9 October 2020

Submission to the Second VRET Auction consultation paper

Via email: VRET2@delwp.vic.gov.au

Introduction

Powercor welcomes the opportunity to provide feedback and insights into the State Government's Victorian Renewable Energy Target II (VRET II) market sounding process.

Powercor's network distributes electricity to around 835,000 customers – or more than 1.75 million Victorians — across the western suburbs of Melbourne and through central and western Victoria to the South Australian and New South Wales borders.

Our network is a key facilitator of renewable energy generation uptake that supports job creation and helps our state achieve its emission reduction targets. As Victoria begins its recovery from the COVID-19 pandemic, the second auction and subsequent renewable projects will contribute to needed economic growth.

With four of Victoria's six Renewable Energy Zones (REZ) identified within Australian Energy Market Operator's (AEMO) Integrated System Plan located in the Powercor region, interest in connecting large-scale renewable generators to our distribution network remains strong. Last year, there were 121 connection enquiries from proponents of new large-scale renewable generators, and despite current economic conditions, we've had 159 enquiries this year.

Our high voltage network is connecting to and transporting power from more solar and wind farms than ever before. During 2019, a total of 345MW of large-scale solar and wind farms was connected to the Powercor network, bringing the total connected since 2000 to 1197MW. Interest in new generation connections is still high and we have over 1870MW of active connection enquiries or applications for projects ranging from 1MW to 100MW.

Five of the six successful VRET Auction projects from 2018 were located in our operating region, including four transmission level connections and the 34MW Cohuna Solar Farm on our distribution network. The battery at the Gannawarra Solar Farm is also connected to our network.

During this review, we encourage the following four points:

1. Strong consideration should be given to approving smaller projects that are able to readily connect to the distribution network.
    - Smaller diversified projects connected to distribution, rather than one or two large projects requiring transmission network connections, provide a range of benefits including faster completion times, lower connection costs, reduced risks and closer positioning to energy users, while also receiving an improved distribution loss factor (DLF) and marginal loss factor (MLF).

- Small and medium scale projects may also provide more localised economic and social benefits to neighbouring communities, allowing more regional and rural communities to participate in the renewable energy transition.

2. Early engagement between proponents, the Department of Environment, Land, Water and Planning (DELWP) and network businesses, such as Powercor.
    - Information about potential opportunities or constraints on our network, and expected connection costs or issues, is essential to allow proponents and the department to make informed decisions.
    - Having this insight from the beginning allows proponents and decision-making panels to have the comprehensive knowledge needed to enable realistic assessments about the cost-effective development of their project.

3. Consideration be given to encouraging the upgrading of existing older facilities (such as the early developed wind farms) as a way of increasing capacity and efficiency while also including storage for capacity firming.
    - Many of these older sites are now nearing the end of their economic lives with owners considering asset replacement and this may create opportunities at existing sites with existing network connections.
    - This would avoid the need for extending the backbone power networks through potentially-sensitive sites.

4. Consideration be given to supporting network owners to invest in assets to support system strength where the benefits can be shared across the network benefitting all customers and reducing upfront capital costs for new generation proponents

Following are our responses to selected questions contained within the market sounding consultation paper.

For further information or to engage with subject matter experts within our networks, please contact me on the details below.

Sincerely

Joanne Pafumi
General Manager, Corporate Affairs
CitiPower and Powercor

Consultation Paper Questions

1. Planning for VRET II

Powercor was supportive of VRET I as a mechanism to incentivise growth and investment in renewable energy generation, and we are pleased that learnings from the first auction are being reviewed, assessed and incorporated into the second auction design.

We acknowledge that *"Additional guidance would benefit proponents, including: …. Additional materials outlining how to plan and manage the connection process with the Australian Energy Market Operator (AEMO) and the relevant network service providers."*

Connecting renewable generation to the transmission and distribution networks is complex and as much additional guidance and information as possible should be available to support proponents during the entire application process.

For example, the connection process has been made more challenging due to recent system strength issues in the West Murray region. Any proponent actively working on a connection should be made aware of the detailed analysis requirements as a result of this issue, and the current resolution process for the West Murray queue. They should also be directed to any available material to assist them navigate this matter.

We also agree that there are benefits for the government to explore *"… auction design options, including:*

- *the inclusion of dispatchable technology (e.g. energy storage systems)*
- *potential coverage of the Victorian Government load (either virtually or directly)*
- *scope to provide additional transmission and network support given the current and future outlook of the power system in Victoria"*

From our experience, it is less complicated with less risk of delays down the track for proponents to incorporate storage into a site from the start of the connection process rather than seeking to integrate storage at a later stage or on existing sites where after Connection Agreements and performance standards are agreed and in place.

Favouring a program of smaller projects, rather than a handful of larger ones, may provide greater scope for trials of innovative network support services that could deliver tangible network, market, community and customer benefits.

Market questions

1.1 Were you involved in VRET I? What was your role?

Powercor had limited involvement in VRET I. We provided support to the Victorian Government during the final stages of the review of projects that were bidding in our network. We were also part of the assessment and selection panel for DELWP's Energy Storing Initiative funding process that supported two 30MW batteries in Victoria.

1.2 What are your key reflections from VRET I?

VRET I has highlighted the importance of proponents engaging distribution and transmission network service providers early in the process. This allows proponents to better understand the opportunities and

challenges associated with their specific connection needs, which could be incorporated in their applications, ensuring on-time delivery of the project.

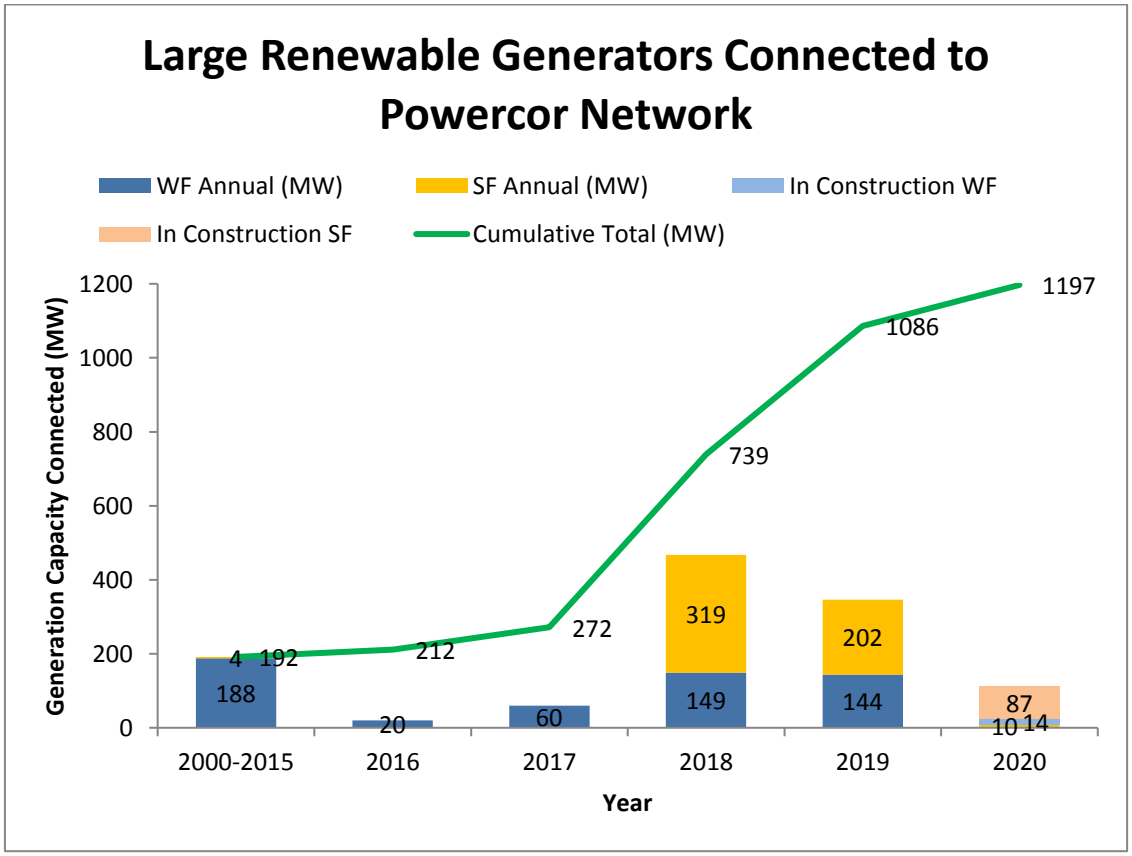
The system strength challenges experienced in the West Murray region has had a significant impact on VRET I projects and has also reinforced the need for project proponents to be well engaged with their equipment suppliers and receive good technical advice that allows them to efficiently address unforeseen issues. It also highlights the need for equipment manufacturers to have a thorough understanding of the Australian operating environment, which is experiencing challenges that have not been seen in networks across the world.

1.3 What are the key risks and opportunities you identify for VRET II?

The opportunities for VRET II arise from the more extensive range of data and information already available to proponents regarding regional network capacity and generation potential.

Resources such as the Australian Renewable Energy Mapping Infrastructure (AREMI) and the AEMO Integrated System Plan provide a stronger basis for analysis and assessment of prospective generation opportunities than were previously available.

We also have the benefit of experiencing rapidly escalating interest and development in large-scale renewable generation in the past 10 years. Based on this, we have a strong understanding of the factors influencing the success of these projects and the reasons why they are either delayed or cancelled.



Based on this experience, we suggest VRET II presents an opportunity to support more small and medium-scale renewable energy projects at a distribution level.

These connections are often less complex, more cost effective, faster and may require less augmentation of transmission assets. For example, the connection application process for smaller projects onto the distribution network can take four to six months, compared to larger transmission-connected projects that can take up to two years. In addition, the construction timeframes are also significantly reduced and can be finished in a number of months instead of 12 months for larger distribution-connected projects and up to 24 months for transmission-connected projects.

The current challenge or risk is the technical integration of any new medium and large-scale project into the existing network. Transmission is extremely constrained both in thermal capacity and system strength. A proponent of a large-scale project may find themselves open to high connection costs for system strength remediation with low export availability once they are connected due to market constraints.

The West Murray system strength issues and subsequent queue of projects now waiting to be resolved could create uncertainty within the marketplace and cause reluctance for some developers to invest at a large scale.

1.7 What are the risks and opportunities associated with conducting VRET II as follows:

a. one auction where all projects are required to meet a common delivery date?

While this option allows for a single assessment of multiple projects, the volume of projects and their size may create a bottleneck with network service providers and AEMO during connections assessments.

Assessments of such complex connections are highly technical and lengthy, so receiving such a significant number may mean delays to applications being reviewed.

b. multiple smaller auctions with staggered delivery dates?

This option allows for greater diversity of projects and potentially makes it easier for multiple smaller project to apply. Staggering dates for the application process would enable all impacted NSPs to conduct a more detailed review of applications and provide proponents more awareness of connection costs and associated times, helping to ensure that proposed projects are more fully developed at application.

The key dilemma in a concurrent approach is the impact on equity and fairness for all proponents.

The staggered option reduces the potential that concurrent VRET II projects cannibalise network capacity from other projects due to thermal limits or system strength issues. Projects bidding in subsequent stages of a staged auction would be able to take into account previous successful solutions, resulting in a more efficient outcome and reducing the likelihood of issues arising due to VRET II projects competing for the same network or market capacity.

Additionally, diversity arising from more small and medium-sized projects dispersed and connected to the distribution network, potentially offers benefits in regard to:

- fewer grid issues in one location
- improved employment and training outcomes with teams able to move from one project to the next, rather than job market pressure concentrated in a shorter term
- extended socio-economic benefits for communities providing local procurement and accommodation services to the staggered developments.
- longer term diversified job creation across multiple communities to undertake ongoing operation and maintenance activities.

1.8 Is there a preferred position on the auction size and delivery dates? Are there other more innovative approaches to spread the benefits of industry and supply chain support from a VRET II auction over time?

While we understand the desire to progress VRET II as quickly as possible to support Victoria's economic recovery, the timing needs to take into account the broader grid issues in Victoria that are being resolved to ensure that applicants can be confident of being able to connect efficiently and export. We believe any auction should be held after 2020, once there is a firm guideline on how connection applications will be endorsed and approved by AEMO in the West Murray Zone and there is more clarity about the existing transmission issues and solutions, such as the Western Victoria Transmission Network Project.

3. Dispatchability and energy storage solutions

Market questions

3.1 Do you think dispatchability needs to be procured with utility-scale energy storage system as part of VRET II, or are there sufficient incentives for the private sector to respond to actual or forecast dispatchability shortfalls in Victoria?

We support new projects procuring utility-scale energy storage systems at the same time as the generation plant. Our experience has shown that adding storage to pre-existing generation projects is more complex and challenging than incorporating storage at the outset of a project as adding storage to an established generator re-opens performance assessments for existing sites connected under older connection standards. Either considering storage as standalone projects or the addition of storage at the initial stage of projects minimises delays and reduces the complexity if storage is desired.

If a generator is considering adding storage at a later date, we recommend a DC coupled solution be provided, minimising the risk of having to undertake revisions to the registered Generator Performance Standards of the installation.

3.3 Do you think there are any advantages or disadvantages in having the battery energy storage system co-located with a renewable energy generator that is also participating in VRET II? Do you see any limitations in a battery energy storage system being potentially used to firm / balance the Victorian Government load when it is not linked (by location, control or ownership) to a VRET II renewable energy project?

There is great potential for firming of renewable resources through co-located storage. While a number of larger projects (i.e. >30MW) have been developed, there are currently limitations in the NEM market systems that challenge market participation and make market registration far more complex. The current rule change for "Integrating Storage into the NEM" seeks to address some of these issues. We expect any changes from this rule change to take between 6-12 months to develop and implement, and this should be considered in the timing of VRET II if colocation will be a mandated requirement.

Co-location can pose technical challenges for projects in terms of their impact on 'systems strength' as that impact will be driven by the total 'nameplate' capacity of the hybrid system. For example, a hybrid system with 50MW of export comprising 50MW of solar and a further 50MW of AC coupled storage would have a 100MW nameplate rating. On a MW export level this will mean a hybrid system that is AC coupled will have a greater impact, and potentially require more remediation measures than a stand-alone generation project.

4. Network support services

Market Questions

4.1 What network support solutions relating to network system reliability and/or security could be procured as part of, or in conjunction with, VRET II?

If a project was to be connected in an area where there was a network constraint, then we could consider procurement of network support services where it was cost efficient against other options and in proportion to supply risk. However, any network support services are very location specific and dependent on the needs of our customers and network compliance in that area.

While storage solutions incorporated into these projects may benefit our network by offering a more cost-efficient solution compared to upgrading physical assets, it would need to be conducted at the right time and location.

Options could be explored on how to incentivise developers to build a connection that is not only beneficial to their project, but the wider network or future connections. Proponents could be required to explore this as an option when developing their VRET II submission.

The AREMI maps, Powercor's annual planning reports and other data sources are all available publicly and provide developers with significant information about system constraints.

Large-scale renewable generators connecting in Western Victoria are now likely to be required to provide system strength remediation as part of any new connection. This creates opportunities to centralise or consolidate provision of this for multiple projects selected during VRET II.

4.2 What guidance should the VRET II auction materials contain in relation to the technical or functional specifications for the network support solutions that are being sought?

Significant guidance should be provided highlighting the importance of proponents engaging meaningfully with networks early in relation to connections and assessment. In VRET I we note that while some unsuccessful projects had highlighted engagement with Powercor, at times the only engagement was a high-level connection enquiry containing no project detail.

Engaging with Powercor, or any NSP, in an open and transparent manner allows our specialist teams to provide more in-depth and accurate assessments of projects, giving proponents the information they need to make an assessment about potential network constraints, generator performance standards or other cost factors.

As we experienced with resolution of the West Murray issues for the initial four Powercor projects in the 'West Murray 5', this open and transparent engagement is critical to successful resolution of real world technical challenges.

4.3 How can the risks to projects of MLF, congestion and commissioning be managed? What level of information will proponents be able to provide in respect of the project's forecast MLF and constraint outcomes, and your commissioning plan?

MLFs are a matter for AEMO and, as we have seen over recent years, will change over time with changing load and generation patterns. While many consultants can provide estimates of MLF, an assessment needs to be based on a broad network-wide power flow assessment. During the

assessment of proposed projects, the Victorian Government could consider engaging a specialist consultant or AEMO to assess projects MLFs.

4.6 What innovative technologies can play a role in providing network support services under this auction?

Small to medium projects connected to the distribution network would allow Powercor and other networks to consider conducting a range of innovation activities such as trialling 'grid forming' inverters or possible options to improve reliability for rural communities through islanding those rural networks in the event of faults or outages. These would allow us to look at more cost-effective ways to progress industry understanding and improve reliability for customers, particularly in small rural communities.

6. Social licence and community engagement

6.4 What are the current trends in community expectations and social licence for renewable energy projects? How have they changed since VRET I?

One trend we have observed in the past five years is a growth in interest from regional communities seeking to develop community energy projects with the aim of creating a community supported by low cost, 100% renewable power.

Community energy refers to projects where a community group initiates, develops, operates and benefits from a renewable energy resource or energy efficiency initiative. There are a range of social, environment, technological, economic and political motivators that drive community energy projects with the key aspect being the creation of local community engagement and assets. Projects may also be developed to maximise local ownership and decision making, generate jobs, use resources efficiently and sustainably, match energy production to local energy needs and circumstances and help address climate change.

Powercor has partnered in a number of these community energy projects including proposed solar farms and microgrids by offering data, market and regulatory knowledge, network connection information and trial network tariff arrangements.

Case studies have demonstrated that building a critical mass of potential customers to support the high development cost of these projects can be difficult within small regional communities. These projects will require experienced development resources, advanced technology and partnerships with an energy retailer to enable their operations.

We suggest that VRET II has an opportunity to support these community ambitions if small to medium-sized projects are designed to both generate electricity distributed by the NEM and support the economics of local community energy initiatives.

Another trend we have observed is increasing concern for the location, visual amenity and environmental issues associated with new infrastructure development in regional areas.

It is for this reason that smaller generation projects carry an advantage of usually being located close to already-established network infrastructure to keep costs low. By avoiding the need for new infrastructure development there is potentially less resistance to these projects. Consideration could also be given to ensuring projects that are geographically close to one another pursue grouped connections, providing more opportunities for holistic planning and reducing the need for new powerlines outside already-established footprints.