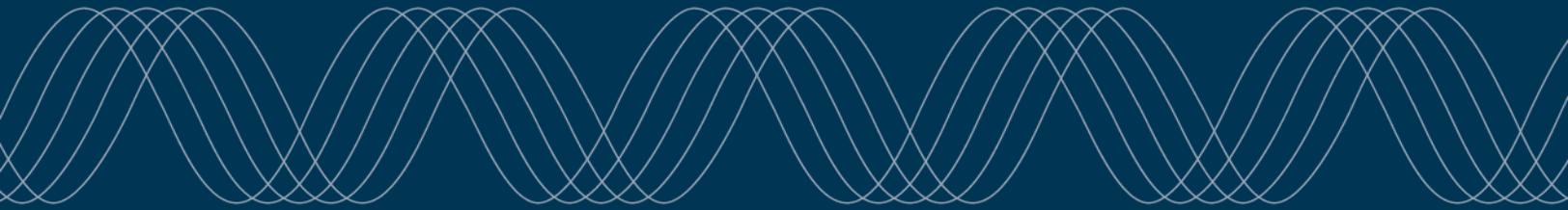


Appendix N

Scoring and Methodology



2021 All-Source RFP



Table of Contents

1.1	Overall Analysis Process.....	3
1.2	Qualifications & Performance Screen	3
1.3	Scoring Methodology.....	9
1.3.1	Price and Non-Price Weightings	9
1.3.2	Price Scoring.....	9
1.4	Non-Price Scoring	14
1.5	Best and Final Offer Request & Final Shortlist Eligibility Screening	16
1.6	Portfolio Analysis.....	16
1.7	Final Shortlist	18
	Exhibit A: Required Permits	19
	Exhibit B: Point Allocation Matrix	20
	Exhibit C: Commercial Performance Risk Non-Price Scoring Matrix	21

Scoring Methodology

1.1 Overall Analysis Process

PGE’s evaluation and scoring process is designed to account for the unique attributes of several resource types and determine the resource portfolio that offers the best combination of cost and risk for PGE customers. PGE intends to use IRP models with select modifications to evaluate proposed resources and to work closely with the IE as they validate that the evaluation criteria, methods, models, and other processes have been applied consistently and appropriately to all bids. All proposed alterations to PGE’s IRP models are discussed in detail in the analysis sections below.

The following diagram illustrates the anticipated key steps in the analysis process, and the discussion below provides additional detail on the required modeling and scoring within each step.

Figure 1: 2021 All-Source RFP Analysis Process



1.2 Qualifications & Performance Screen

PGE intends to employ a qualifications and performance screen as the first step in the RFP evaluation process. Resources that do not meet all of PGE’s initial applicable requirements will not be considered for the initial shortlist and will not receive a price and non-price score. PGE will document why bids did not pass the qualifications and performance screen and will provide that highly confidential information upon request to Staff and docket participants that have signed a modified protective order. A description of the various qualifications is included in Table 1 below.

Table 1: Qualifications & Performance Screening Requirements

Qualifications & Performance Screening Requirements	
Entity Requirement	As applicable, entities must be authorized under the law to sell power, and able to schedule power and operate under industry standards established by the Federal Energy Regulatory Commission (FERC), Western Electricity Coordinating Council (WECC), and the North American Energy Reliability Council (NERC), or other applicable regulatory body or government agency.
Financing Requirement	As applicable, bidders must provide a reasonable plan to obtain project financing. Those bidders who are unable to internally or balance sheet finance the proposed project (supported by appropriate financial statements) must provide evidence of a good faith commitment from a financial institution or lender prior to placement on PGE’s final shortlist.
Technology Eligibility	PGE will accept bids for resource core technologies that are commercially proven and deployed at large scales within the North American utility industry. Renewable resources bid into the solicitation must be RPS eligible. Dispatchable resources must be non-emitting technologies that can generate when called upon.
Resource Online Date	Resources must be online no later than the end of 2024, with the exception of pumped hydro, which must be online by the end of 2027.
Qualifying Product	PGE shall be the offtake for all output from the facility or portion of the facility bid into this RFP. Projects must include all power attributes including associated renewable energy credits, environmental attributes, energy benefits, and capacity benefits. Bidder is responsible for ensuring RECs are established in WREGIS.
Nameplate Requirement	Resources that are bid into this RFP must be large enough to qualify for contracting under PGE’s Schedule 202 for qualifying facilities. ¹ Solar resources must be larger than 3 MW and all other facilities must be larger than 10 MW. If a Bidder already has a Schedule 202 agreement with PGE, they are welcome to include such the resource subject of

¹ This requirement is consistent with OAR 860-089-0250(4).

	agreement in its bid, but PGE does not guarantee that the bidder will be excused from the existing agreement.
Term Length	PGE requires a 15-year minimum term and a 30-year maximum term for those agreements.
Tax Credit Eligibility	Renewable resources must be eligible for the federal PTC or ITC and all bids must provide a narrative on how the project will obtain the tax credits.
Credit	Bidders must meet PGE’s credit eligibility thresholds. For investment grade Bidders, their long-term, senior unsecured debt must be rated BBB- or higher by Standard & Poor’s and Fitch, BBB (low) or higher by DBRS, or Baa3 or higher by Moody’s Investor Services, Inc. For non-investment grade Bidders, they must demonstrate, prior to final shortlist, that a qualified institution will secure the Bidder’s performance obligations through a letter of credit or guaranty, in a form acceptable to PGE.
Site Control	<p>Bidders must support the bid by demonstrating dependable site control, for both the location of the resource and any gen-tie path that is required. At the time of bid submission, Bidders must possess at least one of the following:</p> <ul style="list-style-type: none"> • title to the site • an executed lease agreement • an executed easement • an executed option agreement applicable to a minimum of 80% of the project site <p>The site control documents should reflect the resource type bid into this RFP.</p> <p>Prior to placement on PGE’s final shortlist, bidders will be required to demonstrate site control for 100% of the project site.</p>
Permitting ²	Please see the chart in Exhibit A that denotes permitting requirements for the initial shortlist and final shortlist by resource type.

² PGE will allow bidders to submit a narrative explanation if they are unable to meet the permitting matrix timeline included in this RFP. PGE views the permits and associated timelines as key to reducing risk and retains the discretion - to be discussed with the IE - to determine whether the explanation provided has merit.

	<p>In the event a specific permit is not required for the resources that is bid into this RFP, the Bidder may provide a narrative explanation on the bid form regarding why it is not applicable.</p>
<p>Acceptable Delivery Points</p>	<p>PGE will accept delivery within PGE's balancing authority area and at BPAT.PGE. PGE will not accept delivery at Pelton Round Butte or at PacifiCorp West.</p> <p>The BPAT.PGE Point of Delivery is associated with the following substations or "sinks":</p> <ul style="list-style-type: none"> • PGE Contiguous • Pearl 230 kV (Sherwood) • McLoughlin 230 kV • Keeler 230 kV (St. Marys) • Rivergate 230 kV • Bethel 230 kV³ • Troutdale 230 kV (Blue Lake)
<p>Interconnection⁴</p>	<p>For a bid to qualify for the initial shortlist it must have the following:</p> <p>An active generation interconnection request in the transmission provider's interconnection queue</p> <p>A completed system impact study</p> <p>If interconnection involves a 3rd party other than the transmission provider, the bid must also include an interconnection request to the 3rd party and all associated studies.</p> <p>To qualify for the final shortlist, it must have a completed facilities study.</p> <p>Resources located on PGE's system must be studied as Network Resource Interconnection Service.</p>

³ At this time the Bethel 230 kV POD has been determined to have insufficient available capacity and is unavailable for new transmission service requests. However, Bidders that have already been granted long-term service at this POD may use this POD.

⁴ Should Congressional action extend the availability of federal tax credits within the timeline of this solicitation, PGE will consult with the IE to evaluate the impacts of allowing for additional time for bidders to complete the SIS and FAS studies.

	Resources located off-system can be studied as Energy Resource Interconnection Service or Network Resource Interconnection Service.
Transmission Requirements ⁵	<p>Renewable Resources</p> <p>Eligible transmission service products include:</p> <ul style="list-style-type: none"> • long-term firm transmission service, • long-term conditional firm bridge, number of hours, or • long-term conditional firm reassessment, number of hours <p>To qualify for this RFP, a bidder must have eligible transmission service described above that is equivalent to at least 80 percent of the facility's interconnection limit. The eligible transmission service must originate at the POR/POI and provide delivery to one of the acceptable points of delivery, defined above, prior to project COD.</p> <p>Bidders relying on BPA for transmission service are required to have either: 1) previously granted eligible transmission service, or 2) an eligible and active OASIS status Transmission Service Request (TSR) participating in the BPA TSR Study and Expansion Process.</p> <p>PGE's evaluation process will determine if there are additional costs or risks to deliver the resource to PGE load.</p> <p>If a Bidder has a TSR that utilizes Newpoint as the POR, the TSR must reference the specific Generation Interconnection Request number for the resource in the comments field.</p> <p>Dispatchable Resources</p> <p>To qualify for this RFP as a dispatchable resource, a bidder must have long term firm transmission rights for 100 percent of the facility's interconnection limit. The long-term firm transmission service must originate at the resource POR/POI and provide delivery to one of the acceptable points of delivery, defined above, prior to project COD.</p>

⁵ Should congressional action extend the availability of federal tax credits, PGE will work with the IE to consider how additional time made available for tax credit qualification could allow for broader bidder satisfaction of PGE's transmission requirements. PGE appreciates that timelines for obtaining such transmission can be strenuous and lengthy and invites bidders to include clear and executable paths to procuring transmission service (including study process milestones and reference to public study results for similar projects). Any clear and executable plan must meet the transmission product and quantity requirements specified in this section.

	<p>Bidders relying on BPA for transmission service are required to have either previously granted transmission service or an active OASIS TSR participating in the BPA TSR Study and Expansion Process.</p> <p>If a Bidder has a TSR that utilizes Newpoint as the POR, the TSR must reference the specific Generation Interconnection Request number for the resource in the comments field.</p>
Integration	<p>For projects located outside of PGE’s Balancing Authority Area, PGE will determine and elect integration services necessary to ensure delivery of energy to the Point of Delivery. For a third party owned project, PGE will reimburse projects for integration services elected by PGE. Integration Services include, but are not limited to, generation imbalance, variable energy resource balancing service and any EIM costs associated with interconnection. Integration Services do not include ancillary service costs associated with the transmission provider’s provision of firm transmission service.</p>
Labor Requirement	<p>PGE reminds Bidders that Oregon House Bill 2021 includes labor provisions that support family-wage jobs for the construction and repowering of renewable energy resources in the state. All bids received that are subject to House Bill 2021 must fully comply with the labor standards set within the legislation.</p> <p>PGE requires that the Bidder has policies in place that are designed to limit or prevent workplace harassment and discrimination.</p> <p>PGE will be asking that the Bidder has policies in place that are designed to promote workplace diversity, equity and inclusion of communities who have been traditionally underrepresented in the energy sector including, but not limited to, women, veterans and Black, Indigenous and People of Color, with an aspirational goal of having at least 15 percent of the total work hours performed by individuals from those communities.</p>
Accepted equipment manufacturers for utility owned	<p>All major equipment manufacturers must be PGE preferred vendors.</p>
Reasonable adherence to PGE technical specifications for utility ownership structures	<p>Concurrent with supplying the best and final offer, all bids that contemplate a utility ownership structure must provide redlines to PGE’s technical specifications.</p>
Service agreement requirements for utility ownership structures	<p>Utility-owned resources must include quoted vendor costs for long-term service agreements (LTSA) for a minimum of five years. For battery-energy storage resources, LTSAs must include commitments to</p>

	maintain the capacity performance through augmentation or alternative mechanisms.
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1.3 Scoring Methodology

Consistent with the Commission’s CBRs all bids that pass PGE’s qualifications and performance screen will be scored and ranked based on price and non-price factors. Price scores will be based on prices submitted by bidders, the forecasted performance of the resource, and the associated real-levelized cost and benefit of the bid. Non-price scores will focus on commercial and economic risks that a bidder elects to transfer to PGE and our customers through proposed modifications to form contract term sheets as well as certain bid attributes further detailed in the non-price scoring section.

1.3.1 Price and Non-Price Weightings

Each bid will be scored based on a combination of price and non-price points. PGE will allocate 81.2 percent of available bid points to bids based on the price and performance considerations reflected in the price score. PGE will allocate 18.8 percent of the available bid points to bids based on non-price factors that cannot be readily converted into minimum bidder requirements. As is required in OAR 860-089-0400(5)(b)(A), additional sensitivities will be performed when developing the initial and final shortlists that evaluate how bids perform under a 70/30 and 60/40 price and non-price weighting sensitivities. A matrix that details the allocation of price and non-price points for each resource type is included in Exhibit B.

The purpose of non-price scoring is to acknowledge the important benefits and risks associated with a proposed project that cannot be practically expressed in a bid’s price. As is permitted under OAR 860-089-0400(2)(b), PGE’s non-price scoring is largely based on conformance to proposed standard form contracts and term sheets. Additional non-price scoring criteria must be objective and reasonably subject to self-scoring by bidders.

1.3.2 Price Scoring

PGE’s price scoring will utilize models and methodologies consistent with the 2019 IRP and IRP Update process. Revenue requirement modeling will determine the bid cost, AURORA will be used to calculate energy values, Sequoia will be used to determine the capacity value, and results from ROM will provide flexibility value assessments. Some of these models required modifications for RFP evaluation purposes. Those modifications are further detailed in each section below.

Bid Cost Determination

A bid’s cost reflects the total cost, fixed and variable, associated with the project’s delivery of energy, capacity, and ancillaries at its forecast economic dispatch. PGE will utilize a revenue requirement model

in Excel over the economic life of the asset to calculate the total offer cost, expressed on a present-value basis. A real levelized net present value is the value that when escalated at the annual inflation rate, has the same net present value as the original total offer cost. The model will consider the unique fixed and variable costs associated with each resource.

For bids that contemplate a power purchase agreement, a bid's fixed cost will include (if applicable) all forecast fixed payments, capacity charges, wheeling costs, integration costs, ancillary services, and PGE system upgrade costs. Variable costs for power purchase agreements will include all energy payments, additional variable O&M costs, line losses, emission costs passed onto the buyer, and start-up charges, if applicable. PGE will determine the magnitude of a bid's variable costs by the bid's simulated dispatch against forecast market prices developed using the Aurora modeling, forecasting, and analysis software.

For bids that contemplate a utility ownership structure, a bid's fixed costs will include total depreciation, salvage, return, income taxes, deferred income taxes, deferred tax asset costs, property taxes, fixed operating and maintenance costs (O&M), wheeling charges, and ancillary services less any tax credit benefits. A bid's variable costs will include all fuel costs, variable O&M, emissions costs, start-up costs less any PTC benefit.

To evaluate bids containing different resource characteristics on a comparable basis, prices submitted by the Bidder may be subject to adjustments, and adjustments may also be required throughout the evaluation process. For consistency PGE intends to assess all bids the BPA reserves rate. Renewable resources will be assessed BPA's variable energy resource balancing services, and dispatchable resources will be assessed dispatchable energy resource balancing services. Examples of other adjustments include applying applicable interconnection costs captured in interconnection facilities studies, adjusting for ancillary service rate changes, altering assumed project costs based on redlines to technical specifications, and performance assurance adjustments if the Bidder takes exception to the required performance assurances for before and after the commercial operation date.

Energy Value Determination

An offer's energy value reflects the value of energy generated throughout the offer's economic life or term. To calculate the energy value, PGE will forecast resource production and utilize the reference case market price forecast from the 2019 IRP Update, inclusive of available natural gas price forecast updates. The production value will be based on bidder provided generation information, and in the instance of storage resources, PGE will simulate resource dispatch using the Aurora production cost simulation tools deployed in the IRP. Energy value for the duration of the offer's term is expressed on a present-value basis, levelized using annuity methods, and included in the offer's total levelized value. To evaluate energy value risks, PGE will conduct energy value sensitivities using multiple price curves within portfolio analysis.

Capacity Value Determination

PGE is facing an upcoming capacity deficit in 2025 and requires capacity products to otherwise displace the need to contract with or construct new generating facilities. Individual resource capacity values will be calculated as the product of the bid's capacity contribution and the avoided capacity cost. PGE's avoided capacity cost will utilize the real-levelized cost, net of wholesale revenues and flexibility value, adjusted for effective load carrying capability (ELCC) of a simple-cycle combustion turbine (SCCT) as

depicted in the 2019 IRP Update. For additional perspective, PGE will also use the average cost of dispatchable capacity from bids in this RFP as a proxy for avoided capacity cost.

Individual capacity contributions will be calculated using Sequoia. Sequoia is a loss-of-load probability model that assesses both capacity need and capacity contribution of potential incremental resources. The model uses a Monte Carlo module to construct thousands of plausible weeks of load and resource conditions. It then evaluates these weeks independently in a dispatch module that optimizes the generation from dispatchable resources across all hours of the week to minimize the reliability objective function (i.e., minimize the sum of the average unserved energy across the week and the maximum unserved energy experienced in a single hour during the week).

The model has an Excel interface with a Python and GAMS back end. It also requires a license to the Gurobi solver to achieve adequate performance. Further details on Sequoia were included in Appendix K of the 2019 IRP Update.

Since the 2019 IRP Update, PGE has identified necessary modeling changes and improved Sequoia to allow for direct modeling of the diverse commercial bids expected to bid into the 2021 All-Source RFP. The Sequoia changes include the following:

- Load update - PGE updated Sequoia to include the most recent econometric load forecast which was conducted in March of 2021.
- Contracts update - PGE will update Sequoia to include the appropriate snapshot of PURPA qualifying facilities and bi-lateral contracts.
- Hybrid resource dispatch - PGE updated Sequoia to enable more accurate hybrid resource representation. The changes allow PGE to model DC-coupled storage paired with DC and/or AC generation as well as AC-coupled storage paired with DC and/or AC generation. The updated functionality replaced the earlier hybrid dispatch module, which was a simplified AC storage paired with AC generation.
- Disaggregation of hybrid resource dispatch - Sequoia now allows for hybrid resources to be treated as separate resources for dispatch. This also improves the modeling for storage resources, which were previously aggregated for the storage dispatch module.
- Storage cycling limitation - PGE introduced functionality to reflect any daily cycling limitations, if commercially applicable.
- Hourly transmission curtailments - Sequoia can include assumed hourly curtailments based on the type of transmission product the resource is planning to use.

As discussed above, PGE will evaluate multiple transmission products as part of this RFP. Depending on the product selected, PGE will adjust the capacity value of the resource to account for the product's reliability, which is described in more detail in the chart below.

Table 1: Impacts to Capacity Value Based on Transmission Products

Impacts to Capacity Value Based on Transmission Products	
Long-Term Firm	<ul style="list-style-type: none"> • When determining capacity contribution, the maximum facility output will be limited to the quantity of long-term firm rights (no less than 80% of interconnection limit).

	<ul style="list-style-type: none"> No capacity value will be attributed to the portion of the resource's interconnection limit that is relying on short-term firm, if any.
Conditional Firm Bridge	<ul style="list-style-type: none"> When determining capacity contribution, the maximum facility output will be limited by the amount of conditional firm bridge rights (no less than 80% of interconnection limit). For the purposes of capacity contribution calculations, generation delivered by condition firm bridge will be assumed to be curtailed. Specifically, resources on conditional firm bridge will also have their output curtailed for 50% of annual curtailment hours as identified and reserved for use by BPA. The model will assume that these curtailments happen during PGE's approximate times of highest need. Upon the forecasted completion of transmission upgrades necessary to convert conditional firm bridge service into long term firm service, a resource's forecasted curtailment conditions will be removed.⁶ If BPA's cluster study results are not available to indicate the maximum number of curtailed hours, PGE will use the average assessed hours from the previous study. No capacity value will be attributed to the portion of the resources facility's interconnection limit that is relying on short term firm, if any.
Conditional Firm Reassessment	<ul style="list-style-type: none"> Due to the unpredictable long-term nature of this product as discussed in the transmission section above, PGE will not attribute any capacity value to bids relying on conditional firm reassessment.

Flexibility Value Determination

Flexibility value was new in PGE's 2019 IRP and was included to estimate the value a resource brings to PGE's portfolio by responding to forecast errors, enabling fast ramping, and meeting reserve requirements. PGE estimated these values using PGE's Resource Optimization Model (ROM). ROM is a multi-stage optimal commitment and dispatch model that accounts for the operational impacts of forecast errors, operating constraints based on commitment decisions with imperfect information, gas constraints, and operating reserves (load following, regulation, spinning, and non-spinning reserves). It ensures that the system can respond to short time-scale variability of load and renewables as well as contingency events and is implemented using the General Algebraic Modeling System (GAMS) programming and a Gurobi Optimizer⁷.

For resource flexibility values in the 2021 All-Source RFP, PGE will rely on flexibility values from ROM as detailed in the 2019 IRP. These values will be adjusted based on the size of each resource evaluated. For combined solar and storage projects, PGE will give a battery storage project its full flexibility value if it is able to charge from the grid after it has been online for five years. Due to ITC eligibility requirements,

⁶ LC 73, 2019 IRP reply comments at 85, see figure 15, available at: <https://edocs.puc.state.or.us/efdocs/HAC/lc73hac153345.pdf>

⁷ For a more detailed description of ROM, please consult Appendix I.5 in PGE's 2019 IRP at 358-359.

solar and storage resources generally cannot rely on grid charge for the five years following a project's online date. Below are the flexibility values for 100 MW resources included in the 2019 IRP.

Table 2: Flexibility Value from the 2019 IRP

Flexibility Value (2020\$/kW-yr)	
2-hour Battery	\$23.73
4-hour Battery	\$28.10
6-hour Battery	\$29.43
Pumped Storage	\$25.95

Offer Price Value-to-Cost Evaluation

PGE will evaluate all Renewable RFP bids against a value-to-cost binary metric. The value-to-cost metric evaluates whether a project's costs are exceeded by a project's forecasted value under Reference Case conditions considering only the resource's forecasted energy, capacity, and flexibility values. Offers will be considered to have a 'True' value-to-cost metric if the resource's forecasted levelized benefit exceeds their forecasted levelized cost. The formula below illustrates how the metric will be assessed for renewable bids.

Renewable Resources' Value-to-Cost Binary Metric is True if:

$$\text{Levelized Resource Cost} < \text{Levelized Energy Value} + \text{Levelized Capacity Value} + \text{Levelized Flexibility Value}$$

The value-to-cost evaluation will be unique for each resource evaluated by PGE and will elevate resources that provide more value to PGE customers due to the resource's generation profile. For this reason, it is possible that a lower-priced resource will not pass the economic evaluation while a higher-priced resource will pass the economic evaluation due to increased resource value, such as by providing higher capacity contribution or more valuable energy production.

Allocation of Price Score Points

Once the cost of each bid is determined it will be netted against the levelized energy, capacity, and flexibility value associated with the bid. This net cost will be expressed in real levelized \$/MWh for renewable bids and real levelized \$/kw-mo for dispatchable bids. Each bid's component cost and benefits will be converted into a cost-to-benefit price score ratio. Price scoring points will be allocated on a scaled basis, with 812 points allocated to the best price ratio. The allocation system is illustrated by the example below.

Table 3: Price Score Point Allocation Example

Price Score Point Allocation Example					
A	B	C	D	E	F
	Total Cost	Total Value	Ratio of Cost to Benefit	Lowest Ratio	Points
			B/C	Min(D)	812*(E/D)
Bid 1	40	50	0.8	0.73	741
Bid 2	35	48	0.73	0.73	812
Bid 3	15	20	0.75	0.73	790
Figures are fictitious and for example purposes only					

1.4 Non-Price Scoring

Non-price scoring is designed to reflect the commercial and performance risks and benefits associated with the project that is not captured in the offer’s price score. Non-price scoring will be assigned 300 points. Scores for dispatchable resources will be based on commercial performance risk and COD related risks. Scores for renewable resources will be based on commercial performance risk, transmission plan attributes and level capacity ratio score (based on a ratio of a resource’s capacity contribution to MWa). PGE will first calculate the non-price score for the initial shortlist, and then will calculate a second non-price score in the portfolio analysis stage based on the resources in each portfolio.

Commercial Performance Risks

Commercial performance risks will be assessed based on bidder proposed modifications to form agreement term sheets and additional bid materials that inform identified commercial risk provisions. Please refer to Appendix A: Renewable Resource Form Term Sheet, Appendix B: Storage Capacity Form Term Sheet, Appendix C: Hybrid Resource Form Term Sheet, and Appendix D: APA & EPC Form Term Sheets. Bidder term sheet commitments are important and consequential as they are the primary indicator of a bidder’s commitment to deliver on bid specifications and limit the transference of risk onto PGE and its customers. One hundred (100) non-price points for dispatchable and renewable resources will be based on the scoring of commercial performance risk reflected in the term sheets and associated documents. Bidders are required to review PGE form term sheets and mark any exceptions to those term sheet agreements. Modified term sheets will be the foundation for negotiations with successful bidders. In addition, form agreements are also included for reference and further characterize the terms and conditions that PGE expects to initiate its negotiations preceding contract execution. In contrast to form term sheets, Bidders are not required to mark-up the from agreements. BIDDERS THAT CHOOSE NOT TO PROVIDE REDLINES AND DEFER COMMERCIAL COMMITMENTS UNTIL NEGOTIAION PHASE WILL NOT RECEIVE COMMERCIAL PERFORMANCE RISK NON-PRICE POINTS. The specific commercial performance scoring rubric relied upon to guide PGE’s scoring is included in Exhibit C.

Characteristics that PGE will consider in commercial performance risk non-price scoring include the following:

- Resource performance guarantees - adherence to provisions including scheduling commitments, forecasting commitments, remedies of non-performance, security, credit support, warranties, service agreements, and output, availability factor, and/or performance guarantees will determine the allocation of 50 non-price points for dispatchable and renewable resources.
- Limitations of liability and remedies - adherence to provisions including commercial online date guarantees, force majeure, settlement, indemnification, default, and termination, will determine the allocation of 50 non-price points for dispatchable and renewable resources.

Transmission Plan Attributes

PGE will also assess how the transmission plan for each renewable resource introduces additional risk to PGE’s portfolio; 29 points will be included in this score. Bidders that propose to rely on greater quantities of short-term firm service introduce long term risks to PGE that cannot be adequately accounted for in price scoring. As enumerated in the table below, points will be awarded to offers that have a lower risk of service associated with more of the facility’s potential output delivered with long-term transmission rights.

Table 4: Non-Price Score Allocation Based on Transmission Plan

	Max Score	Weight	Total Points	Point Allocation
Long term transmission product reservation	4	7.25	29	4 - 100% of facility's interconnection limit 3 - 95% of facility's interconnection limit 2 - 90% of facility's interconnection limit 1 - 85% of facility's interconnection limit 0 - 80% of facility's interconnection limit

Level Capacity Ratio

For renewable resources, PGE proposes to employ non-price scoring metric that favors renewable resources that offer higher capacity contributions with lower annual energy output. The level capacity ratio metric will be calculated in accordance with the formula below. This metric allocates the remaining non-price points for renewable resources to those resources that have a high capacity contribution compared to the energy that they generate as depicted below:

$$\frac{ELCC \text{ (Measure of Capacity Contribution)}}{MWh \text{ (Measure of Energy)}} \times 59 \text{ Non - Price Points}$$

- This metric intentionally favors resources that best support reliability while recognizing PGE’s portfolio energy load-resource-balance limitations.

Online Date Certainty

Given that PGE has short-term capacity needs and that the future availability of short-term and medium-term dispatchable resource contracts is challenging to forecast, PGE will attribute non-price points to dispatchable resources that have an earlier COD. Renewable resources are already incentivized to have the earliest COD possible due to the timelines associated with PTCs and ITCs. The impact of those tax credits is captured in the offer price. The table below illustrates how points will be awarded to dispatchable resources that offer earlier capacity value to PGE:

Table 5: Non-Price Score Allocation for Dispatchable Resources based on Commercial Operation Date

	Max Score	Weight	Total Points	Point Allocation
Non-Price Score Allocation based on Commercial Online Date	5	17.6	88	5 - COD by 12/31/2023 4 - COD by 12/31/2024 0 - COD after 12/31/2024

1.5 Best and Final Offer Request & Final Shortlist Eligibility Screening

Initial shortlist candidates will be contacted by PGE and requested to provide their best and final offer. PGE will also ask that they redline technical specifications (if they have not already done so) and provide updates on pricing, permitting processes, interconnections studies, and the cluster study process. This new information will be evaluated to ensure the bid meets the eligibility requirements for the final shortlist, and all relevant updates will be incorporated into the portfolio analysis.

1.6 Portfolio Analysis

Consistent with the methodology in PGE’s 2019 IRP and 2019 IRP Update, PGE will utilize ROSE--E for portfolio analysis for this RFP. ROSE-E is a portfolio analysis tool that generates optimal portfolios

according to a specified objective. In doing so, ROSE-E creates various cost and risk metrics that enable comparison across portfolios. For this RFP, ROSE-E will forecast the long-term economic performance of bids, both in isolation as well as when combined, allowing a comprehensive evaluation of bids that ensures the final shortlist is in the best long-term interests of customers. ROSE-E was extensively described and vetted in LC 73; for a full description of the model's construction and functionality please refer to PGE's 2019 IRP.⁸ While the core of ROSE-E remains in this RFP, several important changes have been made to the model to answer questions relevant to this specific setting.

ROSE-E's capacity expansion will be set to meet the carbon reduction targets established in House Bill (HB) 2021. In an IRP setting, ROSE-E ensures the system remains capacity adequate and in compliance with policy mandates by determining the optimal size and timing of additions from a list of proxy resources available to PGE.⁹ However, in this RFP energy additions will be limited to one proxy renewable resource (SE Washington wind), and capacity additions will be limited to the capacity fill resource.¹⁰ Doing so allows ROSE-E to evaluate individual bids and combinations of bids in the context of PGE's pathway to meet HB2021's targets. However, this analysis will produce only a cursory view of the resource additions necessary to comply with HB2021; the next IRP will produce a more developed and nuanced view of the most optimal resource expansion pathway for the Company.

In this analysis ROSE-E will only use the main objective function (minimizing long-term costs).¹¹ The benefits from each bid/combination (energy and flexibility) and costs (variable and fixed) will be direct inputs into the model, along with the key financial parameters, price forecasts, and resource generation. The capacity value brought by each bid/combination will be reflected in reductions in capacity need, calculated in PGE's capacity model Sequoia. With these, PGE will calculate the traditional scoring metrics used in the 2019 IRP and IRP Update. PGE is also committed to work with Staff to determine the most informative approach to examine a low wholesale market price sensitivity as well as a PTC extension sensitivity and will share all sensitivity analyses with the independent evaluator for their review.

Once PGE determines the portfolio values for various combinations of bids that are examined in ROSE-E, PGE will convert the traditional metrics into a price score. PGE will also generate a non-price score for each resource combination based on the latest non-price scoring information. If a portfolio consists of multiple resources, PGE will weigh the various non-price scores for each resource in a portfolio based on the lesser of the MW nameplate size or the interconnection limit for the resource. Finally, PGE will also calculate multiple portfolio scores that examine multiple price score and non-price score weighting structures.

⁸ See 2019 IRP, Appendix I.6 ROSE-E - PGE's Portfolio Optimization Tool at 359, available here: <https://apps.puc.state.or.us/edockets/edocs.asp?FileType=HAA&FileName=lc73haa162516.pdf&DocKetID=21929&numSequence=37>

⁹ Proxy resources used in the 2019 IRP included four wind, four natural gas, three battery storage, solar, solar plus storage, pumped storage, geothermal, and biomass resource options.

¹⁰ Described in the 2019 IRP, the Capacity Fill resource is a technology-agnostic resource that provides capacity priced just over the avoided cost resource

¹¹ The other three objective functions (minimize short-term cost, minimize variability, and minimize GHG & cost) were only used for selecting optimized portfolios in the 2019 IRP.

PGE will perform portfolio analysis for a population of designed portfolios to identify the expected portfolio cost across multiple economic futures. Comparing the costs of these portfolios across multiple economic futures will allow PGE to calculate the traditional portfolio scoring metrics including cost, variability, and severity as are described in Section 7.2.1 of the 2019 IRP. The traditional metrics will be used to perform a portfolio performance evaluation to identify a sub-population of portfolios as top performing using the efficient frontier framework described on page 191 of the 2019 IRP. All top performing portfolios will receive a price score based upon each portfolios price and risk performance which is based 50% on the portfolios expected cost and 50% on the standard deviation of forecasted costs across all futures. Each portfolio's price and risk performance will be converted into a portfolio price score allocated on a scaled bases with 700 points allocated to the lowest price and risk results. Upon completing this analysis, PGE will share its results with the IE and Staff for further discussion. PGE may also report some of the non-traditional scoring metrics included in the 2019 IRP for informational purposes only. Non-traditional scoring metrics may include GHG-constrained costs, 2025 energy additions, incremental criteria pollutants, and/or costs in a high-tech future. Additional information on non-traditional scoring metrics can be found in Table 7-3 of PGE's 2019 IRP.

1.7 Final Shortlist

Upon completion of the portfolio analysis, PGE will examine the total combined price and non-price scores to determine the best combination of cost and risk for PGE customers. These results will be used to determine PGE's final shortlist, which, if acknowledged, will be the group of resources that PGE will make selections from. Once the final shortlist is filed, PGE will engage in negotiations with those selected bidders. The selected IE will issue its closing report two weeks after PGE has filed the final shortlist of bids.

Exhibit A: Required Permits

Permits/Studies	Required By						
	Wind	Solar	Geothermal	Hydro / Pumped Storage	Energy Storage (Batteries)	Biomass	Hydrogen/ Other
State permit (e.g., site certificate)	Final Shortlist	Final Shortlist	Final Shortlist	Final Shortlist	Final Shortlist	Final Shortlist	Final Shortlist
Local land use permit (e.g., conditional use permit)	Final Shortlist	Final Shortlist	Final Shortlist	Final Shortlist	Final Shortlist	Final Shortlist	Final Shortlist
FERC License (or final EIS from FERC)	n/a	n/a	n/a	Bid	n/a	n/a	n/a
Federal siting permit (e.g., NEPA Record of Decision for construction*) <i>*This does not include NEPA for an Eagle Take Permit</i>	Final Shortlist	Final Shortlist	Final Shortlist	Final Shortlist	Final Shortlist	Final Shortlist	Final Shortlist
Air quality permit (e.g., ACDP, etc.)	n/a	n/a	n/a	n/a	n/a	Final Shortlist	n/a
FCC permit	Construction	Construction	Construction	Construction	Construction	Construction	Construction
FAA permits	CP	CP	CP	CP	CP	CP	CP
Airspace and Obstacle Evaluation Analysis	Bid	n/a	n/a	n/a	n/a	n/a	n/a
Water rights	n/a	n/a	Bid	Bid	n/a	Bid	Bid
Wastewater discharge permit (e.g., NPDES, WPCF, etc.)	n/a	Final Shortlist	Final Shortlist	n/a	n/a	Final Shortlist	Final Shortlist
Construction Permits (e.g., NPDES-1200C, building permit, site development permit, etc.)	Construction	Construction	Construction	Construction	Construction	Construction	Construction
Removal Fill Permits (wetland and in-water work, e.g., State, Army Corps)	Construction	Construction	Construction	Construction	Construction	Construction	Construction
Eagle surveys and take estimates: provide available survey data, a well justified preliminary take estimate, and a detailed schedule for completing surveys and final take estimate per USFWS-approved protocols	Bid	Bid	Bid	Bid	Bid	Bid	Bid
Federal ESA surveys: provide comprehensive project-wide survey results (this does not include any final pre-construction follow-up surveys, such as may be required in a site certificate or other project authorization, for the purpose of micro-siting and defining boundaries of and avoiding active occupied habitat in a given construction year)	Bid	Bid	Bid	Bid	Bid	Bid	Bid
State/local sensitive species surveys: provide comprehensive project-wide survey results (this does not include any final pre-construction follow-up surveys, such as may be required in a site certificate or other project authorization, for the purpose of micro-siting and defining boundaries of and avoiding active occupied habitat in a given construction year)	Bid	Bid	Bid	Bid	Bid	Bid	Bid
Cultural resource consultations started (at a minimum, contracted with a cultural resources consultant)	Bid	Bid	Bid	Bid	Bid	Bid	Bid
Tribal coordination initiated (started consultation with area tribes to discuss Traditional Use Studies, Traditional Cultural Properties, and other relevant studies)	Bid	Bid	Bid	Bid	Bid	Bid	Bid
Demonstrate a realistic timeline for procuring any additional permits, licenses, or assessments required to start construction	Bid	Bid	Bid	Bid	Bid	Bid	Bid

Key:

Bid - Must be obtained by bid submittal date

Final Shortlist - Must be obtained by bid Final Shortlist date

Construction - Must be obtained by start of construction

CP - Must be approved as a condition precedent in the definitive agreement

n/a - Not applicable

Exhibit B: Point Allocation Matrix

Score Type	Component	Description	Total Dispatchable Resource Points Possible	Total Renewable Resource Points Possible
Price Score	N/A	Points are allocated based on a cost to benefit ratio	812	812
Non-Price Score	Commercial Performance Risk	Points are allocated based on adherence to commercial terms and conditions that focus on performance guarantees and limitations of liability and remedies	100	100
	Transmission Plan Attributes	Points are allocated based on the facility's potential output met with long-term transmission rights	N/A	29
	Level Capacity Ratio	Points are allocated based on the ratio of the resource's capacity contribution to its expected energy production	N/A	59
	Online Date Certainty	Points are allocated based on the online date of the resource	88	N/A

Exhibit C: Commercial Performance Risk Non-Price Scoring Matrix

UTILITY OWNED ASSET RESOURCE PERFORMANCE GUARANTEE SECTION			
	Max Score	Point Allocation	Key Terms, Conditions, and Circumstances to Consider
Credit & Security	25	<p>25 = Term sheet redlines and related commercial circumstances better protect PGE customers from schedule, performance or cost risk than form term sheet provisions</p> <p>20 = Term sheet redlines and related commercial documents generally conform to form term sheet and present modest risk to schedule, performance or cost.</p> <p>15 = Term sheet redlines and related commercial documents present isolated significant risks to schedule, performance or cost. Risk is reasonably bound by commercial term or circumstance.</p> <p>10 = Term sheet redlines and related commercial documents present isolated significant risks to schedule, performance or cost. Risk is not reasonably bound by commercial term or circumstance.</p> <p>5 = Term sheet redlines and related commercial documents present compounded and significant risks to schedule performance or cost. Risk is not reasonably bound by commercial term or circumstance.</p> <p>0 = Term sheet redlines and related commercial documents present unacceptable and unmitigated risks to schedule performance or cost.</p> <p>0 = Bidder does not provide any redlines, declines to negotiate definitive agreement consistent with redlined or unedited term sheet, and/or defers all commercial considerations to negotiation phase.</p>	<ul style="list-style-type: none"> • Security • Parent Guarantee • Credit Support • Aggregate Limitation of Liability
Output Guarantee	25	<p>25 = Term sheet redlines and related commercial circumstances better protect PGE customers from schedule, performance or cost risk than form term sheet provisions and specifically include robust warranties and LTSA for asset life.</p>	<ul style="list-style-type: none"> • Warranties • Long-Term Service Agreements

		<p>20 = Term sheet redlines and related commercial documents generally conform to form term sheet and present modest risk to schedule, performance or cost and specifically include robust warranties and LTSA.</p> <p>15 = Term sheet redlines and related commercial documents present isolated significant risks to schedule, performance or cost. Risk is reasonably bound by commercial term or circumstance.</p> <p>10 = Term sheet redlines and related commercial documents present isolated significant risks to schedule, performance or cost. Risk is not reasonably bound by commercial term or circumstance.</p> <p>5 = Term sheet redlines and related commercial documents present compounded and significant risks to schedule performance or cost. Risk is not reasonably bound by commercial term or circumstance.</p> <p>0 = Term sheet redlines and related commercial documents present unacceptable and unmitigated risks to schedule performance or cost.</p> <p>0 = Bidder does not provide any redlines, declines to negotiate definitive agreement consistent with redlined or unedited term sheet, and/or defers all commercial considerations to negotiation phase.</p>	<ul style="list-style-type: none"> • Energy or Capacity Guarantees • Consideration of Utility Customer Fixed Price and Fixed Volume Guarantees Through Regulatory Model
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PPA AND SCA RESOURCE PERFORMANCE GUARANTEE SECTION			
	Max Score	Point Allocation	Key Terms, Conditions, and Circumstances to Consider
Forecasting & Scheduling	16.67	<p>16.67 = Term sheet redlines and related commercial circumstances better protect PGE customers from schedule, performance or cost risk than form term sheet provisions</p> <p>13 = Term sheet redlines and related commercial documents generally conform to form term sheet and present modest risk to schedule, performance or cost.</p> <p>10 = Term sheet redlines and related commercial documents present isolated significant risks to</p>	<ul style="list-style-type: none"> • Forecasting • Scheduling • Forecast Agent • Discharge Schedule Provisions • eTag Modification • Entity

		<p>schedule, performance or cost. Risk is reasonably bound by commercial term or circumstance.</p> <p>7 = Term sheet redlines and related commercial documents present isolated significant risks to schedule, performance or cost. Risk is not reasonably bound by commercial term or circumstance.</p> <p>3 = Term sheet redlines and related commercial documents present compounded and significant risks to schedule performance or cost. Risk is not reasonably bound by commercial term or circumstance.</p> <p>0 = Term sheet redlines and related commercial documents present unacceptable and unmitigated risks to schedule performance or cost.</p> <p>0 = Bidder does not provide any redlines, declines to negotiate definitive agreement consistent with redlined or unedited term sheet, and/or defers all commercial considerations to negotiation phase.</p>	<ul style="list-style-type: none"> • Failure to Deliver Facility Output
Credit & Security	16.67	<p>16.67 = Term sheet redlines and related commercial circumstances better protect PGE customers from schedule, performance or cost risk than form term sheet provisions</p> <p>13= Term sheet redlines and related commercial documents generally conform to form term sheet and present modest risk to schedule, performance or cost.</p> <p>10= Term sheet redlines and related commercial documents present isolated significant risks to schedule, performance or cost. Risk is reasonably bound by commercial term or circumstance.</p> <p>7 = Term sheet redlines and related commercial documents present isolated significant risks to schedule, performance or cost. Risk is not reasonably bound by commercial term or circumstance.</p> <p>3 = Term sheet redlines and related commercial documents present compounded and significant risks to schedule performance or cost. Risk is not reasonably bound by commercial term or circumstance.</p> <p>0 = Term sheet redlines and related commercial documents present unacceptable and unmitigated risks to schedule performance or cost.</p>	<ul style="list-style-type: none"> • Security • Parent Guarantee • Credit Support • Aggregate Limitation of Liability

		0 = Bidder does not provide any redlines, declines to negotiate definitive agreement consistent with redlined or unedited term sheet, and/or defers all commercial considerations to negotiation phase.	
Output Guarantee	16.67	<p>16.67 = Term sheet redlines and related commercial circumstances better protect PGE customers from schedule, performance or cost risk than form term sheet provisions</p> <p>13= Term sheet redlines and related commercial documents generally conform to form term sheet and present modest risk to schedule, performance or cost.</p> <p>10= Term sheet redlines and related commercial documents present isolated significant risks to schedule, performance or cost. Risk is reasonably bound by commercial term or circumstance.</p> <p>7= Term sheet redlines and related commercial documents present isolated significant risks to schedule, performance or cost. Risk is not reasonably bound by commercial term or circumstance.</p> <p>3= Term sheet redlines and related commercial documents present compounded and significant risks to schedule performance or cost. Risk is not reasonably bound by commercial term or circumstance.</p> <p>0 = Term sheet redlines and related commercial documents present unacceptable and unmitigated risks to schedule performance or cost.</p> <p>0 = Bidder does not provide any redlines, declines to negotiate definitive agreement consistent with redlined or unedited term sheet, and/or defers all commercial considerations to negotiation phase.</p>	<ul style="list-style-type: none"> • Output Guarantee • Minimum Availability Guarantee • Capacity Guarantee • Duration Guarantee • Round Trip Efficiency Guarantee • Related Default Provisions • Related Damages and Remedies • Operations and Maintenance

LIMITATION OF LIABILITY AND REMEDIES - FOR UTILITY OWNED ASSETS, PPA AND SCA RESOURCES			
	Max Score	Point Allocation	Key Terms, Conditions, and Circumstances to Consider
Commercial Online Date Provisions	16.67	16.67 = Term sheet redlines and related commercial circumstances better protect PGE customers from	<ul style="list-style-type: none"> • Guaranteed COD • Delay Damages

		<p>schedule, performance or cost risk than form term sheet provisions</p> <p>13 = Term sheet redlines and related commercial documents generally conform to form term sheet and present modest risk to schedule, performance or cost.</p> <p>10= Term sheet redlines and related commercial documents present isolated significant risks to schedule, performance or cost. Risk is reasonably bound by commercial term or circumstance.</p> <p>7 = Term sheet redlines and related commercial documents present isolated significant risks to schedule, performance or cost. Risk is not reasonably bound by commercial term or circumstance.</p> <p>3= Term sheet redlines and related commercial documents present compounded and significant risks to schedule performance or cost. Risk is not reasonably bound by commercial term or circumstance.</p> <p>0 = Term sheet redlines and related commercial documents present unacceptable and unmitigated risks to schedule performance or cost.</p> <p>0 = Bidder does not provide any redlines, declines to negotiate definitive agreement consistent with redlined or unedited term sheet, and/or defers all commercial considerations to negotiation phase.</p>	<ul style="list-style-type: none"> • Test Energy • Progress Reports • Force Majeure • Conditions Precedent • Commercial Contingencies • Interconnection Transmission Study and Contract
<p>Payment and Settlement Provisions</p>	<p>16.67</p>	<p>16.67 = Term sheet redlines and related commercial circumstances better protect PGE customers from schedule, performance or cost risk than form term sheet provisions</p> <p>13= Term sheet redlines and related commercial documents generally conform to form term sheet and present modest risk to schedule, performance or cost.</p> <p>10= Term sheet redlines and related commercial documents present isolated significant risks to schedule, performance or cost. Risk is reasonably bound by commercial term or circumstance.</p> <p>7= Term sheet redlines and related commercial documents present isolated significant risks to schedule, performance or cost. Risk is not reasonably bound by commercial term or circumstance.</p>	<ul style="list-style-type: none"> • Assumed Liabilities • Excess Energy • Curtailment • Negative Price Event • Settlement Netting Provisions • Termination Payment • Payment Schedule • Consideration of Utility Customer Fixed Price and

		<p>3= Term sheet redlines and related commercial documents present compounded and significant risks to schedule performance or cost. Risk is not reasonably bound by commercial term or circumstance.</p> <p>0 = Term sheet redlines and related commercial documents present unacceptable and unmitigated risks to schedule performance or cost.</p> <p>0 = Bidder does not provide any redlines, declines to negotiate definitive agreement consistent with redlined or unedited term sheet, and/or defers all commercial considerations to negotiation phase.</p>	<p>Fixed Volume Guarantees Through Regulatory Model</p>
<p>Product Definition and Other Limitations</p>	<p>16.67</p>	<p>16.67= Term sheet redlines and related commercial circumstances better protect PGE customers from schedule, performance or cost risk than form term sheet provisions</p> <p>13= Term sheet redlines and related commercial documents generally conform to form term sheet and present modest risk to schedule, performance or cost.</p> <p>10= Term sheet redlines and related commercial documents present isolated significant risks to schedule, performance or cost. Risk is reasonably bound by commercial term or circumstance.</p> <p>7 = Term sheet redlines and related commercial documents present isolated significant risks to schedule, performance or cost. Risk is not reasonably bound by commercial term or circumstance.</p> <p>3= Term sheet redlines and related commercial documents present compounded and significant risks to schedule performance or cost. Risk is not reasonably bound by commercial term or circumstance.</p> <p>0 = Term sheet redlines and related commercial documents present unacceptable and unmitigated risks to schedule performance or cost.</p> <p>0 = Bidder does not provide any redlines, declines to negotiate definitive agreement consistent with redlined or unedited term sheet, and/or defers all commercial considerations to negotiation phase.</p>	<ul style="list-style-type: none"> • Product Definitions • Third Party Sales • Commercial Transmission Risk • Control Area Services • Work to be Performed



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