6th Smart Grids & Cleanpower 2014

3-4 June, Cambridge, UK

www.hvm-uk.com/smartgrids2014

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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 England

energy Community Energy White Paper April 2014

BRIXTON ENERGY SOLAR 1

COMMUNITY POWER CORNWALL

OVESCo OUSE VALLEY ENERGY SERVICES COMPANY LTD

Bath & West Community Energy Generating Local Energy

Bristol Energy Cooperative

The Carbon Co-op

Department of Energy & Climate Change

Community Energy Strategy: Full Report

27 January 2014

BIG SOCIETY NOT BIG GOVERNMENT

BRISTOL ENERGY NETWORK

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Why community demand response?

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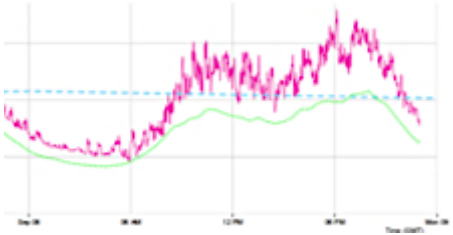
- Local demand management challenges
- Identification of aggregate events more feasible than household
- Evidence for community activity as effective for change:
  - Shifts in patterns of consumption beyond individual behaviour
  - Ostrom's Common Pool Resource management principles
  - Non-monetary 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



Community smart grid – our project aims

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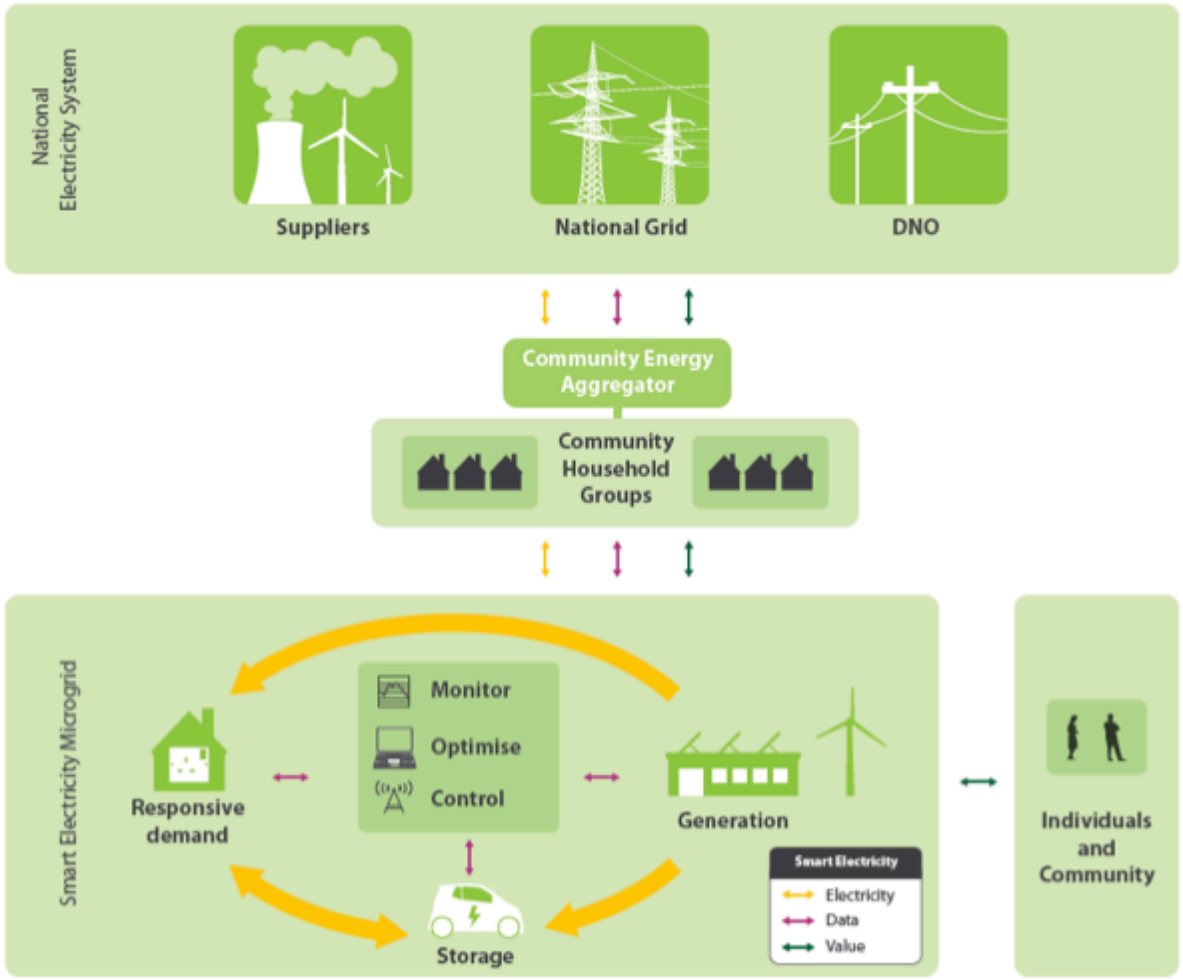
Our Community Smart Grid proposal aims to:

- Enable domestic DSM to contribute to increasing renewables potential of national grid
- Ensure smart technology develops in a way that supports democracy and empowers people
- Reduce the cost of incentives for domestic DSM by making use of peer pressure and peer support mechanisms.



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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

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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

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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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Bristol Energy Cooperative

The Carbon Co-op

MANCHESTER CITY COUNCIL

BRISTOL CITY COUNCIL

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