than a permitted shareholder; or

(iv) the adoption of a plan relating to the liquidation, winding up or other disposition of all or substantially all of the assets of the Company.

Interest and Fees

All borrowings under the Facility A will bear interest at a fixed rate of 2.00% per annum and all borrowings under the Facility B will bear interest at a fixed rate of 2.05% per annum.

We are also required to pay a commitment fee in arrears on each March 31, June 30, September 30 and December 30 (i) in relation to the Facility A, at a rate of 0.25% per month on the available commitments in relation to Facility A for the period starting on November, 28, 2019; (ii) and in relation to Facility B, at a rate of 0.55 per cent. per annum on the available commitments in relation to Facility B for the period starting on the date falling two months after the date of the agreement.

Covenants

In addition to customary information and general loan style covenants and restrictive covenants that closely track those contained in the conditions of issue of the Senior Secured Notes, the New Senior Secured LBBW Facilities require us to submit to KfW, via the agent under the New Senior Secured LBBW Facilities, certain use of funds certificates (*Verwendungsnachweise*), providing evidence that we have made use of the funds borrowed under the Facility A in accordance with the specified purpose described above and relevant KfW program rules.

Application of KfW General Terms and Condition; KfW Events of Default

In addition to the terms set forth in the New Senior Secured LBBW Facilities, our relationship with the lenders under the New Senior Secured LBBW Facilities is in case of Facility A also governed by the general terms and conditions of KfW, which are incorporated into the New Senior Secured LBBW Facilities by reference. In case of any conflict between the provisions of the New Senior Secured LBBW Facilities and the general terms and conditions of KfW, the provisions of the general terms and conditions of KfW will prevail in relation to Facility A. In particular, in addition to the customary events of the default contained in the New Senior Secured LBBW Facilities as described under "*Overview*" above, the general terms and conditions of KfW also contain certain bespoke termination rights related to the quasi-governmental nature of

the subsidized funding provided by KfW, through Landesbank Baden-Württemberg, under the New Senior Secured LBBW Facilities.

NEW SENIOR SECURED SAARLB FACILITY

On May 31, 2019, the Company as company, borrower and guarantor, and the other Guarantors as guarantors entered into a euro-denominated senior secured facility agreement (the "**New Senior Secured SaarLB Facility**") with Landesbank Saar as agent and original lender. The New Senior Secured SaarLB Facility provides for €15,000,000 of total committed credit (the **"Facility**"). The Facility is refinanced by funds made available by KfW under a certain KfW program that offers subsidized funding for eligible investments that promote energy efficiency. The Company may utilize the Facility until May 27, 2020. The purpose of the borrowings under the New Senior Secured SaarLB Facility is to partially fund certain eligible investments in connection with the proposed establishment of a new corrugated board "mega plant" (PW 14).

Repayments and prepayments

The Facility has a final maturity date of June 30, 2029.

We will be required to repay our borrowings under the Facility in instalments by repaying on each repayment date an amount which reduces the amount of the outstanding borrowings by an amount as set out in the following table:

Facility Repayment Date	Repayment Installment in EUR	Facility Repayment Date	Repayment Installment in EUR
September 30, 2021	468,750	September 30, 2025	468,750
December 30, 2021	468,750	December 30, 2025	468,750
March 31, 2022	468,750	March 31, 2026	468,750
June 30, 2022	468,750	June 30, 2026	468,750
September 30, 2022	468,750	September 30, 2026	468,750
December 30, 2022	468,750	December 31, 2026	468,750
March 31, 2023	468,750	March 31, 2027	468,750
June 30, 2023	468,750	June 30, 2027	468,750
September 30, 2023	468,750	September 30, 2027	468,750
December 30, 2023	468,750	December 31, 2027	468,750
March 31, 2024	468,750	March 31, 2028	468,750
June 30, 2024	468,750	June 30, 2028	468,750
September 30, 2024	468,750	September 30, 2028	468,750
December 30, 2024	468,750	December 31, 2028	468,750
March 31, 2025	468,750	March 31, 2029	468,750
June 30, 2025	468,750	June 30, 2029	468,750

If the Facility is not utilized in full at the end of the availability period the repayment instalments will, subject to the consent of KfW and Saarländische Investitionskreditbank Aktiengesellschaft (the "**SIKB**"), be reduced *pro rata*. Should KfW and/or SIKB withhold such consent, any unutilized amounts will be deducted from the repayment instalments in inverse chronological order, i.e. beginning with the repayment instalment for the last repayment date. In this case, the final maturity date will be deemed to be the last repayment date on which a repayment instalment (or any part of it) remains to be made.

Subject to the payment of break costs, we may voluntarily prepay the whole or any part of any loan outstanding under the New Senior Secured SaarLB Facility by giving ten business days' prior notice to the agent (but if in part, being an amount that reduces the amount of such loan by a minimum amount of EUR 1 million or the remainder).

In addition to voluntary prepayments, the New Senior Secured SaarLB Facility requires mandatory cancellation and, if applicable prepayment in full with respect to any lender, if it becomes unlawful for such lender to perform any of its obligations under the New Senior Secured SaarLB Facility.

Furthermore, upon the occurrence of a Change of Control (as defined below), the Company shall give notice to the agent under the New Senior Secured SaarLB Facility describing the transaction or transactions that constituted the Change of Control and offer to repay each lender's participation in any loans and to cancel each Lender's Commitment under the New Senior Secured SaarLB Facility in the loans on the date specified in such notice (the "**Change of Control Offer**") which date shall be no earlier than 30 days and no later than 60 days from the date such notice is mailed (the "**Change of Control Repayment Date**") but no later than the respective Change of Control Offer for any of the other senior secured debt. Pursuant to the Change of Control Offer, each lender under the New Senior Secured SaarLB Facility will have the right to require us to repay such lender's participation in any loans together with break costs determined by each lender in accordance with applicable law and jurisprudence, at least in an amount requested from such lender by KfW, plus, in each case, accrued and unpaid interest, and any additional amounts accrued under the finance documents in respect of any such participation in any such loans on the Change of Control Repayment Date, whereupon the commitments of that Lender will be cancelled.

"**Change of Control**", for purposes of the New Senior Secured SaarLB Facility, means the occurrence of the following:

(i) for as long as no public market exists for the capital stock of the Company (or a holding company), the Company becoming aware of any person or group of persons acting in concert in the meaning given to such term in Section 2(5) of the German Securities Acquisition and Takeover Act (*Wertpapiererwerbs- und Übernahmegesetz*) other than a Permitted Shareholder acquiring and holding, directly or indirectly, the control over more than 50% issued and outstanding voting stock of the Company measured by voting power rather than number of shares;

(ii) at any time that a public market exists for the capital stock of the company (or a holding company), the Company becoming aware of (i) any "person" or "group" of persons acting in concert in the meaning given to such term in Section 2(5) of the German Securities Acquisition and Takeover Act (*Wertpapiererwerbs- und Übernahmegesetz*) other than a permitted shareholder acquiring and holding, directly or indirectly, the control over more than 30% issued and outstanding voting stock of the Company measured by voting power rather than number of shares and (ii) permitted shareholders holding, directly or indirectly, the control over fewer of the issued and outstanding voting stock of the Company measured by voting power rather than number of shares than such other person or group;

(iii) the sale, lease, transfer, conveyance or other disposition (other than by way of merger, or consolidation or other business combination transaction), in one or a series of related transactions, of all or substantially all of the assets of the Company and its restricted subsidiaries taken as a whole to a person other than a permitted shareholder; or

(iv) the adoption of a plan relating to the liquidation, winding up or other disposition of all or substantially all of the assets of the Company.

Interest and Fees

All borrowings under the Facility bear interest at a fixed rate of 2.00% per annum.

We are also required to pay a commitment fee in arrears on each March 31, June 30, September 30 and December 30 at a rate of 0.25% per month with regard to any available but unused commitments in relation to the Facility during the period starting on November, 27, 2019, until the last day of the availability period.

Covenants

In addition to customary information and general loan style covenants and restrictive covenants that closely track those contained in the conditions of issue of the Senior Secured Notes, the New Senior Secured SaarLB Facility requires us to submit to KfW, via the agent under the New Senior Secured SaarLB Facility, certain use of funds certificates

(*Verwendungsnachweise*), providing evidence that we have made use of the funds borrowed under the Facility, as applicable, in accordance with the specified purpose described above and relevant KfW program rules.

Application of KfW General Terms and Condition; KfW Events of Default

In addition to the terms set forth in the New Senior Secured SaarLB Facility, our relationship with the lenders under the New Senior Secured SaarLB Facility is also governed by the general terms and conditions of KfW, which are incorporated into the New Senior Secured SaarLB Facility by reference. In case of any conflict between the provisions of the New Senior Secured SaarLB Facility and the general terms and conditions of KfW, the provisions of the general terms and conditions of KfW will prevail. In particular, in addition to the customary events of the default contained in the New Senior Secured SaarLB Facility as described under "*Overview*" above, the general terms and conditions of KfW also contain certain bespoke termination rights related to the quasi-governmental nature of the subsidized funding provided by KfW, through Landesbank Saar, under the New Senior Secured SaarLB Facility.

INTERCREDITOR AGREEMENT

In connection with the 2015 Refinancing, the Issuer, the then-existing Guarantors, JH-Holding, the holders' representative for our then-outstanding senior secured notes, the Security Agent, the agent and the lenders under the Super Senior Revolving Credit Facility and others entered into an intercreditor agreement (as amended and/or restated from time to time, the "**Intercreditor Agreement**") to govern the relationships and relative priorities among (i) the creditors under the Super Senior Revolving Credit Facility; (ii) the holders of our then-outstanding senior secured notes; (iii) future hedge counterparties under certain hedging agreements (the "**Hedge Counterparties**"); (iv) future cash management providers, (v) certain future creditors of the Group that may accede to the Intercreditor Agreement from time to time, including the holders of the Senior Secured Notes, the lenders under the Senior Secured Facilities; (vi) certain intra group creditors and debtors; (vii) various creditor representatives; and (viii) the Security Agent. All Guarantors that were not an original party to the Intercreditor Agreement have subsequently acceded to the Intercreditor Agreement.

The Company, the Guarantors and each of their subsidiaries that incur any liability or provides any guarantee or security under the Super Senior Revolving Credit Facility, the Senior Secured Notes or the Senior Secured Facilities and related documents or any Pari Passu Debt Documents are together referred to in this description as "**Debtors**".

The Intercreditor Agreement provides for accession by certain additional Pari Passu Debt Creditors (as defined below) and/or their representatives. The agents under all Senior Secured Facilities we entered into after the original signing date of the Intercreditor Agreement, on behalf of themselves and on behalf of the lenders under such Senior Secured Facilities, and Deloitte GmbH Wirtschaftsprüfungsgesellschaft, as holders' representative on behalf of the holders of the Floating Rate Notes and the Existing Notes, have entered into creditor/creditor representative accession agreements with regard to the relevant Senior Secured Facilities, the Floating Rate Notes and the Existing Notes, respectively, as contemplated by the Intercreditor Agreement. We expect that the agents and original lenders under the New Senior Secured Facilities will accede to the Intercreditor Agreement on or around the issue date of the Additional Notes.

On May 2, 2018, we entered into an amendment and restatement agreement relating to the Intercreditor Agreement. In addition to various technical amendments, we amended and restated the definition of "Credit Facility" and related terms in the Intercreditor Agreement to include, in addition to the Super Senior Revolving Credit Facility, certain credit facilities which are permitted by the terms of the Pari Passu Debt Documents (as defined in the Intercreditor Agreement) to share pari passu in the Collateral with the rights and obligation of Credit Facility Lenders (as defined in the Intercreditor Agreement) as provided for in the Intercreditor Agreement, and in respect of which the creditors, facility agent, and arrangers have acceded as Credit Facility Lenders, Credit Facility Agent or Credit Facility Creditors (as the case may be, and each as defined in the Intercreditor Agreement) and which are permitted to receive priority to the Pari Passu Debt Liabilities (as defined below) with respect to the proceeds of any enforcement of the Collateral (such credit facilities, together with the Super Senior Revolving Credit Facility, together the "**Credit Facilities**" and each a "**Credit Facility**"). As a result, the total amount of Indebtedness under a Credit Facility that may be secured by Liens on a super priority basis increased from up to €50 million to up to €80 million. In addition, we amended and restated the Intercreditor Agreement to increase the Priority Hedging Limit (as defined in the Intercreditor Agreement from up to €35 million to up to €80 million. The following description of certain provisions of the Intercreditor Agreement summarizes the relevant provisions of the Intercreditor Agreement as so amended and restated. It assumes that the agents and lenders under the New Senior Secured Facilities have acceded to the Intercreditor Agreement. It does not restate the Intercreditor Agreement in its entirety nor does it describe provisions relating to the rights and obligations of holders of other classes of our debt. As such, we urge you to read the Intercreditor Agreement because it, and not the discussion that follows, defines the rights of the holders of the Senior Secured Notes.

General

The Intercreditor Agreement, among other things, sets out:

- the relative ranking of certain indebtedness of the Debtors;
- when payments can be made in respect of certain indebtedness of the Debtors;
- when enforcement actions can be taken in respect of that indebtedness;
- the terms pursuant to which that indebtedness will be subordinated upon the occurrence of certain insolvency events;
- when enforcement actions can be taken in respect of the transaction security;
- turnover provisions; and
- when the transaction security and guarantees will be released to permit a sale of the collateral.

The Intercreditor Agreement contains provisions relating to indebtedness incurred by the Debtors that is permitted by the terms of the Super Senior Revolving Credit Facility, the Senior Secured Notes and the Senior Secured Facilities, which ranks *pari passu* to the Senior Secured Notes and the Senior Secured Facilities and is secured by the Collateral (the "**Pari Passu Debt**", the liabilities of the Debtors in respect thereof, the "**Pari Passu Debt Liabilities**", the creditors thereof, the "**Pari Passu Debt Creditors**" and all documents or instruments entered into between any Debtors and a Pari Passu Debt Creditor setting out the terms of any credit facility, notes, indenture or debt security which creates or evidences and Pari Passu Debt Liabilities, the "**Pari Passu Debt Documents**"), subject to the terms of the Intercreditor Agreement. The Intercreditor Agreement allows for a refinancing in full or in part of the Senior Secured Notes, the Senior Secured Facilities and the Super Senior Revolving Credit Facility as Additional Indebtedness (as defined below).

Ranking and Priority

The Intercreditor Agreement provides, subject to the provisions regarding permitted payments, that the right and priority of payment of all present and future liabilities and obligations under the Credit Facilities (including all present and future liabilities and obligations under the Super Senior Revolving Credit Facility, the "**Credit Facility Liabilities**"), the hedging agreements entered into by the Hedge Counterparties (the "**Hedging Liabilities**"), the Senior Secured Notes (the "**Notes Liabilities**"), certain liabilities owed by any member of the Restricted Group (as defined in the Intercreditor Agreement) in respect of cash management and treasury services provided by a cash management provider which has become a party to the Intercreditor Agreement (a "**Cash Management Provider**" and the liabilities owed to such Cash Management Providers, the "**Cash Management Liabilities**"), all present and future liabilities and obligations under the Senior Secured Facilities (the "**Existing Senior Secured Facility Liabilities**") and certain other liabilities will rank in right and priority of payment in the following order:

- first, the Credit Facility Liabilities, the Hedging Liabilities, the Notes Liabilities, the Existing Senior Secured Facility Liabilities, any other Pari Passu Debt Liabilities, the Cash Management Liabilities, the creditor representative liabilities and the liabilities owed to the Security Agent and *pari passu* and without any preference between them; and
- second, certain intercompany obligations of the Debtors to the Company and its subsidiaries (the "**Intra-Group Liabilities**") and liabilities owed by any Debtor to the Parent and possibly other structural creditors (the "**Structural Liabilities**" and together with the Intercompany Debt, the "**Subordinated Liabilities**").

The Intercreditor Agreement does not purport to rank the Subordinated Liabilities among themselves.

Transaction Security

The creditors under the Credit Facilities (including the creditors under the Super Senior Revolving Credit Facility, the "**Credit Facilities Creditors**"), the Hedge Counterparties, the holders of the Senior Secured Notes, the creditors under the Senior Secured Facilities, any other Pari Passu Debt Creditors, the Cash Management Providers, the creditor representatives and the Security Agent (together, the "**Secured Parties**") benefit from the transaction security (which, for the purposes of the Intercreditor Agreement, includes a guarantee granted by the Parent recourse under which shall be limited to the value of the enforcement proceeds of the security provided are shares of the Company and are pledged by the Parent). Subject to

the order of application of proceeds (see "*Application of Proceeds*" below), the transaction security shall rank and secure the Credit Facility Liabilities, the Hedging Liabilities, the Notes Liabilities, the Pari Passu Debt Liabilities, the Cash Management Liabilities, the creditor representative liabilities and the liabilities owed to the Security Agent *pari passu* and without preference between them. Neither Ancillary Lenders nor Hedge Counterparties nor Cash Management Providers may take the benefit of any guarantee or security from members of the Group (other than customary security for ancillary lenders and hedge counterparties) unless such guarantee or security is also offered (to the extent legally possible) for the benefit of the other Secured Parties. In addition, the Intercreditor Agreement provides that the guarantees and transaction security will be released in certain circumstances described further below in *"—Release of Security—Non distressed Disposals" and "—Release of Security and Guarantees—Distressed Disposals*".

Permitted Payments

The Intercreditor Agreement permits payments to be made by the Debtors under the Super Senior Revolving Credit Facility, the Senior Secured Notes, the Senior Secured Facilities and any other Pari Passu Debt Documents (provided such payments are permitted under those documents). The Intercreditor Agreement also permits payments to creditors of Intra-Group Liabilities, provided that there has been no acceleration event in respect of the Credit Facilities (including the Super Senior Revolving Credit Facility), the Senior Secured Facilities, the Senior Secured Notes or any other Pari Passu Debt (subject to exceptions). No payments may be made in respect of Structural Liabilities except as permitted by the Credit Facilities (including the Super Senior Revolving Credit Facility), the Senior Secured Facilities, the Notes Documents, the conditions of issue of the Senior Secured Notes and any other Pari Passu Debt Documents or if the required majority of each class of debt has consented. There are also restrictions on payments to Hedge Counterparties subject to except certain specified permitted payments.

Limitations on Enforcement

For the purposes of enforcement, the Credit Facility Creditors (including the creditors under the Super Senior Revolving Credit Facility), any Hedge Counterparty to the extent of their Priority Hedging Liabilities and the Cash Management Providers are referred to as the "**Super Senior Creditors**". Hedging Liabilities may be designated as Priority Hedging Liabilities if they are in relation to foreign currency hedging and/or interest rate hedging and the designated mark-to-market amount in respect of those Hedging Liabilities does not exceed an aggregate amount of €80,000,000 (the "**Priority Hedging Limit**").

If the transaction security has become enforceable and any of the Super Senior Creditors, the holders of the Senior Secured Notes (acting through the relevant holders' representative), the creditors under the Senior Secured Facilities or any other Pari Passu Debt Creditors wish to enforce the transaction security, either (a) the Majority Super Senior Creditors or (b) the Majority Pari Passu Creditors must give notice of the proposed instructions as to enforcement (the "**Shared Security Notice**") to the creditor representatives for the other creditor classes and the Security Agent. The giving of this notice triggers a 30 day consultation period during which time the creditor representatives for each of the creditor classes must discuss the proposals in good faith with a view to formulating joint enforcement. During the consultation period, but subject to certain exceptions, the Secured Parties may not accelerate their respective Liabilities owed to them under the Debt Documents nor closeout any hedging transactions.

The "**Majority Super Senior Creditors**" means those Super Senior Creditors whose participations in the Credit Facility Liabilities, terminated Priority Hedging Liabilities and Cash Management Liabilities exceed $66^2/_3$ per cent. Of the aggregate participations in the Credit Facility Liabilities, Priority Hedging Liabilities and Cash Management Liabilities. The "**Majority Pari Passu Creditors**" means a simple majority of the aggregate of (i) the outstanding principal amount of a combined class of holders of the Pari Passu Debt Creditors (including holders of the Senior Secured Notes and the creditors under the Senior Secured Credit Facilities) and (ii) the outstanding amount owed by any Debtor to the non-priority hedge counterparties.

A creditor representative is not obliged to consult as described above (or shall only be obliged to consult for a shorter period) if:

- an insolvency event has occurred and is continuing in relation to a Debtor;

- an event of default is continuing in relation to liabilities owed to the relevant creditor group and that creditor group (acting in good faith) determines, and notifies the creditor representatives, that to do so and thereby delay enforcement could reasonably be expected to have a material adverse effect on (A) the Security Agent's ability to enforce any of the transaction security; or (B) the realization proceeds available to that creditor group of any enforcement of the transaction security in any material respect; or

- the creditor representatives so agree.

Conflicting Enforcement Instructions

At the end of the consultation period, the Security Agent shall act on the instructions of the Instructing Group. If the Security Agent does not receive any instructions from the Instructing Group as to enforcement following the consultation period, the Security Agent shall take no action. The Instructing Group consists of (i) the Majority Super Senior Creditors and (ii) the Majority Pari Passu Creditors, in each case acting through their creditor representatives. If there are conflicting enforcement instructions given to the Security Agent by the different classes of creditors who can constitute the Instructing Group (or if a creditor representative of a class of creditors fails to give instructions), then provided that the Majority Pari Passu Creditors have complied with the consultation obligations in the Intercreditor Agreement and those instructions are consistent with the security enforcement principles (see further below), the instructions as to enforcement from the Majority Pari Passu Creditors will prevail over those of the Majority Super Senior Creditors and the Majority Pari Passu Creditors will constitute the Instructing Group.

If (a) the Security Agent has not taken any enforcement action within 3 months of the date of the first shared security notice was issued; (b) the Super Senior Creditors have not been repaid in full in cash within 6 months of the date the first Shared Security Notice was issued; or (c) an insolvency event occurs in respect of a Debtor and the Security Agent has not commenced enforcement, any enforcement instructions given by the Majority Super Senior Creditors will then prevail, provided that they are consistent with the security enforcement principles.

Any enforcement instructions given must comply with certain security enforcement principles which include:

- achieving the security enforcement objective, which is to maximize, so far as is consistent with the prompt and expeditious realization of value from enforcement of the transaction security, the recoveries of all Secured Parties;

- all enforcement proceeds will be received in cash by the Security Agent or sufficient enforcement proceeds will be received in cash by the Security Agent to ensure that after distribution in accordance with the Intercreditor Agreement, the Credit Facility Liabilities, Priority Hedging Liabilities and Cash Management Liabilities will be repaid and discharged in full;

- all enforcement action must be prompt and expeditious and reasonably expected to realize proceeds from enforcement within six months of receipt by the Security Agent of initial enforcement instructions;

- to the extent that the enforcement is over transaction security with an aggregate book value exceeding €5,000,000 (or its equivalent) or over all of the shares in a member of the restricted group which are secured, the Security Agent shall obtain an opinion from a "big four" accounting firm, a recognized independent investment bank or other reputable independent third party professional firm that is regularly engaged in providing valuations of the relevant type and size of assets, as to whether the amount received in connection with such enforcement is fair from a financial point of view taking into account all relevant circumstances (the "**Financial Advisor Opinion**");

- the Financial Advisor Opinion will be conclusive evidence that the security enforcement objective and the security enforcement principles have been met; and

- if the enforcement is by way of public auction, no Financial Advisor Opinion is required.

Turnover

Subject to certain exclusions, if any Credit Facility Creditor, Pari Passu Debt Creditor, Hedge Counterparty (or any of their respective creditor representatives), a Cash Management Provider or the holders' representative of each series of the Senior Secured Notes receives or recovers the proceeds of any enforcement of any transaction security, except in accordance with "*—Application of Proceeds*" below, that person must:

- in relation to amounts not received or recovered by way of set off, hold that amount (net of third party costs and taxes) on trust for the Security Agent and promptly pay an amount equal to that amount (net of third party costs and taxes) to the Security Agent for application in accordance with the terms of the Intercreditor Agreement; and

- in relation to receipts and recoveries received or recovered by way of set off, promptly pay an amount equal to that recovery (net of third party costs and taxes) to the Security Agent for application in accordance with the terms of the Intercreditor Agreement.

There is also a general turnover obligation on the subordinated creditors to turnover to the Security Agent all amounts which are not permitted payments made in accordance with the Intercreditor Agreement.

Application of Proceeds

All amounts from time to time received or recovered by the Security Agent as Enforcement Proceeds (as defined under the Intercreditor Agreement) or otherwise paid to the Security Agent for application in accordance with the provisions described under this paragraph shall be held on trust by the Security Agent and applied at any time as the Security Agent (in its discretion) sees fit, to the extent permitted by law, in the following order:

- first, in discharging any sums owing to the Security Agent, any receiver or any delegate;
- second, pari passu and pro rata, to each creditor representative, including all costs and expenses incurred in connection with any enforcement;
- third, pari passu and pro rata, in payment to the creditor representative of the Lenders for application towards the discharge of the Credit Facility Liabilities (including liabilities under the Super Senior Revolving Credit Facility), to the arrangers of any Credit Facilities, the Hedge Counterparties in respect of their Priority Hedging Liabilities and the Cash Management Providers;
- fourth, pari passu and *pro rata*, in payment to (i) the respective paying agent on behalf of the holders of the Senior Secured Notes for application towards the discharge of the Notes Liabilities in accordance with the Notes Documents; (ii) the creditor representatives of the other Pari Passu Debt Creditors for application towards the discharge of the other Pari Passu Debt; and (iii) the Hedge Counterparties for application towards the discharge of the non priority hedging obligations;
- fifth, in payment to any person the Security Agent is obliged to pay in priority to any Debtor; and
- sixth, in payment of the surplus (if any) to the relevant Debtor.

Option to Purchase

Any Pari Passu Debt Creditors (including the holders of the Senior Secured Notes and the creditors under the Existing Senior Secured Facilities) may, after an Acceleration Event or an enforcement, and subject to various conditions set out in the Intercreditor Agreement (including the grant of an acceptable indemnity against clawback to the relevant lenders / creditors), exercise an option to purchase in full and in cash the Credit Facility Liabilities, any Pari Passu Liabilities incurred to refinance the Credit Facility Liabilities in full, any Priority Hedging Liabilities and any Cash Management Liabilities, at par.

Release of Security—Non Distressed Disposals

In circumstances where (i) a disposal is not a distressed disposal (*i.e.*, a disposal to a person or persons outside the Group of an asset by a Debtor which is subject to the transaction security or a disposal of the shares in the capital of any holding company of a Debtor which is permitted by the terms of any Credit Facility, the conditions of issue of the Senior Secured Notes, the Senior Secured Facilities and any other Pari Passu Debt Documents) or (ii) any transaction pursuant to which security shall be granted over any asset which is subject to transaction security to a person which is not a secured creditor and a corresponding release of transaction security is permitted under the terms of any Credit Facility, the conditions of issue of the Senior Secured Notes, the Senior Secured Facilities and any other Pari Passu Debt Documents, the Intercreditor Agreement provides that the Security Agent is irrevocably authorized and instructed to deliver:

- any release of the transaction security and any other claim over that asset;
- where that asset consists of shares in the capital of a Debtor, any release of the transaction security and any other claim over that Debtor's property and/or the shares in, and property of, any of its subsidiaries; and
- issue any certificates of non-crystallization of any floating charge or any consent to dealing that may, in the discretion of the Security Agent, be considered necessary or desirable.

Release of Security—Unrestricted Subsidiaries

If a member of the Group is designated as an Unrestricted Subsidiary in accordance with the terms of each of the Credit Facilities, the conditions of issue of the Senior Secured Notes, the Senior Secured Facilities and any other Pari Passu Debt Documents, the Security Agent is irrevocably authorized and obliged (at the cost of the relevant debtor and the Company and without any consent, sanction, authority or further confirmation from any creditor or debtor):

- to release the transaction security or any other claim (relating to a debt document) over that member of the Group's assets; and

- to execute and deliver or enter into any release of the transaction security or any claim described in the paragraph above and issue any certificates of non-crystallization of any floating charge or any consent to dealing that may, in the discretion of the Security Agent, be considered necessary or desirable or as requested by the Company.

Release of Security and Guarantees—Distressed Disposals

In circumstances where a distressed disposal is being effected, the Intercreditor Agreement will provide that the Security Agent is irrevocably authorized and instructed:

- to release the transaction security or any other claim over the relevant asset and execute and deliver or enter into any release of that transaction security, or claim and issue any letters of non-crystallization of any floating charge or any consent to dealing that may, in the discretion of the Security Agent, be considered necessary or desirable;

- if the asset that is disposed of consists of shares in the capital of a Debtor, to release (i) that Debtor and any subsidiary of that Debtor from all or any part of its borrowing liabilities, guarantee liabilities and certain other liabilities; (ii) any transaction security granted over that Debtor's assets and the assets of any of its subsidiaries; and (iii) any other claim of a Debtor or intra Group lender over that Debtor's assets or over the assets of any subsidiary of that Debtor;

- if the asset that is disposed of consists of shares in the capital of any holding company of a Debtor, to release (i) that holding company and any subsidiary of that holding company from all or any part of its borrowing liabilities, guarantee liabilities and certain other liabilities; (ii) any transaction security granted by that holding company or any subsidiary of that holding company over any of its assets; and (iii) any other claim of a Debtor or intra Group lender over the assets of any holding company or any subsidiary of that holding company;

- if the asset which is disposed of consists of shares in the capital of a Debtor or any holding company of a Debtor, to dispose of all or any part of that Debtor's or the holding company that Debtor's borrowing liabilities, guarantee liabilities, certain other liabilities, and other intra Group receivables; and

- if the asset which is disposed of consists of shares in the capital of a Debtor or any holding company of a Debtor, to transfer Intra Group Liabilities and debtor liabilities owed by that Debtor or holding company of a Debtor to another Debtor.

Any net proceeds of the disposal must be applied in accordance with the enforcement proceeds waterfall described under "*—Application of Proceeds*".

Amendment

The Intercreditor Agreement may only be amended with the consent of the Majority Super Senior Creditors, the required percentage of Pari Passu Debt Creditors (as set out in the relevant Pari Passu Debt Documents), or the written consent of the creditor representative of the Pari Passu Debt Creditors (acting in accordance with the terms of the relevant Pari Passu Debt Documents), the Company and the Security Agent unless it relates to certain specified matters such as ranking, priority, turnover, redistribution, enforcement, disposal proceeds, application of enforcement proceeds and security enforcement principles. Such amendments require consent from all Super Senior Creditors, the holders of the Senior Secured Notes (acting through the relevant holders' representative and in accordance with the relevant conditions of issue), the other Pari Passu Debt Creditors (including the lenders under the Senior Secured Facilities), and each Hedge Counterparty (to the extent such amendments adversely affect it), each Cash Management Provider (to the extent such amendment adversely affects it) and the Security Agent; provided that where an amendment or waiver only relates to the ranking order of priority or subordination or, or application of proceeds of enforcement to creditors ranking after any other group of creditors, the consent of such other group of creditors shall not be required.

No amendment or waiver of the Intercreditor Agreement may impose new or additional obligations on or withdraw or reduce the rights of any party (other than in a way which affects creditors of that party's class generally) to the Intercreditor Agreement without the prior consent of that party or in the case of a Debtor, to the extent consented to by the Company.

The Intercreditor Agreement may be amended without the consent of the holders of the Senior Secured Notes in certain circumstances.

To the extent the Debtors wish to enter into additional Pari Passu Debt or other additional or replacement indebtedness ("**Additional Indebtedness**") which is permitted to share in the transaction security pursuant to any Credit Facility, the conditions of issue of the Senior Secured Notes, the conditions of issue of the Senior Secured Notesand any other Pari Passu Debt Documents, then the parties to the Intercreditor Agreement may be required to enter into a replacement intercreditor agreement on substantially the same terms as the Intercreditor Agreement.

The Intercreditor Agreement also permits the Security Agent (subject to the terms of any Credit Facility) to enter into new or supplemental security and/or release and retake transaction security if certain conditions are met.

Governing law

The Intercreditor Agreement and any non-contractual obligations arising out of or in connection with it are governed by and construed and enforced in accordance with German law.

OTHER FINANCING ARRANGEMENTS

Forfaiting Program

Our subsidiary Progroup Board GmbH finances a portion of its trade receivables through an off balance sheet forfaiting program with CommerzFactoring GmbH. Under the forfaiting program it sells trade receivables to CommerzFactoring GmbH on a non recourse basis in return for immediate cash payments. The forfaiting transactions occur up to a maximum aggregate transaction volume of €15 million. As of March 31, 2019, no trade receivables were sold under the forfaiting program.