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VIA ELECTRONIC FILING

Public Utility Commission of Oregon
201 High Street SE, Suite 100
Salem, OR 97301-1166

Attn: Filing Center

Re: Docket UM 1751—PacifiCorp's Comments

PacifiCorp d/b/a Pacific Power (PacifiCorp or the Company) appreciates the opportunity to provide comments in response to the Public Utility Commission of Oregon's (Commission) questions issued on June 1, 2016, in this proceeding. The Company provides the following responses to the Commission's specific questions.

A. What guidance should the Commission provide on the storage potential analyses?

1. Should the evaluations of storage potential be filed separately?

The evaluation of storage potential should be filed separately from the energy storage system procurement and implementation process. Identifying and quantifying storage potential will be an iterative process. Storage potential will change over time, and as such, will require periodic appraisals as utility needs change and opportunities evolve. Utility needs will change as the utility's resource portfolio and electrical system infrastructure requirements change over time, and as customer and electrical system information becomes more available, costs of storage technologies change and mature, and market-based pricing indexes emerge for ancillary services.

2. What guidance, if any, should the Commission provide about the analyses to be conducted?

PacifiCorp recommends that the Commission provide guidance on the interpretation of "storage potential." The Company recommends that the Commission set up a set of workshops to develop the initial set of criteria to be used for each utility that defines "storage potential" and identifies some high level guidelines to perform such an appraisal. The Company urges the Commission to view storage potential within the context of realizable values and benefits within a defined time horizon. It is conceivable that "storage potential" may be broadly interpreted and viewed in the context of all potential value use cases even though many use cases may have very limited value. The Company encourages the Commission to establish a process that can be modified with time.

3. Should utilities systematically identify and rank order the areas of opportunity?

The Company would like to focus its efforts, especially for this first phase, on higher value applications, both existing and emerging.

4. What guidance, if any, should we provide about the details of the evaluation report filed with the Commission?

The Company urges the Commission to allow for flexibility in the evaluation report depending on need identified and technology used. That said, if the Commission is seeking specific information from the utilities in the report, it would be useful to receive this guidance before submitting the evaluation report to the Commission. As noted in the Company's response to Question 3 above, the Company urges the Commission to establish a process that defines "storage potential," provides meaningful information, and is not overly burdensome.

5. What should the evaluation report include and in what detail?

The first evaluation report should be included within the 2017 Smart Grid Report and should address the following, with subsequent reports including incremental additions and updates of elements from the first report:

- Projects, initiatives, activities underway and associated analysis and results to date in the area of an energy storage system described in Section 3 of HB 2193.
- Proposal details outlined in Section 3(1)(c) of HB 2193.
- Energy storage system investments and activities PacifiCorp plans to undertake to meet procurement deadline of January 1, 2020.

6. What process, if any, should we use for review and comment on the analysis results? For example, should the utilities prepare a draft report for stakeholder and Commission review and comment?

If the Commission directs the utilities to include this information in the annual Smart Grid Report, the review and commenting procedures would comply with Smart Grid reporting requirements, which includes the draft report prepared for stakeholder, the opportunity for stakeholder and Commission review and comment.

7. Should the utilities report on the outcome of these RFIs? Should the results of such RFIs be included in the evaluation report?

Yes, the Company could provide confidential summaries and assessments to Staff in a presentation format when structured RFIs/Request for Qualifications (RFQs) have been issued. Utilities may use RFIs as a mechanism to prepare technologies/bidders for a formal competitive Request for Proposal (RFP) solicitation. The primary purpose of this proposed reporting presentation would be to inform the Commission on the results of the RFI process.

8. If yes, what action, if any, should we take on the report?

Not applicable.

B. Should the Commission consider setting guidelines for competitive bidding?

9. Should we establish guidelines for competitive bidding for storage projects?

The Company believes that the existing utility procurement processes are sufficiently robust to meet the requirements of this legislation. It is premature at this point to establish competitive bidding guidelines for energy storage. The size of resources encompassed by this legislation (5 megawatt-hours) is too small and the inclusion of additional competitive guidelines that utilities already operate under is not warranted. The Company would like the latitude to award a sole source contract for a product or service in select circumstances, with the purpose of testing a promising emerging technology or storage service.

10. If yes, what guidelines should we prescribe? To what extent should the existing competitive bidding guidelines serve as the model?

Not applicable.

11. What role, if any, should we have in reviewing bid results?

The Commission should review and acknowledge the Company's initial set of the selected short-listed projects (and/or services) prior to a formal submission of those projects to the Commission.

C. How should the Commission encourage diversity among projects?

12. How should we encourage investment in different systems?

The Commission could encourage each utility to submit more than one storage project with the caveat that the total energy storage capacity of the combined projects meets or exceeds the 5 megawatt hour capacity requirement outlined in section 2(1) of the legislation. Furthermore, the Commission could mandate that each storage project submitted employ a different storage chemistry (i.e. one zinc hybrid battery and one project that employs iron phosphate technology) and primary use application. This would encourage implementation of more than one type of technology.

13. Should we require utilities to submit proposals for multiple storage projects that test the use of storage in different applications, test different ownership structures, demonstrate promising new uses and technologies, or test some other critical differentiating factor among projects?

Proposals for storage projects will test key factors that are of importance to each utility. The relative small scale of energy storage capacity provided for under this legislation (5 megawatt-hours) may limit that ability to test multiple factors identified by the Commission in this question.

14. What differences in storage projects should be promoted (e.g., different use cases, different technologies, different ownership structures)?

There are both short- and long-term needs and objectives that need to be considered when evaluating storage projects. Selected projects should encompass both the need for success (the project meets its intended performance and cost targets and provides value to customers) and potentially the need to test a new application or technology. Projects that provide the greatest realizable benefit to customer value should be a priority. As a secondary objective, implementation of a project that serves another system benefit, such as renewable energy firming, may be a key factor. Validating different technologies in recognized (or emerging) high value use cases should also be a priority. For this energy storage development effort, ownership structure is a secondary concern and should not be a focus of how projects are evaluated.

15. To what extent should the goal be to test and prove new and innovative applications or technologies?

The testing of new and innovative technologies should focus on higher value use applications (both existing and emerging). Testing new technologies tends to be higher risk and therefore, performance and costs may differ than initially proposed. The Company would prefer to submit more than one storage project with one consisting of a high value/more demonstrated technology and the second (or more, if indicated) project can be selected that is aimed at testing new technologies but that may have a higher performance risk. The application of new and innovative technologies would be applied in situations in which failure or reduced performance would not have an impact on safety or have material impact on power quality or reliability.

D. What information should utilities include with a proposal?

The Commission should align its requirements with Section 3(2)(c) of HB 2193 when looking at the information and analysis to be included with a proposal, such as technical specifications, estimated capital and output costs, and system benefits.

16. What, if anything, should the guidelines add, clarify, or otherwise address as to these requirements?

The Company believes that HB 2193 is useful in outlining the evaluation information that should be provided by the utility. It should be noted that the requirements under Section 3 (1)(c)(C)(iii) may not have system-wide benefits and it may not be possible for the utility to provide this information because the benefits attributable to a storage technology are very site specific and are highly dependent on the design characteristics, application, and usage.

17. What additional information should utilities provide with their proposals, and why?

HB 2193 contains a comprehensive list of information that should be provided. Other information that may be needed includes the that which is necessary to perform a life cycle cost of the resource, including ongoing operations and maintenance costs, life cycle performance, and any specific performance requirements that demonstrate the project's capability to meet the intent of the use cases. In addition, any safety, environmental, or permitting issues should be identified.

18. How should we calculate cost-effectiveness?

In order to calculate cost-effectiveness, the Commission should primarily evaluate the net present value of system benefits and costs to customers. It should be recognized that in some cases, especially in the case of non-traditional applications of storage technologies, that this may entail identifying and selecting proxy values for benefits. For example, utility control of behind-the-meter storage resources may provide distribution system relief. In these cases it may be necessary to develop a proxy value of the benefit of the distribution system relief, even though in the particular application to test a pilot technology, the actual distribution system relief benefit may be minimal. To the extent the Commission has identified any specific qualitative benefits, those benefits should be defined before the utility's RFI process.

19. How should the cost effectiveness of a proposal be compared to other proposals and to traditional non-storage solutions?

Assuming the proposal meets the cost-effectiveness test proposed in the previous response, the lifecycle costs of the proposal should be compared to the lifecycle costs of the traditional solution and/or alternatives that resolve the underlying engineering requirements of the proposal. Lifecycle costs include: initial capital including allowance for funds used during construction (AFUDC) and capital surcharge, run-rate capital, operating and maintenance costs, taxes, and in the case of the storage system, any energy costs to charge the storage system. Lifecycle costs for each alternative could be used to develop a revenue requirement pro forma and the present value revenue requirement of each alternative could be compared to determine which solution provides the best benefit for customers. Due to the likelihood of different useful lives between alternatives, the analysis should include an evaluation method that allows for the comparison of unequal lives.

20. What information and assessments should we require with a proposal to demonstrate the utility has conducted a full quantitative and qualitative assessment?

In addition to the information set forth in HB 2193, the Commission may consider adopting a publicly available storage evaluation tool (such as Pacific Northwest National Laboratory's "Battery Storage Evaluation Tool"), which contains a list of valuation factors that can be used to ensure that utilities have considered potential use cases. It should be recognized that valuation factors will be site and utility specific. The Commission may also want to consider the cost, performance and terms and conditions provided by the potential supplier in its bids.

E. How should the Commission evaluate proposals?

21. What criteria should we use to evaluate and compare projects? Should different criteria be used for different types of projects (e.g., should the criteria for evaluating and ranking a transmission investment deferral project be different than the criteria for evaluating a project that tests an emerging use or technology)?

The Commission should remain flexible and not prescribe specific cost/benefit requirements, but rather evaluate on a case-by-case basis as presented. There may be benefits to tailoring the evaluation of the project to the underlying primary use case, type of technology and the impact of performance risk. Criteria for project selection may include: performance specifications, experience, technology maturity, potential for future benefits (use of non-strategic materials, declining cost curve, reduced safety/environmental risk) project implementation risk, total cost of ownership, use case flexibility, financial health of technology provider, balance of system requirements, ability to provide domestic/local support, warranty terms, and safety/environmental factors. Different weighting factors can be applied depending on the objective (realizing a known benefit or technology advancement).

22. Should we prioritize projects with immediate impacts, stress projects that hold promise of substantial benefits over the long-term, or seek a balance between projects serving different ends?

The Company encourages seeking a balance, which could be achieved by encouraging utilities to submit at least two projects: one in which the potential value would not be jeopardized if the storage system does not perform as intendedand the second that advances an emerging technology, but does not materially impact customers in the event of non-performance.

23. Should we give greater weight to certain kinds of projects (say projects with a higher benefit-cost ratio) than to others?

Please see the Company's response to Question 22.

24. For a given use case, should we require utilities to evaluate alternatives to the use of storage?

Yes, the energy storage proposal should be evaluated against the viable alternatives. This evaluation will assist in quantifying any above market costs in adherence with section 3(2) in HB 2193.

25. How should we weigh non-quantifiable benefits?

Given the need to keep costs as low as possible to customers, weighting toward non-quantifiable benefits should be limited unless the purpose is to implement an emerging technology or potentially high value use case (i.e., cases in which benefits are currently non-quantifiable, but there is a high likelihood that these benefits may be quantifiable in the near future).

If you have questions about these comments, please contact Natasha Siores at (503) 813-6583.

Sincerely,

R. Bryce Dalley/lsa

R. Bryce Dalley
Vice President, Regulation