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DRIVING THE ENERGY FUTURE

Annual Report 2018
SMA Solar Technology AG

SMA SOLAR TECHNOLOGY AG AT A GLANCE

SMA Group		2018	2017	2016	2015	2014
Sales	€ million	760.9	891.0	946.7	981.8	805.4
Export ratio	%	80.6	81.8	87.9	87.5	78.3
Inverter output sold	MW	8,449	8,538	8,231	7,260	5,051
Capital expenditure	€ million	40.3	33.2	29.0	48.3	75.5
Depreciation	€ million	82.6	53.2	76.7	77.8	106.5
EBITDA	€ million	-69.1	97.3	141.5	121.1	-58.4
EBITDA margin	%	-9.1	10.9	14.9	12.3	-7.3
Net income	€ million	-175.5	30.1	29.6	14.3	-179.3
Earnings per share[1]	€	-5.06	0.87	0.85	0.41	-5.16
Employees[2]		3,353	3,213	3,345	3,330	5,060
in Germany		2,212	2,077	2,093	2,081	3,469
abroad		1,141	1,136	1,252	1,249	1,591

SMA Group		2018/12/31	2017/12/31	2016/12/31	2015/12/31	2014/12/31
Total assets	€ million	989.3	1,216.2	1,210.8	1,160.5	1,180.3
Equity	€ million	424.5	611.5	585.1	570.2	552.0
Equity ratio	%	42.9	50.3	48.3	49.1	46.8
Net working capital[3]	€ million	177.4	167.9[6]	225.4	223.0	251.0
Net working capital ratio[4]	%	23.3	18.8[6]	23.8	22.3	31.2
Net cash[5]	€ million	305.5	449.7	362.0	285.6	225.4

1 Converted to 34,700,000 shares
2 Reporting date; without temporary employees
3 Inventories and trade receivables minus trade payables and liabilities from advanced payments received for orders
4 Relating to the last twelve months (LTM)
5 Total cash minus interest-bearing financial liabilities
6 Adjusted prior year value

Energy that changes

As a leading global specialist for photovoltaic system technology, SMA is setting the standards today for the decentralized and renewable energy supply of tomorrow.

More than 3,000 SMA employees in 18 countries have devoted themselves to this task.

Our innovative solutions for all photovoltaic applications and our unsurpassed service offer our customers worldwide greater independence in meeting their energy needs.

In collaboration with our partners and customers, we are helping people around the world transition to a self-sufficient, decentralized and renewable energy supply.

SMA

Dear Shareholders,

2018 was a challenging year for SMA. Having started the fiscal year with a high order backlog and a positive outlook, we were confronted with the continuing shortage of electronic components in the first half of the year and were therefore only able to supply our customers to a limited extent, particularly in the commercial PV systems segment. Unexpectedly at the end of May, the Chinese government drastically reduced its PV expansion targets and solar power subsidies with immediate effect. This led to a collapse of the Chinese photovoltaic market. As a result, Chinese providers increasingly advanced into international markets and caused enormous price pressure in all segments. In the second half of the year, project developers and investors postponed the implementation of photovoltaic projects until the following year in anticipation of a further decline in prices. The storage technology growth segment was also affected by the limited availability of batteries. In this difficult environment, SMA was able to maintain inverter output sold at the high level of the previous year with an accumulated output of around 8.5 gigawatts but was unable to achieve the original sales and earnings annual targets. With sales of €761 million, we had to post a loss of €69 million (EBITDA) influenced by numerous one-time items.

RETURN TO PROFITABILITY BY REDUCING COSTS AND INCREASING SALES

To quickly and sustainably return SMA to profitability under these changes in the market, early on the Managing Board introduced measures to effectively reduce costs and increase sales. We will complete the sale of our Chinese companies to the local management in the first quarter of 2019. This will enable us to reduce our fixed costs and better utilize the purchasing, development and production capacities at our headquarters in Niestetal/Kassel. In addition to continued automation of activities and concentrating on our core competencies, reducing our product platforms will also contribute to more cost reductions. This will allow us to shorten development cycles and increase the proportion of components that are used across the entire portfolio.

By bringing Development, Sales and Service closer together, we are aligning our corporate structures to focus even more on the needs of our customers over the entire product life cycle. With targeted sales initiatives and the expansion of our strategic partnerships, we will further enhance the appeal our product offerings bring our customers. We always have our strategic objective – continued evolvement of SMA into a systems and solutions provider – and our position in the important future fields of energy management, storage integration, repowering and digital business models in focus. A large part of the measures introduced will take effect as early as 2019. This will help us counter the expected continued high price pressure in all segments.

SMA CAN PLAY TO ITS STRENGTHS IN THE ENERGY SUPPLY OF THE FUTURE

Falling prices in the solar industry are not only a challenge for us – they also ensure that power generation using photovoltaics becomes increasingly cost-effective and thus more competitive with other energy sources. Increased competitiveness, government sustainability targets around the world and a growing global demand for energy will result in photovoltaics and other renewable energy sources gaining an ever greater share of the energy supply. The experts at Bloomberg New Energy Finance expect that wind energy and PV systems will cover around 50% of global power generation in 2050. Balancing fluctuating feed-in from renewable sources and ensuring a sustainable, secure and cost-effective electricity supply requires comprehensive storage capacity, accurate generation and consumption data for there to be reliable forecasting and intelligent energy management across all sectors.

DR.-ING. JÜRGEN REINERT
Chief Executive Officer SMA Solar Technology AG

This is precisely where SMA can play to its strengths. No other supplier has comparable experience and expertise in system integration of battery-storage systems for all sizes and application areas. More than 1.5 million devices are registered worldwide on our Sunny Portal monitoring portal. They provide valuable data that – professionally prepared and effectively anonymized – allow accurate feed-in forecasts. Our Sunny Home Manager is the best-selling household energy management system on the market. With the ennexOS energy management platform, we have created the basis for the on-going development of our product offerings in the areas of energy management and energy market integration for households and companies.

SUCCESSFUL ENTRY INTO NEW BUSINESS FIELDS AND FURTHER DEVELOPMENT OF CORE BUSINESS

Our subsidiary coneva successfully entered the market for digital energy services in the past fiscal year and is already developing end customer solutions for intelligent energy management in several projects with regional energy suppliers. As a result, suppliers can offer their customers in the residential and commercial sectors appealing options with which they can better position themselves against new competitors.

The range of services offered by SMA Energy Data Services was presented at the E-world trade fair in February 2019. Based on real-time data from the Sunny Portal, we offer customized solutions for network operation and planning, marketing of solar power and energy management for grid operators, energy traders, direct marketers and forecasting service providers.

We also continued to evolve SMA into a systems and solutions provider in our core business, for example, by developing complete system packages for residential and commercial applications, which have been sold in select markets since the beginning of 2019.

MANAGING BOARD EXPECTS GROWTH IN SALES AND EARNINGS IN 2019

As the year progresses, we will launch additional cost-optimized products and solutions for all power classes and applications and gain market shares. The shortage of electronic components has now been largely overcome, as have the delivery difficulties with battery manufacturers. Our order volumes since the beginning of the year also indicate that project developers' and investors' hesitation is abating and they are again implementing major photovoltaic projects. Against this backdrop, we expect growth in all segments in 2019. The SMA Managing Board anticipates sales to increase to between €800 million and €880 million and a positive EBITDA of between €20 million and €50 million.

Having left behind a difficult year for SMA, we are optimistic about our further development. The digitalization and decentralization of the energy supply is steadfastly progressing worldwide and is gaining ever stronger political support against the backdrop of climate change. Even though there will always be challenges in the dynamic environment in which we operate, we are convinced that SMA is well positioned to take advantage of the many opportunities arising from the reorganization of energy supply structures worldwide. Our employees will continue to play a decisive role in our success with their extraordinary commitment. On behalf of the Managing Board, I would like to thank all SMA employees for their high loyalty and trust in the company, even under difficult conditions.

Dr.-Ing. Jürgen Reinert
Chief Executive Officer
SMA Solar Technology AG

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THE MANAGING BOARD TEAM

DR.-ING. JÜRGEN REINERT
Chief Executive Officer

After he studied electrical engineering in South Africa, Dr.-Ing. Jürgen Reinert (b. 1968) received his doctorate at the Institute for Power Electronics and Electrical Drives (ISEA) at RWTH Aachen, Germany, and began his career as senior engineer there. From 1999 to 2011, he worked for Emotron AB in Sweden, where in his last position, as General Manager, he was responsible for Technology and Operations. From 2011 to 2014, as Executive Vice President, Technology, he was responsible for the division Power Plant Solutions at SMA. Under his leadership, SMA was successful in expanding its worldwide project business and developing turnkey system solutions for large-scale PV power plants. Since April 2014, Dr. Reinert has been a member of the Managing Board. He was appointed Chief Executive Officer in October 2018. Dr. Reinert is responsible for Strategy, Sales and Service, Operations and Technology. He is a member of the Supervisory Board at Danfoss A/S.

ULRICH HADDING
Board Member for Finance, Human Resources and Legal

Ulrich Hadding (b. 1968) held different positions at the SCHOTT Group in Germany and abroad for ten years, most recently as Head of Legal & Compliance for SCHOTT Solar AG. He moved to SMA in 2009, initially establishing an internationally oriented Legal department and then the Compliance function. He played a major role in nearly all of SMA's recent M&A activities and successively took on further management functions, e. g., for Tax, Insurance, Controlling and Financial Project Management. Since the end of 2015, he has been Head of Finance and Legal and member of SMA's Executive Management Committee. Since January 1, 2017, Ulrich Hadding has been a member of the Managing Board with responsibility for Finance, Human Resources and Legal. He also serves as labor director of SMA and is responsible for capital market communication.

SUPERVISORY BOARD REPORT

Dear Shareholders,

SMA had a difficult year to cope with. The photovoltaic market in China shrank. A shortage of components led to long delivery times. Declining sales and earnings made it necessary for SMA to restructure.

Especially in these challenging times, collaboration on the Supervisory Board and between the Supervisory Board and the Managing Board was characterized by openness, intensive and constructive dialogue and trust. The Supervisory Board assisted the Managing Board in an advisory capacity and continuously monitored the Managing Board with regard to the management of the Company in accordance with the law, the Articles of Incorporation and the Rules of Procedure. For its part, the Managing Board involved the Supervisory Board and its committees early on in all decisions of fundamental importance to SMA, keeping them regularly, promptly and comprehensively informed by means of written and oral reports. The subject matter of these reports included all strategy issues relevant to the Company, the market and competitive situation, and business developments. The Managing Board also reported to the Supervisory Board on the Company's and the Group's position, sales and results of operations. Furthermore, the Managing Board presented detailed information on proposed business policies and other important questions concerning corporate planning, in particular financial, investment, production and personnel planning, as well as significant business transactions. Deviations in how events actually transpired in comparison to previously reported objectives were provided, including reasons for the variances. In addition, the Supervisory Board was informed about the Company's and the Group's profitability, above all the return on equity, risk and opportunity management, risk status and compliance.

The Supervisory Board closely scrutinized and discussed business transactions requiring the approval of the Supervisory Board as well as instances where business performance deviated from corporate planning. Even beyond the regular Supervisory Board meetings, the Chairman of the Supervisory Board and his deputy were in regular and frequent contact with the Managing Board and discussed subjects concerning strategy, planning, business development, position of risk, risk management and compliance as well as significant business transactions and upcoming decisions. The Supervisory Board members took general and specialized training necessary for their tasks on their own accord, and in doing so they received appropriate support from the Company. No Supervisory Board or Managing Board members reported any conflicts of interest to the Supervisory Board.

Focus of Supervisory Board Consultations

The Supervisory Board examined all material events and discussed them with the Managing Board at six regular and two extraordinary meetings and adopted necessary resolutions in accordance with the law, Articles of Incorporation and Rules of Procedure. The Supervisory Board attended the vast majority of meetings in full.

In preparation for the meetings, the Supervisory Board received written reports from the Managing Board on a regular basis and on time. At each regular meeting, the subject matter of the deliberations were current business developments, the evolution of markets of particular importance to the SMA Group and corporate planning. Members of the Managing Board participated in all regular Supervisory Board and Audit Committee meetings, but were not present for discussions of agenda items relating to the Managing Board itself.

At its meeting on February 8, 2018, the Supervisory Board dealt with the Corporate Governance Report included in the 2017 Annual Report, as well as the Supervisory Board Report for 2017. The Supervisory Board also discussed the content of the Non-Financial Statement presented by the Managing Board. The meeting and resolutions also dealt with the evaluation of target achievements and the determination of the variable remunerations of the Managing Board.

At its meeting convened to adopt the accounts on March 22, 2018, the Supervisory Board acknowledged the 2017 Annual Financial Statements, approved the 2017 Consolidated Financial Statements after in-depth consultation and also passed the proposal to the Annual General Meeting on profit appropriation for 2017. In addition, it reviewed the proposal for selection of the Financial Statements and the Consolidated Financial Statements auditor for 2018. The Supervisory Board also resolved a proposal to the Annual General Meeting to modify the Company's purpose as specified in the Articles of Incorporation.

At its meeting on May 23, 2018, the Supervisory Board focused on current issues affecting the product quality of SMA and its competitors. The discussions also covered the Company's personnel-related plans, strategies and efforts to reduce its environmental impact as well as the stage achieved in establishing SMA's digital business areas.

At the meeting on May 24, 2018, the Supervisory Board issued the audit assignment to the auditors for 2018.

Focus of the Supervisory Board meeting on August 30, 2018, was the medium-term strategy and possible strategic partnerships for the Company. In addition, the Supervisory Board familiarized itself with the Company's product innovations and product roadmap and discussed the results achieved in the partnership with Danfoss A/S. The future prospects in O&M business were also considered.

At the extraordinary Supervisory Board meetings on October 12 and November 14, 2018, the Supervisory Board considered Managing Board matters and the Managing Board's proposal for restructuring the company.

At its meeting on December 6, 2018, the Supervisory Board once again dealt in depth with the planned restructuring measures and the budget for fiscal year 2019. It also discussed the status of new business activities in the field of energy services. In addition, the Supervisory Board members considered the efficiency of the Supervisory Board and its work. The Managing Board and the Supervisory Board also adopted a new Declaration of Conformity pursuant to Section 161 (1) sentence 1 of the German Stock Corporation Act (AktG) to comply with the recommendations of the German Corporate Governance Code.

Focus of Committee Meetings

To improve the efficiency of the work carried out by the Supervisory Board, the Supervisory Board maintains four permanent committees: the Presidial Committee, Audit Committee, Nomination Committee and Mediation Committee. You will find the names of the persons appointed to these committees on our website at www.IR.SMA.de as well as in the Corporate Governance Report 2018.

The committees prepare the topics and resolutions to be reviewed by the entire Supervisory Board and, within the framework of the competencies transferred to them, they resolve those matters they have been assigned instead of the Supervisory Board. The content of the committee meetings is reported on by the committee chairman at the subsequent plenary session of the Supervisory Board. All members of the Supervisory Board receive the content and resolutions of the committees in writing.

The **Presidial Committee** met three times in 2018. The committee's work focused in particular on dealing with matters relating to the Managing Board as well as preparing Supervisory Board resolutions on Managing Board composition, allocation of responsibilities and Managing Board remuneration.

The **Audit Committee** convened seven times in 2018, three times via telephone conferences. The meetings focused on discussing the Company's business performance and cost efficiency, the quarterly statements and half-yearly report. In addition, the committee familiarized itself with the main points and overall findings of the auditor for the 2017 Annual Financial Statements and upon review confirmed the auditor's independence. Because in 2019 the auditor currently appointed by the Annual General Meeting would reach the maximum duration of uninterrupted activity as stipulated in Article 17 (1) sentence 3 of the EU Regulation, it cannot be given a new mandate until after a public tender procedure has been carried out. The procedural and tendering process required for this was discussed by the Audit Committee at several meetings. Another key area of the committee's work was reviewing the internal risk management systems (Internal Control System, Internal Audit and Compliance), with the committee members gathering comprehensive information about these systems' methods and effectiveness. Furthermore, the committee handled the half-yearly report prepared by the Internal Audit department and the Compliance Report neither of which showed any significant irregularities in SMA business processes. Other topics of the committee meetings were the contents of the Non-Financial Statement of the Company pursuant to Section 289c of the German Commercial Code (HGB) and the extended Auditors' Report applicable in future. The Audit Committee also reviewed the recommendation made for the entire board to consider regarding profit appropriation, selecting the auditor for 2018 and granting the audit mandate.

The **Nomination Committee** and **Mediation Committee** did not convene in 2018.

Corporate Governance

In 2018, the Supervisory Board also dealt with German Corporate Governance Code content. For the year under review, the Supervisory Board and the Managing Board issued a Declaration of Compliance pursuant to Section 161 of the German Stock Corporation Act (AktG) in compliance with the recommendations of the German Corporate Governance Code and declared two deviations for 2018. The joint report issued by the Supervisory Board and the Managing Board on compliance with the rules of the German Corporate Governance Code pursuant to clause 3.10 of the German Corporate Governance Code (Corporate Governance Report) has been made permanently available on our website at www.IR.SMA.de and is also mentioned on pages 14 et seq. of the Annual Report. This is also where you will find statements on conflicts of interest and how they are handled.

Annual Financial Statements and Consolidated Financial Statements

The Annual Financial Statements prepared by the Managing Board as of December 31, 2018, the Combined Management Report for the 2018 fiscal year of SMA AG, the Consolidated Financial Statements as of December 31, 2018, and the Combined Management Report for the 2018 fiscal year of the SMA Group were audited by the accounting firm Deloitte GmbH, Hannover, Germany. The Supervisory Board granted the audit assignment in accordance with the resolution adopted by the General Meeting on May 24, 2018. Prior to submitting the corresponding proposal to the General Meeting regarding appointment of the auditors, the Supervisory Board had obtained the auditor's certificate of independence pursuant to clause 7.2.1 of the German Corporate Governance Code. The Supervisory Board also monitored the independence of the auditor. In addition, it handled the assignment of orders to the auditor for non-audit-related services.

The Consolidated Financial Statements of the Company were prepared in line with Section 315a of the German Commercial Code (HGB) on the basis of the International Financial Reporting Standards (IFRS) as applicable in the EU. The auditor granted an unqualified audit opinion for the Annual Financial Statements and the Combined Management Report of SMA AG as well as for the Consolidated Financial Statements and the Combined Management Report of the SMA Group.

The reporting documents, including the Non-Financial Statement of the Company, and the Managing Board's proposal on the appropriation of profits as well as the audit reports were made available to the Supervisory Board in good time. These were first discussed by the Audit Committee at its meetings on February 6, 2019, and March 19, 2019, with the auditors and then by the Supervisory Board at its meeting on March 20, 2019, in the presence of the auditor's representatives. The auditor's representatives reported on the audit findings and provided detailed explanations of the net assets, financial position and results of operations of the Company and the Group. The questions posed by the Supervisory Board were answered and the reporting documents were reviewed in detail with the auditor's representatives and discussed and examined by the Supervisory Board. The Supervisory Board raised no objections after concluding its examination. Thereafter, the findings of the audit were approved. Accordingly, the Supervisory Board approved the Financial Statements prepared by the Managing Board and the related Combined Management Reports for the 2018 fiscal year at its meeting convened to adopt the accounts on March 20, 2019. Hence, the Company's Annual Financial Statements have been approved as set out in Section 172 of the German Stock Corporation Act (AktG).

Finally, at its meeting held on March 20, 2019, the Supervisory Board approved the Managing Board's proposal on the appropriation of the balance sheet profit. In this respect, the Supervisory Board discussed the Company's liquidity position, the financing of planned investments and estimated business development. In doing so, the Supervisory Board came to the conclusion that the proposal was in the interests of the Company and the shareholders.

Changes to the Managing Board and Supervisory Board

As of October 15, 2018, Pierre-Pascal Urbon resigned from the Managing Board in agreement with the Supervisory Board. During the 14 years he worked at SMA – most recently in the role of CEO – Pierre-Pascal Urbon played a key role in shaping the Company. In particular, he is associated with the IPO, internationalization and the success of difficult restructuring measures. His vigor and his initiatives greatly helped SMA in both good and bad years. The Supervisory Board would like to thank Pierre-Pascal Urbon for his enormous dedication to the Company. On the Managing Board now consisting of two members, Dr.-Ing. Jürgen Reinert took on the role of CEO.

2018 was an eventful year for SMA that brought significant changes. Now it is a matter of combining all forces to restore profitability under the new management.

The Supervisory Board would like to thank the Managing Board and all employees for their dedicated work and their commitment to bring SMA successfully through the crisis into a bright future.

Niestetal, March 20, 2019
The Supervisory Board

Dr. Erik Ehrentraut
Chairman

Roland Bent
Shareholder Representative

Oliver Dietzel
Employee Representative

Peter Drews
Shareholder Representative

Dr. Erik Ehrentraut
Shareholder Representative
(Chairman)

Kim Fausing
Shareholder Representative
(Deputy Chairman)

Johannes Häde
Employee Representative

Heike Haigis
Employee Representative

Alexa Hergenröther
Shareholder Representative

Yvonne Siebert
Employee Representative

Dr. Matthias Victor
Employee Representative

Hans-Dieter Werner
Employee Representative

Reiner Wettlaufer
Shareholder Representative

CORPORATE GOVERNANCE

CORPORATE GOVERNANCE REPORT

In this declaration, SMA Solar Technology AG reports on its corporate governance principles in accordance with Section 289f (1), (2) and 315d of the German Commercial Code (HGB) and on corporate governance in the Company in accordance with Section 161 of the German Stock Corporation Act (AktG) and clause 3.10 of the German Corporate Governance Code (DCGK). The declaration includes the declaration of compliance, information on corporate governance practices, which comprises information on where they can be accessed by the public, as well as information on the composition and description of the function of the Managing Board, Supervisory Board and respective committees and material corporate governance structures.

Complying with the principles of good corporate governance is extremely important to SMA. SMA is guided by the recommendations and suggestions in the German Corporate Governance Code (DCGK). The Managing Board and Supervisory Board dealt with meeting these requirements, especially with the amendments to the DCGK in the version dated February 7, 2017. The Company has declared emergent deviations from the German Corporate Governance Code in the declaration of compliance of December 6, 2018. This declaration is reproduced below and published on our website at www.IR.SMA.de.

Declaration of Compliance With German Corporate Governance Code

In accordance with Section 161 of the German Stock Corporation Act, the Managing Board and Supervisory Board of SMA Solar Technology AG declare:

Since the last Declaration of Compliance dated November 29, 2017, SMA Solar Technology AG has complied with the recommendations of the Government Commission German Corporate Governance Code in the version dated February 7, 2017, published in the Federal Gazette (Bundesanzeiger) on April 24, 2017, with the exceptions mentioned below in numbers (1) and (2) and will continue to comply with them with the exceptions mentioned:

(1) Notwithstanding Article 5.4.1 (2) sentence 2 clause 4 of the German Corporate Governance Code in conjunction with the targets adopted by the Supervisory Board for its composition, the Supervisory Board includes with Dr. Erik Ehrentraut one member who will have reached the age of 75 by the end of the election period.

The Supervisory Board believes it is vital that Dr. Ehrentraut's many years of experience in managing an internationally active company and in supporting the Company remains available to the Supervisory Board.

(2) Notwithstanding Article 5.4.1 (2) sentence 2 clause 5 of the German Corporate Governance Code, the Supervisory Board has decided not to define any maximum limits for terms of office on the Supervisory Board. The Supervisory Board believes that a limit on the term of office does not account for the specific work of the Supervisory Board members and their profound knowledge of the Company and the market environment.

Niestetal, December 6, 2018

The Managing Board The Supervisory Board

Corporate Governance Practices

The SMA Strategy 2020 comprises a forward-looking vision and mission, the values that all SMA employees align themselves with and clear strategic targets for the years to come. It was presented to all SMA employees worldwide and will provide the strategic framework for our activities, through which the management and employees will put SMA back on track for success even under changing market conditions. Further details can be found on page 28 et seq.

Since 2009, SMA has recognized the code of conduct of the German Association for Supply Chain Management, Procurement and Logistics (BME e. V.) and used this as the basis for its own guidelines for suppliers (SMA Supplier Code). These guidelines commit SMA to fair dealings with suppliers. The guidelines are based on, among other things, the UN Global Compact, the conventions of the International Labour Organization (ILO) and the United Nations' Universal Declaration of Human Rights. SMA's objective is to enshrine general principles with regard to fairness, integrity and corporate responsibility in business relationships. For SMA, these behavioral guidelines also complement its mission statement and corporate culture, in which fairness, integrity and corporate responsibility are deeply rooted. Alongside these guidelines, the SMA Supplier Code prescribes standards for sustainable activity and gives expression to what SMA expects of suppliers and business partners with regard to social, ecological and ethical issues. The key points of the guidelines are a ban on child labor, forced labor, abuse and discrimination of employees, fighting against corruption, fair working conditions, occupational health and safety, environmental protection, and quality and product safety. The BME's code of conduct is accessible on its website at www.bme.de. The latest version of the SMA Supplier Code is reproduced on the SMA website www.SMA.de/en.

In addition, on January 13, 2011, SMA made a declaration to the General Secretary of the United Nations to adopt the ten principles of the UN Global Compact as compulsory guidelines for its corporate governance. The principles of the UN Global Compact define standards for upholding human rights, the protection of workers' rights, environmental protection and avoidance of corruption. They can be viewed on the website www.unglobalcompact.org.

In January 2012, the Managing Board also enacted the SMA business principles. The SMA business principles form the heart of the compliance management system and shape SMA's values into clear behavioral standards. They were drafted in a workgroup project led by Group Compliance. The SMA business principles are obligatory for all SMA employees worldwide.

In compliance with the provisions of Section 76 (4) sentence 2 AktG, the Managing Board resolved to set a target of 8% for the proportion of female employees in the first management level below the Managing Board and 14.6% for the second level by June 30, 2022. The targets correspond to the current ratio of genders at both management levels as of the date of the resolution.

Transparency

Transparency is a key element of good corporate governance. Our aim is to provide all shareholders, financial analysts, media and interested members of the public at large with timely information about our business situation and significant corporate changes. All important information is also made available on our website at www.SMA.de. Reporting on the business situation and the operating results takes place in the Annual Report, in the press conference on financial statements and in the Quarterly Statements and Half-Yearly Financial Reports. Furthermore, the public is informed through press releases, via social networks and, if stipulated by law, by means of ad hoc statements. In addition, once a year SMA invites investors, analysts and the press to its Capital Markets Day to inform them about the market and competition, SMA's strategic direction, unique selling propositions and financial developments.

Transparency is particularly important whenever deliberations and Company decisions might lead to conflicts of interest for members of the Supervisory Board or Managing Board. Any conflicts of interest that may have arisen are therefore disclosed by those members of the corporate bodies affected when discussion of the subject commences. The member concerned does not participate in the adoption of any necessary resolutions by the Managing Board or the Supervisory Board.

According to a disclosure made by the members of the Managing Board and the Supervisory Board, they held, either directly or indirectly, 9.65% (2017: 10.01%) of all shares issued as of the end of the fiscal year. The Managing Board members held a total stake of 0.01% (2017: 0.33%) in the share capital and the Supervisory Board members held a stake of 9.64% (2017: 9.68%) in the share capital. The cdw foundation, in which Supervisory Board members Peter Drews and Reiner Wettlaufer act as Managing Board members, holds an additional 8.65% (2017: 8.65%). In addition, Danfoss A/S, in which Supervisory Board member Kim Fausing acts as chief executive officer, holds 20.00% (2017: 20.00%) of the share capital.

Remuneration Report

The Remuneration Report is a constituent of the audited Combined Management Report and is shown on pages 20 et seq. of the Annual Report.

The Company's Corporate Bodies and Their Functions

SMA Solar Technology AG is a stock corporation governed by German law. Accordingly, it possesses a dualistic management structure in which one corporate body is devoted to managing the Company (the Managing Board) and is supervised by another corporate body (the Supervisory Board). Both bodies are endowed with different powers and work closely with one another in an atmosphere of trust when managing and supervising the Company. At the Annual General Meeting, electing the auditor and shareholder representatives to the Supervisory Board takes place as does determining the appropriation of profits, along with making decisions that impact member rights of shareholders.

Managing Board

The Managing Board is responsible for independently and jointly managing the Company. It is obliged to sustainably ensure and increase the Company value and is responsible for managing the business. It decides on fundamental issues of business policy and corporate strategy as well as on short- and medium-term financial planning. The Managing Board is in charge of preparing the Quarterly Statements, Half-Yearly Financial Reports and Annual Financial Statements for SMA Solar Technology AG and the SMA Group, as well as for adherence to all legal and official provisions and internal policies. In compliance with the provisions in Section 111 (5) AktG, the Supervisory Board set a target of 25% for the proportion of women on the Managing Board in the period by June 30, 2022. The Supervisory Board strives to achieve this target by selecting suitable candidates when appointing new members to the Managing Board.

As a collective body, the Managing Board, in principle, strives to adopt resolutions unanimously. However, the Rules of Procedure for the Managing Board, adopted by the Supervisory Board (available on our website at www.IR.SMA.de) stipulate that individual members of the Managing Board are in charge of specific areas of responsibility. The Managing Board, with the consent of the Supervisory Board, lays out how responsibilities are assigned. The members of the Managing Board notify each other on an ongoing basis about all material events in their area of responsibility and about any matters covering multiple areas of responsibility. Under legal provisions or the Rules of Procedure, in certain transactions, a unanimous resolution of the Managing Board is mandatory. For a predetermined number of transactions, the Supervisory Board has a reservation of consent. The Managing Board has not instituted any committees.

The Company's diversity concept for the Managing Board to be described in accordance with Section 289f HGB comprises, in part, consideration of the various personal and professional competencies required to fulfill the respective tasks on the Managing Board. Other elements include decisions on the proportion of women on the Managing Board and the age limit for the Managing Board described in Section 1 (4b) of the Supervisory Board's Rules of Procedure. The aim of the concept is to best meet the requirements for the work carried out by a Managing Board through a broad and varied range of knowledge and experience. The current makeup of the Managing Board upholds the prescribed age limit and reflects different professions and professional backgrounds as well as personal and professional competencies. Detailed information about the individual Managing Board members is provided on page 6 et seq.

By October 15, 2018, the Managing Board had comprised the following members: Pierre-Pascal Urbon (Chief Executive Officer, Board Member for Strategy, Sales and Service), Dr.-Ing. Jürgen Reinert (Deputy Chief Executive Officer, Board Member for Operations and Technology) and Ulrich Hadding (Board Member for Finance, Human Resources and Legal).

Pierre-Pascal Urbon left the company on December 31, 2018, at his own request, after having resigned from the Managing Board in agreement with the Supervisory Board on October 15, 2018. On the same date, Dr.-Ing. Jürgen Reinert was appointed chief executive officer of SMA Solar Technology AG and is responsible for Strategy, Sales and Service in addition to Operations and Technology. Ulrich Hadding continues to be responsible for Finance, Human Resources and Legal Affairs and has also assumed responsibility for Investor Relations and Internal Audit.

Supervisory Board

The Supervisory Board advises the Managing Board in all matters and supervises its activity. The Managing Board involves and consults with the Supervisory Board on all matters of fundamental significance and whenever particularly important business decisions need to be made. Under the Rules of Procedure applicable to the Managing Board, which were adopted by the Supervisory Board, the Managing Board must obtain prior approval from the Supervisory Board for certain decisions. Such decisions include approval of the annual budget, comprising the investment plan, incorporation, acquisition or sale of companies and acquisition or sale of real estate, whenever stipulated threshold values are exceeded. The Supervisory Board must also consent to the allocations of responsibility on the Managing Board.

The Supervisory Board is currently made up of 12 members and its composition complies with the provisions of the German Stock Corporation Act and the Codetermination Act. Under these provisions, the employees of German Group companies and their shareholders (Annual General Meeting) each elect six representatives to the Supervisory Board. The current members of the Supervisory Board are: Oliver Dietzel, Johannes Häde, Heike Haigis, Yvonne Siebert, Dr. Matthias Victor and Hans-Dieter Werner as employee representatives, and Roland Bent, Peter Drews, Dr. Erik Ehrentraut (Chairman), Kim Fausing (Deputy Chairman), Alexa Hergenröther and Reiner Wettlaufer as shareholder representatives.

Dr. Erik Ehrentraut and Alexa Hergenröther, as independent members of the Supervisory Board, possess the necessary expertise in the fields of accounting or auditing as stipulated under Section 100 (5) of the AktG.

The Committees of the Supervisory Board are made up as follows:

Presidial Committee	Dr. Erik Ehrentraut (chairman), Yvonne Siebert (Deputy Chairwoman), Kim Fausing, Dr. Matthias Victor
Audit Committee	Alexa Hergenröther (Chairwoman), Dr. Erik Ehrentraut (Deputy Chairman), Oliver Dietzel, Johannes Häde
Nomination Committee	Peter Drews (Chairman), Reiner Wettlaufer (Deputy Chairman), Dr. Erik Ehrentraut, Kim Fausing
Mediation Committee	Heike Haigis (Chairwoman), Kim Fausing (Deputy Chairman), Dr. Erik Ehrentraut, Hans-Dieter Werner

The committees prepare topics and resolutions for review by the Supervisory Board at its plenary session. They regularly meet with stakeholders such as the Managing Board, the auditor or the heads of Internal Audit or Compliance for this purpose. The content of the committee meetings is reported on by the committee chairperson at the next plenary session of the Supervisory Board. Any member of the Supervisory Board may attend committee meetings, provided the relevant committee chairperson does not decide otherwise. The meeting minutes and resolutions adopted by committees are made available to all the members of the Supervisory Board.

The Supervisory Board reports annually on the focus of its activities and deliberations in the Supervisory Board Report. You may refer to the Supervisory Board Rules of Procedure on our website at www.IR.SMA.de. The Supervisory Board members take general and specialized training necessary for their tasks of their own accord, and in doing so, they receive appropriate support from the Company.

In the past, the Supervisory Board has regularly considered the personal and professional requirements of its members and, with regard to the provisions of clause 5.4.1 of the German Corporate Governance Code, has decided on appropriate objectives for its composition and established a competence profile. The competence profile addresses the requirements for members of the Supervisory Board, which are provided in particular by law, the German Corporate Governance Code and the objectives of the Supervisory Board for its composition.

The requirements and the competence profile continue to form the diversity concept of the Supervisory Board within the meaning of Section 289f (6) of the HGB, the objective of which is to ensure that the Supervisory Board has the broadest possible range and variation of knowledge and experience. The Supervisory Board considers that increasing the diversity of the Supervisory Board is already an objective of various provisions of the law and of the German Corporate Governance Code. It incorporated this objective when selecting new members and took it into consideration when creating its competence profile and the objectives for its composition, and will continue to do so in the future when implementing a diversity concept.

The objectives of the Supervisory Board for its composition are as follows:

1. The minimum proportion of women on the Supervisory Board is determined by legal provisions.

2. Maintain the composition of the Supervisory Board members with a background of international experience at least in the previous scope

3. Special consideration given to candidates with knowledge and experience in the application of financial reporting standards and internal control processes as well as in the field of auditing

4. Special consideration given to candidates with technical expertise, particularly in the field of renewable energies, preferably in the field of photovoltaics

5. Special consideration given to candidates with knowledge in the field of digitalization and about the internal structures and functions of the company

6. At least half of the shareholder representatives are to be independent. At the same time, at least one member is to possess expertise in the field of accounting or auditing.

7. Consideration of the age limit of 75 years at the end of the term of office when selecting new members

These objectives have been implemented as follows:

As regards 1: The Supervisory Board now has three female members, Heike Haigis, Alexa Hergenröther and Yvonne Siebert.

As regards 2 to 5: In the opinion of the Supervisory Board, these objectives have been achieved.

As regards 6: The Company currently considers at least three shareholder representatives independent: Roland Bent, Dr. Erik Ehrentraut and Alexa Hergenröther. Two of these independent members have expertise in the fields of accounting and financial audits: Dr. Erik Ehrentraut and Alexa Hergenröther.

As regards 7: To date, one member of the Supervisory Board will exceed the age limit of 75 years at the end of his term of office.

From the perspective of the Supervisory Board, the requirements arising from the competence profile and the diversity concept have been fulfilled, with the exception of the proportion of women and the age limit.

Cooperation Between the Managing Board and the Supervisory Board

The Managing Board and the Supervisory Board work closely with one another in an atmosphere of trust for the good of the Company, thus meeting both the requirements of effective enterprise control and the need to be able to make decisions quickly. Their common goal is to secure the continued existence of the Company and steadily increase its value. To this end, the Managing Board keeps the Supervisory Board promptly and comprehensively informed, both in writing and verbally, and during regular meetings about the Company's position, current business developments and all relevant questions pertaining to strategic planning, risk management and important compliance matters. The Quarterly Financial Statements and the Half-Yearly Financial Report are discussed with the Managing Board on a regular basis during Audit Committee meetings prior to their publication.

Outside meetings, the Chairman of the Supervisory Board and his deputy are also in contact with the Managing Board to discuss significant business transactions and upcoming decisions and are immediately informed about key developments.

Shareholders and Annual General Meeting

SMA Solar Technology AG shareholders discuss their co-determination and control rights at the Annual General Meeting, which takes place at least once a year. The Annual General Meeting adopts resolutions with binding effect and each share grants one vote. Every shareholder who registers on time is entitled to participate in the Annual General Meeting. In addition, shareholders may have their voting rights exercised by a credit institution, a shareholder association, the proxies deployed by SMA Solar Technology AG and bound by the shareholder's instructions or by another authorized representative. The invitation to the Annual General Meeting and all reports and information necessary for adopting resolutions, including the Annual Report, are published in accordance with the provisions of the Stock Corporation Act and are available in the run-up to the Annual General Meeting on our website at www.IR.SMA.de.

INFORMATION CONCERNING TAKEOVERS REQUIRED BY HGB SECTIONS 289A AND 315A

Number 1: The share capital of SMA Solar Technology AG amounts to €34.7 million. The capital is divided up into 34,700,000 no-par value bearer shares. The rights and obligations associated with the shareholdings fall under the regulations in the German Stock Corporation Act.

Number 2: Each share has the right to one vote. On October 1, 2010, the four founders and main shareholders of SMA Solar Technology AG, Dr.-Ing. h. c. Günther Cramer, Peter Drews, Prof. (em.) Dr.-Ing. Werner Kleinkauf and Reiner Wettlaufer, transferred equity stakes to the next generation within their families by way of a gift. The acquiring shareholders concluded a pooling agreement for a period of seven years, which would have been terminable for the first time in 2017. During the term of this agreement, the voting rights emanating from the shares transferred may only be exercised as a block vote. In addition, the shares may only be sold to third parties with the consent of the other members of the pool or if narrowly defined prerequisites are satisfied. As far as the Company is aware, the agreement has not been terminated up to now. At the end of the fiscal year, the shareholders who coordinate their voting rights in "Poolvertrag SMA Solar Technology AG" (pooling agreement) hold a total of 8,744,470 shares or 25.20% of the Company's voting rights. Beyond this, the Managing Board is not aware of any restrictions affecting voting rights or the transferability of shares.

Number 3: Danfoss A/S, Denmark, holds 20.00% of the Company's share capital.

Shareholders who coordinate their voting rights in "Poolvertrag SMA Solar Technology AG" (see Number 2) hold 25.20% of the Company's share capital. Lars Cramer as individual shareholder of the "Poolvertrag SMA Solar Technology AG" holds 11.05% of the Company's share capital.

Numbers 4 and 5: The shareholders do not have any special rights conferring them any particular powers of control.

Number 6: Appointment and dismissal of the Managing Board takes place pursuant to Sections 84 and 85 of the German Stock Corporation Act (AktG) together with Section 31 of the Codetermination Act (MitBestG). Under Article 5 of the Articles of Incorporation, the Managing Board consists of at least two members and the exact number is laid down by the Supervisory Board. Under Section 179 of the AktG, the Articles of Incorporation may be amended by a resolution adopted by the Annual General Meeting with a majority of three-quarters of the share capital represented at the vote.

Number 7: The Articles of Incorporation include the provisions on the powers of the Managing Board regarding Authorized Capital II. The Managing Board, after obtaining the consent of the Supervisory Board, is entitled to increase the share capital on one or several occasions by up to a total of €3.4 million by issuing new bearer shares in return for cash contributions and/or contributions in kind in the period ending May 23, 2023. The Managing Board, with the consent of the Supervisory Board, is entitled to cancel the statutory subscription rights of shareholders: (a) in the case of capital increases in return for contributions in kind for the acquisition of or investment in companies, parts of companies or investments in companies, (b) for the purpose of issuing shares to employees of the Company and companies affiliated with the Company, (c) to exclude fractions and (d) in the case of capital increases in return for cash contributions if the issue amount of the new shares does not fall significantly below the stock exchange price of shares of the same class and terms that are already listed at the time the Managing Board sets the final issue amount, and the total pro rata amount of the issued capital attributable to the new shares in respect of which the subscription right is excluded may not exceed 10% of the issued capital available at the time the new shares are issued.

Furthermore, following a resolution adopted by the Annual General Meeting on May 31, 2016, the Managing Board, in the period ending May 30, 2021, is entitled, on behalf of the Company, to acquire its own shares up to a value of 10% of the existing capital stock at the time the resolution was adopted by the Annual General Meeting and to dispose of shares acquired in this way with the consent of the Supervisory Board by means other than through the stock exchange; or an offer made to all the shareholders, provided the shares are sold in return for cash at a price that does not fall significantly below the stock exchange price of shares in the Company issued under the same terms or the shares are sold in return for in-kind contributions; or they are offered in return for shares held by persons that either had or have an employment relationship with the Company, or with one of its affiliated companies, or members of bodies in companies that depend on the Company. Additionally, if the Managing Board sells the Company's own shares by offering them to all the shareholders with the consent of the Supervisory Board, the Managing Board is entitled to exclude the shareholders' right of subscription for fractions. In addition, the Managing Board is entitled to cancel any own shares acquired after obtaining the consent of the Supervisory Board.

Number 8: Credit lines agreed with banks with a volume of €100 million contain a change of control clause that includes the special termination right of the relevant bank.

Number 9: If the employment contract with a member of the Managing Board ends after being terminated by the member of the Managing Board within a period of six months after a change of control, this member is entitled to severance pay amounting to his/her remuneration rights for the remaining term of the employment contract, however, no longer than a period of two years.

REMUNERATION REPORT

The Remuneration Report summarizes the principles that are decisive when it comes to determining remuneration for the Supervisory Board and Managing Board and also explains the remuneration structure and the emoluments payable.

Managing Board Remuneration and Emoluments

The remuneration system for the Managing Board (including the most important contractual elements) is decided at a Supervisory Board plenary session. The Supervisory Board regularly examines the remuneration system for the Managing Board and defines targets for the variable components of the emoluments. The criteria for determining remuneration include evaluating the tasks of the individual Managing Board members, their personal performance, the overall financial situation and Company success, using compensation peer benchmarking and the Company's usual remuneration structure. In its assessment, the Supervisory Board also included Managing Board remuneration in relation to remuneration of the top-level executives and the workforce as a whole, taking into account changes over time, and thus, laid out comparable peer groups from top-level executives and the workforce. The remuneration is assessed in a way that ensures it is competitive with the market for highly qualified managerial staff. The remuneration system complies with statutory requirements, with the stipulations of the German Corporate Governance Code and with case law and was approved by the Annual General Meeting on May 23, 2017. The remuneration of the Managing Board consists of the components described below in which the fixed component of the emoluments amounts to 60% and the variable component and long-term bonus in the case of good business performance to 40% of the total remuneration before additional benefits. 60% of the variable component of the emoluments must correspond to the long-term bonus. The percentages provided are approximate values. A deviation of up to five percentage points is permitted.

NON-PERFORMANCE-BASED FIXED REMUNERATION

The annual fixed emoluments are divided into 12 monthly salaries.

PERFORMANCE-BASED VARIABLE REMUNERATION

Managing Board members also receive a performance-based variable salary, which depends on sales and earnings before income tax (EBT) as recorded in the Consolidated Financial Statement for a fiscal year audited by the financial auditor as well as on achieving personal goals. The performance-based variable salary consists of three components: "profit," "sales" and "personal performance." "Profit" counts for 40% and "sales" and "personal performance" count for 30% each of the performance-based variable salary. The "profit" and "sales" components can also be fulfilled up to 150%. If the defined lower limits of the respective components are not met, they are graded with a "0." Values in-between are determined on a linear basis. If the sum of the percentages of the components reaches 100% or more, this entitles payment of the full agreed remuneration. If the agreed targets are exceeded, this does not entitle payment of an overall higher variable remuneration (cap).

The target values (EBT, sales) and personal objectives are redefined by the Supervisory Board every year and the corresponding remuneration based on the objectives achieved after the Consolidated Financial Statement has been approved is generally paid in March of the following year. If the Managing Board members' duties do not extend beyond one full fiscal year, then they receive one-twelfth of the performance-based variable remuneration determined for the entire fiscal year for each month of the fiscal year in which they carry out their duties.

LONG-TERM BONUS

Managing Board members also receive a long-term bonus, which depends on the mean EBT margin as recorded in the Consolidated Financial Statements audited by the auditors over a period of three fiscal years. The upper and lower limits of the target value (EBT margin) are determined annually by the Supervisory Board for the following three fiscal years. If the upper limit of the target value is achieved, then the full agreed long-term bonus may be claimed, whereas if the lower limit of the target value is not met, no bonus is payable. Values in-between are determined on a linear basis. If the target value is exceeded, this does not entitle payment of a higher long-term bonus (cap). The bonus is payable, at the very earliest, upon expiration of the three-year period. Payment takes place after the third Consolidated Financial Statements have been approved, usually at the end of March, even if the employment contract ends before the end of the performance period. If the employment contract still has a term of at least two years to run when payment becomes due, then the Managing Board members are expected to invest the net amount payable, in part, in shares in SMA Solar Technology AG and to hold these shares until their Managing Board duties with the Company have ended.

ADDITIONAL BENEFITS

All Managing Board members are entitled to:

→ A company car
→ Reimbursement of travel costs and any expenses incurred on company business
→ Continued payment of remuneration for up to nine months in the event of temporary sick leave
→ Employer's contribution up to the contribution assessment ceiling of statutory social insurance (pension, health, long-term care), even in the case of voluntary insurance and without furnishing any proof as well as appropriate directors and officers liability insurance.

Any taxes due must be borne by the Managing Board member.

OTHER CONTRACTUAL BENEFITS

In the event of death or long-term sick leave, remuneration will continue to be paid for six months.

In the event of early termination of Managing Board duties without good cause, the compensation payable is limited to the total remuneration for the remaining term of the contract and up to a maximum of two years' emoluments (severance pay cap). If an employment contract with a member of the Managing Board ends after being terminated by the member[1] within a period of six months from a change of control, this member is entitled to severance pay amounting to his/her remuneration rights for the remaining term of the employment contract, however, no longer than a period of two years.

All members of the Managing Board are subject to a post-termination non-compete clause valid for a period of two years, which provides an appropriate compensation payment amounting to 50% of the services contractually agreed by the Managing Board. The Managing Board member must set off any remuneration earned while he/she is otherwise employed during the non-compete period, insofar as the remuneration exceeds the amount of the last contractually agreed services performed when the other earnings are added.

The maximum cash value of the compensation sums payable in a non-compete clause after conclusion of Managing Board duties amounts to €0.616 million for Ulrich Hadding (2017: €0.750 million) and €0.829 million (2017: €1.242 million) for Dr. Jürgen Reinert.

In the 2018 fiscal year, the total emoluments payable to all members of the Managing Board in office in the fiscal year amounted to €2.837 million (2017: €3.945 million). This included variable emoluments of €0.155 million paid to the Managing Board in 2018 (2017: €1.265 million). The Managing Board members receive no separate remuneration for carrying out tasks at subsidiaries.

The table below provides information on the remuneration of the Managing Board in accordance with the rules of the German Corporate Governance Code dated February 2017. The values in the "Inflow" table relate to the emoluments of individual Managing Board members for the 2018 fiscal year. The "Grants" table also shows the minimum and maximum remuneration achievable with regard to the variable remuneration components for the fiscal year.

No credits were granted nor were any advances paid to Managing Board members during the fiscal year. There are no pension commitments.

[1] Contrary to the provision introduced in the 2017 Annual General Meeting

Inflow

in €'000	Ulrich Hadding Board Member for Finance, HR and Legal Joined 2017/01/01		Dr.-Ing. Jürgen Reinert Chief Executive Officer, Board Member for Strategy, Sales and Service, Operations and Technology Joined 2014/04/01		Pierre-Pascal Urbon Chief Executive Officer, Board Member for Strategy, Sales and Service Left 2018/31/12[1]	
	2017	2018	2017	2018	2017	2018
Fixed remuneration	600	600	800	800	1,200	1,200
Additional benefits/Others	26	28	23	23	31	31
Total	626	628	823	823	1,231	1,231
One-year variable remuneration	160	22	220	36	320	97
Multi-year variable remuneration						
Long-term variable remuneration 2015 – 2017	0		240		325	
Long-term variable remuneration 2016 – 2018		0		0		0
Total	160	22	460	36	645	97
Pension contribution	0	0	0	0	0	0
Total	**786**	**650**	**1,283**	**859**	**1,876**	**1,328**

[1] Pierre-Pascal Urbon left the Managing Board as of December 31, 2018. In connection with his stepping down from the Managing Board, Mr. Urbon received a single payment of €2.0 million to settle the existing non-compete clause.

Grants

in €'000	Ulrich Hadding Board Member for Finance, HR and Legal Joined 2017/01/01			
	2017	2018	2018 (Min.)	2018 (Max.)
Fixed remuneration	600	600	600	600
Additional benefits/Others	26	28	28	28
Total	626	628	628	628
One-year variable remuneration	160	160	0	160
Long-term variable remuneration 2017 – 2019	240			
Long-term variable remuneration 2018 – 2020		240	0	240
Total	400	400	0	400
Pension contribution	0	0	0	0
Total	**1,026**	**1,028**	**628**	**1,028**

Grants

in €'000	Dr.-Ing. Jürgen Reinert Chief Executive Officer, Board Member for Strategy, Sales and Service, Operations and Technology Joined 2014/04/01				Pierre-Pascal Urbon Chief Executive Officer, Board Member for Strategy, Sales and Service Left 2018/31/12[1]			
	2017	2018	2018 (Min.)	2018 (Max.)	2017	2018	2018 (Min.)	2018 (Max.)
Fixed remuneration	800	800	800	800	1,200	1,200	1,200	1,200
Additional benefits/Others	23	23	23	23	29	31	31	31
Total	823	823	823	823	1,229	1,231	1,231	1,231
One-year variable remuneration	220	220	0	220	320	320	96	320
Long-term variable remuneration 2017 – 2019	330				480			
Long-term variable remuneration 2018 – 2020		330	0	330		480	0	480
Total	550	550	0	550	800	800	96	800
Pension contribution	0	0	0	0	0	0	0	0
Total	**1,373**	**1,373**	**823**	**1,373**	**2,029**	**2,031**	**1,327**	**2,031**

[1] Pierre-Pascal Urbon left the Managing Board as of December 31, 2018.

Supervisory Board Remuneration and Emoluments

In accordance with the regulations on Supervisory Board remuneration in effect since the 2013 fiscal year, Supervisory Board members receive fixed remuneration of €25,000 a year. The remuneration payable to the Chairman amounts to twice the amount mentioned above and the remuneration payable to the Chairman's deputy amounts to one and a half times the aforementioned amount.

Members of the Supervisory Board Audit Committee receive an annual remuneration of an additional €7,500. For members of the Supervisory Board Presidial Committee, the total annual remuneration is an additional €5,000. The chairpersons of these committees receive twice the aforementioned amounts. Members of other committees do not receive any special remuneration for their committee duties.

Supervisory Board members receive an additional €750 per meeting day for their meeting participation. If they take part in several meetings in one day, they receive a maximum payment of twice the aforementioned amount. The remuneration is payable at the end of the fiscal year. Supervisory Board members who have only sat on the Supervisory Board or a committee for part of the fiscal year receive remuneration pro rata temporis.

No other remuneration or benefits for personally rendered services, in particular consulting and mediation services, were granted to Supervisory Board members. Similarly, in the year under review, the Supervisory Board members were granted no credits or advances.

As of December 31, 2018, six of the members of the Supervisory Board held SMA shares.

The emoluments payable to the members of the Supervisory Board amounted to a total of €0.445 million in the reporting year (previous year: €0.441 million).

Beyond the remuneration of the Supervisory Board, the employee representatives that are employees of the Company receive fee payments unrelated to their Supervisory Board duties.

Other

The Company has taken out professional indemnity insurance (D&O insurance) for the members of the corporate bodies of all SMA Group companies. It is effected or extended every year. The insurance covers the personal liability risk of the members resulting from a breach of duty when exercising their duties in the event that any claims for economic losses are asserted against them. The deductible in the policy for the 2018 fiscal year was 10% of the damage, however, no higher than one and a half times the fixed annual emoluments of the member of the corporate body.

Remuneration of the Supervisory Board

in €'000	Remuneration for supervisory duties 2017	Remuneration for supervisory duties 2018	Remuneration for committee duties 2017	Remuneration for committee duties 2018	Total 2017	Total 2018
Roland Bent	28.8	29.5	0.0	0.0	28.8	29.5
Oliver Dietzel[2]	30.3	31.0	12.0	12.0	42.3	43.0
Peter Drews	30.3	30.3	0.0	0.0	30.3	30.3
Dr. Erik Ehrentraut (Chairman)	56.0	55.3	24.3	24.3	80.3	79.6
Kim Fausing[1] (Deputy Chairman)	0.0	0.0	0.0	0.0	0.0	0.0
Johannes Häde	31.0	31.0	12.8	12.8	43.8	43.8
Heike Haigis[2]	29.5	31.0	0.0	0.0	29.5	31.0
Alexa Hergenröther	29.5	31.0	20.3	20.3	49.8	51.3
Yvonne Siebert	30.3	30.3	6.5	6.5	36.8	36.8
Dr. Matthias Victor	31.0	31.0	6.5	7.3	37.5	38.3
Hans-Dieter Werner	31.0	31.0	0.0	0.0	31.0	31.0
Reiner Wettlaufer	31.0	30.3	0.0	0.0	31.0	30.3
Total	**358.7**	**361.7**	**82.4**	**83.2**	**441.1**	**444.9**

1 Kim Fausing waived his entitlements from the Company.
2 The union members on the Supervisory Board pay their remuneration to the union.

COMBINED MANAGEMENT REPORT[1]

[1] The present combined Management Report has been drawn up for both the SMA Group and SMA AG. It was prepared in accordance with Sections 289, 289a, 315 and 315a of the German Commercial Code (HGB) and German Accounting Standards (GAS) numbers 17 and 20. The combined Management Report also includes the Remuneration Report and the Corporate Governance Statement.

BASIC INFORMATION ABOUT THE GROUP

BUSINESS ACTIVITY AND ORGANIZATION

SMA Solar Technology AG (SMA) and its subsidiaries (SMA Group) develop, produce and distribute PV inverters, transformers, choke coils and monitoring systems for PV systems. Furthermore, the company offers intelligent energy management solutions and operation and maintenance services for photovoltaic power plants (O&M business), in addition to other services. Another area of business is digital services for future energy supplies.

Organizational Structure

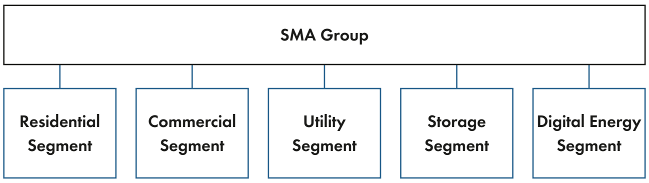
LEGAL STRUCTURE OF THE GROUP

As the parent company of the SMA Group, SMA, headquartered in Niestetal near Kassel, Germany, provides all of the functions required for its operative business. The parent company holds, either directly or indirectly, 100% of the shares of all the operating companies that belong to the SMA Group. The Annual Report includes information regarding the parent company and all 34 Group companies (2017: 33), including eight domestic companies and 26 companies based abroad. In addition, SMA Solar Technology AG holds 28.27% interest in Tigo Energy, Inc. Tigo Energy, Inc. is recognized as an associate in the Consolidated Financial Statements according to the equity method.

ORGANIZATIONAL AND REPORTING STRUCTURE

The SMA Group operates under a functional organization. In this organization, the Residential & Commercial and Utility business units take on overall responsibility and manage development, operational service and sales, as well as production and procurement/logistics. The Residential and Commercial segments are presented separately in the reporting structure. The Service business unit was integrated into the Residential & Commercial business unit and the Utility business unit, subsequently there is no longer any separate reporting for the Service segment from 2018 onward. SMA Sunbelt Energy GmbH and the Off-Grid & Storage business unit have been combined in the Storage segment. The Digital Energy reporting segment, arising from the new business area of the same name that was established in January 2018, is reported for the first time in fiscal year 2018.

REPORTING STRUCTURE



ADJUSTED ORGANIZATIONAL AND REPORTING STRUCTURE AS OF 2019

SMA regularly reviews whether its organizational structure is efficient and in line with market requirements. To allow for even greater focus on customers and to structurally represent SMA's orientation as a provider of systems and solutions in an optimal manner, the SMA Managing Board made organizational changes as of January 1, 2019. The Off-Grid & Storage business unit, SMA Sunbelt Energy, coneva and emerce were integrated into Home & Business Solutions (formerly the Residential & Commercial business unit) and Large Scale & Project Solutions (formerly the Utility business unit), resulting in there no longer being any separate reporting for the Storage and Digital Energy segments from 2019 onward. Starting 2019, the reporting structure will thus comprise the Home Solutions, Business Solutions and Large Scale & Project Solutions segments.

MANAGEMENT AND CONTROL

In accordance with the German Stock Corporation Act (Aktiengesetz), the executive bodies consist of the Annual General Meeting, the Managing Board and the Supervisory Board. The Managing Board manages the company; the Supervisory Board appoints, supervises and advises the Managing Board. The Annual General Meeting elects shareholder representatives to the Supervisory Board and grants or refuses discharge to the Managing Board and the Supervisory Board.

CHANGES TO THE MANAGING BOARD

By October 15, 2018, the Managing Board of SMA Solar Technology AG had comprised the following members: Pierre-Pascal Urbon (Chief Executive Officer, Board Member for Strategy, Sales and Service), Dr.-Ing. Jürgen Reinert (Deputy Chief Executive Officer, Board Member for Operations and Technology) and Ulrich Hadding (Board Member for Finance, Human Resources and Legal).

Pierre-Pascal Urbon left the company on December 31, 2018, at his own request, after having resigned from the Managing Board in agreement with the Supervisory Board on October 15, 2018. On the same date, Dr.-Ing. Jürgen Reinert was appointed Chief Executive Officer of SMA Solar Technology AG and is responsible for Strategy, Sales and Service in addition to Operations and Technology. Ulrich Hadding continues to be responsible for Finance, Human Resources and Legal Affairs and has also assumed responsibility for Investor Relations and Internal Audit.

COMPOSITION OF THE SUPERVISORY BOARD

The SMA Supervisory Board, which represents shareholders and employees in equal measure, consists of Roland Bent, Peter Drews, Dr. Erik Ehrentraut (chairman), Kim Fausing (deputy chairman), Alexa Hergenröther and Reiner Wettlaufer as shareholder representatives. The employees are represented on the Supervisory Board by Oliver Dietzel, Johannes Häde, Heike Haigis, Yvonne Siebert, Dr. Matthias Victor and Hans-Dieter Werner.

PRODUCTS AND SERVICES

As a specialist in system technology, SMA develops and markets PV inverters, hardware and software as well as services that allow energy to be managed intelligently and used efficiently. SMA's portfolio contains a wide range of efficient PV inverters, holistic system solutions for PV systems of all power classes, intelligent energy management systems and battery-storage solutions, and complete solutions for PV diesel hybrid applications. Extensive services up to and including operation and maintenance services for photovoltaic power plants (O&M business) complement the offering.

In the **Residential segment**, SMA caters to global markets for small PV systems with and without connection to a smart home solution. The portfolio, which includes the SMA and Zeversolar brands, comprises smart module technology, single- and three-phase string inverters in the lower output range up to 12 kW, integrated services, energy management solutions, storage systems, communication products and accessories. SMA also offers services, such as extended warranties, spare parts and modernization of PV systems (Repowering) to enhance performance. With this portfolio of products and services, SMA provides solutions for private PV systems in all major photovoltaic markets worldwide.

In the **Commercial segment**, the focus is on global markets for medium-sized PV systems with and without an energy management solution. Here SMA offers solutions based on the three-phase Sunny Tripower inverters with outputs of more than 12 kW as well as on inverters from the Sunny Highpower and Solid-Q product families. The Sunny Tripower inverters are compatible with the smart module technology from Tigo Energy, Inc. Holistic energy management solutions for medium-sized PV systems based on the ennexOS platform, medium-voltage technology and other accessories as well as services up to and including system modernization and operational management of commercial PV systems (O&M business) round off SMA's offering.

The **Utility segment** focuses on international PV power plant markets with its powerful string inverters in the Sunny Highpower product family and the central inverters in the Sunny Central product family. The outputs of the inverters in this segment range from 150 kW to the megawatts. In addition, the SMA portfolio in the Utility segment covers complete solutions comprising central inverters with their grid service and monitoring functions as well as all medium- and high-voltage technology and accessories. The portfolio is supplemented by services, such as for the modernization and functional enhancement of PV power plants (Repowering), and operation and maintenance services (O&M business).

The **Storage segment** is comprised of SMA's system technology for integrating battery-storage systems of all system sizes. In addition to increasing PV self-consumption to reduce electricity costs in private households and companies, the main priorities here are supplying electricity to remote areas reliably and cost-effectively as well as implementing PV diesel hybrid projects in sunbelt areas around the world and large-scale storage projects in select markets. SMA collaborates on storage integration with all leading battery manufacturers and with companies from the automotive industry.

The **Digital Energy segment** comprises the subsidiaries coneva and emerce. coneva develops digital energy services for private and business customers. emerce focuses on online sales channels for select markets.

IMPORTANT SALES MARKETS AND COMPETITIVE SITUATION

SMA estimates that 102 GW of new PV power was installed worldwide in 2018. This is only slightly below last year's level (2017: 103 GW; figures exclude inverter retrofitting and battery inverter technology). The global market, not including China, posted growth of 16%, whereas, with new installations totaling 44 GW, the Chinese market declined by arround 17% year on year (2017: 53 GW). SMA estimates that global PV inverter technology sales, including inverter retrofitting and battery inverter technology, fell by around 8% to €4.9 billion in the reporting period (2017: €5.3 billion). This includes around €600 million in the battery inverter growth segment (2017: approx. €500 million). The disproportionately high sales decline in comparison to the market development in GW is attributable to increased price pressure.

The share of the photovoltaic markets in Europe, the Middle East and Africa (EMEA) in global sales slightly increased to approximately 26% in 2018 (2017: 24%). American photovoltaic markets remained on a par with the previous year and once again represented 19% of global sales (2017: 19%). Due to low prices and strong decline in gigawatts, the Chinese market accounted for only around 25% of global sales in 2018 (2017: 28%). The Asia-Pacific photovoltaic markets (excluding China) accounted for 30% of sales (2017: 29%).

SMA IS WELL POSITIONED INTERNATIONALLY AND HAS A COMPLETE RANGE OF PRODUCTS

With its companies and experienced photovoltaics specialists in 18 countries, the SMA Group is in a good position to benefit from the growth of global photovoltaic markets.

The SMA production sites in Niestetal and Kassel (Germany) and Yangzhong (China) have an overall annual capacity of over 20 GW. The competence center for coils (electromagnetic components) is based in Zabierzów, near Krakow (Poland). With its international positioning and product and service portfolio for all types of applications and different regional requirements, SMA can react quickly to shifts in demand at any time.

In 2018, SMA sold inverters with an accumulated output of 8,449 MW (2017: 8,538 MW) and generated €760.9 million in sales (2017: €891.0 million).

FOCUS ON COST REDUCTION AND MAJOR FUTURE FIELDS

In the reporting year, SMA countered the increased price pressure in all segments and regions – due in particular to the huge reduction in PV expansion targets in China – with additional measures to reduce costs. These include improved processes and the introduction of product innovations with a lower cost of sales that lead to considerable savings in the total costs of PV systems. In addition, the SMA Managing Board has resolved extensive restructuring measures to quickly return the company to profitability in the environment described above. The main measures that are implemented since January 2019 include giving up the locations in China and selling the Chinese companies to the local management. The restructuring is aimed at reducing SMA's fixed costs and making optimal use of our capacity at the headquarters by focusing on our core competencies, outsourcing and automating activities, and reorganizing structures.

In addition, SMA further advanced its strategic positioning in major future fields and consequently its continued development into a provider of systems and solutions in the reporting year. In the Digital Energy segment, for example, the subsidiary coneva has started to open up the business field of digital energy solutions. In the Storage segment the strategic partnership with the leading battery manufacturer BYD was expanded to additional growth markets and in the repowering business SMA devised offers for the modernization and functional enhancement of PV systems in all power classes.

VISION AND MISSION [1]

Energy supply structures are undergoing fundamental change all over the world. After the pioneering phase of renewable energy sources comes the digitalization of the energy industry. In the foreseeable future, the energy supply will be decentralized, highly renewable, fully digital and interconnected. Photovoltaics will play an essential part as the most cost-effective and decentralized source of energy. With a complete portfolio of products and solutions, extensive PV system expertise and a global presence, SMA is in an excellent position to utilize the opportunities offered. The SMA Strategy 2020 will provide the strategic framework for this. It comprises a forward-looking vision and mission as well as clear strategic targets for the years to come.

[1] This section is not a mandatory component of the management report as defined in Section 315 HGB in conjunction with GAS 20, and therefore not a subject of the financial audit.

Our vision is to make people completely independent in their energy supply using decentralized renewable energy in a connected world. SMA will make a substantial contribution to the fast and full implementation of this vision. Our mission is to integrate and network photovoltaics, storage systems and mobility with intelligent energy management. With our superior solutions, we will shape the energy supply of the future.

CORPORATE GOALS

SMA's corporate goals are enshrined in the Strategy 2020. They were presented to all SMA employees around the world and should form the basis for the Company's sustainable success.

GLOBAL MARKET LEADER IN ALL SEGMENTS

SMA's goal is to make consistent use of growth opportunities in all market sectors and regions and to be the global market leader in sales in every one of our market segments – Residential, Commercial and Utility.

PROVIDER OF SYSTEMS AND SOLUTIONS

The ability to offer both individual components and entire systems and solutions, including innovative services, is becoming an important distinguishing feature in the photovoltaics industry. SMA has therefore set itself the target of increasing the proportion of sales it generates outside inverters to over 40% by 2020.

SUSTAINABLE PROFITABILITY AND LIMITED CAPITAL TIE-UP

To counter the high price pressure that is still expected, SMA is striving for continual process improvements and increases in efficiency. If necessary, profitability will be ensured through reductions in structural costs.

DEVELOPMENT OF SMA BY MEANS OF DISRUPTIVE APPROACHES

The digitalization of the energy supply is giving rise to business opportunities that demand novel approaches. In order to make use of the resulting opportunities, SMA focuses on disruptive technological approaches, data-based business models and end-to-end sales models in new, legally independent business units.

SMA IS AN ATTRACTIVE COMPANY [1]

Motivated employees with an international, entrepreneurial mindset and approach, sustainability across the entire value chain and high credibility among all stakeholders are important factors for SMA's success in a dynamic market environment. We therefore practice our values and allow SMA employees the freedom for responsible, entrepreneurial action. We stand out, both internally and externally, due to fairness, internationality and sustainability. Additional information is available in the chapter "Non-Financial Statement" starting page 34.

ADDITIONAL MEASURES IMPLEMENTED

In the reporting year, SMA implemented additional key measures to achieve the objectives of Strategy 2020. For example, the first system packages with hardware, software and service components were developed for the Residential and Commercial segments and are gradually introduced to markets starting the first quarter of 2019. In the Digital Energy segment, the subsidiaries coneva and emerce initiated pilot projects for the development of digital energy services and online sales channels in select markets.

In December 2018, the SMA Managing Board also presented restructuring measures aimed at reducing fixed costs and quickly returning the company to profitability in an environment characterized by sharp price decreases, without negatively impacting investments in major future fields.

ENTERPRISE MANAGEMENT

Leading Indicators

To be able to react to market changes in a timely manner, it is exceedingly important for SMA to recognize opportunities and risks early on. To achieve this, we will have ongoing discussions about what are commonly referred to as operative leading indicators at both the Managing Board and business unit level with the business unit heads, vice presidents and the general managers of SMA subsidiaries. Indicators relevant to SMA include changes in PV system incentive programs and their effect on regional market potential, growth and competitiveness of SMA in regional markets, customer acceptance of new products as well as market-related information stemming from discussions with customers, suppliers and associations. The myriad of influencing factors and the complex way they interact make it difficult to produce a detailed forecast that holds up long term.

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As part of annual and medium-term planning, the Managing Board specifically discusses opportunities and risks with regard to markets and sales volumes with the sales and business unit heads and records the final assumptions for planning. In the reporting period, the Managing Board and business unit management were informed on a monthly basis about the financial development of the entire SMA Group and the individual business units. They were continuously compared with planning assumptions. In the event of deviations or unforeseen events, short-term countermeasures could therefore be taken on the basis of intra-year forecasts.

Financial Management Parameters

In 2018, SMA used the following key financial management parameters for its operative business as explained below. The calculation of net working capital was changed compared with the previous year. Starting in the 2018 fiscal year, this ratio also includes liabilities from advanced payments received for orders due to their operational nature. In addition, there were no changes in calculation of key figures or in the management system.

SALES

Sales include all of the sales generated over the reporting period. Because the market for inverters was shaped partly by plummeting prices, we also measure, in addition to sales, inverter output sold and the average selling price per watt. We calculate sales at both the Group and business unit level.

OPERATING PROFIT (EBIT)/OPERATIVE EARNINGS MARGIN

In addition to sales and the cost of sales, the operating profit also includes functional costs and other operating expenses and income. SMA uses this key figure to measure the profitability of the individual business units and the Group. To determine the operative earnings margin, we calculate operating profit in relation to total sales. We measure operating profit and the operative earnings margin at both the Group and business unit level.

EARNINGS BEFORE DEPRECIATION AND AMORTIZATION (EBITDA)

SMA calculates operating earnings before interest, taxes, depreciation and amortization (EBITDA) based on operating earnings (EBIT) plus depreciation and amortization of fixed and intangible assets. SMA uses this key figure to measure profitability at the Group level, excluding imputed depreciation of investments made.

NET WORKING CAPITAL/NET WORKING CAPITAL RATIO

In addition to inventories, net working capital comprises trade receivables, trade payables and prepayments made by customers. We measure our customers' and suppliers' accounts receivables as well as product manufacturing inventories regularly in relation to sales over the last 12 months. We measure and manage net working capital at the corporate Group level.

CAPITAL EXPENDITURE

Capital expenditure is another key driver of liquidity planning. To manage capital expenditure, we formulate budgets as part of our annual planning, which the Managing Board approves over the course of the fiscal year. This applies particularly to large-scale capital expenditure projects, which are additionally evaluated with a profitability calculation. We manage capital expenditure at the corporate Group level.

NET CASH

With net cash, we review our own financing possibilities for the ongoing business like net working capital and capital expenditure. It includes liquid funds and securities contained within working capital and cash on hand pledged as collatoral less interest-bearing financial liabilities. We manage net cash at the corporate Group level.

Intragroup Reporting and Management

INTRAGROUP REPORTING

The monthly reporting includes, among other information, detailed status reports on orders placed and order volumes, the amount of inverter output sold, sales figures, results of operation, cash flow statements, research and development activities, investments and net working capital. The aim is to compare changes in decisive items on the income statement and balance sheet both with the budget and with the figures of the previous month and to take any corrective measures necessary. An electronic management information system (SAP Business Warehouse) serves as the "home" for the information used for reporting.

INTRAGROUP MANAGEMENT SYSTEM

In the reporting period, the basic elements of the intragroup management system were the regular Managing Board meeting and monthly discussions on results with the business unit managers. Strategy implementation was also discussed during quarterly business reviews with the business units as was an assessment on the progress of objectives. In addition, the SMA intragroup management system encompasses the regular Risks and Opportunities Report and the report prepared by the Internal Audit department.

RESEARCH AND DEVELOPMENT

In the last five years alone, SMA has invested nearly €500 million in the development of new products and solutions. We use our systems expertise to develop holistic solutions for different photovoltaic applications and for comprehensive energy management across all segments and sectors (power generators, household appliances, storage systems, heating, ventilation and air-conditioning, e-mobility). To offer our customers technically mature and economic system solutions in all market segments and regions, we selectively collaborate with strong partners. With our continuous research and our market- and customer-focused development, we can further reduce the consumer cost of PV electricity and decrease the complexity in the new, decentralized and digital energy world, thus making a significant contribution to a successful global energy transition. Our innovations have won numerous awards, most recently in June 2018 at Intersolar Europe in Munich.

Forward-Looking Development Approach

Thorough understanding of different market requirements and close proximity to our customers enable us to anticipate future system technology demands. Customers used to be concerned primarily with energy yield, service life and design flexibility. Now, however, consumer costs of PV electricity, system integration as well as connectivity are the key factors in making a purchasing decision. With the increasing integration of PV systems into comprehensive systems, cyber security is also playing an ever more important role. In this context, the PV inverter is classified as a system-critical component, so customers place higher demands on the transparency of companies.[1]

In product development, SMA is pursuing a platform strategy aimed at systematically reducing product costs and being able to react quickly to market changes. By standardizing the core inverter, we are capable of increasing the proportion of identical components across the entire portfolio. Customization in line with different markets and customer needs is implemented through the connection area and software. In the year under review, SMA increased its R&D expenses by 5.0% compared to the previous year to €87.1 million (including capitalized development projects) as a result mainly of the development of new units in the Digital Energy segment and the uptick in strategically important development projects for new products. SMA was granted 1,244 patents and utility models worldwide by the end of the reporting year. In addition, around 550 other patent applications were still pending as of December 31, 2018. Furthermore, SMA holds the rights to 1,048 trademarks.

Research and Development Expenses of the SMA Group

in € million	2018	2017	2016	2015	2014
Research and development expenses	87.1	83.0	78.3	96.0	129.1
of which capitalized development projects	18.8	18.4	12.5	29.5	40.9
Depreciation on capitalized development projects (scheduled)	21.4	18.2	19.8	13.6	14.9
Research and development ratio in % in relation to sales	11.4	9.3	8.3	9.8	16.0

[1] This paragraph is not a mandatory component of the management report as defined in Section 315 HGB in conjunction with GAS 20, and therefore not a subject of the financial audit.

Complete Solutions to Lower Energy Costs [1]

PRIVATE SYSTEMS: MORE SELF-CONSUMPTION AND COMPLETE SYSTEM PACKAGES

In the period under review, SMA expanded its solution portfolio for reducing household energy costs in the market segment for smaller rooftop PV systems (Residential). The focus here was on more efficient use of self-generated solar power and further development of intelligent energy management across all sectors. SMA's Sunny Home Manager is the world's most used energy management system for private applications.

With smart module technology that can be used in a targeted way and the SMA Smart Connected service function integrated directly into the inverter, SMA Residential Solutions facilitate maximum energy yields and the greatest possible convenience for PV system owners and installers. In addition to the proven Sunny Boy inverters, SMA presented another valuable core component for the solutions during the reporting period: the new Sunny Tripower 3.0–6.0 PV inverter. With a weight of just 17 kilograms, this small three-phase inverter for residential PV systems is lighter and more compact than comparable products. Low weight is particularly important for solar power professionals, as it makes installation considerably easier. Via the integrated web interface, the Sunny Tripower can quickly and easily be put into operation using a smartphone or tablet. This inverter has been available worldwide since the fourth quarter of 2018.

In June, SMA announced another partnership for intelligent integration of e-mobility into home energy management. In this collaboration, Audi and SMA will pool their expertise to develop an integrated solution for reliable and cost-optimized charging of the Audi e-tron electric model.

To make the generation and use of solar power even more attractive, in the reporting period SMA investigated how PV system operators can be integrated into the SolarCoin ecosystem via the world's largest solar monitoring platform, Sunny Portal. The SolarCoin Foundation rewards the generation of solar power by issuing the cryptocurrency SolarCoin. One SolarCoin (SLR) is issued per megawatt-hour generated. The solution developed by SMA gives PV system operators registered in Sunny Portal easy and convenient access to SolarCoins since the beginning of February 2019.

To provide optimal support to the important customer group of installers in their customer business SMA has developed complete system packages for the Residential and Commercial segments, which, in addition to solar and battery inverters, include battery storage, energy management and design software as well as customized services. They are distributed in select markets since early 2019.

[1] This section is not a mandatory component of the management report as defined in Section 315 HGB in conjunction with GAS 20, and therefore not a subject of the financial audit.

COMMERCIAL APPLICATIONS: AWARD-WINNING ENERGY MANAGEMENT AND CONVENIENT DIRECT MARKETING

In the medium-sized PV system segment for commercial applications (Commercial), SMA launched its completely new IoT platform for energy management at the start of 2018: ennexOS effectively reduces energy costs across all sectors (power generators, household appliances, storage systems, heating, ventilation and air-conditioning, e-mobility). The modular functionality of the platform can be adjusted to the user's individual requirements at any time. This ranges from monitoring energy flows and automatically optimizing total energy costs to involving households and companies in the energy market of the future. As a central interface, the new SMA Data Manager M allows for perfect communication and monitoring and can also be used to manage all future energy flows. After ennexOS was presented with the prestigious Terawatt Diamond Award for outstanding technological developments at the Chinese solar power trade fair SNEC in Shanghai in May, it went on to win the smarter E AWARD when this was conferred for the first time at Intersolar Europe in June. The functions are successively enhanced in regular updates.

In addition, SMA presented its new planning software Sunny Design PRO at Intersolar Europe. For the first time, the software makes it possible for system planners to plan commercial PV systems across all sectors, simulate operations and calculate total system costs. Electrical power generators and loads, battery-storage systems and thermal components such as heating and heat pumps are all taken into account here.

SMA SPOT, the solution for direct marketing of solar power jointly developed by SMA and the Mannheim-based energy company MVV Energie AG, has been available since June 2018. This is Germany's first economic direct marketing solution for PV systems with an output of more than 100 kWp that factors in the proportion of electricity demand that can be covered by self-generated electricity. There are also plans to offer this service in other regions in the future.

In the fourth quarter, SMA established new solutions for commercial PV applications in the important North American market, including new versions of the successful Sunny Tripower CORE1. In addition to SMA's tried and trusted inverter with an output of 50 kW, customers can now choose an additional version with an output of 62.5 kW for larger commercial PV systems equipped with highly efficient modules and a model with an output of 33.3 kW for smaller or heavily segmented PV systems. All three models are equipped with the most recent SMA performance and security functions and meet the NEC standards applicable in the U.S. market starting 2019.

PV POWER PLANTS: HIGH-PERFORMANCE AND COST-EFFECTIVE SOLUTIONS FOR CENTRAL AND DECENTRALIZED ARCHITECTURES

In the segment of large-scale PV power plants (Utility), development in the reporting period focused on further increasing power density to reduce PV power plant costs with central and decentralized designs, and on secure system integration. In addition, SMA enhanced its service offer, especially with regard to the modernization of large PV systems (repowering).

The new Sunny Highpower PEAK3 is the first SMA string inverter for 1,500-volt DC voltage. The inverter with an output of 150 kWp allows for flexible planning, rapid project implementation and easy service in PV power plants with a decentralized architecture and provides maximum power even under extreme conditions. Delivery starts from March 2019.

In 1,500-volt PV power plants with central architecture, the new Sunny Central 3000-EV can reduce specific costs by up to 10% due to its high power density. Additionally, thanks to further optimizations, the central inverter can operate at full power even at temperatures of up to 35 °C. Since the third quarter of 2018, the Sunny Central 3000-EV has also been available worldwide as a fully integrated turnkey container solution with one or two inverters with a total output of up to 6 MW in combination with perfectly matched medium-voltage technology.

With the Sunny Central UP, SMA has once again successfully increased the output of its largest central inverter by more than 50%. Its output of 4.6 MW enables a considerable reduction in the number of inverters in large 1,500-volt PV power plants and thus significantly lowers operating costs. The inverter has been available for order since September 2018. Delivery will start in the third quarter of 2019.

In addition, all SMA central inverters now have a fully integrated hardware and software solution for simple connection of DC-coupled battery-storage systems. This inverter option has been available for order since September 2018 and will be delivered starting the end of the first quarter of 2019.

Along with product innovations, the service portfolio was made more flexible and adapted even better to changes in customer needs in 2018. Among other things, SMA is now offering tailored services for the modernization of PV power plants, so-called repowering solutions. The concepts are aimed, in particular, at the installed base of competitors with insufficient product or service performance. There is also a focus on interfering as little as possible in the infrastructure of the projects. An upgrade to new functions and complementary business models, such as storage systems, is also a possibility. The main target markets are the U.S., Germany, Spain, Italy and Greece.

STORAGE SEGMENT: FLEXIBLE STORAGE INTEGRATION FOR ALL SYSTEM SIZES

The Storage segment is comprised of SMA’s system technology for integrating battery-storage systems of all system sizes. In October 2018, SMA announced the expansion of a strategic partnership with BYD, one of the world’s largest battery manufacturers. In this partnership, SMA and BYD jointly develop and market technical solutions for private and commercial storage applications. A special focus of the expanded collaboration is growth in the U.S. future market. Additional growth markets, such as Africa, complement the joint international growth initiatives, especially as the companies can utilize their joint success for off-grid application experience.

An important element of SMA’s solutions for private storage applications is the Sunny Boy Storage. This battery inverter was launched in the new power classes 3.7 kW, 5.0 kW and 6.0 kW in May 2018. With this AC-coupled solution for integrating high-voltage batteries into residential PV systems, it is particularly easy and cost-effective to equip new and existing PV systems and subsequently flexibly enhance them. For the first time, the battery inverter makes it possible to connect up to three high-voltage batteries from different manufactures. In addition, the Sunny Boy Storage 3.7/5.0/6.0 is SMA’s first battery inverter equipped with the SMA Smart Connected service. PV system operators and installers thus benefit from free monitoring and automatic notice if service is required.

The new Sunny Central Storage, the key element in SMA’s solution for large storage systems, won the ees AWARD at Intersolar Europe. The battery inverter, which is used globally, has a high power density and is compatible with virtually all battery technologies thanks to its wide battery voltage range. With its ability to ensure off-grid supply as well, the Sunny Central Storage is optimally prepared for future requirements. It is available as a turnkey container solution in combination with medium-voltage transformers and switchgears.

The SMA Sunbelt Energy business division focuses on PV projects in off-grid areas and PV diesel hybrid projects in sunbelt areas around the world. The subsidiary has also been involved in major battery-storage projects in select markets since last year. In the reporting period, SMA Sunbelt Energy supplied, among other things, battery management, grid integration as well as monitoring system technology to the German Langenreichenbach and Bennewitz large-scale storage system projects. With an output of 16 MW each, these storage power plants provide important grid services, which are becoming ever more important given the increasing share of fluctuating grid feed-in from renewable energy sources. They thus help not only alleviate the burden on local grids but also stabilize the interconnected Central European electricity grid.

DIGITAL ENERGY: INNOVATIVE SOLUTIONS FOR CUSTOMER RETENTION AND ELECTRICITY COST SAVINGS

In the Digital Energy segment, the SMA subsidiary coneva launched several pilot projects with public utility companies in 2018. The white label solutions developed by coneva for public utility companies integrate both prosumers and traditional energy customers of utility companies into the world of digital energy and enable them to use energy simply and cost-efficiently. As a result, public utility companies facilitate their customers' ability to participate directly in the energy transition, forge closer ties with them and increase their competitiveness in a dynamic environment. The projects initiated by coneva include the partnership with Stadtwerke München announced in July. The aim is to jointly develop an integrated energy management system with which households and commercial enterprises can generate, store and make optimum use of their own electricity. The software-based and modular energy management system on the basis of the SMA platform ennexOS is to be integrated into the Smart Meter Gateway.

In commercial applications, coneva also implemented a pilot project for cross-sector energy management together with Danfoss Cooling in a supermarket in Oldenburg, Germany. The solution installed there, based on SMA's ennexOS platform, links a PV system to a storage system, the supermarket's refrigeration system, the heating as well as charging stations for electric vehicles in the customer parking lot. Through targeted management of electrical and thermal generators and loads, the supermarket saves on electricity costs, reduces its CO_2 emissions and can also support the utility grid. Due to its modular structure, the solution comprising hardware, software and services can be used variably according to individual requirements and therefore proves attractive to other industries in which the effective reduction of electricity costs is a competitive advantage for companies.

NON-FINANCIAL STATEMENT [1]

[GRI 102–14] Since SMA was founded, sustainability has been an essential part of its corporate mission statement. We understand sustainability as combining long-term economic success with protection of the environment and social responsibility. Our sense of identity includes satisfied employees thanks to an attractive corporate culture, a fair and honest business policy, social commitment, exemplary handling of environmental issues and resources through sustainable production, and the use of renewable energy sources at all levels of the value chain. With our products and services, we are driving the transition to a globally sustainable, renewable energy supply and are helping curb global climate change.

The SMA Managing Board is committed to the ten principles of the UN Global Compact, which SMA signed back in 2011. Based on these principles and the 17 UN Sustainable Development Goals, we continuously develop our commitment to sustainability. In this way, we want to help meet the challenges associated with a steadily growing population, rising globalization and urbanization, and increasingly scarce resources. The focus here is particularly on Goal 7: "Ensure access to affordable, reliable, sustainable and modern energy."

[GRI 102–11, 12, 14, 18, 48–52, 54] On the following pages, we report on the developments and progress we made in terms of sustainability in the 2018 fiscal year. Significant risks from the Company's business activities and from its products and services that could have negative effects on the aspects covered in the Non-Financial Statement are described in the Risks and Opportunities Report starting on page 58. An overview of sustainability key figures can be found at the end of the Annual Report on pages 128 et seq. In addition, we publish information about sustainability at SMA on our website at www.SMA.de/en.

The report uses the Core option of the Global Reporting Initiative (GRI) standards. The disclosures also fulfill the criteria of the UN Global Compact annual progress report. In the future, we will also report on how the Company's activities measure up against each of the 17 UN Sustainable Development Goals. The precautionary principle, as outlined in the Rio Declaration on Environment and Development, is also an integral part and driving force of our sustainability commitment.

[1] The section "Non-Financial Statement", which contains the disclosures pursuant to Sections 289b – 289e and Sections 315b and 315c HGB, is not subject to auditing in accordance with Section 317(2) sentence 4 HGB. Only the presence is to be checked.

Sustainability – An Important Element of the SMA Strategy 2020

[GRI 102–14, 22, 23, 34] SMA knows that a comprehensive, credible commitment to sustainability is possible only when it is an established part of the corporate strategy. That is why sustainability is an essential element of the SMA Strategy 2020. Objective 5 of this strategy is: SMA is an attractive company – working sustainably along the entire value chain. The sustainability mission statement developed in 2012 was adapted to the Strategy 2020.

On this basis, we have defined four areas of action for sustainability that comprise the following topics:

PRODUCTS AND PROCESSES	ENVIRONMENT AND ENERGY	EMPLOYEES	SOCIAL RESPONSIBILITY
Quality and safety	Resource efficiency	Culture of feedback	Responsibility in the supply chain
Customer satisfaction	Preventive environmental protection	Advanced training	Stakeholder dialogue/ transparency
Circular economy	Holistic energy management	Diversity	International principles and values
Sustainable profitability	Sustainable mobility	Occupational safety and health management	Social commitment

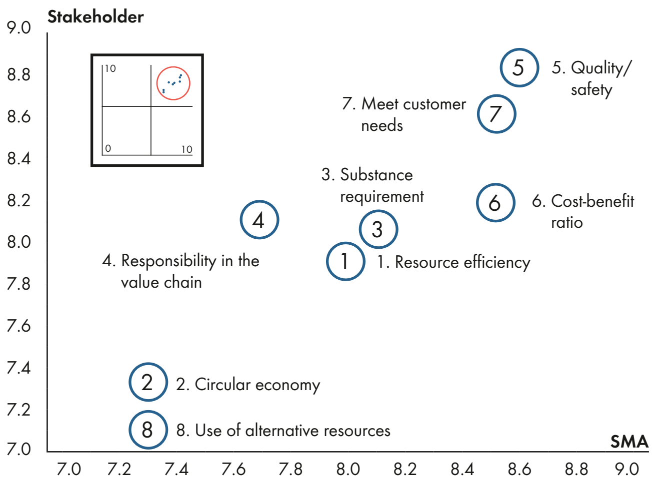
The four areas of action “Products and Processes,” “Employees,” “Environment and Energy” and “Social Responsibility” are the focal points for our commitment to sustainability. In terms of content, they relate to factors both at the company level and at the product level.

For all company activities, the Global Quality unit coordinates implementation of the sustainability commitment. Decisions are made by the Global Management Committee, which consists of the Managing Board and top-level managers.

KEY FACTORS DETERMINED USING STAKEHOLDER ANALYSIS

[GRI 102–40, 42–44, 46, 47, 103–1] Ongoing dialogue with various interest groups and the general public is important to us. In 2017, we carried out a stakeholder analysis to identify key areas of action for a sustainable company strategy. Our survey gave internal and external interest groups (customers, suppliers, employees, NGOs) the chance to directly influence the development of SMA’s sustainability commitment. The survey included three sections: sustainable company, sustainable product design and sustainable value chain. The results of the stakeholder analysis serve as the basis for continuous development of our commitment to sustainability.

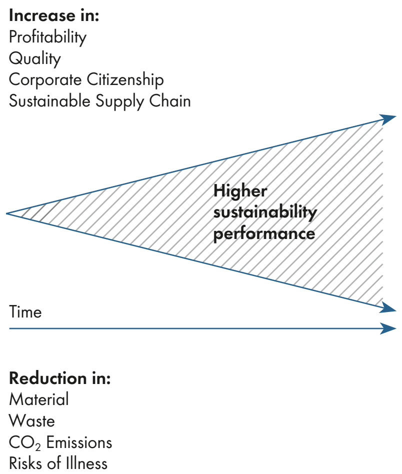
Using the example of sustainable product design, the graphic below shows the analysis of the key areas of action. Internal and external stakeholders were asked about the relevance (materiality) of presorted issues from the points of view of the stakeholder and of SMA. The materiality analysis revealed that many of the issues relating to sustainable product design we identified were highly relevant.



SUCCESS MEASURED BY COMPANY AND PRODUCT KPI

We measure the scope and success of our commitment to sustainability using a Product Key Figure and a Company Key Figure. These two figures were compiled for the first time in 2017. In dialogue between specialists und stakeholders from different areas of the Company, we then thoroughly scrutinized the main sustainability drivers in the four areas of action again in 2018 and adjusted the parameters. The next step will involve making all of the drivers measurable and allocating ambitious targets, which can then be used as the basis for measuring the sustainability performance in the Company Key Figure and the Product Key Figure.

The Company Key Figure measures the use of resources and the value that this creates. The aim here is to create more value with fewer resources. The bigger the gap between the value created and the resources used to do so, the more sustainable the Company. We have determined the following parameters for this:



The Product Key Figure follows the same pattern and measures the increase in sustainability of our products and services. We evaluate this using defined sustainability criteria, which are based on the results of our stakeholder analysis and our internal expert dialogue.

Developments in the Four Areas of Action in the Reporting Year

[GRI 103–1, 2–3] As a result of the integrated management system implemented at the headquarters in Niestetal/Kassel, we follow clearly defined management approaches and also meet the requirements in accordance with DIN EN ISO 9001, DIN EN ISO 14001, DIN EN ISO 50001 and DIN EN ISO 45001. These also influenced the specification of key aspects within the four areas of action. Due to the extensive internal expert dialogue, the definition of specific targets for all key aspects at the product and company level – which was originally planned for 2018 – has not yet been completed. Regardless of this, SMA successfully implemented further measures in the four areas of action in 2018, which we report on below.

AREA OF ACTION: PRODUCTS AND PROCESSES

Customer satisfaction is the basis for the long-term economic success of the Company. With our strong capacity for innovation and high quality along the entire value chain, we develop sustainable products and processes that meet the changing demands of an increasingly digitalized world, and the requirements for sustainability and a circular economy. Here we concentrate on the following issues:

Ongoing Improvement of Quality and Waste Reduction in all Business Processes – Focus on Supplier Quality

[GRI 416–1–3] When serving our customers, our aim is to fulfill the highest quality requirements at all times. We aim for added value, zero defect tolerance and flexible quality concepts on a global level. SMA’s headquarters in Kassel/Niestetal have been certified by the DIN EN ISO 9001 quality management standard for over 20 years, thus guaranteeing compliance with recognized quality principles. Our high standard of quality is also enhanced by the accreditation of our in-house Test Center for Electromagnetic Compatibility (EMC) by ISO/IEC 17025, the international standard for test and calibration laboratories. In addition to these and other management certifications, our products also meet the official safety standards required by the various markets (e. g., UL, JET, VDE, etc.). Additionally, in the past, our sustainable product design concept largely focused on the longevity of the products by reducing wearing parts.

Effective and efficient inspection and testing procedures help us achieve our quality goals. Thanks to a sound quality index system, we can also identify sources of error at an early stage and address risks to a large extent. In 2018, we particularly concentrated on supplier quality at SMA, implementing additional processes and optimization measures in this area.

Sustainable Profitability and Limited Capital Tie-Up – SMA Inverters Avoid Environmental Damage Amounting to €7.5 billion

[GRI 201–2, 203–2] In addition to further cost reduction measures, in 2018, the SMA Managing Board resolved extensive restructuring measures to quickly return the company to profitability over the long term in an environment characterized by strong price pressure. The main measures that are implemented since January 2019 include giving up the locations in China and selling the Chinese companies to the local management. The restructuring is aimed at reducing SMA's fixed costs and making optimal use of our capacity at the headquarters by focusing on our core competencies, outsourcing and automating activities, and reorganizing structures.

In addition, environmental damage avoided will increasingly be taken into account in the economic analysis of companies. Assuming an average value, SMA's total current inverter output of around 75 GW to date is equivalent to avoided environmental damage amounting to €7.5 billion. Our inverters enable a cost-effective and environmentally friendly energy supply worldwide, helping support the fight against climate change and contributing to the achievement of UN Sustainable Development Goals 7, 11 and 13. The PV inverters produced by SMA to date help prevent nearly 52 million tons of CO_2 emissions every year worldwide (assuming 75 GW of output, 1,300 kWh of power generation a year per kW, 0.53 kg CO_2/kWh).

Achieving a Comprehensive Circular Economy – Guideline for Sustainable Product Design Created

[GRI 301–2, 3] As a sustainability-conscious company aiming for high resource efficiency, creating a circular economy is hugely important to us. Our inverters already have a long service life. Defective devices that need to be serviced are immediately replaced by reconditioned devices, repaired if possible, and transferred to the replacement device pool.

In the next few years, we will develop a comprehensive strategy aimed at achieving a circular economy in our value chain. This strategy will focus on reusing as many materials as possible after our inverters have been used, from the product development stage on. Additional goals are waste reduction, increased recovery rates and improved disposal (see also Area of Action: Environment and Energy).

In 2018, we developed the basic version of a guideline for sustainable product design. One focus area here is design for recycling and disassembly. The guideline is continuously expanded based on new project results within the company. These also include the findings from a project carried out in the year under review to investigate more homogeneous recycling of SMA inverters after they have finished being used. The goal here is to design the inverters in a way that enables high-quality raw materials to be returned to the material cycle as easy and resource-efficiently as possible after the end of the devices' service life.

Increasing Customer Satisfaction – International Survey Designed

[GRI 102–43, 44] To understand exactly what our customers expect from us, we engage in constant dialogue with them and actively request feedback. This takes place at customer events as part of the SMA partner program, at SMA Solar Academy seminars and regular international trade fairs. In 2018, we also conducted a survey of installers in Germany that focused on how we can better support this customer group with their work. The survey is to be adapted for additional markets in 2019. In addition, we designed a comprehensive international customer satisfaction survey for all customer groups in 2018. This will be rolled out to around 50,000 recipients worldwide in 2019.

AREA OF ACTION: ENVIRONMENT AND ENERGY

SMA will continuously reduce its use of resources in terms of raw materials, energy, mobility and waste along the entire value chain, increase its use of renewable energies, environmentally friendly materials and sustainable forms of mobility as well as improve its recycle and reuse rates. This will be taken into consideration early on in the development of new products and solutions. Important issues here are:

Increasing Resource Efficiency Throughout the Entire Product Life Cycle – Another Product Life Cycle Assessment Prepared and Material Efficiency Increased Again

[GRI 301–1, 303–1, 304–1, 2, 306–2, 307–1] SMA sees in resource efficiency a responsibility to the environment but also an economic advantage. Here the product life cycle assessment helps us find the greatest possibilities within our value chain, define the right goals and continuously improve the product sustainability key figure. The results of the assessment will be successively incorporated into our guidelines for sustainable product design. We have already used this method in recent years for inverters in the Sunny Boy and Sunny Central product families. In 2018, we also performed a life cycle assessment of the inverter family for commercial applications, Sunny Tripower, in collaboration with the Fraunhofer Institute for Building Physics IBP. The results showed that the high efficiency and high quality standard of our inverters and their associated long service life have a positive influence. In the future, we will direct focus to our preliminary supply chain.

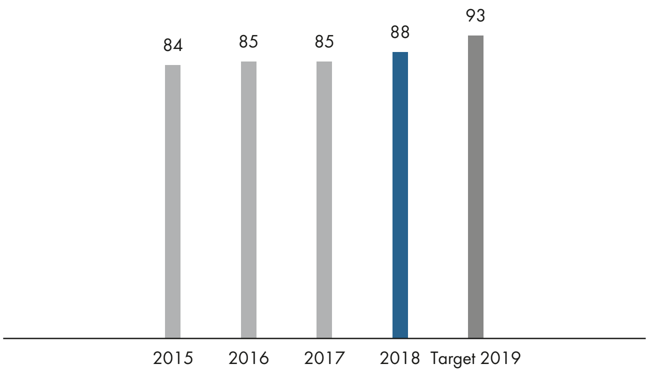
Material efficiency – We once again increased the material efficiency of our inverters in 2018. Whereas in the previous year the weight of our string inverters had averaged 3.4 kg/kW output, in the year under review, this fell to just 2.97 kg/kW. In the area of central inverters, we increased the power density such that the Sunny Central UP, which has been available to order since September 2018, produces over 50% more power with the same weight and volume than the Sunny Central 3000-EV, previously SMA's most powerful inverter. The high power density also reduces the number of inverters required within a PV power plant. We know that material savings partially go hand in hand with the use of critical raw materials. That is why, in addition to the warranty with which we already comply to avoid the use of conflict minerals in our inverters, we aim to act in accordance with material requirements such as REACH and RoHS and to gradually reduce the use of critical and rare substances. Our standard for the use of hazardous substances was adjusted again this year. In addition to the requirements of the Montreal Protocol, SMA introduced its own restrictions. We have called on all suppliers to comply with the standard. In our product development process, we are currently developing further criteria for materials to be excluded or reduced to make our products more sustainable.

Waste – The issue of waste reduction is to be closely connected with our circular economy strategy. We regard waste products as a secondary raw material and seek to avoid waste as much as possible and to reuse materials. We strive to increase the share of recyclable waste at the global SMA production locations to almost 100% by 2020 and to no longer produce any residual waste. In addition to the comprehensive separation of all garbage categories that has now been introduced in all office areas, we are also optimizing the homogeneous separation of production waste.

This has resulted in a continuous improvement in the recycling rate, which came to 87.5% of recyclable waste in 2018. SMA is working equally intensively to reduce and avoid hazardous waste materials. The packaging for some of our product groups already consists almost completely of environmentally friendly materials.

Share of Recyclable Waste in Total Waste Generation

Share of recyclable waste in %



Water – Water consumption does not play a significant role in production at SMA. In some buildings, we use well water to cool the building in an environmentally friendly way. We direct the water close to the surface, which has had the positive side effect of creating a wetland habitat.

Biodiversity – Some of SMA's properties border on conservation areas. We comply in full with the conditions imposed on us in this respect. There have been no administrative penalty proceedings in this regard since the company was founded. We offset the unavoidable space our production and administration buildings take by using green roofs on nearly all our buildings.

Preventive Environmental Protection – Exemplary CO_2 Balance Further Improved

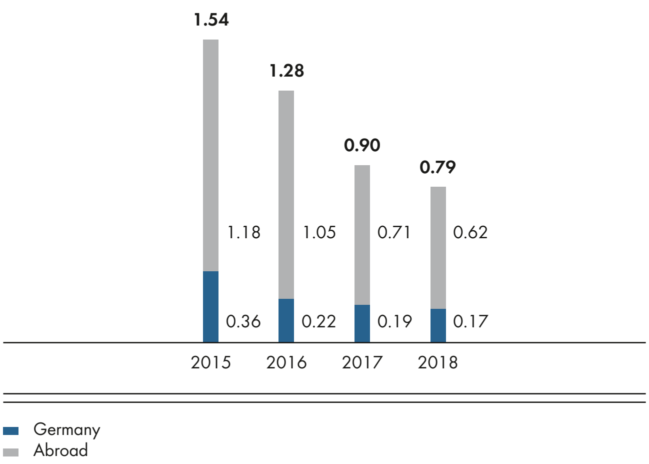
[GRI 302–2, 5, 305–1–5] The environmental management system used at SMA's Kassel/Niestetal production location and the inverter production in Yangzhong (China) are certified in accordance with DIN EN ISO 14001. This system ensures that we avoid environmental damage at every stage of the value chain and act in accordance with current environmental legislation.

It is important for us to keep the environmental impact of our products as low as possible, beginning in the development phase. Our guidelines for sustainable product design therefore lay down key design criteria that ensure our products become more sustainable from one generation to the next. The definition of "non-preferable materials" also contributes to sustainable design. Efforts to avoid these materials, which pose environmental or health risks or whose production involves a violation of human rights, are to be taken into consideration in the pre-development stage and tracked through to the preliminary supply chain. A key figure shows the improvements in each individual area. To reach this figure, we take into account all stages of the value chain. In addition to the circular economy issues already described, this also involves the reduction of critical materials, material efficiency, efficiency and safety. The corporate social responsibility aspect must also be taken into account from the product development stage on. Here, responsibility throughout the supply chain plays a decisive role. Our life cycle assessments have shown us that the biggest lever for improving our product life cycles is our suppliers' use of renewable energy sources.

By collecting data in accordance with the GHG Protocol Standard, we transparently map our CO_2 footprint. At the Kassel/Niestetal location, thanks to our excellent energy management, energy-efficient buildings and a CO_2-neutral electricity supply, we already have an exemplary CO_2 balance. The long-term plan is to expand this to the entire value chain and also factor in the production of raw materials, all our suppliers, the utilization phase and recycling of our products. Our goal is to reduce the already very low emissions as defined in GHG Scope 1 and GHG Scope 2 by another 5% per year. So far, we have been able to determine GHG Scope 3 emissions to a limited extent only. We are currently working on recording CO_2 emissions in the supply chain. However, the results of our life cycle assessments already provide us with better insights into the main emission factors in the value chain.

Development of CO_2 Emissions per Produced kW Inverter Output

CO_2 emissions Scope 1 + Scope 2 in kg/kW



Excellence in Energy Management – Use of Renewable Energy Sources Again Increased

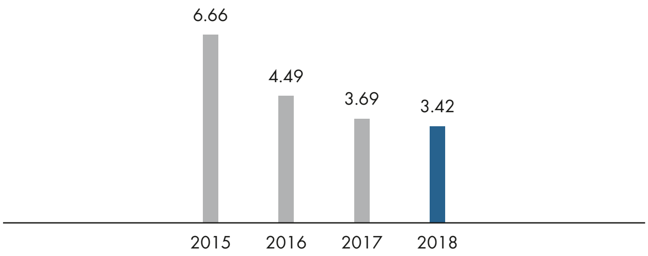
[GRI 302–1–5] Another important starting point for sustainability is our DIN EN ISO 50001-certified corporate energy management policy. SMA's energy concept is based on three levels from which we work to improve energy-related performance: avoiding energy consumption, using energy more efficiently and increasing the share of renewable energies used. The goal is to supply SMA entirely with decentralized renewable energy from the local region by 2020. In this context, the SMA Climate Roadmap forms the basis for continuous development of projects contributing to the energy transition at SMA's headquarters.

SMA has already undertaken a number of flagship projects in the past with its CO_2-neutral inverter production facility at its Solar Factory 1 in Kassel, Germany; the Solar Academy in Niestetal, near Kassel, Germany, which functions independently from the utility grid; and Data Processing Center, which was completed in 2013 and is one of the most resource-efficient centers of its kind. These projects are a testament to the high priority SMA places on its sustainable energy strategy. In 2018, we increased the amount of self-produced solar power in our total electricity consumption to 40% (2017: 33%). This was particularly attributable to another in-house PV system with an output of 750 kWp that was commissioned in June 2018 and also serves as a test site for new types of inverter. We aim to achieve our goal of supplying the SMA headquarters entirely with decentralized renewable energy from the local region by 2020 as part of a sponsored project involving collaboration with regional partners.

In addition, the energy optimization of Solar Factory 1 that began in 2017 has been successfully completed, thereby reducing energy consumption by 1,500 MWh per year in the heating/cooling area alone. Overall in 2018, we again reduced energy consumption per produced kW of inverter output to 3.42 kWh (2017: 3.69 kWh). The introduction of special energy management software also makes it possible to monitor all types of consumption on an ongoing basis. A large amount of data from all our SMA locations is already being monitored by this software.

Development of Energy Consumption per Produced kW Inverter Output

Total energy consumption in kWh/kW



In the future, we will extend the climate roadmap from our own locations to those of our suppliers, helping them make their energy supply sustainable and efficient.

Sustainable Mobility – Around 58 Tons of CO_2 Saved on the Commute to Work

[GRI 305–5] SMA's commitment to sustainability also includes corporate mobility management that has already won multiple awards and that raises employee awareness of environmentally friendly forms of transportation. Our fleet organization, recognized by nonprofit environmental and consumer protection association Deutsche Umwelthilfe as a good example of climate protection, includes a bonus/malus system for our vehicle fleet's CO_2 emissions. By 2020, we aim to reduce the vehicles' CO_2 emissions to 95 g/km. This target is to be achieved partly by promoting e-mobility. At our headquarters in Kassel/Niestetal, we provide employees and visitors with 45 charging stations, at which electric vehicles can be charged with CO_2-neutral electricity. Thanks to these charging stations, SMA employees with electric vehicles alone saved around 58 tons of CO_2 on their commute to work in 2018. Along with expanding the charging infrastructure, we are also promoting e-mobility by giving all employees the option of electric vehicle leasing. We are also gradually changing over the in-house vehicle fleet to e-mobility. Within the SMA vehicle fleet, we used data loggers to examine the route profiles and their suitability for the use of electric vehicles in 2018. Electric vehicles already account for more than 20% of our fleet. By 2020, our goal is to have at least half of the vehicles in the fleet electrically powered using renewable energy. Another aspect of the corporate mobility management system relates to increasing the proportion of cyclists. In 2018, almost 300 employees made use of the bicycle leasing system introduced in 2016.

Logistics are also continuously being made more efficient. In 2018, for the first time SMA tested the use of electric trucks for internal logistics. Electric vehicles are already in use at our production sites in the form of electric forklifts and tugger trains.

Due to its international positioning, air travel is an important issue for SMA. Measures such as the consistent use of our video conference rooms to avoid air travel reduce some of the burden in this respect. In the future, we will further increase our efforts to avoid air travel.

AREA OF ACTION: EMPLOYEES

The high level of commitment and willingness of our employees to always learn are essential factors in SMA's success. In the competition for talent, it is extremely important to us to be perceived as an attractive employer. That is why continuing to develop our corporate culture, based on fairness and respect, is an important part of our SMA Strategy 2020. We put our values of trust, performance and team spirit into practice in our day-to-day work, creating scope for responsible, entrepreneurial action and opportunities for shaping international collaboration.

Employee Headcount Slightly Increased From Hiring Temporary Staff

[GRI 102–7, 8, 401–1; UNGC 6] As of December 31, 2018, SMA had 3,353 employees worldwide (December 31, 2017: 3,213 employees; figures do not include temporary employees). Employee figures in Germany increased to 2,212 (December 31, 2017: 2,077). This rise can be attributed primarily to SMA's hiring temporary employees on fixed-term contracts in the first half of 2018. By contrast, the number of employees abroad remained nearly constant at 1,141 (December 31, 2017: 1,136) despite the hiring of temporary employees on fixed-term contracts.

SMA still uses temporary employees to absorb order fluctuations. As of the reporting date, the number of temporary employees decreased by 411 to 290 worldwide (December 31, 2017: 701 temporary employees). Temporary employees at SMA are paid the same hourly rate as SMA employees performing similar duties.

Employees

Reporting date	2018/ 12/31	2017/ 12/31	2016/ 12/31	2015/ 12/31	2014/ 12/31
Employees (excl. temporary employees)	3,353	3,213	3,345	3,330	5,060
of which domestic	2,212	2,077	2,093	2,081	3,469
of which abroad	1,141	1,136	1,252	1,249	1,591
Temporary employees	290	701	530	671	467
Total employees (incl. temporary employees)	3,643	3,914	3,875	4,001	5,527

Full-Time Equivalents

Reporting date	2018/ 12/31	2017/ 12/31	2016/ 12/31	2015/ 12/31	2014/ 12/31
Full-time equivalents (excl. trainees and temporary employees)	3,177	3,006	3,118	3,110	4,667
of which domestic	2,053	1,888	1,881	1,872	3,094
of which abroad	1,124	1,118	1,237	1,238	1,573

As part of the restructuring, layoffs are unfortunately unavoidable. The SMA Managing Board plans to cut around 425 full-time positions worldwide by mid-2019. Approximately 110 of these full-time positions relate to Germany and around 315 to locations abroad. The staff reductions outside Germany will mostly take place as a result of the sale of the Chinese companies to the local management. The layoffs are to be implemented in a transparent and socially responsible way.

Additional key figures on employees, in particular on the gender balance at management level, can be found in the overview of sustainability key figures on pages 128 et seq.

High Transparency and Strong Feedback Culture

[GRI 102–41, 402–1; UNGC 3] As a global company, SMA ensures that respect for human rights, including freedom of association and the International Labour Organization (ILO) rules, is guaranteed at all locations at all times. Open and trustful interaction with each other as well as the highest possible transparency and involvement of employees in corporate decisions are highly important to us. That is why we provide our employees with regular and comprehensive information about developments and changes in the company.

We use our annual employee appraisals to coordinate the tasks of each employee and the associated qualification requirements, to measure performance and to provide feedback on collaboration in an exchange between manager and employee. Global employee surveys, carried out every two years, complement our culture of feedback. We derive internal measures from the results of these surveys.

In addition, three web-based, cross-functional global leadership fundamentals workshops were held in 2018. These workshops were open to employees from all countries, hierarchical levels and areas of SMA. They were aimed at developing a shared global understanding of leadership based on the values and objectives from the SMA Strategy 2020. The workshops represented the first step in developing a shared mindset on leadership in mixed teams, in an interactive, participatory and sustainable way. The fundamentals developed will apply globally and specify what employees can expect from their managers and what managers can expect from their employees.

Lifelong Learning and Targeted Development of Talent

[GRI 404–1, 2] SMA operates in a dynamic environment that places high demands on our employees. Radical developments, such as rapid digitalization of the energy supply and Work 4.0, require new skills and competencies. For us, sustainable personnel development therefore means providing our employees with opportunities for lifelong learning, individual development and building qualifications to current and future challenges. In addition to external training, SMA employees benefit from a diverse internal training program comprising a variety of topics. Furthermore, we offer our Technology and Sales employees in particular subject-specific content via our SMA University and Online Sales Academy. To make existing knowledge accessible throughout the company and to ensure we learn from each other, information is exchanged and channeled through peer groups. We also gave particular attention to the topic of "new work" in 2018. With the "Future Blog", we created a platform on which employees from different parts of the company can launch initiatives, invite others to join in and present their results. In addition, in 2018, we set up a "Future Office" covering an entire floor of one of our office buildings. The concept centers on agile work methods, constantly changing project teams and creative workplace environments with the option to choose the right environment for upcoming tasks.

In the reporting year, we ran national and international talent management projects aimed at systematically supporting talented employees and opening up long-term development prospects for them. We support talented employees with individual development plans and group-oriented measures over a period of at least 12 months, and prepare them for project management or management tasks. The aim is to create a global network to ensure success in current and future business fields.

Our Leadership Development Program, designed to promote a culture of leadership and cross-divisional global collaboration, is aimed at middle-management executives from all departments. The program includes various aspects of leadership topics, which are communicated through individual coaching and working on global projects and serve to promote entrepreneurial thinking and action with a focus on strategic management. We work to ensure that the composition of these programs is at least representative of the proportion of women in the company as a whole.

In 2018, SMA invested a total of around €1.8 million in employee training.

Vocational training as a key element in securing and fostering the next generation is also a high priority at SMA. We currently offer training at the Kassel/Niestetal location in five different training occupations in both the industrial/technical and commercial sectors. As of December 31, 2018, 72 young people were in vocational training at SMA (December 31, 2017: 94 people). Following vocational training, a transfer concept creates the possibility for further employment at SMA. The trainees benefit from the international nature of the organization and, apart from the opportunity to complete language training courses, they have the chance to complete an internship on project work at an international location for a defined period of time. We are committed to supporting the next generation of MINT (mathematics, information technology, natural sciences and technology) trainees in several ways, including running the annual Girls Camp at SMA.

Continuously Increasing Diversity

[GRI 405 – 1] We see the diversity of our employees as an asset to our company. SMA is committed to equal opportunities and promotes collaboration in "mixed" teams. In joining the "Diversity Charter" in 2011, we undertook to create a work environment in which all employees have the same opportunities for development, regardless of gender, nationality, religion or ideology, disability, age or sexual orientation.

Given the Company's strong technology orientation, the proportion of male employees is comparatively high. On December 31, 2018, 74.6% of employees were male and 25.4% female. Our aim is to continuously increase the percentage of female employees. We offer our employees family-friendly working conditions. This includes flexible working hours and models, the possibility of working from home, childcare and other family services. Other measures to support female employees include mentoring and targeted support for self-managed internal networks.

We also aim to integrate different cultures and strengthen collaboration between employees of different nationalities. SMA employs people of 54 different nationalities in 18 countries. In addition to promoting international collaboration, the possibility of deployment to our international locations and regular intercultural training, in 2017, we started implementing a concept to integrate refugees into our vocational training program. In the reporting year, refugees from Afghanistan, Iraq, Iran and Syria were carrying out vocational training at SMA.

Performance-Based Remuneration for Motivated Employees

[GRI 202 – 1, 401 – 2] In addition to appreciating our employees in the form of qualified feedback and further development opportunities, it is important to us to acknowledge their commitment and performance through appropriate remuneration. Our job level model, in use in Germany, the U.S. and Poland since 2016, helps create transparency and enable comparison of compensation across all areas of the Company. It is based on the requirements of each position and the employee's individual performance.

For us, it goes without saying that there are no systematic differences in the remuneration of female and male employees. In addition to fixed and performance-related remuneration components, our remuneration system also includes non-cash remuneration and components of the company pension plan. In addition, both permanent employees and temporary staff participate financially in the Company's success. Temporary employees at SMA are paid the same hourly rate as SMA employees performing similar duties. It also goes without saying that SMA complies with the legal provisions on minimum wage.

Attractive Employer With Exemplary Occupational Safety and Health Management

[GRI 403 – 1 – 7] Occupational safety and health management, a health promotion policy and workplace rehabilitation management are part of sustainable safeguarding of the company's future. The focus of occupational safety and health management at SMA is on avoiding work-related accidents and illnesses. We work in accordance with the principle of prevention. Targeted, regular safety inspections and training, the inclusion of occupational safety and health management in workplace design, and the binding regulation of responsibility ensure a high level of safety in all workplace environments. Integrating laws and ordinances as well as implementing technical standards into our business processes has always been a matter of course for us. Occupational safety and health management processes are regulated by the provisions of the management system BS OHSAS 18001, which was introduced at the Kassel/Niestetal headquarters in 2012. In 2018, SMA became one of the first companies to be certified in accordance with the new DIN EN ISO 45001. Various subject-specific and department-specific meetings take place regularly to ensure the topic of occupational safety and health management is firmly established within the company. These include the quarterly meetings held by the occupational safety committee, with participation from the responsible Managing Board member.

As the workforce ages, health promotion – and particularly ergonomics and psychological risk assessment – is becoming increasingly important. SMA's health management policy is aimed at avoiding chronic unfavorable stress and thus minimizing the risk of illness and reducing the illness rate. Our various health measures are quality-assured and developed and implemented to meet the requirements of particular target groups. One area of focus is aging- and age-adapted workplace design in production and logistics. In this context, we introduced the "Ergonomic Requirements" design guideline in the product development process in 2018, as well as initiating the "MARIE" cooperation program in conjunction with rehabilitation clinics and pension funds to support employees with altered performance. The key figure for "age stable workplaces" that was introduced in production in 2017 showed an increase in the proportion of age-adapted workplaces to 53.5% in 2018. Many specific examples at SMA in 2018 showed that an ergonomically designed workplace helps make work easier, simpler and therefore more reliable in terms of quality. In the intervention areas, the sick rate fell by more than two percentage points.

AREA OF ACTION: CORPORATE SOCIAL RESPONSIBILITY

As an international company, SMA meets its societal and moral responsibilities with regard to all relevant interest groups. Internationally applicable laws and standards apply both to our locations and to the entire supply chain. We are a member of national and international organizations and associations to promote the growth of renewable energy sources.

Compliance With All International Regulations, Fair and Transparent Along the Entire Value Chain

[GRI 102 – 12, 16, 205 – 1 – 3, 407 – 1, 408 – 1, 409 – 1, 412 – 1, 3, 413 – 1] Respect for human rights and compliance with legal regulations are of the utmost priority to SMA. By signing the UN Global Compact in 2011, we made a public declaration of our commitment to responsible corporate governance. At the core of the UN initiative are ten principles in the areas of human rights, labor standards, environmental protection and anti-corruption.

As early as 2009, SMA signed the cross-sector code of conduct issued by the German Association of Supply Chain Management, Procurement and Logistics (BME e.V.). In 2010, we supplemented this code of conduct with SMA's own guidelines for suppliers (SMA Supplier Code). This Supplier Code covers topics such as corruption, antitrust law, ethical principles, labor standards and employee rights, environmental protection, quality and product safety. In the future, we intend to align ourselves even more closely with the UN Sustainable Development Goals. Suppliers must sign the SMA Supplier Code on conclusion of a contract.

Compliance – with legal provisions and internal directives – has become increasingly important in recent years. A risk-oriented and preventive compliance strategy is now more important than ever. SMA Group Compliance has formulated the business principles and directives from which basic work sequences and processes are derived and implemented globally. All employees are obligated, in the context of their work for SMA, to act ethically in accordance with the directives and with the laws and regulations of their country. Compliance with these obligations is consolidated through regular, global obligatory compliance training. At the end of 2018, we also published the SMA Compliance Manual, in which all Corporate Compliance guidelines were revised and compiled. At regular intervals, Group Compliance reports to the Managing Board and Supervisory Board with information on the latest developments, suspicious cases, measures and processes. In 2018, no risks of corruption or complaints were determined.

Information is available on the intranet and via hotlines for employees with questions or suspicions about compliance. Our executives are supported by the legal provisions task force on important issues in environmental and occupational safety law. There were no violations determined in this respect in 2018.

SMA actively promotes the shaping of corporate co-determination. In Germany, the foundations for this are regulated by the Works Council Constitution Act and elsewhere.

Responsibility Along the Entire Supply Chain – 90% of Goods Volume Tested for Sustainability

[GRI 102–9, 308–1, 2, 414–1, 2] In 2018, SMA purchased goods of approximately €450 million from around 450 suppliers in Europe, North and South America and the Asia-Pacific region. Based on our comprehensive analyses of the environmental and societal impact of our products, we defined the supply chain as a key point of focus. In 2017, we began the evaluation of our entire supply chain's performance in terms of sustainability. Supplier participation in the evaluation is mandatory. We have already evaluated suppliers corresponding to around 90% of our goods volume. This has revealed a mostly positive picture. The evaluation criteria, which we will refine further in the coming year, include guaranteed compliance with the universal SMA standards such as respect for human rights, freedom of association, avoidance of child labor and forced labor, and the use of a sustainable, climate-friendly energy supply. They will be recorded in a "Supplier Sustainability Guideline," which alongside our Supplier Code, will formulate clear goals for our suppliers.

Social Commitment – Paving the Way for a Sustainable, Reliable and Cost-Effective Energy Supply

[GRI 102–13] For SMA, supporting and guiding social development for a sustainable future is a matter of course. Over the past years, we have thus supported projects, organizations and initiatives from different areas – on a regional and national level as well as in newly industrialized and developing countries. The traditional Christmas donation by SMA employees is used to support regional projects and initiatives via the fund-raising organization A.M.S. In 2018, SMA employees donated around €11,100. As in the previous years, the sum was doubled by the Managing Board.

We are also focusing on our commitment to numerous networks, partnerships and initiatives that play a significant role in further development of photovoltaics, climate protection and the digitalization of the energy supply. For example, SMA is represented on the managing boards of the German Solar Industry Association (Bundesverband Solarwirtschaft) and the European industry association SolarPower Europe (SPE), where SMA experts preside over the "Digitalisation & Solar Task Force", among others. In this context, we work with politicians, industry associations and the general public advocating for increased installation of renewable energy in conjunction with cross-sector energy management and optimizing the conditions for a completely decentralized and digital energy supply based on renewable sources. This can contribute to countries' national and international obligations to reduce greenhouse gas emissions and to increase climate protection.

SMA supports the EU initiative to develop a uniform eco-design directive and eco-labeling for PV systems. In 2018, our experts once again contributed to the success of several projects and publications with their technological expertise. This included a project by the German Federal Environment Agency in which reliable data on the life cycle assessment of PV systems were calculated with SMA's help. The results are to be published in the spring. In the "energy payback time," for example, they will convincingly demonstrate that the energy consumption and CO_2 emissions in the production phase are amortized in a very short space of time.

SMA does not make any donations to political parties or to related or associated organizations or individuals.

Transparent Stakeholder Dialogue – Providing Information Openly and Responding to Suggestions

As a globally operating company, we are subject to a wide variety of political changes and decisions that affect our business activities. To safeguard the future of SMA, it is important for us to communicate our company's interests in open dialogue with governments, industry associations and organizations as well as societal stakeholders. We also respond to our stakeholders' suggestions and interests with the same openness, valuing them as reliable partners.

We place high value on ongoing, transparent dialogue with important interest groups. We report important events within the company in ad hoc messages, press releases, on our website and social media channels. By sharing information on all relevant issues, we ensure that we are always acting in the interests of our core stakeholders. Our stakeholder analysis, performed in 2017, enabled us to explore in more detail the key issues of a sustainable company and sustainable products. We hope that the international customer satisfaction analysis prepared in 2018 will lead to suggestions for further activities in 2019. We will continue this open and transparent dialogue with key interest groups in the future.

FISCAL YEAR 2018

GENERAL ECONOMIC CONDITIONS AND ECONOMIC CONDITIONS IN THE SECTOR

General Economic Conditions

According to the International Monetary Fund (IMF), global economic growth came to 3.7% in 2018 and was thus slightly weaker than in the previous year (2017: 3.8%). In some major national economies, particularly in Europe and Asia, economic activity lost further momentum already in the third quarter of 2018. In the fourth quarter, industrial production declined in all regions outside the U.S. Growth in international trade was considerably below the previous year's level.

According to the IMF, economic output in industrialized countries grew by 2.3% in the reporting period, thus a bit more slowly than in the previous year (2017: 2.4%). This was primarily the result of weaker development in the eurozone. In Germany, economic growth was down one percentage point year on year at 1.5% in 2018 due to weak domestic and foreign demand and difficulties with the transition to new emissions testing procedures in the automotive industry. Domestic demand in Italy also remained weak. In France, continuing protests by the "yellow vests" impacted the economy in the last few months of the year. By contrast, the U.S. posted an additional increase in economic growth to 2.9% (2017: 2.2%).

In developing and newly industrialized countries, economic output grew by 4.6% in 2018 (2017: 4.7%) according to the IMF. These national economies faced difficult external conditions in the final months of the year, such as increasing global trade tensions, rising U.S. interest rates, appreciation of the U.S. dollar, outflows of capital and volatile oil prices. The Chinese economy slowed slightly to 6.6% (2017: 6.9%). By contrast, the Indian economy gained further momentum with growth of 7.3% (2017: 6.7%).

Economic Conditions in the Sector

Photovoltaics have proven to be increasingly competitive in recent years. In a growing number of regions around the world, solar power is now more cost-efficient than conventionally generated electricity. For example, large-scale solar projects in the Middle East are already generating solar power at less than $0.03 per kWh. This points the way to an environment in which the industry will grow in the medium and long term even without subsidization. In the wake of the transformation of global energy supply structures, current and future objectives include intelligently linking different technologies and providing intermediate storage solutions for generated energy, thereby ensuring a reliable and cost-effective electricity supply based on renewable energies.

GLOBAL PV MARKET ALMOST AT PREVIOUS YEAR'S LEVEL

Based on newly installed power of approximately 102 GW (2017: approx. 103 GW), the global photovoltaic market was almost at the previous year's level according to SMA's estimates (these installation figures do not include retrofitting of existing PV systems with new inverters or battery inverter technology). SMA estimates that global PV inverter technology sales, including inverter retrofitting and battery inverter technology, fell by approximately 8% to €4.9 billion in the reporting period (2017: €5.3 billion).

The regional distribution of demand changed only slightly in the reporting period. In the photovoltaic markets in Europe, the Middle East and Africa (EMEA), inverter technology sales were on a par with the previous year at approximately €1.3 billion (2017: €1.3 billion). The share of the EMEA region in global sales rose slightly to around 26% (2017: 24%). System technology for storage applications and the retrofitting of existing PV systems accounted for a significant part of sales in the EMEA region. The Americas region recorded a decline in sales to approximately €900 million, particularly due to a weaker U.S. market in euros, and accounted for 19% of global sales (2017: €1.0 billion; 19%). In China, around 44 GW of new PV power was installed in 2018 according to the National Energy Administration (NEA). This corresponds to a decline in installation volume of more than 17% year on year. As a result of a low local price level, measured in euro, China represented approximately 25% of global sales at around €1.2 billion in 2018 (2017: €1.5 billion; 28%). The Asia-Pacific photovoltaic markets (excluding China) accounted for around 30% of the global market with sales of around €1.5 billion, which were thus on a par with the previous year (2017: €1.5 billion; 29%).

EMEA: SIGNIFICANT GROWTH IN GERMANY

In the EMEA (Europe, Middle East and Africa) region, newly installed PV power increased significantly to 17 GW (2017: 13 GW). At around 3 GW (2017: 1.8 GW), Germany was again the most significant market in Europe in terms of newly registered PV power in the period under review. In the segment of medium-sized PV systems for commercial applications, new installations here doubled in comparison to the previous year.

Development in other European countries was mixed. While Greece saw only few new installations and the United Kingdom's significance declined as a result of radical subsidy cuts, installations in Benelux, France, Italy and Spain increased.

NON-EUROPEAN MARKETS: INSTALLATION IN THE U.S. STAGNATES

According to estimates by the SMA Managing Board, around 11 GW of new PV power was installed in the U.S. in 2018, as in the previous year. The effects of the price decline caused by the internationalization of Chinese PV manufacturers were particularly noticeable in this market, which is dominated by large-scale PV projects. PV inverter sales fell by 19% from around €800 million to approximately €650 million. At the same time, investments in major projects were delayed in anticipation of additional price decreases – and also to compensate for the import duties imposed by the U.S. government at the start of 2018 on PV cells and modules produced abroad.

INDIA, JAPAN AND CHINA DOMINATE THE MARKET IN ASIA

According to estimates, inverter technology investments in Japan amounted to approximately €730 million in the reporting period. Commercial systems and large-scale PV power plants were driving segments here. According to SMA estimates, PV systems with an output totaling around 8 GW were connected to the utility grid in Japan in 2018.

The Chinese PV market declined significantly year on year in the reporting period. According to the National Energy Administration (NEA), around 44 GW of new PV power was installed in China in 2018 (2017: 53 GW). The market was dominated by large-scale PV power plants. The Chinese photovoltaic market continues to be dominated by tendering procedures that lack transparency. Significant market shares are only awarded to Chinese providers, some of which are state-owned.

In India, there are various incentive programs and a fundamental effort on the part of the government to supply the entire country with renewable power. By 2022, 100 GW of PV power is to be installed in India – four times the accumulated power installed to date. PV systems with a total capacity of approximately 8 GW were newly installed in India in 2018, installation was therefore at the previous year's level. Around 90% of the new installations were large-scale projects. Medium-sized commercial and small private systems are still not highly relevant in India.

RESULTS OF OPERATIONS

Sales and Earnings

SALES AND EARNINGS DOWN SIGNIFICANTLY YEAR ON YEAR

In fiscal year 2018, the SMA Group sold PV inverters with accumulated power of 8,449 MW, which was roughly on a par with the previous year (2017: 8,538 MW). The SMA Group's sales declined by 14.6% to €760.9 million (2017: €891.0 million). The lower level of sales is attributable primarily to the abrupt decline in the PV market in China, as a result of which Chinese providers increasingly advanced into international markets and caused enormous price pressure there.

SMA is well positioned internationally and generates contributions to sales in all relevant regions. In the reporting period, the company generated 47.7% of external sales in European countries, the Middle East and Africa (EMEA), 33.2% in the Asia-Pacific (APAC) region and 19.1% in the North and South American (Americas) region calculated before sales deductions (2017: 44.2% EMEA, 32.4% APAC, 23.4% Americas). Due to the generally high price pressure, SMA's gross sales also decreased in all regions. The worst affected region was the Americas, where gross sales were down 29.9% year on year at €148.8 million (2017: €212.4 million). This is attributable, in particular, to the U.S. market, which is dominated by large-scale solar projects. The price pressure was extremely evident here. In addition, investments in large-scale projects were postponed in anticipation of further price declines. The main markets for SMA in the fiscal year were again Germany, the U.S. and Australia.

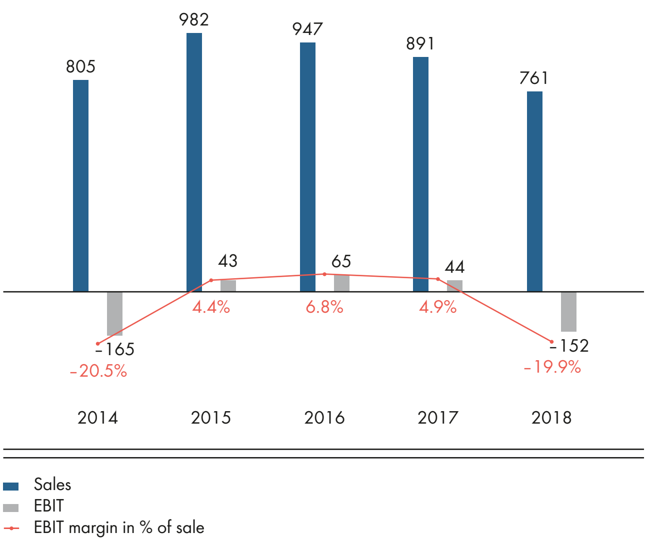
The Utility segment again made the largest contribution to sales in 2018, accounting for 35.0% (2017: 32.4%). The Commercial segment generated 33.1% of the SMA Group's sales, while the Residential segment contributed 23.9% and the Storage segment 8.0% (2017: 26.2% Residential, 30.5% Commercial, 10.9% Storage).

As of December 31, 2018, SMA had an order backlog of €578.0 million (December 31, 2017: €651.4 million). Of this amount, €175.4 million is attributable to product business. This 29% decline results from the reduced delivery times for SMA inverters on the one hand, as the shortage of components has now been overcome. On the other, investments in PV projects were postponed in the second half of the year in anticipation of further declines in prices. At the end of 2018, order volumes indicate that project developers' and investors' hesitation to invest is slowly abating. As of December 31, 2018, the most significant share of the order backlog (€402.6 million) is still attributable to the service business. Most of this share will be implemented over the next five to ten years.

In the 2018 fiscal year, earnings before interest, taxes, depreciation and amortization (EBITDA) dropped to –€69.1 million (EBITDA margin: –9.1%; 2017: €97.3 million; 10.9%). EBIT was –€151.7 million (2017: €44.1 million). This equates to an EBIT margin of –19.9% (2017: 4.9%). Earnings were significantly impacted by one-time items amounting to €116 million. Net income amounted to –€175.5 million (2017: €30.1 million). Earnings per share amounted to –€5.06 (2017: €0.87).

SALES AND EBIT

in € million



Sales and Earnings per Segment

RESIDENTIAL SEGMENT: ONE-TIME ITEMS AND DECLINE IN SALES NEGATIVELY IMPACT EARNINGS

In the Residential segment, SMA caters to global markets for small PV systems with and without connection to a smart home solution. The portfolio, which includes the SMA and Zeversolar brands, comprises smart module technology, single- and three-phase string inverters in the lower output range up to 12 kW, integrated services, energy management solutions, storage systems, communication products and accessories. SMA's Residential segment also offers services, such as extended warranties, spare parts and modernization of PV systems (Repowering) to enhance performance. With this portfolio of products and services, SMA provides solutions for private PV systems in all major photovoltaic markets worldwide.

In 2018, external sales in the Residential segment decreased by 22.2% year on year to €181.5 million (2017: €233.3 million). This decline is attributable mainly to increased price pressure in APAC and EMEA. Its share of the SMA Group's total sales was 23.9% (2017: 26.2%). The EMEA region accounted for 65.5% (2017: 60.7%) of the Residential segment's gross sales, the APAC region for 18.3% (2017: 28.1%) and the Americas region for 16.2% (2017: 11.2%).

EBIT in the Residential segment amounted to –€16.6 million (2017: €2.8 million), primarily due to the decline in sales. This included negative one-time items amounting to €26 million from impairment on inventories due to product changes, provisions for onerous contracts on products of Tigo Energy, Inc., a provision for an individual warranty-related item and extraordinary impairment losses on capitalized development costs. These were mostly offset by the positive one-time item from the change in estimates and recalculation of general warranty obligations based on the failure rates for SMA inverters amounting to €17 million. In relation to external sales, the EBIT margin was –9.1% (2017: 1.2%).

COMMERCIAL SEGMENT: PRICE PRESSURE BURDENS RESULT

In the Commercial segment, the focus is on global markets for medium-sized PV systems with and without an energy management solution. Here SMA offers solutions based on the three-phase Sunny Tripower inverters with outputs of more than 12 kW as well as on inverters from the Sunny Highpower and Solid-Q product families. The Sunny Tripower inverters are compatible with the smart module technology from Tigo Energy, Inc. Holistic energy management solutions for medium-sized PV systems based on the ennexOS platform, medium-voltage technology and other accessories as well as services up to and including system modernization and operational management of commercial PV systems (O&M business) round off SMA's offering.

External sales in the Commercial segment fell short of the previous year's level at €251.9 million (2017: €271.4 million) due to continued price pressure, a shortage of components that has now been overcome, and declining markets in the U.S. and Japan. Its share of the SMA Group's total sales was 33.1% (2017: 30.5%). 51.1% of gross sales were attributable to the EMEA region, 37.6% to the APAC region, and 11.3% to the Americas region (2017: 45.9% EMEA, 35.5% APAC, 18.6% Americas).

EBIT decreased to –€11.5 million (2017: €0.5 million) mainly due to high price pressure. It includes negative one-time items amounting to €27 million from impairment on inventories due to product changes and extraordinary impairment losses on capitalized development costs. These were mostly offset by the positive one-time item from the change in estimates and recalculation of general warranty obligations based on the failure rates for SMA inverters amounting to €24 million. In relation to external sales, the EBIT margin was –4.6% (2017: 0.2%).

UTILITY SEGMENT: EARNINGS IMPACTED BY PRICE PRESSURE AND ONE-TIME ITEMS

The Utility segment focuses on international PV power plant markets with its powerful string inverters in the Sunny Highpower product family and the central inverters in the Sunny Central product family. The outputs of inverters in this segment range from 150 kW to the megawatts. In addition, the SMA portfolio in the Utility segment covers complete solutions comprising central inverters with their grid service and monitoring functions as well as all medium- and high-voltage technology and accessories. The portfolio is supplemented by services, such as for the modernization and functional enhancement of PV power plants (Repowering), and operation and maintenance services (O&M business).

External sales in the Utility segment fell by 7.9% to €266.3 million in 2018 (2017: €289.2 million) as a result of the significant decline in prices and postponement of projects in anticipation of additional decreases in prices for PV modules and inverters due to the excess capacity in China among other things. At 35.0%, the Utility segment again accounted for the largest share of the SMA Group's total sales (2017: 32.4%). The APAC region accounted for 43.3% (2017: 42.1%) of the Utility segment's gross sales, the EMEA region for 30.1% (2017: 25.1%) and the Americas region for 26.6% (2017: 32.8%).

EBIT in the Utility segment deteriorated to –€63.6 million (2017: €25.6 million) as a result of poor price quality in individual markets and one-time items. It includes negative one-time items amounting to €40 million from individual warranty-related items, extraordinary impairment losses on capitalized development costs and from the change in estimates and recalculation of general warranty obligations based on the failure rates for SMA inverters. In relation to external sales, the EBIT margin was –23.9% (2017: 8.9%).

STORAGE SEGMENT: SALES DECLINE AND ONE-TIME ITEMS RESPONSIBLE FOR NEGATIVE EARNINGS

The Storage segment comprises SMA Sunbelt Energy and the Off-Grid & Storage business unit, which predominantly serve the global battery storage market. In addition to system technology for integration of battery-storage systems for all system sizes, the focus here is on implementing photovoltaic diesel hybrid systems in sunbelt areas around the world and large-scale storage projects in select markets.

In 2018, external sales in the Storage segment decreased by 37.1% year on year to €61.1 million (2017: €97.1 million). This decline is attributable mainly to postponed implementation of large-scale projects in the storage business and to supply bottlenecks at battery manufacturers. Its share of the SMA Group's total sales was 8.0% (2017: 10.9%). The EMEA region made up 55.5% (2017: 49.3%) of gross sales, the Americas region 29.0% (2017: 41.6%) and the APAC region 15.5% (2017: 9.1%).

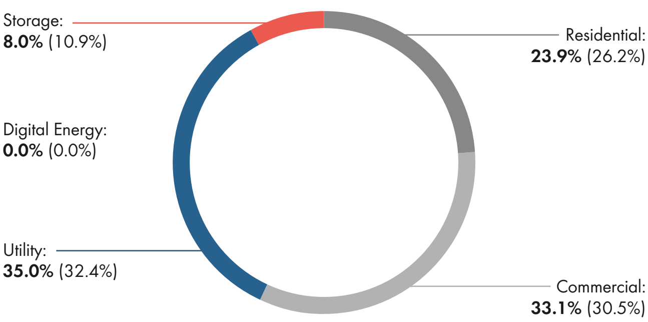
As a result of the sales decline and one-time items, EBIT in the Storage segment amounted to –€5.6 million (2017: €10.0 million). It includes negative one-time items amounting to €6 million from extraordinary impairment losses on capitalized development costs and from the change in estimates and recalculation of general warranty obligations based on the failure rate for SMA inverters. In relation to external sales, the EBIT margin was –9.2% (2017: 10.3%).

NEW BUSINESS AREAS BEING DEVELOPED

The Digital Energy segment comprises the subsidiaries coneva and emerce. coneva develops digital energy services for private and business customers. emerce focuses on online sales channels for select markets. This segment did not yet make a significant contribution to sales and earnings in fiscal year 2018.

Sales by Segments[1]

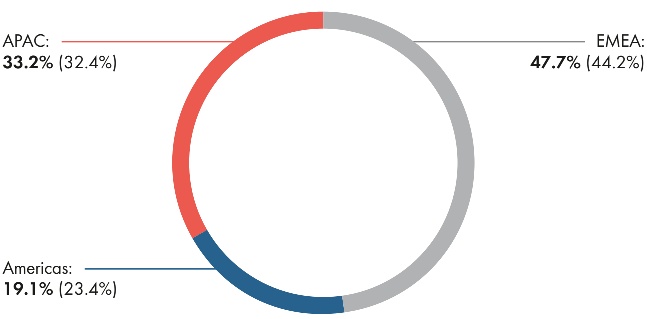
in %



[1] Gross sales before sales deductions (previous year's figures in parentheses)

Sales by Regions[1]

in %



[1] Gross sales before sales deductions (previous year's figures in parentheses)

Development of Significant Income Statement Items

PRICE DECLINE AND ONE-TIME ITEMS BURDEN GROSS MARGIN

At €688.9 million, the cost of sales was down only slightly on the previous year (2017: €691.5 million). It thus decreased to a much lesser extent than sales. This is mainly the result of the price decline in all segments and to one-time items. The gross margin includes one-time items amounting to €63 million from impairment on inventories due to product changes, provisions for onerous contracts on products of Tigo Energy, Inc., provisions for individual warranty-related items, extraordinary impairment losses on capitalized development costs and a positive one-time item from the change in estimates and recalculation of general warranty obligations based on the failure rates for SMA inverters. It therefore decreased to 9.5% (2017: 22.4%).

Personnel expenses included in cost of sales increased year on year to €118.4 million (2017: €111.0 million). This increase is primarily due to the general increase in pay realized in 2018 and to provisions for severance payments in connection with the planned staff reduction in 2019. As a result of the decline in sales and increased inventories, material costs decreased to €449.7 million (2017: €490.7 million), despite impairment on inventories due to product changes. SMA is continuously working on its product portfolio in all segments to tackle price pressure by optimizing the cost of existing products and introducing new and less expensive products.

Depreciation and amortization included in the cost of sales amounted to €73.7 million in 2018 (2017: €45.0 million). This includes scheduled depreciation on capitalized development costs of €21.4 million (2017: €18.2 million) and unscheduled depreciation amounting to €29.6 million. Other costs slightly increased by 4.9% year on year to €47.0 million (2017: €44.8 million). This item includes the positive effect on earnings from the change in estimates and recalculation of general warranty obligations and the deferred costs for individual warranty-related items in the Residential and Utility segments as well as increased logistics costs, including for air cargo to reduce delivery times, as a result of the shortage of components that has now been overcome.

Selling expenses rose to €52.8 million in 2018 (2017: €48.2 million). This increase was mainly a result of an expansion of the sales organization in the U.S., increased global sales activities and the recognition of provisions for severance payments to employees. The cost of sales ratio increased to 6.9% in the reporting period (2017: 5.4%). This was mainly due to the decline in sales.

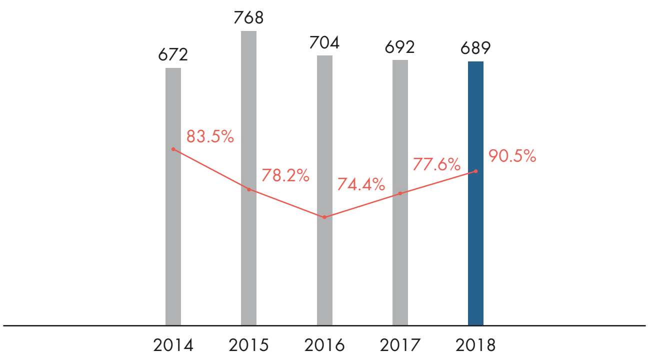
In the past fiscal year, research and development expenses, not including capitalized development costs, amounted to €68.3 million (2017: €64.6 million). The research and development cost ratio amounted to 11.4% in 2018 (2017: 9.3%). Total research and development expenses, including capitalized development costs, increased to €87.1 million (2017: €83.0 million) as a result of the development of new units in the Digital Energy segment and the uptick in strategically important development projects for new products. Development costs were capitalized in the amount of €18.8 million in the reporting period (2017: €18.4 million).

General administrative expenses totaled €55.2 million in 2018 (2017: €54.1 million). This increase was due to the recognition of provisions for severance payments to employees in connection with the planned staff reduction in 2019. Also resulting from the decline in sales, the ratio of administrative expenses increased to 7.3% (2017: 6.1%).

In 2018, the balance of other operating income and expenses amounted to –€47.5 million (2017: €11.4 million). In addition to the effects of foreign currency valuation, this includes one-time items amounting to €44 million due to the planned sale of the Chinese companies and impairment on trade receivables and on input tax reimbursement claims in foreign countries. The previous year's figure for this item includes proceeds from the disposal of the SMA Railway division among other things.

Cost of Sales

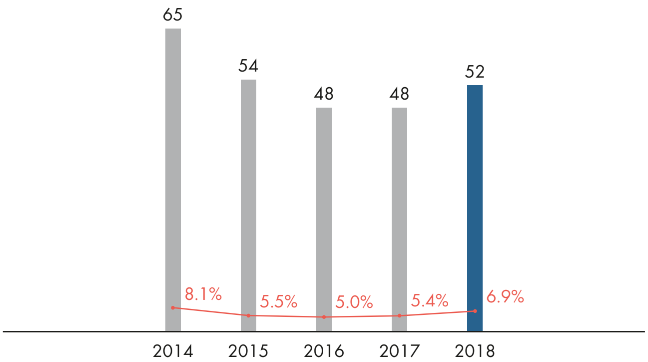
in € million



Ratio in % of sales

Selling Expenses

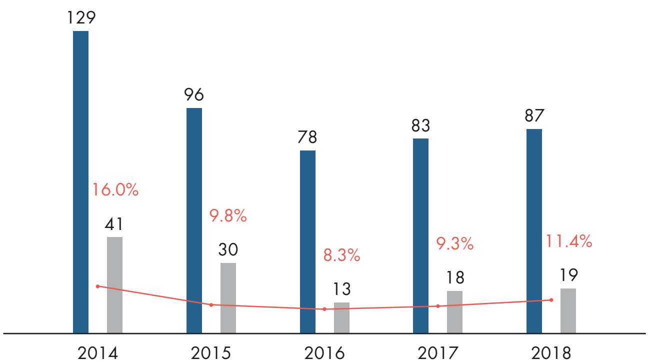
in € million



Ratio in % of sales

Research and Development Expenses

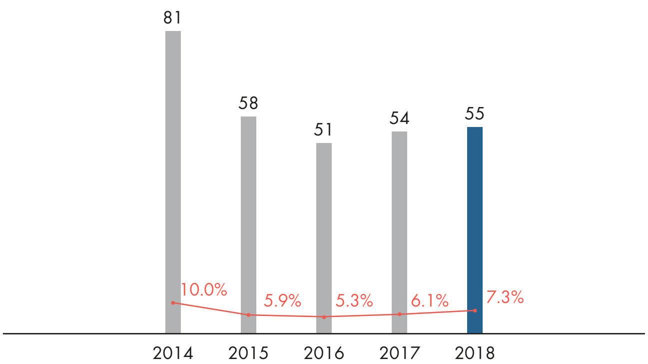
in € million



Research and development expenses
of which capitalized development projects
Ratio in % of sales

Administrative Expenses

in € million



Ratio in % of sales

FINANCIAL AND TAX RESULT

The financial result deteriorated to –€14.7 million in 2018 (2017: –€0.3 million). In addition to other financial income and expenses, this includes the complete write-off of the investment in Tigo Energy, Inc. amounting to €11.5 million. This was due to the company's poor medium-term chances of success in the highly competitive market for smart module technology.

Earnings before interest, taxes, depreciation and amortization (EBITDA) of –€69.1 million resulted in an EBITDA margin of –9.1% (2017: €97.3 million; 10.9%).

The tax result was impacted by depreciation on the deferred tax assets recognized for loss carryforwards of SMA Solar Technology AG amounting to €13.2 million.

The return on equity after taxes (net income in relation to average total assets in the reporting period) came to –33.9% in the reporting year (2017: 5.0%), the return on assets after taxes was –15.9% (2017: 2.5%).

Multi-Period Overview of Results of Operations

in %	2018	2017	2016	2015	2014
EBIT margin	–19.9	4.9	6.8	4.4	–20.5
EBITDA margin	–9.1	10.9	14.9	12.3	–7.3
EBT margin (return on sales)	–21.9	4.9	6.2	3.9	–20.8
Return on equity after taxes	–33.9	5.0	5.1	2.5	–28.1
Return on assets (after taxes)	–15.9	2.5	2.5	1.2	–14.7

FINANCIAL POSITION

Principles and Objectives of Financial Management

Inflows of funds from operative business activities constitute the key source of financing. Cash holdings are managed and invested centrally by Global Treasury. The decision is based not only on returns but also the credit rating of the bank partner. In the case of supplier credits granted, counterparty risk is monitored continuously. The decision is primarily based on the customer's payment practices and financial circumstances. To cover potential payment defaults, SMA has also taken out commercial credit insurance.

We systematically recognize market risks – above all currency risks – that might jeopardize the operating results and preclude such risks through hedging operations, provided this is economically expedient.

Financing Analysis

In 2016, SMA agreed upon a long-term financing of €100 million with three domestic banks. At the end of 2018, only a small portion of the credit line was utilized in the form of guarantee credits.

In total, financial liabilities fell by €0.4 million from €20.8 million as of the end of 2017 to €20.4 million as of the end of 2018. The reduction in financial liabilities is mainly the result of the scheduled repayment of loans to banks.

Most of the provisions set aside by the SMA Group are for warranty obligations from our various product families. As of the end of 2018, the equity ratio was 42.9% (December 31, 2017: 50.3%).

Liquidity Analysis

NET CASH AT HIGH LEVEL AT €306 MILLION

In the 2018 fiscal year, gross cash flow amounted to –€39.4 million (2017: €84.1 million). It reflects the operating income prior to commitment of funds.

In the reporting year, net cash flow from operating activities of continuing operations was –€54.3 million (2017: €116.8 million).

Inventories increased by 17.5% to €193.8 million (2017: €165.0 million). The decrease in trade payables (–€19.6 million), decrease in trade receivables (–€51,6 million) and increase in inventories (€28.8 million) resulted in an increase in net working capital by €9.5 million to €177.4 million (2017: €167.9 million). The net working capital ratio in relation to sales over the past 12 months rose to 23.3% (December 31, 2017: 18.8%) and was thus slightly above the range of 19% to 23% targeted by the management.

Net cash flow from investing activities of continuing operations amounted to €7.4 million after –€81.2 million in the previous year. The majority of this amount was attributable to cash inflows and outflows from financial investments totaling €46.8 million (2017: –€66.0 million). The outflow of funds for investments in fixed assets and intangible assets amounted to €40.3 million in the reporting period (2017: €33.2 million). At €18.8 million (2017: €18.4 million), capitalized development costs accounted for a large part of these investments.

As of December 31, 2018, cash and cash equivalents amounting to €142.6 million (December 31, 2017: €234.9 million) included cash on hand, bank balances and short-term deposits with an original term to maturity of less than three months. With time deposits that have a term to maturity of more than three months, fixed-interest-bearing securities, liquid assets pledged as collateral and after deducting interest-bearing financial liabilities, this resulted in net cash of €305.5 million (December 31, 2017: €449.7 million). This does not include the cash and cash equivalents attributable to the Chinese companies held for sale.

Multi-Period Overview of SMA Group Financial Position

in € million	2018	2017	2016	2015	2014
Shareholders' equity	424.5	611.5	585.1	570.2	552.0
Equity ratio in %	42.9	50.3	48.3	49.1	46.8
Non-current liabilities	244.5	285.2	292.9	281.2	284.0
Current liabilities	320.3	319.5	332.8	309.1	344.3
Share of non-current provisions in total assets in %	6.6	7.5	7.4	7.5	7.4
Financial liabilities	20.4	20.8	40.4	46.9	69.3
Net cash	305.5	449.7	362.0	285.6	225.4
Net working capital	177.4	167.9	203.2	200.0	235.6
Net cash flow from operating activities	-54.3	116.8[1]	147.5[1]	102.7	-27.6
Net cash flow from investing activities	7.4	-81.2[1]	-107.9	-64.0	24.7
Net cash flow from financing activities	-14.5	-11.5[1]	-24.6	-23.2	-10.0

1 From continuing operations

Investment Analysis

In the 2018 fiscal year, investments in fixed assets and intangible assets amounted to €40.3 million and were thus clearly above the previous year's figure of €33.2 million. This equates to an investment ratio in relation to sales of 5.3% compared with 3.7% in the previous year.

€20.2 million was invested in fixed assets (2017: €13.4 million), primarily for advanced payments for machinery and equipment. The investment ratio for fixed assets was 2.7% in the fiscal year (2017: 1.5%). Scheduled depreciation of fixed assets decreased to €28.4 million (2017: €30.6 million).

Investments in intangible assets amounted to €20.1 million (2017: €19.8 million). These largely related to capitalized development costs. Amortization of intangible assets amounted to €53.5 million and was thus clearly above the previous year's figure of €22.6 million.

Investments Compared to Depreciation and Net Cash Flow From Operating Activities

in € million	2018	2017	2016	2015	2014
Net cash flow from operating activities	-54.3	116.8	147.5	102.7	-27.6
Capital expenditure[1]	40.3	33.2	29.0	50.6	75.5
Depreciation and amortization[2]	82.6	53.2	76.7	79.0	106.5

1 See Notes, sections 9 and 10, page 97 et seq.
2 Depreciation in 2018 and 2017 includes depreciation for "investment property" amounting to €0.7 million (2017: €0.7 million).

NET ASSETS

SMA Has a Solid Equity Ratio of 42.9%

Total assets went down by 18.7% to €989.3 million as of December 31, 2018 (December 31, 2017: €1,216.2 million). At €283.4 million, non-current assets were below the level observed at the end of 2017 (December 31, 2017: €358.3 million).

Net working capital increased to €177.4 million (December 31, 2017: €167.9 million), corresponding to 23.3% of sales over the past 12 months. Trade receivables decreased by 32.3% compared to December 31, 2017, to €108.4 million as of the end of the fiscal year (December 31, 2017: €160.0 million). Days sales outstanding were slightly lower than in the previous year at 64.4 days (December 31, 2017: 66.6 days). Inventories increased by 17.5% to €193.8 million (December 31, 2017: €165.0 million). Trade payables fell by €19.6 million to €110.9 million (December 31, 2017: €130.4 million). At 11.2%, the share of trade credit in total assets was above the level of the previous year (December 31, 2017: 10.7%).

As a result of the high net loss in 2018, the Group's equity capital base decreased by €187.0 million to €424.5 million (December 31, 2017: €611.5 million). With an equity ratio of 42.9%, SMA still has a solid equity capital base.

Importance of Off-Balance Sheet Financing Instruments

The SMA Group uses its operating and office equipment under leases. Future obligations under tenancy and lease agreements are shown in the Notes in section 25, "Obligations Under Leases and Other Financial Obligations".

SMA is not involved in any other off-balance sheet transactions that might have a significant impact on its financial position, results of operations, investment expenditure, net assets or capital expenditure – neither currently nor in the future.

Multi-Period Overview of Net Assets

in € million	2018	2017	2016[1]	2015	2014
Goodwill, intangible assets and fixed assets	235.2	283.5	300.7	385.9	413.1
Financial assets and long-term securities (incl. deposits with a total term to maturity of more than three months)	177.5	225.4	159.4	97.7	82.5
Cash and cash equivalents (incl. deposits with a total term to maturity of less than three months)	142.6	234.9	216.1	200.2	184.0

1 All figures for 2016 from continuing operations

SMA SOLAR TECHNOLOGY AG (NOTES BASED ON THE GERMAN COMMERCIAL CODE HGB)

In addition to reporting on the SMA Group, business development of SMA Solar Technology AG (SMA AG) is outlined below.

SMA AG is the parent company of the SMA Group and has its headquarters in Niestetal, Germany. Its primary business operations include the development, production and sale of PV inverters as well as monitoring and energy management systems for PV systems. Another area of business is providing operation and maintenance service (O&M business) as well as other services. In addition to its own operative business, SMA AG also functions as a holding company for the SMA Group. All key management mechanisms of SMA AG are oriented toward the SMA Group.

The SMA AG Annual Financial Statement is prepared according to German Commercial Law (HGB). The Consolidated Financial Statements follow International Financial Reporting Standards (IFRS). This leads to differences between accounting and valuation methods. These mainly relate to intangible assets, inventory measurement, provisions, financial instruments, accrual items and deferred taxes.

Results of Operations

SMA Solar Technology AG Income Statements in Accordance With HGB for the Period From January 1 to December 31, 2018

in €'000	2018	2017
Sales	**682,911**	**747,745**
Increase or decrease in finished goods and work in progress	6,914	7,435
	689,825	**755,180**
Other own work capitalized	3,823	2,876
Other operating income	72,544	96,953
Material expenses	466,167	453,380
Personnel expenses	148,309	133,271
Depreciation and amortization of intangible and fixed assets	29,355	31,024
Other operating expenses	239,623	190,023
Financial result	–94,324	15,401
Taxes on income	–398	–781
Income after taxes	**–211,188**	**63,493**
Other taxes	–49	103
Net loss (2017: annual net income)	**–211,139**	**63,390**
Accumulated income/losses brought forward	394,864	343,619
Profit available for distribution	**183,725**	**407,009**

SMA AG generated sales of €682.9 million in the 2018 fiscal year (2017: €747.7 million). This equates to a decrease in sales of 8.7% compared with the previous year. However, sold PV inverter output rose by 12.2% in the same period to 8.3 GW (2017: 7.4 GW). Of this, 3.2 GW (2017: 2.2 GW) were attributable to associated companies. The fact that sales were lower despite the increase in inverter output sold is attributable to significant price pressure in all segments and regions.

Other operating income amounted to €72.5 million (2017: €97.0 million). Other operating income included €45.8 million (2017: €61.1 million) from the reversal of provisions. In addition, claims for compensation from insurers and suppliers of €1.1 million were reported here (2017: €1.0 million). Income from foreign currency valuation totaled €13.8 million in the fiscal year (2017: €9.1 million).

Material expenses increased by €12.8 million year on year to €466.2 million (2017: €453.4 million). The rise in material expenses can be explained primarily by the larger share of merchandise.

Personnel expenses increased by 11.3% to €148.3 million (2017: €133.3 million). The average number of employees (not including temporary employees, trainees or interns) went up by 146 to 2,072 employees.

Depreciation and amortization of intangible and fixed assets declined by €1.6 million to €29.4 million (2017: €31.0 million). The reduction in depreciation and amortization was primarily a result of lower investing activities.

Other operating expenses rose by 26.1% to €239.6 million (2017: €190.0 million). This is particularly attributable to expenses from the recognition of provisions of €65.2 million (2017: €44.2 million) and the valuation of receivables of €11.4 million (2017: €1.2 million) as well as prior-period expenses of €9.3 million (2017: €0.2 million). This includes a value adjustment of €7.9 million relating to sales tax receivables abroad. It also includes selling costs of €32.7 million (2017: €34.8 million) and expenses from foreign currency valuation of €12.2 million (2017: €19.5 million).

The **financial result** amounted to –€94.3 million (2017: €15.4 million). It includes the significantly reduced income from investments of €5.3 million (2017: €15.9 million) and unscheduled depreciation on SMA New Energy Technology (Jiangsu) Co., Ltd., Suzhou, China, in connection with its planned sale, and on Tigo Energy, Inc., Los Gatos, U.S., due to the company's poor medium-term chances of success in the highly competitive market for smart module technology.

Taxes on income decreased by €0.4 million. This item includes tax income for previous years in the amount of €0.8 million (2017: €2.0 million).

After tax, the Company reported an **annual net loss** of €211.1 million in 2018 compared with annual net income of €63.4 million in the previous fiscal year. The annual net loss is impacted by one-time items amounting to €148.2 million.

Net Assets and Financial Position

SMA Solar Technology AG Balance Sheet in Accordance With HGB as of December 31, 2018

in €'000	2018/12/31	2017/12/31
ASSETS		
A. Non-current assets		
I. Intangible assets	12,853	13,102
II. Fixed Assets	181,575	190,570
III. Financial assets	50,395	142,058
	244,823	**345,730**
B. Current assets		
I. Inventories	128,055	107,699
II. Receivables and other assets	144,729	176,439
III. Securities	100,225	150,230
IV. Cash and cash equivalents	158,330	201,833
	531,339	**636,201**
C. Prepaid expenses and deferred charges	**1,845**	**1,961**
	778,007	**983,892**
LIABILITIES		
A. Shareholders' equity		
I. Share capital	34,700	34,700
II. Capital reserves	124,200	124,200
III. Retained earnings		
1. Statutory reserve	400	400
2. Other retained earnings	3,136	3,136
IV. Profit available for distribution	183,725	407,009
	346,161	**569,445**
B. Special account with reserve characteristics	**62**	**81**
C. Provisions	**168,982**	**147,616**
D. Trade payables	**120,729**	**129,204**
E. Accrued liabilities	**142,073**	**137,546**
	778,007	**983,892**

As of December 31, 2018, **total assets** of SMA AG fell by €205.9 million to €778.0 million (2017: €983.9 million).

Non-current assets decreased by €100.9 million to €244.8 million (2017: €345.7 million). The decline is attributable to lower investing activities compared to depreciation. In addition, unscheduled depreciation had to be recognized on SMA New Energy Technology (Jiangsu) Co., Ltd., Suzhou, China, in connection with its planned sale, and on Tigo Energy, Inc., Los Gatos, U.S., due to the company's poor medium-term chances of success in the highly competitive market for smart module technology.

As of December 31, 2018, total **inventories** of €128.1 million were above the previous year's level (2017: €107.7 million). The increase of 18.9% compared with the previous year is the result, in particular, of an increase in inventories of raw materials, consumables and supplies by €10.8 million to €57.5 million.

Trade receivables decreased by €37.5 million and totaled €43.0 million on the reporting date.

Cash and cash equivalents and securities fell by 26.6% to €258.6 million (2017: €352.1 million).

Equity declined, as a result of earnings and dividend payments, by €223.3 million to €346.2 million compared with December 31, 2017. The equity ratio fell to 44.5% (2017: 57.9%).

The **provisions** of SMA AG largely comprise provisions for warranty obligations for our various product families and personnel provisions. The €21.4 million increase in provisions to €169.0 million (2017: €147.6 million) particularly results from the transfers to warranty provisions.

Trade payables slightly went up by €1.3 million year on year to €83.9 million (2017: €82.6 million).

Accrued liabilities of €142.1 million (2017: €137.5 million) were reported for deferred sales for extended warranties as well as service and maintenance contracts sold for subsequent years.

SMA AG's **financial position** essentially corresponds to that of the SMA Group.

RISKS AND OPPORTUNITIES

The business performance of SMA AG is largely exposed to the same risks and opportunities as the SMA Group. SMA AG also partakes in the risks affecting its investments and subsidiary companies proportionate to its respective holding. The risks are presented in the Risks and Opportunities Report. The relationships with our investments can also result in negative effects from statutory or contractual provisions for liabilities (particularly financing).

OUTLOOK

As a result of SMA AG's interdependence with its Group companies and its importance within the Group, please refer to our statements in the Forecast Report for the SMA Group, which also outline the expectations for the parent company specifically.

MANAGING BOARD STATEMENT ON THE BUSINESS TRENDS IN 2018

With 8,449 MW of inverter output sold (2017: 8,538 MW), the SMA Group's sales volume in 2018 was roughly on a par with the previous year. Sales amounted to €760.9 million. SMA thus reached the lower end of its sales guidance last adjusted on November 30, 2018, but fell short of the original sales guidance from January 24, 2018 (€900 million to €1 billion), and the adjusted sales guidance from September 27, 2018 (€800 million to €850 million). This was due chiefly to the enormous price pressure in all markets and segments and to project delays as a result of the significant market decline in China and the associated internationalization of Chinese manufacturers in the second half of the year. Distribution of SMA sales was largely well balanced between all segments. Overall, the Utility segment generated 35.0% of the SMA Group's sales in 2018, while the Commercial segment contributed 33.1%, the Residential segment 23.9%, and the Storage segment 8.0% (2017: 32.4% Utility, 30.5% Commercial, 26.2% Residential, 10.9% Storage).

EBITDA of –€69.1 million (EBITDA margin: –9.1%) was in line with the adjusted guidance from November 30, 2018 (guidance: negative EBITDA in the mid- to high-double-digit million euro range). It was impacted by negative one-time items amounting to €86 million. SMA did not achieve its original earnings guidance from January 24, 2018 (guidance: €90 million to €110 million), or its adjusted earnings guidance from September 27, 2018 (guidance: break-even to slightly negative EBITDA).

Net cash declined to €305.5 million (2017: €449.7 million); the equity ratio was 42.9% at the end of the reporting year (2017: 50.3%). In addition, SMA has a long-term credit line from domestic banks of €100 million.

To quickly and sustainably return SMA to profitability without negatively impacting investments in the major fields of the future, the Managing Board resolved extensive measures to reduce costs and increase sales, of which implementation started at the beginning of the 2019 fiscal year. The main measures include giving up the locations in China and selling the Chinese companies to the local management. The measures are aimed at reducing SMA's fixed costs and making optimal use of our capacity at the headquarters by focusing on our core competencies, outsourcing and automating activities, reorganizing structures and at increasing sales by placing an even stronger focus on customers.

POSITIONING IN FUTURE FIELDS ADVANCED[1]

In the past fiscal year, SMA took further steps to advance its strategic positioning in important future fields. Since the beginning of 2018, the SMA subsidiary coneva opens up the business field of digital energy solutions. It provides public utility, housing and telecommunications companies, among others, with white label solutions for energy management and the integration of end customers into the energy market. In addition, it designs energy monitoring, control and management solutions for commercial enterprises and public institutions based on the energy management platform ennexOS developed by SMA. coneva is thus tapping into important new markets and customer groups for SMA in energy supply digitalization. The subsidiary emerce develops and operates online sales channels for select markets. SMA enhanced its positioning in the Storage segment, for example, by expanding its strategic partnership with the leading battery manufacturer BYD in order to tap growth markets in the Americas and Africa together. According to a study by IHS Markit ("Energy Storage Inverter (PCS) Report 2018"), SMA had already been by far the world's leading provider of battery inverters back in 2017. Another growth segment is modernization and functional enhancement of existing PV systems (Repowering). Here, SMA launched attractive offers for all power classes in the reporting period.

NEW PRODUCTS AND SOLUTIONS DEVELOPED IN CORE BUSINESS[1]

In its core business, SMA launched additional products and solutions for reducing the cost of PV power generation in all segments and markets in the reporting year. These included the easily installable three-phase Sunny Tripower 3.0–6.0 for private residential PV systems; in the U.S. market, new versions of the Sunny Tripower CORE1 for commercial PV systems which meet the NEC standards applicable there starting 2019; and the Sunny Highpower PEAK3, the first SMA string inverter for large-scale PV power plants with 1,500 volt DC voltage.

Additionally in the reporting period, SMA developed system packages with hardware, software and service components tailored to the needs of installers and end customers for the Residential and Commercial segments. These are gradually introduced to markets starting the first quarter of 2019.

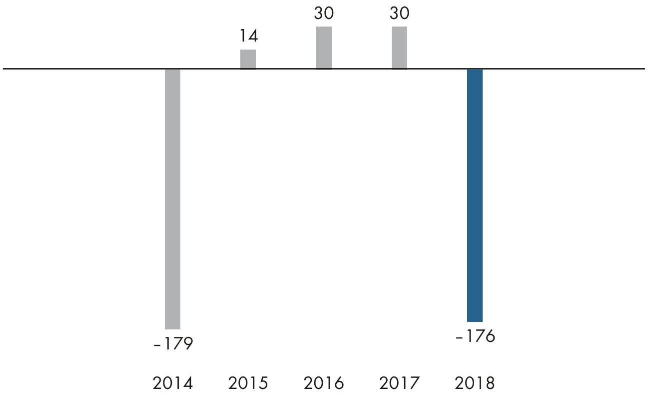
[1] This section is not a mandatory component of the management report as defined in Section 315 HGB in conjunction with GAS 20, and therefore not a subject of the financial audit.

Target-Actual Comparison for 2018

in € million	Forecast on 2018/01/24	Forecast on 2018/09/27	Forecast on 2018/11/30	2018 results
Sales	900 to 1,000	800 to 850	760 to 780	760.9
EBITDA	90 to 110	Break-even to slightly negative	Negative in the mid- to high-double-digit million range	–69.1

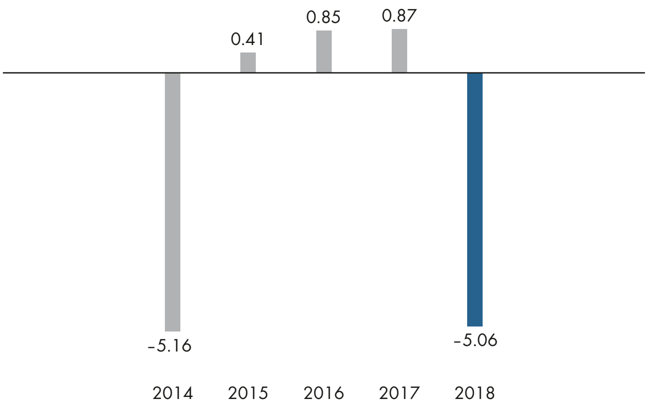
Net income

in € million



Earnings per Share

in Euro



RISKS AND OPPORTUNITIES REPORT

PRINCIPLES OF THE RISK AND OPPORTUNITY MANAGEMENT SYSTEM

In the context of its business activity worldwide, the SMA Group, as a leading global specialist for photovoltaic system technology, is exposed to a range of risks, which can impair target achievement in implementation of strategies in the business units. SMA employs appropriate measures to influence and control those risks. A risk is defined by SMA as an event that ensues from a decision made by management (strategic), an action (operative) or external circumstances and – if the risk occurs – results in a negative deviation from the planned EBIT. Opportunities are also systematically identified and recorded by means of opportunity management. For SMA, an opportunity is the possibility of an event occurring that positively influences target achievement. The Risk and Opportunity Management System is based on the COSO Enterprise Risk Management (ERM) – Integrated Framework (COSO ERM), which is an internationally accepted standard for establishing and systematically developing a company-wide Risk Management System. SMA uses a uniform software application to systematically record and report risks and opportunities and to meet documentation requirements.

Organizational Structure

The SMA Managing Board bears overall responsibility for effective risk and opportunity management and ensures that all risks and opportunities are considered comprehensively and uniformly. The Supervisory Board is responsible for monitoring the effectiveness of the Group-wide Risk and Opportunity Management System. In order for this task to be performed, the Supervisory Board's Audit Committee processes the information for the Supervisory Board. Technical responsibility for the uniform Group-wide Risk Management System lies with the "Corporate Audit, Risk & Information Security" department. This department reports directly to the Chief Financial Officer and is responsible for implementation of Group-wide standards and methods and for coordination and ongoing development of the risk management process.

RISK MANAGEMENT

The purpose of risk management is to identify risks above a defined threshold as early as possible, to present them transparently and comparably, and to assess and manage them. SMA must also accept risks to a certain extent to utilize opportunities. The Managing Board laid out binding objectives for risk management in terms of risk strategy and principles of organization, analysis and communication in a risk manual. It contains all methodical and organizational regulations for dealing with risks, requirements and value limits as well as regular and immediate uniform reporting processes.

Company-Wide Risk Management Process

All SMA subsidiaries and business areas are included in the scope of the risk management process. The main steps of the risk management process are explained hereafter:

RISK IDENTIFICATION

Once a quarter, selected executives in the first two levels below the Managing Board and selected central Group functions ("risk owners") assess the SMA risk situation in a standardized "bottom-up process" and document the individual risks and corresponding measures. Involving this group of people ensures active identification and measurement of risks and creates necessary transparency.

RISK ASSESSMENT

For each individual risk identified, the relevant risk owner assesses the probability of occurrence and the amount of damage that might be caused. The amount of damage is measured based on the potential effect on the planned EBIT. The effect of a risk is classified in one of three damage classes: "low," "medium" and "high." The probability of occurrence is classified according to two evaluation categories: "possible" and "likely."

Gross and net risks have to be determined for every individual risk within an projection period of two years. Gross risk represents the largest possible negative effect before implemented and effective management and monitoring tools are applied. Net risk considers risk-reduction measures.

RISK MANAGEMENT

While taking into account the corporate strategy, the objective of risk management is to actively influence identified and assessed individual risks. SMA's risk situation must be positively affected in a targeted way using suitable measures. In order to reduce the risk position, the risk owners have the task of developing and implementing suitable measures. The goal is to manage identified risks actively. This may include forming security reserves or transferring specific risks to third parties (e.g., through insurance companies). With regard to risk management, these measures and their implementation are subject to regular review and adjustment by the risk owners.

RISK MONITORING AND REPORTING

The development of all risks is continuously monitored. Our Risk Management System is designed to ensure that the appropriate employees can identify risks and changes to them early on and report them to the decision-makers in the Company. These reports are first made to central Risk Management and to the Managing Board if the individual risks are classified at least as "medium." In addition, the risk owners must report risks to the Managing Board on an ad-hoc basis if their damage class is "high" and their probability of occurrence is "likely." Adjustments to the Risk Management System and all significant risks and measures are presented to the Risk & Opportunity Board in regular meetings. In the regular process, the business unit heads ensure that all significant risks and opportunities for their respective business field are fully documented and correctly evaluated in the Risk Management System. In addition, the Supervisory Board's Audit Committee is informed of significant risks with a considerable impact and newly identified issues that exceed defined value limits every six months. To ensure integration with the (Group) accounting process, the risk management process follows a coordinated schedule and thus provides all SMA functions involved in (Group) accounting and financial reporting with the relevant information in full.

OPPORTUNITY MANAGEMENT

In order to be successful, each company must take advantage of its existing internal and external potential. The structural changes in the energy supply pose challenges for SMA, but also offer major opportunities, for example, with regard to digitalization. As part of our integrated risk and opportunity management approach, we regularly identify and assess opportunities in addition to risks. Identifying them early on and regularly and acting accordingly is a core management task. Opportunities are generally recognized by the risk owners if they reach a defined threshold of €1 million (positive effect on planned EBIT). Opportunities are assessed to the best of our knowledge, based on assumptions, among others, relating to market development, market potential of technologies and system solutions as well as forecasted changes in demand and prices. The cornerstones of this are the Group-wide planning process as well as strategy meetings held by the Managing Board with executives from the two top levels of management. To identify our opportunities, we continuously employ market and competitive analysis and systematic knowledge management, and place great importance on an open information policy within the Group. In doing so, we strive to create a balanced relationship between opportunities and risks.

KEY FEATURES OF THE INTERNAL CONTROL AND RISK MANAGEMENT SYSTEM IN RELATION TO THE (GROUP) ACCOUNTING PROCESS

SMA's Internal Control System includes all the principles, procedures and measures available to ensure business activities maintain the proper course. It is made up of systematically created organizational and technical measures and controls within the Company aimed at guaranteeing adherence to laws and regulations, as well as guidelines for preventing damage that might be caused by its employees or third parties. The Managing Board is responsible for implementation and adequacy of the Internal Control System. The Audit Committee of the SMA Supervisory Board monitors the effectiveness of the Internal Control and Risk Management System on the basis of Section 107 (3) AktG.

The Internal Control System pertaining to the accounting process is part of the overall Internal Control System, which is embedded in the Company-wide Risk Management System. Process-integrated and process-independent monitoring steps are elements of the internal monitoring system. Automated IT process controls are an integral part of the process-integrated measures. Additional controls are the organizational monitoring methods, such as the four-eyes principle, separation of administration, execution, settlement and approval functions and written work instructions. Furthermore, wherever possible we protect the IT systems deployed against unauthorized access by using appropriate authorization systems and access restrictions. The Supervisory Board's Audit Committee and the Internal Audit department are intimately incorporated into the internal monitoring system with process-independent audit activities.

On the basis of a risk-orientated audit plan, the Internal Audit department regularly examines the effectiveness of the Internal Control System by means of sampling and thus also checks material parts of the Internal Control System as it pertains to the (Group's) accounting process. Alongside the Internal Audit department, the auditor of the Annual Financial Statements also carries out an evaluation. Under the terms of his/her audit of the Financial Statements, the auditor is obliged to report any risks found related to accounting and any fundamental weaknesses in the Internal Control and Risk Management System to the Supervisory Board's Audit Committee. Audits of the Annual Financial Statements and Consolidated Financial Statements by the auditor and of the local financial statements submitted by the Group companies included in the scope of consolidation, safeguard the basic process-independent monitoring mechanism in the accounting system.

Important risks in the (Group) accounting process include the possibility that the consolidated local financial statements of the Group companies fail to properly reflect the true net assets, financial position and results of operations due to unintentional or deliberate wrongdoing, or that publication of the Quarterly Statements or of the Annual Financial Statements is late. These risks may permanently impair the confidence of shareholders or the reputation of SMA. SMA's Internal Control System as it pertains to (Group) accounting is concerned with minimizing the risk of misstatements in the Group's bookkeeping as well as in external financial reporting. To ensure systematic early identification of risks Group-wide, SMA has a monitoring system to identify risks early on that threaten the existence of the Company in accordance with Section 91 (2) of the AktG. Existence-threatening and other risks are promptly identified, managed and monitored, beyond the limits of statutory regulations. The auditor assesses proper functioning of the early risk identification system in accordance with Section 317 (4) of the HGB.

The Internal Control System measures are aimed at securing proper and reliable (Group) accounting and ensure business transactions are fully, correctly and promptly recorded in accordance with legal provisions and the articles of association. They also guarantee that the process of stock taking is properly implemented and that assets and liabilities are properly recognized, measured and carried in the Annual Financial Statements and Consolidated Financial Statements. Furthermore, the regulations ensure that accounting records provide reliable and comprehensible information. The main tasks of the departments involved in the (Group) accounting process are clearly separated and their areas of responsibility are clearly assigned.

SMA constantly evaluates laws, financial reporting standards and other agreements and considers their relevance and effect on the (Group) accounting process. We promptly communicate applicable requirements to all Group companies. The uniform IT platform, Group account plan and standardized processes ensure proper and timely recording of all important business transactions. There are binding rules for the recording of manual business transactions. An accounting manual specifies Group-wide accounting provisions in accordance with the International Financial Reporting Standards (IFRS). In addition to general accounting principles and methods, the regulations, above all, include requirements concerning the balance sheet, income statement, statement of comprehensive income, Notes, Management Report, statement of cash flows, statement of changes in equity and segment reporting in compliance with EU legislation. By defining clear requirements, the risk of inconsistent practices when recognizing, measuring and carrying assets and liabilities should be reduced. In addition, a check is carried out centrally on the financial statements submitted by the companies included in the scope of consolidation while referring to the audit reports drafted by the local auditors. Each month upon submission of the reporting packages, those responsible at the subsidiaries also confirm the propriety and completeness of each financial statement by way of an internal declaration of completeness.

Business transactions at SMA and at all the larger subsidiaries are primarily recorded using ERP systems from SAP AG. These are protected from misuse by appropriate authorization systems and access restrictions. The authorizations granted are reviewed and amended regularly. The centralized control and monitoring of nearly all IT systems, centralized change management and regular system backups minimize not only the risk of data loss, but also the risk of IT system failures related to (Group) accounting. Smaller companies either operate local ERP systems or commission external service providers with their own IT systems.

Use of a uniform, Group-wide consolidation program ensures that all data is recorded properly, promptly and completely and that internal business transactions within the Group are eliminated. This is from where the various components of the Consolidated Financial Statements, including important data for the Notes to the Consolidated Financial Statements, are derived.

The Internal Control and Risk Management System enables control of risks that might otherwise prevent the Annual Financial Statements and Consolidated Financial Statements from being properly drawn up and is therefore continuously being improved. However, Company-wide application of the regulatory and control measures cannot guarantee absolute reliability with regard to the accurate, complete and timely recording of facts in (Group) accounting and in the detection of irregularities.

DESCRIPTION OF SIGNIFICANT RISKS

In this report, SMA describes the risks classified as significant with disadvantageous effects on business and the associated net assets, financial position and results of operation of the Group and on the Company's reputation. The summarized description of significant risks shows the risks described below according to SMA's assessment after taking measures (net risk).

The probability of occurrence and the possible effect of a risk as well as its year-on-year development are assessed by the following criteria:

Features of the Risk Assessment

Probability of occurrence in %	Potential effects in €		Risk development year on year (trend)
Possible (> 0% to < 50%)	**Low** (>= 0.3 million to < 10 million)	Limited negative effects on expected EBIT, no loss of reputation, no threat to customer relationships	↗ **Higher than last year**
Likely (>= 50% to < 100%)	**Medium** (>= 10 million to < 20 million)	Some negative effects on expected EBIT, moderate loss of reputation, potential threat to customer relationships, identifiable disruption to business operations (primarily internal effect)	→ **Same as previous year**
	High (>= 20 million)	Substantial negative effects on expected EBIT, high loss of reputation, major threat to customer relationships, significant disruption to business operations (with external effect) up to disruption of business operations that threatens existence	↘ **Lower than last year**

Presentation of Significant Risks

Risks	Probability of occurrence	Potential financial effects	Risk development as of December 31, 2018
Strategic risks			
Regulatory risks	Likely	Medium	→
Competition risks	Likely	Medium	→
Market risks	Likely	Medium	↘
Risks from research and development activities	Possible	Medium	→
Operating risks			
Procurement and inventory risks	Likely	Medium	↘
Product risks	Likely	High	→
Production and operational risks	Possible	Medium	→
Personnel-related risks	Likely	Medium	→
IT and information security risks	Likely	High	→
Financial risks			
Financing, currency and liquidity risks	Possible	Medium	→
Risks from customer bad debt	Possible	Low	→
Compliance risks			
Risks from violations of the law	Possible	Medium	→
Export risks	Possible	Medium	→
Risks from violating data protection law	Possible	Medium	→
Environmental risks	Possible	Low	→

Strategic Risks

REGULATORY RISKS

Due to the regulatory nature of government subsidies and their content-related and regional development as well as increasing global tariff trade barriers resulting from bilateral trade disputes, there is still a high degree of volatility in the photovoltaics sector. There are considerable regional and cyclical volume fluctuations that also affect SMA and therefore complicate corporate planning significantly.

The drastic reduction of the PV expansion targets in China announced by the Chinese government in mid-2018 had far-reaching negative effects on the pricing of PV modules and PV system technology in the past fiscal year. Arising from additional price decreases anticipated, investments in PV projects were postponed, which also impacted sales volumes at SMA. It is currently difficult to estimate the effects of the excess capacity, particularly at Chinese PV modules and system technology manufacturers, on the future business performance of SMA.

The U.S. import duties that have now been introduced on PV cells and PV modules from China are negatively impacting SMA's earnings prospects in the Americas region, as they increase the total costs of PV systems. Tariff trade barriers in the APAC (excluding China) and EMEA regions could also impact SMA's profitability.

It is not yet possible to foresee the effects on SMA's profitability from legislation like the Act on the Digitalization of the Energy Transition in Germany and EU directives on technical standards and regulations. If new normative regulations are introduced or if use of centralized communication units like the Smart Meter Gateway is made compulsory, a detrimental impact on SMA's profitability will result.

SMA regularly performs market research to be able to respond promptly to emerging changes in trade barriers, subsidies and standards in target and existing markets. Short-term fluctuations in demand are shown in the rolling forecast process. Thanks to its high level of flexibility in production, SMA can usually react quickly to changes. By using temporary staff and adapting the shift model, operations can be scaled in a ratio of 1:2 within a few weeks. In addition, SMA works to contact the certification authorities and electric utility companies to be able to make any necessary adjustments to its product and service portfolio early on. Our employees actively contribute to new technical guidelines through standards associations and other organizations. SMA regularly reviews the assumptions and associated risks with regard to strategic projects. These procedures allow SMA to react quickly to changes in what is required of our products.

For more information on development in individual markets, please see the remarks in the Forecast Report, "Future General Economic Conditions in the Photovoltaics Sector" section.

COMPETITION RISKS

The current market environment for PV systems is promoting fierce competition. In particular, existing competitors are attempting to secure market shares through extremely aggressive policies regarding pricing and terms and conditions, partly due to existing excess capacity. Furthermore, the price is becoming increasingly important as a result of the growing commoditization of inverters in all segments, while technological differentiating features are increasingly fading into the background. This additional price pressure could result in significant negative effects on SMA's further business development and earnings.

In addition, it is conceivable that competitors will further improve the quality, functionality or performance of their products, or local competitors will react more flexibly and adapt better to the prevailing market requirements in certain markets. Markets breaking away in connection with freed-up capacity, especially in China, as a result of its expansion targets being reduced again, also causes an increase in fierce competition. In the future, such competition will lead to additional declines in prices for products and services produced by SMA and likewise to a loss in market shares.

The price decline is expected to be offset by growth in volume. SMA is meeting the price competition with market-appropriate and cost-optimized products and innovative solutions. With expenditure for research and development of €87.1 million (including capitalized development projects) in the 2018 fiscal year, SMA is extremely well-positioned to set important trends with new products, systems and solutions. The numerous awards SMA has received for its high capacity for innovation underscore market orientation of development achievements.

There is also a risk that SMA's service quality could deteriorate and no longer be perceived by market participants as a differentiating feature in comparison to its competitors. SMA counters this risk with new IT systems and improved processes.

Cost-out measures and projects to increase efficiency will be pursued consistently. In addition, the restructuring of global locations, cost structures and business models that has already been initiated will be the key to SMA's long-term success.

MARKET RISKS

Photovoltaics have proven to be increasingly competitive in recent years. In a growing number of regions around the world, solar power is now more cost-effective than conventional energy, but it is also competing with other forms of renewable energy such as wind energy.

The risk of declining market shares in conjunction with the risk of aggressive competition or changes in market development is monitored continuously by the heads of the business units based on the forecast process with Sales. These risks are countered with adjustments to the product and solution portfolio that are appropriate to market changes and the consistent positioning of the SMA brand.

Nonetheless, there is a certain dependence on individual regions or markets (e. g., U.S. business). The weak performance of the U.S. market due to regulatory and political changes had correspondingly negative effects on SMA. However, the Managing Board continues to see medium-term prospects as positive. SMA can keep its dependence on individual photovoltaic markets at a low level, however, by being present in all major global markets. To generate economies of scale or expand its portfolio, SMA enters into targeted strategic alliances.

Formation of buying syndicates can increase the dependency of SMA on a few wholesalers or specialist wholesalers and other customers generating large sales. This dependency harbors a risk as a result of these large customers gaining more negotiating power coupled with increased price pressure. However, by means of its sales strategy, SMA avoids dependency on individual customers. The share in total sales of the ten largest customers worldwide increased only slightly to approximately 30% in the 2018 fiscal year.

For more information on development in individual markets, please see the remarks in the Forecast Report, "Future General Economic Conditions in the Photovoltaics Sector" section.

RESEARCH AND DEVELOPMENT RISKS

In addition to the optimization of existing products and the development of future product generations, the SMA Managing Board's goal is to develop and launch complete system solutions and digital business models. However, this inherently gives rise to the risk that vital technological trends are identified too late or that market launch is delayed due to development stages that are too long. As this may lead to sales losses and declining market shares, SMA is continuing to counter such situations by investing around 10% of sales in research and development activities to advance new processes, technologies, products, system solutions and services. SMA is consciously seeking collaboration with research facilities to advance strategic development projects. However, we cannot rule out that individual development projects will fail to deliver expected exploitable economic results or do so in the expected time frame.

For additional details, please refer to the information on research and development in the Combined Management Report.

Operating Risks

PROCUREMENT AND INVENTORY RISKS

SMA is still exposed to an increased dependence on certain suppliers. We work to minimize these risks through market analyses, careful evaluation of suppliers, flexible supplier agreements, clearly defined quality standards and reducing dependence on individual suppliers. In future innovations, SMA will therefore reduce the number of platforms, make greater use of standard components and qualify alternative suppliers to increase flexibility.

Demand for certain electronic components and individual raw materials is still extremely high worldwide, however, this has only resulted in delivery problems in a few cases. SMA is counteracting this situation by implementing a closely monitored, proactive stockpiling strategy, bringing on board more suppliers and optimizing supply contracts. However, there is still a risk of inverter production and delivery delays due to a shortage of certain primary materials.

Regular inventory analyses are carried out in connection with increasingly shorter innovation cycles and resulting potential inventory write-down requirements. Inventories are continuously monitored and adjusted with controlling tools and early warning systems. By monitoring changes in important raw material prices, development trends should be identified in a timely manner and compensatory mechanisms developed with suppliers before they affect purchase prices and negatively influence SMA's earnings. Optimization of our purchasing structures and the long-standing purchasing partnership with Danfoss are leading to lower purchase prices and logistics costs and diminished dependence on local suppliers, while continuing to improve specific negotiations and our competitiveness. As part of our global purchasing and commodity strategy, these activities are being pursued and expanded in a sustainable manner.

If any inventory risks due to surplus inventories or obsolescence are identified, these are taken into account in corresponding impairment losses.

For more information on development in individual markets, please see the remarks in the Forecast Report, "Overall Statement From the Managing Board on Expected Development of the SMA Group" section.

PRODUCT RISKS

We are always striving to develop new products, solutions and systems and to improve existing ones. For this reason, we use new materials and advanced technologies in development to make innovations possible. This can result in SMA products being defective. Large delivery lots bear the risk of errors or defects affecting a product series or several product batches. Production shortcomings may derive from SMA errors or from defects in primary products provided by SMA suppliers. Unidentified incompatibilities can also emerge after products are launched, which requires improvement to the customer system on-site after installation to prevent the product from posing a danger to the customer, in the worst-case scenario. A lapse of reliability of our products could result in a long-term loss of trust and reputation. In addition, necessary product recalls would have a negative impact on earnings.

If responsibility for the error lies with the supplier, then the supplier must bear the direct costs. If SMA is responsible for the error, then product liability insurance may cover the losses incurred. However, SMA is still responsible for repair work and material costs under the statutory warranty and the given factory warranties. Newly developed products may be subject to more failures than established products. We are able to minimize this risk through comprehensive testing during the development phases, accompanying quality inspections during production and field testing prior to scheduled serial production. We make provisions for disputes related to product risks if we consider it very likely that such claims will be successful.

To continuously increase the quality of our products in addition to general process improvements covering the entire value chain, new developments are backed by specific stress and qualification tests, and tests are carried out on the entire series. In the event of technical faults in the products, Service assesses the nature and scope of the fault and the need for repair or replacement of the devices and carries out appropriate measures.

PRODUCTION AND OPERATIONAL RISKS

Extensive facilities, equipment and systems are required to operate the production and administrative infrastructure, and their smooth operation is exposed to risks due to a number of factors, including natural disasters, accidents, wear and force majeure. SMA is well aware of this and employs a preventive maintenance and servicing management strategy to mitigate the risk of operation-related infrastructure downtime. Appropriate property and business interruption insurance has been taken out against this risk of damage.

When introducing new operational processes and EDP systems or changing existing ones, delays or design flaws may impair efficient business organization and processing. SMA counters this by means of systematic project management.

PERSONNEL-RELATED RISKS

Qualified and motivated employees are key to the global evolution of our enterprise and SMA's business success. To ensure SMA's viability, it is important to retain engineers and other skilled staff at the Company for the long term as well as to fill management positions adequately. The SMA Managing Board continuously monitors personnel structures and, if necessary, adapts them to the sales level expected in the future.

There is still a risk that talented individuals could leave the Company and that strategic positions may not be able to be filled on short notice, either at all or by someone with the necessary qualifications. We offer performance-based remuneration systems and participation in the Company's success, flexible working hours and options for continuing education and training as well as for balancing family and career. By networking with university research and education at the Kassel site and building other partnerships with universities and institutes, SMA also works to be perceived as an attractive employer and is thereby able to successfully recruit and retain highly qualified young staff to the Company long term.

For additional details, please refer to the information in the section "Non-Financial Statement" in the Combined Management Report.

IT AND INFORMATION SECURITY RISKS

As a global technology and innovation leader and publicly traded stock corporation, SMA is in the public eye and therefore heavily under threat of industrial espionage and cybercrime. Increasing connectivity and the need for permanent availability place ever higher demands on our IT systems and products. We reduce the risks of IT breakdowns by continually reviewing and improving IT security and employing advanced hardware and software solutions. We use protective measures at all levels of the Company to avert this. To minimize the risk of data losses, SMA constantly takes precautions such as regularly building employee awareness, distributed data centers, mirrored databases and cloud solutions. All major EDP systems are also continuously monitored and patched. Alongside securing network and server availability, it is most important to avoid potential information loss via employees, service providers and external attacks. In addition, there is a focus on the cyber security of SMA's products and the digital services offered. Despite these extensive and state-of-the-art security measures, a situation cannot be ruled out in which SMA's products and services are compromised by a massive targeted hacker attack. The impact of an incident like this on SMA's reputation could be significant.

Financial Risks

FINANCING, CURRENCY AND LIQUIDITY RISKS

As a global business, SMA is naturally exposed to financial risks. These include risks from changes to general interest rates, exchange rate fluctuations and financing and liquidity risks.

Treasury controls Group financing and limitation of financial risks at SMA. The principle underlying our hedging policy is to protect SMA against sharp changes in prices, exchange rates and interest rates by means of contracts and hedging transactions to an economically feasible extent. Treasury has also secured borrowing with a long-term credit line of €100 million.

The permissible hedging instruments have been laid out by the Managing Board in Group-wide guidelines that also regulate the entire process-oriented organization, including hedging strategies, responsibilities and control mechanisms. As an example, extensive currency hedges were concluded.

For additional details, please refer to the information under Financial Position – Principles and Objectives of Financial Management in the Combined Management Report.

For detailed information regarding the financial market risks and risk management, please also refer to the Notes to the Consolidated Financial Statements on pages 111 et seq. under 30. Objectives and Methods Concerning Financial Risk Management.

RISK FROM CUSTOMER BAD DEBT

The volatile and sometimes unfavorable conditions of the financial markets are conducive to potential payment difficulties for some customers. In addition, the competitive situation and internationalization require extension of payment periods, coupled with the reduction of collateral (e. g., in the form of bank guarantees). If customers can no longer keep up with their payment obligations, there is a higher default risk for receivables with negative effects on SMA's results of operations, financial position and net assets.

As part of our accounts receivable management, we minimize the risk of non-payment in accordance with the Company's credit guidelines by obtaining references and credit reports for the purposes of a credit check, allocating appropriate credit limits and continuously monitoring general payment practices. If it is expected that a credit limit is not sufficient for our future business relationship, then we examine whether we should ask the customer to furnish collateral or whether we can accept the residual risk. To cover potential payment defaults, SMA also takes out commercial credit insurances. Payment periods decreased slightly in the past fiscal year. If non-payment risks materialize, these will be taken into account by means of corresponding impairment losses. The Commercial Project Management function at the locations in the U.S. and Germany represents another effective measure to avoid or minimize risk to project business, which is an important aspect of SMA's portfolio. All project and service contracts entailing risks are systematically subjected to a legal and commercial risk assessment. Based on this, risky agreements are secured for SMA through additional financial securities or contractual adjustments made with both Sales and the customer. Remaining project risks are assessed and approved separately by the heads of the business units and the Managing Board, provided these risks are proportionate to earnings.

Compliance Risks

RISKS FROM VIOLATIONS OF THE LAW

There is a risk that SMA could be involved in unlawful business conduct or that individual employees could violate SMA's business principles and directives. In particular, this includes the risk of corruption and fraud.

The Group Compliance function thus issued business principles and directives globally. Basic work sequences and processes were derived from these and implemented globally. In the context of their work for SMA, all employees are obligated to act ethically and in accordance with the laws and regulations of the legal system of their country. These regulations and obligations are consolidated worldwide by mandatory, extensive training sessions on business principles.

Our goal is to minimize antitrust risks from the outset. Group Compliance has therefore issued an antitrust directive. The directive stipulates a clear code of conduct for all major business situations. In addition, all employees in the areas affected must regularly receive antitrust law training.

With our patents and through constant monitoring of technologies and competitors relevant to SMA, we work to maintain and expand our technological edge. Because competitors and research institutes also file a large number of patent applications, we cannot rule out that, in spite of regular, extensive and international research, we will not infringe on third-party patent rights or other industrial property rights or that, vice versa, our rights will be violated by third parties. If the former occurs, SMA may incur considerable costs related to claims for compensation, in its defense against such claims or in relation to royalty payments to third parties. It is therefore important to SMA that a product be checked for third-party rights in a timely manner before approval and market launch. Corresponding milestones have been included in the guidelines and process descriptions on product development and market launch. The Intellectual Property Management function actively protects proprietary technologies and monitors patent applications. We make provisions for disputes related to intellectual property, when necessary, if we consider it very likely that such claims might be successfully enforced against us.

Due to its global business operations, SMA is subject to various tax laws and regulations. Tax changes in Germany and abroad could negatively affect the tax positions of SMA. In addition to legal changes, assessment and interpretation of complex tax regulations, such as those regarding transfer prices, may also affect our net assets, financial position and results of operations. SMA therefore collaborates closely with tax consultants in individual countries and occasionally conducts tax audits.

For additional details, please refer to the information in the section "Non-Financial Statement" in the Combined Management Report and on our website www.SMA.de/en/company/group-compliance.

EXPORT RISKS

As a result of internationalization and the fact that more than 80% of all deliveries are sent to customers outside Germany, there are increased risks for SMA from handling the import and export of materials, services and finished products. SMA must meet the legal requirements for imports from and exports to many countries to stay competitive and meet the needs of its international customers.

Violations of trade restrictions and customs laws are subject to significant penalties and could damage SMA's reputation. Therefore, SMA purposefully monitors its obligations under commercial and customs law using an IT system, which significantly reduces the risk of potential non-compliance.

RISKS OF VIOLATING DATA PROTECTION LAW

The entry into force of the EU's General Data Protection Regulation in May 2018 gave rise to new or enhanced organizational and technical requirements for data protection. The number and volume of fines that could be incurred for violating data protection law has increased dramatically.

SMA counters data protection risks through systematic data protection management. In addition to standardized processes, this also includes targeted training for those employees who process personal data, monitoring of all projects where PV system operators' personal data is processed, and close collaboration with the Company's data protection officer.

Despite meticulously implementing requirements for processes and systems, violations of data protection law cannot be ruled out completely. SMA's digitalization strategy, in particular, extends the use of personal data, including for the Company's business models. There are also risks in the increasingly widespread storage and processing of personal data using cloud solutions, where permissibility regarding data protection law is disputed. Against the backdrop of a changing business environment and the necessary development of new sales channels, this risk is becoming increasingly significant.

ENVIRONMENTAL RISKS

SMA employs a small amount of hazardous substances during production that, in principle, pose a risk to the environment. The comprehensive measures we take in production and in quality management ensure that SMA products are manufactured in a way that is environmentally friendly and guarantees compliance with all environmental regulations. Furthermore, SMA has safeguarded itself against certain environmental risks, including by means of insurance solutions.

For additional details, please refer to the information in the section "Non-Financial Statement" in the Combined Management Report.

DESCRIPTION OF SIGNIFICANT OPPORTUNITIES

The SMA Managing Board sees digitalization, system and solution business, storage applications and integration of storage solutions as providing distinct opportunities to strengthen core business. SMA is intensively developing digital business models and system solutions, which it will launch in the near future. In addition, SMA collaborates with several leading manufacturers of stationary battery-storage systems. However, the market success of storage solutions depends largely on storage system prices. Sharp declines in prices for electric battery-storage systems in recent years have improved sales prospects.

Furthermore, there are opportunities for development of additional international markets and business areas in both product and service business.

Based on the current market situation and the associated possibility of market consolidation, the Managing Board also sees opportunities from external growth.

For additional details, please refer to the information in the section "Forecast Report" in the Combined Management Report.

OVERALL STATEMENT ON THE GROUP'S RISK SITUATION

Using our Risk Management System, we continue to rate the overall situation regarding risks to SMA's future development as to be manageable and controllable. However, based on the present assessment, individual risks still have been identified that, particularly if they all occurred at once, could significantly impair business development. The risk profile slightly improved year on year. The increasing digitalization of our business areas, the system and solution business and ongoing internationalization of sales activities are expected to make a significant contribution to raising the sales level and to increasing profitability.

Furthermore, SMA will take additional measures to counter the described risks and keep the potential negative effects as small as possible. It is therefore our objective to continue optimizing the Risk and Opportunity Management System to identify potential risks even faster, to counteract them and to take advantage of any opportunities that arise.

FORECAST REPORT

PREAMBLE

The Managing Board's forecasts include all factors with a likelihood of impacting business performance that were known at the time this report was prepared. Not only general market indicators, but also industry- and Company-specific circumstances are factored into the forecasts. All assessments cover a period of one year.

THE GENERAL ECONOMIC SITUATION: DOWNTURN IN GLOBAL GROWTH

The International Monetary Fund (IMF) expects that in 2019, the global economy will grow to a lesser extent than last year. In its most recent update to the World Economic Outlook (WEO) in January 2019, the IMF forecasts an increase in global growth of 3.5% for the current year (2018: 3.7%). This is due to weaker growth in many countries in the second half of 2018, the deterioration of the sentiment on the financial markets, growing uncertainty about global trade disputes and concerns about the further development of the Chinese economy. The slowdown in growth comes, in particular, from industrialized countries. In 2019, the IMF experts are anticipating a growth of 2.0% here. They are expecting 4.5% in developing and newly industrialized countries.

According to the IMF, the U.S. economy will increase by 2.5% in 2019. The organization is expecting a growth of 1.6% for the eurozone as the prospects for some countries have been revised down, including in Germany, Italy and France. The growth forecast of 1.5% for the UK continues to be subject to uncertainty regarding the country's upcoming exit from the EU. In 2019, experts are forecasting an increase of 6.2% for China due to the ongoing trade dispute with the U.S.

For 2020, the IMF anticipates global economic growth to be slightly higher than in 2019. However, experts warn that both annual forecasts could fall short if trade conflicts escalated beyond the extent that has already been taken into account.

FUTURE GENERAL ECONOMIC CONDITIONS IN THE PHOTOVOLTAICS SECTOR

Renewable Energy Will Supersede Conventional Energy Carriers

Solar and wind power have recently crossed the threshold from mainstream to preferred energy source in many parts of the world. This is the statement made by Deloitte experts in their Global Renewable Energy Trends Report, which was published in September 2018. Both types of generation are already among the world's most cost-effective energy sources, and their potential is far from exhausted given the continuing decline in production costs, ever better system integration and the development of additional new technologies.

Experts at Bloomberg New Energy Finance (BNEF) emphasize good prospects for renewable energy and photovoltaics in the medium term. In their New Energy Outlook 2018, they forecast that by 2050, photovoltaic and wind turbine systems will account for around 50% of global power generation. According to the BNEF experts, the production costs of photovoltaics (levelized cost of electricity) will decrease again by more than 70% by 2050, and the installed photovoltaic capacity will increase seventeen-fold by the same year.

In addition to the low production costs of solar power, the climate change goals resolved by a large community of countries at the 2015 UN Climate Change Conference in Paris and the growing electricity demand, for example due to the ongoing electrification of the transport sector, are growth drivers. This will lead to an accelerated expansion of renewable energies. Photovoltaics will benefit the most from this trend as solar power is generated in the vicinity of the consumer. In its World Energy Outlook 2018, the International Energy Agency (IEA) forecasted that installed PV capacity will exceed that of wind power by 2025 and that more photovoltaic capacity than coal capacity will be installed worldwide by 2040. According to the IEA experts, newly installed photovoltaic plants are competitive with new coal-fired power plants almost everywhere. Thanks to technological advancements, the consumer cost of PV systems will decrease further and their appeal will increase as a result. The increasingly affordable storage systems and modern communication technologies combined with services for cross-sector energy management will harmonize energy production and demand. The SMA Managing Board is therefore convinced of the market appeal and has thus positioned SMA to ensure it benefits from future developments.

Global New PV Installations Increase to 109 GW

The SMA Managing Board anticipates a growth in newly installed PV power worldwide of around 6% to approximately 109 GW in 2019. The growth is being driven by all regions outside China. The Managing Board anticipates a market decline in China. Despite increased installation, global investments in system technology for traditional photovoltaic applications will stagnate due to a decline in price development. In contrast, investments in system technology for storage applications (excluding investments in batteries) will increase by approximately €50 million compared to the previous year. Overall, the SMA Managing Board therefore expects investment in PV system technology (including system technology for storage systems) of around €4.9 billion in 2019 (2018: €4.9 billion). The Managing Board rates the medium-term prospects for the PV industry as positive. This is due to the lower costs of photovoltaics and the accelerating transformation of the energy sector toward decentralized, digital and connected energy generation.

Growth Markets in Africa and in the Middle East Drive Demand in EMEA

The SMA Managing Board anticipates an increase in newly installed PV power of approximately 21% to nearly 20 GW in the Europe, Middle East and Africa (EMEA) region in 2019. This is due, in particular, to increased photovoltaic demand in the countries in the Middle East and Africa. According to SMA estimates, investments in PV and storage system technology will be on a par with the previous year at an expected €1.3 billion as a result of price development. Battery-storage systems are gaining importance in European countries, especially in Germany, the UK and Italy. In addition to business involving new systems for consumption of self-generated energy, retrofitting of existing systems with new inverters and storage systems will also yield high potential in the medium term. For many PV systems, government subsidization will end in the years to come. Self-consumption of solar power is a particularly attractive option for the operators of these systems.

South American Markets Gain Importance in the Americas Region

For the Americas region, the SMA Managing Board anticipates growth in newly installed PV power of around 18% to 20 GW. Roughly 13 GW of this amount is attributable to the North American markets. Inverter technology investments are expected to increase slightly to almost €1.0 billion (2018: €900 million). While the Managing Board anticipates growth in South American markets, it expects marginal downturns in the investments in North American markets as a result of high price pressure. Here, the residential and commercial segments are currently influenced by strict regulations set forth in the National Electrical Code (NEC). Medium-term prospects are positive for manufacturers that can offer products that comply with the new standard.

Investments in the Asia-Pacific Region Roughly at Previous Year's Level

The most important markets in the Asia-Pacific (APAC) region include China, India, Japan and Australia. In Japan and Australia, the installation of PV systems combined with battery-storage systems to supply energy independently of fossil energy carriers offers additional growth potential. The SMA Managing Board estimates that new PV installations in China will decline by around 9% and reach 40 GW in 2019 (2018: 44 GW). Investments in inverter technology are expected to fall to €1.1 billion (2018: €1.2 billion). For the APAC region, excluding China, the SMA Managing Board expects newly installed PV power to increase by approximately 16% to around 28 GW in 2019 (2018: 24 GW). The growth will be driven, in particular, by the Indian and Australian markets. However, high price pressure will largely erode volume growth. The SMA Managing Board therefore expects investments of approximately €1.5 billion in inverter technology for this region, as in the previous year (2018: €1.5 billion).

Growth Markets: Energy Management, Digital Energy Services and Operational Management

The trend to regionalize power supplies is gaining momentum. More and more households, cities and companies are becoming less dependent on energy fuel imports and rising energy costs by having their own PV systems. This will lead to a rise in demand for energy storage solutions in the residential, commercial and industrial sectors. In addition, energy will be increasingly distributed via smart grids to manage electricity demand, avoid consumption peaks and take the strain off utility grids. E-mobility is also expected to become an important pillar of these new energy supply structures a few years from now. Integration of electric vehicles will help increase self-consumption of renewable energies and offset fluctuations in the utility grid. Using artificial intelligence, the behavior of decentralized energy consumers and storage systems can be adapted to the fluctuating production of electricity from renewable energies, thus enabling the overall system to be optimized.

Against this backdrop, SMA's Managing Board holds that innovative system technologies that temporarily store solar power and provide energy management to private households and commercial enterprises offer worthwhile business opportunities. Rising prices for conventional domestic power and many private households and companies wanting to drive forward the energy transition by making their contribution to a sustainable and decentralized energy supply are the basis for new business models. Demand for solutions that increase self-consumption of solar power is likely to rise, particularly in European markets, the U.S., Australia and Japan. In these markets, renewable energies are already taking on a greater share in the electricity supply. In addition, power supply companies are increasingly using battery-storage systems to avoid expensive grid expansions, stabilize grid frequency and balance fluctuations in the power feed-in from renewable energy sources. The SMA Managing Board expects the volume of the still fairly new storage market to be around €600 million in 2019 (excluding investments in batteries). Estimated demand is already included in the specified development projections for the entire inverter technology market.

In addition to storage technology, digital energy services aimed at optimizing household and commercial enterprises' energy costs and their connection to the energy market are becoming increasingly significant. The SMA Managing Board expects this area to represent an addressable market of approximately €800 million in 2019. The market will then grow exponentially in subsequent years.

The SMA Managing Board also sees good growth prospects in the field of smart module technology to increase the functionality and performance of PV modules (module-level power electronics, MLPE). These technologies include micro inverters and DC optimizers, among others. The SMA Managing Board estimates that DC optimizers, in particular, will gain in importance in the years to come. This trend is emanating from North America because regulatory requirements in the markets there encourage the use of DC optimizers.

Technical management of commercial systems and large-scale PV plants is another growth segment. This includes a range of services, such as repairs, device replacements as well as visual inspections and maintenance of entire systems. The market in these segments had an accumulated installed capacity of over 440 GW at the end of 2018 and will have an expected 540 GW by the end of 2019. The SMA Managing Board is estimating the addressable market share, which is not yet or no longer under contract, at 140 GW in 2019, which corresponds to a potential of at least €1.1 billion. Prices are calculated yearly per MW and vary significantly depending on the regions and services included.

OVERALL STATEMENT FROM THE MANAGING BOARD ON EXPECTED DEVELOPMENT OF THE SMA GROUP

Managing Board Anticipates Sales and Earnings Growth

On January 24, 2019, the SMA Managing Board published its sales and earnings guidance for the current fiscal year for the first time. It predicts a sales increase to between €800 million and €880 million (2018: €760.9 million). Significant impulses are anticipated from the positive market development expected in Europe and America and the revival of the storage market. SMA is well positioned in these areas and will gain additional market shares as a result of an even stronger focus on customers and the launch of new products and system solutions. At the same time, the SMA Managing Board is implementing further cost reduction measures and is thus expecting a significant increase in earnings. The Managing Board estimates that operating earnings before interest, taxes, depreciation and amortization (EBITDA) will amount to between €20 million and €50 million (2018: –€69.1 million). Depreciation and amortization are expected to amount to approximately €50 million. On this basis, the Managing Board expects to break even in terms of EBIT in the best case scenario.

SMA's business model is not capital-intensive. Capital expenditure (including capitalized development costs) will increase to approximately €60 million in 2019 (2018: €40.3 million), of which roughly €10 million will be attributable to capitalized development costs. The increase in capital expenditure is primarily attributable to the inclusion of leases required under IFRS 16. In 2019, SMA will also invest again in testing and production facilities for new product generations and building maintenance. The SMA Group's net working capital is expected to amount to between 19% and 24% of sales (2018: 23.3% of sales). Net cash is expected to be more than €300 million (2018: €305.5 million).

For details regarding risks, please refer to the Risks and Opportunities Report on pages 58 et seq.

SMA Group Guidance for 2019 at a Glance

Key figure	Guidance 2019	2018
Sales in € million	800 to 880	760.9
EBITDA in € million	20 to 50	–69.1
Capital expenditure in € million	approx. 60	40.3
Net working capital in % of sales	19 to 24	23.3
Net cash in € million	>300	305.5
EBIT in € million	Break even in the best case scenario	–151.7

SMA's sales and earnings depend on global market growth, market share and price dynamics. Our global presence and our comprehensive portfolio of products and solutions for all segments (Residential, Commercial, Utility) enable us to respond quickly to changing market conditions, offset fluctuations in demand and take advantage of developments in global photovoltaic markets. Its broad product and solution portfolio in all market segments is a major distinguishing feature for SMA. The SMA Managing Board forecasts the following performance for individual SMA segments in fiscal year 2019:

Segment Guidance for 2019 at a Glance[1]

Segment	Sales	EBIT
Home Solutions	Constant	Up slightly
Business Solutions	Up significantly	Up significantly
Large Scale & Project Solutions	Up significantly	Up significantly

[1] The overview is based on the reporting structure applicable starting 2019 which is described on page 26. The comparison includes future sales and earnings growth in the Home Solutions, Business Solutions and Large Scale & Project Solutions segments from the transfer of sales and earnings from the former Storage and Digital Energy segments.

Extensive Cost Reduction and Sales Increase Measures Implemented

Due to high price pressure in all markets and segments as well as the postponement of large-scale PV projects as a result of the strong market decline in China and the subsequent internationalization of Chinese suppliers, the shortage of components and bottlenecks in battery production, SMA suffered significant sales and earnings losses last year. The SMA Managing Board also expects price pressure to increase in 2019, while delivery bottlenecks for components and batteries have since largely been overcome. To quickly and sustainably return SMA to profitability under these changes in conditions, the Managing Board at an early stage decided on measures to reduce costs and increase sales, of which implementation started at the beginning of the year.

SMA will sell its production, development and purchasing units in China to local management and withdraw from the Chinese market. The measure will significantly reduce fixed costs and increase capacity utilization at the Niestetal/Kassel headquarters. Other cost-cutting measures include outsourcing activities that are not part of SMA's core competencies, increasing automation and reducing product platforms to shorten development cycles and increase the proportion of components used across the portfolio. Another focus will continue to be on further reducing the cost of sales of existing products and introducing new products to the markets at significantly lower costs.

As a result of an even closer collaboration between Development, Sales and Service, SMA will focus more closely on meeting customers' needs in the future. We will provide the important customer group of installers with optimal support in their end customer business by means of targeted partner programs and the delivery of complete system packages, which, in addition to solar and battery inverters, include battery storage, energy management and design software as well as customized services. In the first quarter of 2019, the first packages for private residential PV systems and commercial applications have already been introduced in the target markets of Germany and Italy. We will continue to expand our range in this area and further develop SMA into a provider of systems and solutions.

SMA Positions Itself in Key Future Fields [1]

SMA will also continue to drive forward its position as a leading provider in other important future fields, such as energy management, storage integration, PV system repowering and digital business models. As a result of the megatrends of climate change, decentralization and digitalization, these areas will become increasingly important in the years to come.

SMA is well positioned to benefit from these trends in all market segments and regions. No other competitor has similar international presence combined with similar extensive technical expertise that encompasses all PV applications. In addition, our total installed inverter output of around 75 GW worldwide is a particularly good foundation for databased business models, as inverters are the most suitable sensors for compiling valuable energy data. Our extensive knowledge of managing complex battery-storage systems and linking solar power systems with other energy sectors, such as heating, ventilation and cooling technology and e-mobility, is an excellent basis for developing future growth potential for digital energy solutions.

Our subsidiary coneva develops white label solutions for public utility companies, which integrate both prosumers and traditional energy customers of utility companies into the world of digital energy and enable them to use energy simply and cost-effectively. The individual solutions for commercial customers range from monitoring energy flows and optimizing energy costs across all sectors to matching supply and demand on the energy management platform ennexOS developed by SMA. coneva has already launched and implemented its first successful projects in both segments.

The range of services offered by SMA Energy Data Services was presented at the E-world trade fair in February 2019. Based on real-time data from more than 1.5 million devices registered on the SMA energy data platform, SMA offers customized solutions in the areas of network operation and planning, marketing of solar power and energy management for grid operators, energy traders, direct marketers and forecasting service providers.

We Will Take Advantage of the Opportunities Posed by Digitalization [1]

Thanks to our extensive experience in PV system technology, ability to quickly implement changes and our numerous strategic partnerships, SMA is well prepared for the digitalization of the energy industry. As a specialist in complete solutions in the energy sector, we will launch a number of innovations and establish new strategic partnerships to take advantage of opportunities that arise from business models as part of the digitalization of the energy industry. The energy management platform ennexOS will enable us to cope with the complexity of the energy system of the future and to generate considerable added value for our customers. We will build on our unique strengths and design additional system solutions for decentralized energy supplies based on renewable energy. We will be helped in this endeavor by SMA's extraordinary corporate culture and our motivated employees who make a decisive contribution to the Company's long-term success and are therefore also given a share in SMA's financial success.

Niestetal, March 5, 2019

SMA Solar Technology AG
The Managing Board

[1] This section is not a mandatory component of the management report as defined in Section 315 HGB in conjunction with GAS 20, and therefore not a subject of the financial audit.

OTHER ELEMENTS OF THE COMBINED MANAGEMENT REPORT

The following sections are elements of the Combined Management Report:

→ The Corporate Governance Statement in accordance with Sections 289a and 315d HGB starting on page 15

→ Information Concerning Takeovers starting on page 18

→ The Remuneration Report starting on page 20

CONSOLIDATED FINANCIAL STATEMENTS

INCOME STATEMENT SMA GROUP

in €'000	Note	2018	2017
Sales	3	**760,934**	**891,046**
Cost of sales [1]		688,856	691,492
Gross profit		**72,078**	**199,554**
Selling expenses		52,786	48,227
Research and development expenses		68,304	64,554
General administrative expenses		55,244	54,086
Other operating income	4	35,451	49,822
Other operating expenses		82,905	38,412
thereof impairments according to IFRS 9		*11,918*	*711*
Operating profit (EBIT)		**–151,710**	**44,097**
Result from at equity-accounted investments		–13,134	–1,740
thereof impairments		*–11,297*	*0*
Financial income		2,125	4,842
Financial expenses		3,662	3,355
Financial result	6	**–14,671**	**–253**
Profit before income taxes		**–166,381**	**43,844**
Income taxes	7	9,106	13,407
Profit from continuing operations		**–175,487**	**30,437**
Profit from discontinued operation		0	–289
Consolidated net result		**–175,487**	**30,148**
of which attributable to shareholders of SMA AG		–175,487	30,148
Earnings per share, basic/diluted (in €)	8	–5.06	0.87
thereof from continuing operations (in €)		–5.06	0.88
thereof from discontinued operation (in €)		0.00	–0.01
Number of ordinary shares (in thousands)		34,700	34,700

1 Thereof extraordinary impairment loss for development projects of €29.5 million (2017: €0.2 million)

STATEMENT OF COMPREHENSIVE INCOME SMA GROUP

in €'000	Note	2018	2017
Consolidated net result		**–175,487**	**30,148**
Unrealized gains (+)/losses (–) from currency translation of foreign subsidiaries		597	–5,070
Changes recognized outside profit or loss (currency translation differences) [1]		**597**	**–5,070**
Cash flow hedges before taxes		0	14,910
Deferred taxes related to cash flow hedges		0	–4,562
Cash flow hedges after income taxes [1]		**0**	**10,348**
Overall comprehensive result [1]		**–174,890**	**35,426**
of which attributable to shareholders of SMA AG		–174,890	35,426

1 All items of other comprehensive income may be reclassified to profit or loss.

BALANCE SHEET
SMA GROUP

in €'000	Note	2018/12/31	2017/12/31
ASSETS			
Intangible assets	9	36,351	70,931
Fixed assets	10	198,884	212,552
Investment property	12	16,212	16,979
Other financial investments		2	2
Investments in associates	11	0	13,134
Deferred taxes	7	31,928	44,658
Non-current assets		**283,377**	**358,256**
Inventories	13	193,795	164,983
Trade receivables	14	108,375	160,001
Other financial assets (total)	15	185,379	248,546
Cash equivalents with a duration of more than 3 months and asset management		177,509	225,422
Rent deposits and cash on hand pledged as collaterals		3,364	9,853
Remaining other financial assets		4,506	13,272
Receivables from tax authorities (total)		36,285	38,328
Claims for income tax refunds	7	20,637	20,476
Claims for VAT refunds	14	15,648	17,852
Other receivables	14	7,469	10,061
Cash and cash equivalents	16	142,637	234,853
		673,939	**856,772**
Assets classified as held for sale	17	31,952	1,180
Current assets		**705,892**	**857,952**
Total assets		**989,269**	**1,216,208**

in €'000	Note	2018/12/31	2017/12/31
LIABILITIES			
Share capital		34,700	34,700
Capital reserves		119,200	119,200
Retained earnings		270,582	457,616
SMA Solar Technology AG shareholders' equity	18	**424,482**	**611,516**
Provisions [1]	19	65,657	91,427
Financial liabilities [2]	20	15,013	18,095
Other liabilities [1] (total)		163,835	163,410
Contract liabilities	23	161,769	159,454
Other financial liabilities	22	0	532
Remaining other liabilities	23	2,066	3,424
Deferred taxes	14	10	12,287
Non-current liabilities [3]		**244,515**	**285,219**
Provisions [1]	19	91,368	64,622
Financial liabilities [2]	20	5,402	2,725
Trade payables		110,851	130,433
Income tax liabilities	14	4,106	12,152
Other liabilities [1] (total)		77,220	109,541
Human Resources department	23	15,289	24,062
Contract liabilities (prepayments received)	23	13,928	26,658
Contract liabilities (other)	23	38,322	34,284
Other financial liabilities (current)	22	741	15,388
Remaining other liabilities (current)	23	8,940	9,149
		288,947	**319,473**
Liabilities directly associated with assets classified as held for sale		31,325	0
Current liabilities [4]		**320,272**	**319,473**
Total equity and liabilities		**989,269**	**1,216,208**
Total cash (in € million)		324	470
Cash and cash equivalents with a duration of more than 3 months and asset management + rent deposits and cash on hand pledged as collaterals			
Net cash (in € million)		305	450
Total cash – current and non-current financial liabilities			

1 Not interest-bearing
2 Includes not-interest-bearing current and non-current derivatives amounting to €2.0 million (2017: €0.4 million)
3 In the previous year's balance sheet, other non-current liabilities" include "Remaining other liabilities" (€6,893k) and "Accrual item for extended warranties" (€155,985k). The "Accrual item for extended warranties" was renamed "Contract liabilities" in the financial year. Furthermore, in the previous year column "Remaining other liabilities" (€3,469k) were reclassified to "Contract liabilities".
4 In the previous year's balance sheet, "Other financial liabilities" (€19,454k) and "Remaining other liabilities" (€39,367k) were reported under "Other current liabilities". In the Annual Report, €4,066k of the "Other financial liabilities" and €30,218k "Remaining other liabilities" are summarized under "Other contract liabilities" in the previous year's column.

STATEMENT OF CASH FLOWS SMA GROUP

in €'000	Note	2018	2017
Consolidated net result		–175,487	30,438
Income taxes		9,106	13,407
Financial result		14,671	253
Depreciation and amortization of fixed assets and intangible assets		82,610	53,199
Change in provisions		975	–20,994
Result from the disposal of assets		803	527
Change in non-cash expenses/revenue		39,547	378
Interest received		1,412	4,023
Interest paid		–882	–1,209
Income tax paid		–12,144	4,113
Gross cash flow		**–39,389**	**84,134**
Change in inventories		–57,862	–2,197
Change in trade receivables		39,458	3,661
Change in trade payables		–19,581	21,530
Change in other net assets/other non-cash transaction		23,106	9,635
Net cash flow from operating activities		**–54,268**	**116,763**
Payments for investments in fixed assets		–20,234	–13,387
Proceeds from the disposal of fixed assets		863	1,429
Payments for investments in intangible assets		–20,091	–19,808
Proceeds from the disposal of intangible assets		0	24
Proceeds from the disposal of available for sale assets net of cash		0	16,624
Proceeds from the disposal of securities and other financial assets		118,553	49,000
Payments for the acquisition of securities and other financial assets		–71,732	–115,050
Net cash flow from investing activities		**7,359**	**–81,168**
Redemption of financial liabilities		–2,376	–2,477
Dividends paid by SMA Solar Technology AG		–12,145	–9,022
Net cash flow from financing activities		**–14,521**	**–11,499**
Net increase/decrease in cash and cash equivalents		–61,430	24,096
Changes due to exchange rate effects		–93	–5,367
Cash and cash equivalents as of January 1		234,853	216,124
Less cash and cash equivalents of available for sale assets		**30,693**	**0**
Cash and cash equivalents as of December 31	27	**142,637**	**234,853**

STATEMENT OF CHANGES IN EQUITY SMA GROUP

in €'000	Note	Share capital	Capital reserves	Difference from currency translation	Cash flow hedges	Other retained earnings	Consolidated shareholders' equity
Shareholders' equity as of January 1, 2017		**34,700**	**119,200**	**8,750**	**–10,348**	**432,810**	**585,112**
Consolidated net result						30,148	30,148
Other comprehensive income after tax	18			–5,070	10,348	0	5,278
Overall result							35,426
Dividend payments of SMA Solar Technology AG						–9,022	–9,022
Shareholders' equity as of December 31, 2017		**34,700**	**119,200**	**3,680**	**0**	**453,936**	**611,516**
Shareholders' equity as of January 1, 2018		**34,700**	**119,200**	**3,680**	**0**	**453,936**	**611,516**
Consolidated net result						–175,487	–175,487
Other comprehensive income after tax	18			597	0	0	597
Overall result							–174,890
Dividend payments of SMA Solar Technology AG						–12,145	–12,145
Shareholders' equity as of December 31, 2018		**34,700**	**119,200**	**4,277**	**0**	**266,304**	**424,481**

NOTES SMA GROUP

GENERAL INFORMATION

1. Basics

The Consolidated Financial Statements of SMA Solar Technology AG for the year ending December 31, 2018, were prepared in compliance with the International Financial Reporting Standards (IFRS) as adopted by the EU, as well as in compliance with the regulations of Section 315e of the German Commercial Code (HGB). The requirements of the standards applied were met completely and provide a fair view of the net assets, financial position and results of operations of SMA Solar Technology AG and its subsidiary companies included in the scope of consolidation (hereinafter: SMA Group or the Group).

The registered office of the Company is Sonnenallee 1, 34266 Niestetal, Germany. The Company is registered at the commercial court of Kassel under the trade register number HRB 3972. Shares of SMA Solar Technology AG have been traded publicly since June 27, 2008. They are listed in the Prime Standard of the Frankfurt Stock Exchange. Since September 24, 2018, the Company has been listed in the SDAX.

The Consolidated Financial Statements are prepared using the amortized acquisition cost principle. Exceptions to this are provisions, deferred taxes, derivative financial instruments and available-for-sale securities.

The income statement is classified according to the cost of sales method. The Consolidated Financial Statements were prepared in euro. Unless indicated otherwise, all amounts stated are in euro rounded to whole thousands (€'000) or millions (€ million), rounding differences may arise as a result.

The Managing Board of SMA Solar Technology AG authorized the Consolidated Financial Statements on March 5, 2019, for submission to the Supervisory Board. The Supervisory Board has the duty of reviewing the Consolidated Financial Statements and declaring whether it approves the Consolidated Financial Statements.

SMA Solar Technology AG (SMA) and its subsidiaries (SMA Group) develop, produce and sell solar inverters, transformers, chokes and monitoring systems for solar power systems. In addition, the Company offers intelligent energy management solutions and services, including the acquisition of operations and maintenance services for photovoltaic power plants (O&M business). Another business segment is digital services for the future energy supply.

More detailed information on the segments is provided in section 3.

1.1. CONSOLIDATION PRINCIPLES

All domestic and foreign subsidiaries in which SMA Solar Technology AG, directly or indirectly, has the option of controlling the financial and operating policies are included in the Consolidated Financial Statements of the SMA Group. The included statements are prepared based on uniform principles.

An associate is a company over which the Group exercises significant influence. Significant influence means the option to participate in the financial and operating policy decisions of the company in which the investment is held, but not to exercise control or joint control over the decision-making processes.

Non-controlling interests are recognized at the proportionate value of the assets acquired and liabilities assumed. They are not accounted for at fair value.

1.2. SCOPE OF CONSOLIDATION

Investment holdings within the scope of consolidation as of December 31, 2018, changed in comparison with December 31, 2017, as a result of the disposal of SMA Solar Technology Portugal, Unipessoal Lda. In fiscal year 2018, there were two additions due to the founding of the companies SMA Solar Technology de México S. de R.L. de C.V and emerce GmbH. Zeversolar New Energy GmbH was renamed coneva GmbH and changed its business purpose. coneva GmbH focuses on the development and performance of services in connection with energy generation, storage, transportation and consumption, and related technology platforms. The 10% investment in IdE Institut dezentrale Energietechnologien gemeinnützige GmbH was disposed of in 2017. With the exception of Tigo Energy, Inc., all companies within the scope of consolidation are fully consolidated. Tigo Energy, Inc. is recognized as an associate in the Consolidated Financial Statements according to the equity method. The UNIKIMS GmbH entitled to investments in the list of shareholdings is not consolidated due to its subordinate importance.

The scope of consolidation of the SMA Group is presented in the complete list of shareholdings shown below pursuant to Section 313 of the German Commercial Code:

Name of parent company	Registered office	Share in capital	Consolidation
SMA Solar Technology AG	Niestetal, Germany		F
Shares in affiliated companies			
coneva GmbH	Munich, Germany	100%	F
emerce GmbH	Fritzlar, Germany	100%	F
SMA America Holdings, LLC	Denver, U.S.	100%	F
SMA America Production, LLC	Denver, U.S.	100%[3]	F
SMA Solar Technology America LLC	Rocklin, U.S.	100%[3]	F
SMA Australia Pty. Ltd.	North Sydney, Australia	100%	F
SMA Benelux BVBA	Mechelen, Belgium	100%[1]	F
SMA France S.A.S.	Saint Priest, France	100%	F
SMA Ibérica Tecnología Solar, S.L.	Sant Cugat del Vallès (Barcelona), Spain	100%	F
SMA Immo Beteiligungs GmbH	Niestetal, Germany	100%	F
SMA Immo GmbH & Co. KG	Niestetal, Germany	100%	F
SMA Italia S.r.l.	Milan, Italy	100%	F
SMA Japan Kabushiki Kaisha	Tokyo, Japan	100%	F
SMA Magnetics Sp.z o.o	Zabierzów, Poland	100%	F
SMA Middle East Limited	Abu Dhabi, United Arab Emirates	100%	F
SMA New Energy Technology (Jiangsu) Co., Ltd.	Suzhou, China	100%	F
Australia Zeversolar New Energy Pty. Ltd.	Sydney, Australia	100%[3]	F
SMA New Energy Technology (Yangzhong) Co., Ltd.	Yangzhong, China	100%[3]	F
Zeversolar GmbH	Munich, Germany	100%[3]	F
SMA New Energy Technology (Shanghai) Co., Ltd.	Shanghai, China	100%	F
SMA Solar Beteiligungs GmbH	Niestetal, Germany	100%	F
SMA Solar India Private Limited	Mumbai, India	100%[1]	F
SMA Solar Technology Beteiligungs GmbH	Niestetal, Germany	100%	F
SMA Solar Technology Canada Inc.	Vancouver, Canada	100%	F
SMA Solar Technology de México S. de R.L. de C.V	Guadalajara, Mexico	100%	F
SMA Solar Technology South Africa (Pty.) Ltd.	Cape Town, South Africa	100%	F
SMA Solar (Thailand) Co., Ltd.	Bangkok, Thailand	100%[2]	F
SMA Solar UK Ltd.	Banbury, Great Britain	100%	F
SMA South America SpA	Santiago, Chile	100%	F
SMA Brasil Tecnologia Ferroviária e solar Ltda.	Itupeva, Brazil	100%[3]	F
SMA Sub-Sahara Production Pty. Ltd.	Cape Town, South Africa	100%	F
SMA Sunbelt Energy GmbH	Niestetal, Germany	100%	F
SMA Technology Hellas AE	Athens, Greece	100%[1]	F
SMA Technology Korea Co., Ltd.	Seoul, South Korea	100%	F
Investments			
UNIKIMS GmbH	Kassel, Germany	9.6%	N
Tigo Energy, Inc.	Los Gatos, USA	28.27%	R

F = fully consolidated; N = not consolidated; R = recognized at equity
1 0.1% are held by SMA Solar Technology Beteiligungs GmbH.
2 0.001% are held by SMA Solar Technology Beteiligungs GmbH and 0.001% are held by SMA Solar UK Ltd.
3 Indirect investment

SMA Solar Technology AG, SMA Magnetics Sp.z.o.o, SMA New Energy Technology (Jiangsu) Co., Ltd. and SMA New Energy Technology (Yangzhong) Co., Ltd. are manufacturing companies. The others are sales and service companies.

All SMA Group companies prepare their annual Financial Statements as of December 31, with the exception of our Indian subsidiary SMA Solar India Private Limited, which prepares its Financial Statements as of March 31 due to statutory regulations.

The companies SMA Immo GmbH & Co. KG (Section 264b German Commercial Code – HGB) and SMA Solar UK Ltd. (Section 479A Companies Act 2006) exercised exemption clauses regarding the preparation and publication of Financial Statements.

1.3. TRANSLATION OF FINANCIAL STATEMENTS INTO FOREIGN CURRENCIES

The Consolidated Financial Statements are prepared in euro, which is the reporting currency of the Group. Each company within the Group defines its own functional currency, which is normally the local currency. The items contained in the Financial Statements of each company are valued using this functional currency.

Transactions denominated in foreign currencies are translated initially into the functional currency by applying the spot rate valid at the time of the transaction. On each subsequent due date, monetary assets and liabilities denominated in foreign currencies are translated into the functional currency by applying the spot rate valid on that day. All translation differences are recognized through profit or loss.

Assets and liabilities of subsidiaries preparing their balance sheets in a currency other than the euro are translated using the current exchange rate on the balance sheet date. Items on the income statement are translated periodically using the average rate of the relevant month. The equity components of subsidiaries are translated at the corresponding historical exchange rate applicable upon accrual. Any resulting translation differences are recorded under other income within equity as adjustment items for foreign currency translation or in shares of other shareholders. The accumulated amount recorded in equity is recognized through profit or loss upon the disposal of the foreign subsidiary concerned.

2. Accounting Principles and Amendments to Accounting Standards

2.1. NEW IASB ACCOUNTING STANDARDS AND INTERPRETATIONS TO BE APPLIED FOR THE FIRST TIME IN THE FISCAL YEAR

IFRS 9 Financial Instruments

SMA applied IFRS 9 for the first time to the fiscal year starting on January 1, 2018. This first-time application was retrospective. There were no amendments. In accordance with the transitional provisions, SMA has chosen the option of continuing to present comparative information pursuant to IAS 39.

A standardized model is used to determine the measurement categories for financial assets and financial liabilities in accordance with IFRS 9. In the classification of financial assets, a distinction is made between the measurement categories "Amortized Cost," "Fair Value through other Comprehensive Income" and "Fair Value through Profit or Loss." Equivalent categories can be used for financial liabilities. For financial liabilities, categories "at Amortized Cost" and "at Fair Value through Profit or Loss" may occur. All items are categorized in accordance with IFRS 9. With respect to SMA, there will be no changes to balance sheet disclosures other than the changes to the categories for classification, reference to section 24, Financial Instruments. Financial assets whose cash flows consist solely of interest and repayments are classified according to the business model. Financial assets held within a business model intended to hold the asset in order to collect the contractual cash flows are measured at amortized cost. The management of these business models is based on the interest rate structure and the credit risk. Currently, no assets are held in business models that provide for a disposal and would therefore be measured at fair value through profit or loss. Financial assets that contain only interest and repayments but are not allocated to any of the aforementioned business models would be measured at fair value through profit or loss. As such, reconciliation of book values from December 31, 2017 to January 1, 2018, as provided for by IAS 39 and IFRS 9 will not be presented. There were no changes to the evaluation standards.

Minor effects have also arisen, particularly from the new impairment provisions according to IFRS 9. For the majority of the financial instruments that come under the impairment regulations at SMA, trade receivables without a significant financing component, the standard mandatorily stipulates a simplified two-level model. Under this model, a risk provision in the amount of the expected losses over the remaining term is recognized for all instruments, irrespective of their credit quality. The amount of the risk provision at level 2 is calculated based on a flat rate. This rate is applied to the entire SMA Group, as there are no different default rates for different regions or business units. As a result of the application of IFRS 9, the rate has improved from 0.47% to 0.44%. When determining the default rate, a looking-forward component is taken into account, in the sense that SMA is in a very volatile environment and, despite all market fluctuations and changes, there were no significant influences on the default rates of the receivables. Due to the management assessment, no change is expected in the future.

As described, trade receivables are all allocated to level 2 on acquisition and are transferred to level 3 if there are objective indications of impairment. Despite the general focus on internal risk management, it is assumed that a default event occurs at the latest when a receivable is 90 days past due. However, this assumption can be disproved based on suitable information. Because high-risk receivables are collateralized and high-risk customers receive services only if they pay in advance, the level of bad debt losses in the Group is not significant (less than 1% of receivables). For this reason, a default event is not assumed until the receivable is 180 days past due.

Receivables are impaired after being overdue. For all other financial instruments (cash and cash equivalents, debt securities [non-market-traded], rent collateral and pledges, time deposits and other short-term deposits [> 3 months], non-current assets) that fall under the impairment requirements of IFRS 9, the general Model applied., Additional information on default risk and expected credit losses of the relevant balance sheet items (cash and cash equivalents, bonds [non-market-traded], rental collateral and pledges, time deposits and other short-term deposits [> 3 months], contractual assets) is waived for materiality reasons.

Application of IFRS 15 Revenue From Contracts With Customers

SMA has applied the new IFRS 15 as the central standard for revenue recognition since January 1, 2018. The retrospective modifying method is used, which means that no contract modifications have been carried out. SMA applies the 5-step approach according to IFRS 15 to different sources of revenue. If necessary, the customer contracts are divided into separate performance obligations. The assessment of whether a performance obligation will be satisfied at a point in time or over time is also contractual.

SMA recognizes revenue from goods deliveries with transfer of control to the customer at a point in time in line with contractually agreed Incoterms. This policy is applied to all products across all segments. Transfer of control is also based on the agreed Incoterm for part deliveries in customer projects. Prepayments for part deliveries are recognized as contractual liabilities (prepayments received) within other liabilities. For transportation services, which constitute a performance obligation in their own right, revenue is recognized on a time proportion basis. Sales revenue from services, provided these services are not rendered over time, is recognized at the point in time at which the obligation to the customer is satisfied in accordance with IFRS 15.38. Sales from services recognized at a point in time are generated by SMA when commissioning large-scale projects and carrying out repair orders. Revenue from services rendered over time, including extended warranty or service/maintenance contracts, is recognized over the contractual periods to which these services relate according to the output-based customer perspective. The output-based method leads to an accurate presentation as it best represents the value of the goods and services transferred in the context of the constant commitment to the customer. Cash inflows received in advance do not contain any material finance components. They are the result of a number of end-customer contracts each with small individual contract volumes. With regard to the delivery of goods, in the Residential and Commercial segments full payment is made on delivery depending on the transfer of control, while in the Utility segment advance payments on deliveries are often made in addition to this. These are recognized in revenue upon full delivery depending on the transfer of control. Services provided over time, such as extended warranties in the Residential and Commercial segments, are paid mainly in full in advance. They are reported as non-current contractual obligations and recognized in revenue over the contractual term. Service and maintenance contracts in the Utility segment are paid beforehand over shorter periods, generally for a period of 12 months. Over this period, they are recognized in revenue in line with the passage of time. There were no significant changes in the balances of assets and contractual obligations as defined in IFRS 15.118 in 2018. Depending on the region and product group, SMA products are sold with a factory warranty of 2, 5, 10 or 25 years. The factory warranty includes the statutory warranty and grants the right to an exchange or replacement in the case of defects that are not caused by external factors.

There are no general rights of return for purchased products. Transaction prices are not adjusted retroactively.

Customer bonuses in the Residential segment are reported as contractual liabilities. The reported sales revenue and impairment on receivables relate exclusively to items from contracts with customers as defined in IFRS 15. Contract assets arising from contracts with customers are currently reported under the balance sheet item "Other financial assets" (December 31, 2018: €0.04 million).

In the case of customer contracts under which multiple performance obligations recognized at different points in time are sold for a single transaction price or a discount has to be assigned, there is an allocation of the transaction price. This allocation is based on the ratio between the individual sale prices, which are determined based on historical prices for comparable customers in comparable circumstances. If different options are available, the probability of their being exercised is assessed based on comparable cases. As of December 31, 2018, sales of €2.1 million were deferred; these will be recognized in revenue over a period of five years. These sales were generated in connection with a temporary campaign in which products were offered together with the promise of an extended warranty, with no separate fee being charged for the extended warranty. As of December 31, 2018, the total amount of outstanding performance obligations came to €578.0 million (December 31, 2017: €651.4 million).

STANDARDS AND INTERPRETATIONS THAT HAVE BEEN PUBLISHED BUT NOT YET MANDATORY

In its 2018 Consolidated Financial Statements, SMA did not apply the following accounting standards, which had already been adopted by the IASB but were not yet mandatory for this fiscal year.

They will be implemented in the year of compulsory first-time application if they are implemented and applied in the EU. Earlier application is not permitted.

IFRS 16 Leases

IFRS 16 replaces the existing IAS 17 and accompanying interpretations. IFRS 16 applies to reporting periods beginning on or after January 1, 2019. For lessees, the new standard provides an accounting model that does not differentiate between operating and finance leases. In the future, most leases will thus have to be recognized on the balance sheet. For lessors, the regulations of IAS 17 Leases are largely unchanged, so the distinction between finance and operating leases has to be retained, resulting in different consequences for accounting. The Group will mainly be affected as a lessee. At present, the Group has around 600 rental and lease contracts. Only a small portion of them constitute leases of low-value assets in accordance with IFRS 16.B3-B8. The "right-of-use-method" entails capitalizing rights of use and corresponding recognition of lease liabilities within a range of €20 million to €25 million. The equity ratio and gearing will be affected accordingly. Within the income statement, IFRS 16 will lead to adjustment between other operating expenses, depreciation and amortization as well as financial expenses, and have a positive effect on EBIT and EBITDA.

IFRS 17 Insurance Contracts

The new IFRS 17 standard was published in May 2017. It has yet to be endorsed for use in the EU. The standard will not be applied by the Group.

Amendments to the references in the conceptual framework

The Amendments apply to IFRS 2, IFRS 3, IFRS 6, IFRS 14, IAS 1, IAS 8, IAS 34, IAS 37, IAS 38, IFRIC 12, IFRIC 19, IFRIC 20, IFRIC 22 and SIC-32. The amendments have to be applied for the first time for annual periods beginning on or after January 1, 2020. Earlier application is permitted. It has yet to be endorsed for use in the EU.

Amendments to IFRS 3 Business Combinations

The IASB has published "Definition of a Business Operation." This definition is intended to solve the problems that arise in connection with assessing whether a company has acquired a business operation or a group of assets. The amendments are applicable to business combinations for which the acquisition date is on or after the start of the first annual reporting period beginning on or after January 1, 2020.

Amendments to IFRS 10 Consolidated Financial Statements and IAS 28 Investments in Associates

These amendments clarify that in transactions involving associates or joint ventures, the extent of gain or loss recognition depends on whether the assets sold or contributed constitute a business. Mandatory application of these amendments has been postponed indefinitely in the EU.

Amendments to IAS 19 Plan Amendment, Curtailment or Settlement

In February 2018, the IASB published amendments to IAS 19 Employee Benefits. The amendments relate to accounting for an amendment, curtailment or settlement of a defined benefit pension plan. The new provisions are aimed at standardizing the accounting practice, which is currently inconsistent in some cases, and providing information that is more relevant to decision-making. The standard will not be applied by the Group.

Amendments to IAS 1 and IAS 8 Definition of Material

On October 31, 2018, the Board published amendments to the definition of materiality in IAS 1 Presentation of Financial Statements and IAS 8 Accounting Policies, Changes in Accounting Estimates and Errors. The amendment is aimed at avoiding duplication of the definition of materiality in IAS 1 and IAS 8. The amendments have to be applied for the first time for annual periods beginning on or after January 1, 2020. Earlier application is permitted.

2.2. DISCLOSURES TO THE ACCOUNTING AND VALUATION POLICIES

Intangible assets acquired with a finite useful life are valued at acquisition costs. They decline via straight-line amortization over their useful lives and accumulated impairments.

The costs for internally generated intangible assets are recognized in the period in which they accrue, with the exception of development costs that can be capitalized.

Research and development expenses include all expenses that can be attributed directly to research or development activities. Expenditure on research is recognized as expenditure in the period in which it is incurred. The development costs of a project are capitalized as an intangible asset only after SMA can demonstrate both the technical and economic feasibility of the intangible asset so that it will be available for internal use or sale and has the intention to complete the intangible asset and either use or sell it. Development costs are recognized at cost pursuant to IAS 36.66, less accumulated amortization and impairment. Amortization commences at the end of the development phase and from the moment the asset can be used. Amortization is effected over the period during which future benefit will be expected. No borrowing costs are capitalized in connection with the activation of development costs. In addition, there are currently no qualifying assets for which borrowing costs are capitalized.

Company acquisitions in previous years resulted in low **goodwill**. See also section "9. Intangible Assets". There were no other intangible assets with an indefinite useful life in the periods under review.

Intangible assets with finite useful lives are amortized on a straight-line basis over a period of three to five years, including development projects; software and licenses. Patents are written off over ten years. In the case of intangible assets with a finite useful life, the period of amortization and the amortization method are reviewed at least at the end of each fiscal year. Any adjustments to the amortization period that become necessary because of changes in the expected useful life are accounted for as changes to estimates. Amortization is recorded under the expense category that corresponds to the function of the intangible asset in the enterprise.

Any gains or losses from derecognition of intangible assets are determined as the difference between the net disposal proceeds and the book value of the asset. They are recognized in profit or loss in the period in which the asset is derecognized.

Fixed assets are valued at cost of acquisition or sales less straight-line depreciation and accumulated impairment losses. Borrowing costs are added to cost of acquisition and sales in the event of qualifying assets. The cost of replacement of a part of a fixed asset is included in the book value of this asset when incurred if the criteria for recognition are fulfilled. When major inspections are carried out, the costs are capitalized according to the book value of the relevant assets if the criteria for recognition are met. All other maintenance and repair costs are expensed immediately.

The depreciation period is based on the expected useful life. Depreciation is recognized under the expense category that corresponds to the function of assets in the enterprise. Scheduled straight-line depreciation is based on the following useful life of assets:

	Useful life
Leasehold improvements	10 years
Buildings	25 to 35 years
Technical equipment and machinery	6 to 8 years
Business and office equipment	5 to 10 years

A fixed asset is derecognized either upon its disposal or when no further economic benefit is expected from the further use or sale of the asset. Gains or losses from derecognition of the asset are determined as the difference between the net disposal proceeds and the book value of the asset. This difference is recognized through profit or loss in the income statement as other operating income or other operating expenses when the asset is sold.

The residual values, useful lives and depreciation methods are reviewed at the end of each fiscal year and adjusted if necessary.

Fixed assets that are held to generate rental income are recognized as "Investment Property" in accordance with IAS 40. Investment properties must be capitalized at cost on acquisition. SMA recognizes investment properties at amortized cost. An opinion on the determination of the market value has been drawn up. The market value of the property was determined on the basis of a tax valuation method. The main input parameters are the discount rate, estimated vacancy and the development of market rents and the method reflects a level 3 rating in the sense of IFRS 13. The market value corresponds to the highest and best benefit of the property. The market value thus measured is €16.4 million (2017: €23.7 million). Please refer to the explanations in "12. Investment roperty".

Fixed assets that constitute non-current assets held for sale and discontinued operations are classified as held for sale according to IFRS 5. The condition is that the associated book value is realized largely through disposal and not through continued use. On the date of classification, these assets are measured at the lower value of book value and fair value less costs to sell, and no longer depreciated or amortized.

Impairment of intangible assets and fixed assets: On each balance sheet date, the Group reviews whether there are any indicators that the value of an asset might be impaired. If such indicators exist or if an annual impairment test of an asset is required, the Group determines the recoverable amount of the relevant asset. The recoverable amount of an asset is its fair value less costs to sell or its value in use, whichever is higher. As a rule, the recoverable amount will be determined for each individual asset. If it proves impossible to determine the recoverable amount for individual assets because the cash flows depend on those of other assets, the cash flows are determined for the next higher group of assets (cash-generating unit). In assessing the value in use, the estimated future cash flows are discounted to their present value using a pretax discount rate that reflects current market assessments regarding the interest effect and the risks specific to the asset. To determine the fair value less costs to sell, an adequate valuation model is used. This is based on valuation multipliers, market prices of quoted shares or other available indicators.

If the book value of an asset or a cash-generating unit exceeds the recoverable amount, impairment is recognized for the asset or the cash-generating unit in question, and it is written down to the recoverable amount. Impairment costs are recognized under the expense category that corresponds to the function of the impaired asset in the enterprise. In fiscal year 2018, impairment on development projects amounting to €29.5 million (2017: €0.0 million) was taken into account. See also section 9, Intangible Assets.

For assets, a test is carried out on each balance sheet date to determine whether a previously recognized impairment loss has ceased to exist or has diminished. Additions are made if the recoverable amount has increased in subsequent periods. An impairment loss recognized in prior periods is reversed only if there have been significant changes to the measurement parameters used to originally determine the asset's recoverable amount since the last impairment loss was recognized. If this is the case, the book value of the asset is increased to as much as its recoverable amount. However, an addition is limited to the amount that would have resulted based on scheduled depreciation without recognizing an impairment. The addition is recognized in the income statement. Impairment on goodwill is not reversed. This was not the case in the year under review or in the previous year.

Inventories are measured at the lower value of the cost of acquisition or sales and net realizable value. The costs of acquisition or production include all costs incurred during acquisition and production as well as other costs incurred in bringing the inventories to their present location and condition. Borrowing costs are not taken into account here. In general, when determining the acquisition costs of raw materials, consumables and supplies, moving average prices are used. The cost of sales of work in progress and finished goods is determined using detailed cost accounting. The net realizable value consists of the estimated sales proceeds that can be achieved through the ordinary course of business, less the estimated costs incurred up to completion and the estimated necessary selling expenses. Value adjustments are particularly made in the case of a lack of standardization, discontinued products and surplus stocks of non-product-specific materials. A time horizon of 36 months is used to carry out range analyses. If the reasons that have resulted in an impairment of inventories no longer exist, a corresponding addition is made.

As a rule, **financial instruments** are reported as soon as an entity of the SMA Group becomes a contracting party to a financial instrument. A financial instrument is a contract that gives rise to both a financial asset held by one entity and a financial liability or an equity instrument held by another entity. If the trading date and the settlement date of financial assets are different, then the settlement date is decisive for initial recognition. The date of contract conclusion is only decisive in the case of financial derivatives.

Financial assets and financial liabilities are measured at fair value upon their initial recognition. Financial instruments are also designated to measurement categories in accordance with IFRS 9. Further explanations are provided in section 24, Additional Disclosures Relating to Financial Instruments. If permitted and necessary, redesignations are made at the end of the fiscal year. In the case of financial instruments for which there is no measurement at fair value through profit or loss, the transaction costs that are directly attributable to the purchase of the financial asset or to the issue or assumption of the financial liability are also included. These are those directly attributable to the acquisition of the financial asset or the issue of financial liabilities.

Financial instruments are generally stated separately. They are netted only if there is a right of offsetting them on the relevant date and also if the intention is to perform the settlement on a net basis.

Their subsequent measurement is based on the previous categories pursuant to IFRS 9. For the SMA Group, the measurement categories "Amortized Cost" and "Fair Value through Profit or Loss" are particularly relevant. Any loans and receivables granted and other financial liabilities are measured at amortized cost of acquisition using the effective interest method.

Assets measured "At Fair Value through Profit or Loss" are measured at fair value. These primarily include derivative financial instruments that are not part of an effective hedging relationship. Derivative financial instruments are reported as assets or liabilities if their fair values are positive or negative. Gains and losses resulting from changes in the fair value of derivative financial instruments are recognized directly through profit or loss, as long as no hedging relationship was created for them. Gains or losses resulting from subsequent measurement are recognized through profit or loss in the Income Statement.

At each reporting date, the accounting values of the financial assets, which are not measured at fair value through profit or loss, are then examined to see whether objective evidence indicates an impairment. Any impairment loss, which is based on a lower value than the carrying amount, is recognized in the Income Statement.

A financial asset is removed from the books if the enterprise has relinquished control of the contractual rights related to the financial asset. A financial liability is removed from the books if the obligation underlying the liability is discharged, cancelled or has expired.

Government grants are not recognized until there is reasonable assurance that SMA will meet all the conditions for receiving the grants. Government grants are initially recognized directly in equity. They are to be recognized through profit or loss in line with planning along with the corresponding expenses to be offset by the grants. Government grants that are paid to compensate for expenses or losses already incurred or to provide immediate financial support without directly associated expense are recognized in the income statement in the period in which the corresponding claim arises.

Provisions account for all recognizable present (legal and constructive) obligations of the Group to third parties as a result of past events that are expected to lead to an outflow of resources with an economic benefit to settle the obligation and the amount of which can be estimated reliably. Provisions are recognized in line with IAS 37 at the estimated amount required to settle them. Insofar as the Group expects to receive a repayment, at least in part, for a reported provision (such as for an insurance contract), the repayment is recorded as a separate asset if the inflow of the payment is highly probable. The expense arising from the formation of the provision is recognized in the Income Statement. Non-current provisions are carried in the balance sheet at their settlement amount discounted to the balance sheet date using corresponding term-dependent market interest rates. If the amount is discounted, the increase of provisions caused by expiration is recorded under finance costs. Additions to the provisions for guarantees outlined under 19. "Provisions" are recognized in cost of sales. It is not carried out by a delimitation of revenue. In addition to individual circumstances, provisions for general warranty risks are also taken into account when setting aside provisions for warranty obligations. In the case of warranty risks, an obligation of five to ten years is generally adopted as a base. Due to the implementation of a quality management project in the current fiscal year with regard to the measurement of default rates over the entire warranty period as well as the improved possibility to obtain statistically relevant data available for the first time on Company products sold, the estimation regarding future expenses could be concretized. Calculation of the warranty provision based on this updated information results in a positive deviation of €33.5 million as compared to calculation based on the previous estimate. This constitutes a change in an estimate as defined in IAS 8.

The determination as to whether an agreement contains a **lease** is made based on the economic content of the agreement on the date of its conclusion. This requires an assessment of whether fulfillment of the agreement depends on the use of a specific asset or specific assets and whether the agreement grants a right to use the asset. Where an operating lease exists, the substantial rewards and risks regarding the leased object are retained by the lessor. Lease payments on operating leases are recorded on a linear basis over the term of the lease as an expense in the Income Statement.

Employee benefits are usually reported as a liability if an employee has provided work in exchange for benefits payable in the future and are recognized as an expense if the entity has received the economic benefit resulting from the work provided by an employee in exchange for future benefits.

Long-service and death benefits are granted on the basis of a company agreement. Measurement of obligations to pay benefits is carried out by applying the projected unit credit method. This method takes into account both the claims for payment of long-service rewards and death benefits and the acquired pension rights known as of the balance sheet date, and payments of long-service rewards and death benefits expected in the future.

In 2009, SMA Solar Technology AG introduced value-based lifelong working-time accounts. Under certain conditions, employees may have time credits or special benefits reposted to these value accounts. They may take paid leave of absence at a later date using the credit balances extrapolated. The employees' value claims are protected against insolvency and are reinsured.

Revenue is recognized if it is probable that the economic benefit will flow to the Group and the amount of the revenue can be measured reliably. Revenue is measured at the fair value of the consideration received. Discounts, rebates and other deductions are taken into account. Revenue from the sale of goods and products is recognized if the material rewards and risks associated with the ownership of the goods and products sold have passed to the buyer. This is the case upon delivery of goods and products or handover from the carrier, depending on the contractually agreed Incoterms. Revenue from services is recognized as soon as the services are rendered. In the case of multi-year service contracts, the recognition of revenue is spread over the contract term. Interest income is recognized when an interest claim has accrued (using the effective interest rate, i. e., the internal rate used to discount estimated future cash inflows over the expected term of the financial instrument to the net book value of the financial asset). In the previous year, sales were recognized as per IAS 11. This related to a single fixed price contract that was processed during the previous year. The degree of completion was calculated over the course of the year as a ratio of total costs and costs incurred. Dividend income is recognized when the right to receive payment is established.

Current tax receivables and tax liabilities for the ongoing and for previous periods are measured at the amount which is expected to be reimbursed by the tax authority or to be paid to the tax authority. Tax rates and tax laws applicable on the balance sheet date are used to calculate this amount. Income taxes include current and deferred taxes. Current taxes that relate to items stated directly in equity are not recognized in the income statement but rather in equity.

Deferred taxes are calculated according to IAS 12 based on the standard international balance-sheet-related liability method. This requires deferred tax items to be recognized for all temporary differences between the tax base of an asset or liability and the carrying amount in the consolidated balance sheet as well as for tax loss carryforwards. However, deferred tax assets are recognized only if there will be sufficient taxable income available in the future.

Deferred taxes are measured using the tax rates that, under current legislation, would apply in the future on the probable date of reversal of the temporary differences. The effects of amendments to tax legislation on deferred tax assets and liabilities are recognized in profit or loss in the period in which the material conditions for such amendments to come into force arise. Deferred tax assets and liabilities are not discounted according to the regulations of IAS 12. Deferred tax assets and deferred tax liabilities are offset at the same maturity, provided that they relate to the same entity.

2.3. SIGNIFICANT JUDGEMENTS, ESTIMATES AND ASSUMPTIONS

Preparation of the Consolidated Financial Statements requires the Company management to make judgements, estimates and assumptions that affect the amounts of revenues and expenses, assets and liabilities reported on the reporting date as well as the disclosure of contingent liabilities. Uncertainty related to these assumptions and estimates may lead to results that require material adjustments to the book values of the relevant assets or liabilities in the future. When applying the accounting and valuation policies, the Company management made the judgments outlined below, which had a significant effect on the amounts recognized in the Consolidated Financial Statements.

The key assumptions concerning the future and other key sources of estimation uncertainty on the reporting date associated with a significant risk of causing a material adjustment to the book values of assets and liabilities during the next fiscal year are explained below:

Development costs are capitalized when all required conditions are given. Initial capitalization of costs is based on an estimate by the Company management that a project's technical and economic feasibility has been proven. This is normally the case when a development project has reached a specific milestone or a specific quality gate in the development process. When determining the amounts to be capitalized, the Company management makes further valuation assumptions regarding the amount of expected future cash flows from assets, the discounting rates to be applied and the period of inflow of expected future cash flows generated by assets. With this in mind, development costs of €18.8 million (2017: €18.4 million) were capitalized in the 2018 fiscal year. Research and development expenses of €68.3 million (2017: €64.6 million) were incurred.

In addition to individual circumstances, **provisions** for general warranty risks are also taken into account when setting aside provisions for warranty obligations. In the case of warranty risks, an obligation of five or ten years is generally adopted as a base. The expected warranty expenditure is based on historical values in previous fiscal years. The Group's ratio is determined by comparing the Group-wide warranty costs for the past five years with the sales of the previous year's warranty. Only warranty expenditure relating to past years that has not been assigned to individual circumstances is taken into account. Individual facts are consequently no longer part of the general warranty provisions, but valued individually. The value of the provision for individual cases and general warranty risks amounted to €129 million as of December 31, 2018 (December 31, 2017: €136 million). More information is provided in section 19, Provisions. Accrued payments received for non-gratuitous warranties are collected over the warranty period as sales because, in this case, a linear progression of warranty costs is also adopted as the best possible estimation method.

With respect to **sales** from long-standing service and maintenance contracts, in the previous fiscal year an extensive project was undertaken to gain a better overview of the costs and the revenue from these contracts. Previously, sales for the warranty part of the contracts were recognized only to the extent of the expenses recognized (IAS 18.26). Enhancing the quality of reporting meant that the project benefited from having better cost statements per contract and enabled the fees received to be fully recognized in revenue. This resulted in a positive effect on earnings of €19.4 million in the previous year.

On each balance sheet date, the Group examines whether there are indicators for an impairment of non-financial assets. Estimating the value in use requires the Company management to make an estimate of the expected future cash flows from the asset or the cash-generating unit and to choose a suitable discount rate. The discounted cash flows are then used to determine the present value of the asset or cash-generating unit. In 2018, discretionary impairment losses were recognized on capitalized development projects and on the associate Tigo Energy, Inc. See also sections 9. "Intangible Assets" and 11. "Investments in Associates."

Deferred tax assets are formed for all unused tax loss carryforwards to the extent that it is probable that there will be sufficient taxable profit to enable the loss carryforwards to actually be used. Determining the amount of deferred tax assets requires the Company management to use significant discretion regarding the expected time of accrual and the amount of taxable income in the future as well as regarding future tax planning strategies. In contrast to the previous year, no deferred tax assets on loss carryforwards were recognized in the fiscal year on the basis of the current tax planning (2017: €13 million).

A significant portion of the reported assets is based on planning assumptions in the detailed three-year plan developed by the Managing Board and approved by the Supervisory Board. Significant assumptions regarding the sales performance and cost reduction and the development of different markets are therefore of considerable significance to the amount of assets.

3. Segment Reporting

The SMA Group operates under a compact and functional organization. As in the previous year, the Residential, Commercial and Utility segments are presented separately in the reporting structure. The Service business unit was integrated into the Residential & Commercial business units and the Utility business unit, subsequently, there is no longer any separate reporting for the Service segment from 2018 onward. SMA Sunbelt Energy and the Off-Grid & Storage business unit have been combined into the Storage segment. The Digital Energy reporting segment, arising from the new business area of the same name that was established in January 2018, was reported for the first time in fiscal year 2018. The previous year's figures were adjusted.

The investment approach of Tigo Energy, Inc. is not assigned to a segment because the earnings effects are allocated to the financial result.

Segment	Activities
Residential	In the **Residential segment**, SMA caters to global markets for small PV systems with and without connection to a smart home solution. The portfolio, which includes the SMA and Zeversolar brands, comprises smart module technology, single- and three-phase string inverters in the lower output range of up to 12 kW, integrated services, energy management solutions, storage systems, communication products and accessories. SMA's Residential segment also offers services, such as extended warranties, spare parts and modernization of PV systems (Repowering), to enhance performance. With this portfolio of products and services, SMA provides optimal solutions for private PV systems in all major photovoltaic markets worldwide.
Commercial	In the **Commercial segment**, the focus is on global markets for medium-sized PV systems with and without an energy management solution. Here SMA offers solutions based on the three-phase Sunny Tripower inverters with outputs of more than 12 kW as well as on inverters from the Sunny Highpower and Solid-Q product families. The Sunny Tripower inverters are compatible with the smart module technology from Tigo Energy, Inc. Holistic energy management solutions for medium-sized PV systems based on the ennexOS platform, medium-voltage technology and other accessories as well as services up to and including system modernization and operational management of commercial PV systems (O&M business) round off SMA's offering.
Utility	The **Utility segment** focuses on international PV power plant markets with its powerful string inverters in the Sunny Highpower product family and the central inverters in the Sunny Central product family. The outputs of the inverters in this segment range from 150 kW to the megawatts. In addition, the SMA portfolio in the Utility segment covers complete solutions comprising central inverters with their grid service and monitoring functions as well as all medium- and high-voltage technology and accessories. The portfolio is supplemented by services, such as for the modernization and functional enhancement of PV power plants (Repowering), and operation and maintenance services (O&M business).
Storage	The **Storage segment** is comprised of SMA's system technology for integrating battery-storage systems of all system sizes. In addition to increasing PV self-consumption to reduce electricity costs in private households and companies, the main priorities here are supplying electricity to remote areas reliably and cost-effectively as well as implementing PV diesel hybrid projects in sunbelt areas around the world and large-scale storage projects in select markets. SMA collaborates on storage integration with all leading battery manufacturers and with companies from the automotive industry.
Digital Energy	The **Digital Energy segment** comprises the subsidiaries coneva and emerce. coneva develops digital energy services for private and business customers. emerce GmbH focuses on online sales channels for select markets.

The operating result of the segments is monitored separately by the Managing Board to make decisions on the allocation of resources and to determine the profitability of the segments. Group financing, currency and interest rate hedging and the income tax burden are controlled at the Group level and are therefore not allocated to the individual operating segments.

Regarding information on geographical segments, sales are assigned to countries using the destination principle. The Company refrains from presenting non-current assets based on this classification. SMA Solar Technology AG develops and manufactures its products mainly in Germany. There are no material non-current assets tied to the production sites outside Germany in China and Poland. Accordingly, an apportionment of assets by regions is likewise not a part of internal management reporting.

The Group measures the performance of its segments through a measurement of segment profit or loss, which is referred to as EBIT in the internal management and reporting system. This measurement comprises gross profit, selling and general administrative expenses, research and non-capitalized development costs as well as other operating income (balance of other operating income and expenses).

Segment assets comprise the intangible assets attributed to each segment and its fixed assets, inventories and trade receivables. Segment liabilities include trade payables that are directly attributable to the relevant segments. Internal management reporting is in line with the accounting policies of external reporting.

The transfer prices between the business segments are determined using management prices based on usual arm's length market conditions. Income from external third parties is reported using the same valuation parameters as shown in the income statement.

No asymmetrical allocations are made to individual segments.

Financial Ratios by Segments and Regions

in € million	External product sales 2018	External product sales 2017	External services sales 2018	External services sales 2017	Total sales 2018	Total sales 2017	Operating profit (EBIT) 2018	Operating profit (EBIT) 2017
Segments[1]								
Residential	164.9	213.8	16.6	19.5	181.5	233.3	–16.6	2.8
Commercial	245.0	268.0	6.9	3.4	251.9	271.4	–11.5	0.5
Utility	231.5	245.3	34.8	43.9	266.3	289.2	–63.6	25.6
Storage	60.4	96.3	0.7	0.8	61.1	97.1	–5.6	10.0
Digital Energy	0.0	0.0	0.1	0.0	0.1	0.0	–4.2	0.0
Total segments	701.8	823.4	59.1	67.6	760.9	891.0	–101.5	38.9
Reconciliation	0.0	0.0	0.0	0.0	0.0	0.0	–50.2	5.2
Continuing operations	**701.8**	**823.4**	**59.1**	**67.6**	**760.9**	**891.0**	**–151.7**	**44.1**

in € million	Segment assets 2018	Segment assets 2017	Segment liabilities 2018	Segment liabilities 2017	Capital expenditure 2018	Capital expenditure 2017	Depreciation and amortization 2018	Depreciation and amortization 2017
Segments[1]								
Residential	65.7	42.4	1.8	1.7	4.1	2.9	6.7	5.7
Commercial	84.0	84.5	10.4	13.2	14.8	13.0	19.4	3.0
Utility	134.2	150.4	6.1	6.9	2.6	0.1	21.5	10.6
Storage	17.2	26.6	2.2	7.6	1.4	3.8	6.6	1.4
Digital Energy	0.1	0.0	0.5	0.0	0.0	0.0	0.0	0.0
Total segments	301.2	303.9	21.0	29.4	22.9	19.8	54.2	20.7
Reconciliation	656.1	911.1	512.5	575.3	17.4	13.4	28.4	32.5
Continuing operations	**957.3**	**1,215.0**	**533.5**	**604.7**	**40.3**	**33.2**	**82.6**	**53.2**

[1] Due to the reclassification of the Service segment into the segments Residential, Commercial and Utility, the former Service segment is no longer valid. In the current fiscal year, business unit SMA Sunbelt Energy and business unit Off-Grid & Storage are reported under Storage. The previous year's figures were adjusted.

Sales by regions (target market of the product)

in € million	2018	2017
EMEA	370.7	401.5
Americas	148.8	212.4
APAC	257.6	294.9
Sales deductions	–16.2	–17.8
External sales	**760.9**	**891.0**
thereof Germany	150.6	165.8

Reconciliation of the segment figures to the correlating figures in the Financial Statements is as follows:

in € million	2018	2017
Total segment earnings (EBIT)	–101.5	38.9
Elimination	–50.3	5.2
Consolidated EBIT	–151.7	44.1
Financial result	–14.7	–0.3
Earnings before income taxes	**–166.4**	**43.8**
Total segment assets	301.2	303.9
Other central items and eliminations	99.6	159.7
Centrally administered land and buildings	152.8	161.8
Cash and long-term time deposits	320.2	460.4
Financial instruments not designated and other assets	30.9	51.0
Deferred tax assets and income tax receivables	52.6	65.1
Investments in associates	0.0	13.1
Group assets	**957.3**	**1,215.0**
Total segment liabilities	21.0	29.4
Other central items and eliminations	103.8	101.0
Financial instruments not designated, liabilities and provisions	404.6	449.9
Income tax liabilities and deferred tax assets	4.1	24.4
Group liabilities	**533.5**	**604.7**

Circumstances are shown in the reconciliation, which by definition are not part of the segments. In particular, this comprises unallocated parts of Group head offices, including centrally managed cash and cash equivalents, financial instruments, financial liabilities and buildings, the expenses of which are allocated to the segments.

The reconciliation in the financial year mainly includes impairments from the valuation of the held-for-sale subgroup China (€25.0 million), expenses for severance payments (€8.6 million) and impairments on trade receivables (€12.3 million, previous year: €1.4 million). The other amounts relate to currency translation effects that are not allocated to individual segments. In the previous year, this includes the proceeds from the sale of SMA Railway Technology GmbH. Business relationships between the segments are eliminated in the reconciliation.

In 2018, as in the previous year, no customer accounted for a share of more than 10% of Group sales.

NOTES TO THE INCOME STATEMENT SMA GROUP

4. Other Operating Income and Expenses

Other miscellaneous income related chiefly to government grants in the amount of €1.8 million (2017: €1.6 million) and income from foreign currency translation in the amount of €14.1 million (2017: €23.2 million). In the previous year, income from the sale of SMA Railway Technology GmbH was reported in a high-single-digit million amount.

Other operating expenses include impairment pursuant to IFRS 5 in conjunction with IFRS 36 on assets of the disposal group of the subgroup SMA New Energy Technology (Jiangsu) Co., Ltd. and SMA New Energy Technology (Shanghai) Co., Ltd. in the amount of €25.0 million. In addition, expenses for severance payments in connection with the restructuring program are reported in the amount of €8.6 million and expenses from foreign currency translation in the amount of €21.3 million (2017: €27.9 million).

5. Employee and Temporary Employee Benefits

in €'000	2018	2017
Wages and salaries	189,328	175,038
Expenses for temporary employees	13,799	16,042
Social security contribution and welfare payments	29,083	26,981
	232,210	**218,061**

Voluntary contributions to private pensions amounted to €1.2 million in 2018 (2017: €1.4 million).

The average number of employees in the Group amounted to:

	2018	2017
Research and Development	635	607
Production and Sales	1,879	1,688
Distribution and Administration	770	746
	3,284	3,041
Apprentices and interns	112	133
Temporary employees	526	578
	3,922	**3,752**

6. Financial Result

in €'000	2018	2017
Loss from at equity-accounted investments	**13,134**	**1,740**
Interest income	2,023	4,692
Other financial income	1	10
Income from interest derivatives	101	140
Financial income	**2,125**	**4,842**
Interest expenses	1,989	1,125
Other financial expenses	1,630	2,058
Expenses from interest derivatives	0	139
Interest portion from valuation of provisions	43	33
Financial expenses	**3,662**	**3,355**
Financial result	**–14,671**	**–253**

The loss from equity-accounted investments results from the pro-rata annual loss and an impairment loss of €11.3 million for Tigo Energy, Inc.; see information under 11. Investments in Associates.

7. Income Taxes

Actual income taxes (paid or payable) and deferred taxes are recognized as income taxes. They break down as follows:

in €'000	2018	2017
Actual income taxes		
for current fiscal years	5,572	–9,342
for previous years	–829	–1,661
Deferred taxes		
from temporary differences	–8,881	27,630
from tax loss carryforwards	13,244	–3,220
Income taxes	**9,106**	**13,407**

Income taxes comprise trade tax, corporation tax and the solidarity surcharge in Germany as well as comparable income taxes abroad. The expected income tax expense that would result from applying the tax rate of the parent company SMA Solar Technology AG to the IFRS net income before taxes can be reconciled to income taxes shown in the Income Statement as follows:

in €'000	2018	2017
Net income before income taxes	**–166,380**	**43,844**
Tax rate of the parent company	30.4%	30.4%
Expected income tax expenses	**–50,586**	**13,329**
Differences related to differing tax rates domestic and abroad	–2,527	–2,540
Effects due to changes in tax rates	92	11,139
Tax-free income	0	–2,892
Non-deductible expenses	23,036	568
Unusable loss carryforwards and amortization of loss carryforwards	39,139	–3,626
Taxes relating to previous years	–829	–1,661
Other tax effects	781	–910
Actual income taxes (according to Income Statement)	**9,106**	**13,407**
Effective Group tax rate	–5.5%	30.6%

The corporation tax rate of 15% and the solidarity surcharge rate of 5.5% are to be applied to corporations based in Germany. In addition, domestic companies and partnerships are subject to trade tax, which is influenced by assessment rates specific to the particular municipality. The average effective Group tax rate was affected, in particular, by the decrease in deferred taxes on loss carryforwards associated with corporate planning. The average trade tax rate to be applied at the level of the parent company was 14.6% (2017: 14.6%). The overall tax rate of the Group's parent company was thus 30.4% (2017: 30.4%).

The effects of deviations between the relevant tax rates at the level of the domestic and foreign Group companies and the overall tax rate at the level of the Group's parent company are shown in the reconciliation statement under deviations related to tax rate in Germany and abroad.

No deferred taxes were formed for the undistributed profits of foreign subsidiaries, including accrued currency translation differences because this income and these translation differences are either not subject to corresponding taxation or will not be distributed in the foreseeable future. Provisions and liabilities for subsidiaries held for sale include deferred tax liabilities for temporary differences in the amount of €2.7 million.

As of December 31, 2018, there were current income tax receivables amounting to €20.6 million (2017: €20.5 million) and current income tax liabilities of €4.1 million (2017: €12.2 million). Tax liabilities are the result of global business activity and a share of foreign sales of 80.6%. As a result, SMA is subject to various tax laws and regulations in other countries. Tax changes in Germany and abroad could affect the tax positions of SMA. In addition to changes of legal regulations, the assessment and interpretation of complex tax regulations, for example the transfer prices, can influence our earnings, financial and asset position. We work closely with tax consulting companies in the individual countries to identify risks, perform regular audits and take appropriate precautions.

No deferred tax assets or deferred tax liabilities were recorded directly in item "Other comprehensive income" in 2018 (2017: –€4.6 million). Deferred tax assets and liabilities were distributed across the following items:

	2018/12/31		2017/12/31	
in €'000	Deferred tax assets	Deferred tax liability	Deferred tax assets	Deferred tax liability
Intangible assets	246	–8,913	17	–17,951
Fixed assets	7,245	0	7,029	0
Financial assets	0	0	814	0
Inventories	10,108	–83	3,978	–444
Other assets	2,876	0	1,550	0
Other provisions	8,923	–1,300	11,182	–2,022
Other liabilities	13,554	–738	15,143	–169
Gross amount	42,952	–11,034	39,713	–20,586
Loss carryforwards	0	0	13,244	0
Balancing	–11,024	11,024	–8,299	8,299
	31,928	**–10**	**44,658**	**–12,287**

The Company has examined the right to a possible offsetting of temporary differences by increasing the validity of the financial statements and the better comparability with the financial statements of other companies. There were no results-effective effects.

The deferred tax assets are considered realizable as far as sufficiently high future taxable income is to be expected. This was based on a planning horizon of three years. Based on the current corporate planning and the loss situation no deferred taxes for loss carryforwards were recognized in the current fiscal year.

As of December 31, 2018, corporation tax loss carryforwards in the amount of €285.4 million (2017: €182.0 million) as well as trade tax loss carryforwards of €314.0 million (2017: €211.0 million) existed at SMA Solar Technology AG.

8. Earnings per Share

Earnings per share are calculated by dividing the net income attributable to the shareholders by the weighted average of ordinary shares in circulation during the period. The number of shares in the 2018 fiscal year amounted to 34.7 million, as in the previous year.

The net income attributable to the shareholders is the net income after tax. As there were no shares held by the Company on the reporting date or any other special cases, the number of ordinary shares issued equated to the number of shares in circulation.

The calculation of earnings in relation to the weighted average number of shares in accordance with IAS 33 resulted in earnings of –€5.06 per share for the period from January 1, 2018 to December 31, 2018, with an average weighted number of shares of 34.7 million and earnings of €0.87 per share for the period from January 1, 2017 to December 31, 2017, with an average weighted number of shares of 34.7 million.

There were no options or conversion options as of the reporting date. Therefore, there were no diluting effects and the diluted and basic earnings per share were the same.

NOTES TO THE BALANCE SHEET SMA GROUP

9. Intangible Assets

Intangible assets evolved in the fiscal years under review as follows:

in €'000	Goodwill	Development projects	Patents/ licenses/ rights	Software	Intangible assets in progress	Total
Acquisition costs						
2018/01/01	13,660	173,347	20,865	48,606	17,773	274,251
Changes in currency	0	–244	–117	–22	0	–383
Additions	0	7,624	108	120	12,239	20,091
Disposals (–)	0	0	6	42	0	48
Transfers	0	11,601	8	568	–12,015	162
Classified as "held for sale"	0	0	14,897	431	0	15,328
2018/12/31	13,660	192,328	5,961	48,799	17,997	278,745
Depreciation and amortization						
2018/01/01	12,862	128,052	15,677	45,022	1,707	203,320
Changes in currency	0	–245	–104	–16	1	–364
Additions	316	47,643	524	1,864	3,169	53,516
Disposals (–)	0	0	5	41	0	46
Transfers	0	0	–1	1	0	0
Classified as "held for sale"	0	0	–13,803	–229	0	–14,032
2018/12/31	13,178	175,450	2,288	46,601	4,877	242,394
Net value 2017/12/31	**798**	**45,295**	**5,188**	**3,584**	**16,066**	**70,931**
Net value 2018/12/31	**482**	**16,878**	**3,673**	**2,198**	**13,120**	**36,351**
Acquisition costs						
2017/01/01	13,660	153,282	21,701	47,387	18,929	254,959
Changes in currency	0	463	–915	–5	–4	–461
Additions	0	4,661	79	170	14,898	19,808
Disposals (–)	0	0	0	91	0	91
Transfers	0	14,941	0	1,145	–16,050	36
Classified as "held for sale"	0	0	0	0	0	0
2017/12/31	13,660	173,347	20,865	48,606	17,773	274,251
Depreciation and amortization						
2017/01/01	12,862	107,515	15,905	41,851	3,596	181,729
Changes in currency	0	463	–840	12	0	–365
Additions from acquisitions	0	0	0	0	0	0
Additions	0	18,731	612	3,252	0	22,595
Disposals (–)	0	0	0	93	546	639
Transfers	0	1,343	0	0	–1,343	0
Classified as "held for sale"	0	0	0	0	–1,343	–1,343
2017/12/31	12,862	126,709	15,677	45,022	1,707	201,977
Net value 2016/12/31	**798**	**45,767**	**5,797**	**5,536**	**15,333**	**73,231**
Net value 2017/12/31	**798**	**45,295**	**5,188**	**3,584**	**16,066**	**70,931**

€11.2 million (2017: €13.7 million) of the additions of intangible assets in progress included development projects.

In relation to development projects, amortization of intangible assets is posted in the income statement under cost of sales. Depreciation and amortization of development projects and intangibles, an impairment loss of €29.5 million (2017: €0.0 million) is included due to changes in sales forecasts. €12.4 million of the impairment loss related to the Commercial segment, €10.6 million to Utility, €4.1 million to Off-Grid & Storage and €2.4 million to Residential. The depreciation was based on the value of use in order to calculate an after tax rate of 9.0% (2017: 9.8%). Amortization of software is allocated to the functional areas dependent on use.

The goodwill is assigned to cash-generating units on the basis of the organizational structure. The goodwill from the asset deal with Danfoss was assigned to the Commercial segment (€0.3 million) and was written down in full in the fiscal year. The goodwill resulting from the asset deal with Phoenix is assigned to the Utility segment (€0.2 million), while that of SMA Magnetics (€0.3 million) is assigned to the Residential segment.

The existing goodwill was confirmed in the impairment reviews at the end of the fiscal year with the exception of Danfoss. The progression of cash flow was extrapolated for the period after the third year on the basis of a constant annual growth rate of 1.0% (2017: 1.0%). This was derived from the average long-term growth rate on the photovoltaic market. The after-tax interest rates applied ranged between 9.0% and 11.1% (pretax interest rates: 13.0% to 16.0%). The Managing Board believes that no reasonably conceivable change in basic assumptions on the basis of which the recoverable amount is determined would result in the cumulative book value of the cash-generating unit exceeding its cumulative recoverable amount.

10. Fixed Assets

Fixed assets evolved as follows in the 2018 fiscal year:

in €'000	Land and buildings, incl. buildings on third-party property	Technical equipment/ machinery	Other equipment, plant and office equipment	Prepayments and assets under construction	Total
Acquisition costs					
2018/01/01	239,246	75,963	190,932	2,398	508,539
Changes in currency	53	–84	–102	–14	–147
Additions	69	500	928	18,737	20,234
Disposals (–)	11,033	1,662	12,175	0	24,870
Transfers	2,866	926	11,512	–15,436	–132
Classified as "held for sale"	5,181	3,819	4,107	41	13,148
2018/12/31	226,020	71,824	186,988	5,644	490,476
Depreciation and amortization					
2018/01/01	88,224	44,592	163,171	0	295,987
Changes in currency	86	–69	–20	0	–3
Additions	11,161	5,018	12,178	0	28,357
Disposals (–)	10,741	1,119	11,976	37	23,873
Transfers	0	–472	472	0	0
Classified as "held for sale"	–2,442	–3,129	–3,305	0	–8,876
2018/12/31	86,288	44,821	160,520	–37	291,592
Net value 2017/12/31	**151,022**	**31,371**	**27,761**	**2,398**	**212,552**
Net value 2018/12/31	**139,732**	**27,003**	**26,467**	**5,681**	**198,883**

Fixed assets of €16.3 million (2017: €18.4 million) were negatively affected by mortgage liens used to secure financial liabilities.

Fixed assets evolved as follows in the 2017 fiscal year:

in €'000	Land and buildings, incl. buildings on third-party property	Technical equipment/ machinery	Other equipment, plant and office equipment	Prepayments and assets under construction	Total
Acquisition costs					
2017/01/01	259,106	74,537	195,451	5,085	534,179
Changes in currency	–2,293	–349	–1,077	203	–3,516
Additions	307	948	1,237	10,768	13,260
Disposals (–)	15,229	1,280	15,533	661	32,703
Transfers	0	2,107	10,854	–12,997	–36
Reclassified to "investment property"	1,565	0	0	0	1,565
Classified as "held for sale"	1,080	0	0	0	1,080
2017/12/31	239,246	75,963	190,932	2,398	508,539
Depreciation and amortization					
2017/01/01	95,153	40,620	164,079	0	299,852
Changes in currency	–2,261	–182	–996	0	–3,439
Additions	11,559	5,083	13,961	0	30,603
Disposals (–)	16,227	910	13,892	0	31,029
Transfers	0	–19	19	0	0
2017/12/31	88,224	44,592	163,171	0	295,987
Net value 2016/12/31	**163,953**	**33,917**	**31,372**	**5,085**	**234,327**
Net value 2017/12/31	**151,022**	**31,371**	**27,761**	**2,398**	**212,552**

11. Investments in Associates

SMA has a 28.27% stake in Tigo Energy, Inc. Tigo Energy, Inc. is a specialist in the field of smart module technology. SMA uses the technology in particular with the products of the Commercial segment. The associate is included in the Consolidated Financial Statements according to the equity method. The Group also determines whether there are objective indications of impairment for its investments in the associate. During the fiscal year, it became clear that the Company still would not leave the loss-making zone in fiscal year 2018, as in the previous years. If there are objective indications that the recoverable amount is lower than the carrying amount, then the difference between the recoverable amount of the investment in the associate and the carrying amount of the "share in the earnings of associates" is recognized in profit or loss as an impairment loss. The value in use is calculated using a DCF method that includes the future sales and earnings forecasts. The value in use thus measured was €0.0 million (previous year: €47.1 million). The after-tax interest rate used was 10.3 %. After recognizing losses incurred during the year, an additional impairment loss of €11.3 million was recognized as of the end of the year.

in €'000	2018	2017
Current assets	15,621	7,139
Non-current assets	1,608	586
Current liabilities	–13,329	–2,627
Non-current liabilities	–8,743	–3,095
Sales	22,516	12,587
Annual earnings	–5,391	–5,771
Other comprehensive income	1,107	–385
Overall result	–6,498	–6,156
Dividends received from Tigo	0	0

Tax income is negligible as a result of the loss situation. The book value of the associate was written off as of the reporting date.

The reconciliation of the presented financial information to the book value is as follows:

in €'000	2018/12/31	2017/12/31
Net assets Tigo	–4,843	2,003
Holdings (%)	28.27	28.27
Group share in the net assets	–1,369	566
Goodwill	12,313	11,761
Other adjustments	–10,944	807
Book value of the Group investment	**0**	**13,134**

12. Investment Property

in €'000	2018/12/31	2017/12/31
Level at the beginning of the year	**16,979**	**15,414**
Transfers from fixed assets (net book value)	–30	2,295
Depreciation and amortization (–)	737	730
Level at the end of the reporting period	**16,212**	**16,979**

Income and expenses included in the profit and loss account

in €'000	2018	2017
Rental income	1,748	1,814
Attributable expenses	627	467

In the 2016 fiscal year, SMA began to rent two buildings that it had previously been using itself. The investment properties are accounted for using the cost model, whereby the properties are measured according to IAS 16, i. e., at historical cost less depreciation plus impairment and reversals of impairment. The buildings are depreciated on a straight-line basis over their economic useful life. The underlying useful life of the two buildings is 33 years. Attributable expenses must be assigned in full to the investment properties responsible for generating the rental income.

The tenancy agreements for the buildings do not contain any conditional rental payments, but they each offer an option to extend, which can be exercised by the tenant. The non-cancelable rental periods are five years and six years. The distribution of rental income is shown in the table below.

in € million	< 1 year	> 1 – 5 years	> 5 years	Total
Rental income	1.9	5.1	2.1	9.1

13. Inventories

SMA Group inventories are made up as follows:

in €'000	2018/12/31	2017/12/31
Raw materials, consumables and supplies	71,191	63,763
Unfinished goods, work in progress	13,943	12,777
Finished goods and goods for resale	104,913	87,598
Prepayments	3,748	845
	193,795	**164,983**

Inventories are measured at the lower value of the cost of acquisition or sales and net realizable value. Inventories increased due to customer project delays and in order to support delivery capacity. The balance of impairment accounts amounted to €45.2 million as of the end of the fiscal year (2017: €25.4 million) and relates entirely to central corporate functions (2017: €23.8 million). In the previous year, €1.6 million related to the Service segment. The total costs of acquisition and sales recognized as expenses include impairments on net realizable value of €11.1 million (2017: €1.5 million). The book value of the inventories written down to the net realizable value amounted to €0.0 million as of December 31, 2018. Capital gains were €0.8 million (2017: €5.4 million) due to the sale of depreciated inventory.

14. Trade Receivables and Other Receivables

Trade receivables are non-interest-bearing and, with the exception of the Chinese market, usually due between 30 and 90 days. No significant extensions to payment terms were granted in the reporting period. It is possible that different payment terms are granted in project business.

The other receivables mainly comprise prepaid expenses and other receivables due from tax authorities, which were not overdue on the reporting date.

The age structure of trade receivables was as follows on the reporting dates:

			Not impaired portion of overdue receivables			
in €'000	**Book value**	**Neither overdue nor impaired**	**< 30 days**	**30 to 60 days**	**60 to 90 days**	**> 90 days**
2018	108,375	83,291	14,394	2,470	2,587	5,633
2017	160,001	112,318	14,498	22,925	4,856	5,366

As of December 31, 2018, value adjustments with a nominal value of €25.7 million (2017: €23.3 million) were carried out on aging trade receivables. No value adjustments were made regarding overdue receivables as of December 31, 2018, this amounted to €25.1 million (December 31, 2017: €47.7 million) as there were no significant changes in the credit rating of customers. Settlement of the receivables is expected. The credit rating of customers with whom trade receivables exist, which are neither overdue nor impaired, is considered to be good.

The value adjustment account of trade receivables evolved as follows:

in €'000	**Specific valuation allowance**	**Value correction on portfolio basis**	**Total**
As of 2017/01/01	23,302	151	23,453
Additions with effect on the expenses (net)	1,403	503	1,906
Usage	–333	0	–333
Release	–822	–373	–1,195
Exchange rate difference	–473	–17	–490
Classified as "held for sale"	**0**	**0**	**0**
As of 2017/12/31	23,077	264	23,341
Additions with effect on the expenses (net)	12,268	205	12,473
Usage	–1,693	0	–1,693
Release	–467	–88	–555
Exchange rate difference	–55	1	–54
Classified as "held for sale"	**–7,463**	**0**	**–7,463**
As of 2018/12/31	25,667	382	26,049

Additions recognized as expenses in the amount of €12.3 million in 2018 include impairment losses on receivables from two customers with an increased probability of default in the amount of €9.2 million. These are individual cases. Over the past three years, additions recognized as expenses were in the low, single-digit millions. There are no indications of a change in the future. Furthermore, no adjustments had to be made for other receivables; with regard to other financial assets, please refer to the information below under note 15. The receivables are adjusted individually based on individual assessments. The maximum default risk equates to the carrying amount shown in the balance sheet.

15. Other Financial Assets Due to Tax Authorities

As of December 31, 2018, other current financial assets included in particular financial assets and time deposits with a term to maturity of over three months and accrued interest totaling €177.5 million (2017: €225.4 million). Receivables from tax authorities in relation to value-added tax are reported in the amount of €15.6 million as of December 31, 2018. This includes an impairment loss of €7.1 million that was incurred on foreign value-added tax receivables. Furthermore, free derivatives amounting to €1.3 million are included. Other non-current financial assets were reclassified as current other financial assets due to their subordinate importance for the net assets, financial position and results of operation. In the previous year, they included a rent deposit for buildings in the U.S. amounting to USD 2.5 million.

16. Cash and Cash Equivalents

Cash and cash equivalents comprise cash in hand as well as bank balances, checks, payments in transit and deposits with an original term to maturity of less than three months. Bank balances bear interest at variable interest rates applicable to deposits subject to call.

As of December 31, 2018, the Group had unused credit lines amounting to €86.3 million (2017: €86.4 million) for which all conditions for use had been met.

17. Assets and Asset Groups Held for Sale

The sale of the companies SMA New Energy Technology (Jiangsu) Co., Ltd., SMA New Energy Technology (Yangzhong) Co., Ltd. and SMA New Energy Technology (Shanghai) Co., Ltd. was resolved in the current fiscal year. The companies Australia Zeversolar New Energy Pty. Ltd. and Zeversolar GmbH from the Chinese subgroup will remain part of the Group. The companies held for sale relate to Chinese locations for production, commissioned development work and purchasing activities. The products are allocated to the Residential and Commercial segments. The sales negotiations with the investor are expected to be concluded by the end of the first quarter of 2019. As part of the classification as disposal groupin accordance to IFRS 5, an impairment loss of €25.0 million on the fair value less costs to sell was recognized in other operating expenses. The recoverable amount to which the assets were written down is the fair value less costs to sell for the disposal group in line with IFRS 5. This represents the planned sale price. The impairment chiefly relates to fixed assets, inventories and receivables.

in €'000	**2018/12/31**	**2017/12/31**
Land classified as held for sale	500	1,180
Assets attributable to the China disposal group	31,452	0
	31,952	**1,180**
Liabilities attributable to the China disposal group	31,325	0

In the previous year, SMA sold the Railway Technology business division. With the payment of the purchase price of €19.0 million the sale was completed on March 29, 2017. The business division included SMA Railway Technology GmbH and its subsidiary SMA Railway Technology (Guangzhou) Co., Ltd. The business division developed, produced and distributed power electronics components for railway technology.

In the current fiscal year, land in the amount of €0.5 million was still held for sale and land in the amount of €0.7 million was sold.

18. Shareholders' Equity

The change in equity, including effects not shown in the income statement, is presented in the statement of changes in equity. Significant impact was caused by the net income and the dividend payment as well as effects from foreign exchange gains/losses.

The capital reserve contains agio amounts from the issuance of SMA Solar Technology AG shares.

The other retained earnings contain mainly the retained profit and the statutory reserve. In addition, retained earnings include other equity components such as the difference between foreign currency translation and the market values from cash flow hedging not recognized in profit or loss.

Shares in SMA AG are no-par value bearer shares, which were fully paid in.

The Articles of Incorporation include the provisions on the powers of the Managing Board regarding Authorized Capital II. The Managing Board, after obtaining the consent of the Supervisory Board, is entitled to increase the share capital on one or several occasions by up to a total of €3.4 million by issuing new bearer shares in return for cash contributions and/or contributions in kind in the period up to May 23, 2023. The Managing Board, with the consent of the Supervisory Board, is entitled to cancel the statutory subscription rights of shareholders: (a) in the case of capital increases in return for contributions in kind for the acquisition of or investment in companies, parts of companies or investments in companies, (b) for the purpose of issuing shares to employees of the Company and companies affiliated with the Company, (c) to exclude fractions and (d) in the case of capital increases in return for cash contributions if the issue amount of the new shares does not fall significantly below the stock exchange price of shares of the same class and terms that are already listed at the time the Managing Board sets the final issue amount, and the total pro rata amount of the issued capital attributable to the new shares in respect of which the subscription right is excluded may not exceed 10% of the issued capital available at the time the new shares are issued.

Furthermore, following a resolution adopted by the Annual General Meeting on May 31, 2016, the Managing Board, in the period up to May 30, 2021, is entitled, on behalf of the Company, to acquire its own shares up to a value of 10% of the existing capital stock at the time the resolution was adopted by the Annual General Meeting, and to dispose of shares acquired in this way with the consent of the Supervisory Board by means other than through the stock exchange, or an offer made to all the shareholders, provided the shares are sold in return for cash at a price that does not fall significantly below the stock exchange price of shares in the Company issued under the same terms or the shares are sold in return for in-kind contributions, or they are offered in return for shares held by persons that either had or have an employment relationship with the Company, or with one of its affiliated companies, or members of bodies in companies that depend on the Company. Additionally, if the Managing Board sells the Company's own shares by offering them to all the shareholders with the consent of the Supervisory Board, the Managing Board is entitled to exclude the shareholders' right of subscription for fractions. In addition, the Managing Board is entitled to cancel any own shares acquired after obtaining the consent of the Supervisory Board.

The Annual General Meeting of SMA Solar Technology AG held on May 24, 2018, followed the Managing and Supervisory Boards' proposal to distribute a dividend of €0.35 per dividend-bearing share for the 2017 fiscal year (2016: €0.26 per dividend-bearing share).

The objectives of capital management are to maintain SMA's financial substance and ensure necessary flexibility.

The equity ratio is used to measure the financial security of SMA. This is the ratio of equity shown in the consolidated balance sheet to total assets. Accordingly, the financing structure is characterized by a conservative capital structure dominated by internal financing. As of the reporting date, the equity ratio was 43.0% (2017: 50.3%). External financing occurs almost exclusively through liabilities arising from operative business.

19. Provisions

Provisions account for all discernible risks from pending transactions and contingent liabilities on the balance sheet dates and break down as follows:

in €'000	Warranties	Personnel	Other	Total
As of 2018/01/01	136,351	5,095	14,603	156,049
Additions	66,409	7,774	13,948	88,131
Usage	28,214	696	4,710	33,620
Release	44,744	23	7,033	51,800
Compounding	23	19	2	44
Transfers	1,870	860	-860	1,870
Changes in currency	1,225	3	69	1,297
Classified as "held for sale"	**2,487**	**0**	**2,459**	**4,946**
As of 2018/12/31	**130,433**	**13,032**	**13,560**	**157,025**
Current in 2018	68,200	10,128	13,041	91,369
Non-current in 2018	62,233	2,904	519	65,656
	130,433	**13,032**	**13,560**	**157,025**
As of 2017/01/01	153,989	6,057	16,997	177,043
Additions	53,207	290	9,050	62,547
Usage	51,059	1,275	9,008	61,342
Release	13,383	0	1,557	14,940
Compounding	9	19	5	33
Changes in currency	-6,412	4	-884	-7,292
As of 2017/12/31	**136,351**	**5,095**	**14,603**	**156,049**
Current in 2017	48,252	2,604	13,766	64,622
Non-current in 2017	88,099	2,491	837	91,427
	136,351	**5,095**	**14,603**	**156,049**

The provisions for statutory warranties are attributable to the segments as follows:

in €'000	2018/12/31	2017/12/31
Residential	32,364	43,758
Commercial	34,779	56,384
Utility	53,935	29,433
Storage	5,965	6,183
Other Business	3,390	593
	130,433	**136,351**

Warranty provisions consist of general warranty obligations (periods of between five and ten years) for the various product areas within the Group. In addition, provisions are set aside for individual cases that are expected to be used in the following year.

Personnel provisions mainly include obligations for long-service anniversaries, death benefits and partial retirement benefits as well as a €7.3 million addition for severance payments. Personnel provisions affect cash in relation to contractual commitments made.

Other provisions include, in particular, restoration obligations, provisions for tax risks and purchase commitments. In the previous year, provisions for consolidation of production locations amounting to €5.9 million were also included.

20. Financial Liabilities

in €'000	2018/12/31	2017/12/31
Liabilities due to credit institutions	17,881	20,312
Derivative financial liabilities	2,382	411
of which liabilities from derivatives outside of hedge accounting	2,382	411
Liabilities from finance leases	152	97
	20,415	**20,820**

In the 2019 fiscal year, liabilities to credit institutions mainly comprise liabilities for the financing of SMA Immo properties and an SMA AG PV system. They have an average time to maturity of ten years. The changes in liabilities to banks and from finance leases are fully reflected in the cash flow from financing activities.

Derivative financial liabilities predominantly include negative market values for currency futures presented in hedge accounting. Liabilities aside from the recognized hedging relationships consist of interest derivatives and currency futures.

21. Trade Payables

Trade payables are non-interest bearing and are normally due within 30 to 90 days.

22. Other Financial Liabilities

in €'000	2018/12/31	2017/12/31
Other financial liabilities	741	15,920
	741	**15,920**
Current	741	15,388
Non-current	0	532
	741	**15,920**

In the previous year, this item mostly included notes payable by the Chinese subgroup in the amount of €14.1 million. These were reclassified to the "held for sale" item in the current fiscal year due to the planned sale. With the mandatory application of IFRS 15, the "sales department liabilities" reported under "other financial liabilities" in the 2017 Annual Report were assigned to other liabilities, and specifically to other contractual obligations, in the amount of €3.6 million (2017: €4.1 million). They primarily contain liabilities to customers from advance payments received.

23. Other Liabilities [1]

in €'000	2018/12/31	2017/12/31
Contractual liabilities	214,019	220,396
Accrual item for extended warranties	176,732	170,818
Liabilities from prepayments received	13,928	26,658
Accruals for service and maintenance contracts	11,867	12,291
Other contractual liabilities	11,492	10,629
Liabilities in the Human Resources department	15,289	24,062
Other	11,006	12,573
	240,314	**257,031**
Current	76,479	94,153
Non-current	163,835	162,878
	240,314	**257,031**

[1] Other liabilities do not include other financial liabilities

Contractual liabilities (prepayments received) include prepayments and deliveries of goods. Other contractual liabilities include accrual items for extended warranties, service and maintenance contracts and bonus agreements Non-current contractual obligations mainly include liabilities from chargeable extended warranties granted for products from the Residential and Commercial business units. The fulfillment of the non-current contractual obligations will extend over a period of five to 15 years from the start of the extended warranties. Current contractual obligations mainly include prepayments received, accruals for service and maintenance contracts and bonus agreements. The current contractual obligations will mostly be fulfilled within the next 12 months.

Liabilities in the Human Resources department contain obligations to employees regarding performance-based bonuses and positive vacation and flextime balances as well as variable salary components and contributions to the workers' compensation association and to social insurance systems. Other miscellaneous liabilities include liabilities to tax authorities amounting to €6.6 million (2017: €6.7 million), which chiefly consist of tax liabilities from payroll accounting, and liabilities from subsidies received in the amount of €0.7 million (2017: €0.8 million), which include taxable government grants from funds of the common-task program "Improvement of the Regional Economic Structure" (EU GA), granted as investment subsidies. The total amount of retransfer of government grants is stated under other operating income.

With the mandatory application of IFRS 15, the "sales department liabilities" reported under "other financial liabilities" in the 2017 Annual Report were assigned to other liabilities. They primarily contain liabilities to customers from advance payments received.

Liabilities from bonus agreements with customers are also reported.

24. Additional Disclosures Relating to Financial Instruments

in €'000	Assessment category according to IAS 39	Assessment category according to IFRS 9	2018/12/31 Book value	2017/12/31 Book value
Cash and cash equivalents	LaR	AC	142,637	234,853
Trade receivables	LaR	AC	108,375	160,001
Other financial investments	AfS	FVOCI	2	2
Other financial assets			**185,379**	**248,546**
of which institutional mutual funds	FAHfT	FVPL	101,447	150,230
of which other (time deposits)	LaR	AC	82,649	90,474
of which derivatives that do not qualify for hedge accounting	FAHfT	FVPL	1,283	7,842
Trade payables	FLAC	AC	110,851	130,432
Financial liabilities			**20,415**	**20,820**
of which liabilities due to credit institutions	FLAC	AC	17,881	20,312
of which liabilities from finance leases	n/a	AC	152	97
of which derivatives that do not qualify for hedge accounting	FLHfT	FVPL	2,382	411
Other financial liabilities	FLAC	AC	**741**	**15,920**
Of which aggregated according to valuation categories in accordance with IFRS 9/IAS 39:				
Financial assets measured at amortized cost	LaR	AC	333,661	485,328
Financial liabilities measured at amortized cost	FLAC	AC	129,473	166,665
Financial assets measured at fair value through profit and loss	FAHfT	FVPL	102,730	158,072
Financial liabilities measured at fair value through profit and loss	FLHfT	FVPL	2,382	411
Fair value through other comprehensive income	AfS	FVOCI	2	2

The book values represent reasonable approximations of the fair values of the assets and liabilities, which is why a separate indication of the fair amounts is omitted.

Cash and cash equivalents, trade receivables and time deposits mainly have short terms to maturity. Accordingly, their book values on the reporting date were almost identical to their fair value.

The fair values of other non-current receivables correspond to the present values of the payments related to the assets while taking into account current interest parameters, which reflect market- and partner-related changes in conditions and expectations (level 2).

Other financial investments relate to investments not included in the scope of consolidation.

Trade payables and other current financial liabilities normally have short terms to maturity. The recognized values are almost identical to the fair values.

Fair values of other non-current financial liabilities are determined by referring to the present values of the payments associated with the debts. For discounting, term-related commercially available interest rates were used (level 2).

For most borrowings, the fair values are not materially different from the book values, as interest payments on these borrowings are either close to current market rates or borrowing is short-term.

Derivative financial instruments are used to hedge against currency risks arising from operative business. These include currency futures and options inside and outside of hedge accounting. In principle, these instruments are only used for hedging purposes. As is the case with all financial instruments, they are recognized at fair value upon initial recognition. The fair values are also relevant for subsequent measurements. The fair value of traded derivative financial instruments is identical to the market value. This value may be positive or negative. The measurement of forward transactions is based on forward contract rates. The parameters that were used in the valuation models are in line with market data.

In the current fiscal year, no market values accounted for in equity were reclassified into the income statement (2017: €2.2 million). In the current financial year, no new transactions were recorded in equity in the context of a hedging relationship.

The following table shows the allocation of our financial assets and liabilities measured at fair values in the balance sheet using the three levels of the fair value hierarchy:

in €'000

2018	Level 1	Level 2	Level 3	Total
Financial assets, measured at fair value				
Institutional mutual funds	101,447	0	0	101,447
Derivative financial instruments	0	1,283	0	1,283
Financial liabilities, measured at fair value				
Derivative financial instruments	0	2,382	0	2,382
2017	**Level 1**	**Level 2**	**Level 3**	**Total**
Financial assets, measured at fair value				
Institutional mutual funds	150,230	0	0	150,230
Derivative financial instruments	0	7,842	0	7,842
Financial liabilities, measured at fair value				
Derivative financial instruments	0	411	0	411

The levels of the fair value hierarchy and their application to our assets and liabilities are described below.

Level 1: Quoted prices for identical assets or liabilities in active markets.

Level 2: Inputs other than quoted prices that are observable directly (e. g., prices) or indirectly (e. g., derived from prices).

Level 3: Inputs that are not based on observable market data for assets and liabilities.

The 2018 net results for financial instruments are as follows:

	From interest	From subsequent measurement		From disposal	Net result
in €'000		Currency translation	Value correction		
Financial assets measured at amortized cost (AC)	716	3,603	–11,918	–370	–7,969
Financial liabilities measured at amortized cost (AC)	–804	0	0	0	–804
Financial assets measured at fair value through profit and loss (FVPL)	1,185	0	–6,378	–4,326	–9,519
Financial liabilities measured at fair value through profit and loss (FVPL)	–109	0	101	0	–8
Total	**988**	**3,603**	**–18,195**	**–4,696**	**–18,300**

The 2017 net results for financial instruments are as follows:

	From interest	From subsequent measurement		From disposal	Net result
in €'000		Currency translation	Value correction		
Loans and receivables (LaR)	316	–13,003	–711	–240	–13,638
Financial liabilities measured at amortized cost (FLAC)	–933	0	0	0	–933
Financial assets held for trading (FAHfT)	2,440	0	–6,860	1,621	–2,799
Financial liabilities held for trading (FLHfT)	–139	0	140	0	1
Total	**1,684**	**–13,003**	**–7,431**	**1,381**	**–17,369**

Interests from financial instruments are shown in the financial result. The SMA Group recognizes other components of the net result in other operating expenses and other operating income.

In detail, the nominal payment obligations of financial liabilities are as follows:

in €'000	Book value	Total cash flows	< 1 year	1 to 3 years	4 to 5 years	> 5 years
2018						
Trade payables	110,851	110,851	110,851	0	0	0
Financial liabilities	20,415	22,429	6,052	7,446	4,760	4,171
of which from liabilities due to credit institutions	17,881	19,894	3,657	7,306	4,760	4,171
of which from finance lease agreements	152	152	66	86	0	0
of which from derivatives outside of hedge accounting	2,382	2,383 [1]	2,329	54	0	0
Other financial liabilities	741	741	741	0	0	0
2017						
Trade payables	130,433	130,433	130,433	0	0	0
Financial liabilities	20,820	23,659	3,643	7,637	6,096	6,283
of which from liabilities due to credit institutions	20,312	23,140	3,311	7,496	6,068	6,265
of which from finance lease agreements	97	97	42	19	18	18
of which from derivatives outside of hedge accounting	411	422 [1]	290	122	10	0
of which from derivatives inside hedge accounting	0	0	0	0	10	0
Other financial liabilities	19,987	19,987	19,455	532	0	0

[1] Contains the net cash flow from forward exchange transactions amounting to €969k, providing a gross fulfillment. Payment obligations amount to €98,116k, payment claims amount to €97,147k. The closing rate was used for the conversion of the foreign currency transactions.

An average interest rate of 3.46% was used to calculate future cash flows from liabilities due to credit institutions.

25. Obligations Under Leases and Other Financial Obligations

The obligations of the SMA Group under operating leases mainly relate to buildings and, to a minor extent, to plant and office equipment. Expenses recognized through profit and loss amounted to €17.2 million in the reporting year (2017: €19.0 million).

Other financial obligations arose primarily from tenancy agreements and operating leases for buildings, office trailers, plant and office equipment concluded by the Group as the lessee. The terms to maturity of future payments to the end of the minimum term of the agreements are as follows:

in €'000	2018/12/31	2017/12/31
Maturity of less than 1 year	11,945	8,757
Maturity of 1 to 5 years	19,750	10,241
Maturity of more than 5 years	2,696	3,009
	34,391	**22,007**

On the reporting date, there were no material obligations from finance leasing in the SMA Group.

In addition, there were financial obligations to third parties under the purchase order commitment for investment orders placed amounting to €5.2 million (2017: €3.3 million). There were financial obligations for intangible assets amounting to €8.6 million (2017: €2.5 million). The other financial obligations were within the framework customary for the business.

26. Contingencies

As of December 31, 2018, there were no changes compared to the previous year (€0.05 million).

27. Cash and Cash Equivalents Reconciliation

For the purposes of the Consolidated Statement of Cash Flows, cash and cash equivalents include cash on hand, bank balances and short-term deposits with an original term to maturity of less than three months. Cash and cash equivalents at the end of the fiscal year, as presented in the Consolidated Statement of Cash Flows, can be reconciled to the corresponding items of the Consolidated Balance Sheet as follows:

in €'000	2018	2017
Cash on hand and bank balances	136,927	204,188
Short-term deposits (maturity < 3 months)	5,710	30,665
	142,637	**234,853**

OTHER DISCLOSURES

28. Events After the Balance Sheet Date

On February 28, 2019, the subsidiaries SMA New Energy Technology (Jiangsu) Co., Ltd. and SMA New Energy Technology (Shanghai) Co., Ltd. were sold to Shanghai/Zhuoyou Enterprise Management Consultation Partnership. The purchase price amounted to €0.1 million. Due to variable purchase price receivables, SMA will participate in future profits.

29. Related Party Disclosures

According to the definition contained in IAS 24, related persons are persons responsible for planning, controlling and monitoring the Company's activities. Related persons include the members of the Managing Board and the Supervisory Board of SMA Solar Technology AG as well as their close relatives. By October 15, 2018, the Managing Board of SMA Solar Technology AG had comprised the following members: Pierre-Pascal Urbon (Chief Executive Officer, Board Member for Strategy, Sales and Service), Dr.-Ing. Jürgen Reinert (Deputy Chief Executive Officer, Board Member for Operations and Technology) and Ulrich Hadding (Board Member for Finance, Human Resources and Legal Affairs).

Pierre-Pascal Urbon left the Company on December 31, 2018, at his own request, after having resigned from the Managing Board in agreement with the Supervisory Board on October 15, 2018. On the same date, Dr.-Ing. Jürgen Reinert was appointed Chief Executive Officer of SMA Solar Technology AG and is responsible for Strategy, Sales and Service in addition to Operations and Technology. Ulrich Hadding continues to be responsible for Finance, Human Resources and Legal Affairs and has also assumed responsibility for Investor Relations.

Related persons:
In the year under review, the following were members of the Managing Board of SMA Solar Technology AG:

Dr.-Ing. Jürgen Reinert (Chief Executive Officer), Operations and Technology, Strategy, Sales and Service

Ulrich Hadding (Board Member), Finance, HR and Legal Affairs

Dr.-Ing. Jürgen Reinert sits on the supervisory board of Danfoss A/S, Denmark, and in the advisory committee of KraftPowercon, Sweden.

In the year under review, the following were members of the Supervisory Board of SMA Solar Technology AG:

Shareholder Representatives:
Dr. Erik Ehrentraut, Consultant, Chairman
Kim Fausing, General Manager and CEO Danfoss, Deputy Chairman
Roland Bent, General Manager Phoenix Contact
Peter Drews, Chairman of the Foundation Managing Board
Alexa Hergenröther, Divisional Director
Reiner Wettlaufer, Chairman of the Foundation Managing Board

Employee Representatives:
Johannes Häde
Yvonne Siebert
Dr. Matthias Victor
Hans-Dieter Werner
Oliver Dietzel, Trade Union Secretary
Heike Haigis, Trade Union Secretary

Remuneration of key management members of the Group, which must be disclosed under IAS 24, includes remuneration of the Managing Board and the Supervisory Board.

The total compensation of the members of the Managing Board amounted to €2.8 million in the year under review (2017: €3.9 million). The non-performance-related portion amounted to €2.7 million (2017: €2.7 million), the performance-related portion to €0.2 million (2017: €1.3 million). The benefits are exclusively short-term benefits. In the course of his departure, Mr. Urbon received the compensation for the non-competition clause in the amount of €2.0 million as a one-off payment. No compensation was granted for tasks in subsidiaries.

The total compensation of the members of the Supervisory Board amounted to €0.4 million in the year under review (2017: €0.4 million). Of this amount, €0.3 million (2017: €0.3 million) was attributable to non-performance-related fixed compensation and €0.1 million (2017: €0.1 million) to compensation for committee activities. As in the previous year, no variable compensation is included. Mr. Fausing renounces his claims against society. The union representatives pay their salaries. The compensation for members of the Managing Board and Supervisory Board is presented individually in a separate remuneration report in accordance with the criteria of the Corporate Governance Code. The complete remuneration report is part of the Combined Managemen Report.

Members of the Supervisory Board hold the following positions in statutory supervisory boards and similar controlling bodies of commercial enterprises:

Roland Bent, member on the boards of four international Phoenix Contact companies: Phoenix Contact (China) Holding Co. Ltd.; Phoenix Contact (Nanjing) R&D and Engineering Center Co. Ltd.; Phoenix Contact Holding Inc., U.S.; and Phoenix Contact Development & Manufacturing Inc., U.S.

Kim Fausing, Member of the Board at Hilti AG, Liechtenstein.

Dr. Matthias Victor, Board of Trustees of the Fraunhofer IWES Kassel, Germany.

Related entities:
On May 28, 2014, SMA concluded an agreement regarding a close strategic partnership with Danfoss A/S. As part of this partnership, Danfoss acquired a 20% stake in SMA and therefore now also belongs to the group of related entities. SMA entered into a strategic partnership with Danfoss in the areas of purchasing, sales and research and development. SMA also performs services on behalf of Danfoss. All agreements were concluded under fair market conditions. The business relationships between SMA and Danfoss in the fiscal year are presented in the table below. There is no material collateralization nor are there guarantees. No impairment losses were recognized from transactions with Danfoss.

in € million	2018	2017
Goods acquired by SMA	35.6	29.0
Services acquired by SMA	7.2	6.0
Services sold by SMA	0.5	1.0
Outstanding receivables at the end of the year	0.1	1.0
Outstanding liabilities at the end of the year	6.2	6.0

In addition, SMA has a 28.27% stake in Tigo Energy, Inc. SMA entered into a strategic partnership with Tigo Energy, Inc. in the areas of development, sales and service. SMA has a seat on Tigo Energy's board of directors. The business relationships between SMA and Tigo in the fiscal year are presented in the table below.

in € million	2018	2017
Goods acquired by SMA	7.0	4.0
Outstanding liabilities at the end of the year	0.0	0.1

Another related entity is the cdw foundation, which can be traced back to the founders of SMA, with its operating company cdw Stiftung gGmbH. No transactions requiring disclosure under IAS 24 were made with this entity in the reporting period.

30. Objectives and Methods Concerning Financial Risk Management

Financial risk management is integrated into the Group-wide hedging policy. Deliberate treatment of potential risks and sound control as well as successful management of such risks when they occur are supported by an accompanying information and communication policy as well as by further education and training of employees. The principle underlying the Group's hedging policy in the financial field is to protect against significant price, currency and interest risks by means of contracts and hedging transactions to an economically reasonable extent.

The financial instruments of the Group relate primarily to trade receivables and cash resulting directly from operating activities. In addition, there is a particular amount of trade payables that also arise from operating activities. The Group also uses derivative financial instruments as part of exchange and interest rate hedging. The Group's main risks in relation to financial instruments are interest-based cash flow risks as well as liquidity, currency and credit risks. The strategies and procedures for controlling individual types of risks defined in the context of the Group's overall hedging policy are presented below.

INTEREST RATE RISK

Interest rate risks within the SMA Group mainly arise in the case of financial liabilities and non-current portions of certain provisions. Interest on liabilities and provisions is not paid by the contracting party and is therefore discounted at the interest rate usual in the market, which means that there is no separate control of the interest rate risk. The variable interest-bearing portion of existing financial liabilities is secured through an interest rate swap. This ensures that interest rates are hedged in the long term and allows financing costs to be reliably calculated over the contract's term. The following sensitivities can be calculated for the financial instruments held on the balance sheet date:

If the market interest rate had increased by 1.0 percentage point, the impact on the period result would have been neutral (2017: €0.1 million). The effect on equity in relation to the market valuation of financial instruments of the available-for-sale category would have been also neutral (December 31, 2017: neutral). When calculating sensitivities with regard to a decline in interest rates of 1.0 percentage point, the effect on period earnings would have been neutral (2017: –€0.1 million), and the effect on equity would have been neutral as well (December 31, 2017: neutral).

FOREIGN CURRENCY RISK

As a globally active company, the SMA Group is exposed to both transaction-related and translation-related foreign currency risks.

SMA assesses risks from an economical point of view. Using this point of view, foreign currency risks arise in the form of direct transaction risks that derive from any (current or planned) receivable or payable denominated in a foreign currency and the resulting payment flow. The SMA Group's extensive business activity in North America means that foreign currency risks arise to a great extent in USD. In light of the fact that a pro-rata portion of the local added value attributable to the North American companies and supplier contracts based on USD is generated locally and sales in the local currency are balanced by expenditure in the local currency, the operational foreign currency risk in the SMA Group is limited.

Currency risks also arise, in particular, from the sales activity of our Japanese subsidiary.

An intra-Group guideline ensures that SMA companies report their foreign currency risks to Corporate Treasury, provided there are no country-specific restrictions in this regard. The remaining Group-wide risk is hedged by Corporate Treasury through the use of currency derivatives concluded externally with banks. Forward exchange transactions are the most commonly used method in this case. The use of options as part of the hedging strategy is also possible.

Translation risks mainly occur when the assets and liabilities of subsidiaries denominated in a foreign currency are converted to the parent company's domestic currency when preparing the Consolidated Financial Statements. Translation risks are not included within the scope of the active control of foreign currency risks.

Items denominated in foreign currencies and the development of the exchange rate of those currencies are monitored continuously and the risks are hedged, provided this is economically reasonable. The risks from hedging transactions in themselves are limited to the possibility that opportunities arising from a better price performance cannot be realized.

To present market risks, IFRS 7 requires sensitivity analyses which show the effects of hypothetical changes in relevant risk variables on earnings and equity. Currency risks are caused by financial instruments that are denominated in a currency other than the functional currency and which are of a monetary nature; differences related to exchange rates from the translation of financial statements into the Group currency are not taken into account. The U.S. dollar is deemed to be a relevant risk variable. The currency sensitivity analysis is based on original financial instruments in the form of receivables. Through the use of hedging transactions (derivatives), which are designed to hedge the underlying transaction, the opposing effects that accompany changes in the exchange rate of the USD are evened out. Notwithstanding, measurement of the hedging transactions concluded for the 2019 fiscal year results in a negative contribution to earnings of –€1.0 million from fair value measurement (2017: €7.7 million).

An increase of 5% in the euro with respect to the USD on December 31, 2018, would have led to a positive change in the currency derivatives of €4.0 million (2017: €9.4 million). A decrease of 5% in the euro on December 31, 2018, would have led to a reduction in the value of the currency derivatives of €4.5 million (2017: –€10.4 million).

An increase of 5% in the euro with respect to the JPY on December 31, 2018, would have led to a positive change in the currency derivatives of €0.6 million (2017: €1.5 million). A decrease of 5% in the euro on December 31, 2018, would have led to a reduction in the value of the currency derivatives of €0.7 million (2017: –€1.7 million).

As of December 31, 2018, the currency hedges related to EUR/USD and EUR/JPY.

As of December 31, 2018, there were no currency hedgings that were shown in hedge accounting as in the previous year.

Pursuant to IFRS, currency risks affect monetary financial instruments that are denominated in a foreign currency (i. e., in a currency other than the functional currency). This means that the foreign currency is the relevant risk variable. Translation-related risks are not taken into account. Because the individual Group companies mainly conduct their operative business in their own functional currency, we rate the risk from exchange rate fluctuations resulting from our ongoing business activity as insignificant.

CREDIT RISK

For all deliveries to customers, collateral is requested depending on the volume of the respective transaction and the specific customer and country risk. Data from the customer's previous business relationship, including payment practices and additional credit reports, are also used to avoid non-payment. In addition, the Group performs a customer credit check, which is based on certain financial key ratios. By setting a credit limit in a timely manner or suspending orders, the Group avoids being exposed to a significant risk of non-payment. If possible, the default risk is also limited by commercial credit insurance. The maximum non-payment risk is limited to the book value disclosed in section "14, Trade Receivables and Other Receivables". There are no major concentrations of non-payment risks within the Group.

With respect to all of the Group's other financial assets, such as cash and cash equivalents, available-for-sale financial investments and derivative financial instruments, the maximum credit risk, should the counterparty fail to pay, corresponds to the book value of these instruments. This counterparty default risk is analyzed on a continuous basis and managed by means of corresponding business allocation – also taking into account potential opportunities – with regard to cluster risks and credit risks.

LIQUIDITY RISK

One element of liquidity protection is the credit line of €100 million agreed upon with three domestic banks in 2016. At the end of 2018, only a small portion of the credit line was utilized in the form of guarantee credits.

The Company uses financial planning tools for early detection of future liquidity requirements. According to current planning, it can be assumed that the financial requirements will be covered in a reliably predictable time frame. Insurance contracts are concluded to hedge against the financial consequences of possible liability risks and damage claims, insofar as this is reasonable and possible. The cover provided by such contracts is reviewed and adapted regularly.

CAPITAL MANAGEMENT

The strategic objective of capital management within the SMA Group is to ensure financial flexibility and independence to make rapid use of the opportunities in a photovoltaic market characterized by strong growth. Profitable employment of the capital is measured through regular monitoring of net working capital. Within the SMA Group, net working capital is defined as the sum of inventories and trade receivables less trade payables. To be able to usefully measure relative capital consumption even in the event of strong corporate growth, net working capital is expressed in relation to sales. Through debtor management, which ensures that receivables are collected in good time, and linking inventories to sales as well as a constant dividend policy, the Company positions itself to achieve its objectives of financial flexibility and independence. In accordance with our intra-Group guidelines, the net working capital ratio determined in this way has to be below 25%. In the reporting year, the equity ratio of the SMA Group was 43.0% (2017: 50.3%) and the net working capital ratio was 23.3% (2017: 18.8%).

31. Auditor's Fees

The fees paid to the auditor and recorded as an expense in the year under review break down as follows:

in €'000	**2018**
Financial statement auditing	407
Other services	12
	419

The cost of financial statement auditing comprises the fees for the audit of the Consolidated Financial Statements as well as for the audit of the Financial Statements of SMA Solar Technology AG and its domestic subsidiaries, provided they are obligated to perform an audit pursuant to Section 316 of the German Commercial Code. The fees for audit-related services and other audit work mainly include expenses for EMIR audits.

32. Declaration on the German Corporate Governance Code in Accordance With Section 161 AktG

The declaration required under Section 161 AktG on the recommendations issued by the Government Commission German Corporate Governance Code was given by the Managing Board and the Supervisory Board on December 6, 2018, and made permanently available to shareholders on the SMA website at www.SMA.de.

33. Consolidated Financial Statements

As the supreme parent company, SMA Solar Technology AG prepared the Consolidated Financial Statements as of December 31, 2018, which are filed with the operator of the Electronic Federal Gazette and subsequently published in the Electronic Federal Gazette.

Niestetal, March 5, 2019

SMA Solar Technology AG
The Managing Board

Dr.-Ing. Jürgen Reinert
Ulrich Hadding

RESPONSIBILITY STATEMENT

We assure to the best of our knowledge that, in accordance with the applicable accounting standards, the Consolidated Financial Statements give a fair view of the net assets, financial position and results of operations of the Group and that the Consolidated Management Report gives a fair view of the course of business including the results of operations and the Group's position and describes the fundamental opportunities and risks of the probable development of the Group.

Niestetal, March 5, 2019

SMA Solar Technology AG
The Managing Board

Dr.-Ing. Jürgen Reinert Ulrich Hadding

INDEPENDENT AUDITOR'S REPORT

(Translation – the German text is authoritative)

To SMA Solar Technology AG, Niestetal

NOTE ABOUT THE AUDIT OF THE CONSOLIDATED FINANCIAL STATEMENTS AND COMBINED MANAGEMENT REPORT

Audit Opinion

We audited the Consolidated Financial Statements of SMA Solar Technology AG, Niestetal, Germany, and its subsidiaries (the Group) – which consisted of the consolidated balance sheet as of December 31, 2018, consolidated income statement, consolidated statement of cash flows and the consolidated equity change statement for the fiscal year from January 1 to December 31, 2018, as well as the Notes to the Consolidated Financial Statements, including a summary of the relevant accounting methods. In addition, we audited the Consolidated Management Report of SMA Solar Technology AG, Niestetal, including the Management Report of the parent company for the fiscal year from January 1 to December 31, 2018. The contents of the sections of the Combined Management Report mentioned in the annex to the auditor's report have not been audited in accordance with German law.

In our opinion, based on the findings of the audit:

→ The Consolidated Financial Statements attached comply with the IFRS as adopted by the EU in all material respects and the additional requirements of the German statutory provisions pursuant to Section 315e (1) of the HGB, and gives a true and fair picture of the assets and financial position of the Group as of December 31, 2018, and its results of operations for the fiscal year from January 1 to December 31, 2018, in accordance with these requirements.

→ As a whole, the Combined Management Report attached provides a suitable illustration of the Group's position. In all material respects, this Combined Management Report is consistent with the Consolidated Financial Statements, complies with German statutory provisions and suitably presents the opportunities and risks of future developments. Our audit opinion on the Combined Management Report does not include the contents of the sections of the Combined Management Report mentioned in the annex to the auditor's report.

In accordance with Section 322 (3) Sentence 1 of the HGB, we declare that our audit did not raise any objections against the correctness of the Consolidated Financial Statements and the Combined Management Report.

Basis for the audit opinion

We performed our audit of the Consolidated Financial Statements and the Combined Management Report in accordance with Section 317 of the HGB and the EU regulation on statutory audits of public interest entities (no. 537/2014) in consideration of the generally accepted standards for financial audits in Germany as defined by the Institute of Public Auditors (IDW). Our responsibility under these provisions and standards is described in more detail in the "Responsibility of the auditor to check the Consolidated Financial Statements and the Combined Management Report" section of our auditor's report. We are independent of the Group companies in compliance with EU law provisions, German commercial law and the German rules of professional conduct, and we have fulfilled our professional obligations applicable in Germany in accordance with these requirements. Furthermore, in accordance with Article 10, Paragraph 2 f) of the EU regulation on statutory audits of public interest entities, we declare that we did not render any prohibited non-audit services as per Article 5, Paragraph 1 of the EU regulation on statutory audits of public-interest entities. We believe that the audit evidence we have obtained is sufficient and suitable to provide a basis for our audit opinion on the Consolidated Financial Statement and the Combined Management Report.

Key audit matters in the Consolidated Financial Statements audit

Key audit matters are those matters that, in our professional judgement, were of most significance in our audit of the Consolidated Financial Statements for the financial year January 1, 2018 to December 31, 2018. These matters were considered as a whole in conjunction with our audit of the Consolidated Financial Statements and also taken into account when we formed our audit opinion. We do not provide a separate audit opinion on these matters.

Below, we outline the key audit matters from our point of view:

1. Realization of revenue on an accrual basis particularly in accordance with IFRS 15
2. Evaluation of the general warranty provision
3. Assessment of deferred tax assets
4. Evaluation of inventories

We have structured our presentation of these key audit matters as follows:

a) Description of key audit matter (including reference to related information in the Consolidated Financial Statements)

b) Auditing procedure

1. REALIZATION OF REVENUE ON AN ACCRUAL BASIS

a) Total sales of €760,934,000 are stated in the accounts from the supply of solar inverters and the associated equipment as well as service provisions and maintenance services. With this item of significant amount, there is a risk that the revenue will not be realized at the correct time, especially when close to the reporting date. Particularly with regard to the delivery of solar inverters, for which an Incoterm must be agreed upon as a delivery condition and according to which, unlike the standard process, the transfer of risk takes place only in the target country, there is the risk of premature revenue recognition. An additional risk regarding revenue recognition on an accrual basis results from the first-time application of the rules of IFRS 15.

Due to the risk of revenue recognition on a non-accrual basis in relation to IFRS 15 and the intrinsic fraud risk, we have defined the realization of revenue as a whole as well as in relation to certain Incoterms, in particular, as a key audit matter.

The information on sales provided by the legal representatives can be found especially in the sections "Accounting Methods and Amendments of Accounting Standards," "Segment Reporting," "Other Financial Liabilities" and "Other Liabilities" of the Notes to the Consolidated Financial Statements.

b) For risk assessment, we assessed the results of the internal audit concerning this matter. In our audit, we then evaluated the appropriate implementation of revenue realization, in particular through a structural and functional check of the sales process and analytical validation of the revenue split up according to business units. We also ascertained the implementation of the first-time revenue recognition in accordance with IFRS 15 by reviewing the accounting guideline and its implementation by way of sample-based contract inspections. With regard to the high-risk Incoterms, random checks were performed before and after the balance sheet date by comparing postings on the revenue accounts with the corresponding outgoing invoices along with the proof of delivery as well as cut-off audit procedures.

2. EVALUATION OF THE GENERAL WARRANTY PROVISION

a) In the Consolidated Financial Statements under the balance sheet item "Provisions," provisions for statutory warranties totaling €130,433,000 (i. e., 13% of the consolidated balance sheet total) are stated in the accounts, of which €91,052,000 represents general warranty risks and €39,381,000 represents individual circumstances.

In June 2018, the previous estimate for calculating the general warranty provision was changed using a Group-wide cost ratio based on historical values and the assumption of a linear distribution of repairs over the entire five- to ten-year warranty period. According to an extensive analysis by the Company's Quality Management department, the error patterns for each equipment group can be ascertained on the basis of error histories by evaluating existing records. In addition, specific cost rates for the error patterns for each equipment group can be determined via new evaluations of cost accounting. As a consequence of the newly acquired options for measuring future expected damage at equipment group level, the legal representatives modified the accounting practice (change in estimates in accordance with IAS 8.32 et seq.). This resulted in a reversal of the general warranty provision totaling €33.5 million as of the transition date.

Because of the risk of an erroneous evaluation of the general warranty provision resulting from the changed estimation method and due to the size of the amount reversed (€33.5 million), we identified the measurement of general warranty provisions as a key audit matter.

Information from SMA Solar Technology AG's legal representatives on the general warranty provisions can be found in the sections "Disclosures to the Accounting and Valuation Policies," "Significant Judgements, Estimates and Assumptions" and "Provisions" in the Notes to the Consolidated Financial Statements.

b) As a first step, we determined the change in the estimation of general warranty provisions based on explanations from the Company's Quality Management employees and documents on how error patterns for each equipment group are determined. In particular, we checked the completeness of actual warranty claims resulting from reported damage and made sure that allocation of the respective error patterns to the relevant equipment groups was correct. In addition, we examined the selected forecast method and reviewed it with regard to completeness and correctness of the quantity component (number of expected warranty cases). To assess the reliability of the estimates for error pattern frequency, we compared the historical forecasts with the actual events of damage in the past. Subsequently, we checked the accuracy of the calculation of costs for remediation of expected damage. To this end, we inspected the cost accounting for full allocation of warranty costs to the individual error patterns. More specifically, in the review of total costs per claim for each equipment group, we assured that recognition of direct costs was correct and inclusion of indirect costs was appropriate.

In addition, we checked the completeness of the relevant disclosures relating to a change in estimates in accordance with IAS 8.

3. ASSESSMENT OF DEFERRED TAX ASSETS

a) In the Consolidated Financial Statements under the balance sheet item "Deferred tax assets," deferred tax assets totaling €31,928,000 are stated in the accounts (i. e., 3% of the consolidated balance sheet). For the most part, this comprises deferred tax liabilities on the basis of temporary differences within the American subgroup. By contrast to the previous year, deferred taxes from loss carryforwards represent €0 (previous year: €13,244,000). Deferred tax assets are recorded for all temporary differences and unused loss carryforwards to the extent that it is probable that this could actually be used in the future. Determining the amount of deferred tax assets involves a significant exercise of judgement by the legal representatives regarding the expected time of accrual and the amount of taxable income in the future as well as strategic tax planning, which is why it is subject to considerable uncertainty. For this reason, we have considered the assessment of deferred taxes as a key audit matter.

Information from SMA Solar Technology AG's legal representatives on deferred taxes can be found in the sections "Significant Judgements, Estimates and Assumptions" and "Income Taxes" in the Notes to the Consolidated Financial Statements.

b) We evaluated the suitability of the assessment procedure. To this end, we were satisfied with the future taxable income and expenses predicted for the calculation after comparing these figures with the current plan values from the business plan approved by the legal representatives and the supervisory body. As well as internal tax experts, we also involved specialists from Deloitte USA LLP in the audit team to assess the deferred tax assets of the American subgroup. This was based on analyses prepared by long-standing external consultants.

As part of our audit, we evaluated the deferred taxes accounted for in the annual financial statements of the Group companies with regard to their feasibility. In particular, we also assessed whether the assumptions of the legal representatives with regard to the full recoverable amount of the deferred tax assets were reasonable.

4. EVALUATION OF INVENTORIES

a) Inventories totaling €193,795,000 (i. e., 20% of the consolidated balance sheet total) are stated in the accounts. This takes into account value adjustments totaling €45,183,000, which are formed, in particular, in the event of low inventory turnover. In addition, devaluations for discontinued products and surplus inventories of materials unrelated to specific products are also included as these inventories are no longer likely to be used in the production process based on the days in inventory analysis performed. SMA uses a time horizon of 36 months for the usage of the item to calculate excess inventories. All inventory items not needed for the next 12 months are value adjusted at 100%. Material management and the determination of discontinuations is the responsibility of the established steering committees and Launch Management.

We determined this as a key audit matter because impairments and risks resulting from the scope for decisions of judgement in the inventory valuation regarding this item of significant amount for the Consolidated Financial Statements are considerable.

Information from SMA Solar Technology AG's legal representatives on the inventory value adjustments can be found in the sections "Disclosures to the Accounting and Valuation Policies" and "Inventories" in the Notes to the Consolidated Financial Statements.

b) As part of the audit of the valuation of the inventories, we attached particular importance to performing a structural and functional check to assess the correct use of the Group-specific devaluation regulations by the system within the scope of testing the lowest values according to turnover for raw materials, consumables and supplies as well as unfinished and finished goods. In the case of materials that have been discontinued or that are part of a discontinued product, we were satisfied with the correct execution of the exclusivity test, which is performed by Supply Chain Management in cooperation with Controlling and Sales and forms the basis for the respective discontinuation as well as the days in inventory analysis, including the resulting value adjustments posted. Subsequently, we checked whether the devaluations determined from the lowest value tests were considered to be correct and complete as per the inventory valuation.

Other information

The legal representatives are responsible for other information. The other information includes:

→ The sections of the Combined Management Report mentioned in the annex to the auditor's report, the content of which has not been audited

→ The responsibility statement of the legal representatives on the Consolidated Financial Statements and Consolidated Management Report according to Section 297 (2) Sentence 4, resp. Section 315 (1) Sentence 5 of the HGB

→ The other sections of the Annual Report, with the exception of the audited Consolidated Financial Statements and the Combined Management Report as well as our auditor's report

Our audit opinions on the Consolidated Financial Statements and the Combined Management Report do not extend to the other information and, accordingly, we do not provide an audit opinion or any other kind of audit conclusion on them.

In connection with our audit of the Consolidated Financial Statements, we have a responsibility to read the other information and, in doing so, to assess whether the other information:

→ Demonstrates any significant inconsistencies with the Consolidated Financial Statements, the Combined Management Report or the knowledge that we have acquired from the audit

→ Otherwise appears incorrect

Responsibility of the legal representatives and the Supervisory Board for the Consolidated Financial Statements and the Combined Management Report

The legal representatives are responsible for the preparation of the Consolidated Financial Statements, which comply with the IFRS as applicable in the EU and the additional statutory regulations applicable in Germany as per Section 315e (1) of the HGB in all material respects, and for ensuring that the Consolidated Financial Statements give a true and fair picture of the net assets, financial position and results of operations of the Group in compliance with these requirements. Furthermore, the legal representatives are responsible for the internal controls they have deemed necessary to enable preparation of a Consolidated Financial Statements that are free of material misstatements, whether intentional or unintentional.

When preparing the Consolidated Financial Statements, the legal representatives are responsible for assessing the Group's ability to continue with its business activity. In addition, they are in charge of disclosing any matters related to the continuation of the business activity, where relevant. Furthermore, they are responsible for reporting on the continuation of the business activity based on the accounting policy unless there is an intention to liquidate the Group or cease business operations, or if there is no realistic alternative.

The legal representatives are also responsible for preparing the Combined Management Report, which provides an accurate view of the Group's position overall, is consistent with the Consolidated Financial Statements in all material respects, complies with German law and suitably presents the risks and opportunities of future development. Moreover, the legal representatives are responsible for the precautions and measures (systems) that they considered necessary to enable the preparation of a Combined Management Report in compliance with the applicable legal regulations in Germany and the provision of suitable evidence for statements made in the Combined Management Report.

The Supervisory Board is responsible for monitoring the accounting process of the Group for preparing the Consolidated Financial Statements and the Combined Management Report.

Responsibility of the auditor to check the Consolidated Financial Statements and the Combined Management Report

Our aim is to obtain reasonable assurance about whether the Consolidated Financial Statements as a whole are free of material misstatements – whether intentional or unintentional – as well as whether the Combined Management Report provides an accurate view of the Group's position overall, is consistent with the Consolidated Financial Statements and any knowledge gained from the audit in all material respects, complies with German law, suitably presents the risks and opportunities of future development, and to provide an auditor's report containing our audit opinions on the Consolidated Financial Statements and the Combined Management Report.

Reasonable assurance is a high degree of certainty but no guarantee that an audit performed in compliance with Section 317 of the HGB and the EU regulation on statutory audits of public interest entities in consideration of the generally accepted standards for financial audits in Germany as defined by the Institute of Public Auditors (IDW) will always reveal a material misstatement. Misstatements may result from inaccuracies or infringements and are considered material if it could be reasonably expected for them to influence the economic decisions made by the addressees, whether individually or as a whole, based on these Consolidated Financial Statements and Combined Management Report.

During the audit, we exercise professional judgement and maintain a critical stance. Furthermore:

→ We identify and assess the risks of material misstatements – whether intentional or unintentional – in the Consolidated Financial Statements and the Combined Management Report, plan and implement audit procedures as a response to these risks and gather audit evidence that is sufficient and appropriate to serve as the basis for our audit opinions. The risk that material misstatements will not be revealed is higher in the event of infringements as opposed to inaccuracies because infringements may include fraudulent collaboration, forgeries, intentional incompleteness, misleading representations, or the bypassing of internal controls.

→ We gain an understanding of the internal control system relevant to the audit of the Consolidated Financial Statements and of the precautions and measures relevant to the audit of the Combined Management Report in order to plan audit activities that are appropriate for the given circumstances. However, we do not aim to provide an audit opinion on the effectiveness of these systems.

→ We assess the appropriateness of the accounting methods applied by the legal representatives as well as the tenability of the values estimated by the legal representatives and the related information.

→ We draw conclusions about the appropriateness of the accounting policy for the continuation of business activity used by the legal representatives and, based on the audit evidence acquired, whether a material uncertainty exists in connection with occurrences or circumstances, which may raise significant doubts about the ability of the Group to continue with its business activity. If we reach the conclusion that a material uncertainty exists, we are obliged to draw attention to the relevant information in the Consolidated Financial Statements and the Combined Management Report in the auditor's report or, if these statements are inadequate, modify our respective audit opinion. We draw our conclusions based on the audit evidence obtained up to the date of our auditor's report. However, future occurrences or circumstances can result in the Group no longer being able to continue with its business activity.

→ We assess the overview, structure and content of the Consolidated Financial Statements, including the information provided, and check whether the Consolidated Financial Statements present the underlying business transactions and occurrences in such a way that the Consolidated Financial Statements give a true and fair picture of the net assets, financial position and results of operations of the Group in accordance with the IFRS as applicable in the EU and the additional statutory regulations applicable in Germany as per Section 315e (1) of the HGB.

→ We obtain sufficient and appropriate audit evidence for the accounting information of the companies or business activities within the Group in order to provide audit opinions on the Consolidated Financial Statements and the Combined Management Report. We are responsible for guiding, monitoring and implementing the audit of the Consolidated Financial Statements. We bear sole responsibility for our audit opinions.

→ We assess the correlation of the Combined Management Report with the Consolidated Financial Statements, its compliance with the law and the view of the Group's position conveyed by it.

→ We subject the forward-looking statements presented by the legal representatives in the Combined Management Report to audit procedures. In particular, we use sufficient and suitable audit evidence to trace the significant assumptions on which the forward-looking statements are based and assess the proper deduction of the forward-looking statements stemming from these assumptions. We do not provide a separate audit opinion on the forward-looking statements or the underlying assumptions. There is a significant unavoidable risk that future occurrences may differ significantly from the forward-looking statements.

Among other things, we discuss the planned scope and timing of the audit with those responsible for overseeing it as well as significant audit findings, including any deficiencies in the internal control system that we identify during our audit.

We provide those responsible for overseeing the audit with a declaration that we have satisfied the relevant independence requirements and discuss with them all the relationships and other circumstances that could reasonably be expected to affect our independence and the precautions taken for this purpose.

From the matters we discussed with those responsible for overseeing the audit, we determine those that were most significant to the audit of the Consolidated Financial Statements for the current reporting period and are therefore the key audit matters. We describe these key audit matters in the auditor's report unless the public disclosure of a key matter is ruled out by law or other statutory provisions.

OTHER LEGAL AND STATUTORY REQUIREMENTS

Remaining information in accordance with Article 10 of the EU regulation on statutory audits of public interest entities

We were selected as the Group auditor at the Annual General Meeting on May 24, 2018. We were commissioned by the Supervisory Board on July 4, 2018. We have worked continuously as a Group auditor for SMA Solar Technology AG, Niestetal since fiscal year 2009.

We hereby declare that the audit opinions contained in this auditor's report conform with the additional report submitted to the audit committee in accordance with Article 11 of the EU regulation on statutory audits of public interest entities (auditor's report).

RESPONSIBLE AUDITOR

The auditor responsible for the audit is Elmar Meier.

Hannover, March 5, 2019

Deloitte GmbH
Wirtschaftsprüfungsgesellschaft

(Schwibinger)	(Meier)
German Public Auditor	German Public Auditor

Annex to the auditor's report: Sections of the Combined Management Report, the content of which has not been audited

We have not audited the content of the following sections of the Combined Management Report:

→ The Corporate Governance Statement in accordance with Section 289f HGB and Section 315d HGB contained in the Corporate Governance Report in accordance with No. 3.10 of the German Corporate Governance Code

→ The non-financial statement according to Sections 289b to 289e and 315b and 315c of the HGB, which is contained in the section "Non-Financial Statement" in the Combined Management Report

→ The other sections of the Combined Management Report marked as unaudited

OTHER INFORMATION

GLOSSARY

TECHNICAL GLOSSARY

A

AC (Alternating Current)
Grid-compliant current

C

Central Inverter
Inverters for large-scale PV power plants that are used with centralized design concepts

Change-of-Control Clause
Provision in the board member and management employment contracts that provides a special termination right in case of a change of ownership or a change in majority shareholders, usually against payment of a firmly agreed compensation, continued payment of remuneration, often also a corresponding pension provision

Compliance
Legally compliant conduct

Corporate Governance
Procedures for managing and controlling companies in a manner that is responsible and aimed at long-term value creation

D

DC (Direct Current)
Direct current must be converted to grid-compliant alternating current (AC) for the grid supply or household use.

G

Grid Management
For decentralized generation plants, participation in grid management means that they have to adapt their feed-in to meet current grid distribution capacities. It affects all PV systems feeding in at medium voltage level.

I

Inverter
An electrical device that converts direct into alternating voltage or direct into alternating current

M

Medium Voltage
Voltage range from 1,000 V to 60,000 V

P

PV-Diesel Hybrid Systems
So-called PV-diesel hybrid systems combine photovoltaics with diesel generators and if applicable with battery storage systems. Integration of photovoltaics and storage systems into diesel power supply systems substantially reduces fuel costs and carbon emissions. PV-diesel hybrid systems are used mainly where an energy supply is not possible via a central utility grid.

R

Repowering
Modernization of older PV systems with new software and hardware components to enhance performance and optional extension with further functionalities such as storage or energy management

S

Smart Module Technology/Module-Level Power Electronics (MLPE)
With module-level power electronics, individual PV system modules that are affected by shading, for example, can be flexibly equipped with additional functions. This module technology can be used in individual modules when trees or chimneys cause partial shading, when modules are placed at different angles or for detailed monitoring at the module level.

String Inverter
With string technology, the PV generator is divided into individual module areas, and each of these individual "strings" is assigned its own string inverter.

U

UL 1741
The UL 1741 standard identifies inverter functions required for optimal grid stability.

W

W, kW, MW, GW
Units of power:
1 kilowatt (kW) = 1,000 watts (W)
1 megawatt (MW) = 1,000 kilowatts
1 gigawatt (GW) = 1,000 megawatts

Wp
Abbreviation for watt peak. Unit used for the standardized rated power of a photovoltaic cell or a photovoltaic module under standard conditions.

FINANCIAL GLOSSARY

E

EBIT
Earnings before interest and taxes

EBITDA
Earnings before interest, taxes, depreciation and amortization

EBIT Margin
The higher the percentage, the higher the earnings power. The EBIT margin is calculated by putting operating profit in relation to sales.

EBITDA Margin
The higher the percentage, the higher the earnings power. The EBITDA margin is calculated by putting EBITDA in relation to sales.

EBT
Earnings before taxes

Equity Ratio
Shows the share of equity in total assets.

F

Free Cash Flow
Operating cash flow minus investments plus negative investments in fixed and intangible assets. Free cash flow is important because it allows a company to pay dividends or to buy back shares. Therefore, free cash flow is a measure of how much cash can be paid to the shareholders of a company.

Free Cash Flow (Adjusted)
Operating cash flow minus investments plus negative investments in fixed and intangible assets before cash inflows or outflows from time deposits or investments in securities. Adjusted free cash flow is an indicator of ability to repay debt financing.

G

Gross Cash Flow
Shows the operating income prior to any commitment of funds. It is calculated by considering earnings before income tax and the financial result – plus interest received, depreciation and amortization, changes in other provisions, profit/loss from the disposal of fixed assets and other non-cash expenses/revenues less interest paid and income tax paid.

Gross Profit
Sales minus cost of sales

I

IAS
International Accounting Standards; newer standards refer to the initials IFRS.

IASB
International Accounting Standards Board

IFRIC
Interpretations of the International Financial Reporting Interpretations Committee on IAS/IFRS

IFRS
International Financial Reporting Standards defined by the IASB

N

Net Cash
Liquid funds and securities contained within working capital and cash on hand pledged as collatoral less interest-bearing financial liabilities

Net Cash Flow From Financing Activities
Outflow/inflow of liquid funds from equity financing and debt financing

Net Cash Flow From Investing Activities
Outflow/inflow of liquid funds from investments and disinvestments

Net Cash Flow From Operating Activities
Outflow/inflow of liquid funds, unaffected by investments, disinvestments and financing activities

Net Working Capital
The total amount of short-term, interest-free working capital (inventories plus trade receivables) less trade payables and liabilities from advanced payments received for orders

Net Working Capital Ratio
Net working capital in relation to net sales

O

Operating Profit (EBIT)
Earnings before interest and taxes

Order Backlog
This includes current sales and sales expected in the future. In this context, the requirements for all orders pending delivery and deliveries that have already been made but not yet posted as goods issue are taken into account based on their volume and value.

R

Return on Assets (After Taxes)
The return on assets (after taxes) is the consolidated net profit divided by the average total assets of the reporting period (average of total assets at the beginning and end of the reporting period).

Return on Equity (After Taxes)
The return on equity (after taxes) is the consolidated net profit divided by the averaged total equity for the reporting period (average of total equity at the beginning and end of the reporting period).

Return on Sales
Ratio of EBT to sales

GRI INDEX AND UN GLOBAL COMPACT PRINCIPLES

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SUSTAINABILITY KEY FIGURES OF THE SMA GROUP

AREA OF ACTION: PRODUCTS AND PROCESSES

		2018	2017
Sales	€ million	760.9	891.0
Inverter output sold	MW	8,449	8,538
Capital expenditure	€ million	40.3	33.2
Research and development costs (including own work capitalized)	€ million	87.1	83.0
Research and development ratio in relation to sales	%	11.4	9.3
EBITDA	€ million	–69.1	97.3
EBITDA margin	%	–9.1	10.9
Patents and utility models		1,244	1,057
Prevented emissions[1]	Millions of tons of CO_2	52	45
Prevented environmental damage[2]	€ million	7,492	6,525
Quality – field failure rate	%	0.71	0.54

[1] Global CO_2 savings by SMA products compared with the fuel mix in Germany of 0.53 kg/kWh
[2] €145 per prevented ton of CO_2 emissions (Federal Environment Agency – medium-term costs, mean value)

AREA OF ACTION: ENVIRONMENT AND ENERGY[1]

		2018	2017
Total energy consumption[2]	kWh/kW	3.42	3.69
Total power consumption	kWh/kW	2.72	2.72
Share of photovoltaics in total electricity consumption	%	40	33
Share of regional/decentralized renewable electricity	%	87	70
Water/effluent[3]	m^3/employee	11.1	10.8
Total waste[2]	t/GW	234.4	229.2
Share of recyclable waste	%	87.5	85.4
Share of hazardous waste	%	12.2	14.7
CO2 emissions S1+S2 total[2]	kg/kW	0.79	0.90
CO2 emissions S1+S2 Germany[2]	kg/kW	0.17	0.19
CO2 emissions S1+S2 abroad[2]	kg/kW	0.62	0.71
CO2 emissions of SMA vehicle fleet passenger cars[3]	kg/employee	186.8	190.2
Ø CO_2 emissions of company cars according to ECE[4]	g/km	108	111
CO_2 emissions S3			
CO_2 emissions aircraft[3]	kg/employee	464.4	558.0
CO_2 emissions rail[3]	kg/employee	3.25	3.23
CO_2 emissions logistics truck	%	4	Not given
CO_2 emissions logistics aircraft	%	88	Not given
CO_2 emissions logistics ship	%	8	Not given
CO_2 emissions logistics rail	%	0	Not given

[1] Niestetal/Kassel location, if not specified otherwise
[2] In relation to inverter output produced
[3] In relation to the number of employees at the end of the period
[4] In accordance with manufacturer specifications as outlined in the ECE standard

AREA OF ACTION: EMPLOYEES

		2018/12/31	2017/12/31
SMA Group employees			
Employees (excl. temporary employees)		3,353	3,213
of which domestic		2,212	2,077
of which abroad		1,141	1,136
Temporary employees		290	701
Total employees (incl. temporary employees)		3,643	3,914
Trainees		72	94
Gender diversity of SMA employees			
male	%	74.6	75.0
female	%	25.4	25.0
SMA Group executives			
male	%	85.7	85.7
female	%	14.3	14.3
Domestic executives			
male	%	90.5	90.8
female	%	9.5	9.2
Managing Board			
male	%	100	100
female	%	0	0
General Managers/Vice Presidents			
male	%	93.5	88.6
female	%	6.5	11.4
Directors			
male	%	90.6	89.6
female	%	9.4	10.4
Executives abroad			
male	%	78.6	77.7
female	%	21.4	22.3
SMA Supervisory Board			
male	%	75	75
female	%	25	25
Occupational safety and health			
Domestic Lost Work Day Rate[1]	Sick days/ working hours	14.41	12.95
Domestic Lost Time Incident Rate[2]	Accidents/ working hours	1.41	1.51

1 Sick days due to work-related accidents x 200,000 in relation to working hours
2 Accidents > 1 lost day x 200,000 in relation to working hours

AREA OF ACTION: CORPORATE SOCIAL RESPONSIBILITY

		2018	2017
Sustainability evaluation of suppliers according to EcoVadis[3]	%	48	Not given
Locations assessed for risks of corruption	%	6	50
Employees given corruption avoidance training		2,037	305
Cases of corruption		0	0

3 Since 2018, sustainability performance evaluation of the main suppliers is done by EcoVadis. The sustainability performance of SMA suppliers is in the green area of the EcoVadis scale.

REGISTERED TRADEMARKS

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FINANCIAL CALENDAR

2019/05/09	Publication of Quarterly Statement: January to March 2019 Analyst Conference Call: 09:00 a. m. (CET)
2019/05/28	Annual General Meeting 2019
2019/08/08	Publication of Half-Yearly Financial Report: January to June 2019 Analyst Conference Call: 09:00 a. m.(CET)
2019/11/07	Publication of Quarterly Statement: January to September 2019 Analyst Conference Call: 09:00 a. m. (CET)

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