

The Growth of Solar

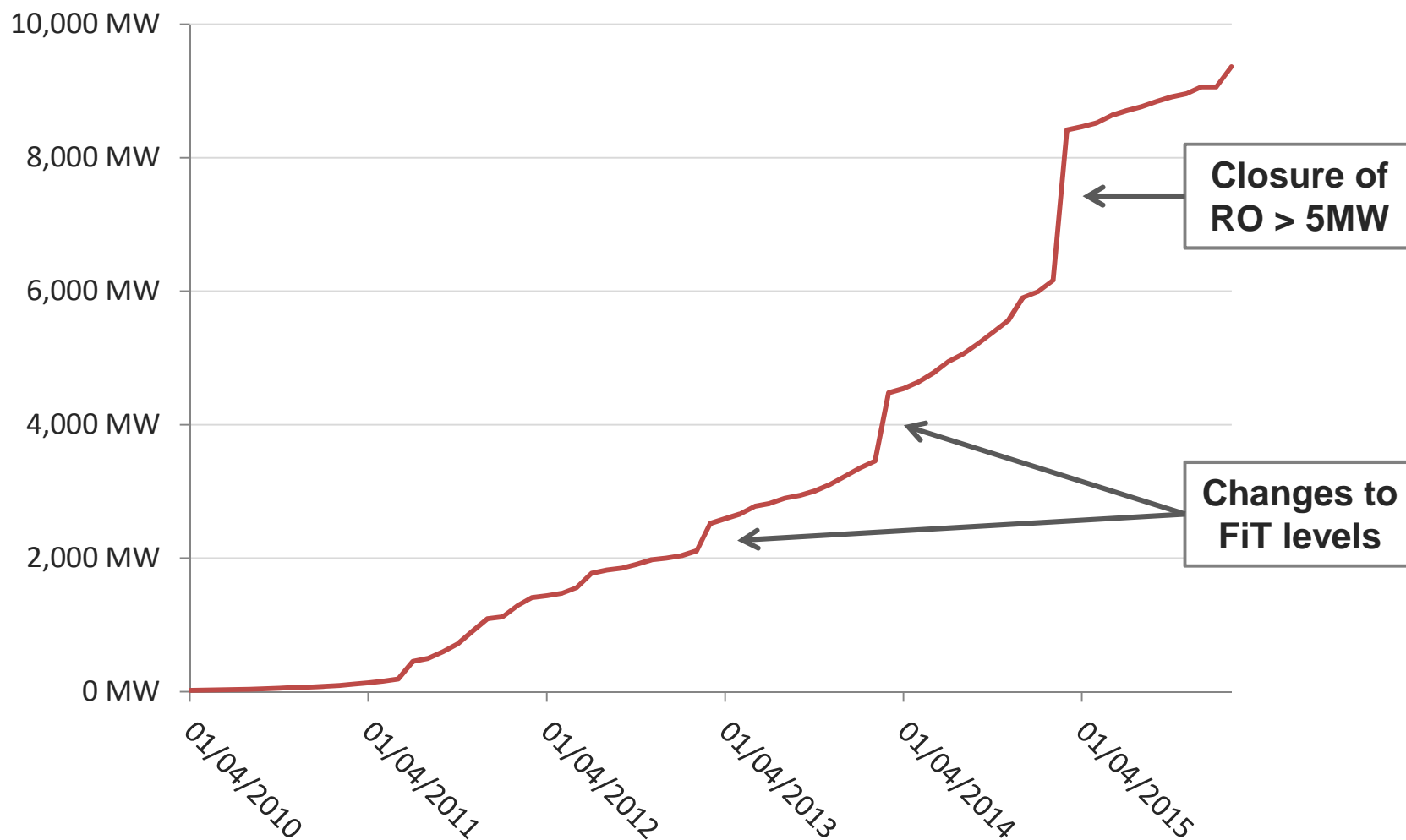
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Jack Barber
Senior Energy Forecaster

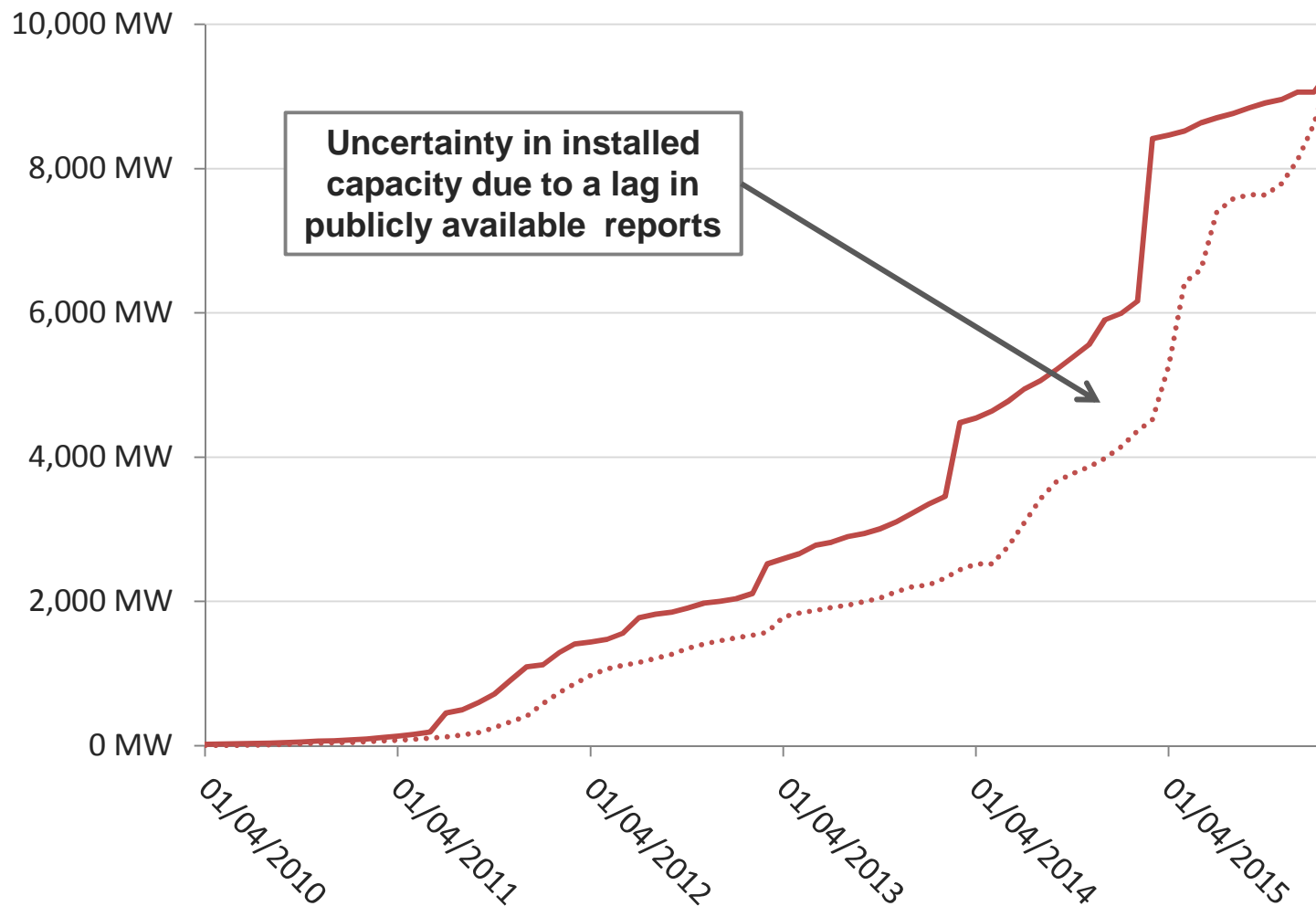
The Growth of Solar

Installed Solar Capacity April 2010 to Present Day



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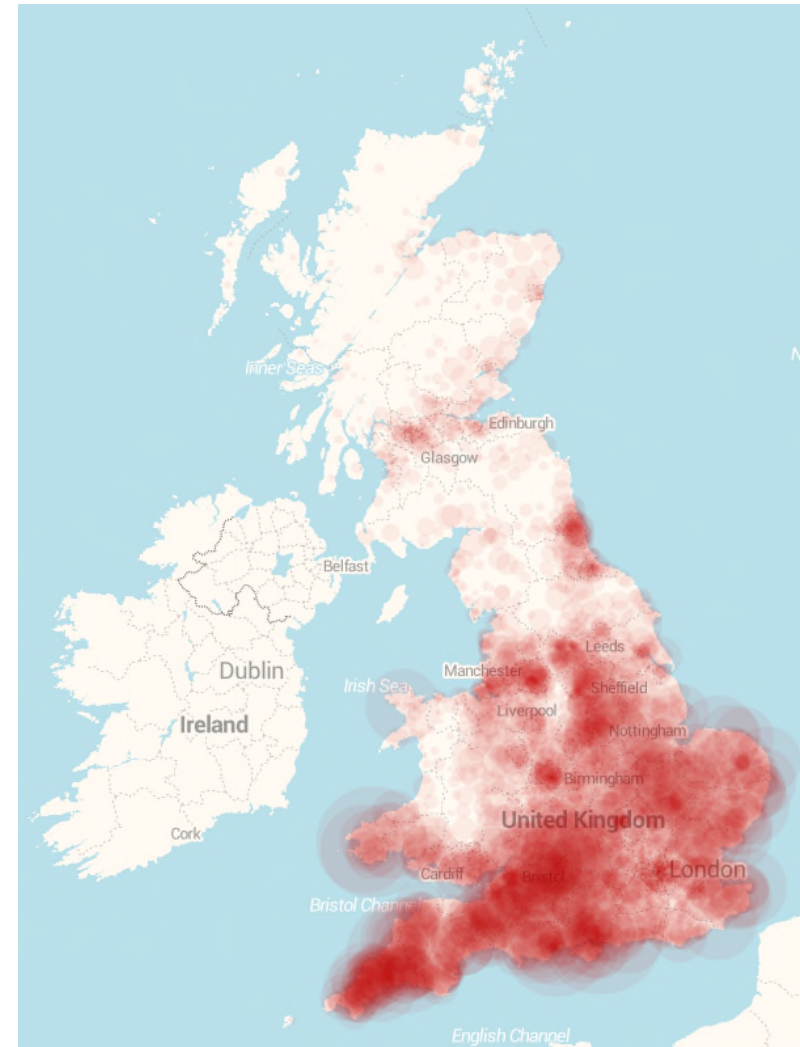
Installed Solar Capacity April 2010 to Present Day



Challenges for National Grid

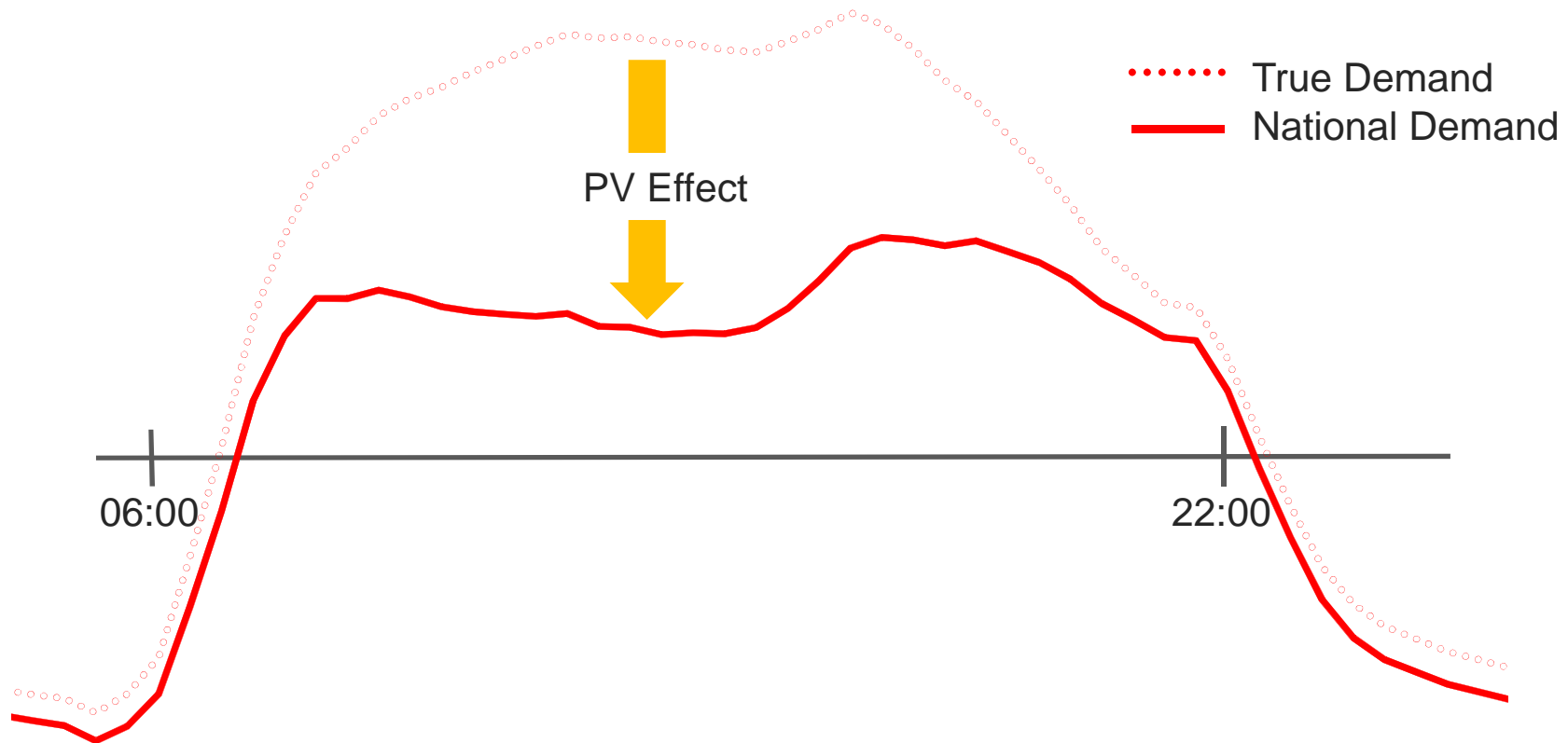
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- More than 700,000 individual sites across GB
- All sites are connected to the distribution network; below Grid Code levels. This means:
 - do not provide metering to the SO;
 - do not participate in the Balancing Mechanism.
- Variable generation, depending on local weather conditions
- Suppresses National Demand and network demands



The Impact on National Demand

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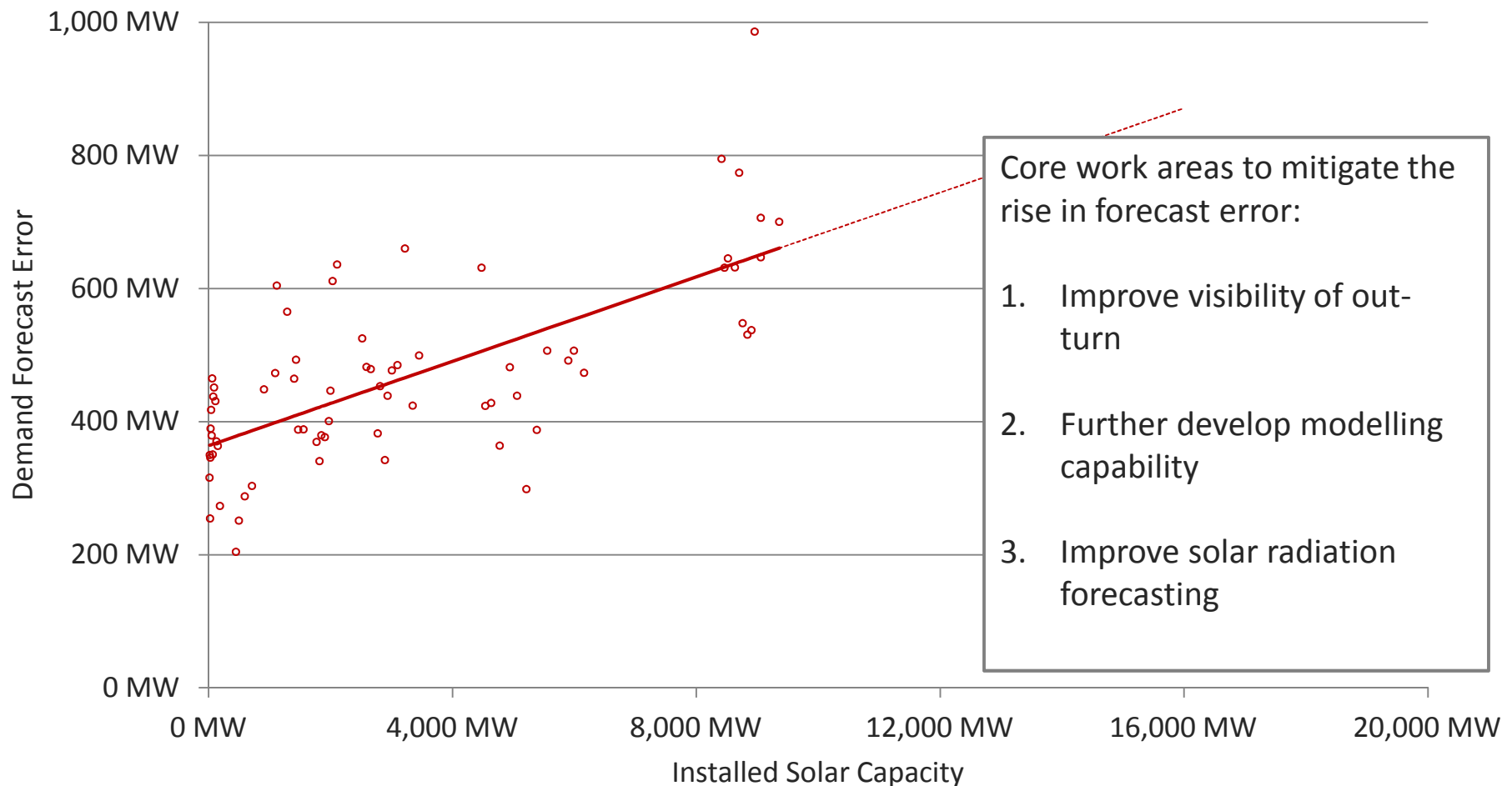


- National Demand shown for a typical summer's day in 2015
- True Demand adds back the estimated unmetered wind and solar generation
- Estimated solar out-turn ~ 7 GW; out of capacity of 8.5 GW

The Impact on Forecasting Afternoon Peak Demand

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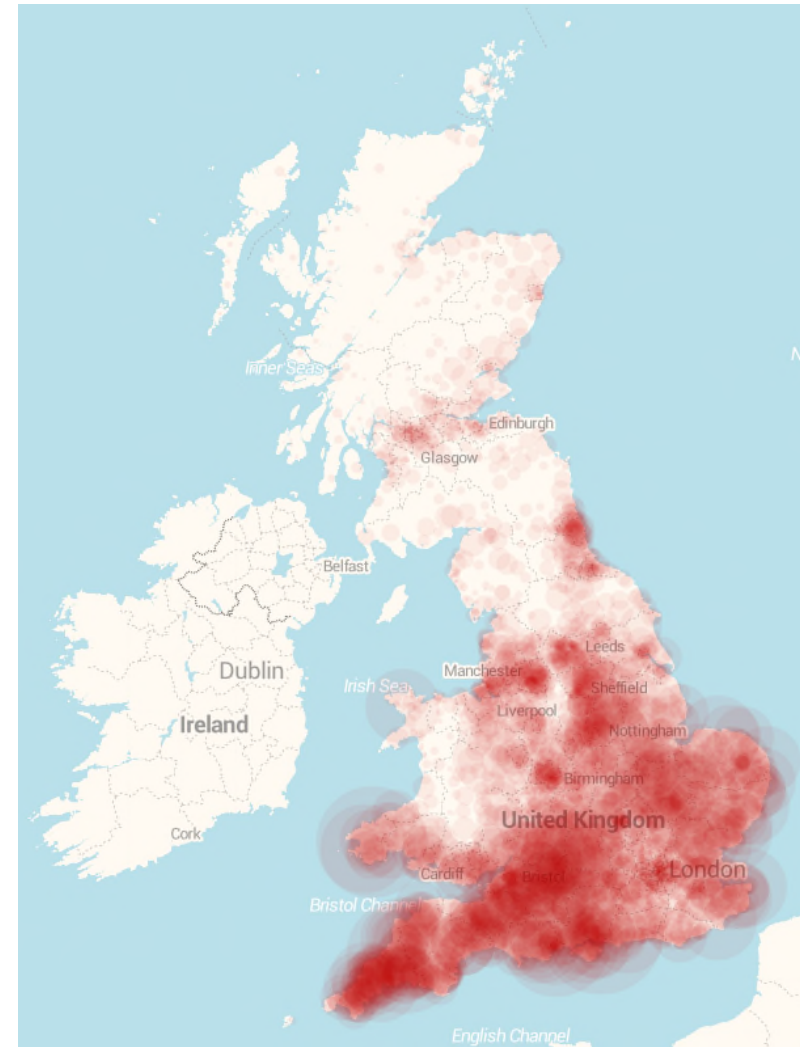
Day Time Demand Forecast Error Vs Installed Solar Capacity



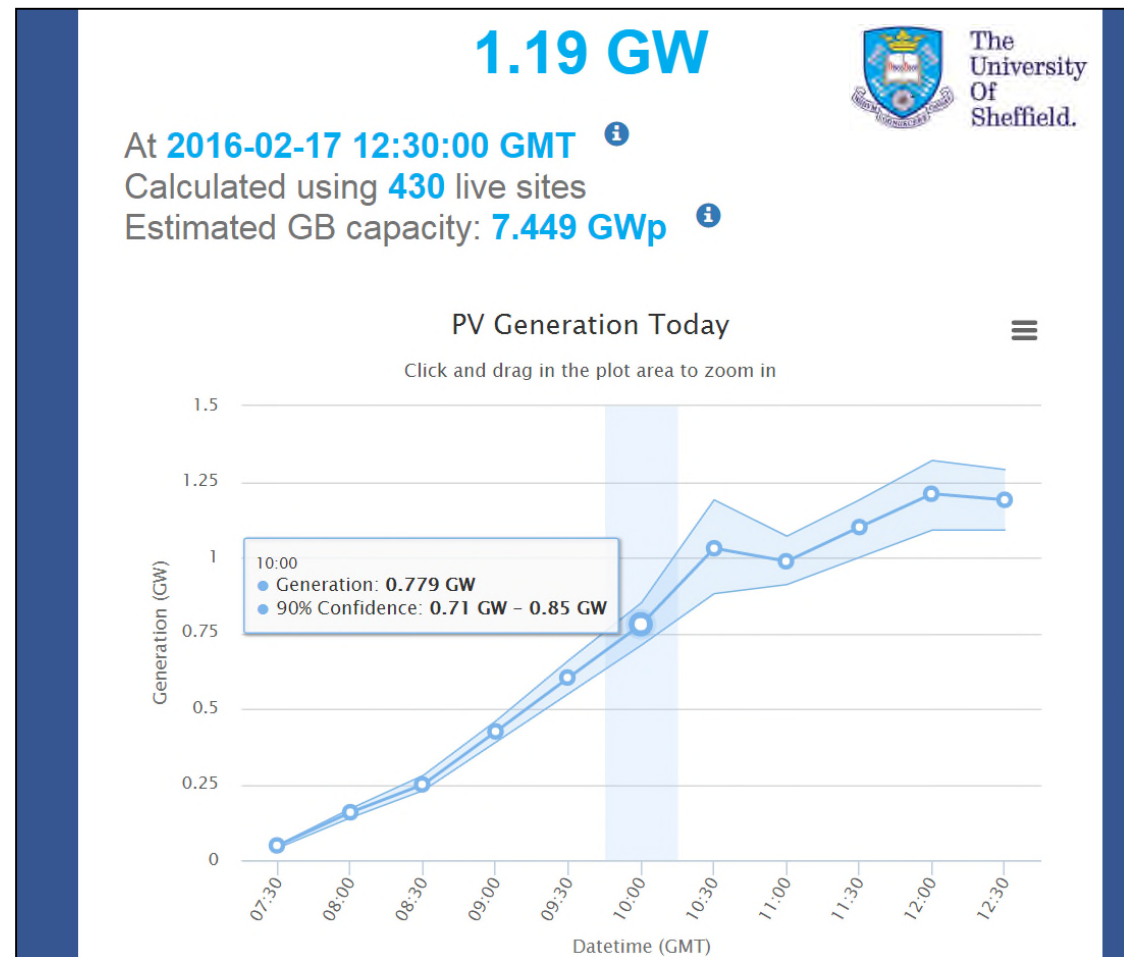
Estimating Out-turn: PV Live

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- New tool for estimating actual solar generation; real-time and historic
- Based on extrapolating metered generation data from a sample of regionally distributed sites; currently uses ~ 500 sites
- NIA funded project with Sheffield Solar; a research group at the University of Sheffield
- Full details on ENA Portal (PV Monitoring Phase 2):
<http://www.smarternetworks.org/Project.aspx?ProjectID=1781>



- All data published on Sheffield Solar website: www.solar.sheffield.ac.uk/pvlive
- Displays live and daily GB output figures
- Web API access available
- Historic data available as download on National Grid's Data Explorer web page
- New solar estimates to replace existing data



Changes to National Grid's Data Explorer

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- Updates to demand data files: DemandData_Historic.csv and DemandData_Update.csv; available at:
<http://www2.nationalgrid.com/UK/Industry-information/Electricity-transmission-operational-data/Data-Explorer/>
- Implementing out-turn data based on PV Live model
- Retrospective update to PV capacity based on latest information
- Refresh of Transmission System demand data (i014_TGSD) following validation
- New fields to show embedded wind capacity, embedded solar capacity

Note: Embedded wind and solar capacity are based on National Grid's best view; and are not definitive

Conclusion

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- GB solar capacity now ~ 9.3GW
- Has significant impact on demand forecast accuracy
- New tool for estimating actual solar generation; real-time and historic.
- New data available through:
 - PV Live website
 - National Grid's Data Explorer
- Changes to the demand data files on the Data Explorer

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Q&A

jack.barber@nationalgrid.com