

PacifiCorp - Stakeholder Feedback Form

2019 Integrated Resource Plan

PacifiCorp (the Company) requests that stakeholders provide feedback to the Company upon the conclusion of each public input meeting and/or stakeholder conference calls, as scheduled. PacifiCorp values the input of its active and engaged stakeholder group, and stakeholder feedback is critical to the IRP public input process. PacifiCorp requests that stakeholders provide comments using this form, which will allow the Company to more easily review and summarize comments by topic and to readily identify specific recommendations, if any, being provided. Information collected will be used to better inform issues included in the 2019 IRP, including, but not limited to the process, assumptions, and analysis. In order to maintain open communication and provide the broader Stakeholder community with useful information, the Company will generally post all appropriate feedback on the IRP website unless you request otherwise, below.

Date of Submittal 10/18/2018

*Name: Erik Steimle

Title: Vice President

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Phone: 503-998-0230

*Organization: National Grid Ventures and Rye Development
JV

Address: 745 Atlantic Avenue, 8th Floor

City: Boston

State: MA

Zip: 02111

Public Meeting Date comments address: 10/9/2018

Check here if not related to specific meeting

List additional organization attendees at cited meeting:

[Click here to enter text.](#)

***IRP Topic(s) and/or Agenda Items:** List the specific topics that are being addressed in your comments.

Assumptions for Pumped Storage projects Base Capital Costs (\$/KW) as reported in the Table-2019 Supply-Side Table (2018 \$)

Check here if any of the following information being submitted is copyrighted or confidential.

Check here if you do **not** want your Stakeholder feedback and accompanying materials posted to the IRP website.

***Respondent Comment:** Please provide your feedback for each IRP topic listed above.

National Grid Ventures and Rye Development are developing the Swan Lake North and Goldendale pumped storage projects through a joint venture partnership. Earlier in the IRP process, we provided the IRP team our estimated base capital costs in the range of \$1,905 - \$2,165 (\$/KW) for the Swan Lake project and \$1,787 \$/KW for the Goldendale project. These capital cost estimates were developed and verified by third-party consultants/constructors with experience in designing and building pumped storage projects.

The most recent base capital costs as reported in the Supply-Side Table-2019 are significantly higher than what we submitted. The recently reported base capital costs for these two projects are \$3,095/KW for Swan Lake and \$2,719/KW for Goldendale. The basis for this increase in cost is not clear. We understand that the overall cost to complete the project consists of various categories of costs, i.e., direct construction cost (civil, electromechanical, transmission), indirect costs (project overhead, contingency, financing costs, escalation, etc.), and owner's development costs. The assumptions for all of the above cost categories may vary among the projects and developers. Considering the possibility of variance in assumptions across these categories, we would like to request that the assumptions behind these \$/KW estimates be made available for stakeholder review prior to their use in modeling by Pacificorp. We will be happy to provide the basis for our capital cost estimates and discuss the assumptions with the IRP team if that helps.

* Required fields

PacifiCorp Response:

The base capital costs listed in the Supply Side Resource Table of PacifiCorp's 2019 Integrated Resource Plan include owner's costs, allowance for funds used during construction (AFUDC), owner's contingency and escalation (discounted back to mid-2018 dollars) above the base engineering-procurement-construction (EPC) costs. The base EPC costs are in line with the costs suggested above. The following table contains the base assumptions.

BASE PLANT DESCRIPTION	Swan Lake	Goldendale
ESTIMATED CAPITAL AND O&M COSTS		
EPC Project Capital Costs, 2018 MM\$ (w/o Owner's Costs)	\$814	\$2,146
Owner's Costs, 2018 MM\$	\$163	\$429
Owner's Project Development	Included	Included
Owner's Operational Personnel Prior to COD		
Owner's Engineer	Included	Included
Owner's Project Management	Included	Included
Owner's Legal Costs	Included	Included
Permitting and Licensing Fees	Included	Included
Site Water Supply and Discharge	Included	Included
Generation Switchyard (note 6)	Included in Project Costs	Included in Project Costs
Transmission to Interconnection Point	Included in Project Costs	Included in Project Costs
Training/Testing	Included in Project Costs	Included in Project Costs
Land (note 4)	Included in Project Costs	Included in Project Costs
Builders Risk Insurance (0.45% of Project Cost)	Included	Included
Owner's Contingency	Included	Included
Total Screening Level Project Costs, 2018 MM\$	\$977	\$2,575

* Required fields

EPC Project Costs, 2018 \$/kW	\$2,070	\$1,790
EPC Project Costs, 2018 \$/kWh	\$220	\$130
Total Screening Level Project Costs, 2018 \$/kW	\$2,480	\$2,150
Total Screening Level Project Costs, 2018 \$/kWh	\$260	\$150

Data Support: If applicable, provide any documents, hyper-links, etc. in support of comments. (i.e. gas forecast is too high - this forecast from EIA is more appropriate). If electronic attachments are provided with your comments, please list those attachment names here.

[Click here to enter text.](#)

Recommendations: Provide any additional recommendations if not included above - specificity is greatly appreciated.

[Click here to enter text.](#)

Please submit your completed Stakeholder Feedback Form via email to IRP@PacifiCorp.com

Thank you for participating.

* Required fields