



2 August 2018

By email: info@energynetworks.com.au

Dear Stuart and Chris

Re: AEMO AND ENERGY NETWORKS AUSTRALIA 2018, OPEN ENERGY NETWORKS, CONSULTATION PAPER

CitiPower, Powercor and United Energy welcome the opportunity to respond to Australian Energy Market Operator (**AEMO**) and Energy Networks Australia's (**ENA**) consultation paper into Open Energy Networks in Australia. We support the proposal to establish a coordinated approach to facilitate distributed energy resources (**DER**) into the market. We further recommend option 2, where distribution network service providers (**DNSPs**) optimise distribution level dispatch, as the preferred model.

Our response highlights a number of key matters that AEMO and ENA should consider. In particular, by taking into account DNSP capabilities and expertise, option 2 delivers a platform at a lower cost to customers, can be established more quickly and be delivered at lower risk than other options.

DNSPs have the network, planning and operational capabilities to implement distribution-level dispatch

DNSPs have many of the capabilities required for distribution-level dispatch under option 2. We are rolling out analytics to enhance load forecasting, establishing low voltage (**LV**) monitoring via advanced metering infrastructure (**AMI**) meters and implementing demand response (**DR**) initiatives with aggregators and customers to manage distribution network level constraints.

In addition, we are already establishing foundational capabilities required for more complicated aspects of DER/DR management. We are in the process of implementing capabilities needed to analyse real-time network and systems data. This will provide us with greater visibility and ability to detect, forecast and manage the effect of DER on our networks. We are also exploring an aggregation and disaggregation capability and a platform to facilitate DER/DR connection and dispatch. This gives us a head start on implementing the functionality required to forecast and optimise DER.

Option 2 would also leverage the specialist expertise our Network Planning and Control and Operations staff have built up about our networks over decades. Using granular knowledge of network configurations, we can rapidly switch between distribution transformers to minimise customer disruptions during faults. In addition, our staff perform switching on an hourly basis to facilitate new load and generation connections and maintenance and replacement activities.

AEMO or an iDSO would need to establish a number of new network planning and operation capabilities under options 1 or 3, increasing costs and potentially decreasing network safety and reliability

In contrast to option 2, options 1 and 3 would require AEMO or an iDSO to establish new capabilities to facilitate forecasting and distribution level optimisation.

Regarding option 1, while AEMO is experienced at wholesale-level dispatch, AEMO would need to establish a new set of technical capabilities and processes to implement distribution-level dispatch to account for network constraints and DNSP reconfiguration and maintenance activity in real time. Establishing these capabilities externally increases complexity and risk.

The scale of this task is much greater under option 1. An AEMO orchestrator would need to establish planning, control and operations capabilities across all distribution networks in the National Electricity Market (NEM). The distribution network would also need to be actively managed down to the LV level (given this is where the bulk

of the DER activity is expected to occur). With AEMO performing these roles, DNSP network knowledge would only be leveraged via mandated information provision, which is unsuitable in a real-time environment. At the same time, these arrangements would duplicate existing DNSP capabilities.

Similarly, iDSOs under option 3 will be required to develop optimisation capabilities from scratch.

Option 2 will reduce the cost and complexity involved in integrating new and existing IT capabilities

In addition to the network and operational capabilities described above, option 2 provides the simplest approach to IT development, targeting relatively simple capabilities.

New software could integrate easily and cost-effectively with existing DNSP systems and platforms. The systems and platforms requiring integration span the entire business, ranging from:

- network systems (e.g. Demand Response Systems, Distributed Energy Resource Management Systems, Supervisory Control And Data Acquisition, Outage Management System, Geospatial Information System, Distribution Management System)
- corporate systems (e.g. Customer Information System, Asset Management Systems, Workforce Management) and
- data feeds from devices (e.g. IoT devices, customers' smart devices).

While we would need to develop new capabilities to communicate up and down the value chain (with DER aggregators and AEMO), we have the opportunity to develop uniform standards now, before they are created. This prevents parties implementing multiple platforms in order to communicate with various DNSPs.

IT cost, complexity and risk will increase under options 1 and 3

IT capabilities developed under options 1 or 3 would need to guarantee that DNSP actions to manage network constraints and conduct fault response, including reconfigurations and switching, were taken into account in real-time. Given that DNSPs have different IT setups and processes, options 1 or 3 would either require the AEMO/iDSO orchestrator to adapt multiple interfaces or require DNSPs to perform modifications to their existing setups to ensure standardisation. Either scenario would require significant investment. Furthermore, providing more parties with access to sensitive data increases potential security risks.

In addition, AEMO would need to implement new IT capabilities to run real-time, dynamic models. This includes managing data for the entire electricity system spanning the wholesale level to the LV and NMI connection level. The large-scale nature of the project increases risk and would likely be executed more slowly than option 2. Similarly, under option 3, iDSOs would have to establish entirely new capabilities to analyse the large volumes of real-time data.

Option 2 provides the greatest alignment between risk and responsibility in delivering safe, reliable and affordable services to customers

Under options 1 or 3, network constraints would be less likely to be accounted for during distribution level optimisation, given the orchestrator would be removed from constraint oversight and responsibility.

In particular, option 3 would result in iDSOs, who primarily have a commercial focus rather than a network safety and reliability focus, effectively influencing network operations. The *ACCC Inquiry into retail electricity prices and supply*, demonstrated the adverse outcomes price-focused retailers have had on customers in the energy market. The ACCC notes that 'The proliferation of contract offers creates significant confusion for

consumers who are required to expend effort to analyse often incomparable offers in the hope of realising savings on their electricity bills.¹

Instead, option 2 best aligns risk and responsibility. DNSP's must operate a safe and reliable network for customers, reinforced through reliability incentive requirements, Distribution Code requirement and network safety requirements. Given the strength of these existing regimes, a loss of network control while bearing responsibility for network issues, may result in DNSP overinvestment through over-procuring DR or augmenting networks to manage liabilities. This in turn may result in a less reliable and more costly network for customers.

DNSP ability to provide good network management will become increasingly important given DER growth will present new challenges. Increasing uptake of electric vehicles will create further volatility to load profiles in specific areas, and will require increasingly localised, granular responses. DNSPs are best positioned to identify and address these arising issues through network management and price-signalling. These opportunities to ensure market efficiency and responsiveness may be less effective with AEMO or an iDSO as orchestrator, given the larger amount of granular information they would be required to analyse and respond to.

Should you have any queries about our submission please do not hesitate to contact Victoria Draudins on (03) 9236 7067 or vdraudins@powercor.com.au.

Yours sincerely,

A handwritten signature in blue ink that reads "Brent Cleeve". The signature is fluid and cursive, with the first letters of the first and last names being capitalized and prominent.

Brent Cleeve

Head of Regulation, CitiPower, Powercor and United Energy

¹ Australian Competition and Consumer Commission, ACCC Inquiry into retail electricity prices and supply (June 2017), p 6