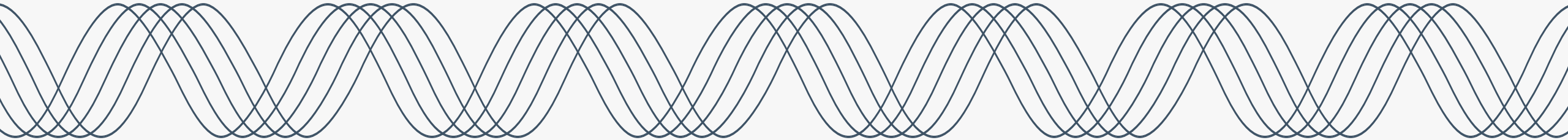
PGE CEP & IRP Roundtable 25-5

Sep 3rd 2025



September 3rd, 2025 – Agenda

9:00 | Welcome

9:05 | IRP 101

9:50 | CEP/IRP Analysis Refinements

10:25 | 2026 CEP/IRP Timeline

10:50 | Closing Remarks - Next Steps

Meeting Details

1

Electronic version of presentation

https://portlandgeneral.com/about/who-we-are/resource-planning/combined-cep-and-irp/combined-cep-irp-public-meetings

2

Zoom meeting details

- Join Zoom Meeting https://us06web.zoom.us/j/9291862450?pwd=xVXQI4jljt7FdetDzWD0G35FFvayF8.1&omn=84372774388
- Meeting ID: 929 186 2459
- Passcode: 108198

3

Participation

- Use the raise the hand feature to let us know you have a question
- Unmute with microphone icon or *6

Meeting Logistics

Focus on Learning & Understanding

- There will be no chat feature during the meeting to streamline taking feedback
- Team members will take clarifying questions during the presentation, substantive questions will be saved for the end (time permitting)
- Attendees are encouraged to ‘raise’ their hand to ask questions

Follow Up

If we don’t have time to cover all questions, we will rely on the CEP/IRP feedback form

IRP 101
Analysis Re-Introduction

Lauren Slawsky
Principal Integrated Resource Planning Analyst





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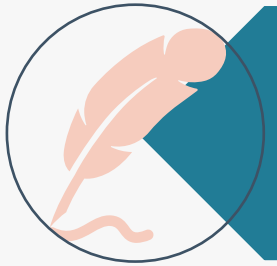
Integrated Resource Plan (IRP)

The IRP is a long-term analysis used to inform potential pathways PGE could further investigate for cost-consciously meeting demand, regulatory requirements, and clean energy goals.

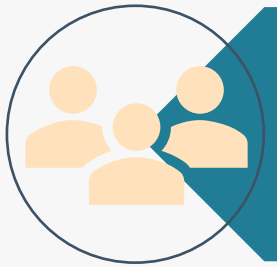
Key elements of the IRP:

- Generation and transmission outlook
- 20-yr long-term forecast of demand and needs
- Projected generation from existing and contracted assets
- Evaluation of new supply-side resource options
- Model-optimized best combination of incremental resource additions (including type, size, timing, etc.) based on costs and risks
- Meets regulatory requirements (e.g. RPS, HB 2021)



Given the economic and policy environment, what is the system need?

Given the information known today, what is the best way to fill that need?



How are the values of the company and stakeholders reflected in the plan?

The IRP is a first step in a multi-step process that culminates in rate review at the Commission

1. Integrated Resource Plan (IRP)

- Forecasts system energy & capacity needs over a 20-year horizon
- Creates a set of incremental resource additions (titled the 'Preferred Portfolio')
- Concludes with short-term Action Plan (the resources PGE will pursue over the next 2-4 years)

2. Resource Procurement

- Supply- and Demand-side resource procurement and programs (e.g., utility-scale generating resources, energy efficiency, demand response, etc.)
- Solicits bids from developers for specified generation types
- Determines which bid(s) can meet system requirements and resource needs established in the IRP Action Plan

3. Rate Recovery Filing

- Detail PGE's specific actions to the Commission
- Establish prudency of generation asset investments
- Begin rate recovery of those incurred costs

IRP vs. Business Activity

The **IRP is a forecasting modeling exercise** based on best available assumptions and ranges for future uncertainties and unpredictable variabilities –

- Approximates forecasted system operations, though actual operations and reliable service are driven by complex wholesale power markets and real-time transmission availability
- Uses proxy new resources, which generally represent possible resource options
- Directionally informs planning and future decisions

The request for proposals (**RFP**) uses **IRP** methods, models, and resulting capacity and energy needs to inform resource needs sought via PGE's competitive bidding processes.

Major investments, business changes, and exact resources procured will vary from the IRP depending on bids received through the RFP process (e.g., location, technology, cost, etc.) and other more up-to-date information known at the time of actual decision-making.

PGE's CEP/IRP filing cadence

2023 CEP/IRP
filed

06/30/2023

Public process
lasts ~1 year

- Feedback
- Recommendations
- OPUC Acknowledgement

01/25/2024

2023 CEP/IRP Update*
1 year after
Acknowledgement**

06/18/2025

2026 CEP/IRP
2 years after
Acknowledgement**

06/18/2026

***CEP/IRP Update** **is an informational filing that does not require acknowledgement and:**

- reports on action plan progress
- assesses changes to and updates planning landscape
- summarizes progress implementing regulatory requirements and planning goals
- varies in the complexity, with judgement required to determine:
  - which components to refresh vs. maintain
  - what new analysis to add

****Note**: timing requirements for filing full CEP/IRPs and Updates may change in the future pending OPUC Docket No. AR 669.

Coordination Between Planning Activities

Clean Energy Plan (CEP) & Integrated Resource Plan (IRP)

Vision: Technically feasible portfolio that balances risk, cost, and reliability to ensure continual progress to emissions targets

Areas of Focus:

- Forecast of system generation and transmission resource needs
- Evaluation of reliability, resiliency, and community benefits indicators
- Plan of resource, customer, and community-related actions

Distribution System Plan (DSP)

Vision: Forward-looking people-centered distribution system planning

Areas of Focus:

- DER and load forecasts
- Community engagement strategies
- Analyze grid needs and potential solutions
- Analyze non-wires solution opportunities
- Action plan for distribution grid-related actions

Local Transmission Planning

Vision: Process overseen by FERC to ensure reliable, efficient, and cost-effective transmission infrastructure development

Areas of Focus:

- Assessment of transmission system's future capabilities
- Compliance with federal, state, local, Tribal laws affecting resource mix, emissions targets, etc.
- Multiple scenario analysis to assess impacts of changing generation patterns, load, and seasonal conditions

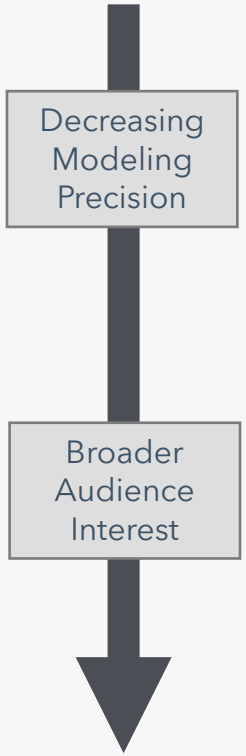
- Request for Proposals (RFP)
- Flex Load Multi-Year Plan (MYP)
- Transportation Electrification Plan (TEP)
- Wildfire Mitigation Plan (WMP)
- Other Resource Programs and Actions

Example IRP Questions

The IRP uses scenarios and sensitivity analysis to explore power system questions, such as:

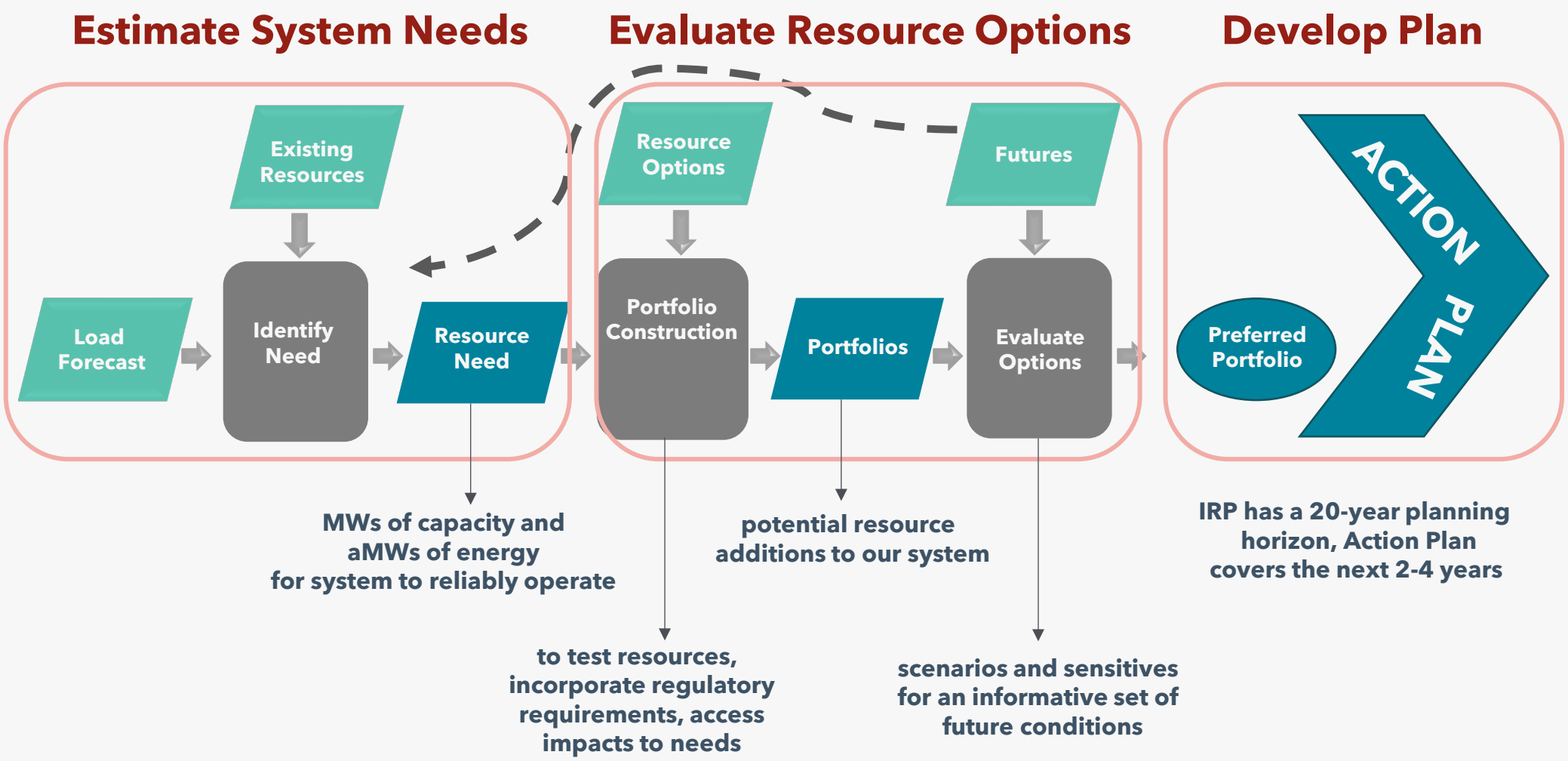
- Do we need more transmission to meet our decarbonization and adequacy objectives?
- How will vehicle and other end-use electrification impact utility-scale resource needs?
- How does climate change impact PGE power system operations?
- Would a resource technological breakthrough impact our near-term decisions?

PGE's CEP/IRP team aims to achieve three main objectives



Objective	Component	Example	Location
Estimate System Needs	Energy need	Forecast of demand growth	CEP/IRP filings, RFP acquisition targets, complementary internal resource plans (e.g., VPP, local transmission plan)
	Capacity need	Existing and contracted assets	
	RPS position	REC bank forecast	
	Emissions reductions	Forecasts reflect needs to meet HB 2021 targets	
Evaluate Resource Options and Economics	Traditional utility-scale resources	Large-scale wind, solar, storage	CEP/IRP filings, RFP bid evaluation, avoided cost filings
	Distributed energy resources (DERs)	Energy efficiency, demand response, utility-controlled customer-sited energy storage	
	Additional generation resources	Community-based renewable energy (CBRE)	
Develop a Resource Plan	Action Plan	Acquire resources, conduct RFPs	CEP/IRP Action Plans, internal company direction

High-Level IRP Analysis Process



Questions

2026 CEP/IRP Analysis Refinements

Devin Mounts
Principal Integrated Resource Planning Analyst

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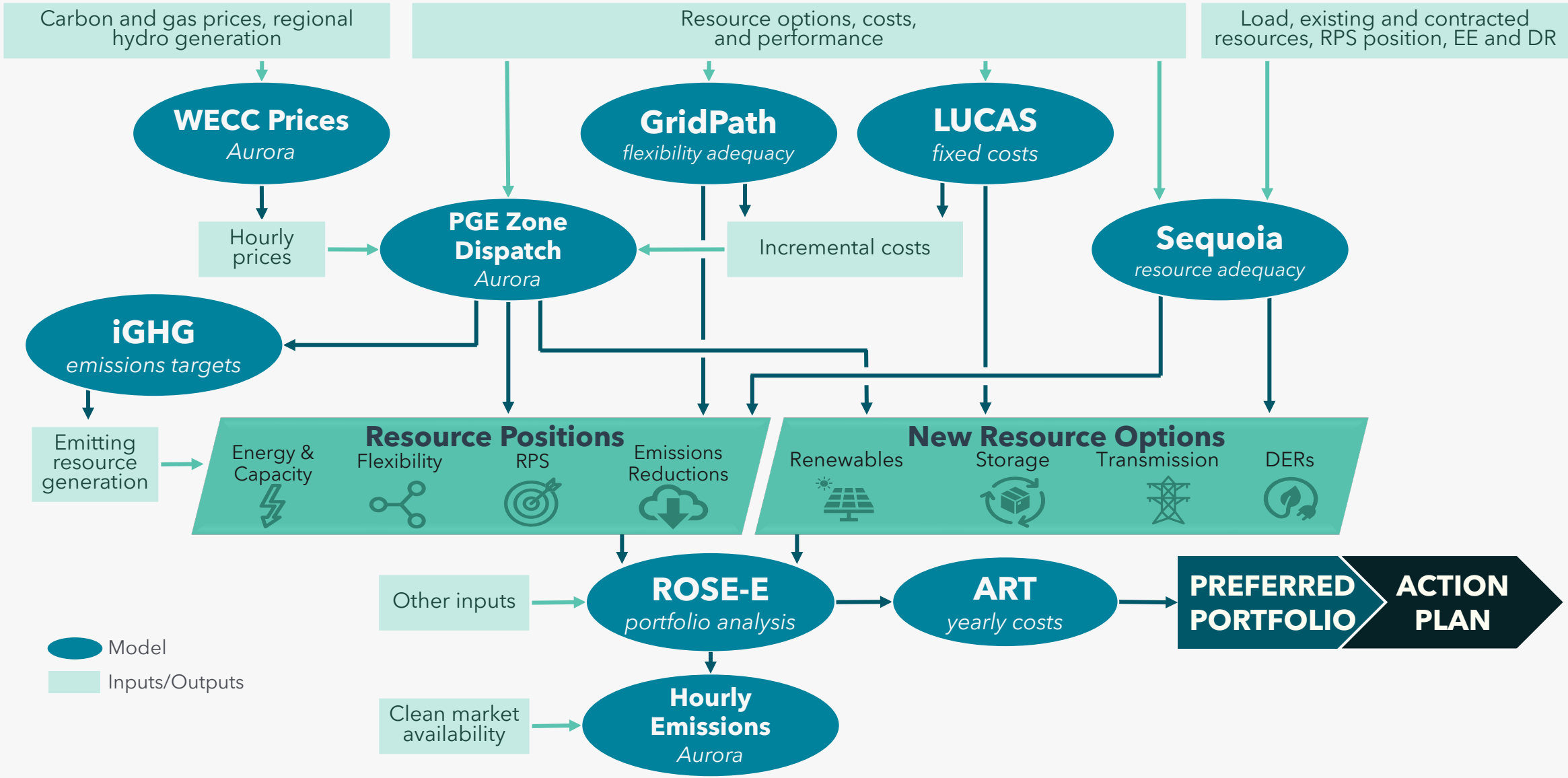
Current IRP Modeling Flow

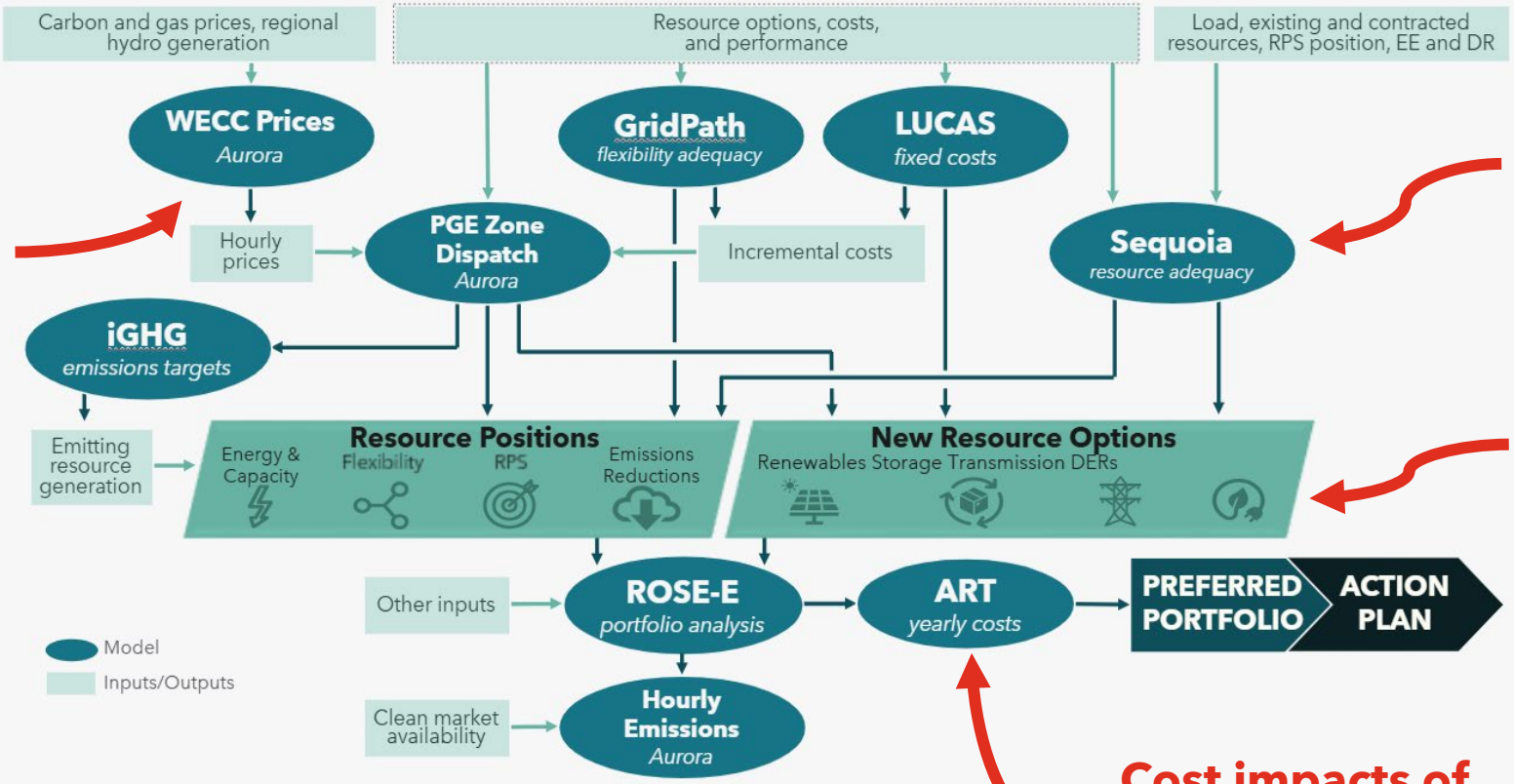


2026 CEP/IRP Analysis Enhancements

These and other modeling topics will continue to be discussed in future RoundTables:

WECC Model Update

Incorporated new Wood Mackenzie input database for forecasting WECC price futures.



Reliability impacts of emissions regulation

Emissions associated with reliable operations under HB 2021 regulatory requirements / thermal constraints

Transmission constraints

Incorporate representation of transmission product reliability

Cost impacts of emissions regulation

HB 2021 implementation

Third Party Studies: Refresh

PGE occasionally contracts with an outside consultant for side analyses that feed into the larger IRP work. Some past examples include:

Study Topic	About	Third Party to Refresh for 2026 IRP?
Flexibility values and integration costs	2023 study by Blue Marble Energy to estimate potential values	**Yes**; PGE is contracting with Sylvan Energy Analytics (formerly Blue Marble) to update/expand the analysis
Transmission Options	2024 study by Energy Strategies and Energy GPS to assess potential options	**No**, but PGE will revisit option, timelines, achievable capacity, and market access benefits
Community Benefits Indicators (CBIs)	2024 study by Cadeo on options, categories, qualitative and quantitative measurements	**No**, but PGE will revisit CBI, CBRE, SSR methodologies and community engagement activities
Market Clean Energy	2024 study by Brattle Group on market availability, both emitting and non-emitting	**No**, but PGE will revisit clean energy market assumptions and analysis
Long Lead Time Resources	2024 RFI to identify and better understand potential future resource options	**No**, but PGE will revisit resource options and relevance for near- and long-term availability
Climate-related (resilience, decarbonization, adaptation)	2023 CEP/IRP Chapter 13 included some external consultant supporting studies	**No**, analysis required per OPUC Docket No. UM 2225 for the first CEP. Much of this continues to remain relevant for PGE today

Questions

2026 CEP/IRP Timeline

Lauren Slawsky
Principal Integrated Resource Planning Analyst

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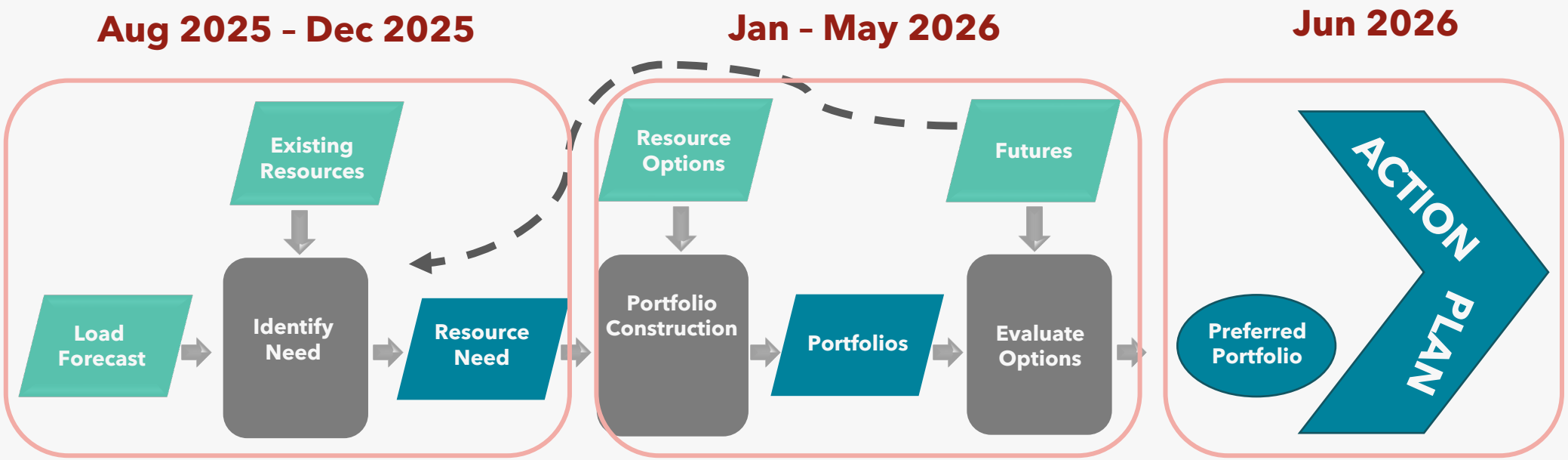
High-Level CEP/IRP Schedule and Key Areas for Stakeholder Feedback



Filing Date: Jun 18, 2026

PGE will use the technical roundtables to seek feedback on drafts including but not limited to:

- Portfolios/Scenarios to be tested in the IRP
- Community impacts metrics
- Near-term action plan
- Response to any specific direction from the Commission

Especially seeking stakeholder input on assumptions and analytical approaches

PGE has 3 recurring long-term planning meetings

Meeting	2025 - 2026 Frequency	Technicality
CEP/IRP Roundtables	Every Six-Weeks	High
Distribution System Workshops	Quarterly	Medium
Community Benefits Impact Advisory Group (CBIAG)	Monthly	Entry

Upcoming Roundtable Schedule for the 2026 CEP/IRP

Wednesdays from 9 to 11 am, Online Via Zoom

September 03, 2025	Today / IRP overview
October 15, 2025	Corporate load forecast, existing resources, drivers of capacity need.
December 03, 2025	Transmission options, role of VPP, EE/DR integrations, Capacity Need
January 14, 2026	Resource options, related economics, CBIs, RFP proxies, CEP emissions reductions
February 25, 2026	Portfolio/scenarios designs, flexibility study results
April 08, 2026	Draft portfolio analysis results
May 20, 2026	Updates prior to filing
July 01, 2026	Office Hours after filing

8 Workshops

Topics noted here are subject to change

July 2025 Stakeholder Comments by Themes

- **Based on comments received via email and during the July 2025 roundtable Mural board session**
- **PGE will post more direct responses to specific questions on our website soon**

	Resource Needs	Resource Options	Price Futures	Portfolios
PGE Key Takeaways	Important ties between new large load / electrification and ability of existing resources to support	Interest in longer duration storage, options outside Oregon, more information on transmission analysis/options	Importance of weather/hydro/climate conditions and market access to clean energy	Investigate tax credit changes, market participation, extreme weather events, community benefits
PGE Next Steps	Highlight in future Roundtables (**~Fall**): • Load scenarios & drivers • Existing resource projections	Highlight in future Roundtables (**~Winter**): • Proxy supply-side resource options • Transmission options • Associated locations, costs, timing, etc.	Highlight in future Roundtables (**~Winter**): • Updating weather / climate futures • Market purchase assumptions	Highlight in future Roundtables (**~Spring**): • Portfolios / scenarios to evaluate • CBIs • Community engagement

Additional Detail: Estimated Timing for Specific Topics

Component	Data Source	Desired '25-26 Timing
1. Estimate System Needs		
Load forecast	PGE financial forecasting	Summer
'Cost-effective' energy efficiency*	Energy Trust of Oregon	Summer
'Cost-effective' demand response*	Distribution System Plan	Late Summer
Qualified Facility (QF) forecast	PGE Origination team	Summer
Existing and Contracted Resources	PGE IRP estimate	Summer
Electricity and natural gas price curves	PGE Operations	Summer
Load scenarios	PGE IRP team	Fall/Winter
Energy and capacity needs	PGE IRP estimates	Fall
2. Evaluate Resource Options		
Supply-side resource options and economics	PGE IRP team (w/ public estimates)	Fall/Winter
RFP and small-scale renewable proxy resources	PGE estimate	Fall/Winter
Portfolio Community Benefit Indicators (PCBIs)	Consultant	Fall/Winter
Community Based Renewable Energy (potential)	Distribution System Plan	Fall/Winter
'Non-cost-effective' energy efficiency*	Energy Trust of Oregon	Summer
'Non-cost-effective' demand response*	Distribution System Plan	Late Summer
Transmission options (constraints and potential additions)	PGE, Consultant(s)	Fall/Winter
Resource ELCCs estimates	PGE IRP team	Fall
3. Develop a Resource Plan		
Portfolio analysis	PGE IRP team	Spring
Yearly cost estimates	PGE IRP team	Late Spring
Hourly emissions evaluation	PGE IRP team	Spring
Report on federal funding opportunities	PGE	Late Spring

* The terms cost-effective and non-cost-effective have divergent meanings across planning documents. PGE here uses 'cost-effective' to signify that the quantities referenced were determined to be cost-effective *before IRP analysis* in their respective sources (ETO for EE, AdopDER for DR)

Feedback Form

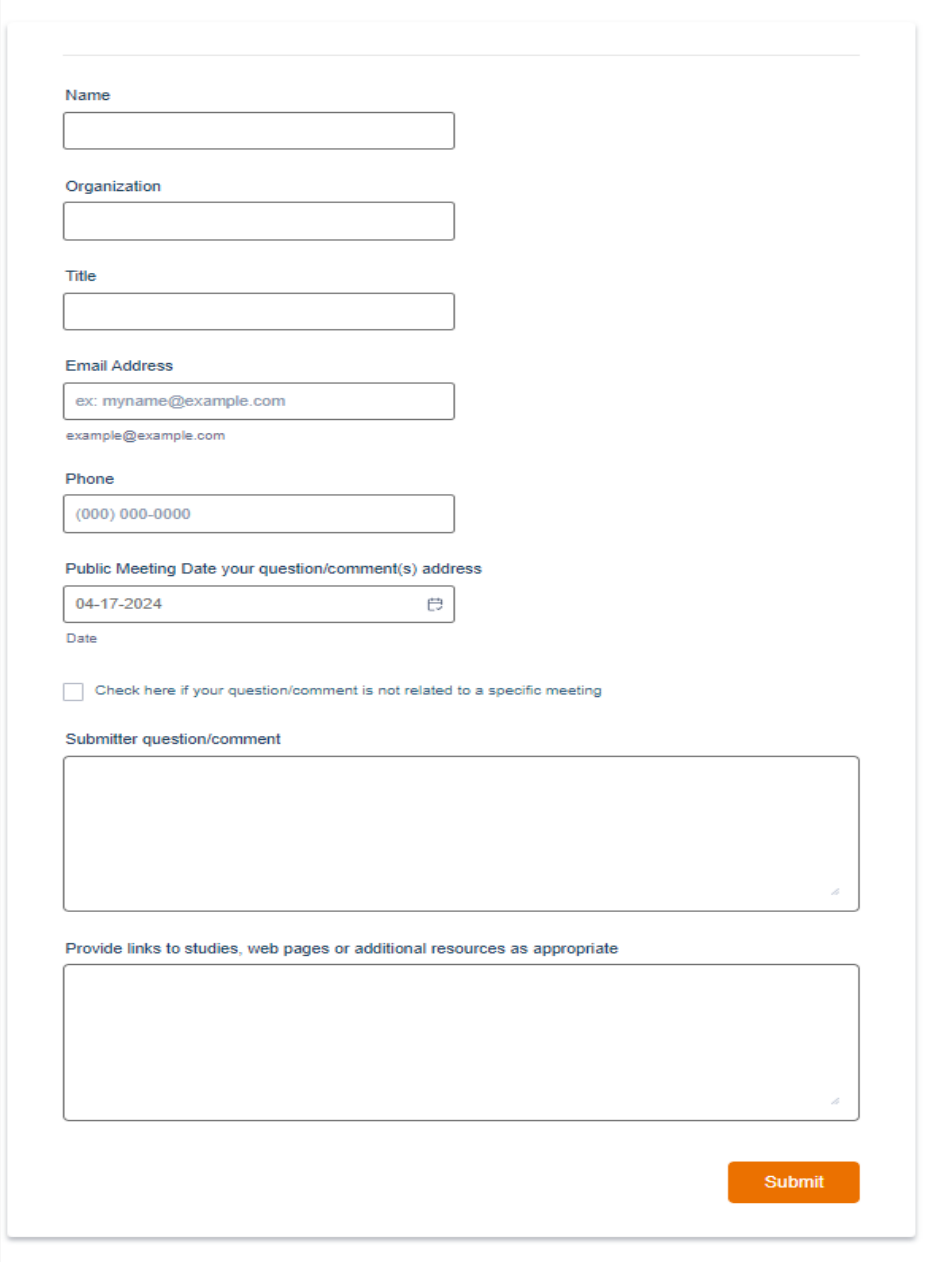
Please submit comments and feedback via the newly updated feedback form

All feedback received will be posted on our website, along with PGE's response

Minor queries may be sent to: IRP.CEP@pgn.com

Our team aims to respond to specific queries in emails and forms within two weeks

If you are simply providing feedback for consideration, we will respond to let you know your message was received



Questions

NEXT STEPS

A recording from today's webinar will be available on our website in one week

Upcoming Roundtable: October 15th, 2025

Thank you

Contact us at
IRP.CEP@PGN.COM

An

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ACRONYMS

ARIMA: autoregressive integrated moving average
ART: annual revenue-requirement tool
ATC available transfer capability
BPA: Bonneville Power Administration
C&I: commercial and industrial
CBI: community benefit indicators
CBIAG: community benefits and impacts advisory group
CBRE: community based renewable energy
CDD: colling degree day
CEC: California energy commission
CEP: clean energy plan
CF conditional firm
DC: direct current
DER: distributed energy resource
DR: demand response
DSP: distribution system plan
EE: energy efficiency
ELCC: effective load carrying capacity
EJ: environmental justice
ETO: energy trust of Oregon
EUI: energy use intensity
GHG: greenhouse gas
HB2021: House Bill 2021
HDD: heating degree day
HVDC: high-voltage direct current
IE: independent evaluator
IOU: investor-owned utilities
ITE: information technology equipment
ITC: investment tax credit
kW: kilowatt
LOLH: loss of load hours
LT/ST: long term/ short term
LTF long-term firm
MW: megawatt
MWa: mega watt average
NAICS: North American industry classification system
NCE: non-cost effective
NG: natural gas
NPVRR: net present value revenue requirement
OASIS Open Access Same Time Information System
ODOE: Oregon department of energy
PPA: power purchase agreement
PSH: pumped storage hydro
PUC: public utility commission
PURPA: Public Utility Regulatory Policies Act
PV: photovoltaic
REC: renewable energy credit
RLRR: low carbon price future
ROSE-E: resource option strategy engine
RPS: renewable portfolio standard
RRRR: reference case price future
RTO: regional transmission organization
SoA: South of Allston
T&D: transmission and distribution
TSR: transmission service request
TSEP: TSR study and expansion process
Tx: transmission
UPC: usage per customer
UPS: uninterruptible power supply
VER: variable energy resources
VPP: virtual power plant
WECC: western electricity coordinating council