



Wednesday, 10 February, 2021

Alex Atkinson  
Policy Officer, Energy Demand and Efficiency Policy  
Energy Demand, Programs and Safety

energy.upgrades@delwp.vic.gov.au

Dear Mr Atkinson,

### **Victorian Energy Upgrades proposed activity – Smart Thermostats**

CitiPower, Powercor and United Energy are committed to working closely with communities, government and other stakeholders to drive down carbon emissions and provide a cleaner environment for Victoria. One way we are achieving this is by integrating new consumer technologies into our network operations and we are supportive of smart thermostats being considered for inclusion in the Victorian Energy Upgrades (VEU) program.

Our networks distribute electricity to more than 1.8 million homes and businesses across Melbourne's CBD and inner suburbs, south eastern suburbs of Melbourne, the Mornington Peninsula and Western Victoria. We are actively investigating innovative ways to deliver safe, affordable and reliable power to our customers and manage peak demand on our network, helping support more solar, electric vehicles and other technology.

That's why we have developed the Summer Saver program<sup>1</sup> to manage localised constraints on the United Energy network through behavioural demand response. We are also trialling control of air conditioners to manage localised network constraints on the Powercor network through our Energy Partner Program<sup>2</sup>. Our overall approach is to pursue non-network solution trials and continuously improve them to deliver the best economic outcomes for our customers.

Air conditioners are a popular residential appliance that contribute to peak demand on hot summer days. Analysis of the United Energy network maximum demand indicates that air conditioners contributed 49 per cent of the summer peak demand in 2019. While peak electricity events are relatively rare, occurring on average 4-5 days a year, they are a key driver of capital investments to increase network capacity.

We have deployed smart thermostats to a small number of customers as part of Powercor's Energy Partner Program. This voluntary program provides us with the ability to manage air conditioners during high peak events, moving them to higher temperature set points to reduce demand on the network. This allows us to avoid and defer upgrades for just a handful of peak days.

Smart thermostats can also provide benefits to customers such as remotely controlling heating and cooling, reducing energy use and costs, and integrating more broadly with smart home devices. However, driving residential uptake of these remote load control devices through the VEU program

<sup>1</sup> See <https://summer-saver.digital.unitedenergy.com.au/registration>

<sup>2</sup> See <https://www.powercor.com.au/energy-partner/>

will maximise the benefits to the Victorian community, particularly if customer uptake is aligned to demand management programs run by distributors and third-party aggregators.

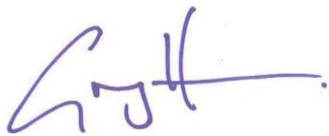
We are well placed to run demand management programs that use these devices. We have extensive experience using demand management programs and have seen how a program based on control of air-conditioning loads provides significant potential for residential peak demand reductions. Our Energy Partner Program demonstrates how third-party devices can be used to mitigate localised network constraints, similar to that envisaged in the VEU program. If smart thermostats are to be included as part of the VEU program, we encourage the Department of Environment, Land, Water, and Planning (DELWP) to consider the range of ways these devices will support localised network demand response programs as well as broader-based response programs.

We see distributors playing a key role to unlock further demand management opportunities through co-ordination of customers with a smart thermostat. Distributors can do this if all available customers with a smart thermostat on a part of our network with a network capacity constraint can be included in our existing programs which recruit customers each year. Without distributor involvement, it would be difficult for other parties to enrol sufficient customers to provide the required network services and maximise the overall benefits of smart thermostats for customers and the Government.

Below are our responses to DELWP's questions. We would be pleased to provide further information or discuss our experiences and findings with you.

For more information, please contact me at [greg.hannan@ue.com.au](mailto:greg.hannan@ue.com.au)

Yours sincerely,



Greg Hannan

**Head of Network Strategy & Non-Network Solutions**  
**CitiPower, Powercor and United Energy**

Questions for Stakeholder Feedback	Comments
<p><b>1A.</b> Do you think there is a potential market for smart thermostat activities in Victorian homes? <i>Yes / No</i></p> <p><b>1B.</b> Please explain your response</p>	<p>Yes, there is a market for smart thermostats in Victorian homes.</p> <p>Powercor is already using smart thermostat devices to manage demand in localised constrained parts of the network as part of its Energy Partner program. The voluntary program provides customers a smart thermostat device that interfaces with their air conditioners and provides our network the ability to adjust the temperature for a few hours on extreme heat days when electricity demand is at its peak.</p> <p>From a network perspective, having a critical mass of smart thermostats in areas where there is high growth (e.g. western growth corridor) and/or levels of critical energy risk would allow us to run demand response programs and potentially defer costly network augmentation.</p> <p>We also see potential for these devices to provide the ability to accommodate new loads on our networks such as electric vehicles by reducing constraints in areas where demand levels are already high.</p> <p>We would encourage that partnership arrangements with distributors are implemented to allow the Victorian Government to get greater insight into the locations that would most benefit from these devices such as those areas where there are emerging or forecast localised network constraints. This information is already being provided by United Energy in our Distribution Annual Planning Report and we are able to share postcode areas with DELWP for all of our three networks.</p> <p>We would also support a joint customer engagement campaign to provide participants with information on demand management opportunities so they could maximise the benefits of these devices.</p>
<p><b>2A.</b> Should the activity be available to residential premises only? <i>Yes / No</i></p> <p><b>2B.</b> Please specify other sectors or types of premises that you think would benefit from this activity.</p>	<p>No. While residential premises should be the priority, small and medium-size businesses, commercial and non-industrial properties would also benefit from this initiative. Allowing commercial organisations of varying sizes to participate in demand response programs using these devices will increase the economies of scale for demand management by the networks as well as the amount of energy and emissions that could be reduced.</p>

	<p>It's important to note larger buildings are likely to have their own energy management systems and these are likely to already have in-built smart thermostat capabilities.</p> <p>If restricted to residential customers only, this could still deliver benefits to networks. Residential customers use the highest load during our peak demand periods and the provision of smart thermostats in areas where there were emerging or forecast local constraints at the time of the network peak could defer costly network augmentation.</p>
<p><b>3A.</b> Are there VEU smart thermostat eligibility criteria that should be modified, removed or added? <i>Yes / No</i></p> <p><b>3B.</b> Please explain your response</p> <p><b>3C.</b> Do you have any other feedback on the proposed VEU smart thermostat eligibility criteria? <i>Yes / No</i></p> <p><b>3D.</b> If yes, what is your feedback?</p>	<p>No. Overall, the potential VEU smart thermostat criteria list encompasses what would be required to allow distributors to run demand management initiatives and deliver broader community benefits.</p> <p>We urge that smart thermostats be compatible with our demand management platforms at a low voltage level. We are happy to provide more detail on these requirements to DELWP.</p>
<p><b>4A.</b> Should products that wish to be registered under the program provide a demand response capability statement? <i>Yes / No</i></p> <p><b>4B.</b> Please explain your response</p> <p><b>4C.</b> What other additional information should be provided?</p>	<p>Yes. We would suggest all products being evaluated and considered for this program must have demand response functionality. While smart thermostats can provide benefits to individual customers without this, demand response capability will significantly broaden the potential benefits such as cost and environmental savings, to the Government and Victorians.</p> <p>We recommend that any product eligible to be registered in the program should provide a thorough demand response capability statement including:</p> <ul style="list-style-type: none"> <li>a. Air conditioner brand compatibility</li> <li>b. Wifi connection requirements</li> <li>c. Reporting capabilities</li> <li>d. Distributed Energy Resource Management (DERMS) platform interface capabilities</li> <li>e. Remote controls options that allow networks or third party aggregators to change set points as agreed by customers.</li> <li>f. Customer privacy and Foreign Investment Review Board (FIRB) compliance. Networks have specific privacy obligations regarding customer data including how it is to be stored, transferred and managed. Under our FIRB requirements, all customer data</li> </ul>

	<p>must be housed in onshore Australian servers, and no customer data can be accessible to overseas employees. Given many of these devices will likely come from overseas we will need to either ensure that customer data is protected according to these requirements or be granted an exemption from this requirement.</p>
<p><b>5A.</b> Are there any other technical demand response requirements the department should consider for smart thermostats? Yes / No</p> <p><b>5B.</b> Please explain your response</p>	<p>Yes. We would encourage the technical standards available for Demand Response Enabling Devices (DRED) to be taken into consideration when the demand response requirements are being defined for smart thermostats.</p> <p>These include:</p> <ul style="list-style-type: none"> <li>• Part 1 of AS/NZS 4755 (4755.1), which defines the framework for demand response capabilities and requirements for demand response enabling devices (DREDs).</li> <li>• Part 3 AS/NZS 4755 (4755.3), which defines the interaction of DREDs and electrical products related to operation instructions and connections of air conditioners.</li> </ul>
<p><b>6A.</b> Is there any data available on the energy savings from smart thermostats in Victoria or Australia that you know of and can share with the department? Yes / No</p> <p><b>6B.</b> What is that data?</p>	<p>Yes. Powercor has used smart thermostats as part of our demand management program since 2018. The program financially rewards households for reducing their electricity use on high peak demand days.</p> <p>On days when a peak event was declared, Powercor notified households when it intended to set the temperature on the air conditioner up to a maximum of 26 degrees.</p> <p>During the inaugural program:</p> <ul style="list-style-type: none"> <li>- 1067 residential customers in the Surf Coast and Bellarine Peninsula participated</li> <li>- Five events were called</li> <li>- 93 per cent participant success rate was achieved</li> <li>- 1.5MWh in energy was saved per event</li> <li>- On one day alone, this helped save 474kW or enough electricity to power more than 200 homes.</li> <li>- Participants received \$20 for every event they participated in.</li> </ul> <p>The Energy Partner program is now operated in more localised constrained areas and is targeted at a smaller number of customers.</p>

	<p>We can provide further data in March 2021 following the conclusion of this program and can include this as part of a detailed briefing to DELWP.</p>
<p><b>7.</b> What are other considerations the department should make in the deeming method for smart thermostats?</p>	<p>As outlined previously, smart thermostats provide benefits in various ways, particularly if used as part of distributors' demand management initiatives.</p> <p>The use of smart thermostats in demand response programs can act as a way to reduce network constraints at times of peak demand.</p> <p>We urge DELWP to consider the importance of encouraging participation in demand response programs and considering how this could be linked to the development of associated Victorian Energy Efficiency Certificates (VEECs).</p> <p>Other considerations should include:</p> <ul style="list-style-type: none"> <li>- How to link customers with distributor's demand response programs at the initial VEU signup stage – this could mean more VEECs are created based on customers signing up to a program;</li> <li>- More VEECs created when customers provide permission to distributors to access contact details to support in marketing of DR programs;</li> <li>- The method of installation – will providers install or allow customers to self-install;</li> <li>- In consultation with distributors, targeting areas for demand management;</li> <li>- Opt-in or compulsory participation;</li> <li>- Communications method, such as customer WiFi;</li> <li>- Availability when required;</li> <li>- An ability to create VEECs after customers demonstrate participation in a demand response program that has delivered tangible benefits to reducing demand and emissions.</li> </ul> <p>We are also happy to share insights from our existing procedures for estimating and assuring benefits that our demand management programs deliver.</p>
<p><b>8A.</b> Are there technical installation requirements that you think are necessary? Yes / No</p> <p><b>8B.</b> Please explain your response</p>	<p>Yes. Reliable Wi-Fi connectivity has proven to be a challenge in the past. The ability for the device to connect via an application programming interface (API) with the right data in the right format to our platforms is critical. Without this, there would be significant costs to modifying our existing systems.</p>

<p><b>8C.</b> What do you think the technical challenges are that might prevent uptake of the activity?</p>	<p>We would also strongly encourage that VEECs are linked to these devices being installed by the provider, rather than the participants.</p> <p>Our experience during the 2020-21 Energy Partner program is that self-installation rates by participants are low. (Approximately one-third of registered participants have installed these devices correctly).</p> <p>We will be analysing why following the conclusion of this year's program. However, given these low numbers, the benefits of providing devices under the VEU program without installing them may be undermined if the majority of participants do not install them correctly.</p>
<p><b>9A.</b> Are there any skills or training considerations for the proposed activity? Yes / No <b>9B.</b> If yes, please provide further information</p>	<p>Yes, skills training for the customer, the installers, and the aggregators and networks around customer benefits, basic troubleshooting, and privacy will be critical.</p>