

2G Energy AG Annual Report

## Multi-year overview of Group key figures

#### **Results of operations**

	2017	2016	2015	2014	2013
	TEUR	TEUR	TEUR	TEUR	TEUR
Earnings before interest, tax, depreciation		0.000	0.074	4.4.000	= = 0 4
and amortisation (EBITDA)	11,116	9,236	8,071	14,032	5,524
Earnings before interest and tax (EBIT)	7,333	5,649	4,773	11,287	3,117
Financial result	-369	-368	-285	-498	24
Operating result (EBT)	7,197	5,393	4,576	11,017	2,905
Consolidated net income	4,923	1,784	2,603	6,883	1,029
Profitability					
EBITDA-Margin in %	5.9	5.3	5.3	7.5	4.4
EBIT-Margin in %	3.9	3.2	3.1	6.0	2.5
Return on Equity in %	8.8	3.4	4.9	13.2	2.2
Return on total assets in %	6.3	5.1	5.0	12.2	3.5
ROCE <sup>1</sup> in %	12.5	10.1	8.6	20.6	6.1
Order and revenue situation					
Order backlog at year-end	95,855	91,232	85,472	42,368	45,968
Book-to-Bill Ratio <sup>2</sup> as of 31 Dec.	1.07	1.13	1.31	0.97	1.06
Net Sales	189,404	174,299	152,884	186,605	126,130
Change vs. previous year in %	8.7	14.0	-18.1	47.9	-13.9
Total operating revenue	190,494	183,622	154,713	189,556	137,510
Sales distribution					
Net sales international in %	35	30	27	21	22
CHP units/After Sales in %	66	67	66	80	78
Service in %	34	33	34	20	22
Expense structure					
Cost of materials	126,822	128,633	100,621	133,972	96,939
Materials intensity in %*	66.6	70.1	65.0	70.7	70.5
Personnel costs	32,670	29,951	29,315	25,458	21,471
Average number of employees Ø	606	579	566	522	494
Labour intensity in %*	17.2	16.3	18.9	13.4	15.6
Other operating expenses	20,955	18,901	19,902	19,069	15,494
Cost intensity in %*	11.0	10.3	12.9	10.1	11.3
Depreciation and amortisation	3,783	3,587	3,299	2,745	2,407
Income tax	2,041	1,699	1,885	4,060	1,775
Tax ratio <sup>3</sup> in %	28.4	31.5	41.2	36.9	61.1

#### **Financial position**

	2017	2016	2015	2014	2013
	TEUR	TEUR	TEUR	TEUR	TEUR
Total assets	116,258	111,389	95,855	92,617	88,629
Asset structure					
Fixed assets	25,458	24,635	23,475	22,691	21,927
Tangible fixed assets to total assets ratio** in %	17.8	17.2	18.4	18.3	17.9
Current assets	88,816	85,346	71,036	68,706	65,355
Inventory turnover ratio					
Inventories	4.3	4.0	4.7	6.0	4.5
Receivables	6.8	6.0	6.2	8.5	5.5
Capital structure					
Equity	55,711	52,916	52,647	52,069	47,152
Equity ratio in %	47.9	47.5	54.9	56.2	53.2
Share capital	4,430	4,430	4,430	4,430	4,430
Provisions	15,513	12,465	11,697	11,191	10,009
Bank borrowings	6,364	6,277	5,913	6,144	7,232
Working Capital⁴	33,164	31,389	31,781	31,991	28,832
Financing					
Cash inflow/cash outlow from					
operating activities	12,845	6,382	2,062	8,262	4,442
as % of sales	6.8	3.7	1.3	4.4	3.5
Investing activities	-4,878	-4,544	-1,016	-3,484	-2,964
Financing activities	-2,114	-1,703	-1,888	-3,139	-5,071
Investments in plants	5,691	4,837	3,318	3,833	3,425
Free Cashflow⁵	7,154	1,545	-1,256	4,429	1,017
in % of Net sales	3.8	0.9	-0.8	2.4	0.8
Dividends	1,772	1,639	1,639	1,639	1,639
Change in liquid asstes	5,854	135	-842	1,639	-3,594
Liquidity as of 31 Dec.	16,092	10,187	10,128	11,394	10,110

#### 2G Aktie

	2017	2016	2015	2014	2013
Number of shares (≙ Share capital in EUR)	4,430,000	4,430,000	4,430,000	4,430,000	4,430,000
Share price <sup>6</sup>	17.70	18.34	21.62	16.55	26.79
Earnings per share	1.11	0.40	0.59	1.55	0.23
Dividend per share	0.427	0.40	0.37	0.37	0.37
Dividend yield in %6	2.4	2.2	1.7	2.2	1.4
Payout ratio in % <sup>8</sup>	37.8	99.3	63.0	23.8	159.3
Price-earnings-ratio <sup>6</sup>	15.9	45.5	36.8	10.7	115.4
Price-Cash-Flow Ratio <sup>6</sup>	6.1	12.7	46.4	8.9	26.7

\* related to total output | \*\* related to total assets | 1 = EBIT/(Fixed assets + Working Capital) | 2 = CHP order intake/CHP net sales | 3 = Income tax/EBT 4 = Current assets – Current liabilities | 5 = Cashflow from operating activities – investments in plants | 6 = based on year-end xetra closing price 7 = proposal to the Annual General Meeting | 8 = Dividends/Net income

2G. Cogeneration.

### Content

Foreword of the Management Board	.7
Report by the Supervisory Board	10
2G Energy AG share	14
Leading the way in the energy revolution	19

#### Financial year 2017

Group management report3	5
Consolidated financial statements7	3
Auditor's report9	9
Colophon 10	4



Management Board of 2G Energy AG (from left): Ludger Holtkamp, Christian Grotholt (Chairman) and Friedrich Pehle.

### Foreword of the Management Board

Dear shareholders,

The 2017 financial year progressed tangibly better than the previous year: we lifted our net sales to almost EUR 190 million, representing an increase of around 9 %, and our earnings before interest and tax (EBIT) climbed by around 30 % to EUR 7.3 million. Our consolidated net profit of EUR 4.9 million was solid, thereby leaving scope for a higher dividend. Our aim is for our shareholders to participate in the company's continuous and sustainable success and profitability by way of an attractive dividend. The Management and Supervisory boards will propose to the AGM on July 4, 2018 to raise the dividend from EUR 0.40 to EUR 0.42 per share.

We are also satisfied with our business progress in 2017 for another reason: we have taken important steps to boost efficiency in production, purchasing, service, sales and administration as well as to smooth seasonality, and we have invested a lot of energy in our three lead projects: our partner concept (internationalization), digitalization and "Lead to Lean". We are thereby laying a promising foundation for the company to resume more dynamic growth in the future. A look at the initial results convinces us that this can be achieved.

This development is already most clear in the strength of our foreign business. The partner concept is beginning to take effect and has attracted many additional international orders onto our books. In 2017, we boosted our net sales generated with CHP systems sold abroad by one third. Overall, the share of such sales from abroad amounted to 42 %. We also further strengthened our Service offerings in terms of structure. Net sales were up by almost 13 %, and income from this division also showed an above-average rate, reflecting personnel changes at the second management level, further reorganization within the structure of works service, and the digitalization within the service area, which we have advanced further. Digitalization also included establishing an online shop for replacement parts. In the first quarter of 2018, we have already generated TEUR 400 of online sales with 2G original replacement parts via our "shop.2-g.com". This shop is a customer loyalization and customer communication tool. At the same time, however, it serves to acquire new customers, as it is also utilized by CHP users not yet supplied by 2G. In the future, we will address both old and new contacts by way of modern marketing tools.

Service today is inseparably linked with the digitalization of CHP systems, and we were an early mover in integrating and implementing service into all our developments. In the year under review, a total of about 70 % of all error messages are already resolved online via the central 2G Service Center without physical intervention on site. The next digital revolution for CHP systems is referred to as "predictive maintenance". This will increasingly enable 2G Service to preventatively identify potential errors, order replacement parts and adapt operating parameters to changes that arise such as outside temperature and gas qualities. 2G thereby maintains CHP system performance and availability – as key preconditions for economic viability – at a consistently high level

over the system life-cycle, leading to greater customer benefits. With the digitalization of CHP systems, we also acquire many data that we deploy systematically not only to optimize 2G systems and to realize future developments, but also to loyalize customers.

The Asia region forms a geographic focus of our internationalization strategy through licensed partner companies. More than half of energy demand growth worldwide up to 2040 will derive from this region, according to the International Energy Outlook 2017. Growth in the capacity of renewable energies will also prove the strongest in Asia. We currently identify the desire to reduce energy costs, become independent of regional electricity offerings, and leverage political support to reduce CO<sub>2</sub> emissions as the main drivers behind rising CHP demand. Here, inquiries derive from both the waste recycling areas (CHP systems for gases from purification plants, landfill gases and biogas) as well as from internationally operating groups ordering natural gas driven CHP systems to supply their own production locations. Some metropolitan regions in Asia are also clearly endeavoring to improve their inhabitants' quality of life, also through stringent clean air limits. For this area, too, 2G is offering a highly efficient and technically mature solution with its new aura range.

The strength of the aura range lies in its extremely low gas emission levels and outstanding efficiency characteristics. The module complies with constantly rising emission regulations worldwide and ensures permanent reliable operation for our customers. In order to supplement this new product series, we also advanced the development of our own SCR catalyst technology in 2017. We can thereby prepare all our portfolio products for emission-sensitive applications.

We are well equipped to meet the upcoming challenges. Being prepared in this manner represents a daily objective for us, and an ongoing and constant process which we have initiated with our Lead-to-Lean flagship project, and to which we devote a great deal of energy on a day-by-day basis. Along with our employees, the aim is to create the preconditions and instruments that make 2G a self-optimizing and selflearning organization. We will further advance this type of organization in the current financial year by means of further organizational adjustments, process standardizations and digital solutions. Our balance sheet and financing ratios, which we strengthened again in the year under review, as well as our profitable growth, underscore the strength of 2G. In view of the high level of ongoing new order intake from Germany and abroad, our product innovations and the overall positive economic climate we are confident of achieving a good result in the 2018 financial year.

With a look to 2018, we assume consolidated net sales between EUR 180 million and EUR 210 million. We aim to sustainably improve our earnings with an EBIT margin between 3.5 % and 5.5 %.

We would like to thank all our employees who have further developed our products, services and the company with their commitment, and who have ensured smooth processes on a daily basis. We would like to thank you, our shareholders, for your confidence and critical interest.

Heek, May 2018 2G Energy AG

Yours sincerely,

I. forthealt

Christian Grotholt Management Board Chairman (CEO)

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Ludger Holtkamp Management Board member

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Friedrich Pehle Management Board member

### **Report by the Supervisory Board**

Dear shareholders,

During the financial year elapsed, the Supervisory Board of 2G Energy AG accompanied, supervised and gave advisory support to the Management Board in its management of the company and the 2G Group, and fulfilled its tasks in accordance with statutory regulations, the company's bylaws and the rules of business procedure. The Supervisory Board was informed by the Management Board about important strategic and operative decisions and was involved in decisions of particular significance for the 2G Group. This did not require committees to be formed.

The Management Board informed the Supervisory Board either verbally or in writing about the progression of business, the results of operations and financial position of the 2G Group as well as about business transactions of major importance. The Supervisory Board Chairman was also in contact with the Management Board outside the scope of meetings, discussing not only current business trends and personnel questions, but also, in particular, questions relating to the corporate organization and foreign sales markets. Consequently, the Supervisory Board was informed about important questions relating to business policy as well as relevant forthcoming decisions, and was able to support the Management Board in its work.

#### **Supervisory Board members**

The period of office of the Supervisory Board members ended with the Annual General Meeting (AGM) of July 11, 2017. This AGM re-elected Dr. Lukas Lenz, Mr. Heinrich Bertling and Mr. Wiebe Hofstra to the Supervisory Board until the AGM that approves the discharge of the Supervisory Board for the 2021 financial year. At its constitutive meeting on July 11, 2017, the newly elected Supervisory Board then elected Dr. Lukas Lenz to be the Supervisory Board Chairman, and Mr. Heinrich Bertling to be the Deputy Chairman.

#### Supervisory Board consultations and resolutions

By way of utilization of the exemptions pursuant to Section 110 (3) Clause 2 of the German Stock Corporation Act (AktG), four Supervisory Board meetings were held in the 2017 financial year, on May 29, July 10, July 11 and November 16. All Supervisory Board members attended these Supervisory Board meetings. The Supervisory Board discussed with the Management Board the transactions requiring its approval pursuant to the law and the company's bylaws, and reviewed and approved them unanimously in all cases. At the meetings, the Supervisory Board utilized the reports and documents submitted by the Management Board to conduct consultations on the company's business and financial position, its operational and strategic development, and its operating segments. These especially included the development of the partner concept (internationalization), the "Lead to Lean" flagship project and the further digitalization of CHP systems and the service offerings. The Supervisory Board also concerned itself with trends in the overall regulatory environment and competition in various markets. The Supervisory Board requested reports on important specific questions relating to the company, its risk position, investment planning and personnel trends, and consulted about them.

The following topics were discussed in detail at the individual meetings:

Important agenda items at the Supervisory Board meeting on May 29, 2017, especially included business trends and Group profitability during the previous 2016 financial year, business progress during the first months of the financial year under review, and the company's medium-term liquidity, financial, investment and personnel planning, as well as adopting the separate annual financial statements and approving the consolidated financial statements for the 2016 financial year. The board also discussed personnel matters. Furthermore, the Supervisory Board issued its unanimous approval to the Management Board in relation to business requiring its consent.

On July 10, 2017, the Management Board reported to the Supervisory Board on business progress and new order intake trends for the first half-year, and provided an outlook of expected full-year trends.

At the Supervisory Board meeting on November 16, 2017, the Management Board explained the results of the half-year financial statements, business progress in the third and fourth quarters, and the company's liquidity trends. The Management Board also gave an outlook of corporate trends in 2018. The Supervisory Board unanimously approved Management Board business requiring its consent, including in the financing area and in personnel matters.

No conflicts of interest arose among the members of the Supervisory Board.

#### **Changes to the Management Board**

Mr. Friedrich Pehle was appointed to be the company's Chief Financial Officer on September 12, 2017, with effect as of December 1, 2017, for a three-year period, after Mr. Dietmar Brockhaus had stepped down from the Management Board as of July 31, 2017, at his own wish. As CFO, Mr. Pehle is responsible for the areas of finance, investor relations, controlling, personnel and IT.

Moreover, the Supervisory Board extended the period of office of Management Board members Mr. Christian Grotholt and Mr. Ludger Holtkamp by a further five years until July 15, 2022.

## Separate and consolidated financial statements for the 2017 financial year

The Management Board prepared the separate financial statements, the consolidated statements and the Group management report for 2G Energy AG for the 2017 financial year in accordance with the regulations set out in the German Commercial Code (HGB). PricewaterhouseCoopers AG. Wirtschaftsprüfungsgesellschaft, Osnabrück, the auditors of the the financial statements elected by the AGM on July 11, 2017, audited the separate financial statements, the consolidated financial statements and Group management report of 2G Energy AG for the 2017 financial year, including the financial accounting, awarding them ungualified audit certificates. The Supervisory Board was convinced of the impartiality of the auditor and of the individuals acting for the auditor. Audit focus areas for the 2017 financial year included the valuation of inventories, trade receivables, the valuation of provisions, and deferrals relating to the origination of receivables, as well as the realization of revenue and earnings on the reporting date.

The separate financial statements, consolidated financial statements and Group management report, as well as the auditors' reports, were submitted to all Supervisory Board members. The auditor explained the main audit results to the Supervisory Board at its meeting on May 17, 2018, and along with the Management Board answered the Supervisory Board's questions.

The Supervisory Board noted with approval the audit reports. Following the conclusive result of its own review, the Supervisory Board approved the consolidated financial statements and the Group management report and thereby adopted the separate annual financial statements pursuant to Section 172 of the German Stock Corporation Act (AktG).

The Supervisory Board concurs with the Management Board's proposal concerning the application of unappropriated profit, to distribute a dividend in an amount of EUR 7,004,944.70, equivalent to EUR 0.42 per share, from the unappropriated profit of EUR 1,860,600.00, and to carry forward to a new account the remaining unappropriated profit of EUR 5,144,344.70. The Supervisory Board would like to thank the members of the Management Board and all employees at 2G Energy AG and its Group companies worldwide for their energetic commitment and constructive collaboration.

Heek, 17 May 2018

The Supervisory Board

Dr. Lukas Lenz Supervisory Board Chairman

### The 2G Energy AG share

The 2G share started the 2017 stock market year at a price of EUR 18.48. It climbed to its year-high of EUR 24.87 by mid-April, before gradually receding to its year-low of EUR 17.70 towards the year-end. The positive corporate news concerning high new order intake, a pickup in foreign business and the launch of the company's three flagship projects of internationalization, digitalization and "Lead to Lean" were not taken up by the capital market as such. While the specification of the revenue and earnings forecast at the end of November 2017 placed only temporary pressure on the 2G share, news concerning the expiry of the special regulation relating to the EEG levy (which previously had been levied at just 40 % for self-generated and self-utilized electricity) from mid-December produced tangible effects. On a full-new view, the 2G share shed 4.2 % of its value (previous year: -14.5 %). The market capitalization of 2G Energy AG reduced from EUR 81.2 million in the previous year to EUR 78.4 million as of the financial yearend, on unchanged share capital of EUR 4,430,000.00.

Stock markets in 2017 reported a continuation of the previous years' upward trend. The DAX30 index was up, driven by a continued very good economy and the low interest-rate environment, marking a new record high of 13,479 points in November. The DAX closed the year with a 12.5 % year-on-year gain (previous year: 6.9 %). The TecDax was up by 39.6 % (previous year: 1.0 %). The DAXsector All Industrial index that is sector-specific to 2G appreciated by 16.7 % (previous year: 19.7 %), while the DAXsubsector All Renewable Energies was down by 19.8 % (previous year: -33.1 %).



Market capitalization 2007 to 2017 as of Dezember 30, 2017, 2018 as of May 4, 2018, XETRA closing prices

#### 2G included in selective Scale 30 index

The trading liquidity in the 2G share has improved considerably on the previous year and registered a satisfactory level overall during the year. Average daily volumes on the XETRA and tradegate platforms as well as on the German regional stock exchanges amounted to around 8,400 shares (previous year: around 4,400 shares). A contributing factor in this context was potentially the switch of 2G as of March 1, 2017 to the "Scale" segment, the new stock market segment of Deutsche Börse AG and successor to the Entry Standard, attracting more attention from investors and the media.

2G Energy AG was included from the start of the new Scale 30 index of Deutsche Börse AG in early March 2018. This index comprises the 30 most liquid shares in the Scale segment. Share turnover on XETRA and the Frankfurt Stock Exchange proved crucial to the inclusion of 2G.

15

The 2G share recovered in the first quarter of 2018. Supported by announcements about new order intake and the company exceeding both its sales and earnings forecasts for the 2017 financial year, the share price stabilized at a level aroung EUR 19. With the announcement of the 2017 annual closing figures at the end of April 2018 and a promising start to the year, the share price rose to EUR 21.00 by 4 May 2018.

#### Investor relations activities

Dialog with the capital market and transparent, continuous reporting on relevant corporate events remained important guiding principles for the investor relations work of 2G Energy AG in 2017. The aim is not only to further establish trust and confidence in the company's financial and technological strength, but also to create the transparency required to enable analysts, shareholders and potential investors to appraise and evaluate the company on a regular and understandable basis. 2G endeavors to explain its business model and its growth and earnings potentials to capital market participants in a comprehensible manner.

Interest in the 2G share was also evident in many requests for roadshows in Europe and Germany in 2017, as well as invitations to address investor conferences and investor visits to the production site in Heek. The Management Board presented the 2G business model at various capital market events and roadshows, explaining its products, technological development work, market trends and sales strategies in international markets.

Interest among analysts remained strong: with First Berlin, SMC Research and equinet, three institutes

monitor and evaluate the company's development. Thanks to the switch to the Scale segment as of March 1, 2017, the 2G share is additionally covered by the analysts at Edison Investment Research.

Most of the analysts identify further share price growth potential for the 2G stock based on their valuation models, and recommend it as a "Buy".

2G neither approved nor implemented any capital measures during the period under review.

#### Further dividend increase proposed

2G Energy AG pursues the objective of its shareholders participating continuously and long-term in the company's success and profitability through a stable dividend. At the same time, the company's financial and innovative strength is to be maintained and strengthened for further growth. Value and growthoriented investors are thereby set to benefit in the long term from the continuous appreciation in the company's value. Based on the profit generated in the 2017 financial year, the Management and Supervisory Boards have decided to propose to the Ordinary AGM to be held on July 4, 2018 that a dividend of 42 cents per share is to be paid for the past financial year, an increase of 5 % compared to the previous year.

In relation to the 2017 year-end closing price, this corresponds to a 2.37 % dividend yield (previous year: 2.18 %) and a 37.8 % payout ratio (previous year: 99.8 %).



16

# The shareholder structure of 2G Energy AG remained largely unchanged during the reporting year. Company founders Christian Grotholt and Ludger Gausling held 30.0 % and 23.3 % of the shares respectively as of the balance sheet date. The free float consisted of 46.7 % of the shares in issue as of December 31, 2017.

The shareholder structure is as follows as of December 31, 2017:









Leading the way in the energy revolution.

2G Energy AG Annual Report.

## Ambitious objectives

#### The global energy revolution

States and communities have set ambitious targets for climate protection at both national and international levels. In Germany, for example, the proportion of renewable energies is to increase to 30 % by 2030, and by 2030 greenhouse gas emissions are to be reduced by 55 % compared with 1990. Also across the whole of the EU, the share of renewable energies is to rise to 27 % by 2030, with greenhouse gas emissions being cut by 40 % compared with 1990. The global target is to limit global warming to significantly below 2 °C, an objective to which 195 countries have committed themselves as part of the Paris Agreement.

"

The Stone Age did not end because the world ran out of stones. It ended because there were better alternatives. The same applies today to fossil fuels.

António Guterres General Secretary of the United Nations

**Objectives in Germany:** Reduction of greenhouse gas emissions in million tons (left) and increase in the share of renewable energies in energy consumption – **for electricity**, **heat and traffic –** in %



**Objectives in the EU:** Reduction of greenhouse gas emissions in million tons (left) and increase in the share of renewable energies in energy consumption – **for electricity, heat and traffic** – in %



Sources: www.umweltbundesamt.de; BMWi, September 2017

The fact is that these targets can only be reached if greenhouse gas emissions are reduced considerably. The following graph shows that the gap between the volume of emitted greenhouse gases in the future with the targets we have set, measured in  $GtCO_2$ , and the volumes that are only allowed to be emitted to achieve the Paris climate protection targets is widening.

And what is more: the assurances and own targets that states and communities of states have established to date will prove insufficient to reach the target. Instead, the world community would have to reduce its greenhouse gas emissions by more than 80 % within twelve years.



-80%

Within just twelve years, the world community would have to reduce its greenhouse gas emissions by more than 80 %.

CAT 2017 projections and resulting emissions gaps in meeting the Paris Agreement's temperature goal. Source: www.climateactiontracker.org/global/cat-emissions-gaps/, November 15, 2017 \* GtCO,e: expected CO, emissions in giga tons

\*\* LULUCF: Land Use, Land-Use Change and Forestry

What short-term possibilities remain to reach the targeted level of greenhouse gas emissions while retaining supply security, environmental compatibility and economic viability. Short-term, the targets can only still be reached if natural gas replaces the dominant primary energy source of coal in electricity and heating generation, and the expansion of renewable energies is accelerated. Medium-term, regeneratively sourced gases can be utilized to further improve the net CO<sub>2</sub> impact. Combined heat and power generation is an indispensable building block on the way to achieving this.

21

## **Backbone of energy revolution**

Combined heat and power: synonymous with resource efficiency, high overall efficiency, dynamic operating mode and significant CO<sub>2</sub>/NO<sub>x</sub> avoidance

#### Supply security

Long-term, wind and solar power will represent the main generation types for electricity. Their production outputs fluctuate, however, so that technologies are required that can compensate these volatilities. Thanks to their highly flexible operation, digital technology and control electronics, CHP systems can both absorb the residual load from generation fluctuations as well as provide base load electricity.



Economic viability

Environmental compatibility

Economic viability

#### **Environmental compatibility**

CHP systems offer resource efficiency, high operating efficiencies and significant  $CO_2/NO_x$  avoidance in energy conversion. They can be operated with regenerative gases as well as with natural gas. Operating with natural gas saves up to 40 % in primary energy and reduces greenhouse gas emissions by up to 60 %. In biogas operation, 2G power plants can be operated largely  $CO_2$ -neutral.

Combined heat and power systems are operated highly efficient and on a decentral basis at the place of use and based on existing infrastructures. Combined heat and power generation is a highly economical technology thanks to the efficient, simultaneous generation of electricity and heating or cooling, and its flexible application possibilities.

## The multi-talent

#### Eco-friendly, flexible, economical

Combined heat and power generation is a key building block to achieve the ambitious climate protection targets – with full supply security, environmentally compatible energy production and affordable energy supplies.

Power to gas

promising technology offering long-term storage solutions

#### Decentrality

energy production at the place of use

#### **Virtual power plants**

combine intelligent conversion, storage and usage at distribution grid level

#### **Resource-conserving**

thanks to efficient conversion and around 40 % less input

#### Flexibility

provides demand-oriented balancing and control energy within a few seconds

## Broad application possibilities

for industry, commerce and the residential sector, offering efficiencies of more than 90 %

## **Power plants of the future** 2G helps to shape them



Stably functioning electricity supplies go without saying today. To date, transmission grid operators have ensured such supply security through conventional nuclear, gas and coal power plants. This changes fundamentally with the energy revolution. Conventional energy sources will be increasingly replaced by renewable energies. Wind and solar systems deliver electricity on a fluctuating basis and thus only meet the actual energy requirements in exceptional cases. One solution approach that can lead to stable electricity supplies is to bundle different renewable energy systems through digital information and communication networks to form a virtual power plant where electricity supply and demand is coordinated through system services to exert a stabilizing effect.



The Quirinus project is concerned with this challenge. 2G forms an active part of a research team consisting of distribution grid operators, energy supply companies as well as manufacturers and operators of renewable energy systems.

A EUR 6 million subsidy provided by the European Union and the German federal state of North Rhine-Westphalia enables intensive research on the power plants of the future.



## **Technology leader**

Worldwide success with combined heat and power generation

As a pioneer, innovator and one of the worldwide leading manufacturers of decentralized energy conversion systems harnessing combined heat and power generation (CHP), we have commissioned thousands of technologically advanced and highly efficient CHP systems since 1995.

We are consistently expanding our technology leadership through continuous research and development work, both in gas engine technology for natural gas, biogas and synthetic gas applications (e.g. hydrogen), as well as in specific development to develop software to digitalize systems and service processes. We augment this innovative CHP technology to include peripherals we have developed ourselves such as activated carbon filters, gas mixers, catalysts and ORC systems, to offer our customers economical and low-emission CHP solutions optimized in line with their demand. 5.000

More than 5,000 installed CHP plants in 45 countries

## **Professional service**

#### Focus on maximum plant availability

In order that each combined heat and power system can produce electricity reliably and with maximum efficiency, we offer a professional service and maintenance concept for each CHP system we deliver – irrespective of whether in Germany or for example in Australia. This includes experienced and continuously trained technical personnel available quikly and reliably on site when needed – either as 2G factory service or as a licensed partner company. Digital processes and online tools support our service personnel with automatic remote diagnosis, remote control and remote maintenance. About 70 % of fault messages are already triggered "online" without physical intervention via the central 2G service center. In consequence, CHP system performance and availability, as key parameters of a plant's economic viability, remain constantly high over the product life-cycle. A strong sales argument – worldwide.



2G service center.

# R&D as a competetive advantage

#### Engine mechanics, plant control, peripheral equipment

2G aims to be a technology leader and to increase customer benefit trough unique selling points. This applies to thermodynamics and mechanical solutions as well as to digital system controls and peripherals.

## 90%

emission savings per kWh<sub>el</sub> for aura CHP systems compared to systems with comparable electrical output

In 2017, we took the product development of the aura range to series-readiness. This range is distinguished by extremely low emissions and very high overall efficiency. Along with developing the aura range, a further focus was on developing exhaust gas aftertreatment components. A proprietary development to convert waste heat into electricity was also taken to the pre-series stage. The so-called ORC\* process utilizes the waste gas heat from a CHP system and converts it into additional electric energy with efficiencies of more than 15 %.



The utilization of ORC technology to enhance overall electric efficiency represents a good example of our endeavor to deploy innovative solutions and further developments to increase system utility for our customers, enhance energy efficiency, and make a significant contribution to climate protection with each gas driven combined heat and power system. For us, this is the motivation to develop and optimize technologically leading systems and solutions in the 20 kW to 2,000 kW performance range.

\* ORC = Organic Rankine Cycle

## **Digital intelligence** Added value from digitalization

Especially due to the need to significantly reduce CO<sub>2</sub> emissions, the past decades' primarily supply-side-driven energy supplies are being replaced by demandled and increasingly decentralized energy generation. Digital controls are ascribed a key role in this context. For this reason we were early in the development and implementation of digital communication capabilities, electronic controls and qualifying certifications, including in

compliance with the Medium Voltage Directive.

By means of the "my.2-g.com" platform – which we developed ourselves – we have also been offering system operators and sales partners the possibility since August 2017 to continuously optimize their system management through a total of twelve useful tools and services.

With my.2-g.com 2G customers and partners have key plant data in view at any time and in any place.



## **my.2-g.com:** Twelve digital tools for CHP operators to optimize their plant management



Via the 2G Power Plant interface, operating data and fault messages of the 2G plant can be automatically displayed in the 2G Plant Manager. Thanks to the digital intelligence of the 2G Power Plant, a service order can be triggered automatically: The 2G service will either restore the operational readiness by remote dial-in or a service technician will be notified who will repair the fault as quickly as possible.

## **Global presence**

#### Focus on partnership

Over the course of the past decade, we have created the foundation for business growth outside Germany with the founding of subsidiaries in the USA, the UK, Italy, France, Spain and Poland as well as with long-term strategic partners in Asia. We have thereby succeeded at an early stage in diversifying our sales markets and reducing dependencies on individual markets. This development is to be taken to the next level with the launch of our partner concept. Our international network is to grow further. We are implementing this concept through licensed partner companies that take over the sale, installation and service of 2G power plants locally, within their cultural environment.

Our medium-term goal is to become a fully globalized leading provider of gas driven CHP systems and CHP solutions. The share of our sales generated outside Germany in 2017 already stood at 35 %, and even at 42 % in the case of the sale of CHP systems. We aim to consistently further boost our international activities.



Export share of CHP systems in 2017



First international sales seminar in May 2017, attended by more than 50 individuals from 22 different countries.



A successful partnership for all parties involved: The licensed 2G sales partner White Harvest Energy, and the customer Erlanger Health System in front of one of the four avus 2000 CHP plants ordered: Ben Edgar (owner, White Harvest Energy), John Loetscher (Erlanger Health System) and Doug Edgar (owner, White Harvest Energy).

## **Major CHP project in the USA** Licensed US sales partner wins major order

A good example of the successfully implemented partner concept for 2017 is the order from Erlanger Health System, Tennessee, one of the largest public health organizations in the USA, for four avus 2000 natural gas-powered CHP plants with a total electrical output of 8 MW. The order is worth around USD 6.6 million.

Our sales partner White Harvest Energy, in Tennessee, won the contract. In addition to project planning and execution, they will also install the containerized CHP plants on site. As part of the partner concept, White Harvest Energy markets 2G plants in Tennessee, Kentucky, North & South Carolina, parts of Mississippi, Alabama, Georgia and throughout Texas. White Harvest also takes over the ongoing service of the plant with its own staff trained by 2G and also uses the digital support of the my.2-g.com platform.

For the client Erlanger Health System, the benefit of the CHP system lies in the in annual cost savings of around 20 % by the highly efficient, combined generation of electricity, heat, cold and steam. One of the four CHP units is available on call and is used as standby system, so that system operation is possible around the clock and all year round. Erlanger expects an amortization period of less than four years.



20%

Annual cost savings by combined generation of electricity, heat, cold and steam.

## **Our vision**



2G benefits from global long-term trends that make efficient and effective energy solutions ever more important. These include worldwide rising energy demand and the need at the same time to conserve resources and significantly cut greenhouse gas emissions. CHP technology is an indispensable, system-relevant element in the design of the future electricity market.

The digitalization of CHP systems and services that 2G consistently implements creates a high barrier to market entry for competitors. With its fully developed product portfolio, 2G will benefit from global demand growth through its foreign subsidiaries and its partner concept.

The 2G Group, with its products and expertise, sees itself as part of the global energy revolution. Our more than 20 years of experience and our aim to continuously further improve our CHP sisters' efficiency drives us to "push the envelope" and accept new challenges. In the 20 to 2,000 kW performance range, 2G aims to become THE customer-oriented provider of gas operated CHP systems and solutions.







# **2G.** Group management report.

Group management report35
A. The 2G Group36
B. Economic and business environment38
C. Results of operations49
D. Financial position51
E. Net assets53
F. Non-financial Group statement54
G. Corporate responsibility59
H. Outlook66
Consolidated financial statements73
Auditor's report99

### 2G Energy AG Annual Report.

### Group management report

### Reservation in relation to forward-looking statements

This management report includes forward-looking statements that are based on management estimations that are current as of the time when this management report is prepared. Such statements relate to future periods, or are characterized by terms such as "expect", "forecast", "predict", "intend", "plan", "estimate" and "anticipate". Forward-looking statements are connected with risks and uncertainties. Many of such risks and uncertainties are determined by factors that are not subject to the 2G Group's influence. As a consequence, actual results can differ significantly from those described below.

### Changes to the preparation of the management report

Compared with the previous year, in some places the content of the management report has been shortened to make it clearer and provide better overview.

#### A. The 2G Group

#### **Operating activities and corporate structure**

The 2G Energy AG Group is an internationally leading manufacturer and provider of decentralized energy supply systems. With the development, production and technical installation, as well as digital network integration, of combined heat and power systems (CHP systems), the company offers comprehensive solutions on the growth market for highly efficient combined heat and power generation systems. After-sales and maintenance services comprise an important additional performance criterion. The product range especially includes CHP modules with an electric output range between 20 kW and 2,000 kW for operation deploying natural gas, biogas, other lean gases and hydrogen. All systems work highly efficiently, conserving resources, reducing or neutralizing the emission of climatedamaging carbon dioxide or nitrogen oxide through combined energy degeneration and modern emission gas cleaning systems. Worldwide, more than 5,000 installed 2G systems in various applications supply electrical energy, heating and cooling internationally to a broad spectrum of customers including companies in the housing industry, agriculture, commercial and industrial companies, public energy utilities, and municipal and local government authorities.

2G Energy AG is a holding company combining ten subsidiaries under its management.

2G Energietechnik GmbH (2GE), which is based at the Group site in Heek, in Germany's western Münster region, comprises the main operating entity. The company combines the planning, sale, production, commissioning and ongoing service of 2G systems. Moreover, 2G operates dependent branches in Schonstett near Munich, in Hamburg, in Halle/Saale, and in Berlin.

In Europe, 2G is represented with independent sales and service companies in France, the UK, Italy, Spain and Poland. Outside, 2G is present with a production, sales and service location in the USA. In addition, important conurbation areas and industrial markets are secured through sales partnerships in Japan, China, Southeast Asia, Australia, Africa and Russia, for example.


Diagram 1: 2G Energy AG corporate structure. December 31, 2017

#### **B. Economic and business environment**

# **Macroeconomic situation** Dynamic global economic growth in 2017

In the 2017/2018 Annual Report it published in November 2017, the German Council of Economic Experts (GCEE) assumes that global gross domestic product (GDP) will expand by 3.2 % (2016: 2.6 %). This growth rate reflects a marked increase in investments and a higher level of world trade.

In the Eurozone, the economic upturn has firmed up and has accelerated significantly. Underpinned by expansive monetary policy, investments are registering strong growth. Structural adjustments in many member states since the financial crisis are also making an important contribution to this upturn. Overall, the economic experts are assuming a continuation of the economic recovery for the fourth consecutive year, forecasting 2.3 % Eurozone gross domestic product growth for 2017 (2016: 1.8 %).

With a look to the German economy, the experts see strong gross domestic product growth of 2.0 % for the reporting year (2016: 1.9 %). This upswing is becoming increasingly broad-based, as private consumption, state spending and construction investments have been rising significantly over an extended period. Furthermore, companies are investing more again in capital goods as well as in research and development, and important sales markets, especially the Eurozone, are registering very dynamic growth. According to the German Engineering Federation (VDMA), engineering sector order books in the full 2017 year were up by around 8 % compared with the previous year. The gap between domestic and foreign demand remains wide, however. While orders from abroad were up by 10 %, domestic orders registered just 5 % growth. A marked pickup in domestic demand was evident as of the yearend, however, with double-digit growth rates being registered.

#### **Global sector trends**

CHP as an important building block in the future energy generation market

The 2G Group, with its products and expertise, perceives itself as part of the global energy revolution. 2G contributes to resource conservation and climate protection with its highly efficient gas driven CHP systems that produce electricity and heating/cooling in a combined process on an economical basis.

For more than two decades, the international environment in the energy sector has been characterized by rising energy consumption and higher levels of energy production. Global energy consumption was up by almost 50 % between 1995 and 2015, according to International Energy Agency (IEA) data. While EU consumption was down by around 4 %, it increased by approximately 6 % in the USA, 183 % in China and 64 % in other Asian countries. Corresponding IEA energy generation figures reflect similar dimensions. Oil and coal remain the dominant raw materials for energy production. Their share together amounted to 60 % internationally in 2015 (1995: 62 %). Although the climate-friendly primary energy sources of gas and renewables have appreciated significantly in absolute figures (in Mtoe) since 1995, accounting for 64 % and 50 % respectively, in aggregate they amount to barely one third (1995: 32.6 %; 2015: 34.8 %) of the aforementioned primary energy sources.



Diagram 2: World energy production by fuel 1995 - 2015. Source: EU Energy Pocketbook 2017, August 2017

The energy sector stands in the field of tension between internationally rising energy consumption on the one hand, and low CO<sub>2</sub>-emitting, environmentally compatible energy generation on the other. More and more wind turbines and photovoltaic systems are being built worldwide and connected to the grids of the general electricity supply. However, the supplydependent productions are volatile due to wind and sunlight. These fluctuations do not provide a secure supply for people and the economy. As a result, technologies are in demand on the producer side that generate electricity and heating on an economically viable basis with natural gas and biogenic primary energy sources such as biogas, landfill gases and gases from purification plants, or hydrogen. Those technologies would be able to compensate for the fluctuating electricity production of PV and wind power plants if necessary. Decentralized structures and the intelligent networking of both production and consumption units are also required to efficiently utilize electricity from renewables. Only in this manner can especially coal, as one of the primary energy sources

emitting the most carbon dioxide, be replaced mediumterm. CHP technology offers a resource-conserving, efficient and climate-friendly energy production type for decentralized energy supplies.

#### Growing demand for CHP from abroad

The sector's positive growth trend over many years continued in 2016, according to the annual survey of modules sold by CHP plant manufacturers operating in Germany that was published in November 2017 by Germany's Öko-Institut, the German Federal Cogeneration Association (B.KWK) and the magazine Energie & Management. Sales estimates issued by producers for the 2017 financial year also considerably extrapolate this trend.



Diagram 3: Sale of CHP engines in Germany and abroad in MW. Source: Energie & Management, Öko-Institut, November 2017

Compared to 2015, CHP output sold in 2016 reported a marked rise. At almost 2,500 MW, it represents the previous sales record, and is up 24 % year-on-year. If CHP manufacturers' sales expectations for 2017 prove

# Sale of CHP engines in Germany and abroad

in MW

in MW



#### 2G CHP output sold in Germany and abroad 2013 - 2017

correct, this sales performance of more than 3,250 MW would correspond to an increase of around one third on 2016. Demand from abroad represents an important engine of this growth.

#### 2G expands its output sold, especially abroad

For 2G, the markets for natural gas and biogas operated CHP systems enjoy strategically similar weightings. Practice in Germany and many foreign markets has shown that the state-sponsored utilization of biogas quickly opens up new customer groups, application possibilities and utilization potentials for the technology of gas-driven, efficient and decentrally operated combined heat and power generation. In countries that have well expanded natural gas infrastructure, this is then followed by a gradual and continuous upswing in demand for natural gas CHP systems in the lower and medium performance range of around 20 kW to 4 MW. Overall, 2G sold 170.9 MW electric output in the year under review (previous year: 139.8 MW), representing 22 % growth compared with the previous year. This sales increase derives not only from markedly higher demand from abroad but also demand for biogas driven systems in Germany. The proportion of output sold outside Germany stood at 78.4 MW (previous year: 39.2 MW). The foreign share has thereby doubled compared with the previous year, accounting for 45.9 % of total output sold.

# Biogas market in Germany benefits from flexibilization business

Constructing new biogas systems in Germany remained at a low level in the reporting year following the major cuts to subsidies deriving from the 2014 German Renewables Act (EEG 2014). Only 35 MW of electric output in the form of new biogas systems were additionally built in 2016, according to the German Biogas Association, which also sees this figure standing at just 12 MW in 2017. The market for plant expansions proved significantly more dynamic with a forecast 248 MW (previous year: 183 MW), reflecting 35 % yearon-year growth.

The biogas business of 2G in Germany also participated fully in this growth. In the year under review, 2G invoiced predominantly biogas driven combined heat and power systems as part of making existing biogas systems more flexible and boosting installed input. This dynamic demand trend derives from the restoration of legal and investment security from the 2017 EEG for existing systems, and from numerous CHP modules that 2G installed in the past years, that have reached the end of their normal operating lives (approximately 60,000 operating hours, representing an average of eight years). Operators face the choice of either a general overhaul or a replacement investment in combination with technical resizing and flexibilization of the respective system (so-called superstructuring; the capacities are available as flexible output if demand exists in the electricity grid). Through the high level of its technology, system controls and grid integration capacity, 2G created the preconditions at an early stage to participate not only in the new biogas system business but also in investments in making systems more flexible. Thanks to its service business, 2G also benefits from established customer relationships, which frequently makes 2G the first point of contact for biogas system operators.

Measured in terms of the annual expansion construction of biogas operated CHP modules, 2G significantly extended its market share in Germany to 26.3 % in the reporting year (previous year: 17.4 %). 2G is benefiting from the superstructuring of the biogas models it has sold especially from 2006 on. The company has also succeeded in displacing competitors thanks to superstructuring. These figures relate to forecast figures for 2017, status as of October 2017, which the German Biogas Association publishes annually on the overall market across all output classes.

Trend in 2G's market share in German biogas CHP market



#### Diagram 5: Trend in 2G's market share in German biogas CHP market 2014 – 2017\* for biogas operated CHP power plants across all performance ranges. Source: 2G Energy AG, 2G calculations, German Biogas Association, July 2017

#### 2G opens up new biogas market abroad

For some years, 2G has been increasing its sales generated with biogas modules in the foreign markets it addresses. Especially France and Japan, with new order intake of EUR 6.5 million and EUR 5.0 million respectively, contributed to this continuous growth in the reporting year. New order intake in the UK of EUR 1.5 million was markedly lower due to the reduction in feed-in compensation as of the end of March 2017. New order intake in Italy stood at EUR 2.3 million.

Furthermore, 2G tangibly enhanced its international presence in other markets in the year under review through its partner concept, and acquired new customers. 2G can offer such customers service and replacement parts services through the partner network. This sustainably strengthens the company's competitive positions in the regions it addresses. In Asia (excluding Japan), new order intake for Biogas driven CHP plants picked up to a level of EUR 1.1 million (no new order intake in 2016). In Eastern Europe, new order intake rose to EUR 1.8 million (previous year: EUR 1.3 million). In Switzerland and the Benelux countries, too, new order intake volume registered considerable growth to EUR 1.3 million and EUR 1.4 million respectively (both EUR 0.4 million in the previous year).

# Biogas market in North America still under construction

The North American biogas market offers high potential, as already noted in previous years' annual reports. 2G received orders worth around EUR 2.6 million in the USA and Canada in the reporting year. However, a breakthrough in the form of significant increases in system figures has not yet occurred. Two reasons can be cited for the slowdown in sales of electricity-generating biogas systems, according to information from the American Biogas Council. Interest is currently oriented more to systems for biomethane generation (RNG, Renewable Natural Gas), for sale in the transportation sector - supported as part of the so-called Renewable Fuel Standard (RFS). The second reason lies in a surplus of cheap natural gas, so that energy supply companies do not pay adequate prices for regeneratively produced electricity. The ABC is convinced the situation would improve considerably if regeneratively produced electricity were also permitted for the RFS program, which would also be sold in the transportation sector.

# Natural gas market trends in Germany and internationally

2G is of the view that natural gas is assuming a key role in sustainable energy supplies as part of the new energy policy direction. Natural gas has made a reliable contribution to energy supplies in Germany, Europe and large parts of the rest of the world for decades. Supply security has improved significantly over the past years through tapping new natural gas deposits and investments in distribution logistics such as harbor terminals to ship liquid natural gas (LNG). The highly varied deployment of multitalented natural gas for energy supplies in the electricity and heating markets is also connected with great CO<sub>2</sub> reduction potential that can be tapped quickly and cost-efficiently.

In Germany, one of the best developed CHP markets worldwide, the installed electric output of natural gas driven CHP systems reported annual average growth of 17.5 % between 2009 and 2016, according to data from the German Federal Office for Economic Affairs and Export Control (BAFA). In 2016, the second highest figure since 2014 for approved output of 1,679 MW was recorded (1,741 MW). Especially in the performance range of CHP modules of 50 kW to 2 MW produced by 2G, installed outputs achieved continuous growth over this period.

Over the past two years, however, new business for natural gas driven CHP systems in Germany was characterized by overall reticence on the part of manufacturers and investors. The structuring of legislative projects such as the amended 2016 German Cogeneration Act (KWK-G 2016), the German Tenant Electricity Act and the German Regulation on Avoidable Grid Utilization Fees (vNNE) for decentralized, controllable systems consumed an unexpectedly significant amount of time. Moreover, uncertainty prevailed until the midyear concerning the structure of tenders for CHP systems between 1 MW and 50 MW, which were implemented for the first time on December 1, 2017 with a tender volume of 100 MW installed output. The further structure of the EEG mandatory levy for own electricity consumption for new CHP systems installed from August 2014 also remained unclear. Overall, this made the planning basis considerably more difficult, leading to reticence among investors in the German market.

For instance, new order intake for natural gas driven systems in Germany of EUR 20.5 million was exactly on the previous year's level (EUR 18.2 million). In markets outside Germany, 2G realized significant sales growth of EUR 27.1 million (previous year: EUR 15.2 million), to which especially the USA contributed. The number of orders acquired through sales partners rose considerably in this context. In the UK, too, 2G sold natural gas CHP systems worth EUR 2.6 million with the support of sales partners, and is thereby well on track to offset the weaker biogas module sales mediumterm.

In the German market for natural gas driven CHP systems, 2G maintained its dominant position in its 50 kW to 500 kW performance range, although its share reduced slightly from 24.8 % to 23.1 %, according to BAFA data published February 26, 2018. The average for the last five years stands at 23.9 %.

# Trends in 2G's market share in German CHP market for natural gas operated CHP power plants in the core performance range > 50 - 500 kW in %



Diagram 6: Trends in 2G's market share in German CHP market 2012 - 2016 for natural gas operated CHP power plants in the core performance range > 50 - 500 kW. Source: 2G Energy AG; German Federal Office for Economic Affairs and Export Control (BAFA), February 2018

#### Natural gas prices on a further downtrend

Natural gas prices in Germany fell slightly in the reporting year in the case of distribution to private households as well as to trade, industry and the residential sector. Only year-average selling prices to industry increased by 1.2 % year-on-year. Europe, too, reports a slight rise in natural gas prices for industrial customers, according to figures available as of the 2017 half-year stage. Natural gas supplies remain very good, according to surveys conducted by the Eurogas sector association. The range of known natural gas reserves worldwide extends to at least 54 years, according to estimates Eurogas published in 2014. The uptrend in shale gas supplies from the USA and Canada will contribute to lower natural gas prices for the foreseeable future.

# Development of prices for natural gas for the industry, households, trade and commerce in Germany (Index 2010 = 100)



Sourse: German Federal Statistical Office, Development of Energy Prices, January 2018

#### **Electricity prices continue to rise**

Electricity prices for small and medium-sized industrial operations and households in Germany remain at a high level with a slight uptrend. In the reporting year, this reflected no change compared with previous years. Average electricity prices for private households and medium-sized industrial operations in 2017 increased year-on-year by almost 10 % to 17.09 cents/ kWh respectively, according to calculations from the German Association of Energy and Water Industries (BDEW). Graph 8 shows the individual components of the total electricity price.

As far as medium-sized industrial and commercial electricity customers are concerned, it is to be noted that the electricity price has remained at a high level since 2014, and continues to trend upwards. A trend turnaround is not identifiable either in the year under review or prospectively.



# Average electricity price for industrial customers (incl. electricity tax) 2014 - 2018 Euro Cent per kWh

Diagram 8: Average electricity price for industry 2014 - 2018 (including electricity tax) in Germany in Euro Cent per kWh (annual consumption 160 to 20,000 MWh), medium voltage supplies (intake 100 kW/1,600 h to 4,000 kW/5,000 h). Source: BDEW Electricity Price Analysis 2018, January 2018

### Spark Spread remains at attractive level

In the markets relevant for 2G, gas and electricity prices in 2017 developed beneficially in terms of the economic viability of 2G CHP power plants. Generally, potential customers face an economic decision as to whether to invest in a gas operated CHP power plant - and thereby become largely more independent of public supplies and save energy costs –, or to stay with conventional energy supplies. This situation is assessed based on the so-called Spark Spread (relationship between the electricity price and the natural gas price). The experts at Delta Energy & Environment assume that market conditions start to become interesting for an investment given a factor greater than 2.5. A factor higher than 3.0 already signals attractive conditions, and a factor above 3.5 promises very attractive terms.

# Spark Spread ratios in Europe and USA 2013 - 2017



Diagram 9: Spark Spread trends in selected European countries and the USA 2013 – 2017.

Source: German Federal Statistical Office, energy price trend data, August 2017; UK Department of Energy & Climate Change, Industrial Electricity & Gas Prices in the IEA, June 2017; 2G calculations As shown by the graphical presentation of Spark Spread trends in examples of markets of interest for 2G, the underlying conditions have tended to improve continuously for the economic operation of combined electricity and heating generation since 2013 with the gap between electricity and gas prices widening. The Spark pread factor in Italy, Germany, the USA and the UK lies near or above five in 2017.

# Services make disproportionate contributions to earnings

2G Service has developed into an important sales driver within the Group over recent years. In the reporting year, too, it accounted for around one third of sales. It generates stable and predictable cash flows that are largely independent of the economic and regulatory environment. This reflects not only the rising number of natural gas and biogas driven CHP systems, which are sold via the partner concept along with service contracts, but also the consistent digitalization of many service processes. In combination with access to the digital customer and partner portal my.2-g.com, to which 2G and its German and foreign partners can make recourse equally, this has led to further efficiency enhancements and cost reductions. 2G has thereby strengthened its competitive position in the service business and can also win orders abroad through the partner network thanks to its solid service commitment, including in the face of regional competition.

Many customers in Germany and abroad enter into long-term service and maintenance contracts, with 2G managing their systems over the entire lifecycles. 2G further optimized its processes and structures in Service in the reporting year as part of its "Service 2020" project. Along with digitalization and expanding web applications, focus areas included the further expansion of a service network across all areas, establishing a "Best in Class" plant service as well as the service trading of German and foreign partner companies. The Service division has thereby made a disproportionally high contribution to the earnings through the greater number of systems under management, and with cost reductions and efficiency gains.

### **Regulatory environment in Germany**

The energy legislation environment for CHP system operators - and for investors that would like to become operators - underwent significant change again in Germany in the year under review. This presents an obstacle to the planning and investment security the CHP sector needs, as the young CHP market and the economic feasibility of operating CHP systems is still affected by regulatory conditions. 2G is in agreement with the German Cogeneration Association (BKWK) that the way to almost complete supplies from renewable energies can only be taken with the help of intelligent connectivity and decentralized structures. The aim should be to offset volatile electrical energy production from photovoltaics and wind power plants, thereby making renewable energies baseload-eligible. This course should not be impeded by ideologically-based framework conditions. Instead, legislators should set up a framework determined by the principles of open technology, system integration, decentrality, subsidiarity and economic feasibility.

The EU Commission's rejection on subsidy legislation grounds of the extension of the reduced EEG levy to 40 % for own electricity from CHP systems commissioned from August 1, 2014 to beyond December 31, 2017, evoked memories of the long-winded subsidy-law approval of the amendment to the 2016 German Cogeneration Act (KWK-G). A clarification of the situation is not anticipated before summer of the current financial year.

The EEG 2017, which became effective as of January 1, 2017, aims to promote the expansion of renewable energies with increasingly competitively oriented instruments. The generally positive view of 2G of the new EEG 2017 provisions was confirmed in the year under review. Sales of biogas operated CHP systems in the German market have picked up considerably. The focus was on repowering existing systems and making them more flexible. With the EEG 2014, the so-called flex cap was introduced and the subsidizing of the flexibilization of biogas systems – the flexibility premium – was limited to a total of 1,350 GW across the whole of Germany. Until November 2017 inclusive, 501.5 MW of the entire additional construction cap of 1,350 MW had been utilized. Of this amount, a total of around 224 MW was attributable to 2017.

Foreign markets, too, reflect heterogeneous regulatory conditions. 2G can make recourse to related local know-how through its partner network as well as its own subsidiaries, and flexibly and rapidly adjust its respective sales and marketing strategies in line with demand.

#### The year in overview

2G grows profitably in FY 2017 and significantly expands foreign business

With an order book position of EUR 91.2 million (31 % of which comprises work in progress), 2G made a good start to the 2017 financial year. This high level was continued during the entire reporting year thanks to constant new order intake from both Germany and abroad. In Germany, 2G received mainly orders for biogas driven CHP systems, while orders for natural gas operated CHP systems remained as expected at a low level during the entire year. Business with natural gas driven CHP systems abroad performed very pleasingly, and more than doubled, by contrast.

Apart from the UK, 2G achieved significant growth in its foreign markets, including some high doubledigit growth rates, above all in the USA, where new order intake almost doubled (from USD 11.0 million to USD 20.8 million). Gratifying growth was also achieved in France and Japan at around 13 % each (France: from EUR 8.7 million to EUR 9.9 million, Japan: from EUR 6.1 million to EUR 6.9 million). Supported by many new customer regions, especially in Asia and Eastern Europe, 2G almost completely offset the expected market reduction in new order intake in the UK to currently EUR 4.1 million (previous year: EUR 16.6 million) was almost completely offset.

The partner concept that was launched at the end of 2016 to further internationalize CHP sales materialized in the reporting year not only in new order intake but also already in sales. Overall, 2G increased its foreign sales of CHP systems by around one third year-on-year to EUR 52.6 million. As a consequence, the share of CHP sales generated abroad stands at 42.1 % (previous



# 2G Group **EBIT** margin

year: 33.5 %). 2G thereby successfully further advanced its diversification strategy in the year under review. Besides the USA, especially the UK, France and Japan ranked among the strongest foreign markets in terms of sales. 2G has set itself the medium-term target of becoming a fully globalized CHP system manufacturer. With this strategic goal, 2G aims to actively expand its position in growth markets in Europe and overseas, and also continuously further diversify its business opportunities and risks.

Along with the diversification in terms of gas types and sales markets, the service business is helping to stabilize sales revenues. 2G continued to generate around one third of its consolidated sales revenue with its service and replacement parts business in the reporting year. In terms of earnings, too, the service made a significant contribution following its reorganization and realignment both last year and in the preceding year.

At the end of November 2017, the Management Board of 2G Energy AG specified its forecast for the financial year for the EBIT margin to 3 % to 3.5 % (previously: EBIT margin of 3 % to 5 %) and for consolidated net sales at EUR 174 million to EUR 180 million (previously: EUR 160 million to EUR 180 million). Due to the high proportion of orders invoiced at the end of the year, the sales target was ultimately exceeded by around 5 % (EUR 189.4 million). In line with the increased sales, the EBIT margin of 3.9 % was also slightly above the most recently specified range.

#### C. Results of operations

#### Net sales

2G achieves new sales record

2G generated consolidated net sales of EUR 189.4 million in the financial year elapsed (previous year: EUR 174.3 million). The previous sales record from 2014 of EUR 186.6 million was slightly exceeded as a consequence. For the first time since 2012, the stock of finished goods and work in progress has reduced (by EUR 2.3 million; previous year: increase of EUR 7.1 million), so that after including own work capitalized of EUR 3.4 million, total operating revenue amounted to EUR 190.5 million (previous year: EUR 183.6 million).

#### **Distribution of revenues**

The following table presents the distribution of revenue in both absolute and relative figures:

### Composition of sales revenues and additional key indicators

	2017		2016			
	Germany	Abroad	Total	Germany	Abroad	Total
Sales revenues, in EUR million	122.7	66.7	189.4	121.5	52.8	174.3
CHP systems	72.3	52.6	124.9	77.9	39.3	117.2
of which biogas	50.9	40.4	91.0	28.8	33.7	62.6
of which natural gas	21.4	12.2	33.9	49.0	5.6	54.6
Service	50.4	14.1	64.5	43.6	13.5	57.1
CHP systems						
Units	340	170	510	417	117	534
CHP systems						
Ø value per unit (EUR/unit)	212,690	309,620	245,000	186,712	335,971	219,414
Electric capacity sold, in kW			170,942			139,812
Electric capacity sold						
Ø kW per unit			335			262

Sales trends in 2017 were characterized by the following factors:

1. Overall, 42 % (previous year: 34 %) of net sales were generated from the sale of CHP systems abroad for the first time. In absolute terms, this corresponds to an increase of around one third in net sales generated abroad. Both foreign sales partners and the 2G subsidiaries contributed to this sales growth. As in previous years, the strongest branch operations were 2G Energy Inc. (USA) with EUR 17.0 million and 2G Energy Ltd. (UK) with EUR 12.7 million (previous year: EUR 12.3 million and EUR 14.4 million respectively).

2. By contrast with 2015 and 2016, especially biogas driven systems were sold in Germany. Overall, the share of sales generated in Germany amounted to 70 % (previous year: 37 %). This trend is attributable

to the overall conditions explained on page 40 of the management report.

3. Sales generated by services and the sale of replacement parts rose by around 13 %, a faster rate than the net sales growth rate. This division thereby accounts for more than one third of total net sales.

## **Group results**

2G grew its earnings before interest and tax from EUR 5.6 million to EUR 7.3 million in the reporting year, corresponding to a 3.9 % EBIT margin (previous year: 3.2 %). The EBIT margin thereby lies slightly above the 3.0 % to 3.5 % target range specified in November 2017.

The cost of materials ratio reduced compared with the previous year from 70 % to 67 %. This is especially

attributable to the high proportion of the CHP projects finally invoiced as of the year-end, and thereby being recognized as revenue. In absolute terms, however, the cost of materials has reduced from EUR 128.6 million to EUR 126.8 million.

Personnel expenses rose from EUR 30.0 million to EUR 32.7 million, representing a 17.2 % personnel expense ratio (previous year: 16.3 %). This reflects an increase in personnel costs in Germany due to adding service personnel, among other factors.

Selling & marketing, operating, administrative and other expenses increased compared with the previous year from EUR 18.9 million to EUR 21.0 million. The following main factors contributed in this context:

1. Legal and advisory costs were up by EUR 0.7 million. This is directly connected with the "Lead to Lean" project launched in the year under review, as well as a requirement for tax advice as part of the internationalization.

2. Outgoing freight costs and sales commissions rose by approximately EUR 1.0 million due to the marked increase in the foreign proportion of net sales.

3. Other operating expenses comprises EUR 1.1 million of expenses related to other accounting periods (previous year: EUR 0.7 million) that consists mainly of non-period credits and losses incurred on receivables.

After a year-on-year unchanged net financial result of EUR -0.4 million, mainly resulting from EUR 2.0 million of interest on loans and commissions for guarantees of bills, as well as income taxes (previous year: EUR 1.7 million), the Group reports EUR 4.9 million of

consolidated net income (previous year: EUR 1.8 million).

#### **D.** Financial position

Securing sufficient liquidity at all times comprises an important precondition for successful business activity and the attainment of the company's objectives. An overarching financial management function secures the supply of liquidity to all corporate areas. The Group parent company in Germany conducts central strategic financial management within the 2G Group by supplying the individual Group companies with corresponding liquidity in line with their operating requirements.

The following condensed cash flow statement presents the Group's financial position:

## **Consolidated cash flow statement**

	31/12/2017	31/12/2016
	TEUR	TEUR
Consolidated net profit/loss for the year		1,784
Depreciation, amortization and fixed asset write-downs	3,783	3,587
Change in provisions	1,314	814
Change in inventories	-586	-11,131
Change in trade receivables that are not allocable to investing or financing activities	2,921	-3,192
Change in trade payables that are not allocable to investing financing activities	-1,061	14,134
Loss/gain from fixed asset disposals	-87	64
Others	1,638	322
Cash flow from operating activities	12,845	6,382
Cash flow from investing activities	-4,878	-4,544
Cash flow from financing activities	-2,114	-1,703
Liquid funds on December 31*	16,092	10,187
* Reported including short-term bank overdraft drawdowns		

Cash flow from operating activities increased to EUR 12.8 million in 2017 (previous year: EUR 6.4 million). Besides the higher level of net profit for the year, this is attributable to the following factors:

- Compared with the previous year (EUR +11.1 million), capital tied up in inventories rose only slightly by EUR 0.6 million.
- Trade receivables were reduced by EUR 1.4 million in the reporting year. In the prior-year period, the receivables position increased by a total of EUR 4.6 million.
- Liabilities arising from prepayments received decreased by EUR 2.4 million compared with the previous year (previous year: + EUR 11.0 million).

In the past fiscal year, a total of EUR 5.5 million was invested in tangible fixed assets (previous year: EUR 4.5 million), comprising EUR 3.7 million for 2G Rental GmbH's investments in the equipment leased from 2G Energietechnik GmbH. In addition, 2G Energietechnik GmbH invested around EUR 1.0 million in the vehicle fleet and in the acquisition of tools, IT equipment and other operating and office equipment.

As part of financing activities, EUR 1.5 million were repaid, as planned, while 2G Rental GmbH drew down EUR 1.5 million of refinancing loans in 2017.

Liquidity in the form of bank deposits amounted to EUR 16.1 million as of the balance sheet date. Where

required, the company also has at its disposal, and had at its disposal, free credit lines at banks for guarantees, bill guarantees, and commercial letters of credit that are standard in the sector, and as a potential liquidity reserve. Free lines of around EUR 23.6 million were available as of December 31. No significant changes to lending terms were to be recorded in the year under review.

The detailed statement of cash flows is presented on page 94/95.

#### Assets

#### 31/12/2017 31/12/2016 TEUR TEUR A. Fixed assets 25,458 24,635 B. Current assets 88,816 85,346 C. Prepayments and accrued income 550 437 D. Deferred tax assets 970 1,435 **Total assets** 116,258\* 111,389 \* Rounding differences

### **Equity and liabilities**

	31/12/2017	31/12/2016
	TEUR	TEUR
A. Equity	55,711	52,916
B. Provisions	15,513	12,465
C. Liabilities		
I. Bank borrowings	6,364	6,277
II. Other liabilities	38,671	39,731
Total assets	116,258*	111,389
* Rounding differences		

#### E. Net assets

Overview of the net asset position of the 2G Group:

Total assets grew by 4 % to reach EUR 116.3 million as of the December 31, 2017 reporting date. The lengthening of the balance sheet is chiefly attributable to a more than 50 % rise in liquid funds (from EUR 10.2 million to EUR 16.1 million). The position of finished goods and work in progress, which is measured at cost, reduced year-on-year by a total of EUR 3 million, equivalent to around 9 %. Despite the high level of final invoicing as of the year-end, trade receivables decreased slightly yearon-year from EUR 29.2 million to EUR 27.8 million.

Working capital (the difference between current assets and current liabilities) stood at EUR 33.2 million as of the reporting date (previous year: EUR 31.4 million). This rise also derives mainly from the increase in liquidity.

As a result of retained earnings as of December 31, 2017, equity grew to EUR 55.7 million (previous year: EUR 52.9 million). The equity ratio thereby stood at 47.9 % (previous year: 47.5 %).

#### Overall statement on the business situation

Business trends proved positive overall during the reporting year. 2G achieved a new record in terms of net sales in the financial year elapsed, and boosted its operating earnings by almost a third. Combined with a high liquidity position, the stable equity ratio of almost 50 % forms the foundation for further growth. The Management Board is convinced that the company's profitability can be enhanced sustainably in the near future through the consistent pursuit of its strategic lead projects.

#### F. Non-financial Group statement

#### Integrated sustainability report

For the first time, 2G is integrating a sustainability report into its annual report for the 2017 reporting year pursuant to Section 315b of the German Commercial Code (HGB). 2G is implementing this on a voluntary basis.

As an internationally active, SME-based manufacturer and developer of combined heat and power systems based on gas engines, 2G thinks and acts with a longterm perspective. Sustainable value creation comprises one of the basic pillars of our operating activities. For us, a sustainably oriented business model signifies both a business and a societal future.

We aim for sustainability across our entire value chain, extending from the production and administrative process through to the performance and environmental aspects of our CHP systems and services, as – above and beyond business success – we are committed to our responsibility to the environment and to people in the regions where we are active.

#### Sustainability strategy

2G identifies and assesses business and societal topics systematically and at an early stage in order to integrate them into our management processes. Sustainability represents an opportunity to manage and further develop the company through necessary and also bold changes. This helps us advance our existing business, exploit new business opportunities and minimize risks. In our strategic decisions, we aim to coordinate economic, ecological and social circumstances and

#### Key sustainability figures

	2017	2016
Number of subsidiaries	10	10
of which with ISO 9001 quality management certificate	3	2
of which with ISO 14001 environmental management certificate	1	1
of which with ISO 50001 energy management certificate	5	2
of which with OHSAS 18001 health and safety management certificate	1	1
Consumption		
Electricity (kWh)	629,838	865,976
of which own production	629,838	407,519
Natural gas	5,842,200	6,312,547
Water (m³)	2,000	n. b.
Waste (t)	202	n. b.
of which directed to a recycling process	150	n. b.
Diesel (I)	770,000	785,864
Diesel (converted in kWh)	7,669,200	7,827,206
CO <sub>2</sub> emissions (t)	3,548	3,806
of which fleet (t)	2,002	2,043

criteria with each other as best as possible with the objective of long-term and sustainable success.

2G, as one of the internationally leading manufacturers of gas-driven combined heat and power systems, aims for technology leadership. The highly efficient cogeneration of electricity and heating/cooling make CHP technology more efficient and more environmentally compatible than conventional energy generation methods. Compared with conventional electricity generation, CHP technology saves up to 40 % of primary energy, and emits up to 60 % less carbon dioxide (using natural gas). By using biogas, 2G CHP plants can be operated almost  $CO_2$ -neutrally. Our CHP systems' total efficiencies are generally recorded above

85 %. 2G customers thereby benefit from economically and ecologically beneficial innovations. It goes without saying that, for 2G, sustainability equally entails continuously improving its product characteristics. Examples include the quality of gas mixtures, oil consumption as well as noise and gas emissions.

Development and production processes at our sites are characterized by continuous, ongoing commitment to the efficient deployment of energy, materials and resources. Efficiency at 2G stands for economic viability, high operational efficiencies and climate protection. This aim of constantly optimizing and sustainably managing our technical solutions and in-house processes contributes to the company's long-term success and profitability as well as to manufacturing and product quality. Most of the Group is certified according to the high standards of the ISO 14001 environmental management system. A majority of the German sites are also certified according to the ISO 50001 energy management system. We continuously review and improve our processes as part of the integrated management system (IMS). The aim is to integrate not only all of the German Group companies but also the foreign subsidiaries into the IMS by 2020.

We implemented two significant environmental projects in the year under review. The new aura range is seriesready. The strength of an aura CHP module lies in its very low gas emission levels. This enables us to deliver efficient and reliable CHP power plants in the 100 kW to 150 kW performance range to conurbation centers and metropolitan regions with constantly rising emission limits, and contribute to better climate conditions regionally. To supplement the aura range, we have concluded the development of our own SCR catalyst technology as a second project – comparable to the "ad blue" technology in the automotive sector. We can thereby equip all of our portfolio products for emissionsensitive applications.

## Social commitment

2G regards itself as a responsible member of society, which prompts us to take an active role regionally and promote cultural and social projects. We support local sports associations and social facilities within the Münsterland region, for example. We also support employees in their social commitment, such as through flexible working time regulations. At our corporate location in Heek, we are committed to the professional integration of refugees. In 2017, we took on two refugees as trainees, and we are helping them to learn German through our in-house German language course. We also promote scientific exchange. For example, we offer students the possibility to write their seminar, bachelor or master dissertations in the context of 2G topics, and give them the opportunity to work in project groups as part of technician training.

The 2G Group has had a code of conduct since 2015, setting out the values and principles for our business activity. The code of conduct and the corporate guidelines contain binding compliance regulations valid across the entire Group. The code's contents include a ban on discrimination, protection against corruption, fair competition, the rights of all employees to fair treatment, and the handling of insider information. A compliance officer supports the Group-wide implementation of the code of conduct and develops it further.

#### **Employees**

As a manufacturer and developer of CHP modules and energy supply solutions with combined heat and power systems, 2G is required to make recourse to the commitment, knowledge and professional attitude of its more than 600 employees both in Germany and abroad. Motivated and successful employees are crucial to the success and profitability of our company.

The Group human resources department reports directly to the CFO and coordinates all personnel topics. These include a sustainable personnel policy, attractive and fair working conditions, the training of young technical staff, internal and external further training for staff as well as intercultural and technical communication within the Group. The aim is to achieve a high level of employee identification with our products, services and corporate culture. Basic technical training is offered in the commercial area, for example.

2G has drawn up fixed principles for the internal collaboration of all employees in the aforementioned code of conduct. Equal rights and opportunities are based on fair interaction and protection against discrimination – no one is disadvantaged based on ethnic origin, religion, age, sexual identity or gender. At all Group levels, we adhere to the principle of diversity when hiring. As an internationally active Group, diversity and an open-minded attitude to the world represent key factors behind our business success. For this reason, we promote collaboration between the generations – including cross-border – and with the equal opportunities for women and men.

2G pursues the principles of the International Labor Organization (ILO) in relation to working and social standards. These globally applicable minimum standards aim to secure labor rights, in the sense of providing work in accordance with human dignity. 2G complies in Germany with the regulations of the respective professional cooperatives, and applies the principles of the occupational health and safety management system pursuant to OHSAS 18001 in all corporate units.

We conduct employee surveys to identify potential improvements and to strengthen dialog within the company. The last survey was conducted in December 2017. The surveys aim to yield information, in order to develop employee-oriented solutions based on the results. Along with helpful improvement processes, this gives employees a voice with which they can contribute to positive improvement in their own working situation. 2G wishes to hereby foster employee trust and loyalty.

#### Key employee data

	2017	2016
Employees	607	608
Of which temporary help staff	55	58
Trainee/work experience students	33	31
Employees at foreign subsidiaries	107	82
Proportion of female employees in Germany	16.0 %	16.0 %
Age structure of employees in Germany	35.5	35.5
Employee turnover rate	4.3 %	4.2 %
Health ratio	96.7 %	96.9 %
Accidents per 100 employees	1.6	2.5

#### **Research and development**

Our enthusiasm and capacity for innovation comprise the engine of our development. 2G is convinced that sustainable growth only arises through better products and services as well as through promoting and implementing new ideas. For this reason, from the outset we anchored a culture of innovation within a company. Through new and more efficient solutions, we aim not only to help our customers achieve lower energy costs and reduce their ecological footprint in terms of net energy impact, but also conserve resources in the development and production of CHP systems and services, and structure processes more efficiently. Our aim is to optimize and manufacture on the basis of sustainability, so that our CHP systems produce energy highly efficiently and economically for our customers. The high priority of research and development at 2G is underscored by our own subsidiary 2G Drives GmbH, which focuses on engine optimization and developing software to digitally manage systems. In the year under review, 2G invested EUR 6.9 million in research and development for its systems in the core performance range between 50 kW and 550 kW. Expenditures included development services to digitalize CHP systems, developing the new Aura range, adaptation developments to the Lambda technology to comply with the German Clean Air Act (TA Luft), as well as for engine mechanics and test benches. Motivated and highly gualified employees are the most important resource for our R&D work. A total of 17 engineers and experienced technicians develop and test engine components, combustion processes, emission reductions and peripheral equipment under the most varied conditions. For some years, an additional focus of development work has been further developing control electronics and software as an integral part of each 2G CHP system. Only the smooth interplay of hardware and software enables decentralized energy solutions that deliver clear added value for our customers and also make the systems serviceable for electricity production that is increasingly determined by renewable energies. Our CHP systems offset the volatility of production from electric energy generated by photovoltaics and wind power plants, thereby making renewable energies baseload-eligible. As one of the pioneers, we thereby put our research and development work to the service of climate protection.

# Manufacturing sustainably and providing maintenance services

In 2017, 2G started to orientate its corporate organization and working processes significantly more economically as part of its key "Lead to Lean" project. With a focus on organizational adaptations and digital solutions, we will streamline working processes and establish far-reaching process standards in production and administration. The focus here is on resource efficiency and productivity for the mass markets. With regard to employees, the aim is to create the preconditions and instruments that will make 2G a self-optimizing and self-learning organization. Innovations and process schemes will thereby give significantly greater scope for sustainable development Group-wide.

We apply the same approach in establishing our collaboration with our suppliers. The 2G purchasing handbook establishes standards as well as our comprehensive quality management systems, which define the quality of our products and related availabilities. In 2016, the share of our three largest suppliers amounted to around 21 %, compared with 33 % in the year under review.

The Service division is an important contributor to Group sales, delivering predictable cash flows independently of the economic and regulatory environment. The Service division also establishes an important link to our customers and plays a key role in the renown and value of the 2G brand. The economic viability of 2G CHP systems is significantly determined by their availability and performance efficiency-the Service division is responsible for their constant maintenance. Furthermore, Service is responsible for the compliance of emission figures across a system's lifecycle. Over the past two years, this has led 2G to make targeted investments in boosting service efficiency, especially through far-reaching digitalization. These include digital route planning for deploying service staff on site, reorganizing service logistics as a regionally anchored decentralized organization, fulfilling our quality commitment, responding to operator queries within half an hour, and establishing the digital customer and partner portal my.2-g.com.

This portal intelligently connects technical, administrative and commercial processes, data and reports. Plant operators and partners utilizing my.2-g.com are notified individually via their systems. They benefit from the highly transparent and efficient management of their 2G systems and continuous plant operation optimization. Examples include transferring system parameters in real time, deriving forward-looking maintenance processes (predictive maintenance), monitoring important system operation deadlines such as environmental surveys, individually configurable warning messages to the operator, and integrated oil analysis management. We have significantly boosted system availability and production performance with this consistent digitalization of systems and service.

#### G. Corporate responsibility

Business activities are inseparably connected with risks. Corporate success is characterized by the fact that – after giving due in-depth consideration to all important decisions – the respective opportunities outweigh the risks entailed. 2G interprets risk in the broadest sense as the risk of failing to achieve financial and operational targets as planned, and within the narrowest bounds as the risk of jeopardizing the company as a going concern. In this sense, risk management forms an element of all decisions and business processes. Due to increasingly global business activities and the growing number of markets, locations and employees, the timely and detailed procurement, management and processing of information is becoming an increasingly more demanding task.

#### Management of risks and opportunities

The Management Board, the managing directors of all 2G companies, and relevant department heads, are all defined as risk managers in the company-wide risk management process. These risk managers reappraise the areas that they manage and their risk situations at regular intervals, reporting identified risks to the next higher instance, or as part of regular Group-wide reporting duties. All risks are measured on the basis of their event probabilities and potential financial effect. Significant changes in the assessment of known risks as well as new significant risks are reported immediately. Deliberate and controlled handling of opportunities and risks consequently comprises a central management element in the 2G Group. The Supervisory Board receives important key data for business trends and the risk evaluation as part of quarterly reporting. These include trends in new order intake and the order book position by country, key income statement data, liquidity planning and personnel development.

2G continuously records and evaluates new challenges and opportunities due to internationalization, expanding the depth of vertical manufacturing, and services, such as the rental of 2G power plants. The consistent saving of resources and rising efficiency of 2G power plants, as well as continues optimization of service, have led to improved profitability and greater customer benefits. The identification of opportunities and new business possibilities, in terms of production, sales and service, is equally important for the further development and growth of the 2G Group. At regular meetings, the Management Board and divisional heads develop strategic options, new products and business models for the medium and long-term prospects of 2G Energy AG.

For the business of 2G, the management has assessed the following risks as relevant for the company's further development, and measured them as to their event probability and loss level. This mainly entails listing risks whose materialization would have a significantly negative effect on the company's financial position and performance. 2G is potentially exposed to further risks, although these are not yet known, or are currently not yet gaged as significant. The following risks were identified with risk factors, in declining order of significance, as of the reporting date and as of the date of the preparation of this management report, taking existing management and controlling measures into account: At the time of producing this report, the management was not aware of any risks that might jeopardize the 2G Group as a going concern.

#### **Business-related risks**

The total revenues and the results of the 2G Group are based on a large number of worldwide markets and different 2G products in varying performance classes, application areas and operating gas types. This diversification should contribute towards minimizing risks since the international markets are different in terms of their structure and economic cycles. It also lends expression to the strategy of 2G of becoming an internationally operating company that is independent of national legislation or economic cycles. In this context, 2G integrates its risk management into the processes involved in sustainable business planning. Potential negative developments, such as changes in customer demand or changes in political and legal framework conditions, are described and assessed in the risk report.

Such an approach allows countermeasures to be launched at an early stage where actual events differ

from planning. This analysis also influences investment and expansion projects.

#### **Corporate growth risks**

2G aims to continue its growth both in Germany and abroad particularly through organic growth and, where appropriate, through strategic alliances and acquisitions of companies or parts of companies. The appointment of suitable managers and employees, the selection of strategic partners, and the raising of the necessary financial resources are required in order to exploit such opportunities. The meaningful expansion of appropriate organizational structures is also required, especially in the areas of financial accounting, controlling, personnel, and sales and marketing. Strong growth, acquisitions and strategic alliances are inherently connected with integration and execution risks.

2G has developed and rolled out an extensive partner concept to keep as low as possible the company's own risks in the internationally growing CHP market as well as its level of capital employed. Partnerships both in Germany and abroad are thereby forming a central sales and service model, minimizing market entry and market establishment risks for the 2G Group.

The complexity of management tasks is increasing significantly in line with international growth. Tools utilized by the management to measure growth opportunities and risks include forward-looking planning, and analyses through regular target/actual comparisons.

#### Legal risks

2G is also exposed to litigation risks. These include risks in the areas of product liability, competition and antitrust law, patent law and environmental protection. As a research-based technology company, 2G owns a portfolio of industrial property rights, such as patents and brand names. These may become the target of attacks and infringements. 2G generally strives to minimize and manage all legal risks.

Wherever possible and practical, 2G limits liability and loss risks in the countries where it operates through insurance cover, whose type and scope are constantly adjusted in accordance with current requirements. Here, 2G can already make recourse to experience gained in numerous countries outside Europe. The company also calls upon a country-specific advisory network consisting of auditors, tax consultants and lawyers who attend to the Group's cross-border affairs.

Cover and liability gaps are closed within an integrated worldwide insurance program for all 2G companies. Insurance premiums are adjusted through appropriate and manageable deductibles.

#### Political and regulatory risks

As an internationally active company, 2G is exposed to political and regulatory changes in many countries and markets. In 2011, after the Fukushima nuclear accident, many countries' commitment to exiting nuclear power resulted in an active fostering of alternative and renewable energies. Due to economic crises or new political power constellations, however, the energy revolution is faltering in some countries. Uncertainties or complexity surrounding the statutory provisions for subsidizing combined heat and power systems, as well as the modification or significant reduction in subsidies, may have a negative impact on the profitability of 2G products, and may delay or even jeopardize the success of market developments and the sale of new systems. Close communication with policymakers and active measures to explain the advantages of CHP technology serve as preventative risk control instruments. The destabilization of political systems and the potential imposition of trade barriers, as well as changes to currency exchange rates, may also lead to sales problems in certain countries and regions. It should be possible to reduce the potential negative impact by diversifying regional sales markets. Entry into developing markets and a withdrawal from saturated sub-markets are considered in the process.

#### Product quality, price and availability risks

As a manufacturer of complex technical systems, 2G is exposed to heightened product liability risks. Ongoing quality controls and documentation along the entire value chain minimize such risks. This starts with the qualification of suppliers and continues with comprehensive quality requirements for the materials and semi-finished products used, as well as longterm strategic cooperation in the case of preliminary products, and an HR policy that is strongly geared to quality consciousness. Supplies delivered to deadline are an important competitive factor. On the purchasing side, risks arise from potential increases in raw materials prices. Taking into account economic considerations, 2G sets store by alternative purchasing sources, avoids dependencies where possible, and ensures parts availability and supply capability through order volume optimization and stock holding.

#### **Research and development risks**

From the outset, innovation has comprised a key element of 2G corporate strategy, with a view to setting the company apart from its competitors through technological and electrical engineering expertise. This is associated with the latent risk that research and development projects are delayed, anticipated budgets are exceeded, or targets not met. Ongoing research and development projects are monitored permanently for this very reason, and are discussed regularly and reorganized where appropriate. Decisions regarding investments in new technologies, for example, are made with the aim of minimizing risks as far as possible.

#### **Financial risks**

As an internationally active company, 2G is exposed to various financial risks. Such risks primarily include liquidity risks, default risks, tax risks, currency and market price risks.

In order to secure itself as a going concern, a company must be able to fulfill its commitments arising from operational and financial activities at all times. 2G manages its liquidity across the entire Group centrally through 2G Energietechnik GmbH in Heek in order to minimize any liquidity risks.

Default risks can arise both in connection with financial investments, the drawing down of borrowings, financing commitments, or through the rental transfer for use of 2G power plants, and in the case of operating receivables. Inherent credit and default risks are hedged as far as possible through a credit insurance policy that is in place. This also installs professional ongoing credit monitoring and debt collection. With the increasing business of 2G Rental GmbH, the risk of not being able to utilize the CHP plants at the end of the term increases. The impact of the latently continuing Eurozone financial crisis continues to entail a heightened level of default risk in some countries. This potentially also affects countries to which 2G exports through its partner concept, where it has few empirical credit data. 2G consequently carefully checks all the positions of customers and trade partners in the specific related countries, and takes precautions against default risk where required. 2G minimizes these risks through its active prepayment policy. Only a few significant financial transactions entailing credit risk are concluded, and only with banks with good credit ratings. Moreover, the 2G Group has very good liquidity, which significantly reduces its dependency on lenders. As a matter of principle, however, it cannot be excluded that, in markets that are at times changing extremely rapidly, specific trading partners or customers with CHP rental agreements default, even if such counterparties have positive credit ratings.

Latent tax and liability risks exist in the case of crossborder transactions (purchasing and selling), which can arise with formal offenses. Thanks to the requisite specialist knowledge in the relevant divisions, early and correct tax and legal allocation can be implemented, including involving external experts. Despite processbased precautions, erroneous assessments and processing errors cannot be excluded entirely. In order to reduce these as far as possible, however, the implementation of a tax compliance system was initiated in the reporting year, which is to be concluded during the current financial year.

The euro has comprised the main currency within the 2G Group to date. With a few minor exceptions, invoicing and the procurement of goods have not been associated

with any noteworthy currency risks. The company will inevitably be exposed to currency and interest risks in the future as it increases its international presence and business activities in different currency and interest rate regions. In addition, both temporary and sustainable currency opportunities can arise through exporting plants and core components at favorable exchange rate (e.q. USD/EUR parity).

Due to its global group structure, and associated financial transactions, trade receivables and payables, as well as anticipated future cash inflows and outflows from sales and costs denominated in foreign currencies, 2G will also be affected by these market price risks and opportunities. 2G has minimized currency risks due to exchange rate and interest rate fluctuations, especially through forward currency transactions. Financial transactions, outstanding operating receivables, and obligations are to be exchange-rate hedged mainly through forward currency transactions.

#### Human resource risks

The future success and growth of all 2G companies is highly dependent on its employees and their knowhow. Consequently, the expertise and commitment of employees in all the areas in which 2G operates are crucial to its success.

The regional talent markets relevant to 2G are characterized by intensive competition. Competition is additionally intensified by the scarcity of qualified specialists in the sectors in which 2G operates and by demographic challenges in global markets. As a consequence, recruiting and retaining qualified specialists and talents within 2G represents one of the key priorities for the company. 2G promotes the further training of its own employees. Potential improvements are identified through employee surveys, which are then implemented through specific measures. In addition, 2G offers its employees a catalog of voluntary social benefits in order to additionally boost its attractiveness as an employer.

#### IT risks

IT risks with an impact on operating results occur when information or processes are unavailable or incorrect, unintentionally disclosed, or when processes have been programmed in IT systems in a form that is too inflexible, too complex, or illegal. Security gaps and insufficient emergency planning measures can quickly become incidents affecting the entire company.

Data protection violations due to incorrect authorizations generate a negative external impression. Increasing dependency on IT, as well as the growing networking of IT landscapes, requires companies to invest heavily in maintenance and upgrades. As the complexity of the IT landscape increases, so do the potential risks, despite efficient processing and programming. Significant risk scenarios for 2G include the failure of central IT systems, the publication of confidential research and development and business development data, as well as the manipulation of IT systems.

2G ensures the required availability of business-critical systems and access to business-relevant data through redundant configuration of technical components, networks and sites, as well as suitable, tested contingency measures. Appropriate organizational and technical precautions for access control, access rights, virus protection and data protection further limit such risks. A dedicated process ensures that IT risks are evaluated, and appropriate measures taken.

Based on the measures adopted, we can assume that the probability that a serious IT risk materializes is low. 2G works with an external data protection officer to back up and protect personal information.

### **Environmental and safety risks**

2G is a company maintaining production operations and is exposed to risks of possible personal injury, as well as damage to property and its image. We minimize the risks to individuals and the environment by auditing, advising and training in matters of environmental protection, as well as occupational health and safety. Safety officers manage these risks both at individual sites and on our customers' building sites to protect the company's interests. 2G ensures the preservation of its goods and assets by adhering to high technical standards, strict codes of conduct, and all legal requirements for environmental protection and occupational health and safety. Furthermore, 2G itself is interested in conserving resources and operates an energy management system certified according to ISO 50001:2011.

# **Overall statement on risk situation**

The risk strategy has the character of that of a mediumsized company, and is deliberately opportunityorientated. The company's management focuses on organizational and especially financial stability, whereby plans can be diverged from in the company's interest. Taking existing steering and controlling measures into account, neither one of the specific risks is gaged as a going concern risk, nor does the company identify an aggregate going concern risk given the simultaneous occurrence of several individual risks, and, from today's perspective, it does not identify any such going concern risks for the future. The listed risks nevertheless exert a negative effect on the company's financial position and performance.

Significant changes in the risk position derive especially from the growing internationalization of the operating activities. As shown above, a correlation exists between international growth and related risks. Sales generated abroad grew by 26.3 %, from EUR 52.8 million to EUR 66.7 million. The complexity of the management task also increases as a consequence.

The company has the capacity to withstand risks on account of its available and potential financial reserves, good balance sheet ratios, and a highly developed insurance concept. The business and entrepreneurial opportunities outweigh the potential risks entailed.

### Opportunities

2G implemented various measures to create the basis for the Group's further growth and earningsbased development, to identify and measure business opportunities, and to put them into practice on a controlled basis. Some of such measures are medium- to long-term in orientation, and consequently extend over several reporting years, while other measures described here were relaunched in the year under review.

1. 2G is advancing its greater business involvement in the core foreign markets of North America, the United Kingdom, France, Italy, Eastern Europe and Japan, as well as expanding the 2G partner concept worldwide. In establishing its partner concept, 2G has relied on the potentials offered by digitalization from the outset. With its comprehensive online platform "my.2-g.com", the company provides all relevant information to its sales and service partners, as well as plant operators. An electronic replacement parts catalog is also integrated, supporting fast replacement parts supplies. 2G is also further advancing the digitalization of CHP systems in terms of control, maintenance and operational availability through creating interfaces to energy utilities, contractors and investors, among other measures.

2. The "Lead to Lean" lead project will result in a sustainable improvement in production processes. Among other measures, 2G has developed a "Terminleitstufen" ("deadline guide steps") concept, that will lead to a smoothing of seasonality and the stabilization of all purchasing and production processes. This project should already materialize during the current financial year in the form of shorter delivery times, lower production costs and higher product quality.

3. The Service division is profitably positioned following reorganizations in its office services and field sales force, the expansion of the staff base in direct local customer service, as well as the digitalization of the control, maintenance and operational availability of 2G power plants. Services for both biogas and natural gas operated CHP systems are enjoying growing demand in foreign markets, too. Service expertise is an important performance criterion when customers make investment decisions.

4. 2G is consistently advancing the technical further development of CHP modules. The new "aura" series for natural gas operation is mainly geared in its operation to very low emission levels, making the product very suitable for the constantly growing requirements set by emission regulations worldwide. Both modules, aura 404 and aura 406, are the result of the company's own motor development, being based on the proprietary Lambda-1 technology of 2G. This technology is distinguished by low emissions and high heating efficiencies. The new series also makes economic arguments: compared with its competitors, the aura series achieves 15 % higher specific output with the same cylinder capacity, and can reach efficiencies above 100 %.

5. The further expansion of rental and lease possibilities for 2G power plants leverages additional sales potentials. With the launch of a pay-per-use solution, for the first time 2G is offering the specific use of a CHP power plant as a rental solution. This enables customers to exploit the benefits of CHP technology without needing to make their own investment and without long-term commitment. From the customer's perspective, this addresses the important question as to how their investments can be secured financially after the legally planned subsidy period of 30,000 full utilization hours (for systems above 50 kW).

6. The development of overall conditions for the international energy sector is also increasingly supporting the business model of 2G in general. The world community agreed on a joint climate protection target in December 2015 in Paris. The energy generation measures to be derived at national and international level promote technologies and energy production forms that deliver efficiency gains, considerably reduce resource consumption, and significantly diminish greenhouse gas emissions. In other words, the establishment of energy production capacities from renewable energies is being encouraged. The intended reduction of coal as a primary energy source and the greatest source of greenhouse gases will also require technologies that ensure energy supplies in accordance

with fluctuating renewables in terms of flexibility, supply security and economic efficiency. This represents one of the strengths of CHP technology from which great potential demand can grow in the future.

7. The listing of 2G Energy AG in the "Scale" segment of the unregulated market of the Frankfurt Stock Exchange creates transparency through regular capital market communication. The stock market listing gives the company access to growth and investment capital where required. The transparency requirements that are made contribute to tangible confidence among customers in deciding to invest in 2G CHP power plants and help the company to set itself apart from its competitors through reliability and transparency.

Overall, the Management Board identifies attractive opportunities for 2G on both the German and foreign markets. This assessment is based on the trend of the Spark Spread that is important for CHP systems' economic viability: the electricity price is tending to rise, or stay at a high level, and the gas price is moving sideways at a low level. The flexibly controllable operation makes CHP systems an ideal partner for fluctuating energy sources such as solar and wind. In consequence, combined heat and power generation represents an important building block in a global energy revolution.

#### H. Outlook

The 2G Group outlook takes account of relevant facts and events that were known on the date when the consolidated financial statements were prepared, and which can influence future business development and growth.

#### Group focus over the next two financial years

As an internationally leading manufacturer of gas driven combined heat and power systems, 2G is continuing to vigorously pursue its objective of strengthening existing markets, tapping new markets and expanding its global market share on a profitable basis. We have launched three lead projects to further pursue this path consistently: the partner concept (internationalization), digitalization, and the "Lead to Lean" project. The following strategic guiding principles for growth and earnings can be derived from these projects:

- internationalizing sales of CHP systems and services through integrating sales and service partners,
- consistently digitalizing CHP engine management, as well as service and maintenance,
- cost reductions and quality enhancements through an optimized process structure.

These guiding principles will determine business activities over the next two years. The company is further advancing its organic growth in all of the markets it addresses. Here, 2G is focusing on the North America, Asia as well as Central and Eastern Europe regions. To supplement its positioning as a technologically leading developer and producer of CHP systems, 2G aims to increasingly establish itself as a supplier of CHP systems that can be integrated and controlled digitally for high-end balancing energy operation. The company is also meeting growing requirements in terms of very low emissions with its own developments, such as a low-charging combustion concept and 2G SCR catalyst technology. Additionally, 2G regards itself as a service provider and product partner in the context of customers' energy generation concepts. 2G is thereby positioning itself in the high-growth international

67

energy market as a flexible solution provider of highly efficient CHP power plants.

#### Future macroeconomic situation

In the 2018/2019 economic forecast report it published in March 2018, the German Council of Economic Experts (GCEE) assumes global macroeconomic growth will continue on its uptrend. It forecasts global GDP growth of 3.4 % for 2018. Given rising production capacity utilization, it is anticipated that growth rate will reduce slightly over the further course of the year, with core inflation picking up moderately.

In the EU, too, the economic upturn will presumably accelerate markedly. Investments are growing, and monetary policy remains very expensively oriented. The GCEE sees the Eurozone growth rate in 2018 at the same level as the year under review of 2.3 %.

The German economy is still in a strong and longlasting upturn. This trend is based on an ever-broader foundation. Companies are again investing more in capital goods, as well as in research and development. Construction investments are also robust. The GCEE anticipates growth rates in gross domestic product (GDP) of 2.3 % in 2018.

The GCEE sees the forecasts for Germany, the EU and the world economy as subject to medium-term risks. Examples it cites especially include rising geopolitical tensions, protectionist measures, recurring doubts about Eurozone political stability, as well as a growth slowdown in China. The possibility of a sharper than expected uptick in inflation in the USA and the Eurozone represent a further risk. This could force central banks to raise interest rates, making an orderly exit from the loose monetary policy more difficult and potentially leading to turbulence in financial markets, according to the GCEE.

#### **Future sector situation**

The International Energy Outlook (IEO) 2017 assumes 28 % global growth in energy consumption for the 2015 to 2040 period. More than half of the demand growth will derive especially from non-OECD countries, especially Asian countries (51 % growth), including India and China. In OECD countries, by contrast, energy consumption is forecast to increase by just 9% up to 2040. Internationally, the industrial sector accounts for the dominant proportion of consumption in the projected period at over 50 %. In terms of primary energy sources, the IEO assumes that especially crude oil, natural gas and renewable energies will cover growing demand up to 2040.





Diagram 11: Forecast trends in energy intensity in OECD and non-OECD countries 2010 - 2040. Source: US Energy Information Administration, September 14, 2017

Energy intensity (energy required to generate one unit of economic growth) has decreased continuously worldwide over the past decades, and in OECD countries  $CO_2$  emissions have also reduced in combination with energy production ( $CO_2$  intensity). Both trends should continue in both OECD and non-OECD countries.



non-OECD countries 2010 - 2040. Source: US Energy Information Administration, September 14, 2017





Diagram 13: Changes in global demand for primary energy sources 1990 - 2040.

Source: www.iea.org/weo2017/; World Energy Outlook 2017

\* Mtce: million tons of coal equivalent, mb/d: thousand barrels (of oil) per day, bcm: billion cubic metres of natural gas, Mtoe: million tons of oil equivalent

The World Energy Outlook 2017 assumes that the way in which the world covers its growing energy demand will change dramatically compared with the last 25 years (see figure 13). Advancing energy efficiency, natural gas and the rapid growth of renewable energies are playing a main role in this context.

# Partner concept to become a central building block of international growth

In this manner, 2G is well-positioned internationally for future market growth with its growing international presence with its own subsidiaries, and with its sales and service partners as part of the partner concept.

This is confirmed by the brisk new order intake in 2017 and during the first quarter of 2018 from countries and regions where 2G has not had any business contacts to date. The same is also true for countries where 2G subsidiaries are active. Here, too, we work together with licensed partners. Over the coming years, we will continuously expand our national and international distribution channels as part of the partner concept. We are investing in the development and training of employees and in supporting the partner companies' sales efforts, as qualified sales advising potential customers locally and well-trained service staff maintaining CHP plant performance over the system lifecycle represent clear competitive advantages in all markets.

By way of example, our new order intake in France, Japan and Italy shows we are presenting persuasive arguments in the market, and that a market for natural gas CHP systems is developing out of a CHP market dominated by biogas. Through its French subsidiary 2G Energie SAS, 2G has received an order for a 12 MW natural gas project, for example. In Japan, too, 2G through a partner company has for the first time received an order for a natural gas operated CHP system worth EUR 2.0 million. As in France, only biogas driven systems have been in demand in Japan to date. 2G Italia Srl., has also achieved an important sales success with the signing of a 1.2 MW order for a natural gas operated system. This is the largest individual CHP power plant order to date for the Italian company.

During the financial year elapsed, 2G generated 42 % of its sales from CHP systems abroad. 2G is thereby well on track to becoming a completely globalized, leading supplier of CHP systems and CHP solutions.

In the German natural gas market, 2G is receiving its first inquiries for stand-alone supply concepts, which enable customers to secure energy supplies independently of the public grid with the help of combined heat and power generation. New order intake for biogas driven CHP systems in Germany continues to be generated mainly from flexibilizing existing biogas plants. 2G anticipates further brisk demand in the 2018 financial year, as many of the CHP systems 2G installed between 2006 and 2010 are reaching the end of their lifecycle and still qualify for a subsidy extension.

#### Further expansion of digitalization

Over the coming years, we will continue to fulfill our commitment to technology leadership, implementing innovations in digital applications for systems, service and internal processes. Digitalization offers farreaching opportunities to not only automate processes but also individualize products. We will actively utilize such opportunities to enhance system efficiency and availability as well as to reduce ongoing operational and service costs for our customers. It goes without saying that this is also the case for our network partners abroad, which we integrate into our comprehensive "my.2-g.com" digital platform. This offers globally accessible, efficient and transparent management for 2G systems over the entire product lifecycle through to an integrated replacement parts catalog. As the first supplier of CHP systems, in early 2018 we successfully placed large parts of this catalog "on air" in the form of a manufacturer-independent online shop. The correct replacement parts for both 2G propriety CHP systems as well as for other manufacturers' stationary gas engines can be ordered from this platform. The product ranges to be continuously expanded over the coming months. The online shop will enable 2G to pass on the good purchasing terms to existing customers and, in particular, to potential new customers.

#### Lean philosophy to be further pursued consistently

As part of its "Lead to Lean" lead project, 2G has developed a "Terminleitstufen" ("deadline guide steps") concept that will lead to a smoothing of seasonality and to the stabilization of all purchasing and production processes. This process model, which has been tested out in practice, has been adapted to the circumstances of 2G, and will be gradually implemented during 2018. At the same time, further lean philosophy measures have been initiated to sustainably improve production processes, so that we see significant improvements in delivery times, costs and product qualities over the coming quarters.

## **Prospective earnings trend**

The Management Board is confident for the current year 2018 as the 2G Group already enjoyed very well filled order books at the start of 2018. These orders derived from a high surplus of EUR 95.9 million from year 2017 (previous year: EUR 91.2 million) and very brisk demand at the start of 2018. New order intake in Q1 2018 rose significantly by more than 90 % to EUR 54.7 million.

Given this order book position, and taking the market and competitive situation in Germany and abroad into consideration, the Management Board expects to report a positive business trend again in the current year. For the 2018 financial year, the Management Board is very confident overall of generating sales in a range between EUR 180 million and EUR 210 million. The earnings forecast for the 2018 financial year comprises an EBIT margin of 3.5 % to 5.5 %, thereby a higher range than in previous years. The Management Board is confident that cost reductions already introduced in 2017, efficiency measures and margin contributions from the Service business will sustainably improve the Group's profitability over the coming years.

Heek, April 26, 2018

A. En Helt

Christian Grotholt Management Board Chairman (CEO)

Ludger Holtkamp Management Board member

All

Friedrich Pehle Management Board member


# **2G.** Consolidated financial statements.

Group management report35
Consolidated financial statements73
Consolidated balance sheet74
Consolidated profit and loss account76
Notes to the consolidated financial statements78
Consolidated statement of changes in fixed assets92
Consolidated cash flow statement94
Consolidated statement of changes in equity96
Auditor's report99

### 2G Energy AG Annual Report.

## **Consolidated balance sheet of 2G Energy AG**

	31/12/2017	31/12/2016
	Euro	Euro
A. Fixed assets		
I. Intangible fixed assets		
Purchased concessions, industrial property rights and similar rights and assets, and licenses to such		
rights and assets	656,384.19	784,501.12
Goodwill	4,051,857.78	4,620,896.75
Prepayments rendered	7,533.00	24,975.90
	4,715,774.97	5,430,373.77
II. Tangible fixed assets		
Land, land rights and buildings,		
including buildings on third-party land	8,078,427.62	8,695,112.94
Plant and machinery	1,142,609.50	1,264,809.54
Other factory and office equipment	10,723,450.80	8,615,586.66
Prepayments rendered and plant under construction	787,296.07	619,457.03
	20,731,783.99	19,194,966.17
III. Financial fixed assets		
Other participating interests	10,000.00	10,000.00
	10,000.00	10,000.00
	25,457,558.96	24,635,339.94
8. Current assets		
I. Inventories		
Raw materials and supplies	31,404,343.59	30,446,606.22
Work in progress	30,400,090.36	33,341,019.03
Finished goods and merchandise	887,018.54	1,115,658.86
Prepayments rendered	2,448,480.75	2,021,179.09
Prepayments received for orders	-21,173,864.40	-23,544,590.28
	43,966,068.84	43,379,872.92
II. Receivables and other assets		
Trade receivables	27,881,499.50	29,239,393.87
Other assets	851,052.60	2,527,227.44
	28,732,552.10	31,766,621.31

#### Assets

	31/12/2017	31/12/2016
	Euro	Euro
III. Cash in hand, bank balances	16,117,059.21	10,199,770.32
	88,815,680.15	85,346,264.55
C. Prepayments and accrued income	550,226.69	437,258.28
D. Deferred tax assets	1,434,819.61	969,980.40
Total	116,258,285.41	111,388,843.17

#### **Equity and liabilities**

	31/12/2017	31/12/2016
	Euro	Euro
A. Equity		
I. Subscribed share capital	4,430,000.00	4,430,000.00
II. Capital reserve	11,235,300.00	11,235,300.00
III. Other retained earnings	40,299,580.49	0.00
IV. Consolidated net income	178,735.80	37,243,642.69
V. Minority interests	572,562.47	656,447.25
VI. Equity difference from currency translation	-1,005,335.70	-649,469.98
	55,710,843.06	52,915,919.96
B. Provisions		
Tax provisions	2,685,679.26	952,260.02
Other provisions	12,827,280.96	11,512,919.32
	15,512,960.22	12,465,179.34
C. Liabilities		
Bank borrowings	6,363,971.09	6,276,666.10
Prepayments received for orders	23,347,059.73	25,746,843.28
Trade payables	10,091,987.92	6,786,437.50
Other liabilities	5,231,463.39	7,197,796.99
	45,034,482.13	46,007,743.87
Total	116,258,285.41	111,388,843.17

## Consolidated profit and loss account of 2G Energy AG

	01/01/ to 31/12/2017	01/01/ to 31/12/2016
	Euro	Euro
Net sales	189,404,149.19	174,298,902.96
Increase/decrease in work-in-progress and finished goods	-2,307,389.81	7,064,597.52
Other own work capitalised	3,397,240.93	2,258,187.74
	190,494,000.31	183,621,688.22
Other operating income	1,302,582.10	1,412,999.06
	191,796,582.41	185,034,687.28
Cost of materials		
a) Costs of raw materials and supplies, and for purchased		
merchandise	100,693,429.63	100,214,539.70
b) Costs of purchased services	26,128,728.14	28,418,513.44
	126,822,157.77	128,633,053.14
Personnel costs		
a) Wages and salaries	27,351,282.22	24,832,942.94
b) Social security, pension and other benefits	5,319,020.66	5,118,183.73
	32,670,302.88	29,951,126.67
Depreciation and amortization applied to tangible		
and intangible fixed assets	3,783,377.45	3,587,245.02
Other operating expenses	20,954,731.91	18,900,590.19
Other interest and similar income	48,308.33	68,246.52
Interest and similar expenses	417,450.37	436,283.93
Taxes on income	2,040,589.33	1,699,129.42
Profit after taxes	5,156,281.03	1,895,505.43
Other taxes	233,492.21	111,434.07
Consolidated net profit/loss for the year	4,922,788.82	1,784,071.36
Share of net profit/loss attributable to other shareholders	83,884.78	13,371.39
Consolidated net profit/loss	5,006,673.60	1,797,442.75
Retained earnings	37,243,642.69	37,085,299.94
Dividend payment	-1,772,000.00	-1,639,100.00
Allocation to other retained earnings	-40,299,580.49	0.00
Consolidated net retained earnings	178,735.80	37,243,642.69

## **Derivation of EBIT**

	01/01/ to 31/12/2017	01/01/ to 31/12/2016
	Euro	Euro
Consolidated net profit/loss for the year	4,922,788.82	1,784,071.36
+/- Extraordinary results	0.00	1,797,790.00
+ Taxes on income	2,040,589.33	1,699,129.42
+ Interest and similar expenses	417,450.37	436,283.93
- Other interest and similar income	48,308.33	68,246.52
= Earnings before interest and tax	7,332,520.19	5,649,028.19

## Notes to the consolidated financial statements of 2G Energy AG

## A. General information about the consolidated statements

#### 1. Basic information

2G Energy AG is a public limited company under German law. The company's shares are listed on the trading segment Scale, a part of the Open Market (Regulated Unofficial Market) of the Frankfurt Stock Exchange (FWB), as operated by Deutsche Börse AG, which is consequently not an organized market.

The company is entered in the commercial register of the Coesfeld District Court (commercial register sheet number B 11081), and has its headquarters at Benzstrasse 3, 48619 Heek, Germany.

#### 2. Line of business

The company and its subsidiaries primarily plan and install combined heat and power ("CHP") systems and other systems for the recovery of efficient use of electrical energy, and provide after-sale services associated with CHP systems. One subsidiary is responsible for optimizing gas engines, and for manufacturing and marketing Otto spark-ignition gas engines.

#### **3. Accounting policies**

The consolidated financial statements of 2G Energy AG were prepared in accordance with Section 290 et seq. of the German Commercial Code (HGB) and the supplementary regulations of the German Stock Corporation Act (AktG).

The regulations for public limited companies in the meaning of Section 264 et seq. of the German Commercial Code (HGB), the relevant provisions of the German Stock Corporation Act (AktG), and the provisions pursuant to Section 290 et seq. of the German Commercial Code (HGB) in relation to consolidated financial statements apply to the Group's accounting procedures.

The Group's functional currency is the euro. All amounts are consequently presented in euros or thousands of euros (TEUR). Foreign companies' balance sheet items are translated at the respective exchange rate on the balance sheet date. Equity items are translated at historical rates. Cost and income items are translated at average rates for the year.

#### **B.** Consolidation methods

#### 1. Consolidation scope and shareholdings

The following financial statements are included in the consolidated financial statements of 2G Energy AG (parent company):

#### Subsidiary

		Subscribed		Profit/loss for	
	Interest	capital	Equity	year	Initial
	in %	in TEUR	in TEUR	in TEUR	consolidation
2G Energietechnik GmbH* Heek, Germany	100	1,000	2,832	0	30/06/2007
2G Drives GmbH, Heek, Germany	80	25	2,860	-393	24/03/2010
2G Home GmbH, Heek, Germany	100	125	-1,725	665	31/12/2007
2G Rental GmbH, Heek, Germany	100	50	-109	232	31/12/2014
2G Solutions of Cogeneration S.L., Vic Barcelona, Spain	90	3	-481	-413	31/01/2008
2G Energie SAS, Carquefou (Nantes), France	100	200	176	24	24/08/2016
2G Italia Srl, Vago di Lavagno (Verona), Italy	100	10	493	10	15/03/2011
2G Energy Ltd., Cheshire, United Kingdom**	100	1	440	140	19/09/2011
2G Polska Sp. z o.o., Bielsko-Biala, Poland**	100	1	-97	46	07/11/2011
2G Energy Inc. St. Augustine (FL), USA**	100	1	2,265	-636	27/02/2012

\* On July 5, 2007, a control and profit assumption agreement was contracted with 2G Energietechnik GmbH \*\* Converted at reporting date's exchange rate The purpose of the subsidiaries 2G Energietechnik GmbH, 2G Home GmbH, 2G Solutions of Cogeneration S.L., 2G Energie SAS, 2G Italia Srl, 2G Energy Ltd., 2G Polska Sp. z o.o. and 2G Energy Inc. is to plan and install combined heat and power systems, trade in components for CHP systems, and provide after-sales services associated with CHP systems.

The purpose of the subsidiary company 2G Drives GmbH is to optimize gas engines, and to manufacture and market Otto spark-ignition gas engines.

The purpose of the subsidiary company 2G Rental GmbH is to trade in, and rent, combined heat and power systems.

All of the companies are included as subsidiaries in the consolidated financial statements due to the parent company owning the majority of their voting rights.

#### 2. Consolidation methods applied

## Closing date for consolidated financial statements and companies included in the consolidation scope

The consolidated financial statements are based on the separate financial statements of 2G Energy AG and the financial statements of the subsidiaries included in the consolidation scope. The financial statements are prepared as of the December 31, 2017 closing date.

#### **Capital consolidation**

Capital is consolidated according to the revaluation method pursuant to Section 301 (1) of the German Commercial Code (HGB). All balance sheet items at subsidiary level are recognized at fair value on the firsttime consolidation date. Share acquisition costs are offset subsequently against revalued proportionate equity. The residual differential amount from capital consolidation (goodwill) is capitalized and amortized, as it applies to the core business of 2G Energy AG, straight-line over a prospective 20-year useful life pursuant to Section 309 (1) of the German Commercial Code (HGB).

Interests in subsidiaries which are included in the consolidated financial statements, but which are not held by 2G, are reported as minority interests.

#### **Consolidation of liabilities**

Liabilities are consolidated pursuant to Section 303 (1) of the German Commercial Code (HGB). Accordingly, prepayments rendered and other receivables, provisions and liabilities between the companies included in the consolidated financial statements are to be eliminated. Offsetting differences in connection with the consolidation of liabilities are recognized through profit or loss if they comprise year-on-year changes. Otherwise, they are recognized directly in equity. Minor offsetting differences were recognized in the reporting year.

## Treatment of unrealized results of intragroup transactions

Unrealized results of intragroup transactions are eliminated pursuant to Section 304 (1) of the German Commercial Code (HGB). Accordingly, assets that are based fully or partly on deliveries or services between the companies included in the consolidated financial statements must be recognized at the amount at which they could be recognized in the annual balance sheet for the respective company prepared on the closing date of the consolidated financial statements, if the companies included in the consolidated financial statement were also to form a single entity in legal terms.

The consolidated profit and loss account is adjusted to reflect profit or loss contributions from intragroup transactions as part of consolidating income and expenses in accordance with Section 305 of the German Commercial Code (HGB).

#### **Consolidation of income and expenses**

Income and expenses are consolidated in accordance with Section 305 (1) of the German Commercial Code (HGB). The purpose of this is to present only income and expenses in the consolidated profit and loss account according to type and amount that result from business relationships with third parties outside the Group. Consolidation measures exclusively comprise eliminations.

#### C. Information about accounting policies

The individual financial statements of 2G Energy AG and its subsidiaries are prepared in accordance with standard accounting policies.

The annual financial statements of the companies included in the consolidation scope are prepared in accordance with the regulations set out in the German Commercial Code (HGB) and the German Stock Corporation Act (AktG).

Valuation methods were applied unchanged compared with the previous year.

Valuation details are as follows:

#### 1. Intangible fixed assets

Acquired intangible fixed assets are recognized at acquisition cost and, if they comprise depreciating assets, less straight-line amortization. Prepayments rendered are recognized at normal value.

#### 2. Tangible fixed assets

Tangible fixed assets are recognized at acquisition cost and, if they are subject to wear and tear, less scheduled depreciation. Depreciation is applied straight-line according to the assets' prospective useful lives. Prepayments rendered are recognized at normal value.

#### 3. Financial fixed assets

Financial assets are recognized at the lower of their cost or fair value on the balance sheet date. If the value of financial assets calculated in accordance with the principles referred to above is higher than the fair value on the balance sheet date, an extraordinary writedown is applied. If the grounds for a lower valuation no longer exist, a write-up is applied pursuant to Section 253 (5) Clause 1 of the German Commercial Code (HGB).

#### 4. Inventories

Raw materials and supplies are recognized at the lower of cost or fair value.

Work-in-progress and finished goods are recognized at the lower of cost or fair value. In addition to directly attributable specific costs of materials and production, production costs also include materials and production overheads, as well as general administrative costs to the extent that they can be allocated to production. Borrowing costs are not included in production costs. Merchandise is recognized at the lower of cost or fair value.

Prepayments rendered are recognized at nominal value.

If prepayments received do not exceed the value of the work in progress, they are offset with work in progress to the level of the satisfaction amount on a project basis.

#### 5. Receivables and other assets

Receivables and other assets are recognized at the nominal value. Appropriate specific valuation allowances are applied to all risky items. General default and credit risk is reflected through general valuation allowance.

#### 6. Cash in hand and bank balances

Cash in hand and bank balances are measured at nominal value.

#### 7. Prepayments and accrued income

Prepayments and accrued income include payments received before the balance sheet date as far as they represent costs for a particular time period after that date.

#### 8. Deferred tax

Deferred tax assets and deferred tax liabilities have not been offset against each other. An average consolidated tax rate of 30 % has been applied to measure deferred tax assets.

Offsetting applied as part of consolidation generates a differential amount that is to be reported as goodwill. Deferred taxes are not charged on this differential amount (German Accounting Standard/DRS 18 section 25).

#### 9. Equity

Equity is measured at nominal value.

#### **10. Tax provisions**

Tax provisions include taxes relating to the reporting year that have not yet been assessed.

#### **11. Other provisions**

Other provisions are created for contingent liabilities at their settlement value in accordance with reasonable commercial judgment, and taking into account all identifiable risks and contingent liabilities.

#### 12. Liabilities

Liabilities are recognized at the settlement amounts.

#### 13. Prepayments received

Prepayments received include advance payments for new plants, and advance payments from full maintenance contracts. If prepayments received do not exceed the value of the work in progress, prepayments received for new plants are offset on a project basis with work in progress to the level of the satisfaction amount. Any surplus is reported as a prepayment received on the liabilities side of the balance sheet. Prepayments received for full maintenance contracts are accrued on a percentage of completion basis according to the specific contract. Prepayments received for full maintenance contracts are recognized in sales revenues according to percentage of completion. Any surplus prepaid amount is accrued as a prepayment received.

#### 14. Currency translation

Items in the annual financial statements that are based on amounts denominated in foreign currencies are translated at the cash exchange rate in compliance with Section 256a of the German Commercial Code (HGB).

#### D. Notes to the consolidated balance sheet

#### 1. Fixed assets

For information about changes in fixed assets during the financial year under review, please refer to the corresponding presentation in the statement of changes in fixed assets. This statement also presents depreciation, amortization and extraordinary writedowns applied for each balance sheet item during the financial year.

Fixed assets include TEUR 5,991 (previous year: TEUR 3,705) of rental plants from the operating activities of 2G Rental GmbH.

#### 2. Inventories

Inventories amounted to TEUR 43,966 (previous year: TEUR 43,380) as of the balance sheet date. Along with raw materials and supplies (TEUR 31,404), they comprise work-in-progress (TEUR 30,400), finished goods and merchandise (TEUR 1,116), and prepayments rendered (TEUR 2,448).

Pursuant to Section 268 (5) of the German Commercial Code (HGB), prepayments received for orders (TEUR 21,174) were deducted openly from the inventories item.

#### 3. Receivables and other assets

Specific and general valuation allowances of TEUR 3,071 (previous year: TEUR 3,361) were applied to trade receivables.

As in the previous year, all receivables and other assets have a residual term of less than one year.

#### 4. Deferred tax assets

Deferred tax receivables of TEUR 1,435 (previous year: TEUR 970) arise from tax loss carryforwards (TEUR 236) at 2G Drives GmbH, 2G Rental GmbH, 2G Energie SAS and 2G Polska Sp. z o.o. No deferred tax assets were formed in relation to the loss carryforwards of 2G Home GmbH, 2G Solutions S.L., 2G Italia Srl. and 2G Energy Inc. due to their having generated net losses in previous years. In this context, a cautious approach was adopted that does not take into account positive expectations arising from current structural changes. In addition, deferred taxes were formed in relation to eliminated intragroup gains on fixed assets (TEUR 389) and inventories (TEUR 703) deriving from intragroup deliveries and services as of the balance sheet date, and on temporary differences (TEUR 106). These temporary differences arise mainly from recognizing differing valuations for inventories and provisions in the financial statements and in the tax accounts.

It is assumed with sufficient probability that the tax benefits connected with the loss carryforwards can be realized over the coming financial years.

No deferred tax liabilities required reporting as of the balance sheet date.

#### 5. Consolidated equity

The share capital amounts to TEUR 4,430, and is divided into 4,430,000 ordinary bearer shares each with a nominal value of EUR 1.

Capital reserves of EUR 11,235 arise mainly from share premiums from capital increases at 2G Energy AG.

In a resolution passed at the Annual General Meeting on July 8, 2015, the Management Board was authorized to increase the company's subscribed share capital during the period until July 7, 2020, with Supervisory Board approval, once or on several occasions, by up to a total of EUR 2,215 by issuing new shares against cash or noncash capital contributions (Approved Capital 2015).

Notional dividend payout restrictions exist in relation to deferred taxes of TEUR 1,435.

An amount of TEUR 47,305 is available to shareholders for distribution in the year under review. No restricted amounts that cannot be distributed exist in the separate financial statements of 2G Energy AG. For more information about changes in consolidated equity during the financial year under review, please refer to the corresponding presentation in the consolidated statement of changes in equity.

#### 6. Other provisions

The composition on the balance sheet date and changes in other provisions during the reporting year are shown in the following statement of changes in provisions:

#### Other provisions, in TEUR

	31/12/2017	31/12/2016
Warranty commitments	6,080	6,073
Residual work on completed plants/outstanding invoices	3,924	2,966
Amounts owed to staff	1,408	1,136
Taxable fringe benefits	872	872
Professional cooperative contributions	229	263
Costs of preparing and auditing financial statements	133	122
AGM and annual report	47	43
Archiving of business documents	29	29
Litigation costs	65	10
Misc. other provisions	46	0
Total	12,827	11,513

#### 7. Liabilities

Liabilities consist of the following:

#### Residual terms, in TEUR (previous year's amounts in brackets)

			of which	
	<1 year	>1 year	> 5 years	Total
	1,468	4,896	1,314	6,364
Bank borrowings	(1,761)	(4,516)	(1,346)	(6,277)
	23,347	0	0	23,347
Prepayments received for orders	(25,747)	(0)	(0)	(25,747)
	10,092	0	0	10,092
Trade payables	(6,786)	(0)	(0)	(6,786)
	5,231	0	0	5,231
Other liabilities	(7,198)	(0)	(0)	(7,198)
Total	40,138 (41,492)	4,896 (4,516)	1,314 (1,346)	45,034 (46,008)

The following collateral instruments are connected with bank borrowings:

- EUR 2.63 million land charge, Benzstrasse 3, Heek
- EUR 0.31 million land charge, Siemensstrasse 10, Heek
- Collateral assignment of a lease claims

Other liabilities comprise tax liabilities of TEUR 2,597 (previous year: TEUR 4,247), and social security liabilities of TEUR 91 (previous year: TEUR 67).

#### E. Notes to the consolidated profit and loss account

The profit and loss account is prepared applying the nature of expense method, and structured according to Section 275 (2) of the German Commercial Code (HGB).

#### 1. Net sales

Net sales are divided geographically and by operating activities as follows:

#### Net Sales, in TEUR

#### (previous year's amounts in brackets)

	Germany	Abroad	Total
CHP systems/	72,315	52,635	124,950
After Sales	(77,859)	(39,309)	(117,167)
	50,361	14,093	64,454
Service	(43,633)	(13,498)	(57,132)
Total	122,676 (121,492)	66,729 (52,807)	189,404 (174,298)

#### 2. Other operating income

Other operating income comprises TEUR 651 of income related to other accounting periods (previous year: TEUR 695) that consists mainly of insurance compensation payments and loss compensation

payments (TEUR 210), the release of provisions (TEUR 56), and the elimination of specific and general valuation allowances on receivables (TEUR 355).

Other operating income includes income of TEUR 53 from currency translation (previous year: TEUR 243).

#### 3. Other operating expenses

Other operating expenses consist of the following:

#### Other operating expenses, in TEUR

	2017	2016
Operating expenses	6,046	5,990
Administration expenses	3,086	2,349
Sales and marketing expenses	6,050	5,065
Miscellaneous	5,773	5,495
Total	20,955	18,901

Other operating expenses comprise TEUR 1,055 of expenses related to other accounting periods (previous year: TEUR 736) that consists mainly of non-period credits and losses incurred on receivables.

Other operating expenses include expenses of TEUR 794 from currency translation (previous year: TEUR 294).

#### 4. Personnel costs

Social security contributions and pension and benefit expenses include TEUR 315 of pension expenses (previous year: TEUR 437).

#### 5. Other interest and similar income

Other interest and similar income includes income from the discounting of provisions in the amount of TEUR 12 (previous year: TEUR 19)

#### 6. Taxes on income

Taxes on income comprise income of TEUR 481 related to other accounting periods (previous year: TEUR 0) that consists of the release of tax provisions for previous years.

The following items are recognized in the profit and loss account under taxes on income:

#### Income from deferred taxes, in TEUR

	-	
	2017	2016
Deferred tax income	472	126
Deferred tax expenses	0	-120
of which attributable to loss carryforwards (net balance)	7	64
Income from deferred taxes	472	6

#### F. Additional information

#### 1. Consolidated cash flow statement

The cash flow statement is prepared in compliance with German Accounting Standard/DRS 21.

Cash and cash equivalents shown in the cash flow statement include cash at banks and in hand, less shortterm liabilities of TEUR 25 (previous year: TEUR 13).

## 2. Notifications pursuant to Section 20 of the German Stock Corporation Act (AktG)

Christian Grotholt and Ludger Gausling notified the company in accordance with Section 20 of the German Stock Corporation Act (AktG) that they each own more than one quarter of the shares in 2G Energy AG as of the balance sheet date. Both notifications were submitted to the electronic Federal Gazette (Bundesanzeiger) on July 30, 2007.

Ludger Gausling notified the company in accordance with Section 20 of the German Stock Corporation Act (AktG) that he does not own more than one quarter of the shares in 2G Energy AG any more. This notification was published in the electronic Federal Gazette (Bundesanzeiger) on January 27, 2017. **3. Events of key significance after the reporting date** After the balance sheet date, no events occurred that are material to the assessment of the net assets, financial position and results of operations of the company.

#### 4. Derivative financial instruments

Derivative financial instruments serve exclusively to hedge currency risks. On the balance sheet date, the following derivative financial instruments existed:

#### Financial instruments, in TEUR

	Scope	Maturity	Fair value
Forward exchange transaction EUR – USD	255	31/01/2018	-2
Forward exchange transaction EUR – USD	440	28/02/2018	-2
Forward exchange transaction EUR – USD	299	15/03/2018	-3
Forward exchange transaction EUR – USD	1,352	29/03/2018	-4
Forward exchange transaction EUR – USD	3,330	31/05/2018	2
Forward exchange transaction EUR – USD	3,525	31/07/2018	16
Forward exchange transaction EUR – GBP	253	31/05/2018	3
Forward exchange transaction EUR – GBP	208	30/07/2018	4
Forward exchange transaction EUR – GBP	55	30/07/2018	1
	9,719		15

As the conditions for these transactions are met, valuation units are formed according to section 254 of German Commercial Code (HGB) (micro hedge). Accordingly, provisions for anticipated losses with regard to the negative market value of the transactions were not required. The counteracting cash flows are offset on maturity of the underlying transactions, which are corresponding to the maturity of the hedging transactions. The effectiveness of the valuation unit is based on the consistency between the terms and conditions of the underlying and the hedging transaction. The so-called freezing method is used for financial reporting of the effective parts of the valuation units.

#### 5. Contingent liabilities

No contingent liabilities in the meaning of Section 251 (HGB) of the German Commercial Code existed for third-party liabilities as of the balance sheet date.

#### 6. Other financial obligations

Other financial obligations existed in relation to contracts as follows:

#### Other financial obligations, in TEUR

#### (previous year's figures in brackets)

	< 1 year	1 - 5 years	Total
Permanent rental	308	0	308
contracts*	(308)	(0)	(308)
Fixed-term rental contracts	125	157	282
	(149)	(292)	(441)
Lease contracts	106	156	262
	(44)	(62)	(106)
Total	539	313	852
	(501)	(354)	(855)

\* The stated value for the continuing obligations relates to the Company's obligation under these contracts for a period of 12 months

### 7. Average number of employees during the financial year

The average number of employees pursuant to Section 267 of the German Commercial Code (HGB) is composed as follows:

#### Number of employees

	2017	2016
Wage earners	303	298
Salaried staff	303	281
	606	579
of whom part-time		
employees	54	53

#### 8. Management Board

The Management Board is currently composed as follows:

#### **Management Board**

	Management Board member since	Appointed until
Mr. DiplIng. Christian Grotholt Ahaus-Alstätte CEO of 2G Energy AG Strategy, Sales, Service, Research & Development	17/07/2007	16/07/2022
Mr. Ludger Holtkamp Gronau COO of 2G Energy AG Procurement, Production, Project Management	17/07/2007	16/07/2022
Mr. DiplBetriebsw. (BA) Friedrich Pehle Soest CFO of 2G Energy AG Finance, Human Resources, Law, Investor Relations	01/12/2017	30/11/2020

During the reporting year, the following persons have resigned from the Management Board:

#### **Resigned from the Management Board**

	Management Board member since	Resigned on
Mr. DiplBetriebsw. (FH) Dietmar Brockhaus Havixbeck		
CFO of 2G Energy AG		
Finance, Human Resources, Law, Investor Relations	01/07/2013	30/07/2017

More information about the Management Board members of 2G Energy AG is provided on 2G's website in the section entitled "Company".

#### 9. Supervisory Board

The following individuals were appointed as members of the Supervisory Board during the year under review:

#### **Supervisory Board**

	Since
Dr. Lukas Lenz (Chairman) Lawyer, Hamburg	17/07/2007
Mr. Heinrich Bertling (Deputy Chairman) Tax adviser, Gronau	28/08/2012
Mr. Wiebe Hofstra Senior Manager van der Wiel Holding BV, Drachten/NL	17/07/2007

The Supervisory Board members are appointed until the end of the AGM that passes a resolution concerning the discharge of the directors for the 2021 financial year.

More information about the Supervisory Board members of 2G Energy AG is provided on 2G's website in the section entitled "Company".

#### 10. Directors' compensation

Compensation of TEUR 660 was paid to the Management Board in the financial year under review (previous year: TEUR 646), and compensation of TEUR 30 to the Supervisory Board (previous year: TEUR 20).

#### 11. Auditor's fee

Other operating expenses include the fees expensed for the auditor of the financial statements. The auditor's fees totaled TEUR 122 (previous year: TEUR 138) and is composed as follows:

#### Auditor's fee, in TEUR

	2017	2016
Audit services	91	78
Tax advisory services	3	18
Other consultancy services	28	42
	122	138

#### 12. Proposed appropriation of profits

The Management Board will recommend that the Supervisory Board present the following proposal for the appropriation of profits to the Annual General Meeting for approval:

The unappropriated profit of EUR 7,004,944.70 reported in the annual financial statements of 2G Energy AG as prepared according to the German Commercial Code (HGB), consisting of net profit of EUR 7,004,944.70 for the year and EUR 0.00 of net retained profits, are to be distributed in an amount of EUR 1,860,600.00, and to allocate in an amount of EUR 5,144,344.70 to other retained earnings.

#### 13. Exemption rules

Utilization was made of the exemption in Section 264 (3) of the German Commercial Code (HGB) with regard to the obligation to prepare a management report and publish the annual financial statements for the subsidiary 2G Energietechnik GmbH, Heek.

Heek, April 26, 2018

1. for that

Christian Grotholt Management Board Chairman (CEO)

Millef

Ludger Holtkamp Management Board member

The.

Friedrich Pehle Management Board member

## **Consolidated statement of changes in fixed assets**

			Cost				
	01/01/2017	Currency translation	Additions	Transfers	Disposals	31/12/2017	
		translation		Transfers	Disposals	31/12/2017	
Intangible fixed assets							
Purchased concessions, industrial property rights and similar rights and assets, and licenses to such	2 2 4 2 6 4 2 0 0	1 216 20	407.000.05	24.075.00	20.040.70	2 525 25 4 07	
rights and assets	2,343,612.90	-1,316.28	197,032.05	24,975.90	38,049.70	2,526,254.87	
Goodwill	8,431,787.58	0.00	0.00	0.00	0.00	8,431,787.58	
Prepayments rendered	24,975.90	0.00	7,533.00	-24,975.90	0.00	7,533.00	
	10,800,376.38	-1,316.28	204,565.05	0.00	38,049.70	10,965,575.45	
Tangible fixed assets							
Land, land rights and buildings, including buildings on third-party land	10,140,205.36	-352,482.87	29,841.68	0.00	0.00	9,817,564.17	
Plant and machinery	2,047,425.31	-17,773.76	78,918.15	0.00	101,515.68	2,007,054.02	
Other factory and office equipment	16,608,635.75	-129,635.36	5,208,622.72	1,414.19	1,159,402.53	20,529,634.77	
Prepayments rendered and plants under construction	619,457.03	-196.57	169,449.80	-1,414.19	0.00	787,296.07	
	29,415,723.45	-500,088.56	5,486,832.35	0.00	1,260,918.21	33,141,549.03	
Financial fixed assets							
Other participating interests	10,000.00	0.00	0.00	0.00	0.00	10,000.00	
	10,000.00	0.00	0.00	0.00	0.00	10,000.00	
Total	40,226,099.83	-501,404.84	5,691,397.40	0.00	1,298,967.91	44,117,124.48	

Depre	ciation ans am	ortization			Book	value
01/01/2017	Currency translation	Additions	Disposals	31/12/2017	31/12/2016	31/12/2017
1,559,111.78	-715.97	322,667.57	11,192.70	1,869,870.68	784,501.12	656,384.19
3,810,890.83	0.00	569,038.97	0.00	4,379,929.80	4,620,896.75	4,051,857.78
0.00	0.00	0.00	0.00	0.00	24,975.90	7,533.00
5,370,002.61	-715.97	891,706.54	11,192.70	6,249,800.48	5,430,373.77	4,715,774.97
1,445,092.42	-11,533.95	305,578.08	0.00	1,739,136.55	8,695,112.94	8,078,427.62
782,615.77	-8,767.63	185,493.40	94,897.02	864,444.52	1,264,809.54	1,142,609.50
· · · · ·	-					
7,993,049.09	-72,769.31	2,400,599.43	514,695.24	9,806,183.97	8,615,586.66	10,723,450.80
0.00	0.00	0.00	0.00	0.00	619,457.03	787,296.07
10,220,757.28	-93,070.89	2,891,670.91	609,592.26	12,409,765.04	19,194,966.17	20,731,783.99
0.00	0.00	0.00	0.00	0.00	10,000.00	10,000.00
0.00	0.00	0.00	0.00	0.00	10,000.00	10,000.00
15,590,759.89	-93,786.86	3,783,377.45	620,784.96	18,659,565.52	24,635,339.94	25,457,558.96

## **Consolidated cash flow statement**

	01/01/ to 31/12/2017	01/01/ to 31/12/2016
	Euro	Euro
Consolidated net profit/loss for the year	4,922,788.82	1,784,071.36
<ul> <li>Depreciation, amortization and fixed asset write-downs</li> </ul>	3,783,377.45	3,587,245.02
E Change in provisions	1,314,361.64	813,959.31
<sup>±</sup> Change in inventories	-586,195.92	-11,131,396.27
<ul> <li>Change in trade receivables and other assets that are not allocable to investing or financing activities</li> </ul>	2,921,100.80	-3,192,111.06
<ul> <li>Change in trade payables and other liabilities that are not allocable to investing financing activities</li> </ul>	-1,060,566.73	14,133,975.28
<sup>±</sup> Loss/gain from fixed asset disposals	-87,095.27	64,237.32
+ Interest and similar expenses	417,450.37	436,283.93
Other interest and similar income	-48,308.33	-68,246.52
+ Taxes on income	2,040,589.33	1,699,129.42
<sup>±</sup> Income tax payments	-772,009.30	-1,745,328.27
<ul> <li>Cash flow from operating activities</li> </ul>	12,845,492.86	6,381,819.52
<ul> <li>Proceeds from fixed asset disposals</li> </ul>	765,278.22	284,475.62
Payments for investments in intangible fixed assets	-204,565.05	-291,597.63
Payments for investments in tangible fixed assets	-5,486,832.35	-4,545,258.65
Payments for acquisition of consolidated companies	0.00	-60,000.00
+ Interest received	48,308.33	68,246.52
<ul> <li>Cash flow from investing activities</li> </ul>	-4,877,810.85	-4,544,134.14

	01/01/ to 31/12/2017	01/01/ to 31/12/2016
	Euro	Euro
+ Proceeds from raising of loans	1,548,000.00	2,174,000.00
- Outgoing payments for redemption of loans	-1,472,279.02	-1,801,756.23
- Interest paid	-417,450.37	-436,283.93
- Dividends paid to parent company shareholders	-1,772,000.00	-1,639,100.00
Cash flow from financing activities	-2,113,729.39	-1,703,140.16
= Net change in cash and cash equivalents	5,853,952.62	134,545.22
Currency-related change in cash and cash equivalents	51,752.26	-75,476.52
+ Cash and cash equivalents at start of period	10,186,757.66	10,127,688.96
= Cash and cash equivalents at end of period	16,092,462.54	10,186,757.66

	01/01/ to 31/12/2017	01/01/ to 31/12/2016
	Euro	Euro
Composition		
Liquid assets	16,117,059.21	10,199,770.32
Short-term bank borrowings	-24,596.67	-13,012.66
	16,092,462.54	10,186,757.66

## **Consolidated statement of changes in equity**

#### Consolidated statement of changes in equity, in EUR

				Parent company			
				Adjustment	Other		
				item from	accumulated		
	Subscribed	Capital		foreign currency	consolidated		
	share capital	reserves	earnings	translation	earnings		
Balance on 01/01/2016	4,430,000.00	11,235,300.00		-602,681.20	6,375.40		
Consolidation-related currency differences				-46,788.78			
Payments to shareholders							
Consolidated profit for the year							
Miscellaneous changes							
Balance on 31/12/2016	4,430,000.00	11,235,300.00		-649,469.98	6,375.40		
Balance on 01/01/2017	4,430,000.00	11,235,300.00		-649,469.98	6,375.40		
Transfer to retained earnings			40,299,580.49				
Consolidation-related currency differences				-355,865.72			
Payments to shareholders							
Consolidated profit for the year							
Balance on 31/12/2017	4,430,000.00	11,235,300.00	40,299,580.49	-1,005,335.70	6,375.40		

Consolidated equity		inority shareholders					
	Total	Retained earnings attributable to minority interests	Minority interests	Total	Retained earnings		
52,646,968.37	499,049.63	494,058.21	4,991.42	52,147,918.74	37,078,924.54		
-46,788.78				-46,788.78			
-1,639,100.00				-1,639,100.00	-1,639,100.00		
1,784,071.36	-13,371.39	-13,371.39		1,797,442.75	1,797,442.75		
170,769.01	170,769.01	170,459.83	309.18				
52,915,919.96	656,447.25	651,146.65	5,300.60	52,259,472.71	37,237,267.29		
52,915,919.96	656,447.25	651,146.65	5,300.60	52,259,472.71	37,237,267.29		
					-40,299,580.49		
-355,865.72				-355,865.72			
-1,772,000.00				-1,772,000.00	-1,772,000.00		
4,922,788.82	-83,884.78	-83,884.78		5,006,673.60	5,006,673.60		
55,710,843.06	572,562.47	567,261.87	5,300.60	55,138,280.59	172,360.40		



## **2G.** Auditor's report.

Auditor's report99	9
Consolidated financial statements73	3
Group management report35	5

2G Energy AG Annual Report.

### Auditor's report

#### **Audit opinions**

We have audited the consolidated financial statements of 2G Energy AG, Heek, and its subsidiaries (the Group), which comprise the consolidated balance sheet as of December 31, 2017, the consolidated statement of profit and loss, the consolidated statement of changes in equity and the consolidated cash flow statement for the financial year from January 1 to December 31, 2017, and the notes to the consolidated financial statements, including a summary of significant accounting policies. We also audited the Group management report for 2G Energy AG for the financial year from January 1 to December 31, 2017. In accordance with German statutory regulations, we have not audited the content of the Group's non-financial statement pursuant to Section 315 b of the German Commercial Code (HGB).

In our opinion, based on the knowledge obtained in the audit,

- the attached consolidated financial statements comply in all material aspects with German commercial regulations and convey in accordance with German generally accepted accounting principles a true and fair view of the Group's net assets and financial position as of December 31, 2017 as well as the results of its operations for the financial year from January 1 to December 31, 2017, and
- the accompanying Group management report as a whole provides an appropriate view of the Group's position. In all material aspects, this Group management report is consistent with the consolidated financial statements, complies with German legal requirements and appropriately presents the opportunities and risks entailed in future development. Our audit opinion on the Group

management report does not cover the content of the aforementioned non-financial statement by the Group.

Pursuant to Section 322 (3) Clause 1 HGB, we declare that our audit has not led to any reservations concerning the legal compliance of the consolidated financial statements and the Group management report.

#### Basis for the audit opinions

We conducted our audit of the consolidated financial statements and of the Group management report in accordance with Section 317 HGB and in compliance with German Generally Accepted Standards for Financial Statement Audits promulgated by the Institute of Public Auditors in Germany (Institut der Wirtschaftsprüfer/IDW). Our responsibilities under those requirements and principles are further described in the "Auditor's responsibilities for the audit of the consolidated financial statements and of the Group management report" section of our auditor's report. We are independent of the Group entities in accordance with the requirements of German commercial and professional law, and we have fulfilled our other German professional responsibilities in accordance with these requirements. We believe that the audit evidence we have obtained is sufficient and appropriate to provide a basis for our audit opinions on the consolidated financial statements and on the Group management report.

#### **Other information**

The Management Board members are responsible for the other information.

The other information comprises the Group's nonfinancial statement pursuant to Section 315 b (1) HGB.

The other information also includes the other parts of the annual report that we received before the date of this auditor's report – excluding further-reaching cross-references to external information – apart from the audited consolidated financial statements, the audited Group management report and our auditor's report.

Our audit opinions on the consolidated financial statements and on the Group management report do not cover the other information, and consequently we do not express an audit opinion or any other form of assurance conclusion thereon.

In connection with our audit, our responsibility is to read the other information and, in so doing, to consider whether the other information

- is materially inconsistent with the consolidated financial statements, with the Group management report or our knowledge obtained in the audit, or
- otherwise appears to be materially misstated.

#### Responsibilities of the Management and Supervisory boards for the consolidated financial statements and the Group management report

The Management Board members are responsible for the preparation of the consolidated financial statements that comply, in all material respects, with German commercial law regulations, and for ensuring that the consolidated financial statements, in compliance with German generally accepted accounting principles, give a true and fair view of the assets, liabilities, financial position, and financial performance of the Group. In addition, the Management Board members are responsible for such internal controls as they have determined necessary in accordance with German generally accepted accounting principles to enable the preparation of consolidated financial statements that are free from material misstatement, whether due to fraud or error.

In preparing the consolidated financial statements, the Management Board members are responsible for assessing the Group's ability to continue as a going concern. They also bear the responsibility for disclosing, as applicable, matters related to going concern. In addition, they are responsible for financial reporting based on the going concern basis of accounting unless an intention exists to liquidate the Group or to cease operations, or there is no realistic alternative but to do so.

Furthermore, the Management Board members are responsible for the preparation of the Group management report that, as a whole, provides an appropriate view of the Group's position and is, in all material respects, consistent with the consolidated financial statements, complies with German legal requirements, and appropriately presents the opportunities and risks of future development. In addition, the Management Board members are responsible for such arrangements and measures (systems) as they have considered necessary to enable the preparation of a Group management report that is in accordance with the applicable German legal requirements, and to be able to provide sufficient appropriate evidence for the assertions in the Group management report.

The Supervisory Board is responsible for overseeing the Group's financial reporting process for the preparation of the consolidated financial statements and of the Group management report.

## Auditor's responsibility for the audit of the consolidated financial statements and Group management report

Our objectives are to obtain reasonable assurance about whether the consolidated financial statements as a whole are free from material misstatement, whether due to fraud or error, and whether the Group management report as a whole provides an appropriate view of the Group's position and, in all material respects, is consistent with the consolidated financial statements and the knowledge obtained in the audit, complies with the German legal requirements and appropriately presents the opportunities and risks of future development, as well as to issue an auditor's report that includes our audit opinions on the consolidated financial statements and on the Group management report.

Reasonable assurance is a high level of assurance, but is not a guarantee that an audit conducted in accordance with Section 317 HGB and in compliance with German Generally Accepted Standards for Financial Statement Audits promulgated by the Institute of Public Auditors in Germany (Institut der Wirtschaftsprüfer/IDW) will always detect a material misstatement. Misstatements can arise from fraud or error and are considered material if, individually or in the aggregate, they could reasonably be expected to influence the economic decisions of users taken on the basis of these consolidated financial statements and this Group management report. We exercise professional judgement and maintain professional skepticism throughout the audit. We also:

- Identify and assess the risks of material misstatement of the consolidated financial statements and of the Group management report, whether due to fraud or error, design and perform audit procedures responsive to those risks, and obtain audit evidence that is sufficient and appropriate to provide a basis for our audit opinions. The risk of not detecting a material misstatement resulting from fraud is higher than for one resulting from error, as fraud may involve collusion, forgery, intentional omissions, misrepresentations, or the override of internal control.
- Obtain an understanding of internal control relevant to the audit of the consolidated financial statements and of arrangements and measures (systems) relevant to the audit of the Group management report in order to design audit procedures that are appropriate in the circumstances, but not for the purpose of expressing an audit opinion on the effectiveness of these systems.
- Evaluate the appropriateness of accounting policies used by the Management Board members and the reasonableness of estimates made by the Management Board members and related disclosures.
- Draw conclusions on the appropriateness of the Management Board members' use of the going concern basis of accounting and, based on the audit evidence obtained, whether a material uncertainty exists related to events or conditions that may cast significant doubt on the Group's ability to continue as a going concern. If we conclude that a material uncertainty exists, we are required to draw attention in the auditor's report to the related disclosures in

the consolidated financial statements and in the Group management report or, if such disclosures are inadequate, to modify our respective audit opinions. Our conclusions are based on the audit evidence obtained up to the date of our auditor's report. However, future events or conditions may cause the Group to cease to be able to continue as a going concern.

- Evaluate the overall presentation, structure and content of the consolidated financial statements, including the disclosures, and whether the consolidated financial statements present the underlying transactions and events in such a manner that the consolidated financial statements give a true and fair view of the assets, liabilities, financial position and financial performance of the Group in compliance with German generally accepted accounting principles.
- Obtain sufficient appropriate audit evidence regarding the financial information of the entities or business activities within the Group to express audit opinions on the consolidated financial statements and on the Group management report. We are responsible for the direction, supervision and performance of the group audit. We remain solely responsible for our audit opinions.
- Evaluate the consistency of the Group management report with the consolidated financial statements, its conformity with German law, and the view of the Group's position it provides.
- Perform audit procedures on the prospective information presented by the Management Board members in the Group management report. On the basis of sufficient appropriate audit evidence we evaluate, in particular, the significant assumptions used by the Management Board members as a basis for the prospective information, and evaluate the

proper derivation of the prospective information from these assumptions. We do not express a separate audit opinion on the prospective information and on the assumptions used as a basis. A substantial unavoidable risk exists that future events will differ materially from the prospective information.

We communicate with those charged with governance regarding, among other matters, the planned scope and timing of the audit and significant audit findings, including any significant deficiencies in internal control that we identify during our audit.

Osnabrück, April 26, 2018

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