

Solar strategy needed to avoid electricity death spiral, according to report

November 24 2014, by David Stacey



Government and the electricity industry must act now to prepare for the inevitable impact of increased private solar on the State's electricity network or risk a death spiral of network disruptions and rising costs over the coming decade, according to the author of a new study into WA's electricity future.

Study author Adjunct Professor Bill Grace, of the Australian Urban Design Research Centre at The University of Western Australia, said WA faced a 'major technological shift' as a result of the inevitable increase in take-up of solar PV systems by homes and businesses and needed a coherent strategy which embraced, rather than resisted the change.

Professor Grace said the falling costs of solar PV systems would drive exponential growth that could result in a tenfold increase in private solar capacity by 2025 - a much higher capacity than that currently predicted by the Independent Market Operator, which operates the Wholesale Electricity Market.

Eventually the daytime export of excess solar energy to the [network](#) would be so great that base-load generation would be affected. Unless the [electricity](#) system was modified to take full advantage of this carbon-free energy, eventually the network would be disrupted and tariffs would rise in a so-called electricity death spiral.

"While private solar has grown mainly in the residential sector to date, rapid take-up by businesses will likely follow and those systems will be much larger and could eventually be double the capacity of residential systems," Professor Grace said. "The resulting reduction in electricity purchased from the network will reduce revenue, necessarily implying increased unit costs which would be passed on to consumers. The tariff increases merely exacerbate the problem - hence the 'spiral'."

Professor Grace said the Government and electricity industry were not planning adequately for the transition that would necessarily result from the trend towards private solar and the public-policy need to phase out fossil fuels.

"The days of the electricity industry being the sole provider of energy services to consumers are over," he said. "The industry is now competing with its customers, and future policy has to be about working with that reality and driving the most efficient economic outcome rather than trying to protect the existing industry players.

"A coherent long term energy strategy is required to address the major implications for the network arising from the inevitable growth of

private solar, and for renewable energy at the network scale. Lower emissions and lower total energy costs are positive outcomes for society and should be embraced, not resisted."

He said there was no single magic bullet solution to the issue, but countries all over the world were grappling with the same challenges. It was a worldwide conversation that WA had to join.

The study findings are based on a system dynamics model of the South West Interconnected System, which was used to explore plausible scenarios resulting from the impact of private solar and storage for the period 2015-2035.

More information: The full report is available online:
[www.audrc.org/wp-content/uploa ... 141121_LAB_grace.pdf](http://www.audrc.org/wp-content/uploads/2014/11/141121_LAB_grace.pdf)

Provided by University of Western Australia

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