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Microgeneration could rival nuclear power, report shows

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British buildings equipped with solar, wind and other micro power equipment could generate as much electricity in a year as five nuclear power stations, a government-backed industry report showed today.

Commissioned by the Department for Business, Energy and Regulatory Reform (DBERR), the report says that if government chose to be as ambitious as some other countries, a combination of loans, grants and incentives could lead to nearly 10m microgeneration systems being installed by 2020.

Such a large scale switch to microrenewable energy could save 30m tonnes of CO₂ – the equivalent of nearly 5% of all UK electricity.

The report estimates that there are nearly 100,000 microgeneration units already installed in Britain. Nearly 90,000 of these are solar water heaters, with limited numbers of biomass boilers, photovoltaic panels, heat pumps, fuel cells, and small-scale hydroelectric and windpower schemes.

If no action is taken, says the report, Britain can expect about 500,000 microunits to be installed by 2015 and 2-3m by 2020. But, with the right incentives, nearly one in five buildings in Britain would effectively become mini power stations, feeding electricity into the grid, or generating enough to be largely self-sufficient. Some of the greatest gains would be in combined heat and power units which are suitable for large blocks of flats, estates and businesses.

Britain has been widely criticised for not doing as much as other countries to encourage a mass market for small-scale renewables. The few existing schemes have failed to kick-start the industry. But the report says this could be swiftly changed: Germany has invested nearly £10bn in photovoltaic technology and Sweden has made it very attractive for consumers to install heat pumps.

The small-scale energy revolution will depend on the government stimulating the market with a range of consumer-friendly financial incentives schemes. "For widespread uptake of microgeneration to occur in the UK, sustained policy support will be required," says the report.

Top of the proposed incentive list is a "feed-in" tariff scheme which would reward people who invest in making their own electricity for feeding excess power into the national grid. This has been introduced in most European countries and is now a part of the Conservative party's energy policy.

Other possible incentives include 50% grants to help people meet the high initial cost of equipment and installation. If the government subsidised 50% of the cost of the some of the technologies, Britain would save 14m tonnes of CO₂ a year, or 3% of all emissions for a cost rising to £2.2bn a year by 2030.

A third option would be to provide mortgage-style discounted low-interest "soft loans" payable over 25 years. This, suggests the report, would lead to a massive 8m units being installed by 2020. But it cautions that the life of the loan would probably exceed the life of most power units.

It also proposes a scheme where consumers put up some of the cost of a new electricity generating boiler in return for a long-term guaranteed cut in their power bills.

The report comes at a critical point, with the government's energy strategy due to be published soon and microgeneration targets due to be decided later in the year. The outlook it thought to be favourable because energy prices are expected to continue rising steeply as oil and gas prices soar.

The energy minister, Malcolm Wicks, welcomed the report: "Microgeneration has the potential to make a significant contribution to overall energy use in the UK and, combined with energy efficiency measures, will help towards reducing our carbon emissions. The concerned individual can take an active role in the battle against climate change."

The industry has called for binding targets which it said would lead to greater certainty for investors and lower costs for consumers. "This shows that with the right policies in place, citizens can save money and make make a marked difference to tackling UK emissions and future-proof their homes," said Dave Sowden, chief executive of the Micropower Council.

One problem was not considered by the report, however. Conservative leader David Cameron, Gordon Brown and Malcolm Wicks have all had applications to erect wind turbines on their roofs turned down by planning officers.

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