Embertec Feedback on DER Program Trial

To whom it may concern:

Many thanks for providing Embertec the opportunity to offer feedback to the NEM VPP Consultation Paper.

Below you will find our responses to the questions posed, however we would like to request that some additional time be given to discuss the security concerns that need to be managed as distributed energy resources become more prevalent and connected; irrespective of whether these storage assets are participating as VPP's on our energy grid.

Embertec is happy to make members of our team available to discuss this topic with AEMO at your convenience.

Embertec responses to the AEM questions below:

Question 1.1: The primary focus of these trials is to demonstrate VPP aggregating battery storage systems. Do intending participants envisage incorporating demand response resources into your aggregated portfolios, and should this be incorporated into the VPP Demonstrations?
Yes, demand response resources are an important element in our aggregated portfolios, if these resources are financially rewarded for load they provide during demand response events at the wholesale market rate.

Question 2.1: Are the VPP Demonstrations objectives logical and achievable? Should any other objectives be considered for these VPP Demonstrations?
Yes the VPP objectives are logical and reasonable. Co-ordination capability will require some more detailed discussion to ensure appropriate ranking of resources being provided for grid stability. I.e. co-ordination around distribution constraints and load constraints need to be managed in concert.

Question 2.2: How can the VPP Demonstrations projects better capture consumer insights and improve customer experience and outcomes?
Data needs to be collected to determine the financial outcome of the VPP systems in terms of return on investment for the individual trial participants. Participants should demonstrate that their VPP has not increased the cost of energy for those owners of battery storage assets who bid their energy into the grid. An example of this would be for the VPP provider to compare the total cost in offering load into the grid and to assess this against the financial benefit in doing so for each given grid service event. Consumers will need to be confident that their assets are being used as cost effectively as possible in order to attain confidence and uptake in these solutions, as without this consumer confidence, VPP participation at the householder level will be challenging.

Question 2.3: Is AEMO's high-level approach to the VPP Demonstrations appropriate? What other arrangements could be tested under the VPP Demonstrations framework?
Cyber security requirements should be discussed in more detail as there is a significant risk from foreign actors attaining significant control over our energy network irrespective of whether they are participating as a registered resource or not. This may be a topic better suited to the Australian Energy Regulator but to needs to be addressed.

Question 4.1: AEMO would like the aggregated VPP dataset to be refreshed every five minutes to align with its operational forecasting function. Are VPP operators able to provide this data on a 5-minute refresh basis?

Yes this a static position on available battery charge can be provided every five minutes, however it should be noted that depending on the complexity of each VPP's forecasting algorithm and the time it takes to re-calculate the forecast, that expecting a new/updated forecast every 5 minutes may prove challenging. It would require a large amount of data throughput and cloud processing resources to refresh an aggregated load forecast every five minutes, especially for a system that takes into account a large number of individual household parameters to accurately calculate the load forecast.

Question 4.2: Should the values be reported as an average value across the 5-minute interval or an instantaneous value at the end of the 5-minute interval, or both?

The values should be reported as at the end of the 5 minute interval. An average requires each individual storage asset to frequently push data to the cloud during the 5 minute interval to work out the average load available across all assets, however as energy is unlikely to be called upon during a 5 minute interval, but rather preceding the next 5 minute interval, it would make sense for the VPP algorithms to work out what load is available at the end of the 5 minute period based on the battery charge state and status (charge/discharge/static) during the current 5 minute period.

Question 4.3: What is the appropriate frequency for VPP operators to submit the device level dataset to AEMO? Is there a material difference in resources required to upload the data on a daily, weekly, or monthly basis?

The only difference in resources required for daily, weekly and monthly data sets will be that of the cloud computing work load. Data storage is of some consequence however it is the aggregation and reporting processes of large numbers of individual storage assets which needs further review and consideration in terms of scalability. It is however a question that can be easily answered during the trial period.

Question 4.4: Are there any regulatory or other obstacles to participants facilitating the data sharing arrangements contemplated in this section?

So long as the data is anonymised and locational information that is made public is no more granular than to the postcode area, there should not be a data security risk for trial participants. More detailed customer data should be limited in use to that with AEMO alone and not made public on an individual customer level.