

NSW Peak Demand Response Scheme

Response to April 2022 Consultation Paper - Rule 1

Executive Summary

Emerald welcomes the opportunity to respond to this consultation paper on the proposed Peak Demand Response Scheme (PDRS) - Rule 1 . As a committed, long-standing supplier of products into the current EES and other state energy efficiency programs, Emerald feels the consultation process is a valuable part of ensuring the scheme's ongoing integrity and effectiveness.

We make the following general key points in response to the consultation paper:

- We welcome the proposed PDRS Rule and in particular its commitment out to 2050
- The use of digital assets and API connections would support increased understanding of the PDRS and provide real-time changes to parties utilising tools which are integrated with the API.
- The alignment of activities and accreditations with the ESS is extremely important in ensuring barriers to entry are reduced and uptake of the PDRS is high.
- Although there may be cases where PRCs will be created where HWS will be wired to controlled/off-peak loads which would be contradictory to the scheme, we still believe that all HWS should be allowed to be claimed under the PDRS for ease of complexity reasons.
- Emerald strongly believes the determination not to include residential HWS in the PDRS is an oversight and should be reconsidered.

Emeralds' responses in this paper are targeted at the questions where our expertise is most relevant. The following summary provides feedback to these questions.

1. What administrative processes could be improved by implementing better digital systems? How would that impact your organisation?

Emerald welcomes the use of digital systems to improve administrative processes. As both a hardware and software developer, increasing our ability to integrate rules and legislation into our applications can significantly support ACPs and consumers to understand the requirements of the program. Automatic updates ensure consistency with changes to the rule and real-time updates can be provided to relevant parties.

2. Do you use systems managed by other organisations to deliver the ESS rules and/or would you use them for the PDRS? If so, which ones, and how do you use them?

We do not currently use systems which are used to deliver the ESS rule.

3. Are there any digital tools, or specific software applications that could improve the PDRS customer experience or understanding of the PDRS? If so, what are they and how could they be used?

Emerald has developed an Energy Management System named emerald EMS. Our strategy is to integrate energy efficiency hardware used in the ESS and eventually the PDRS with our software application. The emerald EMS is used as a tool for consumers to understand consumption patterns as well as control devices, and the business emerald EMS is a voice in the community which speaks to energy efficiency programs nationally. If we can integrate the PDRS Rule with our application, we can deliver information directly to consumers, increasing understanding of the PDRS.

4. Would you use an open calculation API if it is made available? Why/why not?

Emerald would find an open API extremely useful considering our business uses software to deliver information to consumers and ACPs. If we could use an open API, we would be able to deliver real-time updates and changes into our software applications.

5. Do you support the draft calculation approach and requirements for each of the technologies in the RDUE method? Please highlight positives and negatives, including any specific barriers to uptake of this activity. Space is provided in our online form for you to provide answers on each activity.

The calculation methods used and the assumptions are appropriate for each activity. We agree with the approach to align activities with the current ESS where practically possible to avoid confusion and create less barriers for entry.

6. Should the PDRS have a requirement for the installed end-user equipment under HVAC1, HVAC2, WH1, WH2 and SYS2 to have DRM 1, 2 and 3 capability under AS/NZS 4755? What are the alternatives?

Emerald do not believe that DR capability should be a requirement for equipment considering the activities are listed under section 7 - peak demand savings capacity. Savings capacity comes from a reduction in consumption rather than the ability to reduce consumptions through a DRM.

DR should only be a requirement of equipment which is to be used in section 9 - peak demand response capacity.

We understand that the initial Rule will not consider sections 7.3, 8 and 9, however when considering these sections it would be beneficial to allow equipment to be claimed across multiple activities under the PDRS. For example, a heat pump HWS which has DR capability should be eligible for PRCs for both peak demand savings capacity as well as peak demand response capacity.

7. Should the PDRS incentivise the replacement of continuous tariff hot water systems that are on off-peak or controlled load tariffs?

Emerald do not believe that the PDRS should incentivise hot water systems (HWS) which are connected to controlled/off-peak loads. This is contradictory to the scheme, as the load is used outside of peak usage periods.

However, considering the only hot water activity is commercially focused, the vast majority of HWS are not connected to controlled loads as the water is used during peak hours.

Additionally, many new HWS have in-built controllers. The Emerald Energy Heat Pump has a built-in controller which allows consumers to schedule the product to work during certain hours. Our recommendation is to install our heat pump on the continuous load and not the controlled load. This ensures the heat pump always has power supplied to it and functions such as the booster element can be utilised in the event more hot water is required. If the consumer is concerned about costs, they can schedule the device to run only in off-peak periods and still access the booster element if required.

With the vast uptake of solar in NSW, there are also additional benefits to running HWS during sunlight hours for consumers who have a solar system. With our Emerald Energy Heat Pump integrated with our emerald EMS application, we can

ensure that the heat pump is operating when there is excess production from the solar panels. If the heat pump only had a power supply during off peak hours, our ability to use IoT devices to control loads and make the most of excess solar production would be limited.

Providing evidence that a HWS which was on a controlled load and has been switched over to the common meter would also be difficult for all parties involved.

Considering the challenges and nuances listed above, we believe it would be easier for the scheme administrators and ACPs to allow all HWS to be eligible, even though there will be a small percentage of HWS claimed on off-peak loads which would be contradictory to the scheme.

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

Emerald will be involved in forums for the PDRS and find these information sessions very valuable. We have a keen interest in understanding future opportunities in sections 7.3, 8 and 9, as these sections will likely involve DR and IoT devices which can control loads.

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

Emerald strongly believes the decision not to include residential HWS in the PDRS in the first PDRS Rule is an oversight. Considering our points in question 7 regarding our recommendations to ensure our Emerald Energy Heat Pump is not connected to any controlled loads, the determination not to include this activity seems contradictory. There are many benefits to ensuring that HWS are always supplied with power, including ensuring solar production can be used to heat the water, IoT devices can manage the loads efficiently and effectively, that backup elements can be utilised and that in-built controllers can be programmed to further increase savings.

The current ESS also does not currently consider any IoT devices such as In-Home Displays or Smart Thermostats. Given that IoT devices are a great way to control loads both automatically and manually through software applications, we believe that future activities in both the ESS and the PDRS must consider the use of IoT devices. There are benefits in both reducing consumption and also shifting consumption if IoT devices are utilised. With our emerald EMS, we have the capability of controlling a range of equipment in the premises including:

- ensuring loads only operate during off-peak periods

- geofencing a premises to ensure loads only operate while there are occupants in the premises, or switch off automatically when occupants leave the premises
- switch loads on/off based on solar production in real-time
- react to demand challenges on the grid and send notifications to consumers to switch loads off from the software application.

IoT devices are becoming increasingly prevalent in energy efficiency applications as there are significant carbon savings which can be achieved, and so both the ESS and the PDRS should be incentivising these devices.

Emerald would be happy to provide further detail or clarification on any of the above information should this be required. Please contact Daniel Zamparelli on daniel@emeraldplanet.com.au or 0447 636 226.

Regards,

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