

Solar PV – Latest Developments

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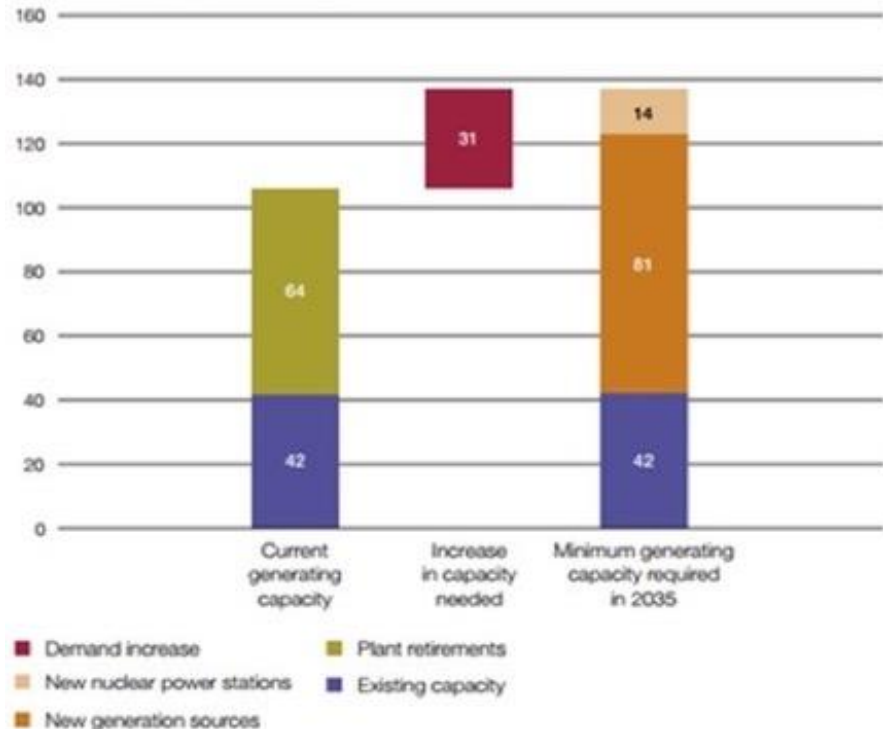
To understand Solar look at our Energy Supply

- Years of no investment
- Existing generation needs replacing
- Grid needs upgrading
- Gas not a secure supply
- Demand increasing
- Fossil fuels cause pollution
- Nuclear – no one to invest without subsidy
- Wind and Solar will increase
- Storage means we can avoid generation to match peak
- Government have no money!

The UK's energy challenge up to 2035

The Department projects that electricity demand may increase at the same time that a large proportion of existing generating capacity retires

Installed capacity (Gigawatts, GW)



Notes

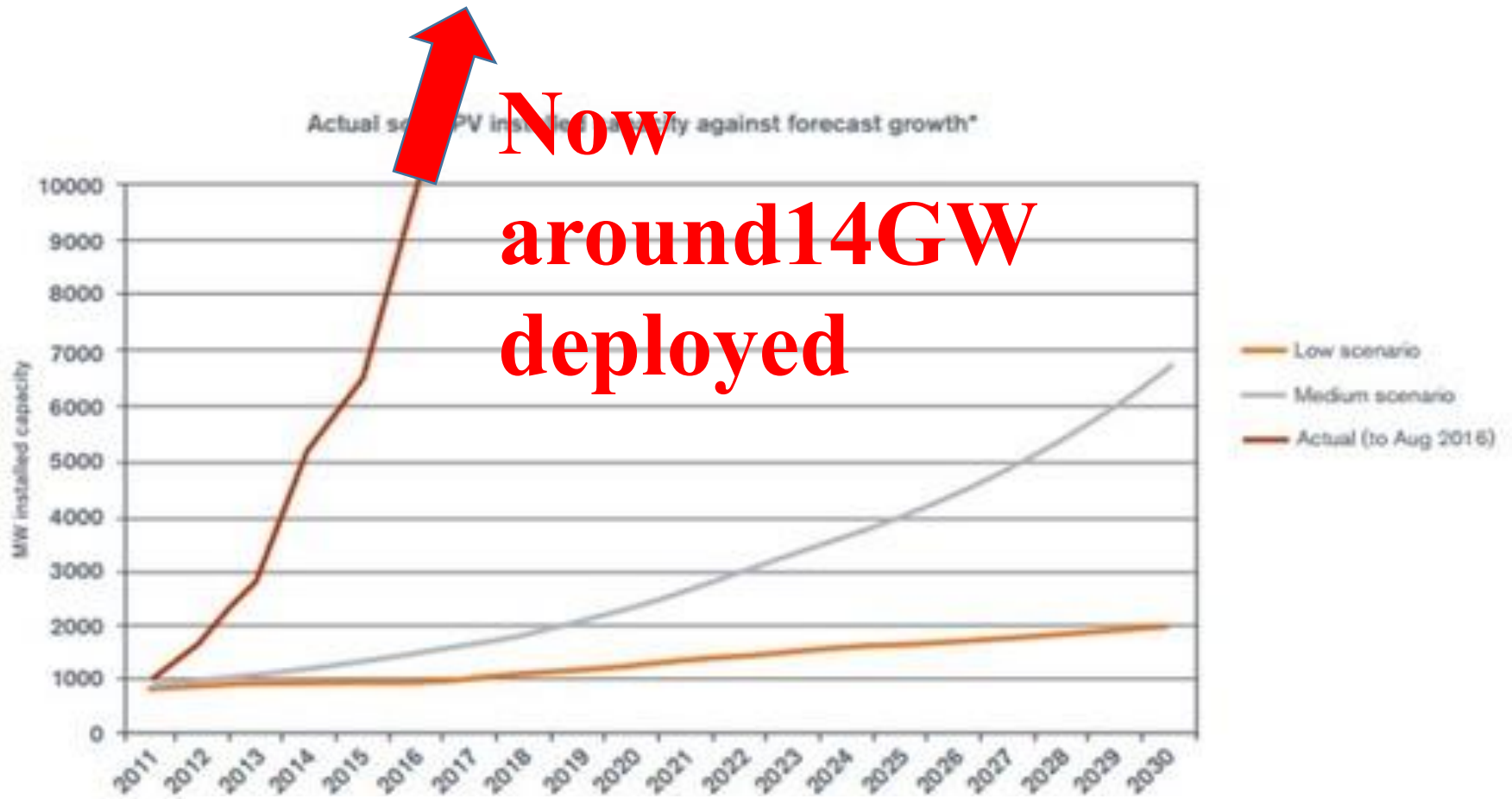
- 1 The Department projects a range of scenarios for the future of electricity generation. This figure uses the scenario based on its central estimate of economic growth and fossil-fuel prices and shows the generating capacity required to meet the Department's security of electricity supply and decarbonisation objectives.
- 2 The figure shows total installed capacity – the maximum electrical output that power generators can produce unadjusted for plant availability and outages.
- 3 New generation sources includes 17 GW from European electricity interconnectors.

Source: National Audit Office analysis of Department of Energy & Climate Change energy and emissions projections data

UK & Global Solar Market

- Deployment of Solar in the UK fell off a cliff when subsidies were cut too harshly, however time solves everything!
- Globally Solar manufacturing continues to grow 30% / year due to global demand
- As a result module prices continue to fall
- Global pricing of modules \$0.26c/Wp (£0.20p/Wp)
- MIP (an EU disaster) likely to end in September 2018
- Many ways around MIP using product from Vietnam, Taiwan, etc made by Chinese manufacturers
- Grid parity now reached in Spain, Portugal, Italy, etc and heading North
- Solar Farms in Spain, build cost = £420k/MWp
- Rooftop installations around £500/MWp
- Subsidy “free” Solar for UK is just around the corner
- Solar lifetime in excess of 40 years - not 25 years

Government got it so wrong previously



* Low and Medium Scenarios come from the EA Technology 2012 report "Assessing the Impact of Low Carbon Technologies on Great Britain's Power Distribution Networks". Actual installed capacity is from DECC solar photovoltaics deployment data.

Subsidy “free” Solar – impact on the UK

- Solar Strategy was watered down by Ministers from 22GW to 14GW by 2020 due to budget subsidy concerns
- Government now recognize that – Solar works!! – and heading to be the lowest cost generator even in the UK
- Deployment, without subsidy, means Government have no control over future deployment or records of deployment
- The other technology “game changer” is battery storage – solves intermittency of renewables and allows Solar to provide power at night
- Together, Solar and Storage, could result in excess of 35GW being deployed by 2030 in the UK
- Impact on the UK Energy Strategy (we have no energy strategy is that Government could end up with expensive “stranded assets”
- Expensive standby power contracts and building some new Power stations probably not necessary!!
- Now forming part of our Industrial Strategy!

Other impacts on the UK energy provision

- Solar on Houses, Buildings and Fields is connected to the distribution system and NOT the National Grid
- DNO's want Government to change their rules and divide up / scrap the National Grid – all have vested interests
- However the use of the “wires” is likely to reduce as more customers generate / store and use their own electricity “behind the meter” with no way of recording deployment!
- Technology moving at a rapid pace and the future, 5 years time, will look significantly different but Solar and Storage will be major players
- UK has “light” and “wind” – Solar and Wind compliment each other and presently equate to around 30% of our electricity – look at what is happening in present weather conditions
- Unfortunately, because of “weak” Politicians, Wind generation was forced offshore and therefore connected to the National Grid
- Onshore wind tends to be connected to the distribution system just like Solar

So what does this mean for the LA?

- Solar is recognized to be totally predictable
- Regulations will be changing – Building and Planning rules under total review – once Brexit out of the way!
- Everyone needs electricity (Gas has no future – not a secure energy supply)
- LA's are connected to the distribution system and this creates the opportunities
- You have land, car parks and buildings
- You can influence / dictate future conditions
- You can borrow money at low interest rates
- You can set up as an energy provider
- **But most of all you can set up to have a long term source of revenue!**

The solution is simple

- Install Solar on your land that has no other value – waste sites, poor grade land – provide power to your businesses
- Install Solar on your buildings and houses – Long term benefits are enormous and sell spare energy
- Fuel poor about to be hit with time of use “smart” meters
- Install Solar canopies on your car parks – earn monies from providing EV charging with “clean” energy – lean on Retailers to follow or form JV with LA
- Encourage by imposing Planning rules (Merton) on others in your area – ignore the moaners, particularly House Builders!
- Impose Planning constraints to ensure all new and refurbished buildings maximize the Solar / Storage content as well increase energy efficiency
- Encourage V2G both throughout the day – earn money when not using your EV as well as at peak red zone times

Global Solar moving forward

- Solar predicted to produce 30 to 50% of the worlds electricity by 2050
Intermittency was a problem
- Do not miss the “bus”
- Solar is and will happen and totally disrupt the “old” energy industry
- Ask yourself why are motor manufacturers binning diesel!
- Ask yourself why are BP and Shell are investing in Solar / Wind and EV charging
- Ask yourself why are Power Companies are becoming service industries
- Old forms of power are on there way out – no investors!



Thank You

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