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SUBMISSION TO THE NSW GOVERNMENT CONSULTATION FOR THE INTRODUCTION OF THE PEAK DEMAND REDUCTION SCHEME (PDRS)

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INTRODUCTION

Wattwatchers Digital Energy (Wattwatchers) thanks the Office of Energy and Climate Change (OECC) for this opportunity to respond to the consultation paper for the introduction of the planned Peak Demand Reduction Scheme (PDRS) in NSW. We commend the NSW Government on this farsighted initiative.

As part of this submission, Wattwatchers would like to formally register our interest in participating in the next steps for the PDRS implementation process, including the development of the next tranche of activities in the areas of 'demand response' and 'demand shifting', which are expected to start in the 2023/24 summer period.

In particular, we would welcome opportunities to meet with the OECC - and provide inputs to scheme design - as part of its planned program of targeted stakeholder engagement. This engagement could include one or more of our energy service company and technology innovation partners (e.g. [Evergreen Power Solutions](#) for automated management of HVAC systems, [LO3 Energy](#) for demand side management, [Shifted Energy](#) for electric hot water systems management, and a number of others, noting that Wattwatchers is frequently an enabling technology 'inside' the full solutions offered by third-party partners).

A key focus for Wattwatchers is the use of granular (circuit-level) real-time and historical electricity data for measurement and verification (M&V), which we believe will be strongly relevant to the still-to-come 'demand response' and 'demand shifting' components of the PDRS - and also the initial 'demand saving' component, which aligns with the existing Energy Savings Scheme (ESS) in NSW.

This submission to your consultation process focuses below on questions 8 and 9, which have been flagged by your team as the priorities for stakeholder responses at this stage.

OUR CONTEXT

Sydney-based Wattwatchers is Australia's leading digital energy platform, enabling fast, powerful and scalable solutions to monitor, analyse and control electrical circuits in real time – maximising the benefits from renewable energy.

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 open business model promotes technology collaborations, with dozens of third-party partner integrations with our REST API - in Australia, and internationally.

Product brands include Wattwatchers (hardware and data to the cloud), MyEnergy/mydata.energy (mobile app) and ADEPT (agile IoT platform for managing multi-technology fleets in real-time).

OUR RESPONSES

Below are two sets of responses to questions 8 and 9 from the PDRS consultation paper. The first is from Wattwatchers using established integration partner Evergreen Power Solutions (EPS) as an example, and the second is from emerging partner LO3 Energy in its own right.

Q8. What aspects of the PDRS would you like to know more about, and what's the best way to provide this information to you?

Wattwatchers and EPS: Wattwatchers and EPS are especially interested in how actual Measurement and Verification (M&V) can be utilised for the PDRS instead of, or in addition to traditional deeming and estimating methodologies. As an example, the combination of Wattwatchers' real-time, Class 1-accurate (equivalent accuracy to utility smart metering for billing and market settlement) with EPS' dynamic management hardware and software solutions* for use with HVAC infrastructure allows M&V to validate certificate creation under the existing ESS in NSW, and could do the same for the PDRS in tandem. The EPS software is capable of remote, coordinated and dynamic micro-management of HVAC systems - from residential through to large commercial chiller units - and this could represent a large-scale, accessible opportunity for the PDRS as it evolves. While EPS has traditionally specialised in data centres, a valuable source of demand management in its own right, its solutions are broadly applicable. We would

welcome the opportunity to explore this in the context of the introduction of the PDRS, its early application to ‘demand saving’, and the further work still to be done on the mechanisms for ‘demand response’ and ‘demand shifting’.

Ongoing engagement: Ideally, Wattwatchers and EPS are seeking an opportunity to meet with the OECC team to share more information about the methodology being used and the results being achieved. In terms of the best way to provide further information to Wattwatchers and relevant partners more generally, email works well for regular communications.

**This technology from EPS, with Wattwatchers monitoring ‘inside’, is known as EDD-RT (External Digital Demand Response Technologies).*

LO3 Energy response to Q8: Wattwatchers and LO3 Energy are actively working on integration opportunities for managing Distributed Energy Resources (DERs) as well as Demand Side Management (DSM). LO3 Energy asked Wattwatchers to include its responses in our submission, which we have done below (for each of questions 8 and 9):

1. How will systems that leverage dynamic weather and energy data be treated if under some circumstances they do not reduce load during the set PDRS hours? Example: It is very sunny at 3PM at a site with PV behind-the-meter. A certain PDRS system notices that there is plenty of supply network-wide so it shifts available loads to use this solar, reducing exports. Would PDRS prefer that those exports go to the grid now, and have those loads run later? Or will there be some sort of incentive for onsite consumption when the network doesn’t need exports? The set hours seem a bit under-optimised when grid conditions vary dynamically. Platforms that can optimise their assets dynamically should be preferred over those with simple TOU methodologies, but depending on the details of PDRS certificate creation they could be punished for responding to live data.
2. How will exports be treated generally? Are they simply negative demand, so more exports increase demand reduction? Will there be any penalty for overproducing or limitations on how much exports can count towards peak reduction?
3. Is there a public list of participants in ESS that are looking for systems to help add time granularity to their programs so they can participate in PDRS as well? If not, could one be published?
4. Email is a good communication channel.

Q9. What activities, technologies and business models are you most eager to see in the PDRS and why are these important to you?

Wattwatchers and EPS: As indicated above, Wattwatchers is particularly interested in expanding opportunities for peak demand reduction (and energy saving) through the use of our solutions, and similar metering/monitoring technologies available in the market, for actual reduction measurement and verification (M&V). We believe this can benefit the emerging PDRS by increasing OECC and IPART confidence in demand reduction (and energy saving) activities that are not well-suited to methodologies based on deeming and estimating *i.e. augmentation and expansion of peak demand reduction options*.

Our solution partnership with innovative partner EPS, which also is based in NSW, provides a clear example of such activities, and we believe that Wattwatchers and our partners can assist OECC and IPART in regard to relevant scheme design. Using technology-enabled HVAC optimisation targeting chiller units in commercial and industrial sites, as an example, the combination of Wattwatchers for baseline-setting and M&V, and EPS for dynamic load management, can open up a potentially large source of peak demand with minimal disruption to participating sites and strong returns on investment for participants through ‘value-stacking’.

LO3 Energy response to Q9: Demand side management (DSM), whether behaviour-based or automated, is important to us. We view it as the easiest, most efficient way to reduce peak. Especially for behaviour-based models, providing the right incentives and communicating them to customers can reduce peaks w/o installing equipment or disrupting operations at all. Compared with traditional energy efficiency measures, DSM can target a specific time of day and reduce peak loads that aren’t going to be replaced in the immediate future (like an EV). To us, this makes DSM more appropriate for PDRS than efficiency.

Whether behaviour-based or automated, DSM programs can be further separated into two types: shift and response. Shift programs can be as simple as a TOU rate; the key for a good program is communicating this rate to consumers effectively so they understand the everyday benefits of reducing their peak load. There are also more advanced shift programs that give users updates on how they compare to their neighbours, gamifying peak reduction; programs like these can pair with TOU rates or stand alone in the right markets.

Response programs rely on network data and integration with utility operations to signal a DR event, at which stage customers are notified and invited to drastically and immediately reduce load to prevent network outages. This is usually paired with appropriately large financial incentives. While effective in certain circumstances, for

PDRS and its regular cycle of peak reduction, shift or hybrid programs are likely more appropriate than pure response activities.

Whatever the approach, DSM is required to get the most out of PDRS. We look forward to seeing what standards and requirements PDRS will develop around DSM, and will be happy to consult on the issue if desired by the OECC.

CONCLUSION

Thank you again for this opportunity. Our team and our partners look forward to further engagement on the PDRS.

SUBMITTED ON BEHALF OF WATTWATCHERS AND PARTNERS BY:

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