



PacifiCorp 2020 All-Source Request for Proposals

Commissioner Workshop
April 27, 2020





Purpose and Scope of the 2020AS RFP

- Seeking new resources up to the amount of capacity included in the 2019 Integrated Resource Plan (IRP) preferred portfolio, which includes 1,823 megawatts (MW) of new proxy solar resources co-located with 595 MW of new proxy battery energy storage system (BESS) capacity and 1,920 MW of new proxy wind resources.
- Commercial operation date (COD) by December 31, 2024.
- PacifiCorp will also accept bids from pumped storage hydro and nuclear resources requiring longer lead time to develop and construct, placing completion beyond the December 31, 2024 COD requirement.
- Proposals must be capable of interconnecting with or delivering to PacifiCorp's transmission system in its east or west balancing authority areas (PACE and PACW, respectively), targeting the specific topology and resource mix identified in the 2019 IRP topology.
- PacifiCorp is not submitting any self-build ownership proposals (benchmark resources) or accepting any bids from any PacifiCorp affiliate.
- Bid fee(s) of \$10,000 will be required for each base proposal and two (2) alternatives. Bidders will also be allowed to offer up to three (3) additional alternatives at a fee of \$3,000 each.
- Intent to bid form and bidder credit information will be required before bid submittal(s).



Interconnection Queue Reform Impact on RFP

- PacifiCorp Transmission has filed an application with the Federal Energy Regulatory Commission (FERC) proposing to replace the existing “serial queue” interconnection study process with a “first-ready, first-served, cluster” interconnection study approach. The proposal was filed on January 31, 2020 and is pending before FERC.
- PacifiCorp’s process for bid evaluation, scoring, modeling, and selection reflects proposed interconnection queue reform process.
- Costs for any direct assigned and transmission network upgrades associated with the interconnection of a proposed project to PacifiCorp’s transmission system will not be a bid requirement or included in the initial shortlist price evaluation.
- RFP eligibility requirements or evaluation criteria will be revised as necessary to align with the final version of interconnection queue reform approved by FERC before the RFP is finalized and issued to the market. In the event that queue reform application is not approved by the time the RFP is finalized and issued to the market, the RFP will be revised to ensure it is consistent with the current interconnection queue process as described in PacifiCorp Transmission’s Open Access Transmission Tariff.
- Bidders should be aware of and clearly understand the specific steps, criteria, milestones and schedule of PacifiCorp Transmission queue reform and transition cluster study process.
- Bidders selected to the initial shortlist who are rejected by PacifiCorp Transmission for not meeting all of PacifiCorp Transmission’s non-commercial readiness criteria necessary to be included in the transition cluster study will be removed by PacifiCorp from the initial shortlist and deemed a non-conforming bid.



RFP Milestones / Schedule

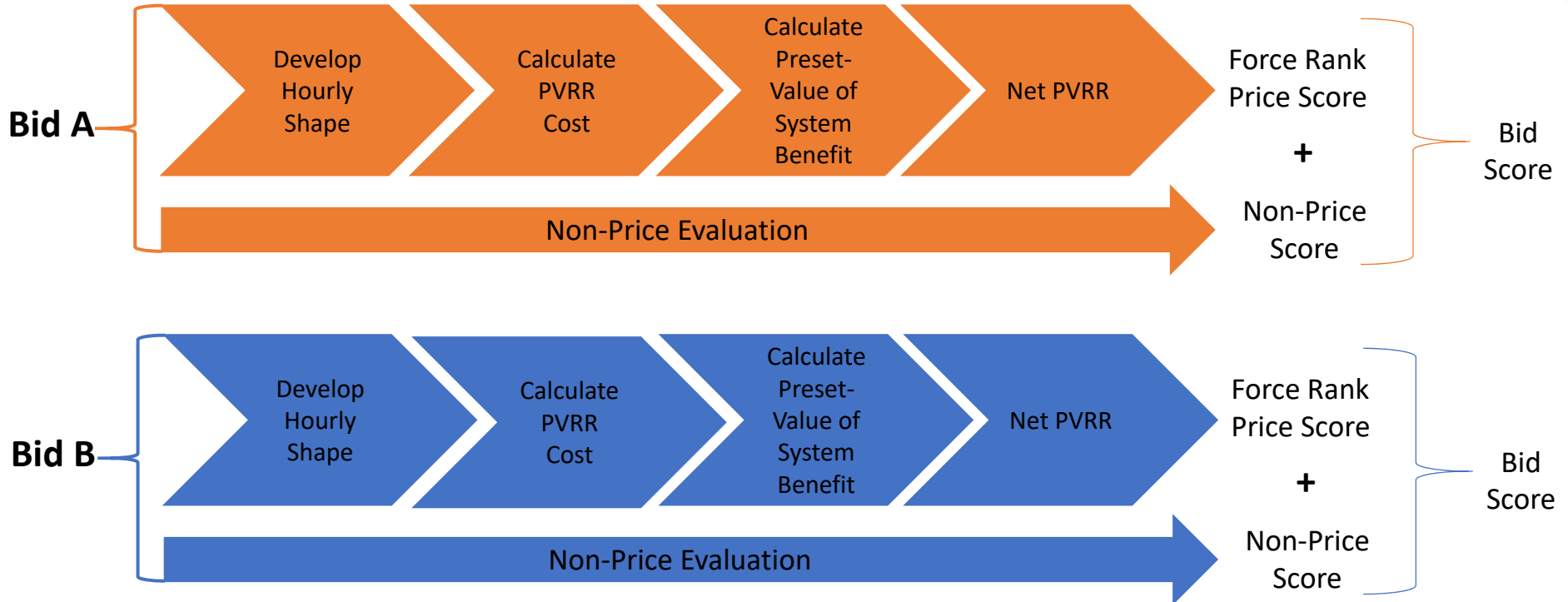
Phase	Milestone	Date
	RFP Issued to market	07/06/2020
	Notice of Intent to Bid due	07/20/2020
	Last day for RFP questions to Independent Evaluator (IE) for Q&A	08/03/2020
	RFP bids due	08/10/2020
I	Bid eligibility screening completed	08/17/2020
	Initial Shortlist (ISL) scoring/ranking completed	09/04/2020
	IRP modeling generates ISL	10/05/2020
	IEs' review of ISL completed	10/09/2020
	PacifiCorp notifies bidders selected to ISL	10/14/2020
II	ISL bidders notify Pac Trans to enter cluster study	10/15/2020
	Capacity factor and BESS evaluation on ISL started	10/19/2020
	Begin contract review and negotiations with ISL (subject to OAR waiver)	10/19/2020
	Capacity factor and BESS evaluation on ISL completed	01/31/2021
	Complete contract negotiations on near final draft with bidders	03/31/2021
	Cluster study results posted to OASIS / bidders notified by Pac Trans	04/15/2021
	Bidders provide ISL price update including cluster study results	04/22/2021
III	Submit updated bids to IRP modeling	04/27/2021
	IRP modeling generates Final Shortlist (FSL)	05/20/2021
	Final Shortlist (FSL) selected	05/25/2021
	IEs' review of FSL Completed	06/01/2021
	OR Commission FSL Acknowledgement Order	09/09/2021
	Complete negotiation of T&Cs for resource agreements	10/15/2021
	Execute Agreements	11/08/2021



Issue 1: Mock-up of RFP Process – Hypothetical Bids

	Bid A	Bid B
Type	Solar with 4-Hour BESS	60% PTC Wind
Location	Southern Oregon	Eastern Wyoming
COD	12/31/2023	12/31/2024
Term/Life	20 years	30 years
Size	250 MW	200 MW
New and Clean Capacity Factor	31%	44%
PPA Price	\$25/MWh	n/a
Structure	PPA with BESS	BTA
Capital	n/a	\$300 million (progress payments)
O&M (OEM Period)	n/a	\$4.8 million/year (fixed)
Owner's O&M	n/a	\$4.3 million/year (escalating)

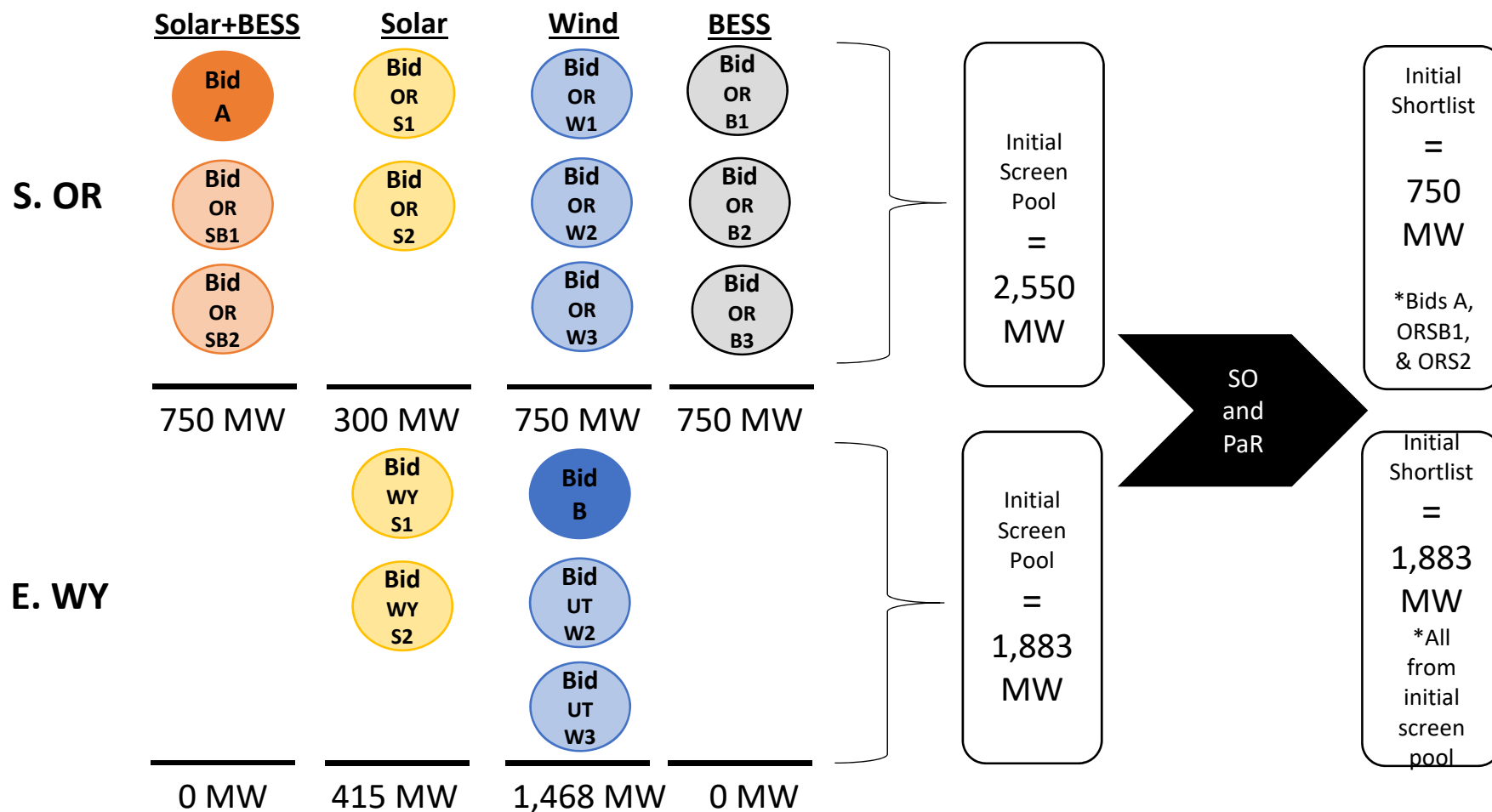
Issue 1: Initial Screening



- This step filters out the least competitive bids on price and non-price factors, while maintaining a sizeable pool of resource options available for further and more detailed system modeling (in accordance with the location-specific MW limits by bubble and technology identified in the draft RFP).
- The basic steps above will be completed for all conforming bids.
- Costs will reflect bids costs (i.e., PPA price, capital revenue requirement net of production tax credits (PTCs), run-rate costs, wheeling costs, etc., as applicable to the bid) and system costs (i.e., integration, incremental reserves) net of terminal value (as applicable)—interconnection network upgrades are not assessed at this stage.
- System benefits will be calculated by multiplying hourly benefit curves, derived from Planning and Risk model simulations in advance of receiving bids, expressed in \$/megawatt-hour (MWh) by the hourly shape of the bid—these curves will be specific to each bubble.



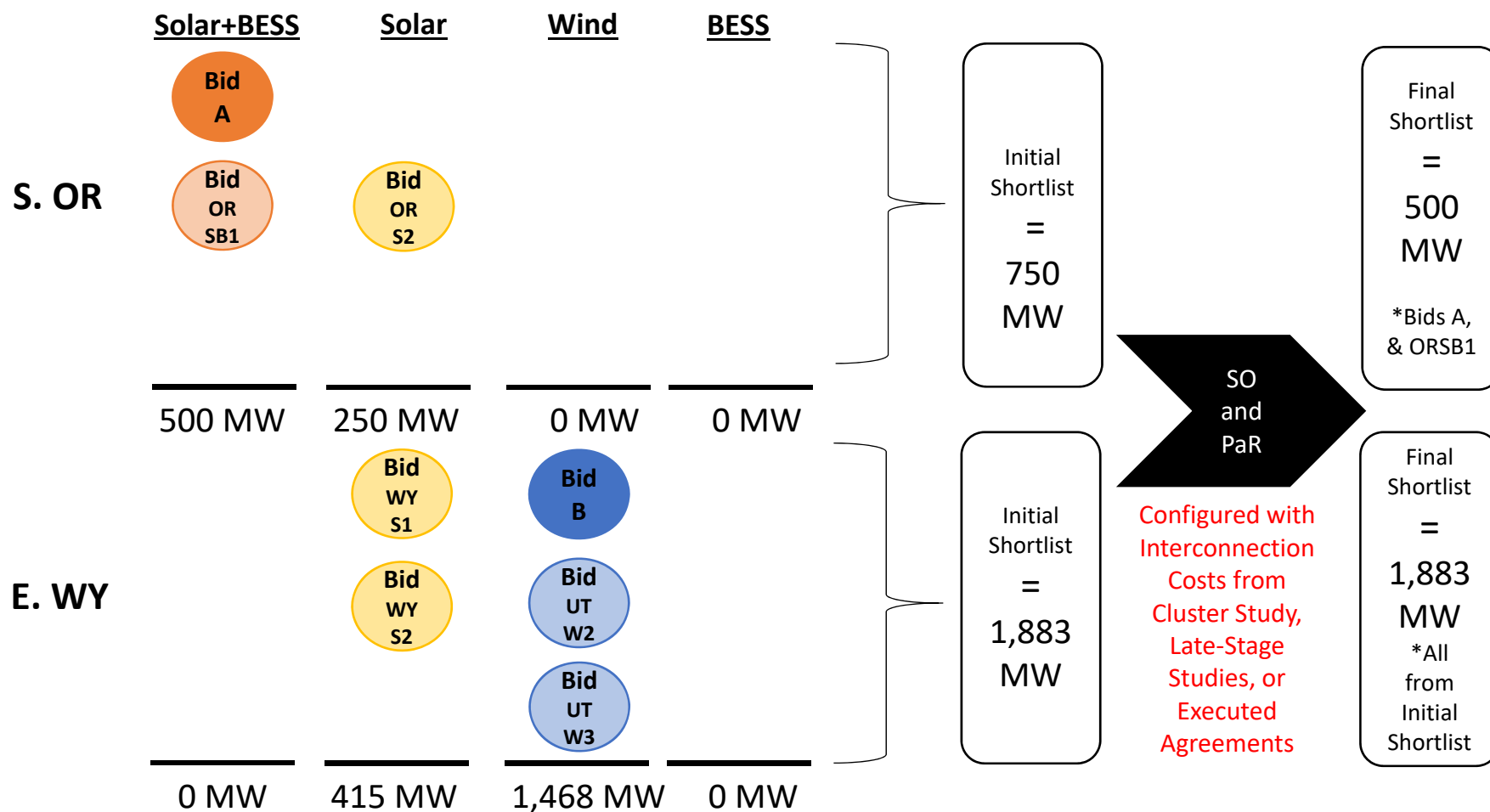
Issue 1: Initial Shortlist



- The initial shortlist relies on IRP modeling tools—System Optimizer (SO) and Planning and Risk (PaR)—to select bids from the initial screening pool.
- As in the initial screening step of the process, the initial shortlist step of the process will not include interconnection network upgrade costs.



Issue 1: Final Shortlist



- The final shortlist also relies on IRP modeling tools—SO and PaR—to select bids from the initial shortlist.
- Having passed through the cluster study process, the SO and PaR models are configured to reflect interconnection costs to ensure that selection of the final shortlist captures these cost impacts from across the system.



Issue 2: Analytical Risk Mitigation

Price-Policy Scenario	Price Components	
	Natural Gas Price	CO ₂ Price
Low / None (LN)	Low	None
Medium / Medium (MM)	Medium	Medium 2025+
High /High (HH)	High	High 2025+

- Price-Policy Scenarios
 - Final shortlist selection will be informed by bid selections under three price-policy scenarios which “bookend” possible futures.
 - Differing bid selections under each future will indicate the relative robustness of bids.
- Stochastic Risk Analysis (Planning and Risk, or PaR)
 - PaR uses a 50-draw Monte Carlo simulation to determine stochastic variances from forecast values.
 - Stochastic parameters include load, natural gas and wholesale electricity prices, hydro generation, and unplanned thermal outages.
 - Weather variations such as temperature and precipitation are drivers for stochastic parameters.
- Together, price-policy scenarios and stochastics allow for evaluation of a range of energy futures with robust risk-assessment within each future.



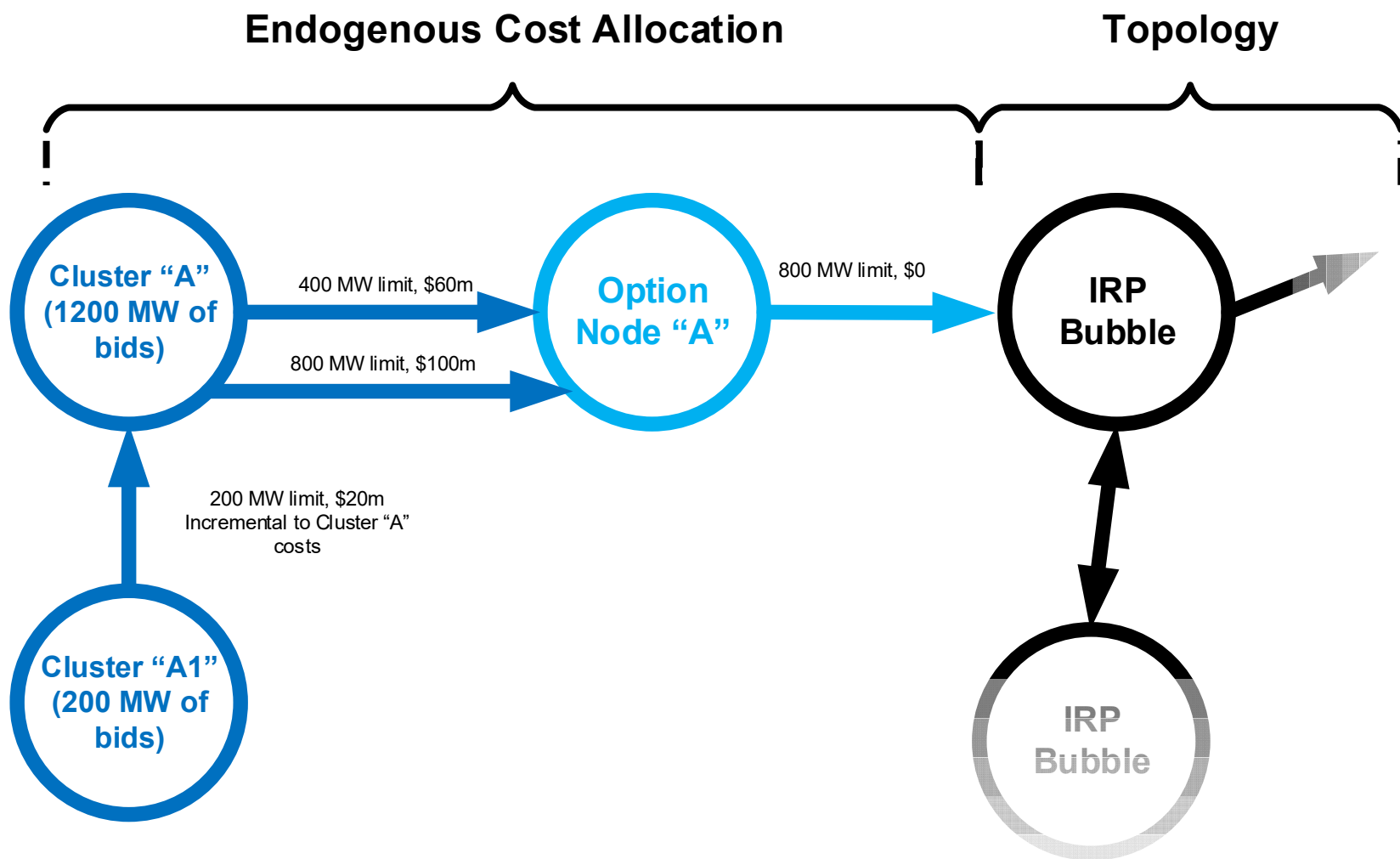
Issue 3: Risks Specific to this RFP

Transmission System Upgrade Costs Impact on the RFP Process

- 2019 IRP topology identified locational “bubbles” to differentiate the capacity estimated to be available via enabling transmission upgrades while maintaining system reliability
 - The 2020AS RFP seeks to secure least-cost, least-risk resources consistent with the intent of the company’s IRP
 - Pools of resources scored and ranked by resource types at 150% of the IRP capacity level to ensure a sufficient variety of resources to be selected from resource pools in each location.
 - Transmission system upgrade costs not a factor in initial shortlist modeling and selection.
 - Transmission system upgrade costs associated with the interconnection affect bid pricing for final shortlist modeling and selection, only after the transition interconnection cluster study is complete for bidders who did not have late-stage studies or executed interconnection agreements.



Issue 3: Transmission Upgrade Cost Modeling





Issue 3: Risks of Changing Circumstances

- The 2019 IRP identified the need for additional firm capacity in 2024 of over 950 MW even after accounting for committed resources, expected incremental procurement of energy efficiency, and planned early retirements. The amount of “firm” capacity from new generating resources being contemplated in the 2020AS RFP, based on preferred portfolio resource selections, totals just over 730 MW.
- Off-ramps exist within the RFP process if significant changes impact resource needs.
- Due diligence within the RFP process addresses the “maturity” or probability of success of the project as well as the creditworthiness of the developer to fulfill its obligations.
- Performance and security provisions within the process and definitive agreements provide assurances around success of the project as well as mitigating risk to the customer.



Issue 3: Queue Reform Risks: Impact to RFP

	PACW		PACE		TOTAL	
	#	MW	#	MW	#	MW
TOTAL	44	5835	193	37698	237	43533
Solar	31	3112	101	13379	132	16491
Solar/BESS	9	1790	13	1600	22	3390
BESS	1	209	11	3050	12	3259
Wind	3	724	63	18567	66	19291
Wind/BESS			1	500	1	500
Natural Gas			2	550	2	550
Geothermal			1	31	1	31
Waste Heat			1	21	1	21
Pump Storage / Energy Storage	1	415	2	1200	3	1615
Nuclear			1	600	1	600

- PacifiCorp's OASIS Generation Interconnection Queue as of January 31, 2020
 - Executed large generator interconnection agreements and interconnection requests in progress
 - Over 20 MW with requested commercial operation by 12/31/2024
 - Total excludes long-lead time resources