going carbon neutral Ashton Hayes

# Ashton Hayes Going Carbon Neutral

Public meeting 30 April 2009

# WELCOME

Garry Charnock
Professor Roy Alexander

## Agenda for tonight

- **A word of thanks**
- **Brief recap of project**
- **World premiere of our new microgrid film**
- **Microgrid options**
- **Update on the village shop project**
- **Brief statement of support from Leapfrog**
- **Update on the school project**
- **Lofoten Islands link up**
- **Special presentations followed by questions**
- **More drinks and nibbles**


**January 2006 Project launched in the school**

## Milestones 2006-9

- **Adopted by Parish Council November 05**
- **Local business gives £3600 in support + time**
- **www.goingcarbonneutral.co.uk website launched**
- **Baseline survey May 2006 (4700t CO2)**
- **DEFRA awards us £26,500**
- **Cheshire Community Council donates laptop computer**
- **Second survey reveals 20% CO2 savings**
- **Evidence given to HoC select committee**
- **150 attend our Grass Roots conference**
- **Community initiatives – solar panels, school turbine, heat pumps**
- ***Our Footprint, Our Journey* DVD wins IVCA Clarion Award**
- **Project featured in *FT*, *Live Earth* and film, *The Village Green***
- **Awarded Energy Institute *Community Initiative* award**

## Milestones 2006-9

- Third survey reveals 20% CO2 cut maintained
- University of Chester leads £86,000 Carbon Connections bid
- Microgrid study starts – a model for UK?
- Government interest intensifies
- Cheshire County Council builds footpath to show support
- Planning approval for weather stations
- Presentations given to over 100 communities in UK
- Zerofootprint 'village without borders'

## This year's survey

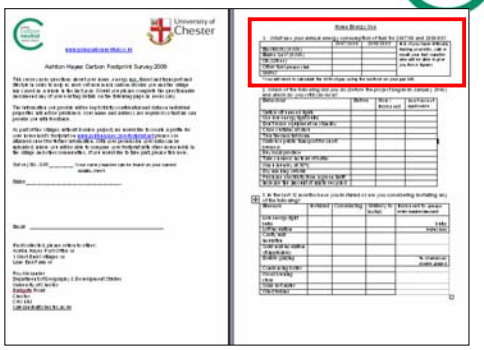
## Survey Team

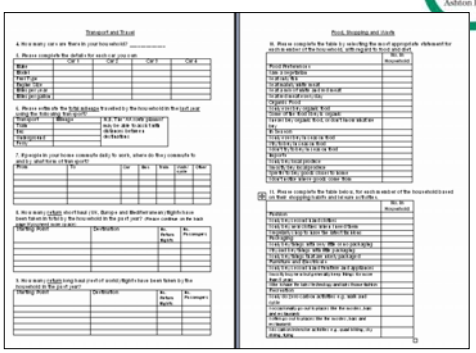
Tim Nutt, James Murphy, James Whitton, Justin Robinson, Gemma Smart-Wright, Sinead Paton

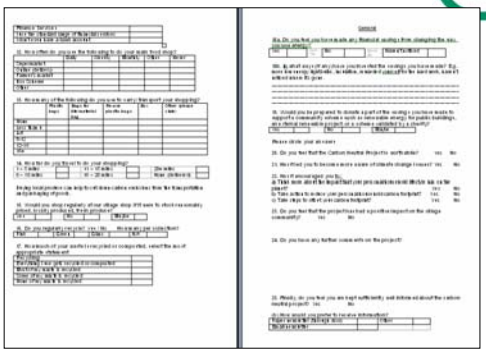
## This years' survey

- Similar format to last year
- Home and energy use
- Travel - private and public transport
- Flights
- Shopping, food & leisure habits
- Microgrid

**Actual energy consumption data are really helpful**







## Zerofootprint™

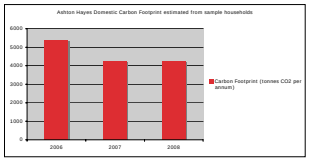
- Option to complete the survey online with Zerofootprint
- Compare your footprint with averages in the village and other communities across UK
- Be a part of *Villages without Borders*

Complete survey online and join Villages without Borders


## Volunteers?

- If anyone would like to help the students, by carrying out some surveys during evenings and weekends please let us know.

## Progress so far



- We managed a 20% reduction in the first year
- We maintained it last year and I think we can take it further
- We've just come through a very cold winter so this year's results should be interesting
- However, to achieve significant further reduction we must consider other options - the Microgrid is one of these

*Our footsteps – a renewable future?*

The world premier of short film produced by Steve Holland on behalf of the microgrid project

# The microgrid concept

Dr Mary Gillie

# A Microgrid for the Village?

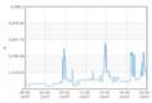
Outcomes of Microgrid Feasibility Study in Ashton Hayes

## The Concept

- Generating and supplying renewable energy using the existing wires to develop a local energy economy in the village
- Raising awareness of energy and its use
- Developing innovative use of technology - Ashton Hayes is leading the way with this feasibility study
- Saving money and carbon emissions

## What have we done?

- Measured demand
- Assessed supply options
- Attempted to match supply and demand
- Investigated commercial and regulatory issues
- Met with residents in focus groups to evaluate each stage of the work



## Renewable Generation

Find a mix of wind, PV and CHP that has a high probability of generating when load is high – use local generation locally.

- Focus on school and its surroundings
  - Electricity-led sustainable biodiesel CHP boiler for school with a summer heat store -
    *to provide a controllable electricity supply to cover a proportion of the local load*
  - BUT ..would work better with some refurbishment of school (*eg* insulation)
    *subject of NWDA Feasibility study - more later*

## Renewable Generation

- Solar photovoltaics on school roof
  - *plus later also on houses(?)*
- Wind turbine(s) in field behind school

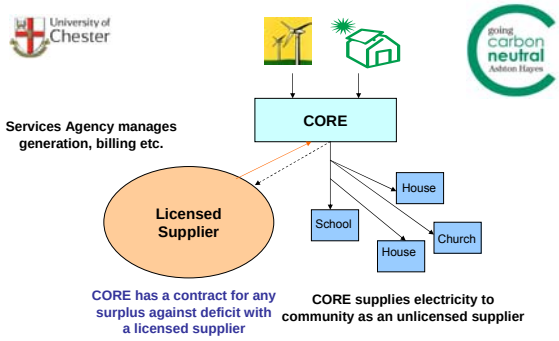
Discussed options with the technical focus group

All generators to be owned by the community

## Ownership and Management

Worked with focus group on the structure.

- Proposal: A Community Organisation for Renewable Energy (CORE) that will own the generators and manage the electricity supply they generate.
- Goals of the CORE:
  - simple,
  - workable,
  - inclusive,
  - not something that will fizzle out in a week!




After much consideration we recommend this model (A) for operation of the microgrid

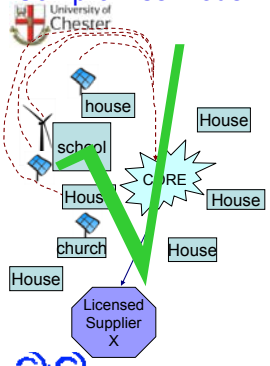
## What happens to the Electricity?

- The electricity produced will be sold by the CORE to 'opted-in' properties within the microgrid.
- The CORE will be responsible for deciding how the costs for community-generated electricity should be allocated.
- The community electricity will NOT be free.
  - CORE will need to cover ongoing costs and overheads e.g. maintenance, operational costs, pay back funding.
- Any shortfall will be supplied by a licensed supplier
  - the lights won't be going off!

## Ownership and Management

- BUT .. Due to current regulations we can't get all the way immediately so we recommend model B which has the flexibility to be turned into A later.

## Compromise model for current position




- **CORE owns all the generation on behalf of the village.**
- **CORE negotiates the right to locate it in the best positions in the village.**
- **CORE sells the electricity to licensed supplier X.**
- **CORE distributes the profits, after paying costs.**

√ **Similar models already in place.**
√ **Does work with current settlement arrangements.**
? **Economic benefits will depend on what Supplier X offers.**
X **But .. Does not give the benefits from dsm…**

## Metering and dsm

- To know if local power is used locally we will need to measure when buildings are using and generating power.
- Smartmeters will tell how much and when power is used and can be read remotely.
- Eventually we hope to have a system that will automatically switch appliances on and off to use local renewable power when available – e.g. to use the dishwasher when the wind is blowing. This is automatic dsm.
- We hope to try to establish a meter trial over the next few months.

## Services Agency

- It is proposed that a Services Agency will carry out tasks such as billing and organising maintenance, insurance etc. on behalf of many communities.
- This will keep costs down.
- Communities would have a stake in the Agency.
- George Lilley (from EA Ventures) and Garry Charnock are working on a business plan for this.

## Costs

- This is a new approach so will be expensive.
- We estimate that it will cost between £350,000 and £400,000.
- Significant part of this will be the heat store.
- Fundraising should be done as a community.

## Business planning

- As this is a new approach, it will be expensive to get going.
- Individuals are not expected to provide the up front costs.
- Garry has offered to spearhead developing a business plan and coordinate fundraising.

## Where do we go from here?

- Are you interested in possibly installing renewables?
- If yes then we recommend:
  - Work with Leapfrog to develop a CORE, contracts and a constitution.
  - Develop a business plan and raise funds for the project.
  - The biggest hurdle is the present regulatory framework. EA Technology will approach suppliers for a trial of smart metering & time of use tariffs in Church Rd.
    If this is possible, CORE should actively participate in the trial.
  - EA Technology will attempt to interest ScottishPower and other DNOs, in a trial of innovative connection techniques for the proposed generation.
    If this is possible, CORE should actively work with ScottishPower.

Lots more information in our Report and on the Going Carbon Neutral Website

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# The village shop

Lisa Allman

# Leapfrog support

Steve McNab and Simon Pringle

# The school project

Lu Strudwick and Pauline Tilley

# Lofoten Links

Garry Charnock


**22,000 people want a carbon neutral link up!**

# Special presentations