



Countdown to Zero Carbon Schools 2016

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– Sustainable Energy Solutions
11th March 2008

1	Climate change is a key issue for the education sector	Low carbon is a significant issue for the education sector, driven by both the potential negative and positive impacts
2	Government regulation is now a primary driver for Building Schools for the Future	Government 2016 zero carbon targets will now drive the market, but there is still uncertainty at a local level
3	Fragmented approach has so far limited local authorities action to inadequate solutions and talk	Despite many barriers, authorities need to act now to deal with climate change – developers that address these key barriers will be well positioned to support authorities activities
4	Local authorities primary focus has been on energy efficiency	Energy efficiency and advanced materials are often a developers first choice, but developers are beginning to see additional benefits in microgeneration technology and CHP
5	Education authorities and commercial developers need help to address their climate change challenge	Authorities and Developers are aware that they have a clear need for support and are looking to in-source information and services from a number of areas
6	There is a need for partnerships with energy providers	Developers consider energy utilities key providers of services. Furthermore, there is an opportunity to both deliver new services and enhance existing services to Education Authorities

External Drivers

- Local Government generally are mandating low carbon developments:
 - Regional planning authorities and individual council planning are typically increasing Planning Conditions on energy efficiency, local and renewable generation. Differs by region!
 - Merton Rule here for long term
- The Department for Children has set a target for all new schools to achieve zero carbon by 2016. Not clear how it would be enforced yet!

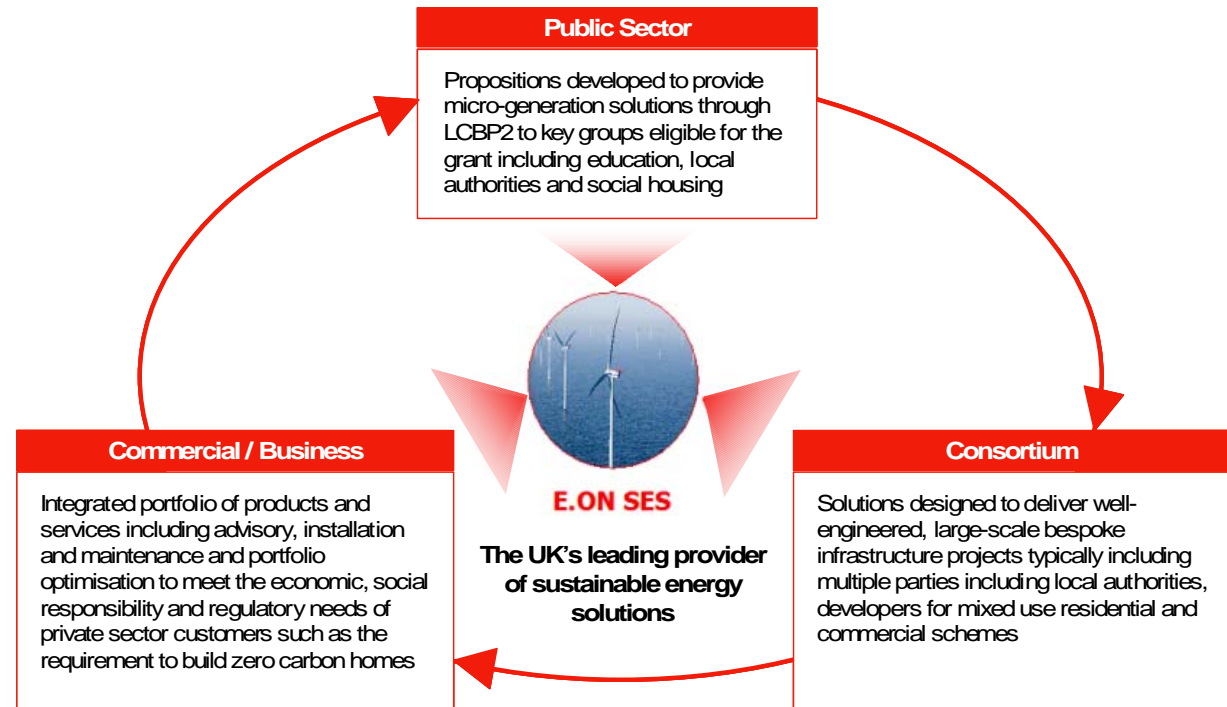
Developer/Authority Drivers

- To date many LEP's have a limited coordinated response to the zero carbon challenge:
 - authorities are individually responsible for low/zero carbon solutions. Limited sharing of knowledge exists
 - Reliance on M&E contractors for specialist energy generation solutions. Quality of solutions likely to vary considerably.
- Low/zero carbon compliance will start to impact new LEP's as they are created
- Need to educate pupils about climate change and sustainable energy

How can we deliver renewable energy to achieve sustainable schools which by 2016 meet zero carbon targets?

E.ON leads the low/zero carbon market by offering integrated bespoke low carbon solutions

E.ON's dedicated business unit, Sustainable Energy Solutions, works with customers to provide sustainable energy solutions that economically meet their needs with the reassurance and experience of a global company by their side



Why is E.ON different?

E.ON provides bespoke, reliable, end to end cost-effective sustainable energy solutions

Achieving your sustainable energy solution

1. Consult

Energy surveys will help determine your objectives and work out the best type of microgeneration for your school.

2. Plan

A solution that is tailored to your school needs to be created – organise applying for funding and planning permission.

3. Implement

Arranging for the installation of your technology.



6. Support

Annual servicing and advice.

5. Training

On-site training of staff to ensure they know how to use the new technology.

4. Develop

Using additional energy services that could complement your microgeneration solution.

We can offer solutions for low carbon generation technology and advice on how to educate and engage your community in low carbon energy.

By integrating low carbon energy technologies, such as microgeneration, supportive educational tools, display equipment and metering systems you can achieve a leading position on environmental issues.

We make it easier, offering support with:

- energy surveys
- staff training
- grant funding advice
- financing information
- maintenance and warranty
- planning permit application
- full microgeneration support





Funding – The Low Carbon Building Programme

Phase 2 of the Department for Business, Enterprise and Regulatory Reform's (DBERR) Low Carbon Buildings Programme (LCBP) offers grants for the installation of microgeneration technologies.

£43 million in grants still available to public sector buildings (including schools, hospitals, housing associations and local authorities) and charitable bodies.

We're an approved 'Framework Supplier' under the LCBP which means some of our microgeneration technologies benefit from grants of up to 35%.

www.lowcarbonbuildingsphase2.org.uk

The Education Programme for primary and secondary schools

Exclusive online access to national curriculum web-based activities and classroom resources, including posters and lesson plans.

Support to encourage wider community involvement, including letter templates for parents and school open days



Primary schools' programme

EON's Sustainable Energy Solutions programme for primary schools is designed to stimulate and inspire not only pupils but also teachers and the wider community. Activities have been designed to be thought provoking and to prompt the educational community to change the way they think about and use energy.

The programme has two parts: an online learning programme and offline learning resources.

The online learning programme

These resources are designed to enhance students' learning about energy issues and to inspire understanding and wider community engagement. Typical resources include:

- an interactive whiteboard presentation that introduces pupils to their low carbon solution and provides a backdrop to the importance of the energy debate
- animations showing how your technology works, along with interactive challenges, key information and details of environmental impacts
- lesson plans, available to download, featuring activities relating to your low carbon solution, with detailed learning objectives and a clear curriculum target



Secondary schools sample activity

Calculate your carbon saving

This activity will use an online calculator and energy information about your school to allow you to understand the positive impact the low carbon solution is having on the environment.

Activity A (1 hour)

1. Background to energy sources and carbon emissions - 10 minutes

Having looked at the school's wind turbine, students should be asked what it does and why it has been installed. Remind students that renewable energy does not run out and that the electricity generated by the turbine produces no carbon emissions. Ask the students how carbon emissions are affecting the environment, and then introduce the concept of the carbon footprint.



2. Calculating emissions online - 30 minutes

To find out how much carbon the wind turbine saves, you need to look at the school's carbon footprint. Have a look at this carbon calculator that has been designed for schools:

→ sample material available to view at

www.eonenergy.com/sustainableenergy

“We wanted to educate children and make them aware of the environment they are living in” Headmaster, Brill Primary School



Case Study - Sandwich Technology School, Kent

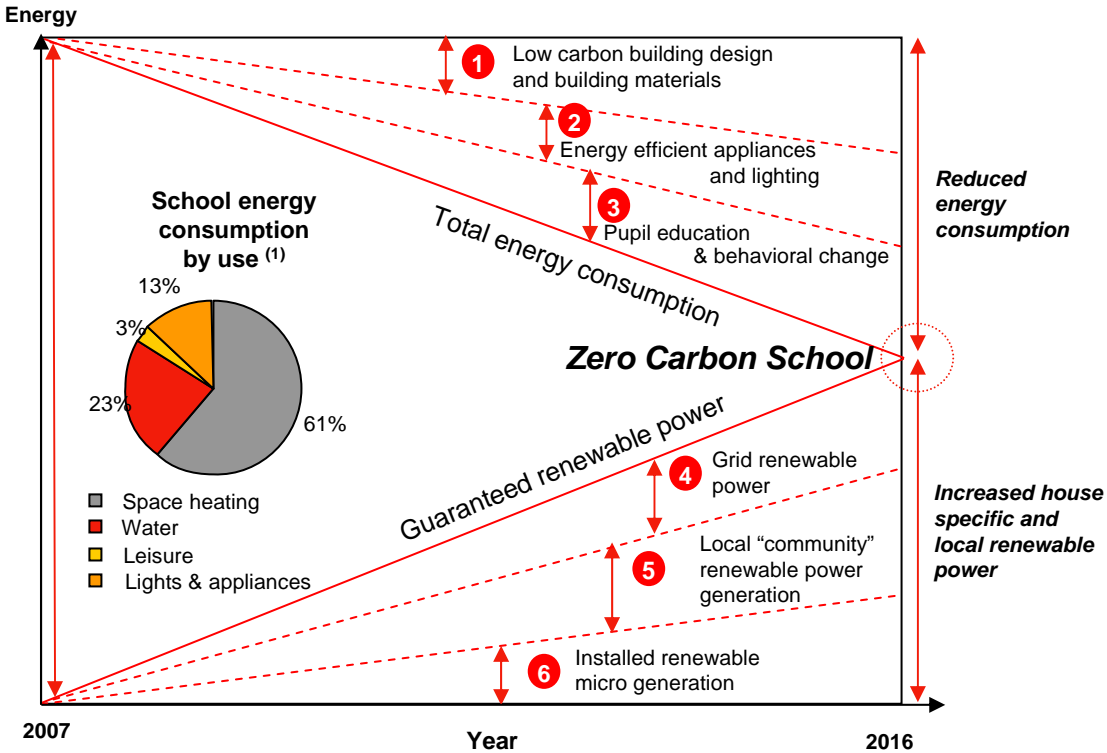
- Product: Iskra AT5-1 5kW **wind turbine**, on 15m free standing tower
- Client considered solar PV and wind options; wind more cost effective
- Aim: to increase energy efficiency / promote sustainable living
- Supported school's aim to reach silver Eco-school standard (now achieved).
- E.ON currently doing complete supply, install, project management
- Includes energy display in reception and web-linked energy yield data for use as in-class resource
- Successful LCBPp2 grant application
- Estimated energy generation 8700kWh/year
- **Estimated carbon savings 4.9 Tonnes/year**



Case study - Rhydyfelin Integrated Centre

- The Integrated Centre at Rhydyfelin benefits from a range of renewable technologies, including two Vitocal 300 **Ground Source Heat pumps** which provides energy for an under floor heating system.
- The centre's annual gas bill fell to just £600 and the carbon dioxide (CO₂) **emission savings (compared to gas) are 8,200kg per annum**. The energy use is now less than 100k Wh/m².

Delivering a zero carbon school will require a range of service combinations



- 1 - Energy efficient school design including the use of low carbon construction materials (e.g. insulation, green roofs etc)
- 2 - Use of low carbon appliances and embedding energy efficient lighting
- 3 - Smart meters and clear billing information to support user behavioural change & reduction in consumption
- 4 - Guaranteed supply of renewable power across the grid and onsite to 'offset' zero carbon gap
- 5 - Local Community power generation and heating
- 6 - Sourcing & installation of micro generation technologies as part of the school building process.

Summary

1. Energy suppliers, authorities and developers require a significant 'paradigm shift' in order to work together towards delivering Zero Carbon schools by 2016
2. 'Early movers' will most likely benefit as planning and regulation looms.
3. All the answers are not available at the moment
4. The BSF are now looking at the carbon challenge and how to make it affordable and attractive to local authorities/developers (LEP's)
5. E.ON's Sustainable Energy Solutions can provide an end to end solution

For more information visit: www.eonenergy.com/sustainableenergy