



solarcentury

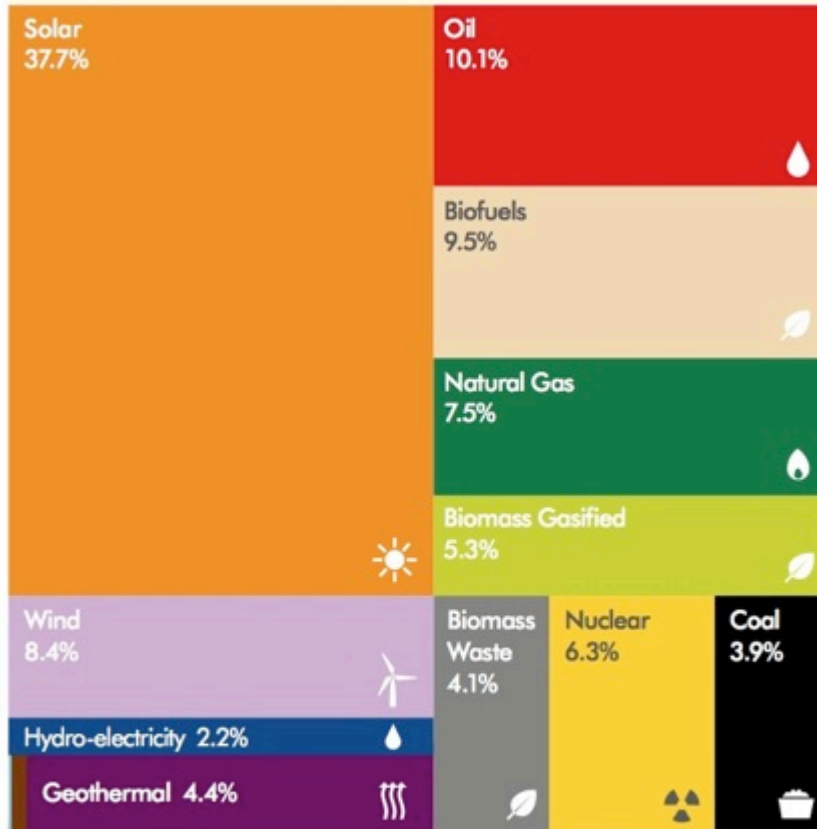
## Distributed Generation

Alan South, Chief Innovation Officer

Commercial operation of the national 132kV electric power transmission grid begins in the UK. It is the first integrated national grid in the world. Small and inefficient power stations are being closed down.

(1935)

## SOLAR DOMINANCE BY 2100?

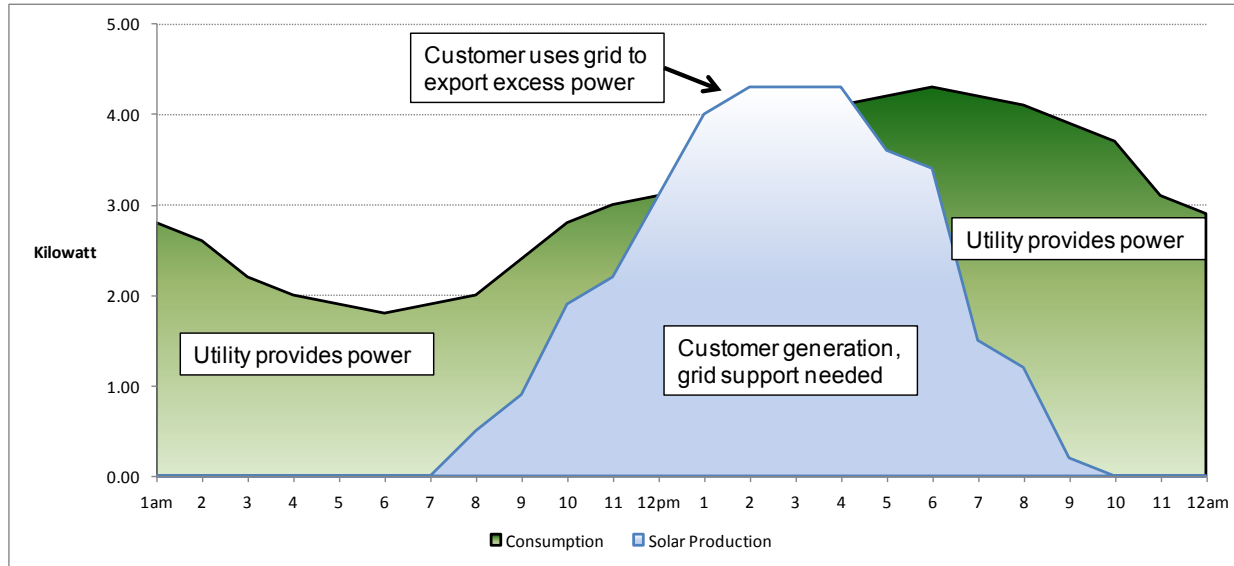


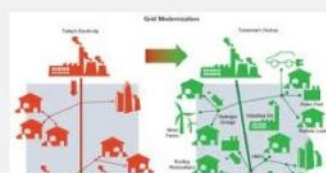
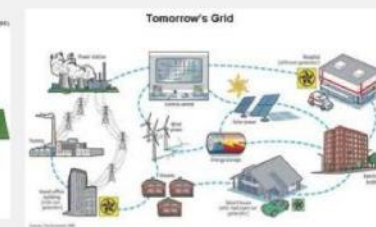
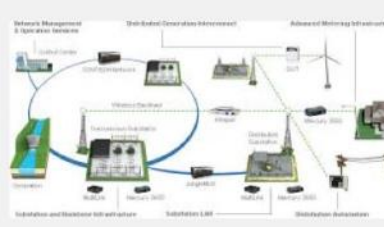
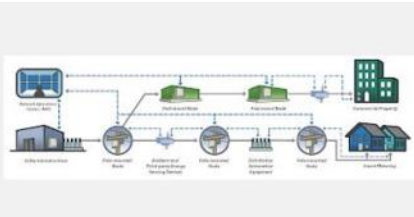
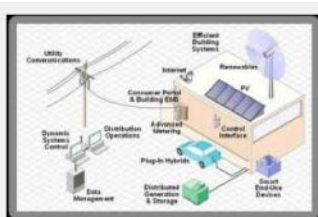
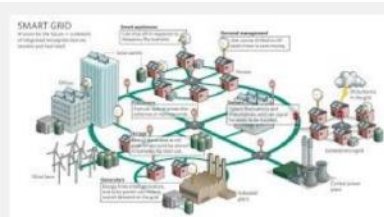
 Biomass Traditional 0.3%

 Other Renewables 0.03%

Source: Shell New Lens scenarios: Oceans

**Figure 1: Typical Energy Production and Consumption for a Small Customer with Solar PV**





# Morgan Stanley

MORGAN STANLEY  
NORTH AMERICA INSIGHT

March 4, 2014

## Clean Tech, Utilities & Autos

### Batteries + Distributed Gen. May Be a Negative for Utilities

Improvements in batteries and distributed generation could partly or completely eliminate some customers' usage of the power grid. We see the greatest potential for such disruption in the West, Southwest, and mid-Atlantic.

#### MORGAN STANLEY RESEARCH NORTH AMERICA

Morgan Stanley & Co. LLC

#### Stephen C Byrd

Stephen.Byrd@morganstanley.com  
+1 212 761 3865

#### Adam Jonas, CFA

Adam.Jonas@morganstanley.com  
+1 212 761 1726

#### Simon Flannery

Simon.Flannery@morganstanley.com  
+1 212 761 6432

#### Timothy Radcliff

Timothy.Radcliff@morganstanley.com  
+1 212 761 4139

#### Industry Views

Industry	Industry View
Autos & Auto-Related	In-Line
Clean Tech	In-Line
Diversified Utilities / IPPs	In-Line
Regulated Utilities	In-Line

#### California Solar Competitiveness

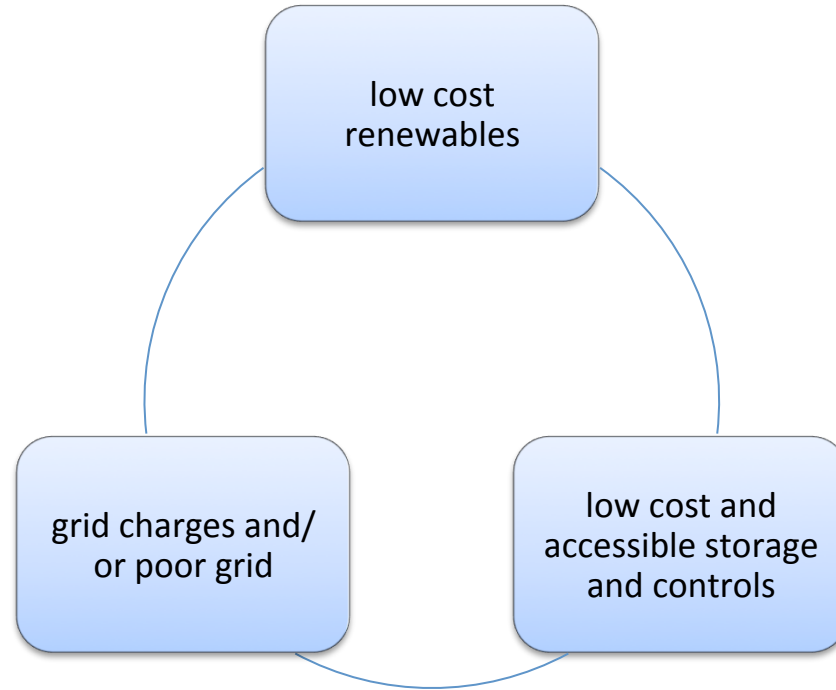


Source: Morgan Stanley

Under threat, Germany's second-biggest utility says it will create a new 'prosumer business model'

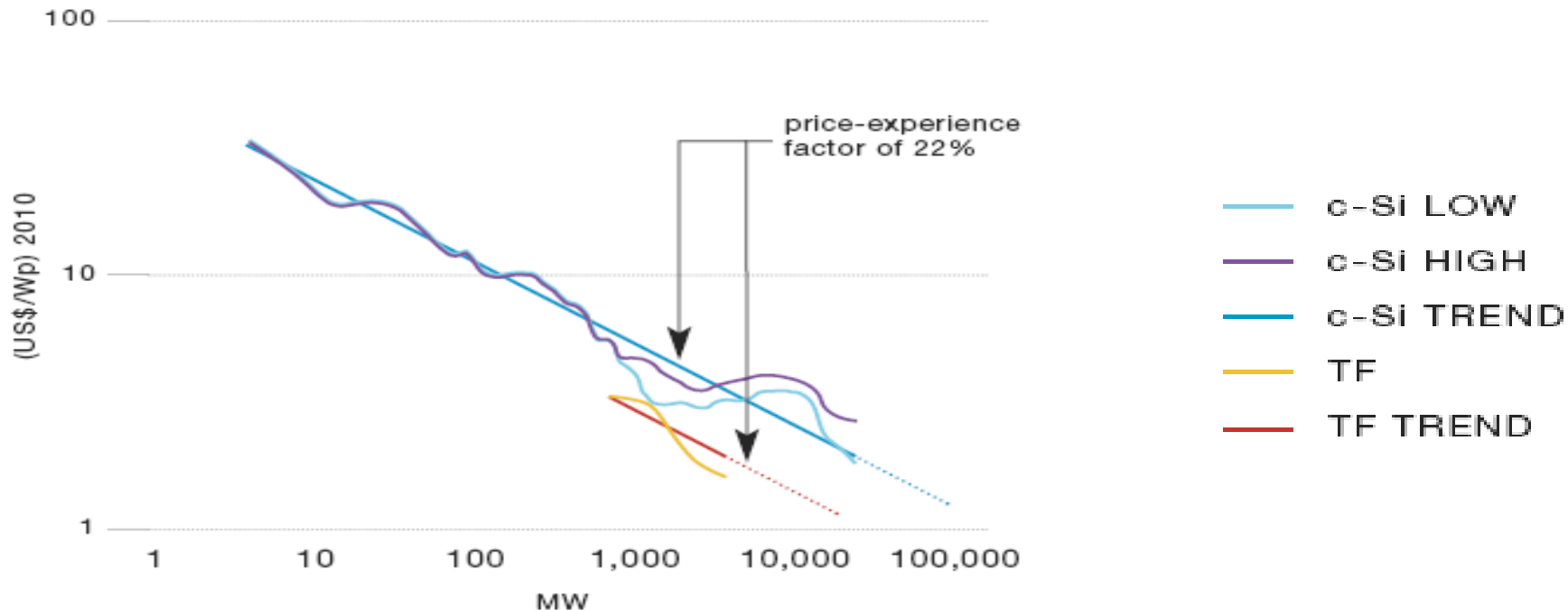


- “The massive erosion of wholesale prices caused by the growth of German photovoltaics constitutes a serious problem for RWE which may even threaten the company’s survival,” wrote the utility in a recent strategy paper.
- Clearly, the management of RWE, until recently seen as one of the “dirtiest” energy companies in Europe, has decided once and for all to leave its past behind and embrace a future in which it believes renewable and increasingly decentralized forms of energy will dominate.
- RWE indicated that they will no longer invest in fossil power generation as of 2018.





22% cost reduction each time installs double



## OVERVIEW

## PRODUCTS



## Contact

**SMA Solar UK Ltd**

Unit 2B, Gemini Building  
Sunrise Parkway, Linford Wood  
Milton Keynes MK14 6NP

[www.SMA-UK.com](http://www.SMA-UK.com)

**For enquiries and general information:**

Tel: +44 1908 304850

Fax: +44 1908 304851

E-mail: [info@SMA-UK.com](mailto:info@SMA-UK.com)

**For sales enquiries:**

E-mail: [sales@SMA-UK.com](mailto:sales@SMA-UK.com)

**For technical sales and design:**

E-mail: [TSS@SMA-UK.com](mailto:TSS@SMA-UK.com)

**Off-Grid Solutions**

Here you will find comprehensive system solutions for an autonomous power supply. System components used in such applications include, for instance, Sunny Island inverters in the role of grid and battery manager, inverters for PV, small wind turbine and fuel cell systems and the appropriate monitoring products.

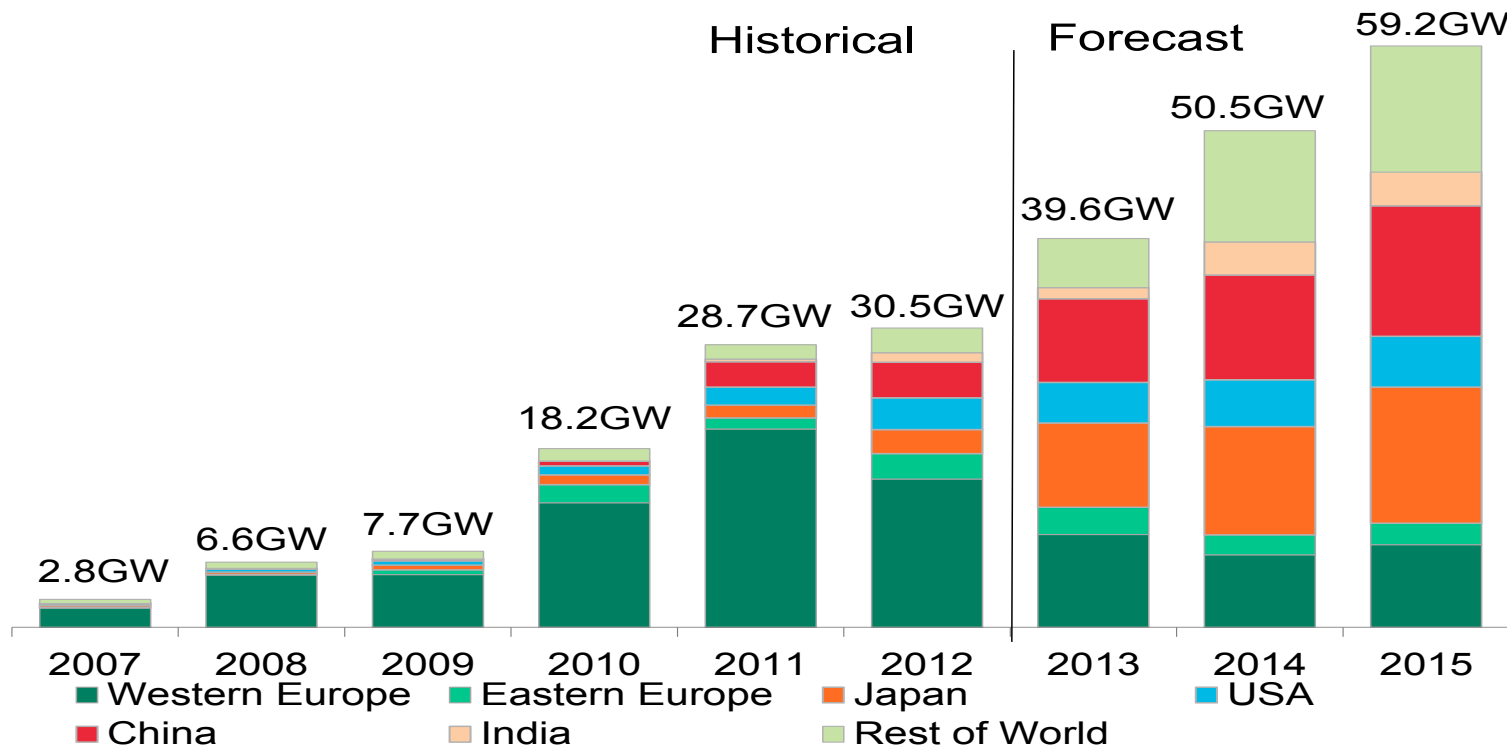
And even for grid-tie batteries, SMA's Sunny Backup system is a tried and tested, scalable product solution which includes reliable protection against grid failures.

**Self-sufficient energy supplies for the whole world**

There are still more than two billion people in the world who have no access to electricity and are thus in effect cut off from most of the achievements of modern civilization. After all, many things are dependent on an electricity supply, including clean drinking water, education, health and economic development.

With our products for off-grid systems, we provide a clean and extremely cost-effective solution to this problem. Particularly, when the costs not only for initial acquisition, but also for maintenance and operation are included in the equation. Off-grid systems are a viable option for all regions in which connection to a national power distribution grid is too costly or not technically feasible. This is an important market of the future which left its niche existence behind long ago.

# Solar growth to 2015



# East Africa's largest solar installation





### The Gaws

Powered Since: Nov. 2008

Rooftop System: 2.4 kW

EST. ANNUAL POWER GENERATION

**3,155** kWh

## Solar Power for your Home

**You simply pay for your solar power by the month, just like your utility bill, only lower**

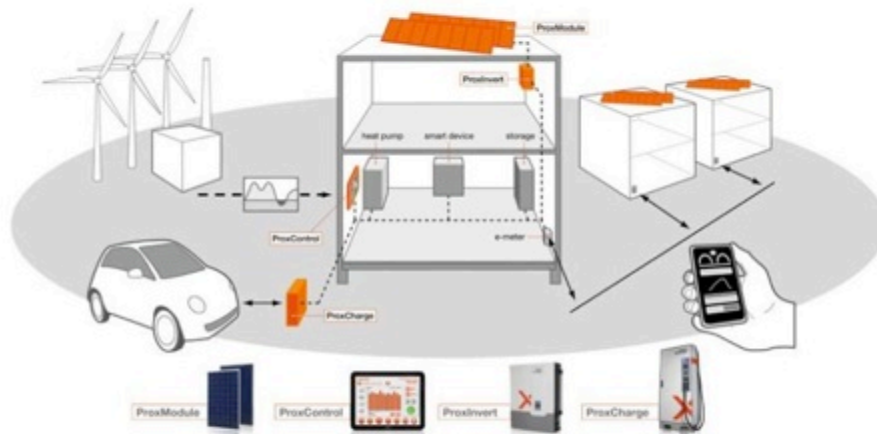
Pay less for electricity today and your savings can grow over time as utility rates continue to increase. More homeowners nationwide choose SolarCity than any other solar provider.\* SolarCity will install your system for free. Every 5 minutes someone makes the switch to clean energy with SolarCity. Join the movement today by adding

Source: SolarCity website

**High utility bills?**  
*switch to* clean, more



## PERSONAL SMART GRID



## PERSONAL SMART GRID

All components ProxEnergy offers communicate and cooperate with each other, managed by the **ProxControl®**, to ensure a smoothly running, energy- and cost-efficient personal smart grid.

Several smart grid projects have already been initiated to develop solutions for managing supply and demand in a dynamic and bi-directional fashion. With the **ProxControl®** energy management system, ProxEnergy is currently participating in a real scale local smart grid pilot in the city of Breda in The Netherlands.

The Breda project will measure the readiness of 400 households to change their energy management behaviour. ProxEnergy has developed an intuitive user interface to trigger these residents in actively making choices concerning their energy consumption.

... think investors generally do not appreciate the potential size of the market.