



## **Clean Energy Council submission to the Energy Queensland Consultation Paper: Enabling Dynamic Customer Connections for DER**

The Clean Energy Council (CEC) welcomes the opportunity to provide feedback on the Energy Queensland Limited (EQL) Enabling Dynamic Customer Connections for distributed energy resources (DER) Consultation Paper.

The Clean Energy Council is the peak body for the clean energy industry in Australia. We represent and work with Australia's leading renewable energy and energy storage businesses, as well as rooftop solar installers, to further the development of clean energy in Australia. We are committed to accelerating the transformation of Australia's energy system to one that is smarter and cleaner.

The CEC supports moves toward the use of dynamic operating envelopes, particularly where that is linked with a commitment to relax fixed limits on exports.

IEEE 2030.5 appears to have many of the characteristics needed to make it suitable for implementation of dynamic operating envelopes. However, it seems premature to commence implementation prior to the publication of the IEEE 2030.5 Implementation Guide for Australia. We would have more confidence in the proposal if it were based on the pathways recommended by the IEEE 2030.5 Implementation Guide for Australia. Unanswered questions remain regarding the suitability of IEEE 2030.5 for the National Electricity Market (NEM) where, unlike California, distribution network service providers (DNSPs) and electricity retailers are ringfenced.

The timeline proposed for implementation seems impractical. We note that the plan proposes implementation by mid- to late 2021, however the IEEE 2030.5 Implementation Guide for Australia will not be published until at least August 2021. It would be preferable to align the dates either by bringing forward the implementation guide or delaying the implementation start date.

It would be premature to proceed with setting new regulatory requirements for aggregators or their sites before EQL has developed its application programming interface (API). However, we understand that EQL plans to commence implementation by outlining its plans for developing an API and that this will include more details regarding the function sets of interest to EQL. This is a sensible approach. Aggregators and device manufacturers will be much better placed to understand EQL's needs once the API is available. The EQL policy should focus on how aggregators respond to the EQL API, rather than how aggregators to communicate with sites.

We strongly encourage EQL to align its work with the similar work being undertaken by SA Power Networks. The project being funded by the Australian Renewable Energy Agency (ARENA) will test implementation models and EQL should draw on lessons learned from that trial.

These issues are outlined in detail in this submission. We would be happy to discuss these issues in further detail with representatives of Energy Queensland.

## **Responses to Consultation Questions**

### **Q1. Do you support Queensland's proposal to deliver options for dynamic customer connections using IEEE 2030.5?**

The CEC supports moves toward the use of dynamic operating envelopes, particularly where that is linked with a commitment to relax fixed limits on exports.

IEEE 2030.5 appears to have many of the characteristics needed to make it suitable for implementation of dynamic operating envelopes. It is an international standard that is already being used overseas and this makes it preferable to the creation of a bespoke Australian standard.

The Consultation Paper refers to device compliance to IEEE 2030.5. However, devices will not be certified to IEEE 2030.5. IEEE 2030.5 is not a device standard. It will be used as the basis for establishing the communications interface.

It is unclear at this stage what issues will be encountered in adapting the use of IEEE 2030.5 to the National Electricity Market (NEM). As outlined in the Consultation Paper, solar inverters and energy storage systems installed in California must demonstrate capability to communicate using IEEE 2030.5 to achieve Common Smart Inverter Profile IEEE 2030.5 Implementation Guide for California (CSIP) certification and comply with 'Rule 21' legislation. At this stage, an IEEE 2030.5 Implementation Guide for Australia does not exist. We understand that the Australian National University (ANU) has been commissioned to develop an IEEE 2030.5 Implementation Guide for Australia. Until the IEEE 2030.5 Implementation Guide for Australia has been published, it is difficult to judge how suited IEEE 2030.5 is for use in the NEM. Some CEC members have indicated that IEEE 2030.5 is well suited to vertically integrated electricity markets but might not be as well suited to the NEM, where the roles of distribution network service providers (DNSPs) and electricity retailers are strictly ring-fenced.

In the absence of an IEEE 2030.5 Implementation Guide for Australia, the CEC reserves judgement on the proposal to deliver options for dynamic customer connections using IEEE 2030.5.

Based on communication with EQL during the consultation process, we understand that EQL will commence the implementation by outlining its plans for developing an application programming interface (API) based on IEEE 2030.5, and that this will include more details regarding the function sets of interest to EQL. This is a sensible approach and will enable aggregators and other service providers to ensure that they can respond to the API as required.

### **Q2. Do you see industry being able to adopt this architecture and provide solutions by mid- to late 2021?**

Before industry can adopt this architecture and provide solutions EQL will need to develop an API specification that specifies the data points EQL wants to receive and how EQL intends to send export signals. Once that is done, a process for verifying which inverters can integrate with the EQL API can be established.

It seems highly unlikely that all these steps could be completed by mid- to late 2021. Inverter manufacturers are currently updating (or have recently updated) their devices for compliance with the new Australian Energy Market Operator (AEMO) Short Duration Under Voltage Ride Through test procedure and are required to meet a deadline of 31 March 2021 for South Australian regulators. AS/NZS 4777.2:2020 was published on 18 December 2020 and the Australian Energy Market Commission (AEMC) has proposed that it should be mandatory from September 2021.

**Q3. Do you support the technologies and range of connection sizes being initially considered to be able to be connected as dynamic connections in Queensland? Are there any additional technologies that should be considered or any changes proposed to the scope of the dynamic connection standards for small IES, LV connections and EV chargers?**

It is important to note that many inverters are likely to use an external device for the API capability. Care needs to be taken when new connection rules are written to ensure that the rules do not mandate capability by inverters when it would also be suitable for the capability to be provided by an external device.

The Consultation Paper states that “not all equipment is being considered suitable for active management with IEEE 2030.5 and will continue to be managed using alternative methods for example, air conditioners, pool pumps and hot water systems”. This appears to be a wasted opportunity. However, based on communication with EQL during the consultation process we understand that the intention is not that EQL will never use IEEE 2030.5 for other devices, but rather to reassure the market that EQL is not intending to change the way it offers existing services as part of this consultation.

It is important for policy makers to shift their thinking from inverters to sites. The policy should consider site-specific requirements, rather than inverter-specific requirements. Turning up the electricity consumption by a hot water system, for example, might be as effective as turning down the output of an inverter. Consideration should be given to use of smart meter data for this purpose. For networks to be able to effectively implement dynamic control of DER to support the grid stability they firstly need to be able to see what is going on at the customer’s connection point of the low voltage (LV) network.

There appears to be an assumption that DER data connectivity, through its existing metering, will give the accurate data required to get clear visibility of import / export profiles. The risk that is becoming apparent is that DER assets do not all measure energy in the same way. They do not measure at the same physical point within a property’s infrastructure / connection, and they do not use metering of the same class and accuracy and they do not necessarily offer the same level of granularity or time stamps. Furthermore, there is no guarantee that DER metering even measures grid export at all. A lot of systems calculate it by internally measuring their own PV production, measuring the loads, and then calculating export. If there are any loads between the metering point and the connection point these will not get captured. So, a DER asset could be showing export when the property is drawing from the grid!

The only ‘true source of truth’ here is the National Meter Identifier (NMI) metering data, which standardized and polls data at the same rate, accuracy, and class. Networks should be allowed to use this data for DER orchestration. We understand that the AEMC’s *Competition in metering* policy prevents access to smart meter data by DNSPs. The AEMC is currently reviewing the regulatory framework for metering services and the CEC is advocating that DNSPs should be given access to voltage data from smart meters. A copy of CEC’s submission to the AEMC review of metering services has been included with this submission. We are hopeful that the AEMC will give serious consideration to this proposal. The AEMC is scheduled to publish its draft report on the regulatory framework for metering services in May 2021, with the final report published by late July 2021. We urge EQL to consider its plans in the context of the AEMC review and the possibility that DNSPs might be allowed access to some metering data. Even though this might necessitate a delay (depending on whether the recommendations of the AEMC draft report are favourable) it would be worthwhile and would significantly improve the effectiveness of EQL’s proposal at reduced cost and with significant customer benefits.

**Q4. Do you believe Energex and Ergon should pursue an alternative protocol or standard such as IEC 61850 or OpenADR?**

We have reviewed the publication by Mater, Kang and Simpson (cited in the Consultation paper), which compares IEEE 2030.5 and IEC 61850. We have not had an opportunity to review any literature comparing IEEE 2030.5 or IEC 61850 with OpenADR. Mater, Kang and Simpson make the observation that both IEEE 2030.5 and IEC 61850 “required enhancements to address all of the CA Rule 21 requirements”. It will be difficult to assess the likely costs, benefits, and risks of implementing each of the possible protocols and standards in the NEM until the IEEE 2030.5 Implementation Guide for Australia has been published. We would welcome any advice from EQL regarding how it compared the protocols and standards and the basis for the decision to adopt IEEE 2030.5 over the alternatives.

**Q5. Please provide any feedback that you think will assist us in developing our pathway to dynamic connections.**

EQL appears to be implementing IEEE 2030.5 in advance of the publication of the IEEE 2030.5 Implementation Guide for Australia. This could prove to be premature.

It would also be very helpful to know whether the AEMC will allow DNSPs to have access to some data from smart meters prior to finalising the implementation plans.