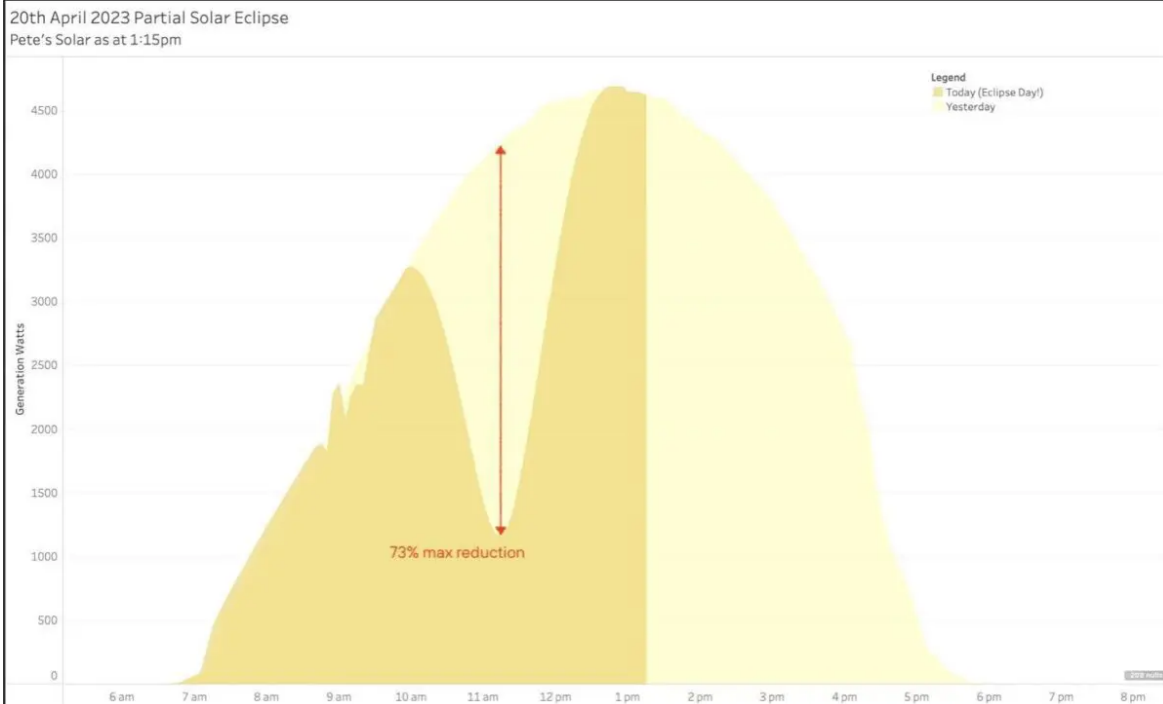



# Australia grid rides through solar eclipse, but the next one will be a “doozy”


Giles Parkinson (<https://reneweconomy.com.au/author/giles/>) 21 April 2023 **7**





GridCog's Pete Tickler's rooftop solar output in Perth during the eclipse.

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The Australian electricity grid rode through the solar eclipse and the shadow it cast over the country's vast solar arrays on Thursday with no problems, but the market operator says the next one in five years time will be a real "doozy".

The state most affected by the solar eclipse was Western Australia, which relies heavily on its 1.4GW of rooftop solar during the daylight hours, and which has no connection to other grids.

The state's main grid, known as the South West Interconnected System, was not in the path of the total eclipse – which swept across remote regions in the north west – but it still suffered a fall in solar irradiance of between 60 and 80 per cent.

The Australian Energy Market Operator says there were no operational issues and frequency remained within normal operational limits, as the impact was pretty much bang on expectations.

Grid demand started ramping up at 10:05AM (local time, AWST), and increased by 700 MW to 11:19AM, as the shadow of the eclipse caused the output of rooftop solar systems to fall. (AEMO sees changes in rooftop solar as a demand equation rather than generation).

Demand then decreased around 850MW down to the normal midday trough as the shadow passed over and the rooftop solar systems resumed production at their normal capacity. At its peak,  estimates that demand was approximately 950 MW higher than would have been expected without the eclipse. 

The impact was best illustrated by GridCog co-founder and Perth resident Pete Tickler, who posted this graph from his solar system.

“Perth had a 76% eclipse with max coverup at 11:30am local time,” Tickler wrote on LinkedIn.

“My solar system saw a max drop in output of 73% relative to yesterday (pale yellow). Handily for this very unscientific study, this week in Perth has seen pretty much cloudless skies and so yesterday provides a convenient benchmark.

“Just in case any of the gas and coal fans out there want to make an argument for how unreliable solar is during eclipses (it would be a fair argument if they’re weren’t as rare as hen’s teeth), this event lasted a bit over two hours and so from the market’s perspective a chunk of battery storage would ride it out no problem.”

“No dunkelflaute here.” (Dunkelflaute is the German term for wind and solar droughts).

<https://reneweconomy.com.au/wp-content/uploads/2023/04/solar-eclipse-2028-scaled.jpg>



The next total solar eclipse in Australia is due in 2028, and AEMO's head of forecasting Michael Davidson posted on LinkedIn that it could be more challenging because it will come across the

middle of the country, and totally shade major population centres such as Sydney.

“The next one will be a doozy,” Davidson wrote.

It will occur on July 22, 2028 (see map above) and by that time Australia will likely have another 10-15GW of rooftop solar, and a similar amount of added large scale solar.


“Will be a great experience and will have lots of planning,” noted Tim Lloyd, the head of network control and operations at Victoria-based transmission network company AusNet Services.


And it’s not the only solar eclipse. Another one will occur on November 25, 2030, in the middle of a season when solar has a greater impact on the grid because of generally mild conditions and good solar output.


“That will also be a big one for Victoria,” Davidson noted. “It’s right in peak solar season so the impact will be significant.”

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Giles Parkinson is founder and editor of Renew Economy

(<https://reneweconomy.wpengine.com/>), and is also the founder of One Step Off The Grid (<http://onestepoffthegrid.com.au/>) and founder/editor of the EV focused The Driven (<https://thedriven.io/>). Giles has been a journalist for 40 years and is a former business and deputy editor of the Australian Financial Review.

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**Matthew Saxon**

2 hours ago

How is a solar eclipse different from a rainy day in terms grid impact? Or that we have nighttime everyday?? This is a bit of a non story.

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**Alastair Leith** → Matthew Saxon

an hour ago

its the speed of change in output from PV that makes it different from heavy cloud cover days. in a two hour period ramping from Max to near-Min to Max output is more of a ramping event that winding up in the morning and winding down in the evening.

we don't know how much domestic BTM PV exports to the grid and how much is consumed behind the meters, we just estimate from installation data (via solar installer STC declarations – which are ball park accurate) and using estimates from APVI et al who harvest live data from a bunch of inverters in each postcode to estimate PV generation and exports.

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**Red** → Matthew Saxon





**Rod** → Matthew Saxon

2 hours ago

Solar still has some output on cloudy and even on rainy days up to a point

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Both cloud and eclipses can be predicted. Thankfully rainy days usually mean wind

Contact Us (<https://reneweconomy.com.au/contact/>)

I think if AEMO thinks it worthwhile to plan ahead for eclipses it is a story worth mentioning

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**Charles** (<https://reneweconomy.com.au/jobs-board/>)

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Just noting the Victorian 2030 one is actually 2038. We should be well prepared with that much forewarning!

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**Alastair Leith** → Rod

an hour ago

building regulations delays are legend... MBA et al are a really bad influence on legislators. it's a complete joke how slowly or building regs take to get even minuscule sustainability improvements. our regs today are decades behind where they should be, to be honest.

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