

Energy security of supply - energy storage opportunities

**A presentation for
SHAP**

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The opportunity of energy storage

Energy storage unlocks a number of opportunities

- Increases energy security
- Increases self consumption of renewable energy generation
- Can offer wider grid services



© Tesla



Energy storage can be in various forms including electricity and heat



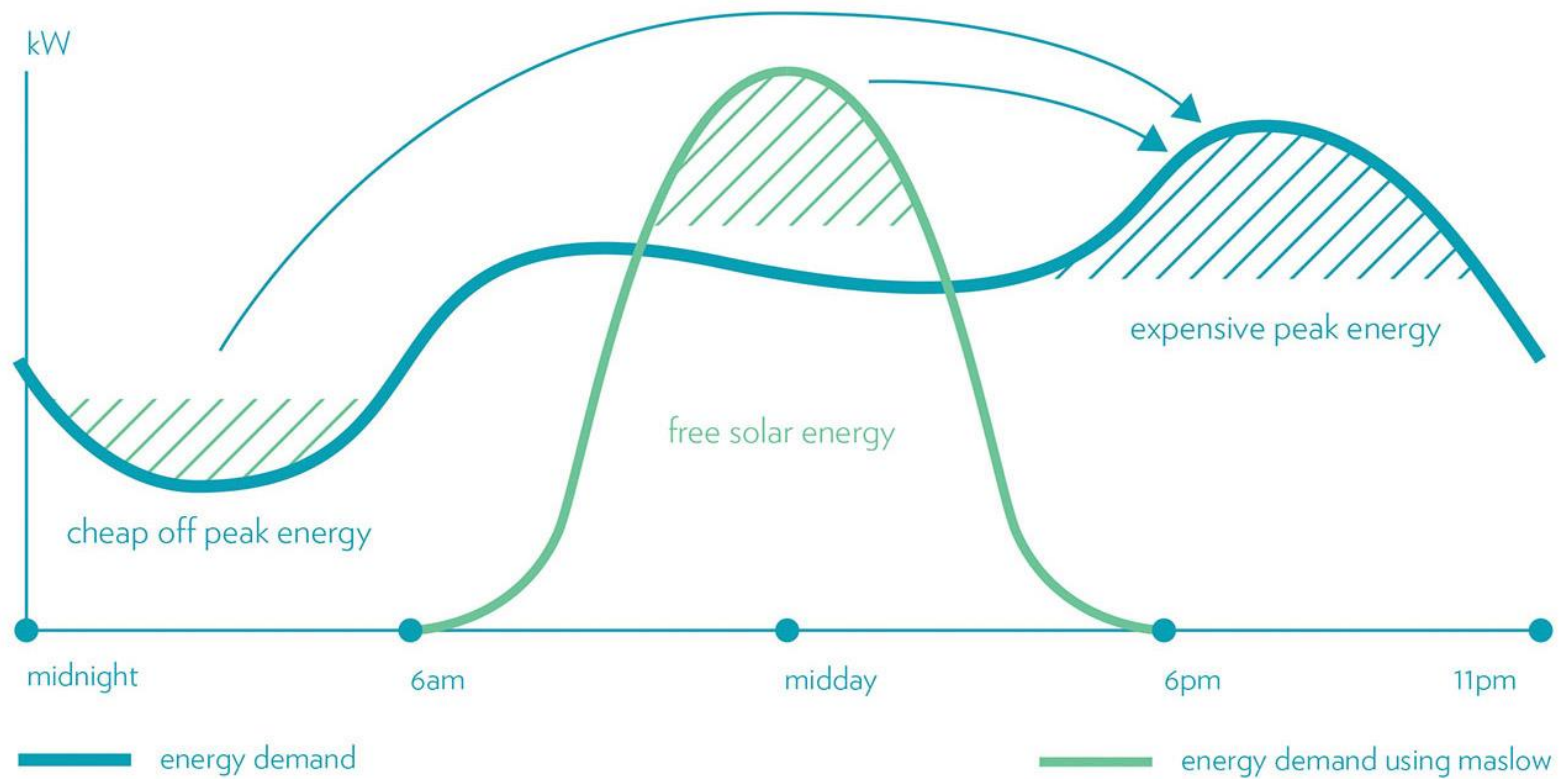
The energy storage market is changing...

Energy storage is traditionally very expensive and difficult to make stack up commercially

BUT...

- Costs of batteries are falling
- Cost of smart controllers and systems are falling faster
- Pressures on national and local grids are increasing meaning more lucrative contracts are being offered for services
- Some interesting commercial models are coming through from new entrant suppliers and other energy agencies

How it might work

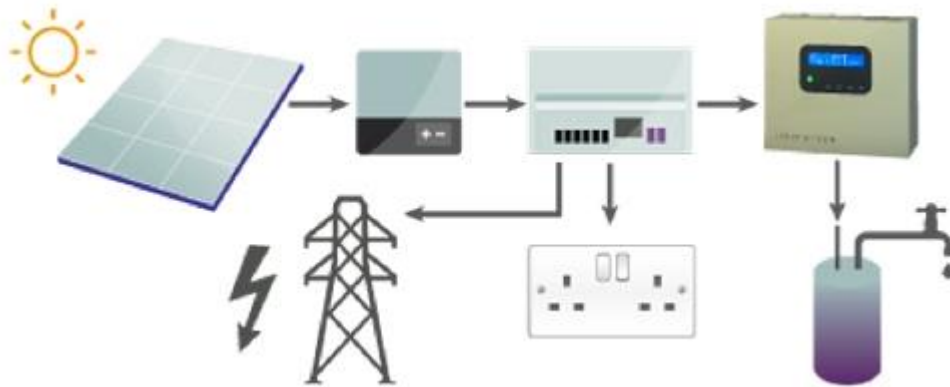


Picture courtesy of Moixa

What does a project involving these technologies look like?

Different technologies will be appropriate in different locations; we recommend you carry out site specific options appraisals to find the approach that suits you best

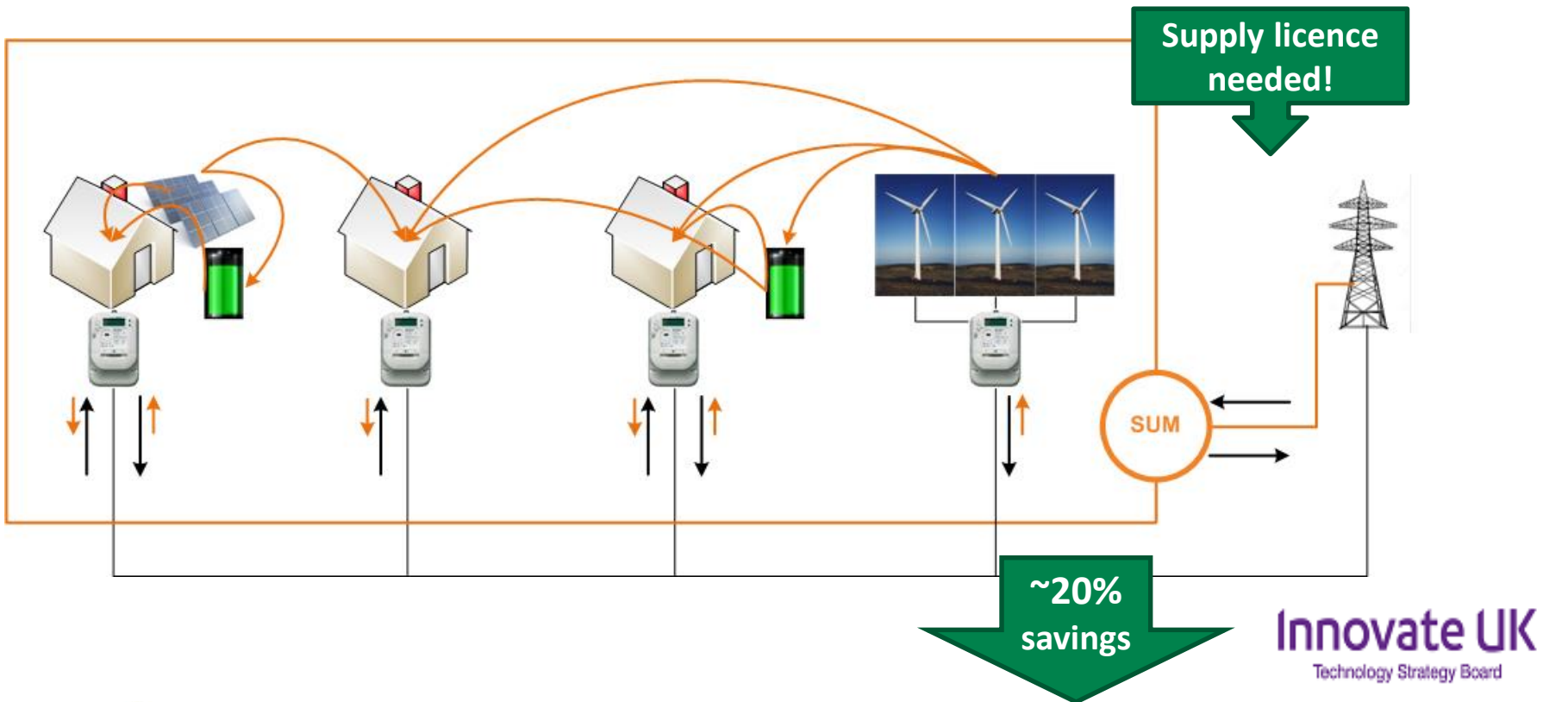
- Individual batteries in each home to improve self-consumption of PV
- Community batteries at the sub-station to optimise energy flows across a community
- Units which divert PV energy to heat when electricity consumption is low



Heat storage works particularly well in off-gas grid homes

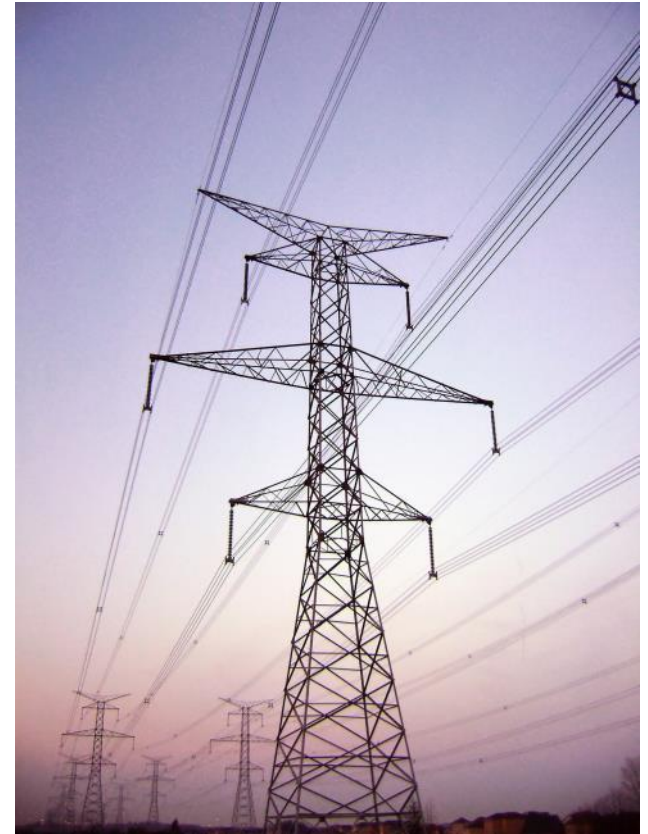
Picture courtesy of Immersun

Empower solution – a virtual private wire network for community benefit



ORCSEN – Optimising Regional Clusters of Smart Energy Networks

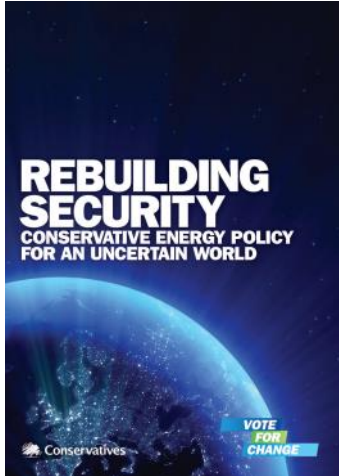
- Encraft along with partners including Western Power Distribution have been commissioned by Innovate UK to carry out a feasibility study on how to control the network at substation level to allow smart grids with distributed generation to connect
- Real data from Wolverhampton used to model the grid interactions
- Results show smart grids could play a significant role in avoiding reinforcement in future networks



Innovate UK
Technology Strategy Board



Batteries will not fully stack up until domestic energy suppliers offer 'time of use' tariffs enabled by smart meters



Commitment to smart meter roll out to all properties by 2020



50 million smart meters across 26 million properties 'the biggest national infrastructure project in our lifetimes'

How will this work?

- Smart meters are provided to customers by their energy supplier
 - They are paid for through a charge on everyone's bill (not passed on directly to the customer)
 - Not all suppliers are in a position to offer smart meters yet
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What else does the future hold?

- **Increase in domestic energy storage**
 - > Batteries
 - > Heat
- **Increasing uptake in smart technologies**
- **Connecting buildings together is the next frontier**



Close

Encraft are always happy to discuss your ideas and concerns, we have a track record of bringing successful energy projects to fruition

Happy to take any questions now, come and talk to me after or contact me on my details below:

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We have a dedicated session on energy storage on Thursday 9th June – please come along to explore the opportunities for your business