



**wattwatchers**  
DIGITAL ENERGY

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10<sup>th</sup> July 2020

### **Proposed Remote Disconnection and Reconnection Requirements for Distributed Solar Generating Plants in South Australia**

Wattwatchers Pty Ltd (ABN 47 123 010 588), trading as Wattwatchers Digital Energy) welcomes the opportunity to provide input to the South Australian Department of Mining and Energy on the above consultation paper.

Wattwatchers Digital Energy is a technology company focused on intelligent, open and non-proprietary, consumer-friendly solutions for an electricity-powered 21st century. Our solutions suite spans devices, datasets, analytics, software and Internet of Things (IoT) connectivity, for energy and non-energy applications across home, community, commercial and industrial, and utility use cases.

Our horizontal Energy Data Hub model promotes technology collaborations, with dozens of third-party partner integrations with our RESTful API - in Australia, and internationally. Product brands include Wattwatchers (hardware and data to the cloud), mydata.energy (native app) and ADEPT (agile IoT platform for managing multi-technology fleets in real-time). Multi-year projects include My Energy Marketplace, backed by \$2.7 million in grant funding from the Australian Renewable Energy Agency (ARENA); and MyTown Microgrid, supported by a \$1.8 million grant from the Australian Government.

Including major B2B customers such as Solar Analytics and AGL Energy, over 40,000 Wattwatchers-made energy IoT devices are now in the field in Australia, for mainly behind-the-meter monitoring on low-voltage networks. Solar Analytics, our largest customer, operates the largest fleet of real-time solar + energy consumption monitors in Australia, providing energy data to seven DNSPs, AEMO, ESB and other energy regulators.

Wattwatchers supports the intent of the proposal to provide emergency resources to AEMO and SAPN to manage the electricity network in the event of a system emergency. We also strongly support the intent of AEMO and SAPN to transition to a high Distributed Energy Resources (DER) penetration two-way energy system. However, in common with our major customer Solar Analytics - and we expect a number of other energy technology vendors - we are concerned that the proposed PV disconnection methodology in the consultation paper has several serious drawbacks that have clear potential to destroy value for energy consumers. We believe there are more effective and lower cost solutions that will deliver both the needed network security and provide additional customer value; and, that Australia has an opportunity to lead the world on innovative technology-led solutions.

Although the Consultation paper does not specify the remote disconnection method, we understand from AEMO<sup>1</sup> that the proposal is to a) enable AEMO to have the ability to disconnect customers with solar who have an existing smart meter, and b) to mandate the installation of a twin element smart meter for DER to separately monitor and control the PV and load. The key drawbacks with this approach are:

- **Costly** for all energy consumers
- **Does not work** for hybrid systems where PV supplies storage directly which then supplies load circuits
- Public response to whole home disconnections **will be deeply unpopular**
- Will **discourage new customers** from adopting rooftop solar
- Only a **temporary solution** as it is redundant in the future dynamic two-way market
- **Locks out participants** other than the three main Metering Co-ordinators
- **Provides no value** to energy consumers

We propose three complementary ways to provide a significantly better outcome for AEMO/SAPN and all electricity consumers:

1. Use **controlled hot water** or other loads to create the additional demand required in an emergency.
2. Allow **market-led solutions** from any technology provider that meet the technical requirements.
3. Require the solar and energy **data to be made available to the DER Owner** and to comply with the industry endorsed <https://www.dermonitoring.guide/>.

## 1. Hot Water Demand

We understand that AEMO considered the option for increasing load by shifting controlled loads such as hot water to daytime, or increasing the loads of large industrial

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<sup>1</sup> Making smart meters smarter, AEMO presentation, July 2020

customers<sup>2</sup>. This was thought to be more challenging due to the need to engage customers and load limitations.

However:

*It is a far better outcome for a homeowner to have the hot water turn on to provide additional hot water during the daytime, than it is to have all of their solar and household power disconnected.*

Our business partner Solar Analytics estimates that there is approximately 750MW of residential Hot Water load in South Australia that is currently 'controllable' remotely via the Metering Coordinator (MC). This compares to the estimated 600MW of distributed solar with a remotely enabled smart meter<sup>3</sup>, which even if all of these 120,000 customers were disconnected would only shed an estimated 220MW of generation<sup>4</sup>. Both of these can be done without direct opt-in from end consumers, with a shift in demand far more preferable to a consumer than being without power completely.

It is acknowledged that only bringing on more load does not necessarily solve the issue due to capacity constraints of the network, and that the availability of the Hot Water to soak up all of the excess generation for extended periods of time is not certain. However, this should be a first response before any potential disconnection of the ~120,000 solar households.

It is further submitted that the benefits of this approach being the first emergency response are:

- No customers lose power
- Relatively simple to implement via the MC in time for Spring/Summer 2020/21
- No new hardware is required
- Can actually save customers money – hot water is charged at a time when electricity prices are lowest
- Minimal customer impact, at worst they get more hot water and a negligible energy bill increase  
=> no public outcry

## 2. Market-Led Solution

For new solar systems it has been proposed by AEMO to mandate the installation of a twin element smart meter to separately monitor and control the PV and load<sup>2</sup>. If the proposed twin element smart meter is mandated this would:

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<sup>2</sup> Minimum operational demand thresholds in South Australia, AEMO, May 2020

<sup>3</sup> Sunwiz and APVI solar systems installed between 1 Jan 2017 and June 2020

<sup>4</sup> Solar Analytics estimate after accounting for average kWh/kWp and household load

- Add ~\$25 every year for the smart meter provision costs. This is a substantial increase of 20% pa on the metering cost. For a single element site this consists of ~\$30 for the hardware (\$100 for 3 phase), labour to install the additional relay and controls, increased data requirements, and ongoing maintenance, hence \$15-\$60 per annum depending on the meter type required.
- Be redundant in a few years when the SAPN dynamic or flexible export control mechanisms are implemented via third party solutions. Nevertheless, the customer will continue paying the \$25pa for decades despite it no longer being required
- Smear this cost across all energy consumers (as is currently done by energy retailers whenever a smart meter is installed)
- Lock out other potentially lower cost solutions from other technology vendors

Due to the rapid pace of change it is imperative that we do not bake in unnecessary costs into our energy system that will increase energy bills for all energy consumers.

The fastest, lowest cost and most flexible way to achieve the desired outcome is to allow any accredited technology provider to meet the technical requirements. These technical requirements should be the absolute minimum required as an emergency if the hot water demand is insufficient to maintain system security to minimise the costs imposed.

These requirements for new or altered DER would be anticipated to include:

- Response times
- Response mode, presumably disconnection of solar but could be ramped or localised
- Reliable delivery of outcome across the fleet (accounts for communications uptime, actual response), ie not on a per site but on a whole fleet performance basis
- System restart requirements on a whole fleet performance basis
- Communications specifications – presumably API
- Accreditation process – needs to be as low a hurdle as possible

While there are challenges in managing multiple providers, this approach offers many advantages:

- Market driven encouraging that the most cost effective and value generating solutions are implemented
- Can be readily adapted as new technologies and solutions emerge
- No on-going cost for redundant equipment, eg when a battery is installed
- Able to be applied nationally (twin element meter would not work in Vic)
- No requirement to replace the existing smart meter for post Jan 2017 sites that upgrade
- Deliver the optimal solution for each of the many different site configurations
- Allows for solutions that provide additional value to consumers and other parties

- Solutions could include smart meter disconnect, DRM, existing controls, inverter direct, third party

Technology providers could include smart meters from the Metering Coordinator, PV inverters, or third party control hardware providers.

### 3. DER Visibility and Monitoring Best Practice Guide

As both AEMO and SAPN have stated, visibility of the DER is important. Over the past 12 months an industry-led best practice guide for providing visibility and monitoring of DER has been developed by industry. This guide has now been published and is supported by all of the key industry bodies – refer to <https://www.dermonitoring.guide/>.

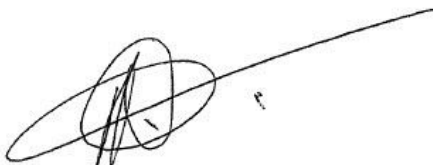
It is highly recommended that whichever solution is finally implemented that the requirements of this guide are adopted. The benefits of doing this are:

- Provides enhanced visibility to SAPN, AEMO and other industry bodies to ensure network security
- Harmonised data set available to energy market planners and regulators to manage the transition to a two-way energy market
- Facilitates the effective transition to the SAPN proposed dynamic export market
- Provides significant value to consumers through the provision of real-time granular data and insights

Power of Choice is all about choice for the consumer. Allowing the consumer to choose the best solution that meets their individual needs is the best option in this case as well.

In summary, while we wholeheartedly support AEMO and SAPN's leadership in the adoption of increased DER, we firmly believe that there are more effective and lower cost avenues to achieve the stated goals.

Yours truly,



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