



# SMA SOLAR TECHNOLOGY AG

## Investor Presentation: ODDO BHF German Conference

Presented by: Ulrich Hadding (CFO)

February 20, 2019

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# 1. Review 2018

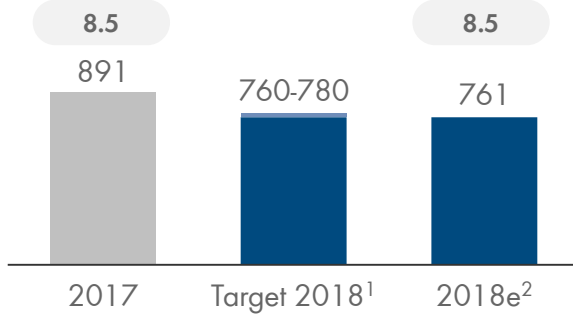


# Review 2018: Sales and Earnings within Guidance; EBITDA Impacted by Net Extraordinary Effects of about €100 Million



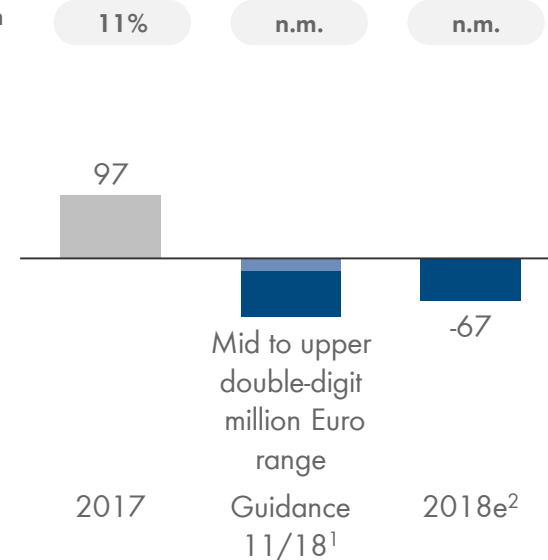
**Sales (in € million)**

GW



**EBITDA (in € million)**

Margin



1. as announced November 30, 2018

2. preliminary figures

# In 2018, SMA Generated new Opportunities in a Challenging Market Environment



## Challenges



### Policy shake-up in China

impacted inverter prices  
in H2/18



### Component shortages

affected mainly the Commercial  
segment in H1/2018



### Limited battery availability

caused storage sales that  
remained below expectations



## Opportunities



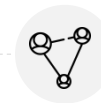
### New strategic partnerships

with BYD and Audi generate  
new opportunities in the storage  
and new energy sector



### Strong EMEA market

favors SMA as we hold the  
#1 market position and have  
a strong repowering business



### Tap into digital business

with the IoT platform ennexOS and  
the new subsidiary conevea, which  
develops new energy services

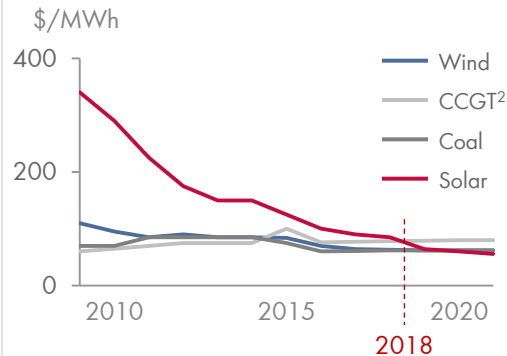
## 2. Market & Competition



# The Solar Market is set to Disrupt the Energy Sector

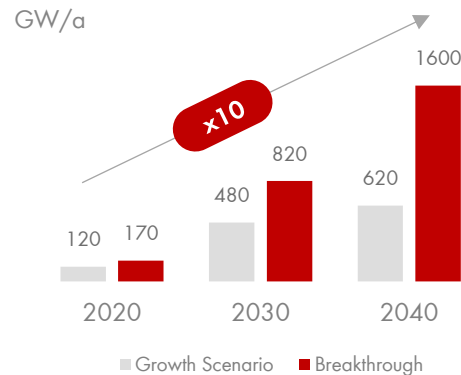


## Global Energy Generation Cost<sup>1</sup>



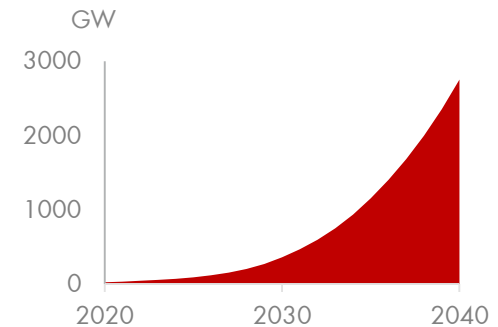
The sharp price decline for PV components results in competitiveness of PV with other energy sources. Beyond 2020, the price decline for solar p.a. is expected to slow down to single digit rates.

## Annual PV Capacity Additions by Scenario<sup>3</sup>



Policies, sustainability concerns and strong growth in primary energy demand drive expansion of PV capacity.

## Cumulative Global Storage Power<sup>4</sup>



High share of renewables results in increased volatility and requires capacity balancing and optimization.

1. Bloomberg article on energy costs, January 3, 2017, and SMA estimates

2. CCGT=combined cycle gas turbine

3. Fraunhofer Institute for Solar Energy Systems 2015, and SMA estimates

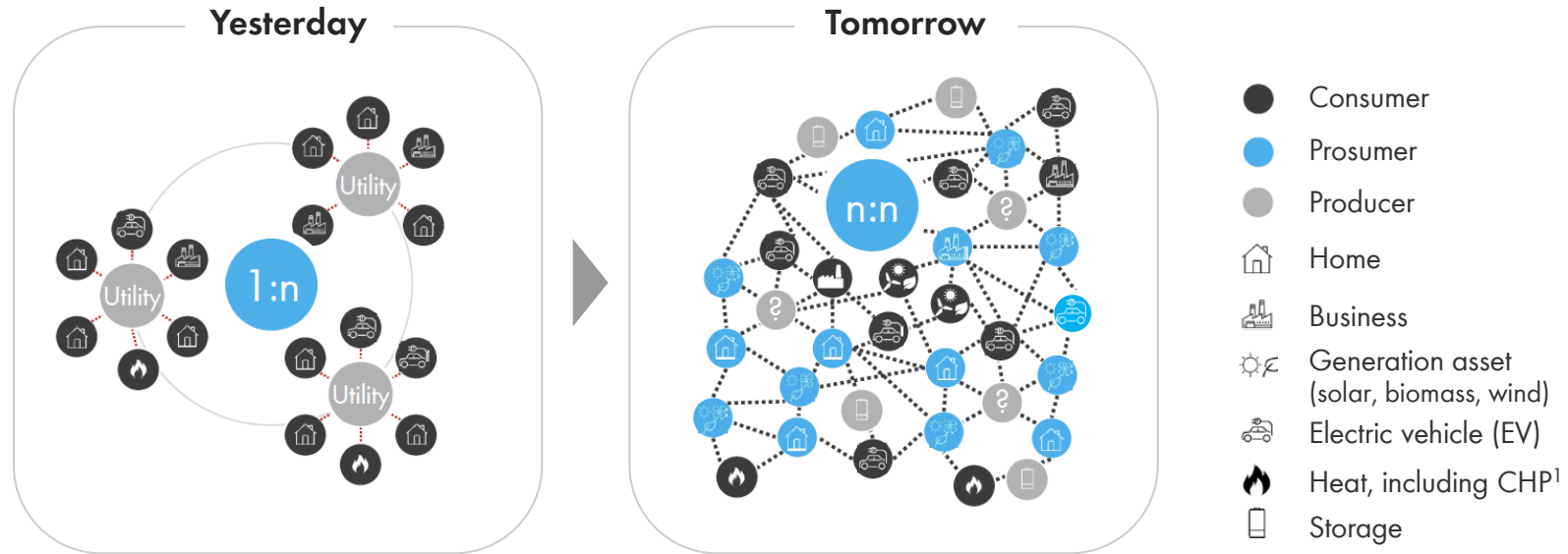
4. Bloomberg NEO 2017, small and utility scale batteries



# The New Energy World is Decentral



## Digitalization is Key for Decentrally Controlled Grid





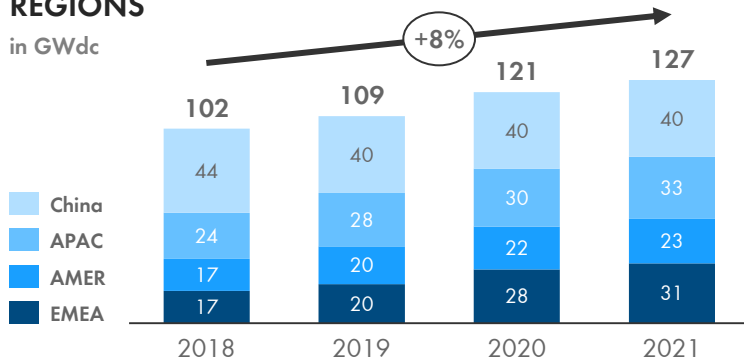
# Global PV Installations Expected to Grow in all Regions, Except China



## Core Business: PV Installations<sup>1</sup>

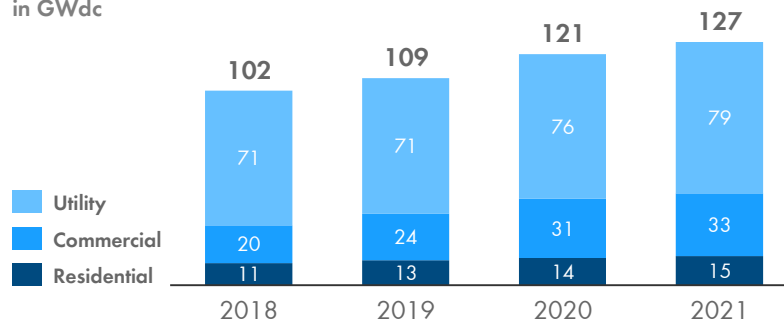
### REGIONS

in GWdc



### SEGMENTS

in GWdc



### New installations

From 2018 on PV installations are expected to show a continuous average growth of 8% p.a.

### EMEA

EMEA is most promising region with >20% annual growth. MEA<sup>2</sup> is expected to add huge potential from 2020.

### China

Chinese installations decreased by 16% in 2018. 5-Year-Plan<sup>3</sup> ends in 2020, forecast thereafter subject to uncertainty.

### Utility

Utility remains largest segment. Most promising markets are USA, Australia, Japan. India and China are largest low-cost markets.

1. SMA Market Model Q1 2019, new PV installations, Res ≤10kW plants, Com 10kW-1MW plants, Uti >1MW plants

2. Middle East and Africa region

3. Chinese 13th Renewable Energy Development Five Year Plan (2016-2020)

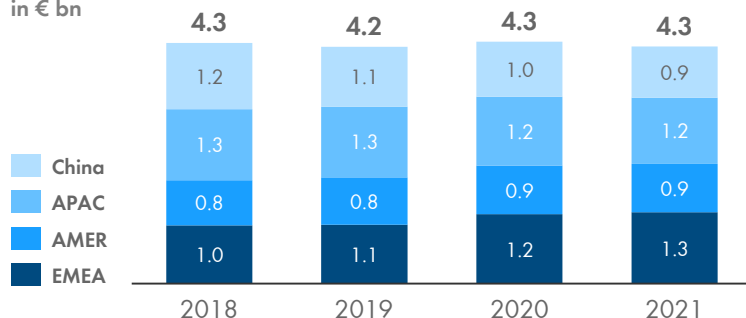
# Price Pressure will Largely Erode Growth in PV Installations



## PV Inverter Revenue<sup>1</sup>

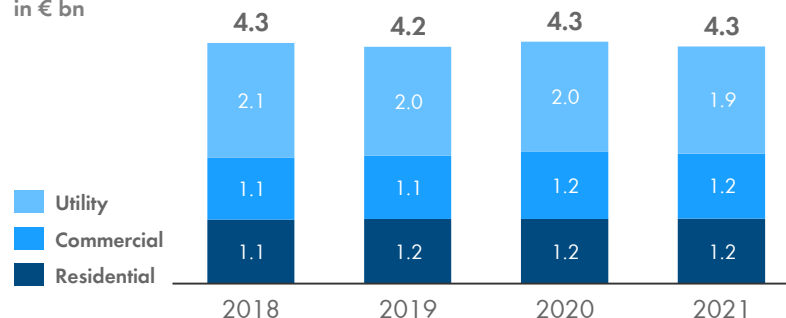
### REGIONS

in € bn



### SEGMENTS

in € bn



### Revenue potential

After drop from 2017 to 2018 by ~10%, flat revenue expected until 2021. Price pressure will largely erode volume growth.

### EMEA

Emerging PV markets in MEA<sup>2</sup> contribute strongly to growth in EMEA, which is expected to reach 7% p.a.

### AMERICAS

Largest country in Americas region remains the USA. Latin America gains importance with revenue growth of 14% p.a.

### Segments

Revenue potential for each segment expected to remain rather stable, no significant shift among segments expected.

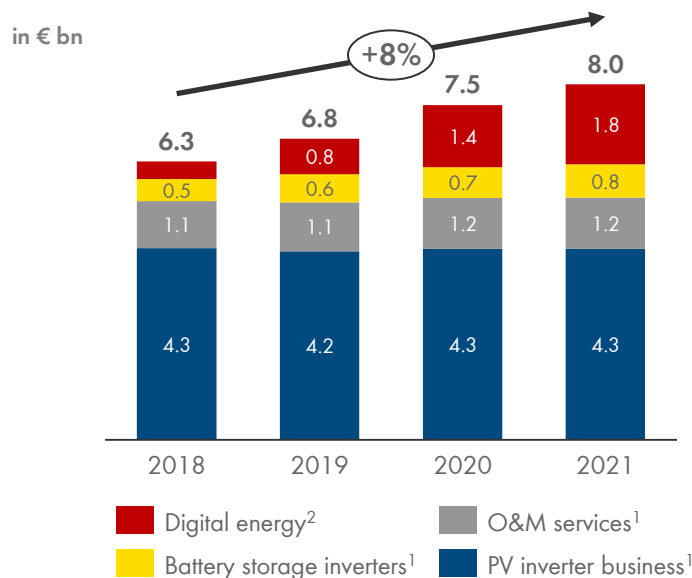
1. SMA Market Model Q1 2019, incl. new and repowering installations, product mix in segments considered, Res ≤10kW plants, Com 10kW-1MW plants, Uti >1MW plants

2. Middle East and Africa region

# Storage and Digital Energy Solutions Drive Global Market Growth



## Global Market Outlook by Sector

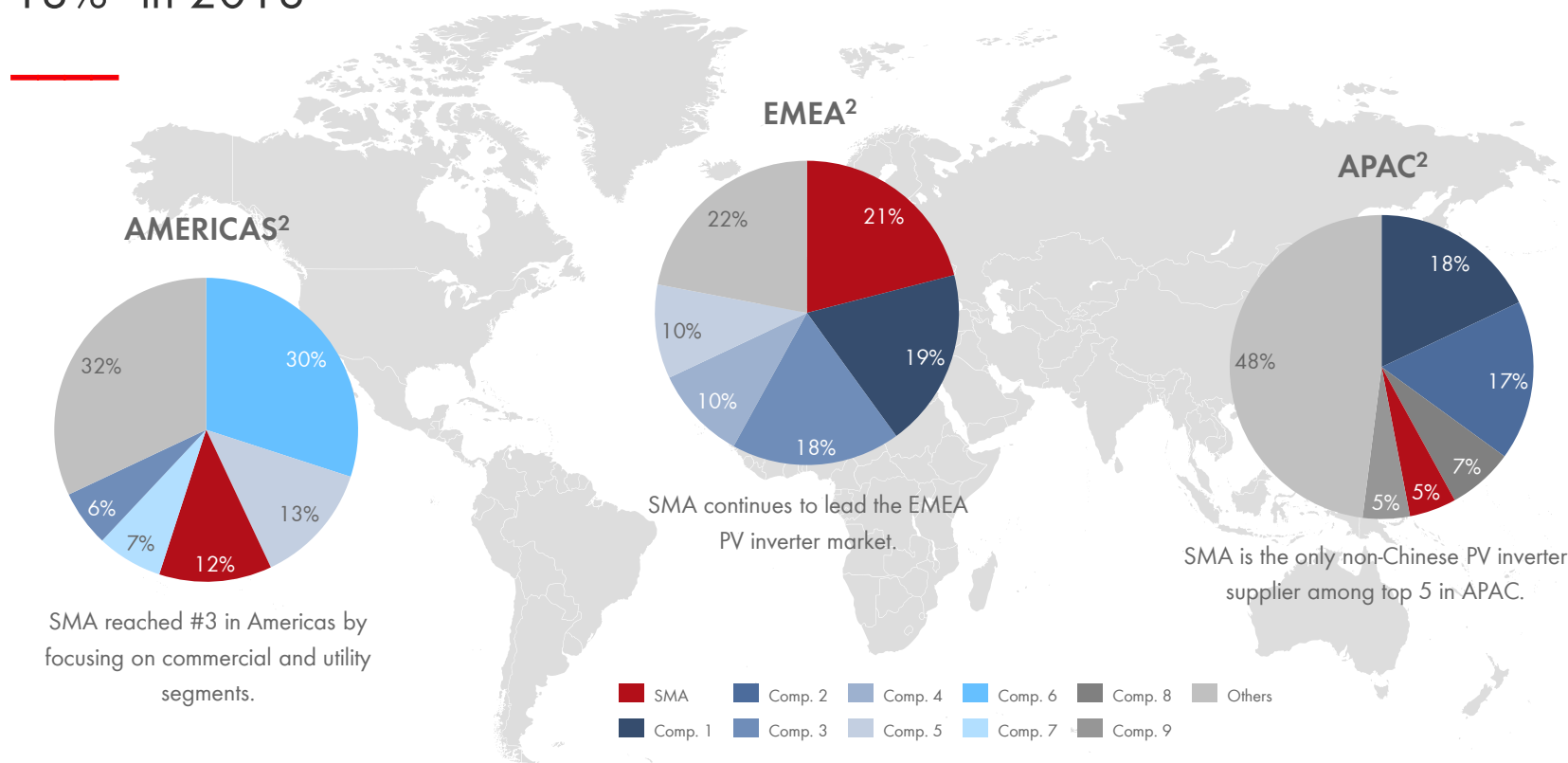


- Power generation costs decrease, integrated energy and digitalization will lead to a higher share of renewable energy and its growth.
- The traditional PV inverter market revenue potential is expected to be stable. Digital solutions and battery storage are attractive additional value pools.
- PV inverters will serve as the backbone for smart grid solutions connecting the components and collecting data.
- Digital energy solutions gain importance for both homes and businesses, e.g. energy services for residential houses, food and non-food retail.
- O&M services remain important with continuously declining equipment prices and are key for sustainable PV investments. Service packages aim utility plants in particular and vary from full to partial.

1. SMA Market Model Q1 2019

2. SMA estimate of addressable market for home and business digital energy solutions

# SMA is a leading Player of PV Technology with a Market Share of 13%<sup>1</sup> in 2018



1. in €-terms, based on SMA Market Model Q1 2019, PV Inverters only

2. in MW-terms, based on IHS Markit Inverter Tracker Q3 2018 and SMA estimates



### 3. Restructuring 2019

With the 2019 Restructuring we Reduce our Costs by c. €40 m p.a. while Maintaining SMA's Ability to Seize Opportunities



# The main Cost Reduction, the Majority of which will be Fully Effective in 2019, results from Closing SMA's Facilities in China



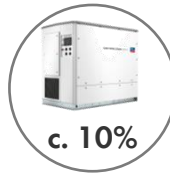
SMA will optimize the utilization of the CO<sub>2</sub>-neutral production site in Germany and close its production, procurement and development facilities in China.

## Kassel, GERMANY Production capacity of max. 15 GW

Large scale storage  
and central inverter

String inverter

Direct Labor  
Share



c. 10%



c. 8%

470

30-160

Permanent  
Employees 2018

Min/Max. Temporary  
Workers 2018

## Zabierzów, POLAND

Production site for chokes and transformers



220

50-230

Permanent  
Employees 2018

Min/Max. Temporary  
Workers 2018

SMA can scale its operations 1:2 according to demand within one month and 1:7 within one year



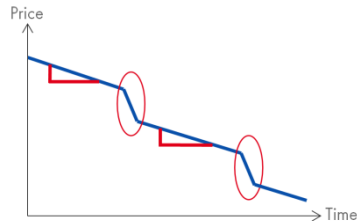
# To Return to Profitability, we must Increase our Focus on Reducing Variable Costs and Push Sales Initiatives even Further



# 1

## Variable Cost Reduction

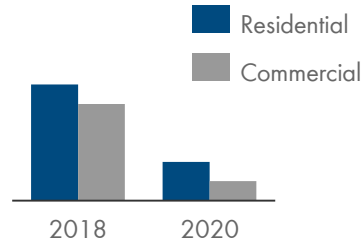
SMA will continuously reduce manufacturing costs for existing products and launch new products with significantly lower costs.



# 2

## Platform Reduction

SMA will improve the time to market and decrease development adjustments.



# 3

## Strategic Partnerships

SMA's strategic partnerships will help to increase the top line.



# 4

## Ease of Doing Business

SMA's focus is to ease the job of the installer with partner programs and by offering system packages.

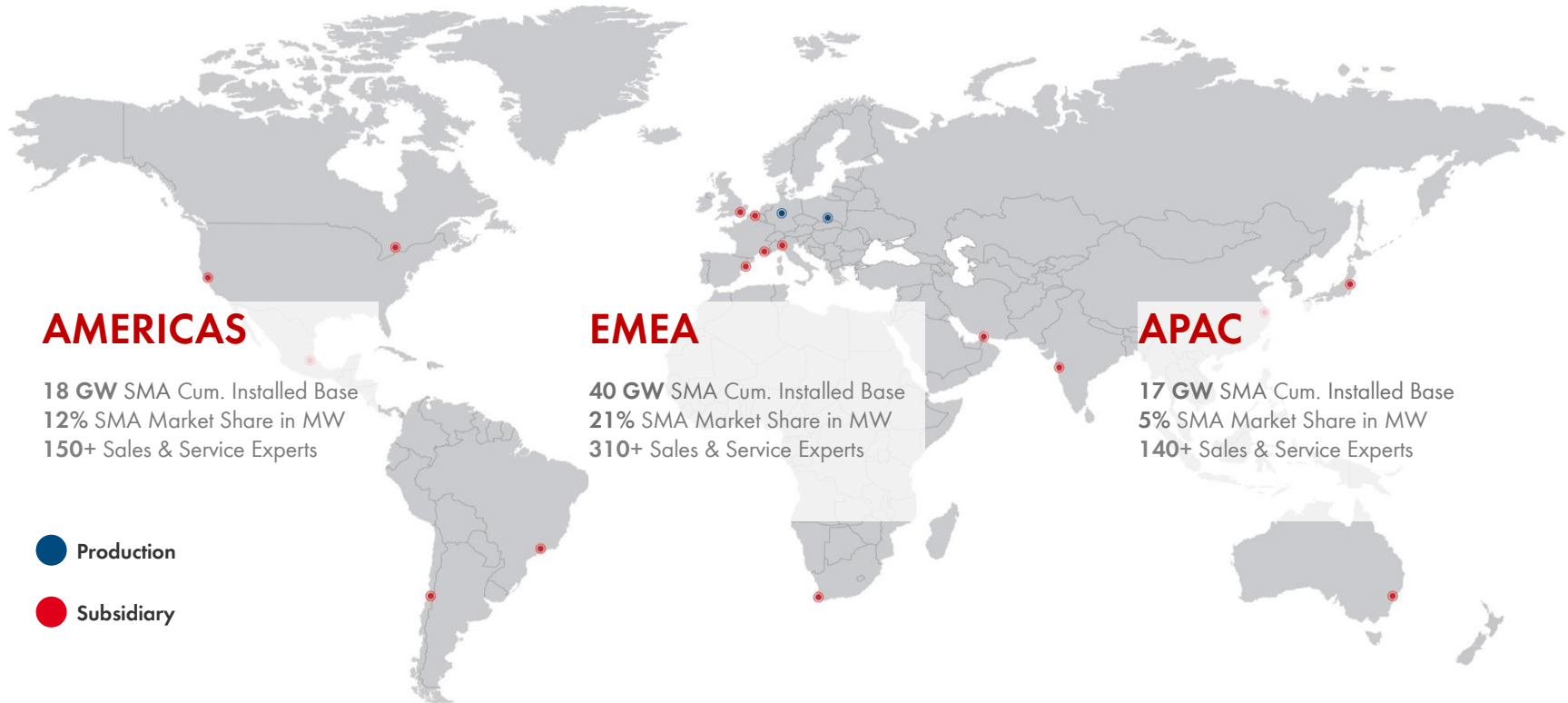


A photograph of two men wearing white hard hats and safety glasses, standing in a field of solar panels. The man on the left, wearing a red shirt, is pointing his right arm towards the solar panels in the distance. The man on the right, wearing a dark blue polo shirt, is looking in the same direction. The background shows rows of solar panels stretching across a grassy field under a clear blue sky.

## 4. SMA's Global Presence



# SMA has a Specialized Sales and Service Infrastructure



# SMA is the Market Leader in EMEA



310+

Sales & Service FTE



21%

Market Share<sup>1</sup>



8

Subsidiaries



0.7 GW

O&M under  
Management

## EMEA

### Sales Initiatives 2018

- Certified Installer Program:
  - Germany Since 2014
  - Italy: Certified Installer Program Launch Q1/19
- Established dedicated Large Scale Storage and Service Repowering sales team to drive significant opportunities in these segments in Europe.
- More than 400 MW of inverter sales secured by European EPCs in Australia.



### Highlights 2018

- Won 120 MW Utility project in Israel: One of the largest projects in the region in 2018.
- Cooperation with Audi – SMA is the interface between Audi E-Mobility and Home Energy Management.

# The Strongest Markets of SMA in APAC are Australia, Japan, and South Korea



**140+**  
Sales & Service FTE



**5%**  
Market Share<sup>1</sup>



**4**  
Subsidiaries



**0.2 GW**  
O&M under  
Management

## APAC

### Sales Initiatives 2018

- Certified Installer Program:
  - Launched Q4/18 in Australia
- New battery partner - BYD Alliance, joint market approach in Australia.
- SMA established Sales Agents in Thailand and Korea to support growing customer demand in markets w/o subsidiary.
- Appointed Service partners in various locations in SEA and Korea.



### Highlights 2018

- 112 MW Karadoc solar farm in South Australia
- In Australia, 1.8 GW Utility inverters commissioned in 2018
- Secured 400 MW of inverter sales in Vietnam

# SMA Strives to Win Back Market Share in Americas



150+  
Sales & Service FTE



12%  
Market Share<sup>1</sup>



5  
Subsidiaries



2.4 GW  
O&M under  
Management

## AMERICAS

### Sales Initiatives 2018

- Certified Installer Program:
  - Launched Q4/18 in USA
- New Subsidiary in Mexico
- Dedicated Large Scale Storage and Service Repowering sales team to drive strong pipeline for 2019-2020
- BYD Alliance (Total Storage Solution Provider)



### Highlights 2018

- Top 5 Utility Projects of more than 400 MW installed in 2017/18



## 5. Technology & Portfolio





## SMA's R&D Excellence in Numbers



4,000  
meter altitude

30  
years  
experience



Data from  
> 1.5 m  
inverters

> 5 m  
inverters sold



500  
engineers

75 GW  
installed base

# Strong Strategic Partnerships



## Storage Systems



## Energy & Grid Services



## E-Mobility



## SMA Smart Home



## Module-Level Power Electronics



## Standards



## Strategic Collaborations



## R&D Collaborations



## PV Diesel Hybrid-Systems

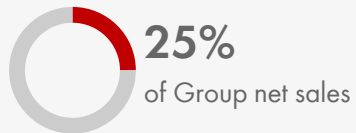


# SMA has a Complete Portfolio to Serve all PV Segments

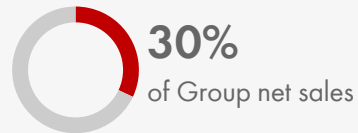
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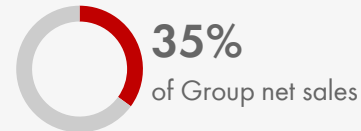
**SMA  
RESIDENTIAL**



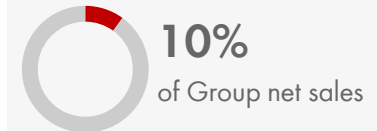
**SMA  
COMMERCIAL**



**SMA  
UTILITY**



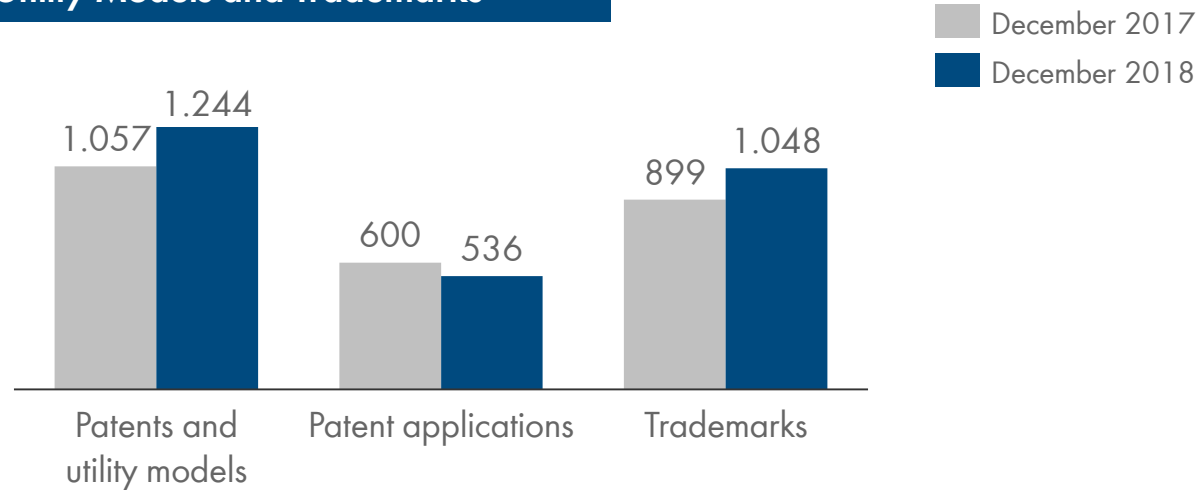
**SMA  
STORAGE**



# SMA's Patents and Trademarks Protect our Broad Innovations Unmatched in the PV Industry



## Patents, Utility Models and Trademarks

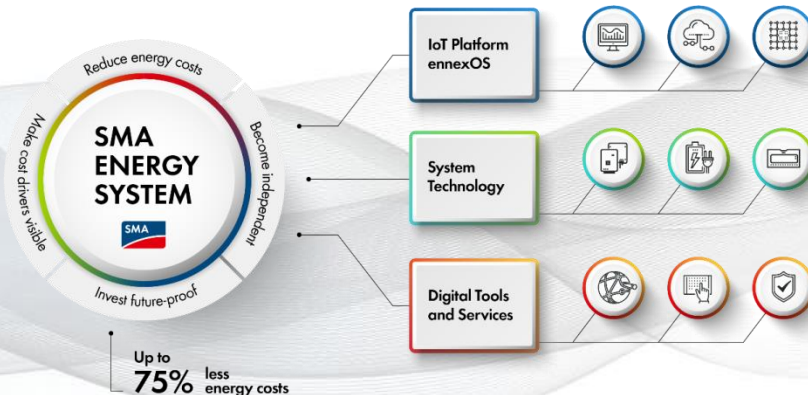


**License income 2018:  
€1 million**

# SMA can do more than Selling Components – We Possess the Necessary Prerequisites for Offering Future-Proof Systems



## Be Part of the New Energy System. Decentralized. Digital. Connected.



## Complete SMA PV & Storage Systems



## SMA's System Offering for Residential and Commercial

### HARDWARE – Intelligent PV and storage technology

Smart products such as intelligent inverters, powerful storage technologies and innovative data managers.

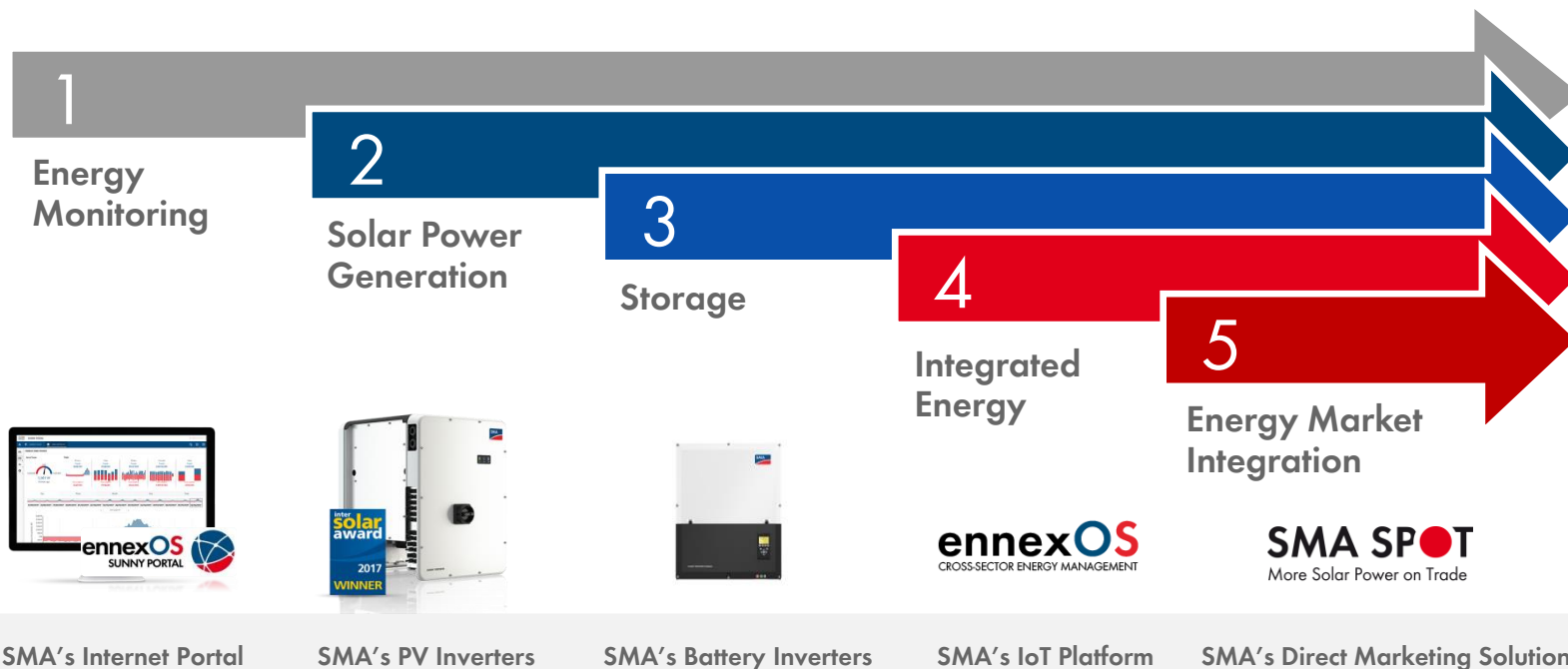
### SOFTWARE – Energy management software

Cross-sectoral energy platform with applications and tools to manage and make energy consumption transparent.

### SERVICES – (Digital) sales processes and services

Tailor-made sales processes along the customer journey to ensure ease of use and a maximum positive customer experience.

# SMA 's Portfolio Covers Every Stage of Energy Integration



# SMA Residential Offers Cost Improved Hardware and Additional Value for Customers



## Latest Residential Inverters



### Sunny Boy

- 3.0 – 6 kW
- (Q2/2019)



### Sunny Tripower

- 8.0 – 10.0 kW
- (Q1/2019)



### Sunny Boy Storage

- 3.7 – 6 kW
- (H2/2018)



*Designed on one product platform: Cost reduction –20%*

## Software

- **Sunny Portal:** Comfortable PV system monitoring
- **SMA Repowering App:** Tool for a growing market
- **Sunny Design Pro:** Cross sector design, simulation & analysis
- **Installer App** (H1/2019)



## Services



**Smart Connected:** Automatic replacement service for more convenience

## Complete SMA PV & Storage Systems

### SMA Energy System



- (Q1/2019)
- Power class: 5 kW
- Pilot market: Italy



# SMA Commercial Offers PV & Storage Systems for Future-Proof PV Plants



## Latest Commercial Inverters



### New CORE1 release

- Power class: 62.5 kW
- Q4/2018
- First mover: NEC 2017 compliant
- Cost reduction: - 20%



### Sunny Tripower Storage

- 60 kW
- (H2/2018)

## Software

- **Sunny Portal:** Comfortable PV system monitoring
- **SMA Repowering App:** Tool for a growing market
- **Sunny Design Pro:** Cross sector design, simulation & analysis
- **Installer App** (H1/2019)



## Services



Smart Connected

**SMA SPOT**  
More Solar Power on Trade

## Complete SMA PV & Storage Systems

### SMA Energy System



- (Q1/2019)
- Power class: 250 kW
- Pilot market: Germany

# SMA Utility Simplifies Complexity With New Product Launches Throughout 2019



## Latest Utility Inverters



### Sunny Highpower PEAK3

- 150 kW , 1,500 V
- (Q1/2019)



### Medium Voltage Power Station

- 4.6 MW
- (Q3/2019)



### Sunny Central UP

- 4.6 MW
- (Q3/2019)

• Cost reduction of up to - 35%

## Software & Competence



### SMA Engineering Services



#### Response Time Guarantees

- Most up-to-date technology for 24/7 real time monitoring

## Service



#### SMA Repowering

- Market Potential until 2020: >+40%



#### Availability Guarantees

- SMA Utility provides 99.9+% uptime



#### O&M Services

- #6 O&M provider
- >3GW O&M contract

# SMA is the #1 Storage Inverter Manufacturer in a fast Growing Segment



## SMA's Offering

### Behind-the-Meter

Energy shifting

Peak shaving

ToU<sup>1</sup>

Power Quality

### Front-of-Meter

Micro Grid Management

On-Grid Storage for Grid Services

Renewable integration



### SMA + BYD Battery Solution

- (Q1/2019)
- 5-60 kW
- Securing battery availability

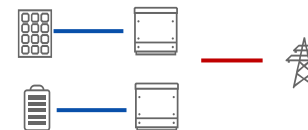


### Sunny Central Storage UP

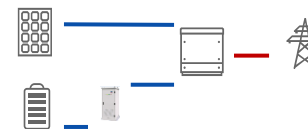
- (Q3/2019)
- 4.6 MW

## Concepts of Battery Integration

### AC-Coupling Battery Concept



### DC-Coupling Battery Concept



### SMA DC/DC Converter

- (Q1/2019)

## 6. Financials & Guidance



# Sales 2018 Remained Below Expectations; EBITDA Impacted by Extraordinary Effects



## Preliminary Key Financials (in €m)

	2017	2018e <sup>1</sup>	Change
<b>Sales</b>	891	761	-15%
Residential	233	182	-22%
Commercial	272	252	-7%
Utility	289	266	-8%
Storage	97	61	-37%
Digital Energy	./.	0	n.m.
<b>EBITDA</b>	97	-67	n.m.
<b>EBIT</b>	44	-150	n.m.
<b>Net income</b>	30	-174	n.m.
<b>Net cash</b>	450	306	-32%
<b>NWC ratio (in %)<sup>2</sup></b>	19%	23%	
<b>Gross margin</b>	22%	10%	



## Comments

- Sales 2018 below prior year in every segment due to very high price pressure, component shortages in H1/2018, project postponements and limited battery availability.
- EBITDA impacted by extraordinary effects of net €97m.
- In addition, 2018 EBIT is affected by the impairment of R&D intangible assets (- €30m) .
- Net income is impacted by Finance and tax result (- €26m; at-equity valuation of Tigo and write down of deferred tax assets).

1. preliminary figures

2. Net Working Capital ratio: inventory + trade receivables - trade payables (advance payments included); as of last twelve months sales

# SMA Reduces its Global Workforce by Around 425 FTE



## Preliminary Group Balance Sheet<sup>1</sup> (in €m)

	31.12.2017	31.12.2018e	Change
Non-current assets	358	283	-21%
Working capital	325	302	-7%
Other assets	63	82	31%
Total cash	470	324	-31%
Shareholder's equity	612	426	-30%
Provisions <sup>2</sup>	156	155	-1%
Trade payables	130	111	-15%
Financial liabilities <sup>3</sup>	20	18	-12%
Other liabilities <sup>2</sup>	298	281	-6%
<b>TOTAL</b>	<b>1,216</b>	<b>991</b>	<b>-19%</b>

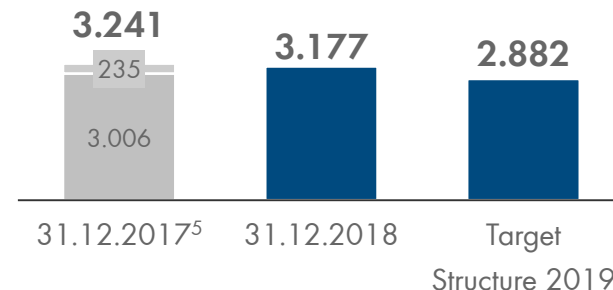
1. preliminary figures, reclassified

2. not interest-bearing

3. w/o not interest bearing derivatives: €2m (2017: €0.4m)



## Global FTE<sup>4</sup>



- Reduction of around 425 FTE, thereof c. 300 in China
- Part of FTE reduction already done in 12/2018
- In Q2/2019 the number of FTE will be reduced by about 350

4. w/o temporary workers and learners

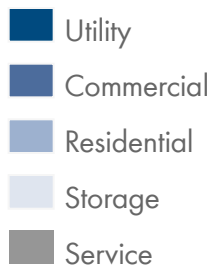
5. incl. 235 temporary workers who became FTE 01/ 2018

# Order Intake Started Recovering late in 2018



## Order Backlog by Segment and Region (in € million)

Total order backlog: €578 m (Dec 31, 2018)

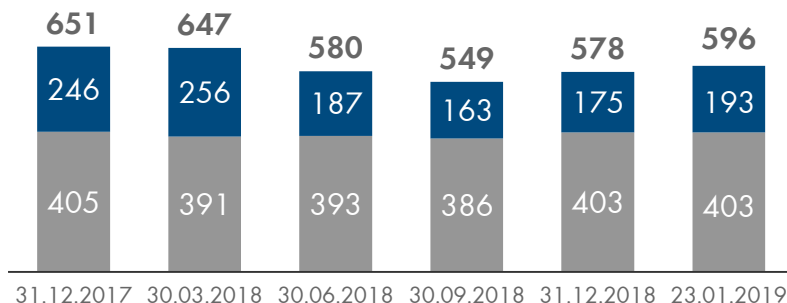


## Product order backlog by regions (in %)



## Order Backlog Development (in € million)

Products Service



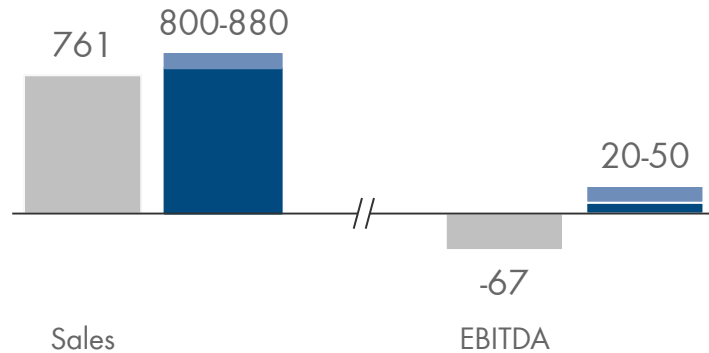
- Product order backlog increased by nearly 20% since 09/2018.
- Increase in 2019 order backlog for products across all segments, especially Commercial.
- EMEA markets remain most promising.
- 25% of guided sales figure 2019 is covered with product backlog.



# For 2019 Management Expects Sales Growth



## Guidance 2019 (in € million)



**2019**

Net Cash	> €300m
NWC-Ratio	19-24%
CapEx (incl. R&D) <sup>2</sup>	c. €60m
Depreciation / Amortization	c. €50m



## Management Comments

- SMA strives to increase market share, especially in the U.S.
- Management expects growth in all segments, especially in Utility and our storage business.
- In 2019, Energy Management and digital solution business will still have only limited sales contribution.
- Price pressure remains high in all segments.
- Most of the restructuring measures will be effective in 2019.

1. after extraordinary effects, e.g. from restructuring

2. incl. c. €10m for R&D and a one-off effect from IFRS 16 – Leases of c. €25m

# Setting the Standards for the New Energy Market



## Investment Highlights

- **Focus:** A leading global specialist for photovoltaics system technology with 70 GW installed base
- **Complete portfolio** to serve all PV segments
- **Global reach:** Present in 18 countries with a strong sales and service infrastructure; serving > 160 countries
- **Awarded production:** CO<sub>2</sub> neutral production with a capacity of 15 GW p.a. in Germany
- **Bankable partner:** c. 50% equity ratio and c. 400m net cash
- **Technological Know-how** & products to benefit from strong growth in future fields such as energy management, storage & repowering
- **Strong partnerships** to create a new energy ecosystem

Back up



# Managing Board and Shareholder Structure



## Managing Board

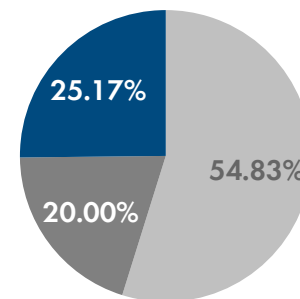


Juergen Reinert  
CEO  
born 1968  
With SMA since 2011  
Contract 2024



Ulrich Hadding  
CFO  
born 1968  
With SMA since 2009  
Contract 2019

## Shareholder Structure<sup>1</sup>



- SMA founders, their trusts and families
- Danfoss A/S
- Freefloat

- No pre-emption rights or other restrictions

# Thank you

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