



Energy
Storage
Association

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August 25, 2017

Jason Klotz
Oregon Public Utility Commission
201 High Street SE #100
PO Box 1088
Salem, OR 97308

RE: Docket UM 1751, UM 1856 and UM 1857

Dear Mr. Klotz,

The Energy Storage Association respectfully submits these informal comments on Pacific Power (PacifiCorp) and Portland General Electric (PGE) Draft Energy Storage Potential Evaluation.

ESA was established 27 years ago to foster development and commercialization of energy storage technologies. Since then, its mission has been the promotion, development and commercialization of competitive and reliable energy storage delivery systems for use by electricity suppliers and their customers across the United States. ESA's nearly 200 members comprise a diverse group of electric sector stakeholders, including electric utilities, energy service companies, independent power producers, technology developers, component suppliers, and system integrators.

ESA engages in regulatory and legislative policy efforts and includes leaders in the energy storage marketplace among its members. Our member companies have deployed energy storage technology to serve the entire spectrum of applications studied in these draft evaluation plans, and therefore these comments serve to enhance the record in this important effort by the Commission.

ESA's response to the draft energy storage evaluation plans can be found below.

Sincerely,

A handwritten signature in black ink, appearing to read 'Nitzan', followed by a long, horizontal, slightly wavy line that extends to the right.

Nitzan Goldberger
State Policy Director
Energy Storage Association

BEFORE THE PUBLIC UTILITIES COMMISSION OF OREGON

UM 1751/UM 1856/UM 1857

In the Matter of

**PUBLIC UTILITY COMMISSION OF
OREGON,**

Implementing Energy Storage Program
Guidelines pursuant to House Bill 2193.

Comments of the Energy Storage
Association

I. INTRODUCTION

The Energy Storage Association (“ESA”) appreciates the opportunity to submit these informal comments on Pacific Power (PacifiCorp) and Portland General Electric (PGE) Draft Energy Storage Potential Evaluation (“draft evaluation plans”). ESA appreciates the forward-looking work of the Commission and the two Investor Owned Utilities (IOUs) in enhancing their understanding of energy storage technologies and developing effective methodologies that realize the benefits of storage for Oregon ratepayers. ESA commends PacifiCorp and PGE on the work they have done to date on the draft evaluation plans, and recognizes the immense effort that went into drafting them. In completing the first iteration of these plans, the two IOUs have made significant progress towards achieving the stated goals of House Bill 2193 and Commission Order No. 16-504. These plans represent one of the first attempts by a utility to systematically evaluate the cost and benefit of storage and the development of a rigorous storage project selection methodology, and it is notable that both plans find that storage provides significant benefits to the utilities and utility customers in a wide range of locations and applications.

Overall, ESA and its Members are pleased to see progress made by the IOUs in developing a robust cost-benefit evaluation, but note that there are a number of deficiencies that must be addressed before the final plans are submitted. ESA provides the following recommendations on modifications and addition that PacifiCorp and PGE must complete for the final submission of their storage evaluation reports. These changes are required not only to abide by the guidance provided to the IOUs by the Oregon State Legislature and Public Utilities Commission, but also to ensure that the selected storage projects provide the best value for customers at the lowest cost. Lastly, ESA submits its support of comments filed by the Interstate Renewable Energy Council and Renewable Northwest on these draft evaluation plans.

II. ABOUT ESA

ESA was established 27 years ago to foster development and commercialization of energy storage technologies. Since then, its mission has been the promotion, development and commercialization of competitive and reliable energy storage delivery systems for use by electricity suppliers and their customers across the United States. ESA's nearly 200 members comprise a diverse group of electric sector stakeholders, including electric utilities, energy service companies, independent power producers, technology developers—of advanced batteries, flywheels, thermal energy storage, compressed air energy storage, supercapacitors, and other technologies—component suppliers, and system integrators.

III. COMMENTS ON PGE'S DRAFT EVALUATION PLAN

A. Incorporation of costs are critical for completion of a cost-benefit evaluation

ESA commends PGE's Draft Evaluation Plan for its clear articulation and rigorous study of the benefits of energy storage. PGE's analysis uncovers an impressive range of \$200 per kilowatt

to \$2,300 per kilowatt in system benefits and \$0 per kilowatt to \$2,400 per kilowatt in customer benefits. However, without the constraints of costs, PGE has painted an incomplete picture of the net benefits of these storage applications. By omitting the costs from the draft evaluation plan in its current version, stakeholders have a limited amount of time to help inform the cost-benefit analysis before the submittal deadline. By only looking at the “benefits” portion of the “cost-benefit” analysis, stakeholders have no visibility into which projects will ultimately be selected or if the assessment of costs is accurate.

B. PGE’s benefits analysis is limited by use of generic cases instead of specific sites

PGE’s draft evaluation plan reviews five generic use case scenarios and provides an assessment of the benefits of those storage applications. PGE noted that it will include specific locations in the final evaluation plan. While ESA appreciates PGE’s efforts in identifying a wide variety of case studies that span the entire system, it is unclear how PGE is able to capture the entire benefits of storage application without a site-specific study. This gap in the evaluation also makes it difficult for stakeholders to provide comments on the plan and likely unnecessarily constrain the potential net benefit of energy storage in PGE territory.

C. Plan must include comprehensive review of all storage applications

PGE’s analysis focuses exclusively on the utility’s immediate needs, rather than a comprehensive assessment of storage as a resource to address the entire scope of applications established by the Commission at the March 21, 2017 stakeholder meeting. For example, PGE did not include consideration of transmission deferral under the assumption that it has no current need for it. ESA believes that, in addition to falling short of the guidance provided to them by the Commission, this approach is shortsighted. These evaluation plans are intended to develop a

methodology for looking at storage in the utility's service territory, and could be applied when future procurement opportunities arise. As it stands now, should the conditions on the system change, PGE would not have the tools available to effectively evaluate the net benefits of storage as a resource to address the new need and therefore delay deployment of storage technologies to address those needs.

IV. COMMENTS ON PACIFICORP'S DRAFT EVALUATION PLAN

A. Additional visibility is needed into selection of sites and applications

ESA is concerned that PacifiCorp's draft evaluation plan does not provide sufficient visibility into the planning process and inputs that drove the selection of the sites and storage applications studied in PacifiCorp's draft evaluation plan. While ESA generally supports the site selections that were studied in the draft evaluation plan, it is difficult to assess whether these locations were optimized to provide the greatest value to ratepayers. ESA is concerned that the cost-benefit ratios may be higher at other sites, and notes that if the selection process was made available in more detail in the plan, stakeholders would be able to provide input that may ultimately result in additional sites being selected under PacifiCorp's program.

B. Plan must include comprehensive review of all storage applications

PacifiCorp's draft evaluation plan is missing a number of key components that were called for by the legislation and Order No. 16-504. Specifically, PacifiCorp's draft evaluation plan focuses only on applications that are currently determined as needed in their service territory. Aside from going against the guidance of Order No. 16-504, which calls on an exhaustive review of all applications, this approach undermines the applicability of this framework for future evaluations of storage when PacifiCorp's needs may be different.

Most notably, consideration of resource adequacy and capacity application of storage is absent from the draft evaluation plan. It is ESA's opinion that resource adequacy is one of the more valuable applications of energy storage, and its exclusion from the evaluation of storage applications in PacifiCorp's territory unintentionally reduces the demonstrated value of storage. It is very likely that with the inclusion of resource adequacy, the net benefits of storage technologies would be higher in PacifiCorp's draft evaluation plan.

V. ADDITIONAL COMMENTS

Without having greater visibility into the modeling for both PacifiCorp and PGE, ESA is unable to provide comments on whether energy storage was accurately modeled in these draft evaluation plans. One critical piece that ESA encourages the Commission and IOUs to review is whether the models accurately capture the bidirectional capability of energy storage. Since energy storage is able to provide value both as it charges and discharges from the grid, a 100 megawatt battery actually has twice the value, or 200 megawatts equivalent. This is a critical component of energy storage that must be modeled accurately.

Another area that needs additional investigation is on the modeling of costs. While PacifiCorp has made more progress than PGE in incorporating storage costs into its modeling, additional work is needed on both plans to incorporate the most current energy storage cost assumptions in order to develop accurate cost-benefit ratios. Specifically, ESA notes that price forecasts for both PGE and PacifiCorp's modeling must include appropriate cost reduction assumptions and should include sensitivities around various cost assumptions. ESA believes that based on what has been made available in PacifiCorp's plan, DNV GL assumptions on cost declines are too conservative and therefore are likely decreasing the cost-benefit ratio of many of the projects studied in PacifiCorp's draft evaluation plan. There is publicly available research

that evaluates the cost decline forecast of energy storage technologies.¹ Specifically, in table 3-1, DNV GL appears to have presented a very conservative 2021 cost estimate for power components. Power component declines are expected to be closer aligned with energy components assumptions presented in the draft evaluation plan.

VI. CONCLUSION

ESA thanks the Commission for its diligent work on the implementation of these storage evaluation plans. Oregon has a rare opportunity to serve as a leader to other states on energy storage. By incorporating the proposed changes ESA outlined in these comments, ESA believes that the final evaluation plans could serve as a template for other states to follow. We look forward to working with the Commission, utilities, and other stakeholders to ensure that energy storage deployments provide the greatest benefit to Oregon ratepayers.

Respectfully submitted this 25th day of August, 2017.



Nitzan Goldberger
State Policy Director
Energy Storage Association

¹ For example, GTM Research, *Grid-Scale Energy Storage Balance of Systems 2015-2020*, Jan 2016, available at <https://www.greentechmedia.com/research/report/grid-scale-energy-storage-balance-of-systems-2015-2020>; IHS, *Energy Storage Inverter (PCS) Report*, Sep 2016, available at <https://technology.ihs.com/523547/energy-storage-inverter-pcs-report-2016>; B. Nykvist & M. Nilsson, "Rapidly falling costs of battery packs for electric vehicles," *Nature Climate Change* 5, 329–332 (2015), doi:10.1038/nclimate2564, available at <http://www.nature.com/nclimate/journal/v5/n4/full/nclimate2564.html>.