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ERC0396

Improving consideration of demand-side factors in the ISP

Wednesday, July 24, 2024

EnergyFlex Submission

Thank you for the opportunity to make a submission to the consultation focused on Enhancing the Integrated System Plan to Support the Energy Transition. We have chosen to focus solely on ERC0396 Improving consideration of demand-side factors in the ISP. Within that submission we find we are able to provide a view on questions 6, 7, and 8.

EnergyFlex is an energy data and analytics company focused on educating consumers to understand the changes involved in the energy transition and, by understanding, change their behaviors to prosper through the transition. Our app is free and provides consumers with a scale-free, non-dimensional rating of whether their energy use profile is supporting or opposing the energy transition. This rating, coupled with guidance on how to reduce energy costs and emissions, is designed to spark self-organization within the community to accelerate the energy transition.

Our focus is clearly on CER, but we expand our definition to include consumer behaviour in addition to specific energy equipment that can be externally orchestrated. In this endeavor, we define the way a consumer uses energy as their personal 'energy asset' and educate these users on how to manage and improve this asset. Clearly, user agency is a key element of our definition of CER. The current ISP does not recognize this at all.

We recognize that our submission raises issues that occur before the normal discussion of CER begins. That is intentional. We believe that if we do not co-opt consumer behaviour to deliver a large portion of the firming requirement of a renewable energy system, then we will not be able to deliver an economically viable renewable energy system at all.

Of course, we are keen to discuss this view with the AEMC.

Regards

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Question 6: Should AEMO be required to expand consideration of CER and distributed resources in the ISP?

In short, yes. In our view, CER, in particular rooftop solar, is currently driving the energy transition. CER has rights within the NEM that no other participant has: no other generation source has an as-of-right to sell whatever power they generate without regard to the spot price or whether the grid needs that power at that time or location.

Exercise of this right is what leads to the daily price crash during solar generation periods and the subsequent price spike as solar generation terminates. Wind power does not create the same effect overnight because it is almost exclusively commercial and therefore semi-scheduled.

Given that CER has such a dramatic effect on the state of the NEM, failure to properly consider CER, as far as is practicable, quite probably invalidates many of the ISP conclusions.

(a) Should the ISP's analysis include greater consideration of the assumptions and contingent factors underpinning the expected development of CER and distributed resources? Why or why not?

Elucidation of the key assumptions underpinning any analysis is logically the first step in creating the foundation for validity of the analysis. The current omission of CER assumptions in the ISP makes it difficult to identify a common start point for discussion of the plan.

This is evident even in the framing of this rule change. For example, Section 3.1 of the consultation paper notes that "The proponent considers AEMO should be required to expand its analysis of the uptake and availability of orchestrated CER and distributed resources…" The note to this clause defines CER as "resources installed by consumers that generate or store electricity or that can alter demand in response to external signals including rooftop solar, batteries, electric vehicles and chargers, and controlled loads such as water heaters and air conditioners."

The key difference between these two statements, and therefore an assumption that should be made explicit, is the difference between 'CER' (as defined by the RCR) and 'orchestrated CER'. Is CER that is not orchestrated, for example a solar and battery system that is operated solely by the owner, part of this definition? Further, the definition limits CER to energy assets and does not include load flexibility in the definition of CER, whether this is achieved voluntarily or through some form of orchestration.

Failure to explicitly state the assumptions upon which the analysis is based makes it extremely difficult to raise the issue that the whole ISP is based upon the unstated assumption that load is not and cannot be influenced, cannot be caused to become variable and cannot be orchestrated.

The fact that this is patently false is demonstrated within the approved distribution tariff structures for the various distributors. For example, the Energex 2024/25 Tariff Guide has this to say about Time of Use tariffs at Section 3.1.1 (p 11):

> Time of Use (ToU) volume charge - A variable volume charge, meaning the price charged for energy consumed changes at different times of the day. Prices are lower during Day (Off Peak) Hours and higher during Evening (Peak) Hours. Overnight (Shoulder) prices apply in-between the Evening and Day periods. **These charges are designed to reduce demand on the network during peak times**

> **by encouraging customers to switch nonessential electricity consumption to other periods.**[1] (emphasis added)

And this to say about Demand Charges (p12):

> These charges are designed to reflect the future augmentation costs associated with providing sufficient network capacity to customers to cater for their maximum network demand. This means that customers who put more pressure on the network are charged more. **As a result, these charges encourage customers to reduce their electricity costs by reducing their maximum demand.** (emphasis added)

Clearly Energex (and all other distributors that we have reviewed) view consumer behaviour as part of the CER grouping, yet this is not included in the Minister's definition of CER. And because the assumptions are not explicitly stated, the influence of consumer behaviour change cannot be ascertained.

The lack of listing and explanation of the underpinning CER assumptions makes it exceedingly difficult to raise the question of how to properly involve CR+ER within the NEM.

(b) Do you agree that AEMO is currently constrained in its ability to access relevant information about distribution network hosting capacity and relevant CER forecasts from DNSPs?

We cannot comment on the breadth or depth of relevant CER information that AEMO can access from DNSPs. However, so long as AEMO approach the NEM from a position of control and assume that the end user is at best a passive participant in the system, then no amount of data will properly inform the analysis leading to valid CER forecasts.

CER is supposed to encompass consumer resources and must necessarily include consumer agency in this analysis. And yet, the given definition of CER, particularly when it is appended by 'orchestrated', envisages consumers interacting with the energy system only through a third party such as a VPP or an aggregator. We identify four retailers who currently buck this trend: Local Volts, Amber Electric, iO Energy and FlowPower all enable end user participation in the NEM by offering safe consumer access to the spot market. Crucially, these retailers do not orchestrate or proscribe their client's behaviour. Nonetheless, these consumers do modify their usage in response to an external signal: they decide their energy action by applying their own self-interest to the spot price. We see this as the future of electricity retailing within a renewable powered system and yet, the impact of consumer agency expressed through energy behaviours is missing from the ISP.

Question 7: Will the proposed solution address the issues raised by the proponent and improve the robustness of the ODP?

(a) Would the proposed rules enable more in-depth analysis of CER and distributed energy and its impact on operational demand forecasts in the ISP? Why or why not?

Explicit statement of the assumptions underpinning CER analysis and forecasts in the ISP would seem to be a crucial first step in improving the CER portion of the ISP.

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[1] https://www.energex.com.au/__data/assets/pdf_file/0019/1323640/Energex-Network-Tariff-Guide-2024-25.pdf

(b) What type of demand-side information should be provided by DNSPs that would be useful for the ISP analysis?

As a minimum, DNSP should be required to report on the efficacy of the distribution tariff structure changes (ToU and Demand Charges) in causing consumer behaviour change.

Question 8: What are your views on the costs and benefits of the proposed solution?

(a) What do you consider will be the benefits of the proposed solution? Is there anything that might erode the benefits or reduce the likelihood of achieving the benefits? Are there any additional amendments that could be made to improve the benefits?

Inclusion of a statement on the expected development and operational behaviour of CER and distributed resources would, at the very least, elevate CER to a position where it can be properly considered and argued within the ISP. The main issue that would erode the value of this discussion would be the continued myopic definition of CER as energy equipment that can be externally orchestrated, ignoring the value of enabling consumer behaviour through improved agency.

(b) What are the costs DNSPs might incur in complying with requirements to provide further information? Do the benefits outweigh the costs? Should DNSPs be required to provide further information in their DAPRs or elsewhere?

We cannot comment on this aspect.

(c) Would the proposed solution impose costs on any other stakeholders? If so, how might these costs be minimised?

We cannot comment on this aspect.