

Welcome to Solar Weekly Insight, presenting the most important developments in the global solar and energy storage industry, ranging from significant industry trends, policies, research, and new technologies to markets and pricing.

This week's edition focuses on Intersolar and ees Europe and major industry trends to be presented at the leading solar industry and energy storage trade shows and conferences in Munich June, 21–24, 2016.

## **BNEF forecasts Solar PV investments to add up to USD 3.4 trillion by 2040**

Low prices for coal and gas are likely to persist, but will fail to prevent a fundamental transformation of the world electricity system over coming decades towards renewable sources such as wind and solar, and towards balancing options such as batteries, according to a long-term forecast from Bloomberg New Energy Finance (BNEF).



*According to NEO 2016, solar PV costs will fall 60 percent by 2040*

Wind and solar costs to fall sharply; Solar PV investments will add up to USD 3.4 trillion by 2040

“Some USD 7.8 trillion will be invested globally in renewables between 2016 and 2040, two thirds of the investment in all power generating capacity, but it would require trillions more to bring world emissions onto a track compatible with the United Nations 2°C climate target,” comments Seb Henbest, head of Europe, Middle East and Africa for BNEF, and lead author of NEO 2016. [More](#)

## **Navigant expects global installed grid-coupled energy storage capacity to reach 21.6 GW in 2025**



According to a new report from Navigant Research (Boulder, Colorado, U.S.) global installed energy storage systems (ESSs) capacity for the grid and ancillary services (ESGAS) is expected to grow from 1.1 GW in 2016 to 21.6 GW in 2025.

Grid operators around the world are beginning to recognize the value that large-scale ESSs can provide, and utility-scale energy storage is expected to continue breaking into the mainstream electricity industry this year.

“The ESGAS market is being driven by increasing deployments of renewable energy, efforts to improve reliability, and the overall need to modernize the grid,” says Alex Eller, research analyst with Navigant Research. [More](#)

## **Intersolar Europe, ess Europe 2016 trends:**

### **1. Self-consumption of solar power and storage systems reduces costs of energy**

Self-consumption of independently generated power is becoming profitable in more and more countries due to the falling costs of photovoltaic installations and incentive programs for energy storage. The difference between the price of electricity and electricity production costs makes private generation of solar power particularly advantageous in Hawaii, Denmark and Germany. Storing solar energy produced during the day for consumption at a later point generates significant cost benefits.



Self consumption is an ideal option for commercial “prosumers” in the hotel, retail or chemical industry; skilled trades and even hospitals can profit from a higher self consumption of solar power – or even complete electrical self-sufficiency.

The average commodity price for consumers (including electricity tax) can be in excess of 15 euro cents/kWh, whereas electricity production costs can be 10 euro cents/kWh or less, depending on the location of their photovoltaic installation.

Intersolar Europe presents technology that supports self-consumption of solar power

Self-consumption, which can be increased thanks to energy management systems and battery storage devices, not only allows consumers to cut ties with utilities, but also to improve returns from their own photovoltaic installations.

Manufacturers and systems integrators are showcasing the entire spectrum of innovative solutions for the on-site consumption of solar power at Intersolar Europe in Munich from June 22–24, 2016. The presentations at the Innovation & Application Forum (A2, booth 530) on all three days of the exhibition unveil the latest industry developments.

June 22, 2016 | [AWARD Ceremony](#)

June 22–24, 2016 | [Innovation & Application Forum \(Exhibitor Presentations\)](#)

June 22–24, 2016 | [Smart Renewable Energy Forum](#)

## 2. Photovoltaic energy storage systems on the rise

Storage systems boost the amount of solar power that can be consumed on site and ease the burden on the power grid. Over 20,000 German households are already reaping the benefits of solar storage systems, as the solar power generated on-site costs as little as half the price of power purchased from energy suppliers. These systems also allow domestic users to provide for a significant proportion of their energy consumption with their own solar power during the evening, enabling them to wave goodbye to rising electricity prices.



The German think tank Agora Energiewende (Energy Transformation Initiative) estimates the combined potential of the German market at up to 200 GW of storage capacity. Growth is spurred on by steadily diminishing investment costs.

While predictions see the lion's share lies in the area of battery storage systems for e-mobility, single home storage systems and storage devices for commercial applications and balancing reserves are also unlocking enormous market potential with their output of up to 68 GW.

The Intersolar and ees Europe exhibitions are showcasing the entire spectrum of innovative storage solutions in Munich from June 22–24, 2016. Expert presentations at the ees Forum on all three days of the exhibition keep visitors up to date with the latest industry news and information. The program for the ees Europe Conference, which takes place from June 21–22, 2016, includes global market analyses, technological innovations, private and commercial applications as well as topics relating to battery production and safety.

June 21–22, 2016 | [ees Europe Conference](#)

June 22–24, 2016 | [ees Forum](#)

## 3. Grid integration

The global expansion of photovoltaics and wind energy in new and established markets alike requires the grid integration of both private solar installations and multi-megawatt power plants.

In Europe, for instance, photovoltaic systems are already feeding a total output of almost 100 gigawatts (GW) of solar power into the grid. In Germany alone, PV installations producing around 41 GW and wind power plants with 42 GW are connected to the grid. To interconnect the numerous renewable energy installations and to balance out the temporal fluctuations in energy production, an intelligent infrastructure with storage options is required.



PV plants, inverters and battery storage systems can and must provide system services, for example through helping to maintain voltage stability in the power grid or regulating voltage in the event of a failure in the grid.

In addition to small storage systems and battery storage systems for domestic power supply, virtual power plants and interconnected large-scale storage system are already being used to provide the public grid with balancing power.

Grid integration solutions are being exhibited at Intersolar 2016 by suppliers of PV systems technologies and trading and marketing services in halls B2 and B3.

#### 4. Large-scale PV plants spur on worldwide solar boom

Dramatically falling costs are driving the global solar boom. In many regions, the levelized cost of energy (LCOE) produced from solar power is now the same as, or even lower than, that of energy from fossil fuels. In fact, large-scale PV power plants can generate solar power for as little as 0.08 US dollars/kWh.



All continents are showing trends towards large-scale PV power plants with high, double-digit – or even three-digit – megawatt capacities in both new and established markets.

At Intersolar Europe 2016, experienced international PV project developers are showcasing solutions for complex multi-megawatt projects, solar-diesel hybrid systems and power plants with large-scale storage devices and energy management systems. Two other sessions at the Intersolar Europe Conference discuss the experience gained through planning, financing, operating and maintaining major photovoltaic power plants.

Large-scale PV projects at the exhibition and the Intersolar Europe Conference

June 21, 2016 | [PV Power Plants: Asset Management](#)

June 22, 2016 | [Renewable Energy Hybrid Plants: Coming of Age](#)

#### 5. Smart Renewable Energy

The major challenges facing the sustainable energy industry are the digitalization and networking of technologies. The modern energy supply is both smart and renewable. Photovoltaics (PV) is booming worldwide: According to SolarPower Europe, over 50 gigawatts (GW) of new PV capacity were added worldwide in 2015, including 8 GW installed in Europe. The total global capacity has reached approximately 228 GW, around 100 GW of which are in Europe.



Millions of decentralized renewable energy plants, storage systems and consumers who draw power not just from the grid, but also use environmentally friendly methods to generate power – this is the energy world of the future.

Consumption and generation are automatically analyzed and optimized, creating smart energy. Large-scale storage systems and intelligent networks are already being combined with decentralized photovoltaic installations and battery storage systems for domestic power supply to provide the public grid with balancing power.

Intersolar and ees Europe 2016 will present systems and communication technologies, and new services and business models – including small and large electrical storage systems, intelligent transformers and virtual power plants.

Smart Renewable Energy at Intersolar Europe 2016

June 22, 2016 | [Smart Renewable Sessions \(Conference\)](#)

June 22–24, 2016 | [Smart Renewable Energy Forum](#)

June 22–24, 2016 | [Special Exhibit: Wind Meets Solar and Storage](#)

June 22–24, 2016 | [Special Exhibit: E-Mobility & Renewable Energy](#)

#### Solar Server at Intersolar Europe 2016

Intersolar Europe, the world's leading exhibition for the solar industry, and ees Europe, the continent's largest exhibition for batteries and energy storage systems, are set to open their doors on Wednesday, June 22, 2016 in Munich.

Visit Solar Server at Intersolar Europe 2016: Hall B2; Booth 432. We are looking forward to meeting you in Munich!



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**Publisher:**

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