SMA SOLAR TECHNOLOGY AG
9th Capital Markets Day
Pierre-Pascal Urbon, CEO
Ulrich Hadding, CFO
January 27, 2017
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1. Review 2016: Continued Success in a Fast Changing Environment
Positioning: SMA is the Global Market Leader for Photovoltaic System Technology with a Market Share of more than 20%¹

> Most preferred inverter brand² with an installed base of 55 GW worldwide.

> Sales of >940 million €, thereof c. 45% in Americas, c. 30% in EMEA and c. 25% in APAC.

> More than 3,100 employees, thereof 500 in Technology³.

> High rate of innovation. More than 60% of sales is from products <3 years. Technology protected by patents, utility models and trademarks.⁴

> At home in 20 countries with more than 650 specialized sales & service professionals.

> Strong relationships to electrical wholesalers, solar EPCs as well as utilities in key solar markets.

> TecDax listed since 2008; current market capitalization of c. 0.9 billion €.

SMA is financially rock solid and operated with a cash-break even point of less than €600m in 2016.

¹. Based on SMA inverter sales; see slide 16
². IHS PV Inverter Customer Insight Survey (2016)
³. FTE: Full Time Employees w/o temporary workers, learners and interns
⁴. As of 31/12./2016: 869 granted patents and utility models, c. 600 ongoing application procedures, > 800 trademarks
Inexpectedly high price pressure was the main reason for guidance adjustment.

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1. Preliminary Figures, w/o Railway
2. Guidance Adjustment, (10/24/2016); Previous Guidance (01/29/2016): Sales €950-1,050m, EBIT €80-120m
3. Avg. ASP decline 2016: -17% (€0.12 to €0.10)
2. Market & Competition
2.1 The Energy Internet is Coming – it’s All About the Convergence of Electricity and Communication Networks
The Importance of Photovoltaic Power is Expected to Increase Significantly due to Low Cost Points and Climate Targets

By 2020, PV is the most important energy source, because power is produced where it is consumed. PV technology has still room for further cost reductions.

In 2030, new solar installations are expected to increase to c. 200 GW.

Global energy consumption is expected to increase by 2% p.a. especially due to the economic growth in emerging countries.

The replacement of fossil energy sources by renewables is expected to accelerate due to the fast reduction of consumer cost of electricity from solar and wind.

Climate targets will lead to new regulations. As a consequence, oil- and gas-fired boilers will be replaced by eco-friendly solutions.

Mandatory CO₂-emission reduction targets will increase the population of hybrid and electrical vehicles.

Additions to Global Power Generation p.a.¹

Growth Drivers

> In 2030, new solar installations are expected to increase to c. 200 GW.

> Global energy consumption is expected to increase by 2% p.a. especially due to the economic growth in emerging countries.

> The replacement of fossil energy sources by renewables is expected to accelerate due to the fast reduction of consumer cost of electricity from solar and wind.

> Climate targets will lead to new regulations. As a consequence, oil- and gas-fired boilers will be replaced by eco-friendly solutions.

> Mandatory CO₂-emission reduction targets will increase the population of hybrid and electrical vehicles.

Global Average Energy Cost (USD)²

¹. SMA (Solar data 2010-2020); Bloomberg New Energy Finance 2014 (data until 2015, except Solar) and BNEF NEO 2016 (2016-2030)
². Bloomberg article on Energy Costs from January 3, 2017
³. CCGT® Combined Cycle Gas Turbine
⁴. Denmark will restrict the usage of oil-gas fired boilers already in 2019.
Fundamental Transition Towards Decentralized Power Generation will Shake Up the Entire Energy Market

Expected Structural Changes in Energy Supply

- Private households / companies
- Utilities

<table>
<thead>
<tr>
<th>2010</th>
<th>2020</th>
</tr>
</thead>
<tbody>
<tr>
<td>25%</td>
<td>50%</td>
</tr>
<tr>
<td>75%</td>
<td>50%</td>
</tr>
</tbody>
</table>

Source: SMA estimate

Impact on the Energy Infrastructure

- With a much larger share of renewables in the energy mix and various decentralized energy producers, an automated load management will be required to stabilize the grid.

- The complexity of the energy internet will increase because of:

  - Storage
  - HVAC
  - E-Mobility
  - Appliances (Load Mgmt)

> The energy internet will allow a peer-to-peer communication and cost-effective distribution of energy.

> Private households and companies will become a vital part of the new market structure.

> Overall profit pools will decrease, because convergence of supply and demand is automatically managed by IoT platforms.

> Shift of profits to platform and app provider.

> SMA has the competency to introduce an energy market solution to optimize different sectors within the next 12-18 months.

1. Jeremy Rifkin, „The Third Industrial Revolution“
2. Wind, Solar, Biomass
3. PV, Storage, E-Mob., HVAC, Appliances
Automated Energy Management Will Become the Backbone of the Future Energy Market

The Energy Internet

End User
- Private Households
- Companies
- Industry

Energy Apps
- Photovoltaics
- Storage
- HVAC
- E-Mobility
- Appliances

Optimization of Photovoltaics, Storage, Heating & Cooling
- Local Energy Management

Global IoT-Platform
- Data Management / Advanced Analytics
- Connectivity across Industries
- Trading Platform

- Global Energy Management
- Convergence between Supply & Demand

Market Place
- Utilities PV/Wind
- Private Households
- Private Companies

Impact of Advanced Analytics

- Matching of supply and demand across sectors (PV, Storage, E-Mobility, HVAC Load Managed Appliance) is paramount to reduce overall energy costs.
- Complexity of the convergence between sectors is automatically managed by energy apps. No compromise in lifestyle or work processes.
- Leverage of cost savings across micro-grids is secured with open IoT architectures.
- Additional services will arise within the next 3-5 years, once the energy market has the same level of digitization as other industries (retail, telcos or banking) have today.

SMA will form alliances with key players to improve positioning and remove market entry barriers.

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2.2 Market & Competition: New Price Point Will Change the Market Dynamic

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The Chinese Solar Market is Expected to Decline by 70% Until 2019 - International Markets are Expected to Grow by 9% p.a.

Today, utility PV plants (<10 MW) are installed for less than 1 USD per Watt in the US.

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### Global Inverter Revenues by Region/Segment (bn€)

<table>
<thead>
<tr>
<th>Regions</th>
<th>2015</th>
<th>2016</th>
<th>2017</th>
<th>2018</th>
<th>2019</th>
</tr>
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<tbody>
<tr>
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<tr>
<td>Americas</td>
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<td>1.5</td>
<td>1.3</td>
<td>1.5</td>
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<tr>
<td>EMEA</td>
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<td>1.0</td>
<td>1.3</td>
<td>1.5</td>
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</tr>
</tbody>
</table>

### Global New PV Install. by Region/Segment (GWdc)

<table>
<thead>
<tr>
<th>Regions</th>
<th>2015</th>
<th>2016</th>
<th>2017</th>
<th>2018</th>
<th>2019</th>
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<tr>
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<td>10</td>
<td>10</td>
<td>10</td>
<td>10</td>
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</tr>
</tbody>
</table>

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1. China reduced the Feed-in-Tariff (FIT) by the end of June 2016 and set further FIT reduction for 2017; New National Solar target set in 13th Five-Year-Plan for Power released on Nov. 7th 2016 by NEA
2. w/o China
3. SMA Mi Market Model Q1 2017
4. Incl. ~ 1 GW OffGrid Installations p.a.: Residential, Remote and Micro-Grid Applications
5. Incl. Inverter Potential for Retrofit
Value and Volume Growth in the Residential Market is very much Driven by Storage Applications and MLPE Technology

SMA generates c.175 m€ sales in Residential and has a global market share of c. 20% in 2016.4

SMA’s Go-To-Market Approach

- Key Residential Markets: Europe, USA, Australia, Japan
- SMA sells inverters and service products directly to electrical wholesalers (distributors).
- Loyalty and volume in the channel is created by focusing on top distributors.
- Transactional business (Pull) is created with installer visits and trainings. SMA has access to almost 10,000 installers. SMA conducted 1,500 trainings in 2016, thereof, 70% in EMEA, 20% in Americas and 10% in APAC.
- With the new SMA/ Tigo solution and Sunny Boy Storage, SMA will tap into the rapidly growing segments of optimized PV and storage application.

SMA generates c.175 m€ sales in Residential and has a global market share of c. 20% in 2016.4
Roof-Top Applications Account for >60% of the Commercial Market Segment – Commercial is the Most Attractive Segment

SMA generates c. 260 m€ sales in Commercial and has a global market share of c. 25% in 2016.1

SMA’s Go-To-Market Approach

1. Review 2016
2. Market & Competition
3. Technology & Portfolio
4. Positioning
5. Financials
6. Strategy & Guidance

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Key Commercial Markets: Europe, USA, Latin America, Africa, India, South-East Asia, Japan, China, Australia

SMA sells directly to small EPCs, regional utilities and the electrical wholesalers (distributors).

Project business is created with a consultative sales approach. SMA provides technical support to improve the plant design.

Education of project developers, investors, banks and other stakeholders is pivotal to accelerate project execution.

With the new STP Core1 SMA will offer additional services (e.g. energy management) to protect its outstanding position in the segment of roof-top commercial applications.

> SMA generates c. 260 m€ sales in Commercial and has a global market share of c. 25% in 2016.3

1. Incl. Revenue Potential for Storage Inverters
2. w/o China
3. Preliminary figures w/o storage
The Utility Market is the Biggest Segment – Growth Drivers are the Low Energy Generation Costs and the Speed of Installation

**Utility Market (GW/bn€)**

<table>
<thead>
<tr>
<th></th>
<th>2015</th>
<th>2016</th>
<th>2017</th>
<th>2018</th>
<th>2019</th>
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<td>[8%]</td>
<td>[9%]</td>
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**GWdc**

-10% p.a.

**bn€**

<table>
<thead>
<tr>
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</table>

-9% p.a.

**SMA’s Go-To-Market Approach**

- SMA sells complete solution (incl. med/high voltage equipment) directly to large and small EPCs as well as to regional utilities.
- Project business is created with a consultative sales approach. SMA provides technical support to improve the plant design (incl. grid simulation) and to secure fast commissioning.
- SMA offers long-term O&M services, extended warranty, spare parts, etc. to secure technical uptime.
- With the new 5 MW turnkey solution SMA offers the best specific price and fastest execution for MW projects.

**Key Utility Markets:** USA, Latin America, Middle East, India, South-East Asia, China, Japan, Australia

**SMA generates c. 400 m€ sales in Utility and has a global market share of c. 20% in 2016.**

1. Incl. revenue potential for storage inverters
2. w/o China
3. Preliminary figures w/o storage; without China the market share is 25%
Two Decades of Market Leadership has a Name: SMA Accounts for 21% of Global PV Inverter Sales

> There is NO global inverter market. Due to the local requirements and the wide range of applications\(^1\) the inverter market is very fragmented.

> SMA is the only global player with a complete portfolio in all segments. Therefore, SMA has the highest market share in sales for more than two decades.

> Some competitors mainly benefit from local market developments. The biggest Chinese solar inverter player only shipped inverters for 40m$ during the first nine months 2016 in international markets, while domestic sales accounted for 95% of its sales.

> Some other competitors benefit from little or no competition in certain PV applications (e.g. optimizer / micro-inverters).

> Some large conglomerates survived in the PV inverter business only because of cross-subsidization (e.g. with medium voltage technology).

> Current export restrictions as well as compliance standards may impact the ability of Chinese competitors to serve international markets.

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1. Optimizer, Residential, Commercial, Utility, Storage, Off-Grid, etc.
2. SMA: Inverter Revenues; Competitors: SMA Analysis based on Financial Reports of Companies, Public Information and Market Research Institutes; Calculation based on PV Inverter Market w/o Storage Applications as of SMA Market Model Q1 2017
SMA is the Most Experienced PV System Technology Provider with a Complete Portfolio as well as High Innovation Rate

<table>
<thead>
<tr>
<th>Competitor Environment¹</th>
<th>SMA</th>
<th>Competitor 1</th>
<th>Competitor 2</th>
<th>Competitor 3</th>
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<td>APAC</td>
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<td>✓</td>
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</tr>
</tbody>
</table>

✓ Applicable/Strong Presence  (✓) Limited Presence  ❌ Not applicable/No Presence

Large competitors have increasing difficulties to localize products & services.

¹ Source: Company websites; SMA estimates
² Module-level Power Electronics
³ Only in combination with additional equipment (MLPE), thus not flexible
The Solar Inverter Industry has high Market Entry Barriers

1. Total Cost of Ownership

**Cost-Related Market Entry Barriers**
- International sales & service network to reduce risk
- Complete product portfolio to offer best solution
- High quality to increase return
  - Temperature management
  - AC/DC ratio
  - Communication, control and grid management
- High bankability to reduce financing costs

**Time-Related Market Entry Barriers**
- Innovative technologies to reduce costs
- Experience in PV, storage and HVAC to combine sectors
- Grid connection know-how to secure grid stability
- Early market entry to create customer loyalty

**Regulatory Market Entry Barriers**
- Know-how to localize products (e.g. UL, JET)
- Ethics to act compliant
- Transparent structure to reduce cyber-security risks

**Case Study:**
String inverter (SUN2000-25KTL1-US)

Competitor never received UL Certificate

Price is important, but compliance is priceless.
3. Technology & Portfolio: SMA is Well Positioned to Benefit from the Energy Internet
Residential PV Becomes Part of an Energy Efficiency Solution Within the Smart Home

Yesterday:
Produce & Forget

Up to 30%
Self-Sufficiency

Today & Future:
Be Part of the Energy Internet with a Smart Home

Up to 80%
Self-Sufficiency

Electricity Price 2016

€/kWh

0.30

0.28 Local Utility Company e.g. Naturstrom

0.25

0.22

0.20

0.15

0.10

0.05

0.00

PV System¹

PV System, Energy Mgmt & Storage²

SMA is able to combine PV with storage and HVAC to optimize the sectors fully automatically.

1. PV plant in Germany: 5 kWp , feed-in tariff 0.129 €/kWh, annual electricity consumption of 3.600 kWh + heat pump 4.040 kWh, PV system costs: 1.500 €/kWp,
2. See 1. + storage system costs: 825 €/kWh, incl. VAT
Residential Customers get the Highest Degree of Self-Sufficiency at Lowest Costs with SMA PV System Technology

Selective Deployment: A Game Changer in MLPE

- Reduced system costs: only pay for what you need
- Reduced installation costs: less components and long string functionality
- Reduced service & lifetime costs: less components and life-time optimized electronic

SMA’s game changing Power+ Solution, which is based on SMAs leading string inverters and Tigo module level power electronic has been launched in January 2017.

The Same Energy Output with Less Investment

Cost Comparison Optimization Total Cost of Ownership

Lifetime Costs [€]

<table>
<thead>
<tr>
<th></th>
<th>SMA</th>
<th>Competitor 1</th>
</tr>
</thead>
<tbody>
<tr>
<td>Equipment Costs</td>
<td>1,234</td>
<td>2,193</td>
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<tr>
<td>Installation Costs</td>
<td>500</td>
<td>500</td>
</tr>
<tr>
<td>Service Costs</td>
<td>500</td>
<td>500</td>
</tr>
</tbody>
</table>

*EASY CUSTOMIZATION
*Monitoring
*Safety
*Optimization
*Long String

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SMA is able to combine PV with storage and HVAC to optimize the sectors fully automatically.

Yesterday: Produce and Forget

Today & Future: Optimize energy costs across sectors

Electricity Price 2016

- 0.17 Local Utility Company
- 0.07 PV System
- 0.10 PV System, Energy Mgmt & Storage

Real estate investors will quickly include energy management solutions in their offering, because of their similar cashflow profile.

1. PV plant for a Supermarket in Germany: 200.34 kWp, feed-in tariff 8.65 ct/kWh, annual electricity consumption of 1,198 MWh, PV system costs: 1,000 €/kWp, excl. VAT
2. See 1 + storage system costs: 825 €/kWh, excl. VAT
SMA Advanced Energy Management Functions has a Significant Impact on the Electricity Bill

**Customer Benefit of Energy Management**

Reducing energy costs by:

- **Leveraging energy efficiency potentials** due to sophisticated visualization & data analytics
- **Optimizing energy supply** by managing local consumption and production
- **Generating additional revenues** by bringing excess energy and local flexibility to the market

**Sunny Tripower Core1**

- **60% faster installation** to lower total cost of ownership (OpEx)
- **Minimized LCOE** with reduced risk due to 6 independent MPP trackers for optimum energy production and the intelligent SMA OptiCool™ active cooling system
- **Seamless grid integration**
- **Perfectly optimized** for commercial rooftops and ground mount solar projects

**SMA was the first inverter manufacturer who focused on ease of installation.**
SMA Utility Operates as a Comprehensive System Provider on Medium and High Voltage Level

Yesterday:
Feed-in Tarif Business Model

- Focus on high efficiency ($\eta \uparrow$)
- Power Sizes of 100 kW
- 600 V DC technology
- Less modules per inverter (low DC/AC ratio)
- Main markets were in Europe, especially Germany

Today:
PPA Driven Business Model

- Maintaining high efficiency ($\eta \rightarrow$) and focus on Uptime
- Power Sizes of 5 MW
- Reduced eBOS by up to 10% with 1,500 V DC
- More modules per inverter (high DC/AC ratio)
- Global market with many different local requirements (standards and environmental)
- Focus on grid stability, O&M, monitoring and storage

SMA has excellent competencies to handle the complexity of large-scale power plants.

1. PPA= Power Purchase Agreement
SMA Utility Provides Its Customers up to 99.998% Uptime

5 MW Turnkey Solution

- **Reduced risk** with high current connection and full operator safety by arc-tested solution.
- **Max. yields** over entire lifetime by comprehensive PV-system design for all components
- **Ease of installation** with only DC and MV cables to be connected and commissioning to be concluded
- **Reduced costs** with standard shipping dimensions, minimized time for costly crane and on-site works

SMA offers together with Siemens an aligned technical solution from DC to high voltage grid, share of global network and abilities and joint product development.

## Competitor Comparison

<table>
<thead>
<tr>
<th></th>
<th>SMA</th>
<th>Comp. 1</th>
</tr>
</thead>
<tbody>
<tr>
<td>Design flexibility</td>
<td>+</td>
<td>o</td>
</tr>
<tr>
<td>System integration</td>
<td>++</td>
<td>-</td>
</tr>
<tr>
<td>Ease of transport &amp; installation</td>
<td>++</td>
<td>+</td>
</tr>
<tr>
<td>Yield</td>
<td>+</td>
<td>+</td>
</tr>
<tr>
<td>Availability</td>
<td>++</td>
<td>o</td>
</tr>
</tbody>
</table>

## Total Global Utility Scale PPA’s Unsubsidized Record Low

<table>
<thead>
<tr>
<th>Year</th>
<th>USA</th>
<th>USA</th>
<th>Peru</th>
<th>Mexico</th>
<th>UAE</th>
<th>Chile</th>
<th>UAE</th>
</tr>
</thead>
<tbody>
<tr>
<td>2014</td>
<td>7.1</td>
<td>5.7</td>
<td>4.8</td>
<td>3.6</td>
<td>3.0</td>
<td>2.9</td>
<td>2.4</td>
</tr>
<tr>
<td>2015</td>
<td>4.8</td>
<td>3.6</td>
<td>3.0</td>
<td>2.9</td>
<td>2.4</td>
<td>2.4</td>
<td>-50%</td>
</tr>
</tbody>
</table>

-50% reduction from previous years.

---

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Service Business Becomes a Key Differentiator in the Solar Industry

**Key Facts**

- More than 1.7 GW under O&M
- More than 600 service professionals worldwide
- More than 100 service hubs worldwide

**Portfolio - Service**

- High order backlog for service of €395m; majority from warranty extension
- High profitability (EBIT > 10%)
- High volume installations in Europe before 2010 now become an interesting business for re-powering

> SMA transforms from traditional (technical) services to value added Services
The Solar Market is Decentral and Includes Storage

Yesterday: Funded Rural Electrification

- Focus on rural, off-grid electrification
- Market depending on financing and development aid
- Main markets Africa and Asia
- Power sizes up to 300 kW

Today and Future: Seamless Integration of Renewables in any Market

- Stationary Storage Market becoming mature: from private client towards public utilities investment resulting in unique market growth rates¹
- Storage solutions as an enabler for the renewable-based energy supply
- SMA utilizes PV proven PV inverter technologies to offer the most cost effective storage solutions in each market segment

SMA provides storage solutions for all battery types and all applications.

¹ Due to significant cost reduction of Lithium Batteries
4. Positioning: SMA’s Long-Lasting Leadership is a Result of our Comprehensive Competencies
PV Know How: SMA is an Engine of Innovation With Unmatched Competencies in the PV Industry

- We have **380 employees** in R&D in Germany, Thereof 90 in research and 290 in development
  - Furthermore **90 developers** in China

- **Thereof 35 engineers** with doctoral degree

- **5 Business Units** with ca. **80 employees**, for Product Management, Segment Strategy and Project Management

- Globally, SMA has been granted ca. **870 patents and utility models**, c. **600 ongoing application procedures** and > **800 trademarks**
Portfolio: SMA has a Modern and Complete Portfolio for all Segments

**RESIDENTIAL**

- SB 1.5/2.5
- SB 3000-5000
- STP 5000-12000
- SB 3000-7700 US
- SB 3500/4500/5400 JP

**COMMERCIAL**

- STP 20000TL/25000TL
- STP 15000TL
- STP 12000/15000/20000/24000/30000-US
- STP 75
- STP 10000/20000TL,JP

**UTILITY**

- SUNNY CENTRAL CP XT
- SUNNY CENTRAL CP JP
- SUNNY CENTRAL 2.2/2.5 MW
- SUNNY CENTRAL STORAGE
- SUNNY CENTRAL US 1.85/2/2.5 MW
- STP 12.30 kW, IEC and US
- SUNNY TRIPOWER 7S
- SMA Power Plant Controller
- SMA String Controller/Monitor
- SPM SCADA and Monitoring solutions
- Siemens grid connection on High and Medium Voltage level

**OFF-GRID**

- SUNNY ISLAND 4348-US/6048-US
- SUNNY ISLAND 6.0/8.0H
- SUNNY ISLAND 3.0/4.4M
- SUNNY BOY MANAGEMENT
- SUNNY HOME METER
- SMA ENERGY METER
- SUNNY ISLAND STORAGE 500/1000
- SUNNY ISLAND STORAGE 2200/2300

**SMA SERVICE**

- Commissioning
- Extended Warranty
- Preventive Maintenance
- Operation & Maintenance

---

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**Global Presence: SMA has an Unmatched Global Infrastructure of PV Sales and Service Experts**

<table>
<thead>
<tr>
<th>Region</th>
<th>Cumulative Installed Base</th>
<th>SMA Cum. Market Share</th>
<th>Sales &amp; Service Experts</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>AMERICAS</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>39 GW</td>
<td>36 %</td>
<td>150+</td>
</tr>
<tr>
<td></td>
<td>316</td>
<td>421</td>
<td>442</td>
</tr>
<tr>
<td></td>
<td>2014</td>
<td>2015</td>
<td>2016</td>
</tr>
<tr>
<td></td>
<td>2.1</td>
<td>2.8</td>
<td>3.8</td>
</tr>
<tr>
<td><strong>EMEA</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>97 GW</td>
<td>34 %</td>
<td>390+</td>
</tr>
<tr>
<td></td>
<td>338</td>
<td>360</td>
<td>286</td>
</tr>
<tr>
<td></td>
<td>2014</td>
<td>2015</td>
<td>2016</td>
</tr>
<tr>
<td></td>
<td>1.7</td>
<td>2.5</td>
<td>2.0</td>
</tr>
<tr>
<td><strong>APAC</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>141 GW</td>
<td>12 %</td>
<td>130+</td>
</tr>
<tr>
<td></td>
<td>165</td>
<td>219</td>
<td>231</td>
</tr>
<tr>
<td></td>
<td>2014</td>
<td>2015</td>
<td>2016</td>
</tr>
<tr>
<td></td>
<td>1.3</td>
<td>2.0</td>
<td>2.4</td>
</tr>
</tbody>
</table>

1. w/o sales deductions (2014 incl. Railway: -14 m€; 2015: -18 m€; 2016: c. -13 m€)
2. Cumulated installed inverters in GWac by end of 2016
3. Share excl. China; incl. China 6%
Flexibility: SMA is Fast, Highly Flexible and Financially Stable

**SPEED**
Ability to Act Fast

<table>
<thead>
<tr>
<th>Year</th>
<th>2014</th>
<th>2015</th>
<th>2016</th>
</tr>
</thead>
<tbody>
<tr>
<td>FTE1</td>
<td>4,667</td>
<td>3,276</td>
<td>3,122</td>
</tr>
</tbody>
</table>

-33%

**FLEXIBILITY**
Infrastructure to Act Flexible

<table>
<thead>
<tr>
<th>Quarter</th>
<th>Q1</th>
<th>Q2</th>
<th>Q3</th>
<th>Q4</th>
</tr>
</thead>
<tbody>
<tr>
<td>GW</td>
<td>1.0</td>
<td>1.0</td>
<td>1.3</td>
<td>1.8</td>
</tr>
<tr>
<td>GW</td>
<td>2.1</td>
<td>1.8</td>
<td>1.2</td>
<td>3.1</td>
</tr>
</tbody>
</table>

>1:3

**STABILITY**
Financials to Act Independently

<table>
<thead>
<tr>
<th>Year</th>
<th>2014</th>
<th>2015</th>
<th>2016</th>
</tr>
</thead>
<tbody>
<tr>
<td>Net cash &amp; credit line</td>
<td>225</td>
<td>286</td>
<td>360</td>
</tr>
<tr>
<td>Equity ratio</td>
<td>47%</td>
<td>49%</td>
<td>48%</td>
</tr>
</tbody>
</table>

Action Taken:
- Closure Denver within 6 months
- Additional share of temporary employees > 20%
- Flexible payment system

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As of December 31 (without temporary employees, trainees and interns)
5. Financials: SMA is Financially Stable and Has an Attractive Operational Leverage
Over Years SMA Successfully Managed Rapidly Changing Market Conditions whilst Protecting the Gross Margin

Phase 1 – Feed-in Tariff
- High price pressure in all segments
- Shift from Europe to Asia and Americas
- Shift in PV application (Residential to Utility)

Phase 2 – Change in Drivers
- Accelerated price pressure
- Stable regional mix/product mix
- Introduction of storage

SMA has a proven track record to cope with high price pressure and a rapidly changing market environment.
Residential Business is Impacted by the Shift Towards MLPE-Technology in 2016

Sales Development

- Sales decline of 75% since 2010 is mainly due to the collapse of European solar markets and portfolio-gap (MLPE-technology)\(^3\)
- Specific price reduction of >5% p.a. at stable power size and increased functionality (e.g. rapid shut down; integrated communication).
- Sales decline 2016 is mainly due to US-business (shift towards MLPE/AC-module technology as well as to TPO-companies\(^2\)).
- Positive momentum in APAC and EMEA in 2016 due to new channel partners and dual brand strategy (SMA / Zeversolar).
- Negative One-offs of €3m in 2016.

Measures to Improve Profitability

- Bundling of Sunny Boy and Smart Connected package to improve differentiation and to protect margin.
- New Sunny Boy generation (3-5 kW 1phs) with significantly improved cost structure in Q1/2017 and Sunny Boy (4-10 kW 3phs) in Q4/2017.
- Introduction of AC-coupled storage system to address the large retrofit market (Partner with LG Chem, Tesla).
- Create business relationship with key TPO-companies in the USA.
- Investment into Tigo Energy (4/2016) to enter global MLPE market; launch of next optimizer generation in Q1/2017 (US/APAC/EMEA).

2017 will be a transition year for the residential business. Cost-improved Sunny Boy inverter as well as MLPE and Storage Technology will pave the way for sales growth.
The Success of the Commercial Segment is a Result of Cost-Improved Products for Key Markets and New Channel Partners

Sales Development

- Sales decline of >70% since 2010 only due to collapse of European solar markets. Since 2014 strong growth in non-EMEA markets (+125%).
- Spec. price decline by >10% p.a. since 2010 mainly due to power-up and new technologies (e.g. 3phs). Significant functionality improvements since 2010 (e.g. # of MPPT, integration of Combiner Box & Monitoring).
- In 2016 the EMEA business was overall stable; Strong growth in APAC, esp. in JP, IN, AUS, as well as in the USA due to new channel partners and localized products.

Measures to Improve Profitability

- Introduction of new Sunny Tripower Core1 and power-up Sunny Tripower 60 to 75 kW (+25%).
- Development of new energy management software to combine sectors (PV, HVAC, Storage, E-Mobility). Establish strategic alliances to benefit from digitization of the energy sector.
- Development of a completely new generation of three-phase inverters for ground-mounted commercial applications.
- Investment into Tigo Energy (4/2016) to enter global MLPE market; Launch of next optimizer generation for commercial applications (Q4/2017).

The new cost-efficient Sunny Tripower Core1 for roof-top applications will be the key revenue driver in 2017.
Total Cost of Ownership (TCO) for the Entire System
Technology is the Key Driver for the Utility Business

### Utility 2010-2016 (in €m)

<table>
<thead>
<tr>
<th>Year</th>
<th>2010</th>
<th>2012</th>
<th>2014</th>
<th>2016e1</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>339</td>
<td>431</td>
<td>282</td>
<td>c.400</td>
</tr>
</tbody>
</table>

### Sales Development

- Significant change in regional sales profile since 2010.2
- Specific price reduction of >10% p.a. since 2010 mainly due to power-up and cost-out. Improved TCO due to new technologies (e.g. 1,500 Volt), integration of critical components (e.g. transformer, switchgear) as well as ease of installation (e.g. container).
- Strong growth in 2016 in Americas, India and Japan partly compensated slow down in demand in UK, Thailand and Philippines.
- In 2016 the utility business was impacted by the trend towards a decentralized system layout of smaller MW-projects (e.g. below 30 MW) as well as from the push-out of projects in the US (ITC-extension).

### Measures to Improve Profitability

- Expand the alliance with Siemens to align technical solution from DC to high voltage grid, sharing the global network and joint project development
- Introduction of 1,500 Volt (USA) to reduce eBOS by up to 10%
- Introduction of 5 MW MVPS turnkey solution to secure lowest specific system costs.
- Power-up Sunny Central 2.8 MW (+10%) to reduce specific costs.
- Advancement in energy storage to accelerate sales with grid stabilization applications

The new Sunny Central 5 MW MVPS turnkey solution offers the most cost-efficient system technology for large utility-scale projects and will become a key revenue driver in 2017.

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1. Preliminary figures
2. Regional sales 2010 (2016): EMEA: 87% (12%); Americas: 10% (71%); APAC: 3% (17%)
The Large Installed Base of Utility Plants is the Main Driver for the O&M Business

Service 2010-2016 (in €m)

<table>
<thead>
<tr>
<th>Year</th>
<th>Sales (in €m)</th>
</tr>
</thead>
<tbody>
<tr>
<td>2010</td>
<td>30</td>
</tr>
<tr>
<td>2012</td>
<td>32</td>
</tr>
<tr>
<td>2014</td>
<td>41</td>
</tr>
<tr>
<td>2016e¹</td>
<td>c.45</td>
</tr>
</tbody>
</table>

+50%

Sales Development

- Significant change in regional sales profile since 2010.²
- High order backlog of €393m as of Dec. 31, 2016 (+6%). Thereof, 20% for O&M service business, 70% for warranty extensions and 10% others. The O&M contracts have a duration between 5 and 15 years.
- Decline in Q4/2016 sales is mainly due to adjustment of revenue recognition and its allocation to future periods.³

Measures to Improve Profitability

- Expansion of the O&M service activities in the regions South America and APAC to leverage existing infrastructure.
- Introduce new service products for the upcoming retrofit market (especially EMEA) to benefit from SMA’s high installed base and the replacement of broken inverters from competitors.
- Implement service partner concept in smaller PV markets to reduce the cost base.

Since response time is the key in Service, SMA very much benefits from its unique infrastructure.

1. Preliminary figures
2. Regional Sales 2010(2016): EMEA: 100% (43%); Americas: 0% (35%); APAC: 0% (22%)
3. One-Off resulting from reclassification: €9m
In 2016, SMA Improved the Cost Structure and Increased the EBITDA-Margin to 15%

In 2016 SMA operated with a cash break even of less than €600m.

> In 2016 SMA reduced the capitalized R&D expenses from €30m to €13m.
> In 2016 SMA had one-offs from the global consolidation of production facilities of €18m.
> In 2016 c.35% of the depreciation/amortization is from machines & equipment, c.30% from real estate, c.25% capitalized R&D projects.

<table>
<thead>
<tr>
<th>2015</th>
<th>2016e¹</th>
</tr>
</thead>
<tbody>
<tr>
<td>2016e¹</td>
<td>2015</td>
</tr>
<tr>
<td>personnel expenses</td>
<td>personnel expenses</td>
</tr>
<tr>
<td>53</td>
<td>43</td>
</tr>
<tr>
<td>34</td>
<td>20</td>
</tr>
<tr>
<td>30</td>
<td>28</td>
</tr>
<tr>
<td>R&amp;D</td>
<td>non-personnel expenses</td>
</tr>
<tr>
<td>44</td>
<td>34</td>
</tr>
<tr>
<td>27</td>
<td>21</td>
</tr>
<tr>
<td>27</td>
<td>24</td>
</tr>
<tr>
<td>sales &amp; marketing expenses</td>
<td>sales &amp; marketing expenses</td>
</tr>
<tr>
<td>54</td>
<td>48</td>
</tr>
<tr>
<td>G&amp;A</td>
<td>-10%</td>
</tr>
<tr>
<td>121</td>
<td>&gt;140</td>
</tr>
</tbody>
</table>

EBITDA (in €m)

<table>
<thead>
<tr>
<th>2015</th>
<th>2016e¹</th>
</tr>
</thead>
<tbody>
<tr>
<td>2016e¹</td>
<td>2015</td>
</tr>
<tr>
<td>Depreciation/Amortization</td>
<td>Depreciation/Amortization</td>
</tr>
<tr>
<td>-79</td>
<td>c.-75</td>
</tr>
</tbody>
</table>

Functional Costs (in €m)

<table>
<thead>
<tr>
<th>2015</th>
<th>2016e¹</th>
</tr>
</thead>
<tbody>
<tr>
<td>2016e¹</td>
<td>2015</td>
</tr>
<tr>
<td>Depreciation/Amortization</td>
<td>Depreciation/Amortization</td>
</tr>
<tr>
<td>-79</td>
<td>c.-75</td>
</tr>
</tbody>
</table>

1. Preliminary figures
2. Incl. capitalized R&D projects (2015: €30m, 2016: €13m)
3. 2016: Consolidation of production sites (€18m), Impairment on working capital (neg.), Release of employee bonus provision (pos.), thereof in COGS (€16m)
With an Equity Ratio of Almost 50% and Net Cash of More Than €360m, SMA is well Prepared for the Future

majority of finished goods will be shipped in Q1 2017.

1. NWC= inventory+trade receivables-trade payables (no advanced payments included); As of last twelve months sales
2. Preliminary figures
3. Not interest-bearing
4. W/o not-interest-bearing derivatives: €18m (2015: €8m)
5. Incl. not-interest-bearing derivatives: €18m (2015: €8m)
6.1 Strategy: SMA has a Sound Strategy in Place
We Have Developed our Strategy as a Team

SMA is different in many ways – also when it comes to the strategy process.

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SMA has a Sound Strategy in Place to Benefit from the Future Energy Market Design

<table>
<thead>
<tr>
<th>Positioning</th>
<th>Strategic Goals 2020</th>
</tr>
</thead>
<tbody>
<tr>
<td>SOLUTIONS</td>
<td>Global Market Leader in all Segments</td>
</tr>
<tr>
<td>SYSTEMS</td>
<td>We want to be #1 in the RESIDENTIAL, COMMERCIAL, UTILITY, SERVICE and OFF-GRID &amp; STORAGE segments</td>
</tr>
<tr>
<td>COMPONENTS</td>
<td>SMA is a Provider of Systems and Solutions</td>
</tr>
<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>
<tr>
<td></td>
<td>Sustainable Profitability and low Capital Intensity</td>
</tr>
<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>
<tr>
<td></td>
<td>Development of SMA by means of Disruptive Approaches</td>
</tr>
<tr>
<td></td>
<td>SMA will invest in start-ups.</td>
</tr>
<tr>
<td></td>
<td>SMA is an Attractive Company</td>
</tr>
<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>

SMA will become an integral part of the new energy market.
6.2 Guidance 2017: SMA Management Expects Continued High Price Pressure as Well as Market and Segment Shifts
SMA’s Financial Performance Depends on Global Demand, Price Dynamic and SMA’s Market Share

Global Inverter Revenues by Region/Segment (2015-2017; bn€)\(^3,4,5\)

<table>
<thead>
<tr>
<th>Regions</th>
<th>2015</th>
<th>2016</th>
<th>2017</th>
</tr>
</thead>
<tbody>
<tr>
<td>China(^1)</td>
<td>4.8</td>
<td>5.2</td>
<td>4.9</td>
</tr>
<tr>
<td>APAC(^2)</td>
<td>2.0</td>
<td>1.8</td>
<td>1.7</td>
</tr>
<tr>
<td>Americas</td>
<td>1.1</td>
<td>1.5</td>
<td>1.3</td>
</tr>
<tr>
<td>EMEA</td>
<td>1.1</td>
<td>1.0</td>
<td>1.3</td>
</tr>
</tbody>
</table>

Revenue based Market Share 2016

<table>
<thead>
<tr>
<th></th>
<th>2015</th>
<th>2016</th>
<th>2017</th>
</tr>
</thead>
<tbody>
<tr>
<td>SMA</td>
<td>21%</td>
<td>21%</td>
<td></td>
</tr>
<tr>
<td>Comp. 1</td>
<td>8%</td>
<td>11%</td>
<td>8%</td>
</tr>
<tr>
<td>Comp. 2</td>
<td>10%</td>
<td>10%</td>
<td>8%</td>
</tr>
<tr>
<td>Comp. 3</td>
<td>9%</td>
<td>9%</td>
<td>8%</td>
</tr>
<tr>
<td>Comp. 4</td>
<td>8%</td>
<td>8%</td>
<td>8%</td>
</tr>
<tr>
<td>Comp. 5</td>
<td>6%</td>
<td>8%</td>
<td>6%</td>
</tr>
</tbody>
</table>

- Global revenues w/o China are expected to be flattish in 2017.
- This is only because of the strong growth in the storage segment (best case scenario).
- Without Storage global revenues are expected to decline by 18%.

The storage segment is the key value driver in the PV industry.

1. China reduced the Feed-in-Tariff (FIT) by the end of June 2016 and set further FIT reduction for 2017; New National Solar target set in 13th Five-Year-Plan for Power released on Nov. 7th 2016 by NEA
2. w/o China
3. SMA MI Market Model Q1 2017
4. Incl. ~1 GW Off-Grid Installations p.a.: Residential, Remote and Micro-Grid Applications
5. Incl. Inverter Potential for Retrofit
SMA Experienced an Increased Order Intake Since the Beginning of 2017

Order Backlog by Segment & Region (m€)

Total €568m (Jan. 24, 2017)

<table>
<thead>
<tr>
<th>Segment</th>
<th>€</th>
</tr>
</thead>
<tbody>
<tr>
<td>Utility</td>
<td>21</td>
</tr>
<tr>
<td>Commercial</td>
<td>90</td>
</tr>
<tr>
<td>Residential</td>
<td>38</td>
</tr>
<tr>
<td>Service</td>
<td>23</td>
</tr>
<tr>
<td>Others</td>
<td>395</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Region</th>
<th>€</th>
</tr>
</thead>
<tbody>
<tr>
<td>Americas</td>
<td>14%</td>
</tr>
<tr>
<td>EMEA</td>
<td>59%</td>
</tr>
<tr>
<td>APAC</td>
<td>27%</td>
</tr>
</tbody>
</table>

Order Backlog by Segment (Q1 to Q4/2016; m€)

<table>
<thead>
<tr>
<th>Quarter</th>
<th>€</th>
</tr>
</thead>
<tbody>
<tr>
<td>31.03.2016</td>
<td>692</td>
</tr>
<tr>
<td>30.06.2016</td>
<td>644</td>
</tr>
<tr>
<td>30.09.2016</td>
<td>588</td>
</tr>
<tr>
<td>31.12.2016</td>
<td>537</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Quarter</th>
<th>Delivery</th>
</tr>
</thead>
<tbody>
<tr>
<td>31.03.2016</td>
<td></td>
</tr>
<tr>
<td>30.06.2016</td>
<td></td>
</tr>
<tr>
<td>30.09.2016</td>
<td></td>
</tr>
</tbody>
</table>

> SMA has a continuous high order backlog of almost €400m for the service business. Thereof, ca. 75% from EMEA countries and >20% from Americas and the remainder for the APAC region.

> The order backlog for products increased by ca. 20% since the beginning of 2017 to more than €170m. Compared to December 31, 2015 the decrease of almost 50% is mainly due to North America and EMEA.

> In 2015 US-customers ordered mainly Sunny Centrals to secure the delivery in 2016. A large project for South America increased backlog at the end of 2015 as well.

> Currently, there is no catalyst for customers to order well in advance. Actually, the decline in module prices causes a late order behavior in all segments.
SMA’s Product Development Pipeline and Structured Cost-Out Process will Help to Protect the Gross Margin in the Mid-Term

Residential

Average Selling Prices

Manf. Costs

2011 2017 2019

Utility

630 kW 1.0 MW 2.5 MW 4.0 MW

2010 2014 2016 2019

Commercial

15kW 30 kW-US 50 kW Next Gen.

2010 2016 2017 2018

Organization for Cost-Out

9th Capital Markets Day, 2017
The SMA Management Estimates a Decline in Sales and Profit due to the Accelerated Price Pressure in the Solar Industry

### Guidance 2017 (m€)

<table>
<thead>
<tr>
<th>International Share</th>
<th>Depreciation/Amortization</th>
</tr>
</thead>
<tbody>
<tr>
<td>c.90%</td>
<td>c. 75</td>
</tr>
<tr>
<td>&gt;90%</td>
<td>60-70</td>
</tr>
<tr>
<td>&gt;940</td>
<td>830-900</td>
</tr>
<tr>
<td>830-900</td>
<td>&gt;140</td>
</tr>
<tr>
<td>70-90</td>
<td>140</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Sales</th>
<th>EBITDA</th>
</tr>
</thead>
<tbody>
<tr>
<td>2016</td>
<td>2016e</td>
</tr>
<tr>
<td>2017</td>
<td>2017</td>
</tr>
<tr>
<td>20161</td>
<td>2016e1</td>
</tr>
<tr>
<td>2017</td>
<td>2017</td>
</tr>
</tbody>
</table>

| CapEx2                | c. 25                     |
|                       | c. 50                     |
| NWC-Ratio3            | c. 24%                    |
|                       | 22-25%                    |
| Tax Ratio4            | c. 60%                    |
|                       | c. 30%                    |

### Management Comments

> SMA plans to increase its market share in sales terms in the trad. PV-segments in 2017 due to new products and new customers.

> SMA expects a strong sales growth in the storage segment. Because the market dynamic in storage is very much determined by new customers and regional requirements, SMA’s management does not expect to grow as fast as the best case market scenario.

> SMA expects high price pressure of >10% in all segments and regions. Key decision criteria besides price are product quality, service, product features, compliance and cyber-security.

> SMA expects a decline in sales between 4% and 13%. More than 20% of sales will be from non-PV-inverters. In the mid-term, non-PV-products will add sales to the existing PV inverter business.

> SMA will introduce new products and solutions in the course of 2017 to protect the gross margin. The price pressure across the entire portfolio is higher than the cost reduction.

> With the next generation of products and the expansion into energy management services, SMA expects to improve the gross margin from 2018 onwards.

> The fixed cost structure will benefit from the consolidation of the global production infrastructure from Q2 2017 onwards.

> With the next product generation and the expansion of the solution business SMA strives to improve profitability from 2018 onwards.

### Investment Highlights: Attractive Investment Opportunity

- **Direct exposure to the global solar market**
- **SMA has been the #1 for solar inverters for more than 2 decades**
- **Proven technology and new solutions for the energy Internet**
- **Flexible business model and best-cost sourcing strategy**
- **Powerful sales and service infrastructure**
- **Bankable partner due to high equity ratio, net cash position and credit facility**
- **Stable shareholder structure with Danfoss as strategic anchor investor**
- **Experienced management team with proven track record**

9th Capital Markets Day, 2017
Experienced Management Team With a Proven Track Record

**Managing Board**

- **Pierre-Pascal Urbon**
  - Born 1970
  - Contracted until 2022
  - CEO/CSO
  - Chief Executive Officer, Strategy, Sales, Service Operations, Communication, Business and Organizational Development, Internal Audit

- **Dr. Jürgen Reinert**
  - Born 1968
  - Contracted until 2019
  - CTO/COO
  - Deputy Chief Executive Officer, Research & Development (R+D) Business Units, Operations, Information Technology (IT)

- **Ulrich Hadding**
  - Born 1968
  - Contracted until 2019
  - CFO
  - Finance, Human Resources, Legal, Governance/Compliance, Labor Director

9th Capital Markets Day, 2017
SMA Shares Shows Significant Volatility Based on Changing Industry Outlook

Share Price Development 2016

Trading continues to be dominated by US hedge funds.

Shareholder Structure¹

> Stable Shareholder Structure with > 80% AGM presence.

1. As of 16/01/2017
## Financial Calender

### SMA plans Roadshows in:

<table>
<thead>
<tr>
<th>Quarter</th>
<th>Locations</th>
</tr>
</thead>
<tbody>
<tr>
<td>Q1/2017</td>
<td>London / Zurich</td>
</tr>
<tr>
<td>Q2/2017</td>
<td>London / Edinburgh</td>
</tr>
<tr>
<td>Q3/2017</td>
<td>London / Frankfurt</td>
</tr>
</tbody>
</table>

### Publication of the SMA Group 2016 Annual Report:

- **Mar 30, 2017**
  - Publication of the SMA Group 2016 Annual Report
  - Analyst Conference Call: 09:00 a.m. (CET)
Solar is expected to show significant growth in the early 20’ by becoming more attractive than other energy sources.

Additions of Solar Power p.a. ¹ / Global Avg. Energy Costs (USD) ²

Comments

> Solar is expected to undercut coal in the middle of the twenties.

> But solar may be the preferred energy form before 2025 showing noticeable growth rates already in the early twenties, when beating gas.

> This means solar becomes highly attractive after 2020 with a continuing annual growth.

> BNEF² forecasts 3,900 GW of installed solar capacity by 2040. This means that solar will rank first with a share of 29% of global installed energy capacity.

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¹ SMA (2010-2020) and BNEF NEO 2016 (2021-2030)
² Bloomberg article on Energy Costs from January 3, 2017
³ CCGT = Combined Cycle Gas Turbine
⁴ BNEF NEO 2016