



The Big Energy Summit 2017 - APSE

WElink Energy

The wider market for
renewable energy

March 2017

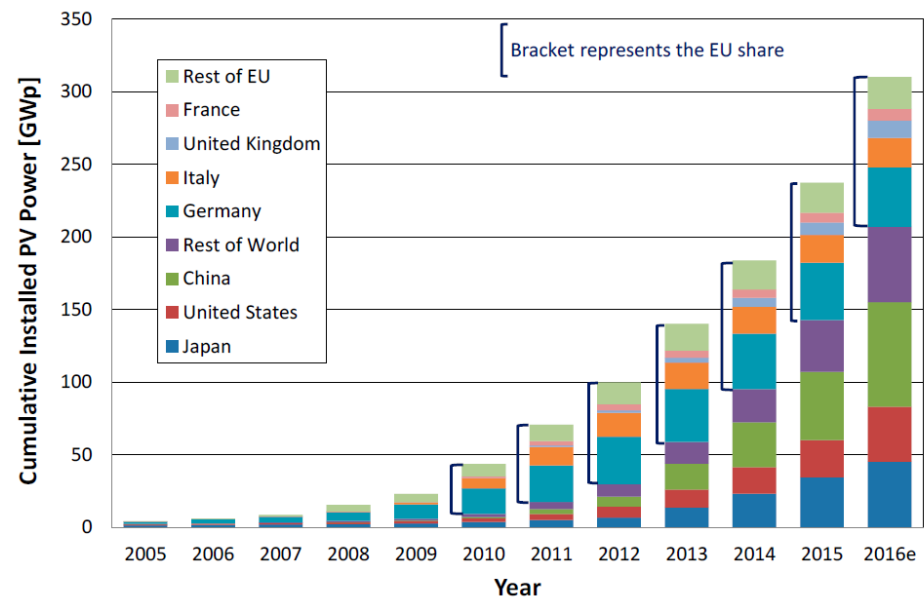
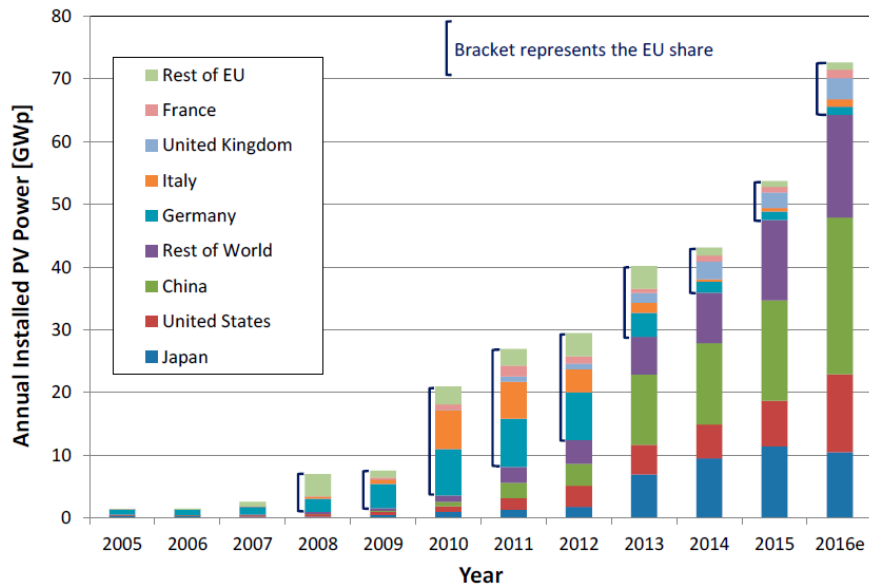


◀ GLOBAL ENERGY SOLUTIONS ▶

Renewable Energy market - Global

What is the current situation of the PV market globally?

- **Evolution of the Global PV Energy market:** USA, China and LATAM are the regions with a highest growth in the last years.

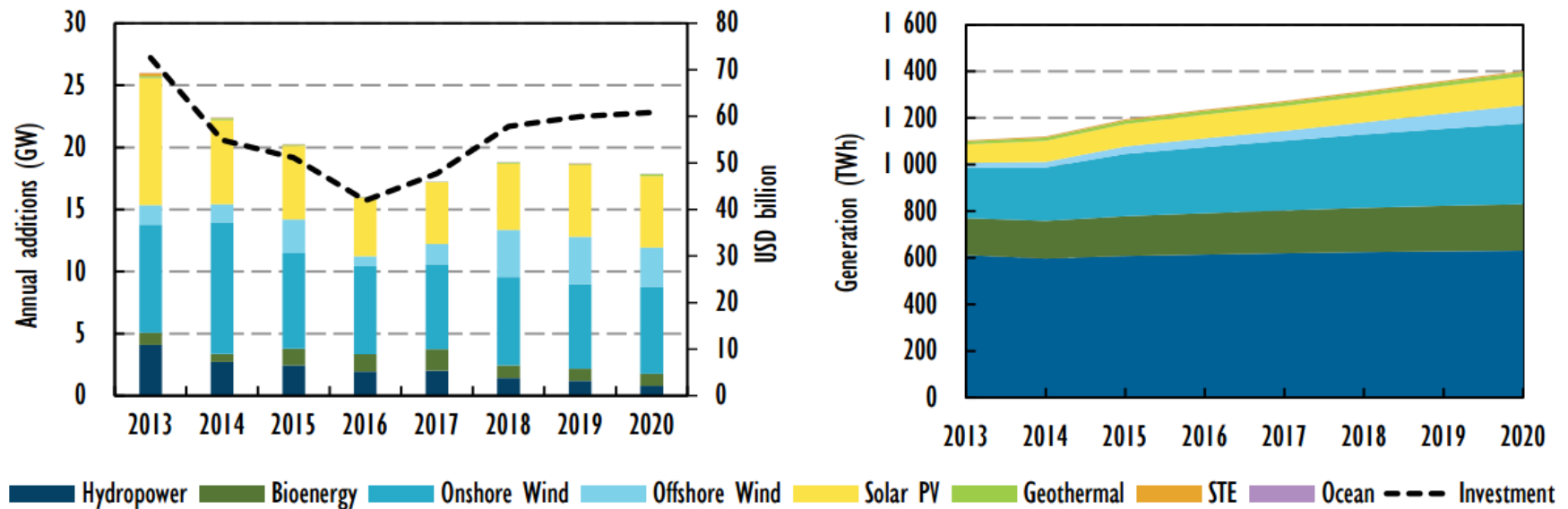


Source: Joint Research Center,
European Commission

Renewable Energy market - Europe

Europe is in transition to a model with no public subsidies to the renewables.

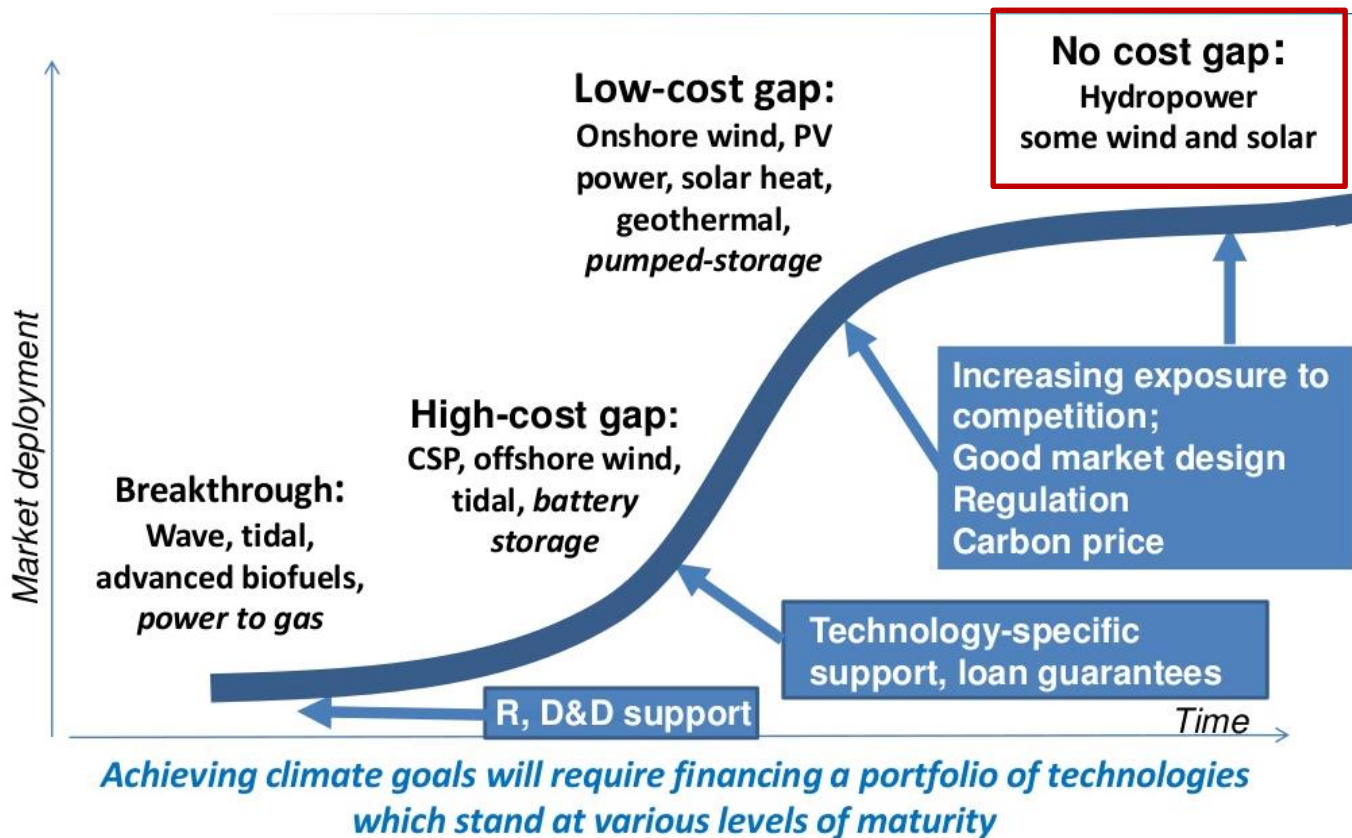
- ▶ High cost of electricity and European objectives for 2020 make PV necessary
- ▶ Evolution of Renewable Energy in Europe (historical & forecasted):



Source: International Energy Agency (EIA)

Evolution of PV market

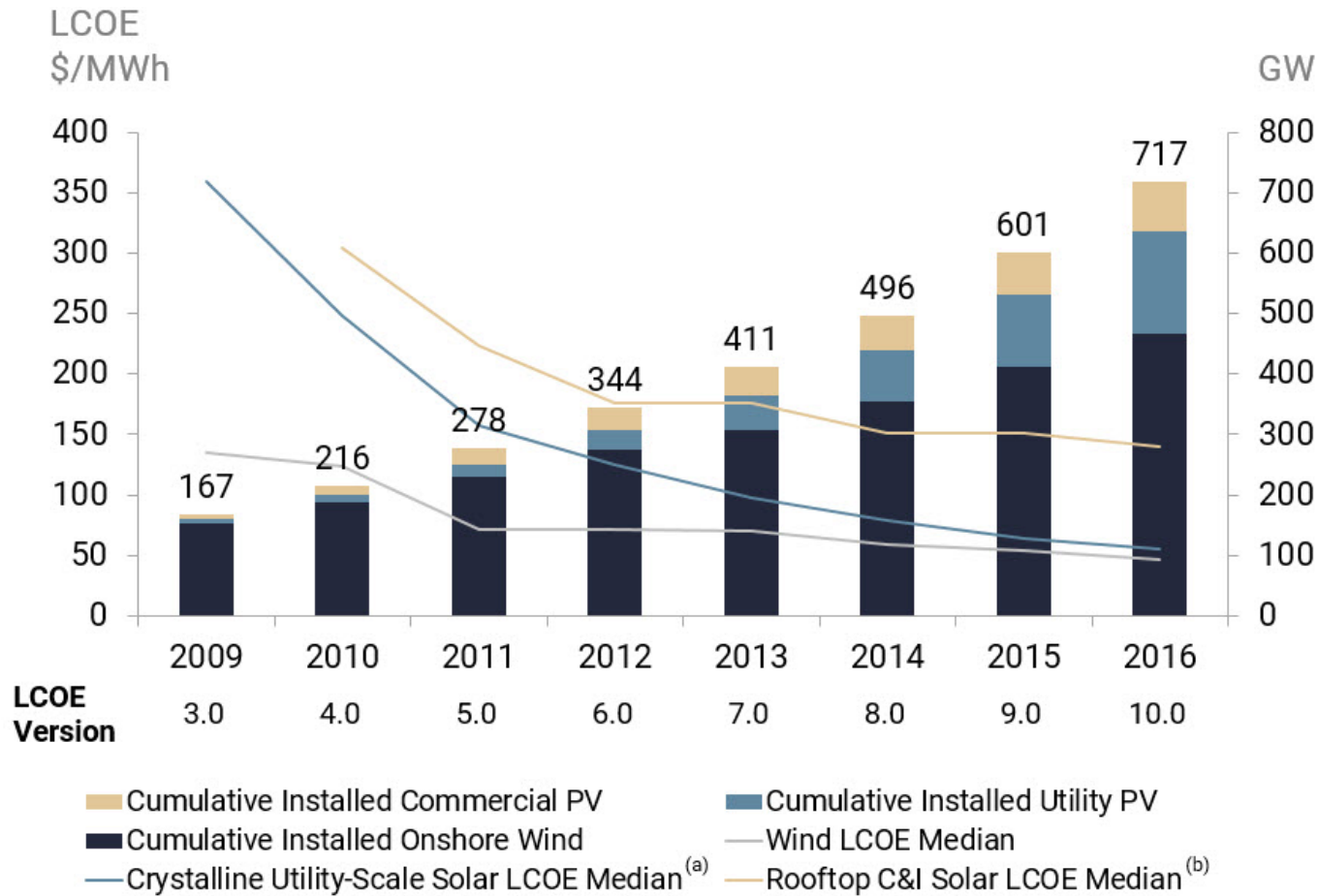
Future beyond incentives? Incentives and subsidies shall be used as a support to promote technologies which are not yet competitive.



PV is already there for some regions

Source: International Energy Agency (EIA)

Evolution of PV market - LCOE



Source: Lazard and BNEF 2016

Evolution of PV market - LCOE

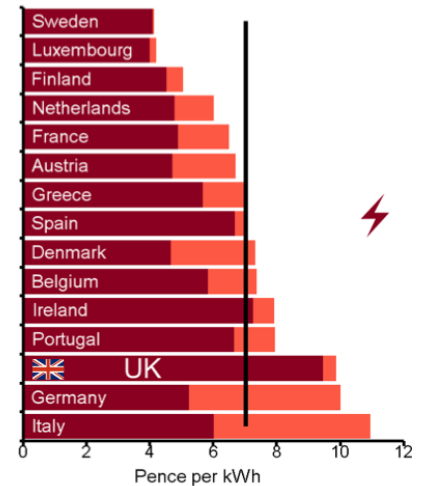
Is PV Energy prepared to survive with no subsidies? LCOE is already highly competitive in areas with high irradiation.



Calculated LCOE values for different insolation conditions. Financial conditions: 80% debt, 5%/a interest rate, 20-year loan tenor, 2%/a inflation rate, 25 years usable system service life.

⚡ Tax Component
■ Price (Excl Tax)
 — EU 15 Median (inc Tax)

Chart 33 Industrial electricity prices



Source: ITRV 2016

Evolution of PV market – Business Models

▶ **Stage 1: Incentives, feed-in tariff and/or tax exemptions to Photovoltaic Energy**

- ▶ Income granted for the whole lifespan
- ▶ High financial security with government back-up
- ▶ Justified to support technologies not yet competitive



▶ **Stage 2: PPA / bilateral contracts**

- ▶ Selling price confirmed (base + index)
- ▶ Well accepted by investors and markets, but risks linked to fulfillment of PPA contract
- ▶ Competitive *Business Model* based on consumer Energy price



▶ **Stage 3: Sale of Energy to pool market**

- ▶ Price subject to market variations and trends
- ▶ Competing with lower energy prices
- ▶ Investors to accept the change of paradigm in the PV market



Welink case 1: Subsidies

STAGE 1: ROCS

Example of PV project with public incentives

- ▶ **Location:** Shropshire, UK
- ▶ **Plant Power:** 9.8 MWp
- ▶ **Type:** PV Ground-mounted
- ▶ **Plant production:** 8,600 MWh / year
- ▶ **Grid connection date:** 2014
- ▶ **Income scheme:** Renewable Obligation Certificate. Public Incentives.



Welink case 2: PPA Contract

STAGE 2: PPA contract

Example of PV project with a private wire connection and PPA contract

- ▶ **Location:** Flintshire, UK
- ▶ **Plant Power:** 70 MWp
- ▶ **Type:** PV Ground-mounted
- ▶ **Plant production:** 65,170 MWh/year
- ▶ **Grid connection date:** 2016
- ▶ **Income scheme:** long-term Power Purchase Agreement with local Industry.



Welink case 3: Sale to pool market

STAGE 3: Sale to pool market

Example of PV Project planned for sale of Energy to pool market

- ▶ **Location:** Vaqueiros, Portugal
- ▶ **Plant Power:** 221 MWp
- ▶ **Type:** PV Ground-mounted
- ▶ **Plant production:** 382,550 MWh/year
- ▶ **Grid connection date:** Estim. 2018
- ▶ **Income scheme:** Sale of Energy to Iberian Pool market.

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WElink and CTIEC to build 220MW solar plant in Portugal

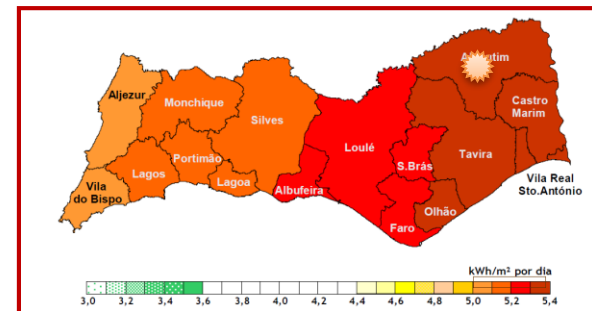
By Tom Kenning | Mar 06, 2017 10:37 AM GMT

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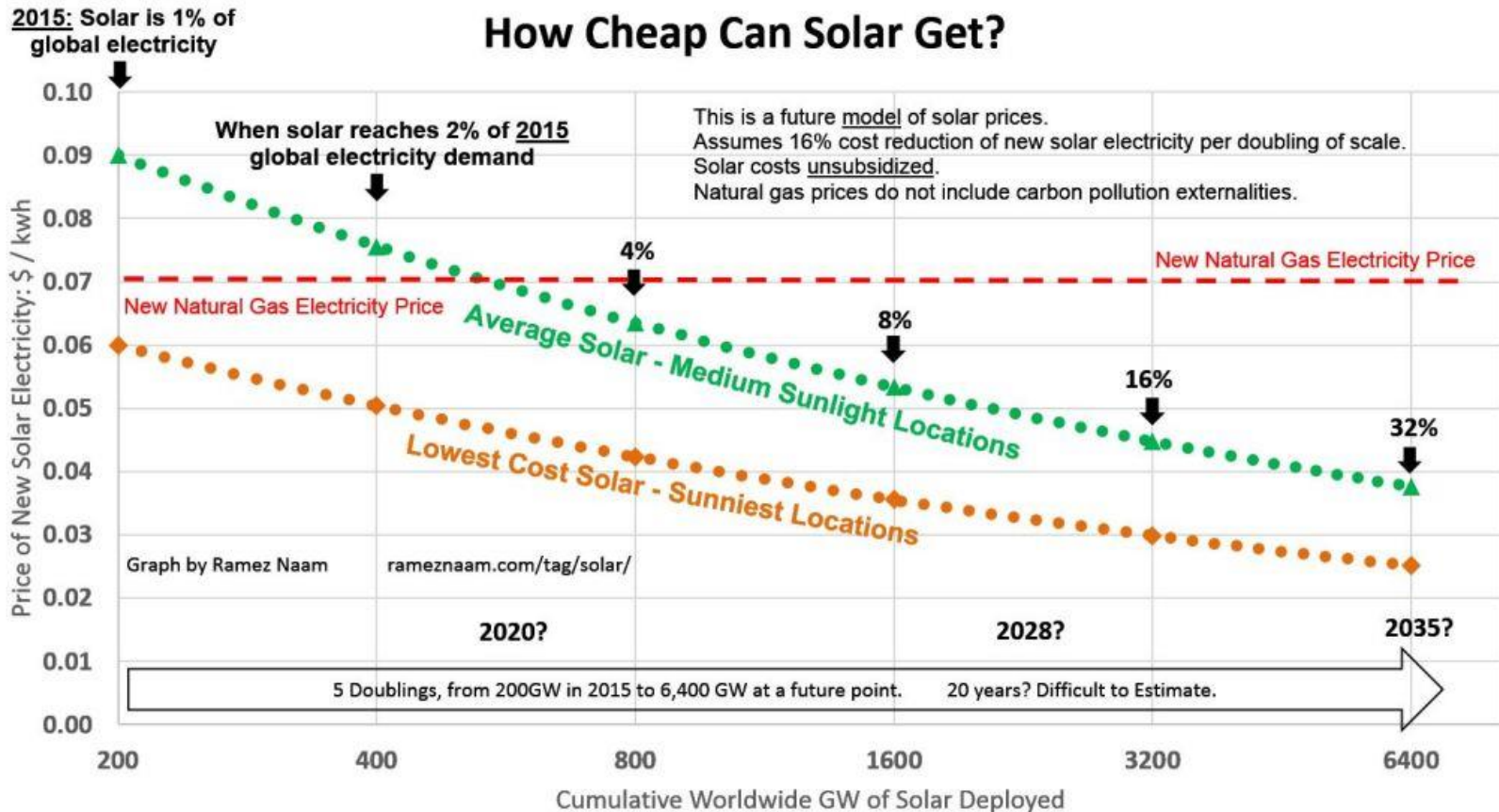
WElink claims this is the largest privately funded PV project in Europe. Credit: WElink

UK-based solar firm WElink Energy will develop a 220MW solar plant in southern Portugal, having signed an EPC agreement with China Triumph International Engineering (CTIEC).



PV Energy Forecast

How Cheap Can Solar Get?





WElink Energy

Your Partner for Meeting
your Energy Needs

Thank you for your
attendance!

