



Portland General Electric Company
Legal Department
121 SW Salmon Street • 1WTC1301 • Portland, OR 97204
Phone 503-464-7822 • Fax 503-464-2200
portlandgeneral.com

Erin E. Apperson
Assistant General Counsel II
erin.apperson@pgn.com

August 10, 2021

Via Electronic Filing

Oregon Public Utility Commission
Attn: Filing Center
201 High Street Southeast Suite 100
P.O. Box 1088
Salem, Oregon 97301

Re: UM 2166 – PGE 2021 All-Source Request for Proposals (RFP)

Dear Filing Center:

Enclosed for filing in the above captioned docket is an electronic copy of PGE's scoring and modeling slide deck presented to stakeholders and bidders at the August 9th, 2021 PGE hosted workshop for Docket UM 2166.

Sincerely,

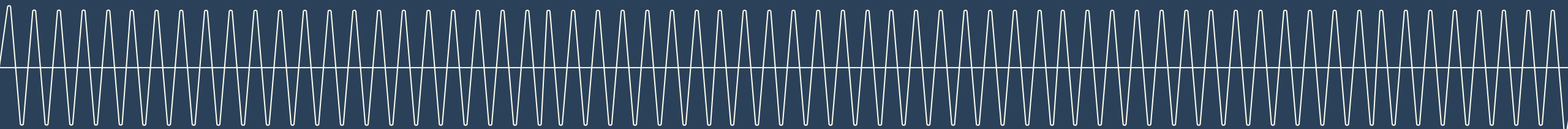
/s/ Erin E. Apperson

Erin E. Apperson
Assistant General Counsel II

EEA:np
Enclosure

2021 All-Source RFP Proposed Scoring and Modeling Methodology

August 9, 2021



MEETING LOGISTICS



Teams Meeting

Please click the meeting link sent to your email:

[Join Microsoft Teams Meeting](#)

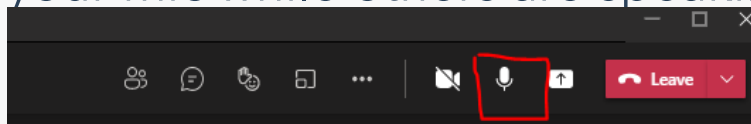
+1 971-277-2317 (dial this number into your phone for best results)

PW: 309 290 870#

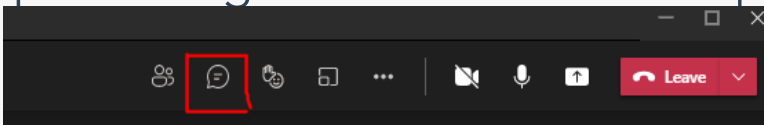
*Please use Microsoft Edge or Google Chrome with Teams as it will give you the best experience

PARTICIPATION

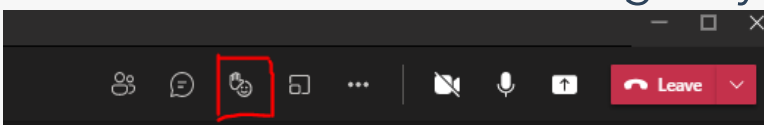
- Mute your mic while others are speaking; to unmute via phone press *6



- We will ask for comments and questions along the way
- Participate using the chat box or ask questions verbally



- Use the "raise hand" feature to signal you'd like to ask your question verbally

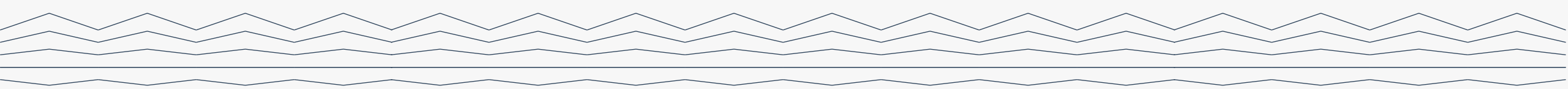


- Wait to be called on
- Please be polite and respect all participants involved with the workshop
- Please stay on topic; we may interrupt or shorten questions to meet the time commitment of the meeting



AGENDA

Welcome & Logistics	5 minutes
Safety Moment	3 minutes
Independent Evaluator Introduction	5 minutes
2021 All-Source RFP Scope	15 minutes
Proposed Minimum Requirements	25 minutes
Proposed Scoring & Modeling	40 minutes
Questions	20 minutes



SAFETY MOMENT

Night Driving

As seasons change and the days start to get shorter, we will likely find ourselves driving at night on a more regular basis.

To stay safe:

Clean your windshield

Check the angle of your headlights

Consider tweaking your inside lighting



Independent Evaluator (IE)

The Oregon Public Utility Commission (OPUC) has selected Bates White as an independent third-party evaluator

In accordance with OAR 860-089-0450(1), "the IE will oversee the competitive bidding process to endure that it is conducted fairly, transparently and properly"

IE contact information for questions or concerns:

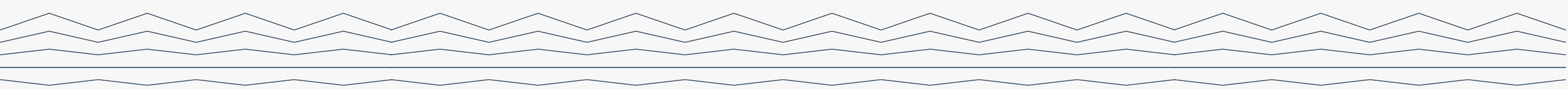
- Frank Mossburg
- Frank.mossburg@bateswhite.com
- (202) 652-2194



Questions & Comments

If you have questions or comments regarding PGE's proposed scoring and modeling methodology, please feel free to reach out to us at rfp@pgn.com

We will not be able to keep these questions and responses confidential, so please only include information you do not mind sharing publicly



2021 All-Source RFP Overview



One All-Source RFP

PGE will be look to procure non-emitting dispatchable capacity resources and renewable resources through one all-source RFP

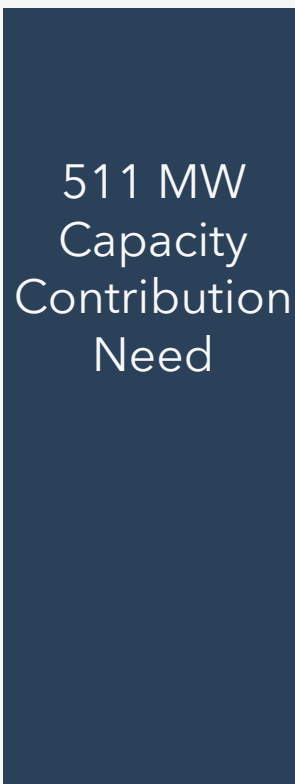
- As noted in PGE's 2019 IRP Update and RFP Scoring and Modeling Methodology document, Scoring and Methodology filing, PGE believes that a single solicitation will results in the best portfolio of resources for customers, while also being the most efficient
- All-Source RFP will accept bids from all commercially viable, utility scale generation resources
- All bids must be new, non-emitting resources
- PGE is hoping to see a wide variety of resource participation in this RFP and is seeking both renewable and non-emitting dispatchable resources
 - Renewable resources must be RPS eligible, qualify for federal tax credits, and pass the cost containment screen
 - Non-emitting dispatchable resources must be able to be called upon by PGE to dispatch at specified times



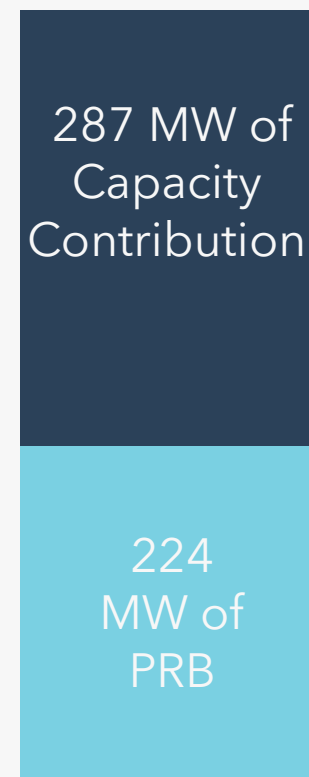
2025 Capacity Need

- PGE currently forecasts a 2025 capacity deficit of approximately 300 MW needed to meet adequacy targets
- PGE's capacity needs can be met through portfolio resource additions that are measured with capacity contribution metrics rather than nameplate
- PGE will continue to update Staff and Stakeholders on changes in needs

2019 IRP
Update
Forecasted
Need



Estimated
Current
Need



Sizes & Restrictions

- Identified capacity need at this time is approx. 300 MWs capacity contribution
- Through the IRP action plan PGE can procure up to 150 MWa of renewable resources that contribute to meeting this need
- 150 MWa of renewable resources is significant, but will not meet all of PGE's 2025 capacity need
- PGE requests that bidders supply projects that can meet approximately 150 MWs of capacity contribution toward PGE's long-term forecasted capacity need from dispatchable capacity resources
- Also including 100MWs nameplate of renewable resources for Green Future Impact, which would not contribute to the 150 MWa cap

150 MWa of Renewable Resources		
Resource Type	Nameplate (MW)	Capacity Contribution (MW)
Gorge Wind	368	74
Ione Wind	459	37
SE WA Wind	350	49
MT Wind	350	84
Solar	517	21

Green Future Impact Interaction

- PGE will procure additional renewables for its Green Future Impact program within this solicitation due to the level of effort these procurements require as well as the current customer demand for the program
- The needs of all cost-of-service customers will be prioritized
 - Resources to negotiate with on the final shortlist for all cost-of-service customers will be selected before selecting resources for PGE's Green Future Impact subscribers
 - If there are specific requests from subscribers (resource type, term length, etc), PGE will take those into account when selecting from the remaining resources for Green Future Impact

Proposed Minimum Requirements



Minimum Requirements

All Commercial Structures



Utility Ownership Structures

- Technical Specifications
 - Equipment Manufacturers
- Long-term Service Agreements

Commercial Operation Date Requirements

To allow for the greatest variety of resource types to participate in this solicitation, PGE has two different commercial operation date requirements:

- All resources must be online by 12/31/2024
 - To qualify for the 80% PTC, wind resources must be online by 12/31/2023
- PGE is making an exception for pumped hydro resources and requires that they are online by 12/31/2027
 - For the initial shortlist evaluation project cost and benefits will be evaluated in alignment with the resource COD
 - The portfolio analysis later in the process will consider additional purchases PGE will need to make to cover the capacity shortfall associated with this later COD



Transmission Requirements

Non-Emitting Dispatchable Resources	Renewable Resources
<p>100% Long Term Firm transmission service for the full interconnection limit</p> <p>Bidders relying on BPA for transmission service are required to have either previously granted transmission service or an active OASIS transmission service request (TSR) participating in the BPA TSR Study and Expansion Process</p>	<p>Up to 20% of interconnection limit met with Short-Term Firm transmission</p> <p>80% or more of interconnection limit met with eligible long- term transmission:</p> <ul style="list-style-type: none">• Long-Term Firm• Conditional Firm Bridge• Conditional Firm Reassessment <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 current BPA TSR Study and Expansion Process</p>

The deadline to participate in BPA's 2022 Cluster Study Process is August 18th, 2021



Interconnection Requirements

For a bid to initially participate in the solicitation it must have the following:

- An active generation interconnection request in the transmission provider's interconnection queue
- A completed system impact study
- 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

To qualify for the final short list, a completed facilities study is required



Site Control Requirements

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 for a minimum of 80% of the project site:

- title to the site
- an executed lease agreement
- an executed easement
- an executed option agreement

The site control documents should reflect the resource type bid into this RFP

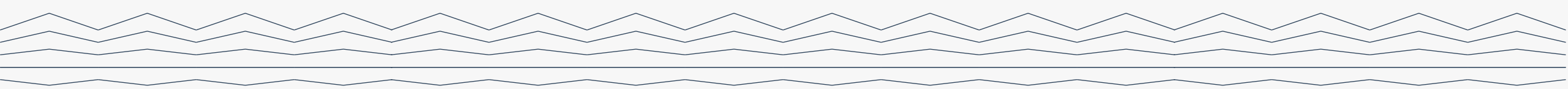
Prior to placement on PGE's final short list, bidders will be required to demonstrate site control for 100% of the project site



Proposed Analysis Process



Analysis Process



Price Scoring

- Price scoring assigns a numeric score to reflect the economic performance
- PGE will allocate 60 percent of available bid points to bids based on the price and performance considerations reflected in the price score
- Price scores for renewable resources and dispatchable resources will be calculated separately
- Price points will be allocated based on the following elements:



Offer
Cost

Energy
Value

Capacity
Value

Flexibility
Value



Capacity Value Modeling Methodology



Sequoia capacity assessment model

- **Loss-of-load probability model**
- **Evaluates capacity need and capacity contribution**

- A loss-of-load probability model that estimates the capacity need of a system and estimates the capacity contribution of potential incremental resources for long-term planning and procurement
- A **Monte Carlo module** constructs thousands of plausible weeks of load and resource conditions (Python)
- Each week is evaluated independently in a **dispatch module** that optimizes all dispatchable resources across all hours of the week to minimize an objective function (GAMS with Gurobi solver)
- Model has perfect foresight
- Resolution is hourly
- Objective function is to minimize the sum of the average unserved energy across the week and the maximum unserved energy in a single hour of the week (not economic dispatch)
- There may be multiple solutions that achieve the same objective function value, especially in weeks with excess generation (these may not look “logical”)
- Sequoia expresses capacity need in terms of theoretical perfect capacity (always available)

Monte Carlo Module

- Constructs thousands of weeks of plausible load and resource characteristics

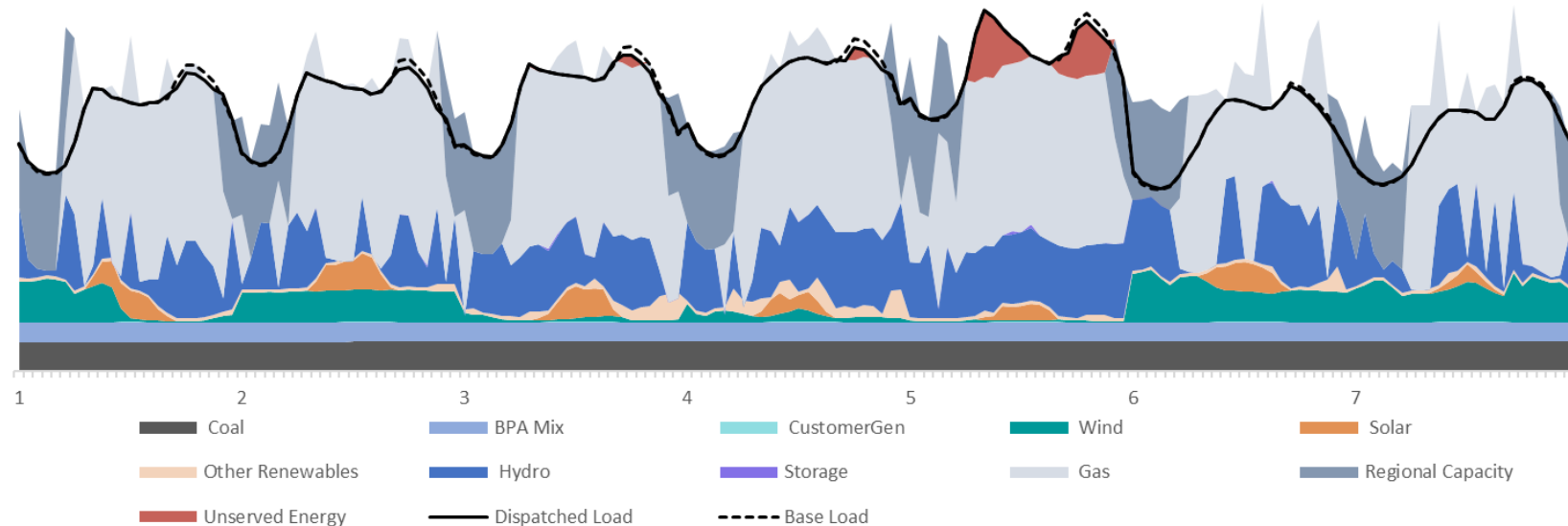
- Simulation begins by randomly drawing seven sequential days and identifying the month, weekend/weekday, and weather day types for each day
- The model currently uses load as a proxy for weather conditions
- For each day of the week, the load is drawn from the distribution of days in the assigned day-type/weather bin (a similar process is applied for resources with hourly profiles such as wind and solar)
- For hydro with storage, a hydro year is randomly drawn and this, combined with the month, establishes the hydro conditions
- Assembles deterministic information corresponding to the day types for each day (e.g., thermal plant ratings) as well as other deterministic characteristics (e.g., capability to provide contingency reserves)
- Simulates random forced outages for thermal and storage resources based on inputs for forced outage rates, mean time to repair, and partial outage distributions
- For many dispatch types, the information is aggregated

Dispatch Module

- Optimizes each week to minimize the objective function
- Optimizes all hours and resources simultaneously
- Single stage - model has perfect foresight

- Given the inputs from the Monte Carlo module for a week and the constraint equations for each dispatch type, resources are optimized to minimize the objective function
- If there aren't sufficient resources to serve load and contingency reserves, unserved energy is reported
- The objective function is to minimize the sum of the average unserved energy in the week and the maximum unserved energy in a single hour of the week

Example Week for Illustrative Purposes Only



Non-Price Scoring

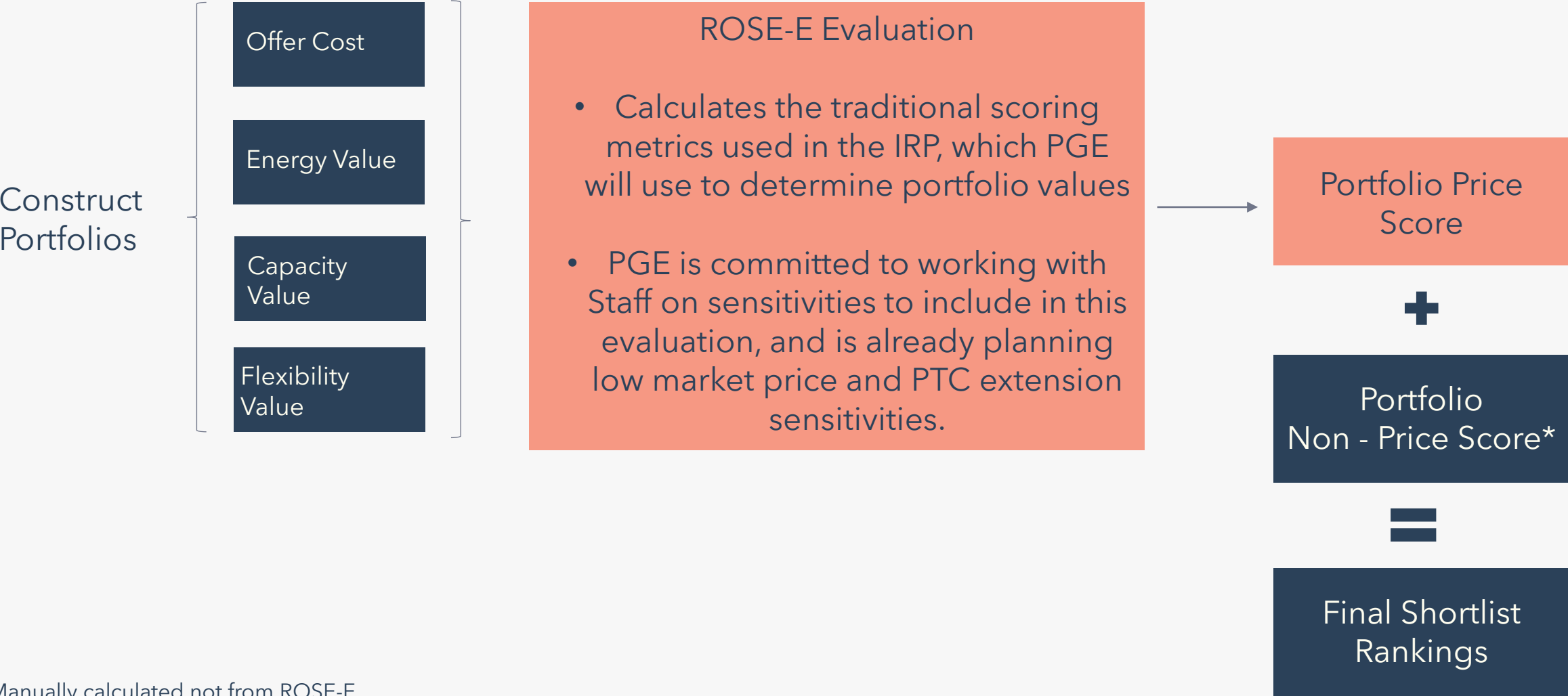
- Non-price scoring assigns a numeric score to reflect the commercial and performance risks and benefits associated with the project that is not captured in the offer's price score.
- Non-price scoring will be assigned 400 points.
- Per OAR 860-089-0350 (2c), PGE has converted all applicable non-price categories to minimum bidding criteria.
- 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).



Non-Price Scoring

Component	Description	Total Dispatchable Resource Points Possible	Total Renewable Resource Points Possible
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	270	270
Transmission Plan Attributes	Points are allocated based on the risk of service reassessment or withdrawal as well as those that have more of the facility's potential output met with long-term transmission rights	N/A	65
Level Capacity Ratio	Points are allocated based on the ratio of the resource's capacity contribution to its expected energy production	N/A	65
Online Date Certainty	Points are allocated based on the online date of the resource	130	N/A

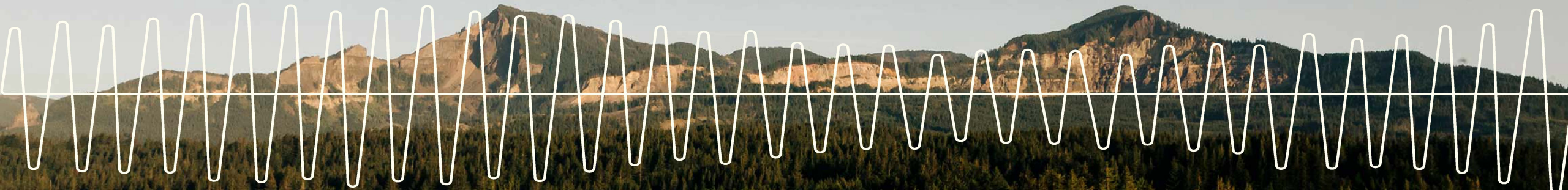
Portfolio Analysis & Final Shortlist



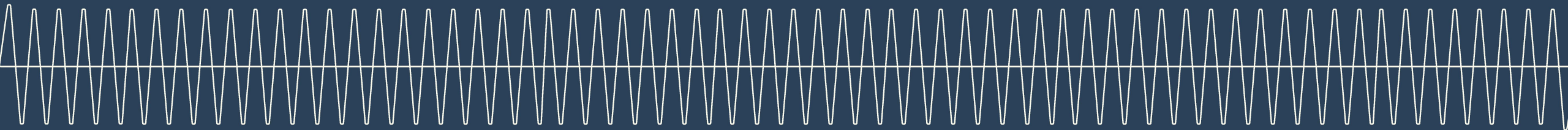
*Manually calculated not from ROSE-E

Thank you!


Questions?



Appendix



Credit Requirements

- 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 short list, that a qualified institution will secure the Bidder's pre-COD performance obligations through a letter of credit or guaranty, in a form acceptable to PGE.
- 

Allocation of Price Score Points

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)	600*(E/D)
Bid 1	40	50	0.8	0.73	547
Bid 2	35	48	0.73	0.73	600
Bid 3	15	20	0.75	0.73	583

Figures are fictitious and for example purposes only

Transmission & Capacity Value

	Impact to Capacity Value Assessment
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).• 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 be limited by the amount of conditional firm bridge rights (no less than 80% of interconnection limit).• Resources on conditional firm bridge will have their output curtailed for the maximum number of curtailed hours during the year as identified by BPA.• 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 PGE will not attribute any capacity value to bids relying on conditional firm reassessment.

Non-Price Score Allocation- Transmission

	Max Score	Weight	Total Points	Point Allocation
Transmission Product Risk	4	10	40	4 - Long-term Firm 2 - Conditional Firm Bridge 0 - Conditional Firm Reassessment
Long term transmission product reservation	4	6.25	25	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



Non-Price Score Allocation- Commercial Operation Date for Dispatchable Resources

	Max Score	Weight	Total Points	Point Allocation
Non-Price Score Allocation based on Commercial Online Date	10	13	130	10- COD by 12/31/2023 8 - COD by 12/31/2024 0 - COD after 12/31/2025

Non-Price Scoring Level Capacity Ratio

$$\frac{ELCC \text{ (Measure of Capacity Contribution)}}{MWh \text{ (Measure of Energy)}} \times 65 \text{ Non - Price Points}$$

