# Less is More: how we can keep going without breaking the planet – or the bank

### Less is More – Energy After Oil: David Olivier

AECB has published a major report on our energy system. The report, by experienced energy analyst David Olivier, offers a fresh vision for an affordable, low-carbon energy system, by challenging the current heavy bias towards producing and using more and more energy - especially electricity - and instead, placing the priority squarely on the opportunities for doing more with less.

The main message of the report is that there are numerous opportunities to deliver the energy services we require (for example, heat, light, mechanical power) for less than the cost of building new generating plant – and sometimes, for less than the cost we pay now – by being more efficient: more efficient in the way we construct and use our buildings and equipment.

There is huge concern about the costs of new energy sources, be they nuclear, wind, shale gas or anything else – especially if those energy sources are to be low carbon. Fossil fuels were a one-off bonanza that are getting ever more expensive to extract – and have already led to the level of CO2 in the atmosphere being at its highest since well before the beginnings of the human race. For both these reasons, the report points out, future energy sources are inevitably going to be much more expensive than fossil fuels.

Yet much cheaper opportunities to meet our energy needs by efficiency are being ignored. Seizing this opportunity fully would need us to understand energy and the way it is bought and sold in a whole new way, but there are plenty of workable examples to learn from, many of which are described in the report.

The report makes a powerful case for making use of the energy, in particular heat, which is currently “thrown away” - for example from power stations - when it could be piped into homes or businesses, saving them a fortune on fuel, and offering carbon emissions 70-95% less than present urban heating systems. The report sets this in context: the three largest energy flows in the UK economy are oil for transport; natural gas for heating and power station cooling water.

Rather than expensive new generation, the report proposes lavish investment in energy efficiency, wherever it costs less than new energy supply. Electrical efficiency measures can frequently cut energy requirements for the same service by 75-90%. Improved building design and construction, and energy efficiency retrofits, can cut heat demand in buildings by 50-80%, while improving comfort.

For example, replacing domestic equipment free of charge with more efficient models (eg fridges) could cost the electricity companies less per kWh, than building new power stations and supplying the extra power. Some efficiency investments work out cheaper /kWh saved, than the maintenance costs of existing offshore wind farms, per kWh supplied – never mind the cost of building new ones. Measures like these could hold down energy bills in terms of cost per customer, even in an era where energy costs in pence per kWh continue to rise.

This approach is in contrast to current decarbonisation policies, which place the emphasis on decarbonising electricity supplies, and actually call for an \*increase\* in use of electricity (eg through installation of electric heat pumps). This may lead to challenging peak demands at times of low renewable availability (eg when heating demand is high on still, cold nights). This is a problem because electricity is difficult and extremely expensive to store.

By contrast, hot water (and also liquid or gaseous fuels such as biogas) can be stored a great deal more simply and cheaply, and we have plenty of established technologies for using these energy sources to provide space heating and hot water.

Olivier recommends we should save electricity for uses that require electricity (such as lighting, motors, IT) and minimiseelectricity consumption so that it can mainly be supplied by renewable sources that can be turned on and off, and can include an element of storage – for example, tidal, hydro-power, biomethane and geothermal CHP. Electricity supply policy should focus therefore on matching only ‘essential’ electricity demand - increasing the possibility of meeting this demand in a renewable, low-carbon way.

When only heat is required, Olivier urges, don’t use precious electricity, but instead, use solar heat, waste heat and make good use of large-scale heat storage and distribution, so the lowest-energy and cheapest sources can be matched to demand, even if they aren’t in exactly the same place or at the same time. This approach would not only guarantee carbon savings and energy security (if you don’t need something, after all, it doesn’t matter if you can’t get it), it would also ease the frightening cost of simply investing in ever more extraction, generation, and transmission equipment – a cost that the economy and environment is already struggling to bear.

The full Less is More report can be downloaded as a PDF from <http://www.aecb.net/publications/less-is-more-energy-after-oil/> , or purchased as a hard copy at a price of £20 each (inc. P&P) from sally@aecb.net.

The slides from two presentations on the report, with numerous illustrations and facts and figures, can be downloaded from here:

<http://www.aecb.net/publications/less-is-more-energy-security-after-oil-2/> (shorter) <http://www.aecb.net/publications/less-is-more-energy-security-after-oil-3/> (more detailed)