

Where small can be bountiful...

Can decentralised energy help combat climate change?

Yes, according to Michael Brown of the World Alliance for Decentralised Energy (WADE). He has been criticising the International Energy Agency's recent reports. The IEA, traditionally mouthpiece for the oil industry, has recently acknowledged the need to make our fossil fuels last longer and to seek alternative power sources. In April its study, 'Saving Oil In A Hurry', voted for car pools and driving restrictions, free or cheaper public transport, a more compressed working week and other demand-side measures to reduce oil consumption. It said we should save at least a million barrels a day, and introduced some new economic modellers which recognised the huge scale of network investment needed to support a world which continues to use centralised methods of generation.

Michael Brown criticises these models "because they continue to think of generated rather than

What is decentralised energy?

Any small (up to 10MW) electricity generating plant is a form of decentralised power supply. Whether it feeds into an electricity grid, or what its energy source is, doesn't matter. What counts is that it is consumed largely at the point of generation and does not need to be expensively transported, with consequent losses of power in transmission. Even if its per unit generating costs are greater than that of large plants such as coal, gas and nuclear, it can compete favourably in price with grid-purchased electricity. This is because its price consists almost totally of the cost of generating it, whereas centralised electricity's total price contains other costs, eg taxes and distribution.

delivered electricity", ie they don't take account of the electricity losses caused by its distribution

and transmission. When you do this, the real cost of energy is more apparent.

He also claims that these costs are omitted from a more recent report, Projected Costs of Generating Electricity - 2005 Update, published jointly by the IEA and the Nuclear Energy Agency. Whilst applauding the report for concluding that CHP (Combined Heat and Power, a principal generator of distributed energy) represents "one of the very best economic solutions", he criticises it for letting nuclear power off the hook. For example, waste management and decommissioning costs don't appear to be included, he claims.

Links: www.localpower.org; www.theclimategroup.org; www.iea.org; www.nea.fr; www.climateprediction.net; www.rics.org/Environmentalandlandconsultancy; www.britishsugar.co.uk; www.bre.co.uk/ctf.jsp; www.riba.org/go/RIBA/News/Policy_2875.html; www.ecde.co.uk

Nuclear - cheaper than decentralised energy?

This IEA/NEA title received some media coverage in May because it appeared to show the cost of building new nuclear powers station costs in a favourable light. We asked the report's author, Ulrik Stridbaek, IEA Senior Policy Advisor, Electricity Markets, if Brown's criticisms were true and if the report could be used by a nation to justify opting for nuclear power, given that its co-publisher is the Nuclear Energy Agency.

"The methodology used probably puts nuclear in a better light than a competitive market participant would see it," he said. "The figures do not reflect IEA's 'global' understanding of generation costs. Those are expressed in our World Energy Outlook 2004. I guess a country has to consider carefully what it thinks about - eg - the waste. Will it accept it or not? It is not so much a matter of the costs. All costs should of course be included when an investor makes his decision. The actual final decision, eg to go for nuclear, should be left to market players."

Is anything missing in the numbers in the report? "It is clearly stated that transmission and distribution costs are not included," he responded. "The decommissioning costs are included in the study according to the rules and assessments made by each national expert. [All of these costs] are very real and there is no reason why they should not be passed on to the investor in a way that creates incentives that lead to efficient outcomes."

Is the data reliable? "The quality/credibility of the data rely on officially appointed national experts and the quality of the actual calculations

rely on the credibility of the IEA and the NEA as part of the OECD family," he said.

Can the study justify a policy decision then? "Experience from liberalised markets shows that market players faced with competition tend to value flexibility and optionality much higher than is, eg, reflected in that standard methodology used in the cost study. The fact that nuclear is very capital intensive and comes in large installations whereas CCGT (Combined Cycle Gas Turbine - CHP) is much less capital intensive and can be built in small incremental steps is probably of much greater importance to market players than is expressed in the study. Indeed, CCGT has so far been proven to be a preferred technology in liberalised markets.

"If a policymaker is in a country without intentions to let the market decide on technology, I think they should still consider the lesson of the value of flexibility and optionality that has been made in liberalised markets."

WADE's position appears to be justified, then. WADE is supported by the Climate Group, an international body which argues that reducing carbon emissions is the most cost-effective way of reducing energy costs. Its website is packed with decentralised cogeneration case studies. The solution to our energy problems lies in the form of increased energy efficiency and more decentralised generation. This is a widely endorsed view whose best UK practitioner is Allan Jones, appointed by Ken Livingstone as director of London's new Climate Change Agency (see panel right).

The London Climate Change Agency

Former Energy Services Manager for Woking Council, Allan Jones was appointed as director of London's new Climate Change Agency because of his trailblazing work in Woking, which became the only council in the country to win The Queen's Award for Enterprise. Jones told the May Climate Change Solutions Conference in Birmingham about his aspirations for serving the energy needs of London using decentralised, local energy supplies.

"We created a series of private networks supplying less than 100 MW per site, financed 80% by loans, and 20% by shareholders. 81% of the shareholders were from the private sector and 19% from local authorities. These ploughed their profits back into the community.

Jones hopes to repeat this pattern in London with a series of Energy Service Companies. "The private wire networks use a mixture of CHP and photovoltaic solar power because of the complementary seasonal supply profiles. In other words, when you need less heat in the summer, that's when solar electricity can meet the electricity demand. The only barriers to replicating this on a wide scale are vested interests and regulation. We'll address both, to turn London into a world class energy-conscious city.

"There is no need for centralised generation of electricity," he said, "and if half the country supplied its energy needs in this way we would need no more nuclear power stations."