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1. Review 2017
SMA is the World Market Leader for PV Inverters and a Leading Player in Storage and O&M

**Investment Highlights**

**Unique positioned in the solar market / Best brand**

- World market leader with 65 GW installed base
- Complete portfolio to serve all PV segments
- 20 subsidiaries with strong service capabilities and access to all channels
- Award-winning 20 GW production to achieve scale

**Leverage PV expertise to enter into high margin business**

- Strong partnerships to create a new ecosystem
- Know-how & products to benefit from strong growth in the field of battery storage
- With ennexOS\(^1\), SMA has set the basis to manage the complexity of integrated solutions
- Infrastructure to expand into data-driven business models and services

**Key Financials 2017\(^e^2\)**

<p>| | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
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</thead>
<tbody>
<tr>
<td>Sales</td>
<td>€ 890 m</td>
</tr>
<tr>
<td>EBITDA</td>
<td>€ 95 m</td>
</tr>
<tr>
<td>EPS</td>
<td>€ 0.86</td>
</tr>
<tr>
<td>Net Cash</td>
<td>€ 450 m</td>
</tr>
<tr>
<td>Equity Ratio</td>
<td>50%</td>
</tr>
<tr>
<td>Market Cap(^3)</td>
<td>€ 1.3 bn</td>
</tr>
</tbody>
</table>

1. SMA’s Energy Management Platform  
2. Preliminary figures  
3. Current market capitalization as of 01/25/2017
2. Megatrends
Megatrends are Transforming the Electricity Ecosystem

Decarbonization is leading to an expansion of PV capacity, which in turn fosters decentralization and the demand for storage systems.

Sector convergence is providing new means of flexibility - Managing the resulting complexity is creating demand for new energy solutions.

The structural transformation of the energy system will require solutions to control and manage the increasingly decentralized grid enabled by digitalization.

Disruption in the electricity industry creates new roles to be played by traditional OEMs\(^1\) along the entire value chain.

SMA will leverage its existing experience to expand into digital solutions.

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\(^1\) OEM: Original Equipment Manufacturer
3. Market and Competition
The Disruption in the Energy Sector will Open up New Value Pools for Technology Driven Companies such as SMA

The megatrends decarbonization, technical cost decrease, sector convergence and digitalization will lead to a higher share of renewable energy and its growth.

The need for digital solutions and battery storage will create new value pools.

PV-inverters will serve as the backbone for smart grids solutions connecting the components and collecting data.

The traditional PV market is expected to grow in volume and value until 2020. EMEA and APAC as well as Utility and Commercial are key growth markets.

O&M services gain importance with continuously declining equipment prices and are key for sustainable PV investments.

SMA has a clear understanding how to approach digital solutions and battery storage and builds upon world market leader position and strong financials.
SMA is the World Market Leader for PV Inverters and the Best Known Inverter Brand\(^1\)

The traditional PV inverter market is rather concentrated (Top 5 players c. 50 \%)  

<table>
<thead>
<tr>
<th>Company</th>
<th>Market share 2017(^2)</th>
<th>Trend 2016 -&gt; 2017</th>
<th>Segment Split(^3)</th>
<th>Main Markets(^3)</th>
</tr>
</thead>
<tbody>
<tr>
<td>SMA</td>
<td>14%</td>
<td>▶️</td>
<td>Residential ▶️</td>
<td>Residential ▶️</td>
</tr>
<tr>
<td>Comp. 1</td>
<td>13%</td>
<td>▶️</td>
<td>Commercial ▶️</td>
<td>Commercial ▶️</td>
</tr>
<tr>
<td>Comp. 2</td>
<td>11%</td>
<td>▶️</td>
<td>Utility ▶️</td>
<td>Utility ▶️</td>
</tr>
<tr>
<td>Comp. 3</td>
<td>6%</td>
<td>▶️</td>
<td>Residential ▶️</td>
<td>Residential ▶️</td>
</tr>
<tr>
<td>Comp. 4</td>
<td>5%</td>
<td>▶️</td>
<td>Commercial ▶️</td>
<td>Commercial ▶️</td>
</tr>
</tbody>
</table>

- Market share gains of Chinese competitors is very much driven by strong growth in China. Top players shipped only c. $280m into international markets in 2017\(^4\).
- Large conglomerates are too inflexible to adapt to fast changing markets. Inverter specialists\(^5\) have a much higher risk exposure and limited economies of scale.

\(^1\) IHS PV Inverter Customer Insight Survey 2016  
\(^2\) Based on Revenue, SMA estimate  
\(^3\) Based on MW, IHS and SMA estimate  
\(^4\) China Export Customs data Jan-Nov 2017  
\(^5\) Only one / few markets and one technology (e.g. string / optimizer)
SMA is a Leading Global Player for Storage Inverters and O&M

Storage inverter market is very young and therefore fragmented

<table>
<thead>
<tr>
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</thead>
<tbody>
<tr>
<td>SMA</td>
<td>14%</td>
<td>↑</td>
<td>↑</td>
<td>Res</td>
<td>UK US DE</td>
</tr>
<tr>
<td>Comp. 1</td>
<td>6%</td>
<td>↑</td>
<td>↑</td>
<td>Com</td>
<td>UK US -</td>
</tr>
<tr>
<td>Comp. 2</td>
<td>5%</td>
<td>↑</td>
<td>↑</td>
<td>Utility</td>
<td>US - -</td>
</tr>
</tbody>
</table>

SMA strives to become #1 for O&M Services

<table>
<thead>
<tr>
<th>Company</th>
<th>Assets under management</th>
<th>Trend 2016 -&gt;2017</th>
<th>Outlook 2018</th>
<th>Offering Full Service</th>
<th>Preventive Maintenance</th>
<th>Main Markets</th>
</tr>
</thead>
<tbody>
<tr>
<td>Comp. 1</td>
<td>6.4 GW</td>
<td>↑</td>
<td>↑</td>
<td>X&lt;sup&gt;4&lt;/sup&gt;</td>
<td>X&lt;sup&gt;4&lt;/sup&gt;</td>
<td>US CA AU</td>
</tr>
<tr>
<td>Comp. 1</td>
<td>4.4 GW</td>
<td>↑</td>
<td>↑</td>
<td>X&lt;sup&gt;1&lt;/sup&gt;</td>
<td>X&lt;sup&gt;1&lt;/sup&gt;</td>
<td>US - -</td>
</tr>
<tr>
<td>SMA #5</td>
<td>2.6 GW</td>
<td>↑</td>
<td>↑</td>
<td>X&lt;sup&gt;1&lt;/sup&gt;</td>
<td>X&lt;sup&gt;1&lt;/sup&gt;</td>
<td>US EU CA</td>
</tr>
</tbody>
</table>

SMA strives to gain market share in the storage inverter and O&M markets due to its unique competencies and global infrastructure.

1. Based on MW, SMA estimate
2. Based on MW, IHS and SMA estimate
3. GTM O&M Report 2017, as of Sept 2017
4. Only Utility
4. Strengthening Core Business
SMA has Excellent Competencies to Handle the Complexity of Centralized Utility-Scale Power Plants

**Use Case Utility: PPA¹ Driven Business Model**

- Increase power size to 6MW
- Allow high DC/AC-ratios (up to 200%) to reduce specific cost
- Reduce 50% installation costs with pre-tested MV Power Station (40" container)
- Provide advanced grid stability functions (eg. active & reactive power, frequency control)
- Backing our quality promise with contractual commitment
- Introduce bundled offers (equipment and services) to reduce inverter-life-time-cost by up to 20% (Profit+)

**Segment Focus Centralized Plant Layout:**

- Turnkey solution incl. PV inverter, DC-combiner, MV-system, storage plant communication and grid control
- Services (eg. Commissioning, grid studies)

**Regional Focus:**

- Worldwide (w/o China), incl. UL and JET-certification

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**Success Factors**

**Repowering Market Potential (in GW)**

- +70%

**New business model: Profit+**

- Shift 30% CAPEX to OPEX
- Backing our quality promise with contractual commitment
- Introduce bundled offers (equipment and services) to reduce inverter-life-time-cost by up to 20% (Profit+)

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**SMA Utility provides its customers up to 99.998% uptime.**

1. PPA: Power purchase agreement
SMA Offers the Best Technical Solution for Utility-Scale Power Plants with Complex System Design

Use Case Utility: PPA\(^1\) Driven Business Model

Segment Focus:
- 3phas inverters for power sizes of up to 150 kW
- Two product lines to serve solution and value markets
- MV\(^2\) system for multi MW PV power plants

Regional Focus:
- Worldwide, incl. UL and JET certification

Strategic Success Factors

Improve Cost Competitiveness
- Two inverter platform for all global markets
- Increase power size to 150 kW
- Higher integration to enhance power : weight-ratio, optimized installation and O&M

The new products will help SMA to serve complex ground-mounted PV plants.

1 PPA: Power purchase agreement
2 MV: Medium Voltage
3 Only modules that require optimization are equipped with the SMA optimizer solution (Power+)
SMA Helps to use as Much Solar Power as Possible at the Point of Production to Reduce Electricity Costs

**Use Cases: Residential & Commercial**

- **ENERGY GENERATION:** Self-consumption of solar power, solar power feed-in, optimize yields
- **ENERGY MONITORING:** Transparent energy flows, control loads efficiently
- **SOLAR ENERGY MANAGEMENT:** Peak load shaving, increased self-consumption, arbitrage

**Segment Focus:**

- Dual brands (SMA/ZeverSolar) to serve solution and value markets
- Residential 1phs and 3phs inverters (PV plants from 1kW to 12kW)
- Commercial 3phs inverters (PV plants from 10kW-1MW)
- Optimizers for all power classes (TS4-R; selected deployment)

**Regional Focus:**

- All markets, incl. JET and UL certification

**Success Factors**

- Increase power size to 50 kW
- Reduce number of platforms
- Increase functionality to reduce BOS\(^3\)-cost and improve yield
- Component swap to reduce service costs
- Repowering bundle to ensure a future-proof solution for existing PV-plants
- Increase customer value by bundling products and services to solutions

**Key Global Inverter Platforms**

- STP 6.0 with integrated MLPE-communication
- CORE1, 50 kW

**Higher Margin Business with Bundles**

1. Energy cost savings
2. Only modules that require optimization are equipped with the SMA optimizer solution (Power+).
SMA’s Integrated Solutions will help to Optimize the Energy Costs Across Sectors

**New Use Cases: Residential & Commercial**

**Energy Market Integration:**
- Flexible markets
- Peer-to-peer trading
- Local electricity
- Direct marketing

**50%**

**Connecting the Sectors:**
- Energy management
- Energy services: Energy audit, energy purchase, landlord-to-tenant electricity supply

**Sunny Boy Storage 6.0**
- Storage system technology for all battery types and power classes
- Energy Management Platform
- Complete offering from power generation to energy trading

**Regional Focus:**
- Europe, USA, Japan, Australia

**Success Factors**

- Expand storage portfolio for residential & commercial applications (H1/2018)
- Global roll-out of ennexOS energy management platform and introduction of additional APPs to increase customer value (H2/2018)
- Form strategic alliances for integral solutions

**Improve Margin With Storage – and Energy Management Solutions**

› SMA has the know-how to create integrated solutions for commercial applications.

1. Energy cost savings
5. Expand into New Business
Smart Technologies Change the Energy Sector Quickly - Connectivity and Integrated Solutions Become the new Standard

**Strengthening core business**

- Continuous Push in all Segments and all Regions
- Cost Competitiveness with New Technologies and Higher Power Classes
- Excellent O&M Services, Quality due to Best-in-class Testing and Compliance

**Expand new business**

- New Services to Reduce the cost of Electricity
- Data Analytics to Improve Efficiency
- Storage Integration to Enable many New Use Cases
SMA is the First Mover of its kind in the Digital Energy Solutions Business

SMA approach to digital solutions

**1. Energy services**
Provision of energy-related services for private (white-label) and commercial customers

- Flexibility Marketing
- Energy Monitoring
- Energy Efficiency Improvement
- Cross-sectoral Energy Mgmt.
- P2P Trading and Local Load Mgmt.

**2. Energy data**
Collection/analysis of energy related data (i.e. from PV installations) to provide data-based services

- Portals as a Service
- Data analysis
- Energy analysis
- Energy trading platform

**SMA USP**
- Available technology platform across sectors
- Access to 300,000 PV systems provides data from >1.5 m devices, allowing to create a worldwide database and data services as well as for integrating energy service solutions

Δ SMA has in-depth energy economical know-how and unparalleled access to energy data to create new business models.

1. Unique Selling Proposition
SMA Envisions a Transformation to a Holistic Service Offering in a Decentral, Integrated Energy World

Stages of Energy Service Transformation

1st stage
- Power
- Grid feed-in/supply
- Residential/commercial clients
- Battery storage
- Heat pumps
- Thermal storage
- Gas supply

2nd stage
- Power + Heat/Cooling
- Residential Customers
- Commercial Customers

3rd stage
- Energy Transparency
- Energy Optimization
- Energy Management
- Decentral Energy Integration
- Services encompass a holistic governance of integrated, decentral energy prosumers and consumers – individual energy accounts are managed individually and independently

4th stage
- Services encompass targeted recommendations for energy optimization and efficiency improvement options

Degree of service comprehensiveness
- Degree of energy integration
- Covered Energy Sources
- Energy source and demand composition covered by service
SMA Provides Storage Solutions for all Battery Types and All Applications

<table>
<thead>
<tr>
<th>Segment</th>
<th>SMA Offering</th>
<th>Illustration</th>
<th>SMA Contribution</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Utility</strong></td>
<td><strong>Grid storage</strong></td>
<td></td>
<td>System integration</td>
</tr>
<tr>
<td>Front-of-Meter</td>
<td>Grid services</td>
<td></td>
<td>Energy management</td>
</tr>
<tr>
<td></td>
<td>Renewable integration</td>
<td></td>
<td>System design/Engineering</td>
</tr>
<tr>
<td></td>
<td>Deferral</td>
<td></td>
<td>Grid simulation</td>
</tr>
<tr>
<td></td>
<td>Balancing</td>
<td></td>
<td>Efficient battery inverters</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>O&amp;M Services</td>
</tr>
<tr>
<td><strong>Residential,Commercial</strong></td>
<td><strong>Behind-the-meter</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>&amp; Industrial</td>
<td>Energy shifting</td>
<td></td>
<td>System integration</td>
</tr>
<tr>
<td>Behind-the-Meter</td>
<td>Peak shaving</td>
<td></td>
<td>Energy management</td>
</tr>
<tr>
<td></td>
<td>ToU&lt;sup&gt;2&lt;/sup&gt;</td>
<td></td>
<td>Calculation of energy savings</td>
</tr>
<tr>
<td></td>
<td>Power Quality</td>
<td></td>
<td>Efficient battery inverters</td>
</tr>
</tbody>
</table>

1. Based on own estimations and IHS Markit research for an On-Grid Market of a total size of 2,426MW. The total storage market size with OnGrid and OffGrid 3.3GW, thereof SMA’s share 14%.

2. Time of Use
3. Based on IHS Markit Research

The Storage segment will grow significantly in future years.
6. Technology, Operations, Sales and Service
Unmatched Track Record of R&D Excellence

- From 4,000 meter altitude to desert conditions
- Best-in-class test center
- Integration into all grids worldwide
- PV plants from 1 kW to 500 MW
- All battery types and sizes
- PV penetration up to 80%
- Reliability
- More than 5 million inverters sold
- Blackstart capability
- Safety Arc Fault Circuit Interrupter
- Research network with > 30 institutions for future trends
- Sector coupling
- Research future trends
- Smart grid technology
- Inverters from module level electronics to Medium Voltage Turnkey Solutions
- All battery types and sizes
- Energy Services
- Data analytics
- Predictive maintenance
- Growing share of Software engineers and IT specialists
- Open Source approach

SMA has an installed base of 65 GW.
No other competitor has a similar Specialized Sales and Service Infrastructure and Access to all Channels

<table>
<thead>
<tr>
<th>Region</th>
<th>Highlights</th>
</tr>
</thead>
<tbody>
<tr>
<td>EMEA</td>
<td>• 50 MW storage project in Pelham, UK</td>
</tr>
<tr>
<td></td>
<td>• 500 MW O&amp;M contracts under management</td>
</tr>
<tr>
<td></td>
<td>• Strategic Alliances with Audi, MVV and Danfoss Cooling</td>
</tr>
<tr>
<td></td>
<td>• 730 MW utility projects sold in Australia</td>
</tr>
<tr>
<td></td>
<td>• First manufacturer with certified MLPE(^5) technology in Japan/Australia</td>
</tr>
<tr>
<td></td>
<td>• &gt;1GW shipped in India</td>
</tr>
<tr>
<td>APAC</td>
<td>• 730 MW utility projects sold in Australia</td>
</tr>
<tr>
<td></td>
<td>• First manufacturer with certified MLPE(^5) technology in Japan/Australia</td>
</tr>
<tr>
<td>Americas</td>
<td>• 10 GW utility inverters installed in US</td>
</tr>
<tr>
<td></td>
<td>• 20 MW battery storage project in the Mojave desert</td>
</tr>
<tr>
<td></td>
<td>• Sunrun as new strategic account</td>
</tr>
</tbody>
</table>

➤ SMA will launch an online channel to serve markets with a weak SMA presence.

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1. Sales and Service FTE  
2. Market share 2017, based on revenue, incl. PV and Storage Inverters  
3. Country presence with subsidiary  
4. O&M under management  
5. MLPE: Module Level Power Electronics
7. Financials
SMA Successfully Managed fast Changing Market Conditions and Protected its High Net Cash Position

Strategic Iniatitives

- Acquisition of ZeverSolar to improve sourcing and portfolio (2012)
- Strategic alliance with Danfoss to improve competitiveness and enter into new business (2014/2018)
- Restructuring / Head-count reduction to improve breakeven (2014)
- Invest >€600m in R&D since 2012 to reduce specific costs and expand into storage and EMS
- Invest in Tigo Energy to complete portfolio with MLPE (2016)
- Closure of Denver production to reduce fixed costs (2016)
- Divestment of SMA Railway (2017)
- Set up digital solution business to increase profitability (2017)

1. Preliminary figures
2. Joint Venture with Danfoss cooling to offer energy management solution for Food/Retail
3. Energy Management System
4. MLPE: Module Level Power Electronics
2017 was a Transitional Year due to US demand. The Shortage of Electronic Components Impacted SMA as well.

### Preliminary Key Financials (in € million)

<table>
<thead>
<tr>
<th></th>
<th>2016</th>
<th>2017e</th>
<th>Change</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sales</td>
<td>947</td>
<td>890</td>
<td>-6%</td>
</tr>
<tr>
<td>Residential</td>
<td>191</td>
<td>208</td>
<td>9%</td>
</tr>
<tr>
<td>Commercial</td>
<td>273</td>
<td>268</td>
<td>-2%</td>
</tr>
<tr>
<td>Utility</td>
<td>397</td>
<td>240</td>
<td>-40%</td>
</tr>
<tr>
<td>Service</td>
<td>45</td>
<td>77</td>
<td>71%</td>
</tr>
<tr>
<td>Other Business</td>
<td>41</td>
<td>97</td>
<td>&gt;100%</td>
</tr>
<tr>
<td>EBITDA</td>
<td>142</td>
<td>95</td>
<td>-33%</td>
</tr>
<tr>
<td>EBIT</td>
<td>65</td>
<td>45</td>
<td>-30%</td>
</tr>
<tr>
<td>Net income</td>
<td>30</td>
<td>30</td>
<td>+/- 0%</td>
</tr>
<tr>
<td>Net cash</td>
<td>362</td>
<td>450</td>
<td>24%</td>
</tr>
<tr>
<td>NWC ratio (in %)</td>
<td>24%</td>
<td>22%</td>
<td>n.m.</td>
</tr>
</tbody>
</table>

### Comments 2017

- Sales decline mainly due to weak US Utility business. Strong growth in APAC and EMEA.
- Positive development in residential, service and storage business.
- Net income impacted by adjustment of deferred tax assets (US) and reserve tax accruals for Chinese entities.
- Since many years, SMA has a policy to distribute 20%-40% of its group net income to shareholders.

➤ SMA’s annual report will be published on March 28, 2018.
SMA Experienced a Strong Order Intake 2017

Order Backlog by Segment and Region (in € million)

Total order backlog: €651m (Dec 31, 2017)

Product order backlog by regions (in%)

- Utility
- Commercial
- Residential
- Service²
- Other Business

Order Backlog Development (in € million)

- Product backlog increased by more than € 100 m
- Increase in order backlog for products is mainly driven by APAC and EMEA residential and commercial markets.
- 30% of guided sales figure 2018 is covered with product backlog.

SMA starts with a solid order backlog into 2018.

1. Total Order backlog as of December 31, 2016: €537 m.
2. Order backlog for service will be recognized as sales within next 5-10 years.
8. Guidance, Strategy and Investment Highlights
SMA’s Management Estimates Sales and Earnings Growth in 2018

Guidance 2018 (in € million)

- Sales
  - 2017e
  - 2018
  - >890
  - 900-1,000

- EBITDA
  - >95
  - 90-110

Management Comment

- SMA plans to increase market share, mainly in APAC (China, Japan, Australia)
- Strong growth in commercial and residential (incl. Optimizer) due to new products. Storage will increase significantly due to market development
- Energy Management and digital solution business will only have limited sales contribution.
- Price pressure in utility remains high. Moderate development in all other segments.
- Supply constraints will ease starting Q2/2018.
- Acquisitions in the fields of energy management technology and O&M portfolios and additional optimizer technology are likely (total volume €50-100 m).

Earnings Guidance 2018 is impacted by expenses for new digital business. Sufficient FX-hedging is secured.

1. Preliminary figures
2. Incl. c. €20m for R&D
Positive Global Outlook of +10% Volume Growth p.a. Until 2020

### Market Trends

The volume growth in the EMEA and APAC regions is expected to continue. Growth rates are between 25% and 15% p.a.

China remains the largest market but with a rather flattish development.

The utility and commercial segments account for >85% of total volume. Strong growth of 26 GW (+9% p.a.) is expected until 2020.

Growth in mature markets is driven by the competitive costs of solar power and significant battery penetration for self-consumption.

Effective programs drive fast growth from a small base in many countries (e.g. Indonesia) or help to reach ambitious political targets (e.g. India).

#### New growth regions

1. SMA Market Model Q1 2018; New PV installations, Res ≤10kW plants, Com >10kW to 1MW plants, Uti >1MW plants
2. E.g. Middle East, Mexico, South East Asia

### Core Business: PV Installations (GWdc)\(^1\)

<table>
<thead>
<tr>
<th>REGIONS</th>
<th>2017</th>
<th>2018</th>
<th>2019</th>
<th>2020</th>
</tr>
</thead>
<tbody>
<tr>
<td>China</td>
<td>53</td>
<td>50</td>
<td>50</td>
<td>53</td>
</tr>
<tr>
<td>APAC</td>
<td>20</td>
<td>26</td>
<td>30</td>
<td>33</td>
</tr>
<tr>
<td>AMER</td>
<td>16</td>
<td>17</td>
<td>22</td>
<td>26</td>
</tr>
<tr>
<td>EMEA</td>
<td>13</td>
<td>16</td>
<td>20</td>
<td>24</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>SEGMENTS</th>
<th>2017</th>
<th>2018</th>
<th>2019</th>
<th>2020</th>
</tr>
</thead>
<tbody>
<tr>
<td>Utility</td>
<td>65</td>
<td>67</td>
<td>73</td>
<td>81</td>
</tr>
<tr>
<td>Commercial</td>
<td>25</td>
<td>29</td>
<td>32</td>
<td>35</td>
</tr>
<tr>
<td>Residential</td>
<td>11</td>
<td>13</td>
<td>16</td>
<td>20</td>
</tr>
</tbody>
</table>

\(+10\%\) p.a.
The Change in the Product and Country mix will lead to Value Growth of 5% p.a. until 2020

Core business: PV Inverter Revenue (€ bn)

<table>
<thead>
<tr>
<th>REGIONS</th>
<th>PV Inverter Revenue (€ bn)</th>
<th>+5% p.a.</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>2017</td>
<td>2018</td>
</tr>
<tr>
<td>China</td>
<td>1.5</td>
<td>1.4</td>
</tr>
<tr>
<td>APAC</td>
<td>1.2</td>
<td>1.3</td>
</tr>
<tr>
<td>AMER</td>
<td>1.0</td>
<td>1.0</td>
</tr>
<tr>
<td>EMEA</td>
<td>1.0</td>
<td>1.1</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>SEGMENTS</th>
<th>PV Inverter Revenue (€ bn)</th>
<th>2017</th>
<th>2018</th>
<th>2019</th>
<th>2020</th>
</tr>
</thead>
<tbody>
<tr>
<td>Utility</td>
<td>1.9</td>
<td>1.9</td>
<td>2.0</td>
<td>2.0</td>
<td></td>
</tr>
<tr>
<td>Commercial</td>
<td>1.3</td>
<td>1.3</td>
<td>1.3</td>
<td>1.4</td>
<td></td>
</tr>
<tr>
<td>Residential</td>
<td>1.5</td>
<td>1.6</td>
<td>1.8</td>
<td>2.0</td>
<td></td>
</tr>
</tbody>
</table>

Market Trends

During the last 12 months PPA²-prices for large ground-mounted PV projects declined by more than 30% below 20 USD/MWh.

Projects compete on the cost of energy independent from the technology.³

Key success factors for ground-mounted projects are the right market focus and cost-competitiveness over lifetime.

In contrast, roof-top projects compete for the best site. Key success factors are the right segment focus, the technical know-how to integrate the solution and the brand.

The stabilization of price pressure is expected towards 2020.

Mature markets and roof-top applications will become the key value drivers.

1. SMA Market Model Q1 2018; PV Inverter incl. new and Repowering installations, Res ≤10kW plants, Com >10kW to 1MW plants, Uti >1MW plants
2. Power Purchase Agreement
3. Wind, PV, Gas
PV Projects >250 kW move Towards long-term Service Contracts – Battery Storage will Accelerate Growth in Service

Core Business: Annual New O&M Contracts by Region

<table>
<thead>
<tr>
<th>REGIONS</th>
<th>2017</th>
<th>2018</th>
<th>2019</th>
<th>2020</th>
</tr>
</thead>
<tbody>
<tr>
<td>China</td>
<td>50</td>
<td>55</td>
<td>60</td>
<td>67</td>
</tr>
<tr>
<td>APAC</td>
<td>22</td>
<td>29</td>
<td>35</td>
<td>41</td>
</tr>
<tr>
<td>AMER</td>
<td>16</td>
<td>19</td>
<td>23</td>
<td>27</td>
</tr>
<tr>
<td>EMEA</td>
<td>21</td>
<td>25</td>
<td>29</td>
<td>35</td>
</tr>
</tbody>
</table>

+16% p.a.

GLOBAL

<table>
<thead>
<tr>
<th>Region</th>
<th>2017</th>
<th>2018</th>
<th>2019</th>
<th>2020</th>
</tr>
</thead>
<tbody>
<tr>
<td>Full O&amp;M</td>
<td>1.2</td>
<td>1.3</td>
<td>1.3</td>
<td>1.4</td>
</tr>
<tr>
<td>Partial O&amp;M</td>
<td>0.9</td>
<td>1.0</td>
<td>1.0</td>
<td>1.0</td>
</tr>
</tbody>
</table>

Market Trends

As Capex for equipment constantly declines, after sales and O&M service are becoming more important.

In mature markets O&M is a business on its own. Independent service providers (ISP) are selected separately from the EPC to ensure data integration, analytics and qualified PV technicians.

For large-scale PV plants investors/asset managers reject string inverters due to the potential of slower outage response time and higher O&M service costs.

The fast growing battery storage business offers huge growth potential for ISP with technical expertise and global service infrastructure.

Contracts shift from all-inclusive, fixed price models to service plans and customer specific scope of work

1. SMA Market Model Q1 2018; Commercial and Utility segments available for being addressed with new contracts
Battery Storage will Increasingly be Integrated in New and Existing PV Systems and thus Increase Complexity

Market Trends

- Battery storage price reduction is the most important growth driver for nano- and micro-grids.
- Mature markets will adopt first to increase residential share (e.g. US, EU, JP).
- SMA expects storage prices of <750 €/kWh for residential applications and <300 €/kWh for utility applications by 2020.
- Battery storage can address many use cases in parallel\(^2\). Therefore, competencies in grid integration and battery technologies are key to untap market potential.
- The share of system technology in different battery application is significantly higher compared to the traditional PV inverter business.
- Since every application is different, significant customization is needed to untap full potential.

Greater complexity will lead to lower commodization of PV inverter equipment.

1. SMA MI Market Model Q1 2018
2. E.g. ancillary services, congestion relief, energy shifting, etc.
3. Residential and Commercial incl. behind-the-meter and off-grid remote applications; Utility incl. in-the-grid, co-located and micro-grid applications\(^3\)
As a Result of the Megatrends, New Energy Service and Data Solutions Represent Emerging Value Pools

**1. New Business: Energy Services**

Providing data driven energy management and efficiency improvement hardware, software and services for residential and commercial customers

- Energy efficiency improvement
- Invoice validation
- Regulatory consulting
- Metering services
- Energy procurement
- Sale of excess generation
- Flexibility
- Local load management
- Energy monitoring

**2. New Business: Energy Data**

Data emerges from energy networks, which can be used to tailor new solutions for energy (and beyond)

- PV feed-in forecasting
- Performance benchmarking
- User profiling
- Load generation
- Risk assessment
- Lifetime forecasting
- Portal infrastructure
- Platform as a service
- Analytics as a service

Enrich

Provide

Current focus fields
Future (focus) fields
Value Pools from the Addressable Market for Selected Energy Services are Expected to be as High as €2.3 bn in 2022

In 2022 addressable market for the four considered use cases can reach €880 m for food-retail stores, €650 m for family homes, €640 m for non-food retail chain stores and €120 m for multi-tenant housing.

To capture these value pools, an automated management of relevant energy sources and demand is required.

1. Roland Berger calculations: Relevant buildings are derived from the number of family homes, multi-tenant housing, non-food and food retail stores based on census data and forecasted adoption rates of energy management solutions. The market value per building is calculated based on energy savings potential and the savings share attributable to energy management solutions (8-40 % depending on the use case). A regional scaling is applied to adjust the market share addressable by an energy service provider in USA and European countries between 2017 and 2022 (from 0% to 10-40% depending on the country and use case).
Value Pools from Energy Data are Emerging – Value Pools from Lead Generation Alone Could be €415 m in 2022

With other use cases the addressable market from energy data can be a manifold of the €415 m (2022) for lead generation.

Access to data and technologies for data collection and analysis are required to capture this value pool.

1. Roland Berger calculations: Number of energy-data based leads derived from marketing budget for digital market content (22% of total marketing budget) by country and type of household appliance (major, small) adjusted for an usage rate of energy data starting at 0% in 2017 and growing to 80% in 2022 (comparable to rates in early internet advertising). Number of leads valued at costs per lead for digital content marketing in manufacturing. A regional scaling is applied to adjust the addressable share over time from 0% in 2017 to 100% in 2022 in USA and European countries.
**Digitalization of the Energy Industry Enables Analysis and Optimization of Energy Demand and Supply**

<table>
<thead>
<tr>
<th>Example</th>
<th>Solution</th>
<th>Comment</th>
</tr>
</thead>
</table>
| **AI-based virtual power plants for electric vehicle fleets** | **Data Input**  
- Mobility demands  
- GPS data  
- Power prices  
- Level of charge | • e-vehicle fleet functions as a virtual power plant to feed electricity back to the DSO or to absorb excess power depending on demand predictions from AI algorithm
• SMA collaborates with VW, Audi, Daimler |
| **Blockchain-based peer-to-peer trading of electric power** | **AI algorithm**  
Grid Operator  
**Balancing Region Y**  
Utility Y  
**Balancing Region X**  
Utility X  
**Physical energy flow**  
**Peer-to-peer trade** | • Blockchain technology logs peer-to-peer trades as transactions and make it available to utilities, prosumers and solution providers
• New regulatory framework required |
| **AI to predict power output from solar** | **AI algorithm**  
SMA provides data collected in PV plants to TenNet | • AI provide solar power forecasts of high accuracy, which allow to integrate solar energy into the grid cheaply and reliably
• SMA provides data collected in PV plants to TenNet |

*The need for digital solutions is creating new, rapidly growing value pools that can build on the traditional inverter business with a key role to be played by system integrators.*

---

1 AI: Artificial Intelligence
## Appendix

**SMA has a Sound Strategy in Place to Benefit from the Disruption in the Energy Sector**

<table>
<thead>
<tr>
<th>O1</th>
<th><strong>GLOBAL MARKET LEADER in all Segments</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>We want to be #1 in the RESIDENTIAL, COMMERCIAL, UTILITY, SERVICE and OFF-GRID &amp; STORAGE segments.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>O2</th>
<th><strong>SMA is a Provider of Systems and Solutions</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>By 2020, sales of non-PV inverters are expected to rise from around 20% of total sales to &gt; 40%.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>O3</th>
<th><strong>Sustainable Profitability and low Capital Intensity</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>SMA strives for continuous efficiency improvements. If necessary, the profitability will be ensured by means of reductions in structural costs.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>O4</th>
<th><strong>Development of SMA by means of Disruptive Approaches</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>We want to achieve this by focusing on three disruptive initiatives. “Energy Services” and “Energy Portal” are technology-driven, data-based business models while “Energy Shop” is an end-to-end sales model to digitize our sales channel.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>O5</th>
<th><strong>SMA is an ATTRACTIVE COMPANY</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>We live by our values and provide freedom for responsible entrepreneurial action. We stand out due to fairness, internationality and sustainability.</td>
</tr>
</tbody>
</table>
Experienced Management Team with Proven Track Record

Management Board

Pierre-P. Urbon
CEO/CSO
born 1970
With SMA since 2005
Contract :2022

Dr.-Ing. Juergen Reinert
CTO/COO
born 1968
With SMA since 2011
Contract 2019

Ulrich Hadding
CFO
born 1968
With SMA since 2009
Contract 2019

Executive Management Team

• Jon I. Ekker, Service
• Dr.-Ing. Johannes Kneip, Technology
• Nick Morbach, BU Residential and Commercial
• Alexander Naujoks, HR
• Thomas Pixa, Finance
• John Susa, Sales Americas/APAC
• Mike Terlinden, Operation
• Boris Wolff, BU Utility
Appendix

At Your Service

Investor Relations Team:

Pierre-Pascal Urbon, CEO

Stephanie Peschinger, Investor Relations
E-Mail: Stephanie.Peschinger@SMA.de
Phone: +49 561 9522 1177

Active Research Coverage with access to SMA’s Management:

Independent Research, Landesbank Baden Württemberg,
Macquarie Research, Metzler; Oddo BHF, Warburg Research

Financial Calendar:

- March 29, 2018: Publication of the SMA Group 2017 Annual Report
  Analyst Conference Call: 09:00 a.m. (CET)
- May 24, 2018: Annual General Meeting 2018

Visit our IR website http://www.ir.sma.de
SMA’s Share Price Rallied in 2017

SMA has a stable shareholder structure.

1. As of January 25, 2018, Company Information
2. As of January 25, 2018