

# Experts and Stakeholder Workshop

## Exploring Smarter Networks

Notes of the inaugural meeting hosted by Western Power Distribution in conjunction with The Centre for Sustainable Energy and Regen South West, Friday 22 January 2010

### **Chaired by:**

Simon Roberts – Centre for Sustainable Energy  
Merlin Hyman – Regen SW

### **Western Power Distribution:**

Alison Sleightholm - Regulatory & Government Affairs Manager  
Nigel Turvey - Design Manger  
Phil West - Policy Manager  
Tony Berndes - Primary Design Manager

### **Participants:**

Raj Aggarwal – University of Bath  
Furong Li – University of Bath  
Miles Davis – University of Bath  
Joe McGeehan – University of Bristol and Toshiba Research Labs  
Mahesh Sooriyabandara – Toshiba Research  
Alan Champneys – University of Bristol  
Tom Gorochowski – University of Bristol  
Ayalvadi Ganesh – University of Bristol  
Manu Haddad – University of Cardiff  
Janaka Ekanayake – University of Cardiff  
Prashant Sharma – PRI  
Bob Loe – PRI  
Paul Hardman – South West RDA  
Mohammed Saddiq – Geneco  
Richard Westoby – Scottish and Southern Energy  
Alan John – Osborne Clarke

### **1. Introduction**

Simon Roberts opened the meeting and welcomed members to the workshop event.

### **2. Presentations**

Nigel Turvey from WPD gave a presentation on the Low Carbon Network Fund and WPD's current initiatives.

He outlined the aim of the workshop was to generate practical ideas for suitable LCN projects around the following themes:

- Collection and provision of network information e.g. community programmes involving smart metering
- Demand side management initiatives
- Storage schemes
- Electric vehicle use e.g. profiles and cost behaviour
- Distributed network control

- Solutions to voltage rise issues associated with the connection of generation

Prof Raj Aggarwal from Bath University, Alan Champneys from Bristol University and Professor Joe McGeehan from Toshiba Research Laboratories gave presentations on their current research work.

### **3. Workshop Discussion**

#### **Group A**

##### A Community Based Project

- Providing customer benefit
- Mixed/integrated
- Element of trial on microgen
- Villages/small town so can be isolated OR concentrated on set of big users.
- Meter sub – voltage/demand
- Need to know volts at feeders/extremities of network
- Use signals from smart meter to provide info on volts at ends
- Benefit – send control signals to generators/load & allow more to connect & reduce prices
- Quality of supply/bill checking
- Targets areas with problems to solve
- Demand reduction/time shifting micro generation
- Enabling new generation to connect
- Dynamic tariff structure
- Tackling losses
- Build on economy 7, domestic or large user systems
- Inc: storage technology
- Use smart meters to send signals to substation & generators to equalise voltage
- Sample data may be sufficient

##### Parties to involve

- Comms provider
- Expert in microprocessors embedded in meters - control algorithms
- Economists to qualify benefits
- Suppliers
- Customers to participate - incentives

##### Issues

- Obtaining permissions from suppliers & other parties
- Microgen
- Comms → low powered radio/mobile phone
- Making sense of data
- What control actions → signals to microgen to work more effectively
- Measuring benefit
- Reduce need for network reinforcement

## Group B

### Substation Metering – uses of data

- Community demand side → signals
- Losses beyond substation and uncertainties in readings
- Intermittency management
  - PhotoVoltaic concentration
  - forecastability
- Demand side intermittency management
  - hot water storage / refrigeration
- Time of day tariff driven demand response ‘smart and home’
- Electric Vehicle usage focussed area
- Heat pumps
- Doldrums simulation for resilience development

### Parties to involve - Local community connections

- Aberdare - RSL
- Totnes
- Concentrator of RSL - Redevelopment areas
- St Athan SSE community trial
- Electric vehicle expertise
- What do we need from Electric Vehicles for the network?
- Wind farm operators
- Commercial arrangements
- Social scientists – behaviourists/psychologists
- Big user energy managers

### Issues

- Getting smart meter data in “real time”
- Firmness of Demand Side Response
- Price signals for network need lost in noise of supply
- What the microgeneration is going to be?
- How do the benefits of getting it ‘right’ get distributed?
- How to get price signals to the customer active
- Potential for direct contracts with customers for demand side response – license issues
- Aggregation of Demand Side Response from smaller customers
- How much control and of whom do we need? Licensing