

6th Smart Grids & Cleanpower 2014

3-4 June, Cambridge, UK

[www.hvm-uk.com/smartgrids2014](http://www.hvm-uk.com/smartgrids2014)

Buro Happold

# Community Smart Grid

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Described by our clients as 'passionate', 'innovative', 'collaborative' and 'magic' Buro Happold is an independent, international engineering firm with a reputation, built up over the last 40 years, for delivering creative, value led building and city solutions for an ever changing world.

Our global community of driven, world leading engineering professionals deliver elegant solutions for buildings and cities that address the major problems facing societies today.

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# Domestic Electricity Demand Side Management

- Transition to low carbon electricity supply, and electrification of transport and heat is likely to make this increasingly valuable
- Roll out of smart meters will make this possible



# Community Energy



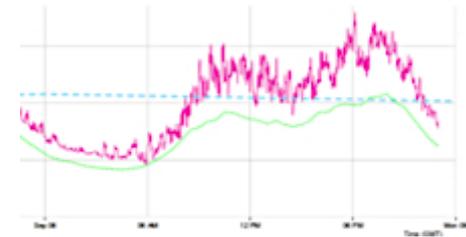
## Community Energy Strategy: Full Report

27 January 2014

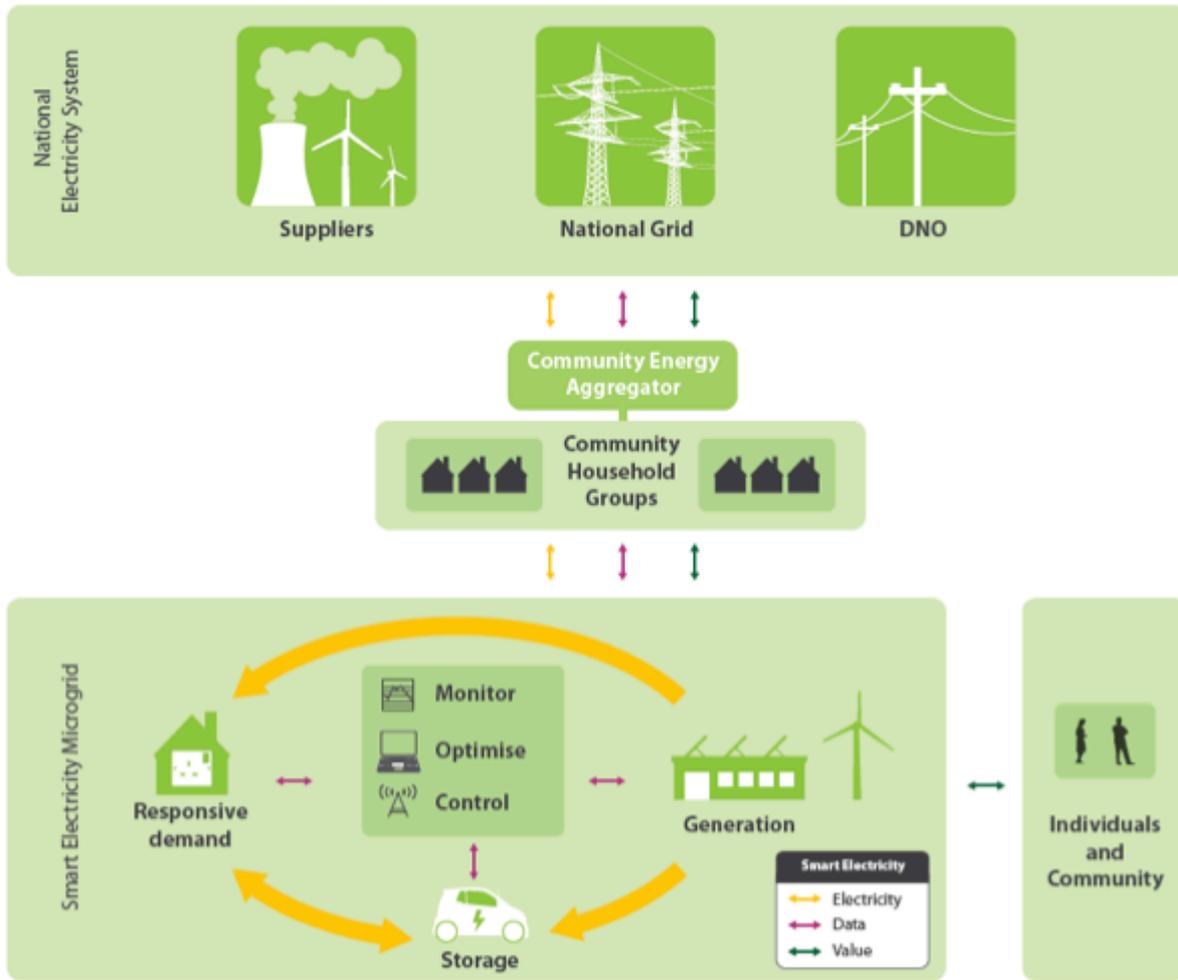


## Why community demand response?

- Local demand management challenges
- Identification of aggregate events more feasible than household
- Evidence for community activity as effective for change:
  - Shifts in patterns of consumption beyond individual behaviour
  - Ostrom's Common Pool Resource management principles
  - Non-monetary incentives such as peer pressure and appeal to common good
  - Face to face relationships are good for peer support and knowledge sharing
  - Trusted community group as single local interface for energy – engagement, understanding and local benefits







Proposed solution: Community Owned Aggregator

## Additional value of a Community Owned Aggregator

- Community cohesion and social trust
- Empowerment and participation, and local control
- Money staying in the local economy
- Supporting grassroots social entrepreneurship
- Fair reward for community demand response



## Conclusion

- Domestic DSM will have most value in future, especially a scenario with
  - local energy markets,
  - electric vehicles,
  - peer to peer trading of electricity,
  - distributed generation and storage
- Market and regulatory barriers
  - There is research and pressure to change these
- These questions are timely
  - smart grid roll out
  - definitions currently taking place
  - opportunity for transformation of how we deliver electricity services
- Not thinking about community engagement, trust and data management could mean full value of smart meters is not realised.
- Need to test further through real pilot and more detailed modelling
  - This requires research funding



## Challenges

- Difficult to monetise value
  - Many different streams, conflict in stakeholder interests
- Legislation and regulatory barriers
  - Regulation does not recognise community energy
- Potentially large positive externalities, value that is widely distributed
  - Difficult to quantify
  - Potentially important for engagement and trust



# This is a live area of research

smartcommunities.org.uk

**Smart Communities**  
Don't forget to tell your neighbours!

Home | About | Register | Team

### Welcome

Smart Communities is a community action project in Kingston upon Thames, south west London all about saving energy in the home. We're unique because we focus on the community working together to change the way we do everyday things at home - like lighting, heating, cleaning, and entertaining - so it we use less energy. [More >](#)

**Get started**

- Register now
- Helpline/Contact



Customer-Led Network Revolution

leading the way to lower energy bills and a low carbon world

The UK's largest smart grid project is in the forefront of the move towards a low carbon economy. 12,000 homes and businesses, mostly in the North East and Yorkshire, will be involved in this innovative £14 million project, helping us to find ways for customers to reduce both their energy costs and carbon emissions in the years to come.

- Why are we doing this?
- What is in it for you?
- Knowledge zone
- Industry zone

Logos: LCN Fund, Northern Powergrid, British Gas, Durham University, Newcastle University, eQ

lessismore.org.uk

## Less is more

Less is More is a pilot project exploring a new approach to energy demand management. The aim is to help communities reduce their electricity use, especially at peak times - and particularly to smooth out the 'highs and lows' of electricity demand.

It works at the level of electricity substations. A substation has to be able to supply enough power to meet 'peak' demand - usually from about 07:00 to 09:00 and then from 18:00 to 22:00. But upgrading electricity substations to meet the peak, only for demand to fall during other hours, is expensive and inefficient. If we can reduce the peaks, we'll reduce bills and reduce upgrade costs.

The different communities have been selected for the project:

- Greenbank, Brent
- Beaconsfield Station, Whiston Super Merse
- Elly, Cardiff
- Whitton, Gloucestershire

## What next

- Our unique solution: community business model based on demand response and aggregation, and coordinated activities.
- Next Steps
  - Pilot project
  - EngD research
  - Development of further collaborative relationships
  - Potential partnership with electricity supplier who has smart meter customers – is this you?

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