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Green power feasible

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THE federal government has the opportunity to switch the nation's power to renewable energy but favours attempts to make "dirty coal clean", according to the Australian Academy of Science.

Next month the academy will call on the government to give priority support to geothermal and solar thermal energy to make them major national energy sources, to reduce greenhouse gas emissions.

The recommendation is among 25 development options contained in the academy's highly anticipated renewable energy report, which also will call on the government to introduce a national seven-star energy rating standard for new houses by 2015 and a nine-star rating for houses built after 2020.

The academy also wants to see smart meters installed in all households, the phasing in of time-of-use electricity pricing and legislation to limit stand-by power consumption by domestic electrical appliances.

Its renewable energy report, a copy of which has been seen by the HES, calls for a national system of feed-in tariffs, the price paid for green energy by householders and businesses into the grid. It recommends a coast-to-coast liquefied natural gas distribution network to replace petrol and diesel with this cleaner energy source, and incentives for motorists to buy green cars.

The academy also calls for an upgrade to the interstate rail network, and more federal and state government funding to push clean energy research through the development and commercialisation phases.

In an exclusive interview ahead of the report's release, academy spokesman Michael Dopita told the HES geothermal and solar thermal energy could soon replace coal as Australia's main source of electricity generation, if the government chose to stimulate the development of green technology and invested in efficient long-distance electricity transmission.

"At the moment, the government is concentrating seed funding in things like geosequestration, which is trying to make dirty coal clean," said Professor Dopita, co-editor of the renewable energy report.

Geothermal energy, which taps the heat of rocks deep within Earth's crust to generate electricity, could fast-track Australia's route to a low-carbon economy, he said.

The technology was mature enough for the government to act now to promote its take-up.

Solar thermal concentrating technology, which focuses the sun's energy to heat fluids and generate steam to drive turbines, also had great potential as Australia pursued its emissions reduction and renewable energy targets.

"Both technologies can provide the reliable and sustained energy flow needed for home and industry," said Professor Dopita, an astrophysicist at the Australian National University.

The report, titled Australia's Renewable Energy Future, puts the scientific might of the academy up against sceptics claiming that renewables cannot meet baseload energy needs.

It challenges assumptions underlying an economic model of renewable energy take-up developed by the CSIRO and the Australian Bureau of Agricultural and Resource Economics on the grounds they are too conservative. In the virtual futures generated in the modelling, geothermal and solar thermal would remain as only minor components in Australia's energy mix until 2040.

The model could not capture recent technological advances and the stimulatory impact of government intervention, Professor Dopita said.

In the real world, it risked becoming a self-fulfilling prophecy, helping to reinforce a focus on fossil fuel in policy formulation.

"We can change the way we do business entirely by stimulating those new industries, getting them past the economic thresholds that make them appear to be uncompetitive with coal," he said.

"If you give the appropriate financial incentives early on, the whole thing snowballs.

"As the technology accrues the advantages of scale, it becomes self-sustaining and provides new employment and export opportunities."

The academy estimates Australia has enough accessible geothermal energy to meet 26,000 years of its power needs.

More than 30 companies aim to deliver geothermal energy to the grid, the renewable energy report says.

However, the accessible geothermal resource is concentrated in granite formations in the outback. To cut energy losses in getting the hot rock power to the cities, the government would need to invest billions of dollars in a high-voltage direct current long-distance electricity transmission system.