

Parliamentary question and written answer about concentrating solar power

Monday, 5 March 2007



Jon Trickett (Hemsworth, Labour)

To ask the Secretary of State for Trade and Industry what assessment he has made of the merits of using concentrated solar power as an alternative energy source for the future; and if he will make a statement.



Malcolm Wicks (Minister of State for Science and Innovation, Department of Trade and Industry)

The Government have not made any assessment into using concentrated solar power to help the UK meet its long-term energy requirements. Using concentrated solar power would require the transfer of electricity generated from hotter climates to the UK. There have been early studies into this energy source (www.dlr.de/tt/trans-csp) however, there are a number of technical challenges, which would need to be addressed. The economics, in particular the amounts of energy required to justify the investment in the High Voltage Direct Current link, needs more work. There would need to be a massive source of surplus electricity to make this worthwhile and considerable investment. The Government do not consider this technology a priority for further work.

Comments

1. It is misleading to describe the TRANS-CSP and MED-CSP reports from the German Aerospace Center as “early studies”, with the implication that they are merely preliminary. They are amongst the most thorough and professional reports on future energy supplies relating to Europe and the UK that are available.
2. Regarding the economics of CSP and the TREC proposals:
 - These things have been examined in great detail in the TRANS-CSP and MED-CSP reports. The Government should demonstrate that it is taking the proposals seriously.
 - The TRANS-CSP report calculates that CSP is likely to become one of the cheapest sources of electricity in Europe, *including the cost of transmission*.
 - Speaking about CSP at the Solar Power 2006 conference in California, the US venture capitalist Venod Khosla said “... we are poised for breakaway growth—for explosive growth—not because we are cleaner [than coal-fired electricity] but because we are cheaper. We happen to be cleaner incidentally.”

Contact: Dr Gerry Wolff, **TREC-UK**, 18 Penlon, Menai Bridge, Anglesey, LL59 5LR, UK.
Phone: +44 (0)1248 712962, E-mail: Gerry@mng.org.uk, Web: www.trec-uk.org.uk.

3. Regarding Malcolm Wicks's query about the amounts of energy required to justify investment in the High Voltage Direct Current link ("There would need to be a massive source of surplus electricity to make this worthwhile and considerable investment."):
- The quantities of energy that are available are indeed "massive": if it was covered with CSP plants, an area of hot desert of about 110 km x 110 km could generate about the same amount of electricity as the European Union used in 2004. Less than 1% of the world's hot deserts could generate as much electricity as the world currently consumes.
 - If he is suggesting that transmission losses would be too large, that is entirely wrong. With HVDC technology, transmission losses are about 3% per 1000 km. In round figures, this means that CSP electricity may be transmitted from North Africa to the UK with less than 10% loss of power.
 - Quite apart from the import of CSP electricity into Europe, there are other good reasons for developing large-scale HVDC transmission grids (to work in conjunction with existing HVAC grids):
 - Over a wide area like Europe, wind energy is much less variable than it is in any one spot. Large-scale HVDC grids can greatly reduce the variability of energy sources such as wind power.
 - If there is a surplus of electricity in any one area (eg a lot of wind blowing in Scotland or more hydro power in Norway than the Norwegians can use), a large-scale HVDC grid allows it to be moved to areas where it is needed. Without that kind of grid, and without the ability to store large quantities of electricity, that surplus energy is simply wasted.

For the kinds of reasons just mentioned, the wind energy company Airtricity has proposed a Europe-wide 'Supergrid' of HVDC transmission lines. Taking account of modern developments in HVDC technology, they propose that all the necessary cables would be laid under the sea, thus largely eliminating problems of visual intrusion and simplifying the processes of planning and construction.