AEMO - NEM Virtual Power Plant (VPP) Demonstrations Program: Wattwatchers Response to Consultation Paper

RESPONSE SCHEDULE

Company Name: Wattwatchers Pty Ltd (trading as Wattwatchers Digital Energy)

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Organisational Capability

Sydney-based Wattwatchers is a hardware-enabled energy data company. We create utility-grade solutions - mainly deploying behind the power company's meter - at consumer-accessible prices, 'working with' numerous third-party software applications.

We provide the real-time, highly-granular and cloud-connected monitoring, remote-switching and orchestration capabilities that will underpin the digital-and-distributed era for electricity, for use cases including: solar PV performance and optimisation, virtual power plants, demand response, measurement and verification (M&V), IoT integrations, artificial intelligence, EV deployment, and peer-to-peer trading, continuous payments and smart contracts (with and without blockchain).

Confidentiality (waived)

Please note that Wattwatchers does NOT regard this submission, in its entirety, to be commercial-in-confidence. It can be used, cited and published as AEMO sees fit.

SUBMISSION

In this submission, Wattwatchers is responding as a technology provider and project enabler that may be deployed by one or more Virtual Power Plant (VPP) and/or demand response program providers for the AEMO VPP Demonstrations, and subsequently as the energy marketplace evolves further.

While not a Project Proponent *per se*, we submit that AEMO and its VPP Demonstrations program would benefit from creating space for technology providers like Wattwatchers to be integrated into the program as 'enablers' and be provided with opportunities to test and input into the program, including the AEMO API development process, and also how data from consumer-owned assets can be effectively shared and used in the regulated markets (including Terms and Conditions). As AEMO has been briefed, separately to this consultation, Wattwatchers has a major proposal in front of the Australian Renewable Energy Agency (ARENA) that maps strongly to Consumer Data Rights/Customer Rights to Data and related issues.

We appreciate the opportunity to submit this response to AEMO and would welcome a positive response. If any clarification is required on elements of our submission please do not hesitate to contact Wattwatchers via Murray Hogarth and Darius Salgo.

Wattwatchers responds (below), where relevant, to the main questions posed by AEMO in its consultation paper.

Question 1.1 The primary focus of these trials is to demonstrate VPP aggregating battery storage systems. Do intending participants envisage incorporating demand response resources into your aggregated portfolios, and should this be incorporated into the VPP Demonstrations?

Wattwatchers is strongly of the view that a broad definition of VPPs should be adopted, including demand response. We refer to this as Virtual Power and Demand Plants (VPDPs).

Wattwatchers has experience orchestrating behind the meter loads in aggregate in the form of a virtual power plant (or more accurately a "virtual demand plant" [VDP]). We've proven the value of VDP in residential demand response programs by controlling pool pumps, resistive element electric hot water and HVAC systems using our Auditor A6M/3SW circuit level monitoring and switching product. This product can be operated through our own fleet management dashboard or through one of our partner software services such as the Greensync decentralised energy exchange (deX) or Energy OS (formerly HabiDapt, a CSIRO spinout. This enables scheduled and localised demand control from available resources to contribute to a retailer's market position or directly for control by the market operator.

The consultation paper refers to the energy-only (generation) and FCAS contributions of VPPs and excludes the use of demand as a potential contributor to the trial goals as an option. Wattwatchers would like to urge AEMO to reconsider these objectives to include VDP services within the scope of this project. VDP services are able to have an equivalent (and in the case of network constraints, better) overall result when compared to aggregated generation from batteries. Whilst unable to contribute to FCAS outcomes, a VDP can provide a low-cost, high-value option for energy management.

We see a clear case for this expanded 'concept' of a VPP, i.e. the VPDP, which can incorporate batteries, solar PV-equipped and non-solar PV homes and businesses, strategic loads for demand response (e.g. pool pumps, hot water, air-conditioning and EV chargers), and also data and control for network and grid services (including solar export control). We expect that home and business site aggregations that offer a mix of VPDP features are likely to be more effective and resilient over time, compared with total reliance on batteries, and will allow an evolutionary model where more solar and batteries may be added over time as site energy profiles change and return-on-investment equations become more attractive (i.e. battery prices fall and functionality/capacity increases).

2.1 Are the VPP Demonstrations objectives logical and achievable? Should any other objectives be considered for these VPP Demonstrations?

Wattwatchers welcomes this opportunity to be engaged on the AEMO VPP consultation project and is intending to integrate with the AEMO API when it becomes available, ideally at *beta* stage so that we can help with constructive insights and input to its practical implementation.

Also, currently, we are in the process of integrating with the API for the new Decentralised Energy Exchange (deX), led by GreenSync with support from ARENA, being the second technology company in the world to do so (after Tesla).

And, more generally, facilitating API integrations is core business territory for Wattwatchers.

We would further welcome opportunities for technical-level engagement with AEMO in regard to the planned API. For example, is it envisaged that the AEMO API will be two-way, providing useful AEMO-originated data back to integrated participants?

2.2 How can the VPP Demonstrations projects better capture consumer insights and improve customer experience and outcomes?

Wattwatchers urges AEMO to look to a wider set of VPP/VPDP models if it wants to see more and better consumer insights and improved customer experience and outcomes. We are happy to share our experience in and understanding of the customer space with AEMO.

2.3 Is AEMO's high-level approach to the VPP Demonstrations appropriate? What other arrangements could be tested under the VPP Demonstrations framework?

As above, Wattwatchers recommends that AEMO create opportunities to engage constructively with enabling technologies such as Wattwatchers, including through the API development and implementation stages.

4.1 AEMO would like the aggregated VPP dataset to be refreshed every five minutes to align with its operational forecasting function. Are VPP operators able to provide this data on a 5-minute refresh basis?

Wattwatchers endorses the AEMO API design, which the NSW Department of Planning and Environment also is specifying in its EOI for the planned $50M Smart Energy for Homes and Businesses Program (to which Wattwatchers also has responded), in structuring validation data in 5-minute intervals. As well as aligning to forthcoming settlement intervals across the National Electricity Market (from 2021), this structure ensures a uniform data service for measurement and verification of VPP outcomes as part of this project.

Wattwatchers submits to the AEMO that real-time, 5-minute monitoring be included as a mandatory element of the program to ensure the quality of data supporting the program outcomes, rather than accessing data from a range of sources, such as inverters, which may have unreliable data capture systems. In the case of Wattwatchers devices, as well as securely providing and logging time-and-date stamped 5-minute internal data, our devices stream 'short energy' data packets that are remotely configurable e.g. 5-second, 30-second or 60-second are commonly utilised configurations.

4.2 Should the values be reported as an average value across the 5-minute interval or an instantaneous value at the end of the 5-minute interval, or both?

Averaged over the five minutes.

4.3 What is the appropriate frequency for VPP operators to submit the device level dataset to AEMO? Is there a material difference in resources required to upload the data on a daily, weekly, or monthly basis?

Wattwatchers devices report in near real-time.

4.4 Are there any regulatory or other obstacles to participants facilitating the data sharing arrangements contemplated in this section?

Wattwatchers would highlight that innovation around Terms and Conditions will be important where end-customer owned assets are being utilised in VPP and VPDP scenarios.