

PacifiCorp 2020 All-Source Request for Proposals

Public Utility Commission of Oregon Special Public Meeting September 22, 2020







ITEM 2.b. Bid Scoring and Methodology

Initial Shortlist Selection: SO and PaR (reliability) Modeling



Phase I : Initial Shortlist (ISL)

Scoring and Eligibility for the ISL

- Bidder conformance and eligibility are currently in three groups:
 - <u>Group I</u>: Bids deemed ineligible as a result of not having an interconnection queue number or their interconnection queue numbers established after January 31, 2020
 - <u>Group II</u>: Bids deemed ineligible, after consultation with the Oregon and Utah independent evaluators regarding RFP minimum bid requirements
 - <u>Group III</u>: Remaining bids scored and ranked for each IRP topology location:
 - Bids were grouped by resource type (e.g. solar, solar + storage, wind, wind + storage, stand-along battery/storage, pump storage, etc.)
 - Bids were scored and ranked using two scoring methods:
 - □ Method #1: Score based on Levelized Net Benefit (\$/kW):
 - □ Method #2: Levelized Net Benefit adjusted by the Capacity Contribution Adjustor ("CCA") (\$/kW)
 - The capacity contribution values specific to each bid were calculated using the same methodology used in PacifiCorp's 2019 IRP. Please refer to Volume II, Appendix N for details.

While Scoring Method #1 has been provided as requested for reference, PacifiCorp recommends the ultimate use of scoring Method #2. This method is consistent with the evaluation performed as part of the 2019 IRP results.

Phase I : Initial Shortlist (ISL)

Derivation of IRP Locational Pricing (Gross Benefit Curve)

- The IRP team ran hourly PaR deterministic studies to calculate the value of 50 MW of free energy at each location where bids are expected to be received. SO runs were not needed as the preferred portfolio is entirely known.
- For each IRP location, 2 runs were conducted, spanning 2023-2038. The base locational run assumed preferred portfolio expansion resources at the location are reduced by half. The locational compare run added the 50 MW of free energy to the location. The locational price of energy for each hour was calculated.
- The resulting hourly data streams were calculated to determine a locational hourly \$/MWh benefit of the 50 MW for all hours spanning 2023-2038.
- For the value of reserves, a similar calculation was conducted but requiring no portfolio changes from the fully loaded preferred portfolio base except for the addition of 50 MW free reserves.

Phase I : Initial Shortlist (ISL)

IRP Bid Selection

- IRP performs optimization modeling for capacity expansion and stochastic risk
- Optimization math accounts for all options, variables, requirements and constraints at once
- Optimization math determines the optimal solution:
 - By eliminating solutions that cannot meet requirements (infeasible)
 - By eliminating feasible solutions that cannot be the optimal solution
 - By assessing linear relationships to get as close to the optimal solution as possible and;
 - Providing available output about the optimal solution. Possible output includes:
 - Discrete decisions (e.g., add capacity at a particular site, acquire a particular DSM package)
 - Energy production of modeled resources, usage of transmission, purchases of capacity or energy from markets
- Not all information is needed to provide a solution:
 - No need for a reserve stack or marginal resource identification (both of which vary by time period)
 - No need to assign reserves to specific units

IRP Bid Selection, continued

constraints become mathematical:

Inequality	Purpose
x ≤ 150	Coal can generate up to 150 @ \$3/MWh
y ≤ 120	Gas can generate up to 120 @ \$2/MWh
x + y ≤ 200	Total MW cannot exceed transmission
x + y ≥ 200	Generation must meet load requirement
x ≥ 0	Coal generation cannot be negative
y ≥ 0	Gas generation cannot be negative

- The inequalities above define a "feasible solution space" – a range of possible solutions that *might* be the right answer.
- The load requirement (200 MW, above) is represented by the red line in the graph at right, and is met by a combination of dispatch from the two resources.
- The model "searches" for the edge of the feasible solution space, then examines other solutions along that edge to see if moving in one direction or the other improves the solution (lower PVRR).

- In optimization modeling, real world The model quickly arrives at the optimal solution, found at one end (vertex) of the 200 MW load requirement.
 - This vertex meets all requirements and constraints, and produces the lowest PVRR. No other solution does this.
 - 2019 IRP additional detail, see June 28, 2020 public input meeting materials online.





ITEM 3.a. Executed LGIA Impact on Initial Shortlist Selection

Locational Capacity Limits



Phase I : Initial Shortlist Selection

Reduction of Group III Bids after Considering PacifiCorp Transmission Large Generator Interconnection Agreement (LGIA) Commitments

- The Group III bid list may be further reduced as a result of PacifiCorp Transmission LGIA contractual commitments in each IRP topology location.
 - Status of interconnection studies and agreements are publicly posted on PacifiCorp Transmission's Open-Access Same-time Information System (OASIS) website.
 - In accordance with PacifiCorp Transmission's current interconnection process, executed LGIAs with existing PacifiCorp Transmission customers, grant those customers interconnection rights that must be fulfilled/honored prior to all other potential customers, whether or not LGIA customers bid into the 2020AS RFP.
- PacifiCorp will forward all Group III bids, adjusting for PacifiCorp Transmission LGIA commitments, to the IRP team for modeling to determine an initial shortlist by IRP topology location for the October 2020 PacifiCorp Transmission transition cluster study.
- All bids with executed LGIAs will skip the cluster study recognizing their interconnection capacity will affect the available interconnection capacity of the IRP topology location where they interconnect.
- In April 2021 the executed LGIA subgroup will rejoin the other bidders who participated in the transition cluster study and be asked to update bid price including all direct and network upgrade costs identified in either i) the executed LGIA or ii) as a result of being selected into the initial shortlist but requiring study/review in the PacifiCorp Transmission cluster study.

Generation Interconnection Queue (GIQ) Assessment

Location	Pref. Port. (MW)	ISL "Soft" Limit (MW)	Signed LGIA (MW)	LGIA Not Bidding or Not Eligible (MW)	Signed LGIA as % of Pref. Port.	LGIA Not Bidding or Not Eligible as % of Pref. Port.	ISL Eligible with Signed LGIAs (MW)	ISL Eligible without Signed LGIAs (MW)	Total ISL Eligible (MW)	Potential Capacity not Eligible for the ISL (MW)
E. WY	1,920	1,920	2,031	76	106%	4%	1,967	0	1,967	7,231
S.W. WY	0	150	342	122	n/a	n/a	222	0	222	260
Goshen ID	0	675	153	1	n/a	n/a	151	1,165	1,316	0
N. UT	343	515	884	612	258%	178%	272	1,164	1,436	2,952
S. UT	231	347	2,234	1,183	967%	512%	1,051	0	1,051	3,075
S. OR	500	750	901	285	180%	57%	593	160	753	1,080
C. OR	0	450	312	155	n/a	n/a	158	320	478	600
Yakima WA	395	593	0	0	0%	0%	0	174	174	0
PDX/Coast	0	195	n/a	n/a	n/a	n/a	0	0	0	0
WV OR	0	923	n/a	n/a	n/a	n/a	0	0	0	0
Bridger	0	531	n/a	n/a	n/a	n/a	0	0	0	0
Total	3,389	7,049	6,857	2,434	202%	72%	4,415	2,983	7,398	15,198

• The figures above are preliminary and have not yet been reviewed and discussed with the independent evaluator.



ITEM 3.b. Order No. 20-228 Follow up

Projects Eliminated from RFP Due to Cut-off Date

- The 2020AS RFP received bids for over 40,000 MW of resource and storage capacity.
- As of September 2 2020, PacifiCorp Transmission's Queue shows 42 interconnection requests totaling 6,127 MWs submitted after January 31, 2020. A total of 2,725 MW of resource and 2,086 MW of storage were disqualified from the 2020AS RFP due to the cut-off date.
- Bids that were removed due to the cut-off date were not evaluated or scored.

Projects Removed from 2020AS RFP for not meeting January 31 st Deadline								
Project	Resource type	Resource MW	Storage	Transmission Bubble				
1	Solar & BESS	275	YES	Goshen				
2	CAES		350	N Utah				
3	PSH		400	E Wyoming				
4	Solar	200	YES	S Utah				
5	Solar	200	YES	S Utah				
6	Solar + BESS	100	YES	S Utah				
7	Solar & BESS	200	YES	S/C Oregon				
8	Solar & BESS	200	YES	S/C Oregon				
9	Solar	300	YES	S/C Oregon				
10	Solar + BESS	190	YES	S/C Oregon				
11	Solar + BESS	150	YES	SW Wyoming				
12	Solar & BESS	160	YES	Yakima				
13	Solar & BESS	200	YES	Yakima				
14	Solar + BESS	100	YES	Yakima				
TOTAL		2,275.0	2,086.0					