



Submitted by	Company	Date Submitted
Christine Kirsten christine.kirsten@pacificorp.com 916-207-4693	PacifiCorp	May 14, 2018

PacifiCorp’s Comments on the Energy Imbalance Market Technical Workshop April 30, 2018

PacifiCorp appreciates the California Independent System Operator (“ISO”) hosting the technical workshop April 30, 2018. The workshop was successful in its goal of promoting a good discussion around each of the issues and it provided the opportunity to understand each EIM entity’s unique perspective on how the flex sufficiency test impacts them. In addition, PacifiCorp appreciated the ability to have a robust discussion on default energy bid options with the Department of Market Monitoring (DMM) and the ISO. Please see the below comments from PacifiCorp on the workshop presentations and discussions.

Potential Enhancements to the Resource Sufficiency Requirements Test

Powerex provided good information on the potential enhancements to the resource sufficiency requirements test in the following areas:

- Improving the timeliness of flexible ramping sufficiency requirements
- Improving the uncertainty calculations for wind resources
- Modification of net import and net export capability
- Fully separating capacity and flexibility requirements
- Applying flex credit symmetrically
- Ensuring resource sufficiency tests are applied in an equitable manner

With regard to the timing of the flexible ramping sufficiency test (“FRST”), Powerex made the point that *if* participants were carrying a “buffer” of flexibility and capacity due to an inability to calculate the flexible ramping requirement, then diversity benefits would be effectively negated. PacifiCorp currently carries at least 50 megawatts (“MW”) of “buffer” in both its PacifiCorp West (“PACW”) and PacifiCorp East (“PACE”) balancing authority areas (“BAA”) to account for the uncertainty of the requirements. PacifiCorp would support a further investigation of the potential solutions proposed by Powerex, including replacement of the reference point (Interval 4 FMM with the advisory solution) or moving up the timelines for all FRST requirements.

PacifiCorp is supportive of Powerex’s proposal to the ISO to “bucket” the forecast error relative to solar, wind, and load separately. As Powerex highlighted, wind uncertainty is not a function of the time of day, but instead is a function of the amount forecast as well as the expected forward looking ramp. PacifiCorp has had a similar “bucket” approach in its renewable integration study,



which determines the amount of regulating reserves, since 2012 due to the size of wind in the PacifiCorp system (greater than 2,500 MW) and the unique operating characteristics of wind resources. PacifiCorp would like to better understand the restrictions or complexities involved in calculating an uncertainty requirement in a manner that better respects each resource type or load characteristic.

PacifiCorp is supportive of Powerex's recommendation to ensure that the resource sufficiency ("RS") tests are applied on an equitable basis. If the RS are not applied consistently and equitably to existing and new entrants in the market, it can result in winners and losers. PacifiCorp is supportive of the ISO's on-going efforts to make its data transparent and available to further support discussions on the amounts of flex ramp required by each EIM entity and the ISO, and whether this is a reasonable amount to hold based on observed imbalance.

PacifiCorp continues to review the points made by Powerex on the potential double counting of flex and the net import/export capability questions, but does not have comments at this time.

Load Bias and the Flexible Ramping Sufficiency Test

PacifiCorp provided a presentation on the load bias and its effect on PacifiCorp when it fails the FRST. More specifically, it is the difference between the fifteen-minute market ("FMM") and the five-minute dispatch ("RTD") load bias that can cause PacifiCorp to receive what appears to be an infeasible RTD solution once the transfer freeze conforms to the FMM solution from the prior operating interval. PacifiCorp is likely uniquely situated to realize this problem due to limited ramp rates at certain times as compared to BAAs that are more comprised of hydro or gas facilities.

PacifiCorp would like to better understand what options are available to the company to be able to load bias more consistently in the FMM as compared to the RTD. In addition, PacifiCorp is interested in the possibility of better understanding if there is a manner in which it could "stage" its ramp limited resources, such that they are better positioned to meet the FMM requirements. PacifiCorp appreciates the interest of various parties at the workshop and looks forward to continuing to work with the ISO to better understand what potential solutions are available to the company to manage the identified issue.

Powerex Default Energy Bid

Powerex provided a comprehensive review of potential options for the calculation of the Default Energy Bid ("DEB"). PacifiCorp was appreciative of Powerex's thorough presentation, which included numeric examples, as they applied to Powerex, and the additional background materials relative to specific challenges that hydro operators outside of the ISO may face. PacifiCorp is supportive of further studying the options proposed by Powerex, and is aware of the challenges posed by the DEB in assessing the value of the resource.

PacifiCorp faced similar issues with its hydro operations in the summer of 2016 due to high prices in the ISO balancing area in real-time that were higher than PacifiCorp's DEB and higher than its replacement energy cost. Due to the fact that PacifiCorp does not operate within the day-ahead



market, it does not have the ability to rely on the market to provide energy over the peak, and it cannot receive bid cost recovery for bilateral transactions outside of the market that it must incur to make up for the hydro generation that was provided at a lower cost. Hydro operations can have opportunity costs that change daily based on multiple factors: price of peak energy three months from today or four hours from today, taking into consideration expected inflows, maintenance requirements, fish and water quality requirements, etc.

PacifiCorp appreciated the DMM's presentation and points that were made during the workshop on different options that may be available to better calculate the DEB for hydro resources. The DMM has always been very supportive and helpful in analyzing different options for the DEB that may be more reflective of the opportunity cost of the resource. However, due to hydro resources' unique complexities, flexibility in the calculation is key to being able to capture each entity's opportunity cost to reflect a more accurate DEB. While PacifiCorp does not wholly endorse Powerex's proposal for a fourth DEB option, it is supportive of a framework in calculating the DEB that provides enough flexibility that protects against market power but does not cause a cost to the hydro operator that is not borne by the market, e.g. replacement energy costs in the bilateral market that are higher than what the energy was sold for in the EIM. PacifiCorp looks forward to additional discussions on this topic.

Day-ahead Enhancements Regulation Reserves

PacifiCorp did not provide comments on the ISO's day-ahead market enhancements proposal to allow EIM entities to include designated regulation reserves, similar to how ancillary services are currently treated by the market for EIM entities. However, after the conversation at the technical workshop, it seemed clear that EIM entities may be carrying more flexibility within their individual BAAs than is required through available balancing capacity and the buffer referenced above. In addition, PacifiCorp is uniquely disadvantaged because it is not allowed to share its flexible resources between PACW and PACE, which further requires it to hold more reserves than needed for its own needs. PacifiCorp is concerned that also removing the regulating requirements from PacifiCorp's ramping capability would result in requiring PacifiCorp to carry a total amount of flexible reserves that is higher than when it operated on a standalone basis. In addition, the issues raised by Puget Sound Energy and whether available balancing capacity should be counted towards flexibility, would likely be less of an issue if the entity had more certainty in its flexible requirements. PacifiCorp is supportive of the ISO's efforts to improve the accuracy and efficiency of the FRST prior to making changes on regulation reporting.

Conclusion

PacifiCorp appreciates the ISO's consideration of these comments and questions and looks forward to more formal stakeholder proceedings in the future to further advance potential improvements.