



## TESLA and Solcast team up to bring more accurate demand 'Nowcasting' to South Australia

The Australian Renewable Energy Agency (ARENA) has announced funding of \$994,685 to [Solcast](#) for developing and deploying 'Nowcasting', a state-of-the-art system for accurately forecasting renewable generation at the 5 to 360 minute ahead horizon in South Australia. The announcement could not have come at a better time, with South Australia's increased dependence on renewable energy making accurate forecasting extremely critical. The key to improving renewable generation forecasting is to start with improving the underlying weather forecasts.

Substantial investment has been made in improving the very short range (0-5 minute ahead) and longer range (day ahead to week ahead) weather forecasting horizons. This project's aim is to improve weather forecasting at the 5 to 360 minute ahead forecasting horizon, where a significant technology gap has been identified.

### The Emu Curve

Rapid increases in embedded rooftop PV over the last decade has morphed the daily shape of the South Australian system demand curve. Due to its slightly different shape than the Californian Duck Curve, it's known as the Emu Curve in Australia.



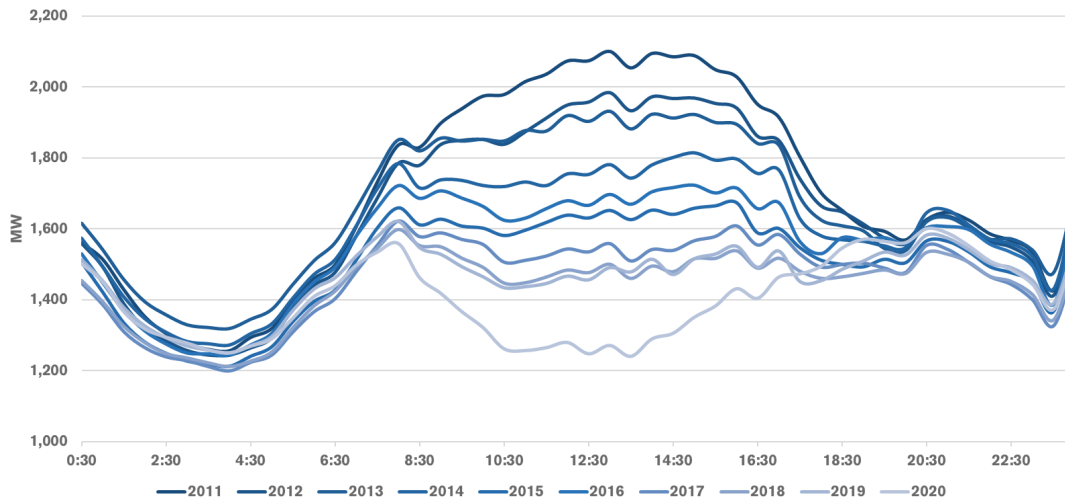
*"South  
Australia  
now leads  
the world*

*with its dependency on  
renewable energy  
generation...Through this  
project, we'll ensure it  
does the same with  
weather forecasting  
technology."*

**Dr Nick Engerer**

Chief Technology Officer at Solcast

The Emu Curve is notoriously difficult to forecast. The rooftop PV responsible for this curve is behind the meter and therefore has no actual metered data. The graph of South Australia’s average weather adjusted demand shows how the shape has morphed over the last decade. From a system demand perspective, Rooftop PV generation acts as negative demand.



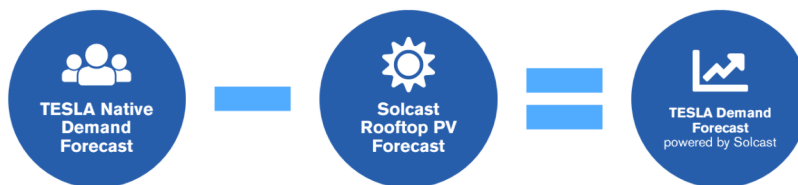
**Fig 1 | South Australia’s Emu Curve - Average weather corrected weekday operational demand for January**

### Combining the Solcast Rooftop PV Forecast with the TESLA Load Forecast

TESLA plans to leverage the improved Nowcast rooftop PV to enhance the accuracy of its system demand forecast. Under this project, Solcast will provide TESLA with estimated rooftop PV actuals for South Australia and TESLA will combine them with the Operational Demand series to create and then forecast, a Native Demand series. The Native Demand series is what the demand would be if none of it were met by rooftop PV generation.



The Operational Demand forecast can then be arrived at by subtracting Solcast’s rooftop PV forecast from TESLA’s Native Demand forecast in real time. With Solcast Nowcast updates available every 10 minutes, the Solcast integrated TESLA load forecast will solve immediately after each Solcast update.



In addition to more accurate demand Nowcasting, we suspect our users will find immense value in seeing a state-of-the-art Rooftop PV forecast alongside a state-of-the-art load forecast. We thank our project partners the Australian Energy Market Operator (AEMO), SA Power Networks, EnergyAustralia and Snowy Hydro for your willingness to assess this project and we look forward to your feedback.

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