



Wind fails test as demand soars

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WHEN electricity demand peaked at the height of this week's heatwave in southern Australia, the total power output from the fleet of wind farms across Victoria and South Australia was almost zero.

The doldrums that stopped wind power production about midday on Wednesday coincided with warnings from the Victorian government and the national electricity market operator that electricity users faced the possibility of blackouts.

Figures supplied by the Australian Energy Market Operator show that between 11.30am and 4pm on Wednesday, as demand hit a daily peak of 33029 megawatts nationally, wind's share of supply fell as low as 0.3 per cent. When the electricity price peaked at \$6213 in South Australia on Wednesday in the half-hour to 4pm, wind was contributing 0.7 per cent to total demand.

The capacity factor (the amount of electricity produced compared with maximum rated capacity of the wind farm) fell as low as 4 per cent in Victoria and 2 per cent in South Australia.

In addition, graphs supplied by AEMO yesterday showed that throughout the week, demand for electricity and the capacity factor of wind generation had tended to move in opposite directions.

The squeeze on national electricity supply during the week was compounded by the failure of a high voltage cable at AGL's Loy Yang coal-fired power station, which took one unit offline for 40 hours. In addition, the Torrens power station was offline for about 20 hours after a steam leak.

Industrial electricity users were warned they would be the first to lose power supply if load shedding was required.

The failure of wind to continue supply at times of high demand this week has highlighted a long-standing argument about the impact of intermittent renewable energy on the stability and reliability of electricity networks.

AEMO has said the National Electricity Market allowed for existing coal and gas generators combined with "demand management" at industrial sites, to balance the varying output from wind.

The renewable energy industry has argued that wide distribution of wind farms would compensate for intermittent power generation at individual wind farms.

But in a peer-reviewed paper published in the journal *Energy and the Environment*, Australian electrical engineer Paul Miskelly challenged that opinion. The paper said: "The findings also suggest that the connection of such a wind farm fleet, even one that is widely dispersed, poses significant security and reliability concerns to the eastern Australian grid."

An AEMO spokesman said wind generation on the National Electricity Market "contributed a high percentage to the increased demand" on Thursday and yesterday. "Over time, the typical capacity factor of NEM wind averages about 33 per cent," he said.

Mr Miskelly said: "If the Victorian government, rather than merely permit the building of some of the biggest wind farms in Australia, had insisted on (preferably closed-cycle) gas turbine power stations, then by now Victoria would have had more than sufficient low-emissions installed capacity to cover the present power shortages."