Equity in the Integrated Resource Plan

Resource Planning Advisory Group meeting

June 12, 2024

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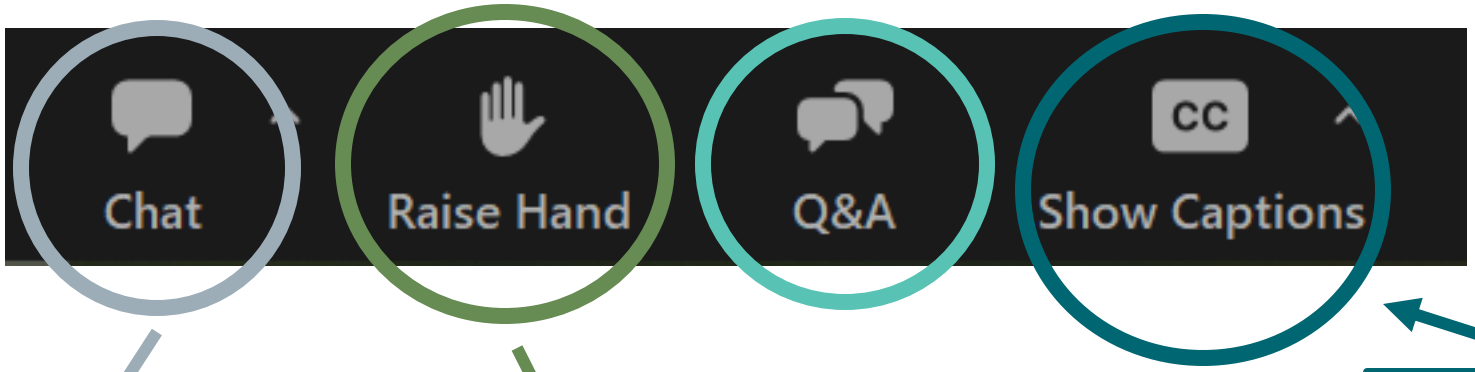
Welcome to the webinar!

Use the Q&A tool to ask written questions throughout the webinar



Click the chat to view messages from the host

During the public comment period, raise your hand if you would like to make a verbal comment

Click to see real-time closed captioning

Facilitator requests

- Engage constructively and courteously towards all participants
- Respect the role of the facilitator to guide the group process
- Avoid use of acronyms and explain technical questions
- Use the Feedback Form or email irp@pse.com for additional input to PSE
- Aim to focus on the webinar topic
- Public comments will occur after PSE's presentations

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Safety moment

June is National Safety Month – office safety tips

- Keep your workspace neat and organized
- Make sure emergency exit routes are clear
- Notify others of hazards
- Keep computer and electrical cords managed or hidden

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Today's speakers

Sophie Glass
Facilitator, Triangle Associates

Phillip Popoff
Director, Resource Planning Analytics, PSE

Troy Hutson
Director, Energy Equity, PSE

Brian Tyson
Manager, Clean Energy Planning and Implementation, PSE

Alexandra Karpoff
Energy Resource Planning Analyst, PSE

Tyler Tobin
Senior Energy Resource Planning Analyst, PSE

Hannah Wahl
Associate Energy Resource Planning Analyst, PSE

Kaitryn Olson
Associate Energy Resource Planning Analyst, PSE

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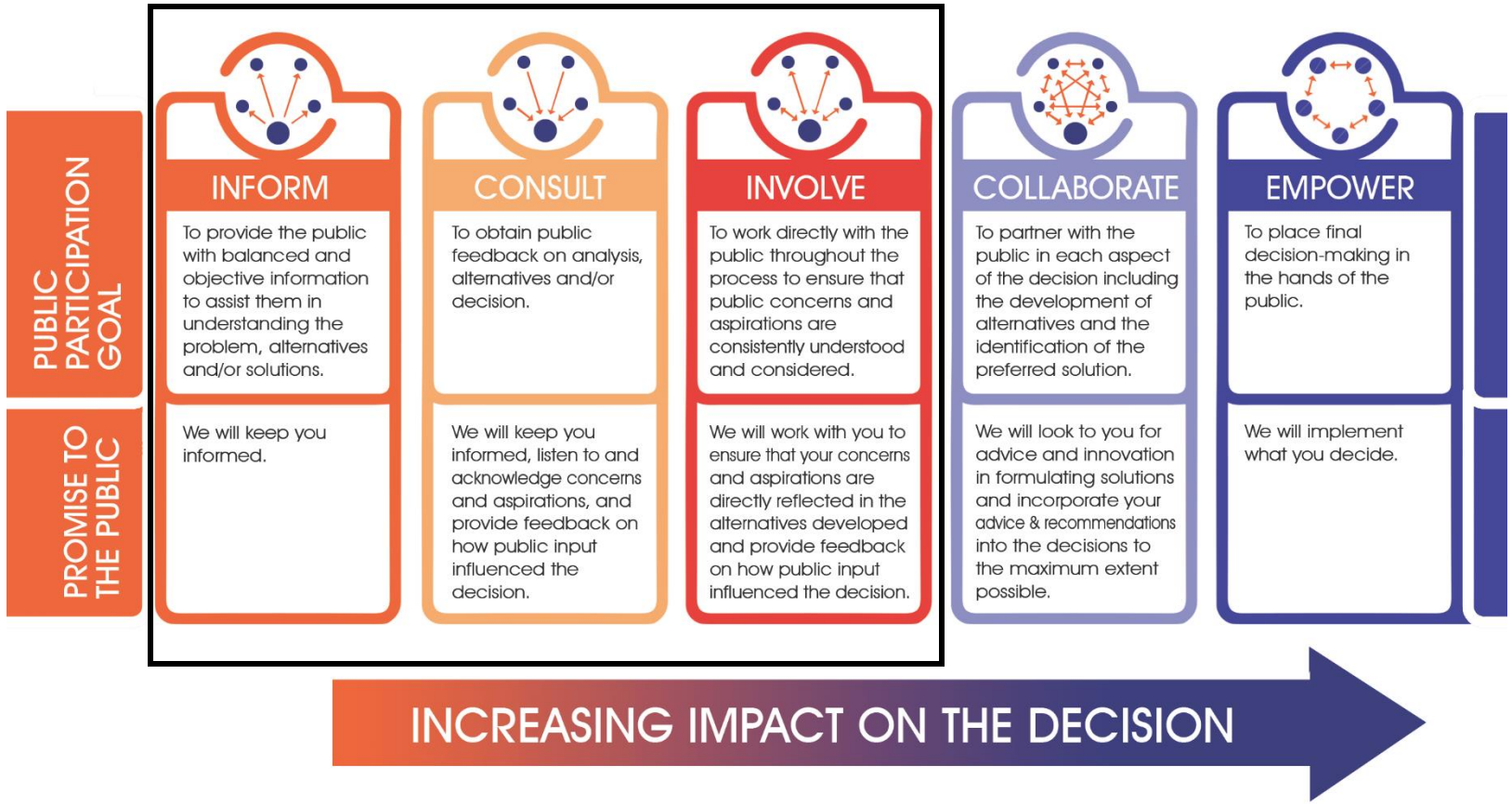
Agenda

Time	Agenda Item	Presenter / Facilitator
10:00 a.m. – 10:05 a.m.	Introduction and agenda review	Sophie Glass, Triangle Associates
10:05 a.m. – 10:10 a.m.	Feedback summary	Phillip Popoff, PSE
10:10 p.m. – 10:20 a.m.	Energy equity program overview	Troy Hutson, PSE
10:20 a.m. – 10:30 a.m.	Equity in the Integrated Resource Plan (IRP)	Brian Tyson, PSE
10:30 a.m. – 11:05 a.m.	Benefits and burdens of generic electric resources	Alexandra Karpoff, PSE
11:05 a.m. - 11:25 a.m.	Benefits and burdens example assessment	Kaitryn Olson, PSE
11:25 a.m. – 11:35 a.m.	Break	All
11:35 a.m. – 12:20 p.m.	Electric portfolio benefits analysis improvements Maximum Customer Benefit Scenario	Tyler Tobin, PSE
12:20 p.m. – 12:50 p.m.	Gas portfolio equity analysis	Hannah Wahl, PSE
12:50 p.m. – 1:00 p.m.	Next steps and public comment opportunity	Sophie Glass, Triangle Associates
1:00 p.m.	Adjourn	All

IAP2 Spectrum



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Feedback summary

Phillip Popoff

Director, Resource Planning Analytics, PSE

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May 9 Local and Regional Delivery Infrastructure Needs public webinar feedback

Feedback we heard:

- What transmission solutions are PSE exploring?
- PSE should consider reconductoring transmission lines
- Will PSE consider biodiesel for a peaking energy source?

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Energy Equity Program

Troy Hutson

Director of Energy Equity, PSE

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Energy Equity Strategy

Key Outcomes

- Meaningful engagement with communities, resulting in equitable and streamlined clean energy project implementations
- Clean energy benefits are distributed to named communities
- Energy equity incorporated in PSE's processes
- Energy equity maturity measurably improves across enterprise

Mission

Connect energy equity to 2030 and 2045 goals, ensure compliance and provide consistency and alignment across PSE

Strategic Goals

- Meet regulatory commitments
- Operationalize Equity
- Strengthen Partnerships and Enhance Engagement

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Energy justice framework

Recognition

Requires an understanding of historic and ongoing inequalities and prescribes efforts that seek to reconcile these inequalities

Procedural

Focuses on inclusive decision-making processes and seeks to ensure that proceedings are fair, equitable, and inclusive for participants, recognizing that marginalized and vulnerable populations have been excluded from decision-making process

Restorative

Utilizes regulatory government organizations or other interventions to disrupt and address distributional, recognitional or procedural injustices and to correct them through laws, rules, policies, orders and practices.

Distributional

Distribution of benefits and burdens across populations. Aims to ensure marginalized and vulnerable populations do not receive inordinate share of the burdens or are denied access to benefits

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Equity in the customer journey

Customer relationships

- Focused and extensive direct engagement with customers in Named Communities
- In language experience (online, in-person)
- “Meet them where they are”

Billing

- Bill Discount Rate (BDR)
- Emergency bill assistance
- Arrearage management (coming soon)
- Climate Commitment Act bill credits

Programs

- Weatherization assistance
- Income-qualifying energy efficiency upgrades
- Income-eligible community solar
- Home energy generation and storage incentives
- Home Energy Lifeline Program (HELP)

Watch our Ask an Expert webinar to find out more

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Equity in energy planning and delivery

Resource acquisition

- Requests for proposals
- Equity considerations integrated into project selection

Customer programs

- Program ideation and design
- Program development and delivery

Delivery system

- Needs assessment
- Community engagement
- Clean energy resource integration
- Project implementation
- Service reliability
- Equity advancement

Integrated Resource Plan

- Customer engagement
- Generic resource selection
- Maximum customer benefit scenario
- Evaluate and consider customer benefits and burdens

Facility design, siting, and construction

- Community engagement
- Energy system resiliency

Clean Energy Implementation Plan

- Specific actions
- Customer programs goals and targets
- Equitable distribution of burdens and benefits

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Equity in Resource Planning (IRP)

Brian Tyson

Manager, Clean Energy Planning and Implementation, PSE

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PSE has two utilities

Electric utility

- Used for heating, cooling, lighting, cooking and general power
- Current sources include:
  - Coal
  - Natural gas
  - Hydroelectric
  - Solar and wind
- CETA applies to the electric utility only

Gas utility

- Sources include natural gas and renewable natural gas
- Hydrogen is currently being piloted
- Used for space heating, cooking and water heating

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Overview of resource plans

All resource plans are updated or refiled biennially.

Integrated Resource Plan (IRP)

- 20+ year resource plan, updated every 4 years, with a 2-year progress report for Electric and Gas
- Identifies long-term needs and resources

Clean Energy Action Plan (CEAP)

- 10-year strategy for clean energy supply
- Filed jointly with IRP

Clean Energy Implementation Plan

- 4-year roadmap for clean electricity
- Includes targets and actions

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Integrated resource plan (IRP) process

Resource planning (IRP) activities

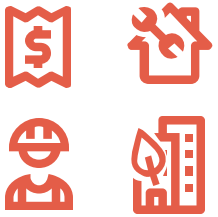
Gather data

- What resources can serve our customers?
- Where would the resources come from?

Engage interested parties

Identify and model portfolios

Portfolio benefits analysis



Identify needs

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Integrating equity into resource planning

Previous engagement (2022/23)

- Engaged EAG and IRP parties in portfolio analysis design
- Used portfolio benefit analysis to inform selection of the 2023 electric utility preferred portfolio
- Initiated conversations regarding gas utility next steps

What we heard

- Interest in a cost-benefit analysis (incorporated)
- Importance of understanding benefits and burdens (discussing today)
- Interest in weighting benefit categories and inherent trade-offs (considering, informed by today's discussion)
- Interest in adding a climate change resilience indicator (considering through CEIP process)

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Expanding on 2023 process

Preliminary topics:

- Gas utility alternatives scorecard (similar to 2023 electric utility scorecard)
- Generic electric utility resources equity considerations

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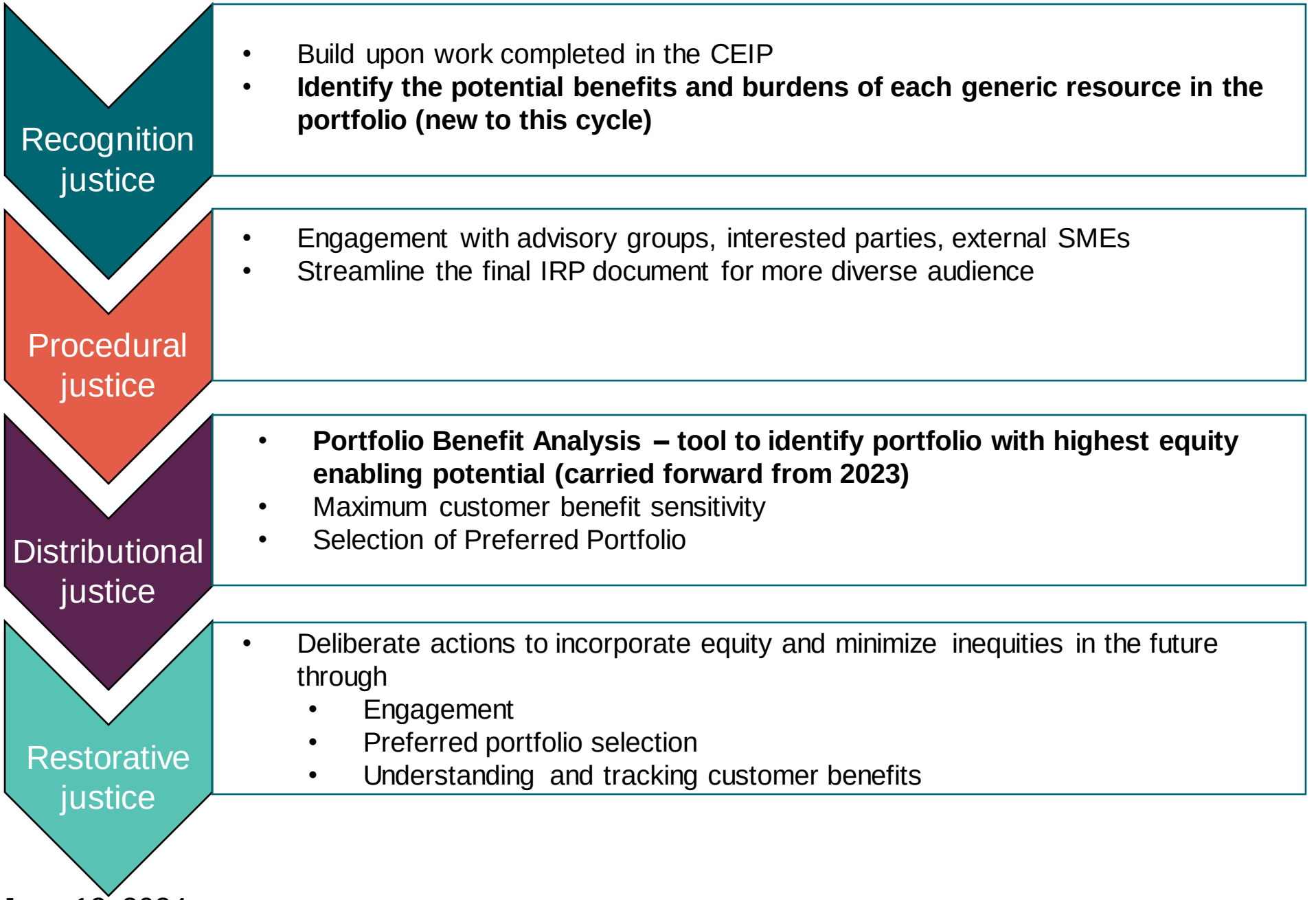
2025 IRP Energy Justice Core Tenets



Feedback and discussion preview

Sophie Glass

Facilitator

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Today's feedback questions

- **What do you think of the proposed approaches?**
- **Are there other considerations you would like to see included?**

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Benefits and burdens of generic electric resources

Alexandra Karpoff

Energy Resource Planning Analyst, PSE

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2025 IRP: deepening Our understanding

How do we further address potential burdens & benefits in our portfolios?

Suggested approach

Assess potential burdens & benefits of **generic resources**

Merits:

- Qualitative considerations
- Location considerations (to an extent)
- Furthers recognition justice

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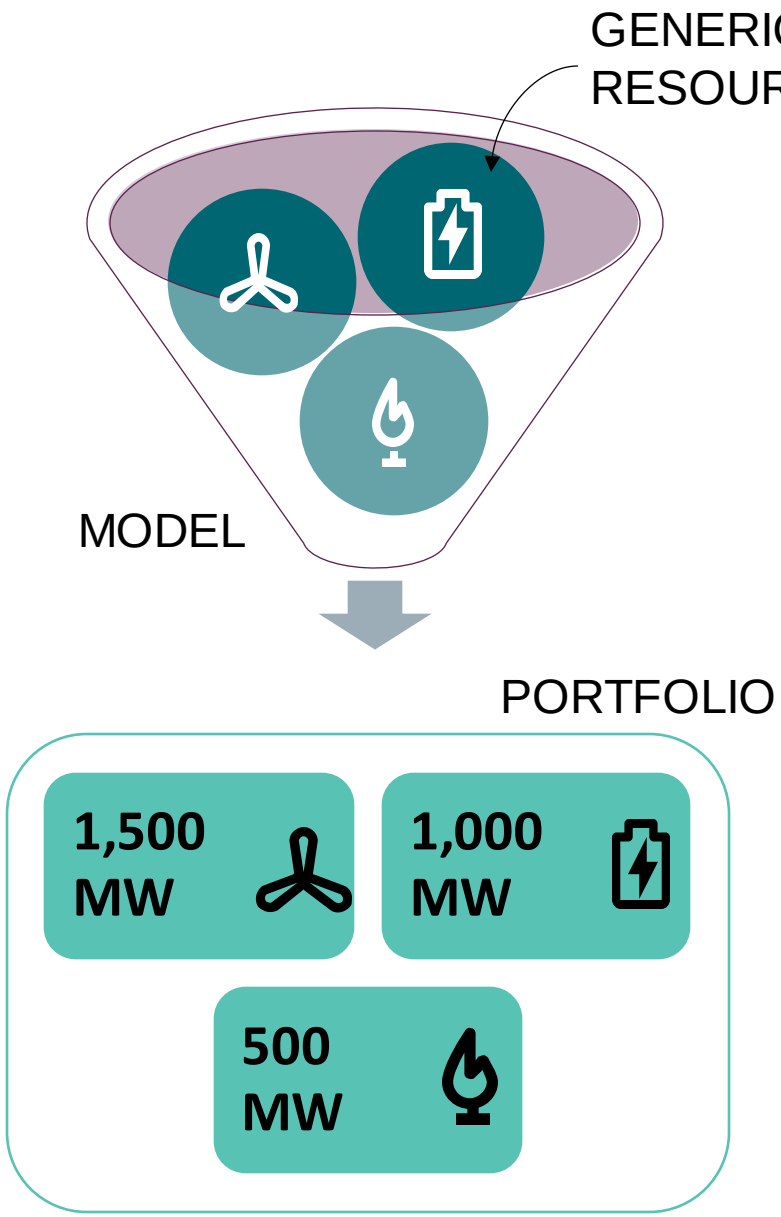
Generic resources

What is a generic resource?

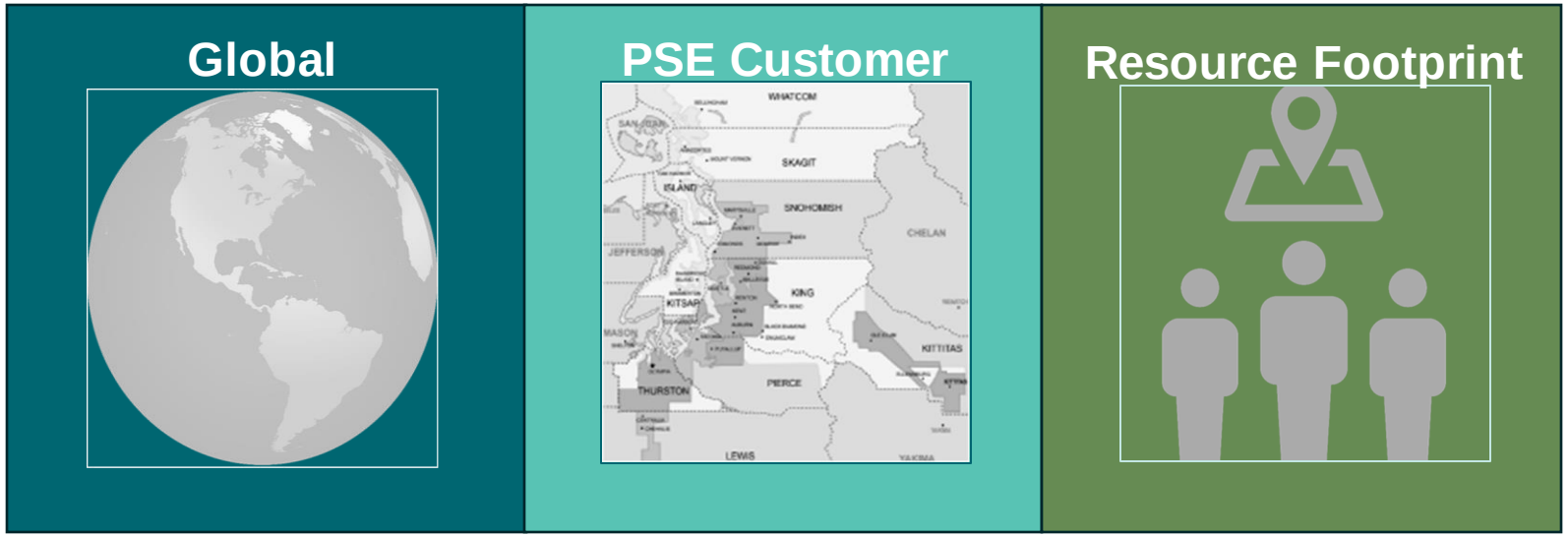
- A generating (e.g., wind) or storage (e.g., battery) resource
- Generic resources are place holders to help us model and plan for future customer needs
  - **No specific site/location associated**
- A portfolio is a mix of generic resources
  - Optimal size in megawatts (MW) for each type
  - Optimal schedule over time for adding each type



Methods to assess burdens and benefits

1. Reviewed existing literature
2. Identified equity metrics
3. Will use metrics to guide impact assessment

Generic Resources Burdens & Benefits Assessment



Global scale metrics

Burdens & Benefits

- Green house gas emissions (emitting / non-emitting)
- End of life effects

PSE customer scale metrics

Burdens & Benefits

- Participation in clean energy programs
- Home comfort
- Frequency and duration of outages
- Access to reliable clean energy
- Energy cost burdens

Resource footprint scale metrics

Burdens & Benefits

- Sited in a disproportionately impacted community
- Local energy serviced provided
- Change in land use/viewshed
- Change in noise exposure
- Community safety
- Outdoor air quality
- Community health
- Creation of jobs
- Decommissioning effects
- Wildlife & plant community impacts

How will we use this assessment in the IRP?

Results

1. Will be presented in 2025 IRP document
2. Inform the Portfolio Benefit Analysis
3. Assist in preferred portfolio selection

Next Steps

- Incorporate feedback
- Perform assessment of each generic resource technology

Benefits of Approach

- More comprehensive approach to building an equity-enabling portfolio
- Incorporate qualitative & location-based considerations

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Burdens & benefits example assessment

Kaitryn Olson

Associate Energy Resource Planning Analyst, PSE

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Land-based wind description

Uses

- Renewable Resource that contributes to CETA requirement
- Variable energy source that contributes to base load

Possible Locations

- Rural areas (disadvantaged communities)

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Land-based wind

Global Scale

- Non-emitting resource

PSE Customer Scale

- Low-cost clean energy

Resource Footprint Scale

- Land use changes
- Land view changes
- Noise
- Potential impact of local wildlife
- Disconnection in job market
- End of Life Effects

Utility-scale lithium-ion battery

Uses

- Increase renewable energy available to the grid
- Meet peak demands
- Reduce the need for new transmission or distribution infrastructure

Possible Locations

- Co-located with wind/solar farms
- Near existing substations

Azure Sky hybrid wind + storage project – Texas (source: renewableenergyworld.com)

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Utility-scale lithium-ion battery

Global Scale

- Non-emitting resource

PSE Customer Scale

- Contributes to reliability
- Lower cost than other storage options

Resource Footprint Scale

- Possible safety risks due to fire and toxic chemical exposure
- Possible noise
- Minimal job creation in the long-term
- Likely to serve the community in which it's located - depends

Discussion

- **What do you think of the proposed approach to evaluating benefits and burdens of generic electric resources?**
- **Are there other considerations you would like to see included?**

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Electric Portfolio Benefits Analysis improvements

Tyler Tobin

Senior Energy Resource Planning Analyst, PSE

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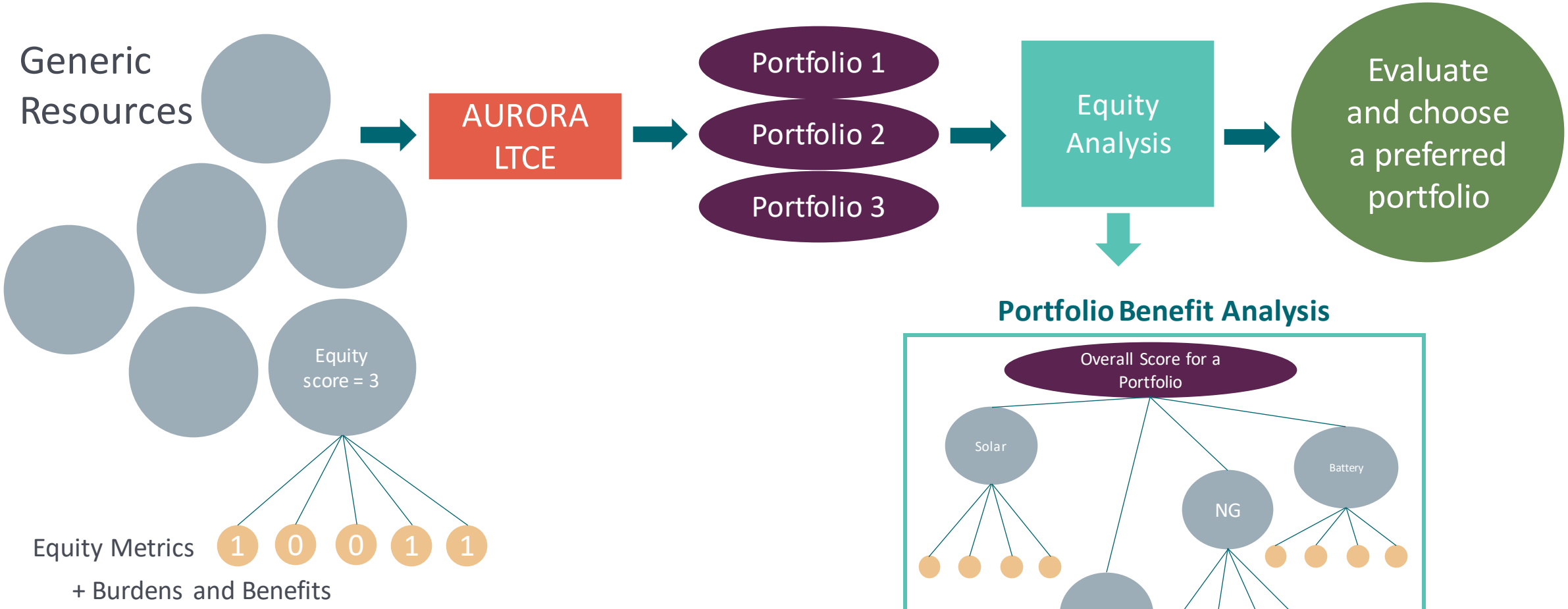
Distributive justice

IRP Equity Assessment

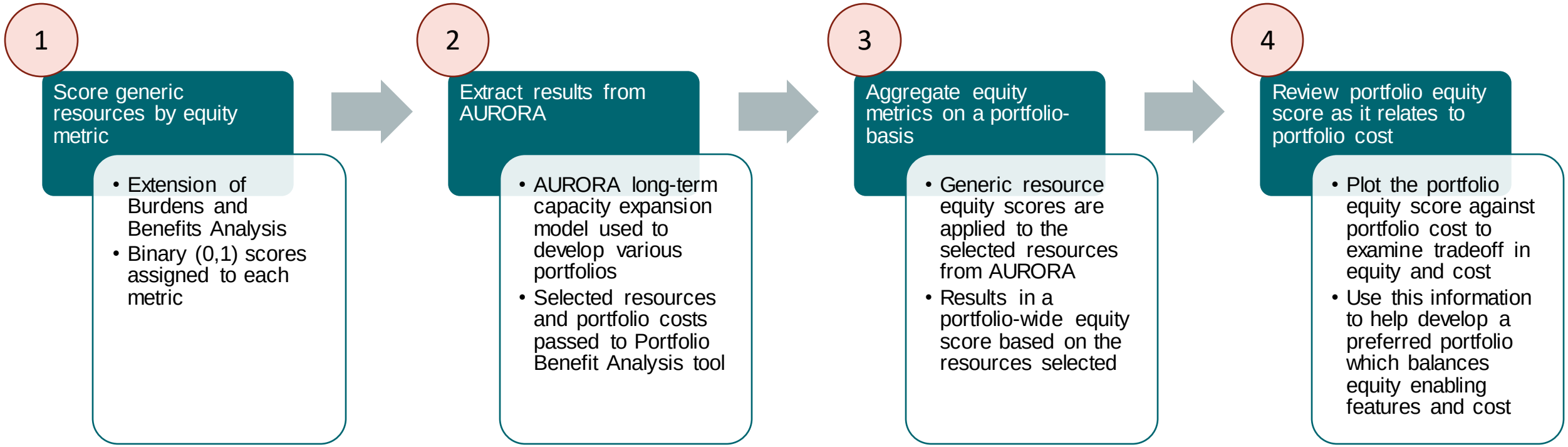
Objective: to develop a tool to allow us to see which portfolios developed in the IRP modeling are the most "equity enabling"

- Will assist in selecting a preferred portfolio
- Scorecard methodology in development for the 2025 IRP
  - Aligns with equity analysis methods from distribution system planning – consistency within PSE
  - Similar methods can be used for both electric and gas IRPs
  - Transparent method and easier to understand (compared to 2023 methods)
  - Will allow comparison across various timescales

Equity in the context of portfolio modeling



Portfolio benefit analysis methodology



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Methodology updates

	2023 EPR	2025 IRP
1 Score generic resources by equity metric	***Data based solely on AURORA portfolio output, e.g. tons of GHG emissions***	***Resources scored individually by equity metric on a qualitative basis***
2 Extract results from AURORA	Portfolio resource selections, portfolio cost, ***portfolio metrics tabulated a posteriori from Step 1***	Portfolio resource selections, portfolio cost, ***metrics scored a priori in Step 1***
3 Aggregate equity metrics on a portfolio-basis	Aggregation performed on a ***relative*** basis (scoring relative to other portfolios)	Aggregation performed on an ***absolute*** basis (scoring developed independent of other portfolios)
4 Review portfolio equity score as it relates to portfolio cost	Compare equity score and ***total*** portfolio cost	Compare equity score and ***normalized*** portfolio cost

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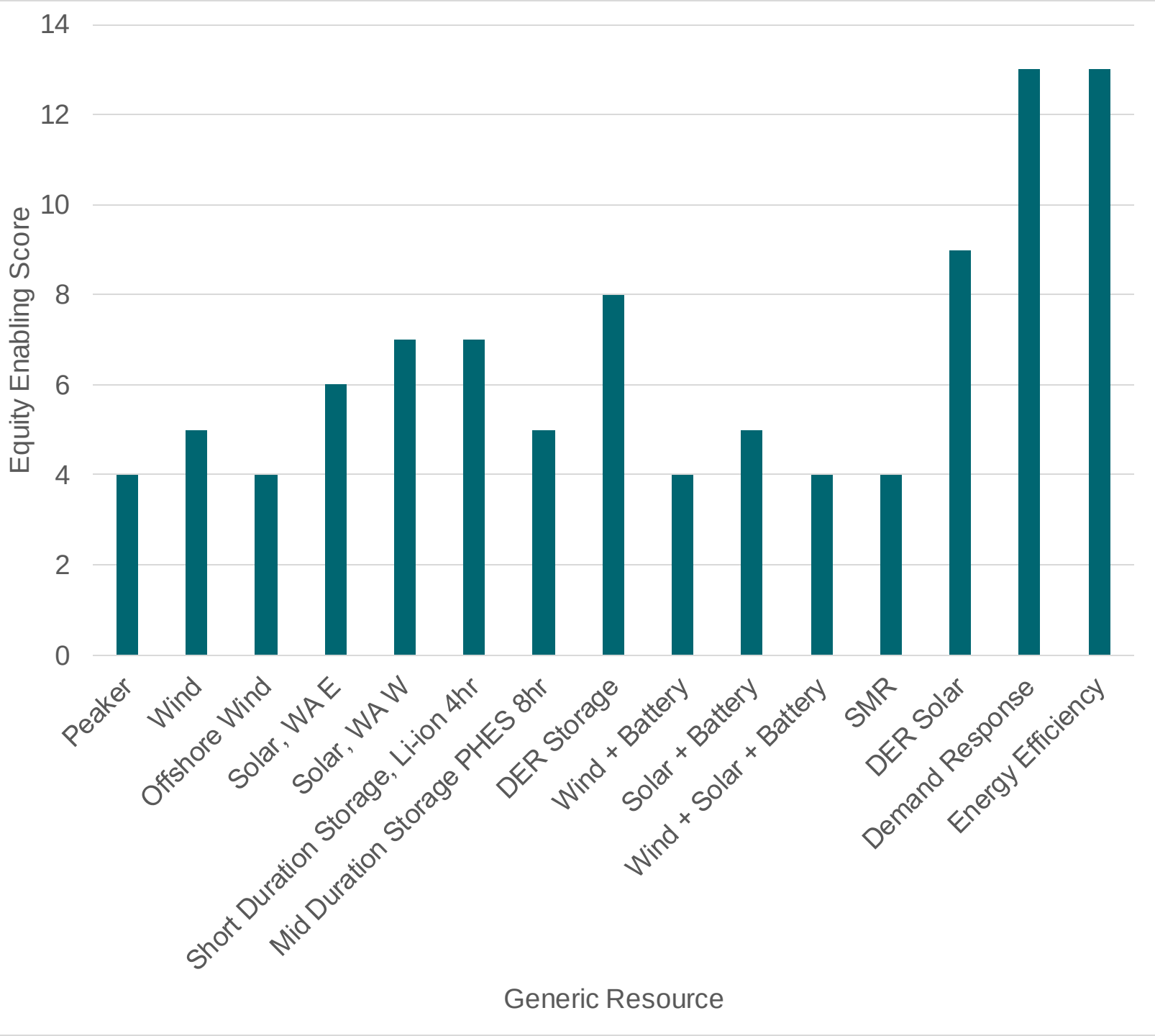
Equity Enabling Metrics

Metric	Description	Criteria Score = 1	Criteria Score = 0
	Global Scale		
1	Reduced GHG Emissions*	Net-zero Emissions	GHG Emitting
2	Minimal End of Life Effects	Demand Response, Energy Efficiency	Resources with Physical Structures
	PSE Customer Scale		
3	Increase Participation in Clean Energy Programs*	Energy Efficiency, Demand Response, Distributed Resources	Utility-scale Resources
4	Improve Home Comfort*	Energy Efficiency	Not Energy Efficiency
5	Decrease in Frequency and Duration of Outages*	Storage, Demand Response, Thermal, Nuclear	Wind, Solar
6	Improve Access to Reliable Clean Energy*	Distributed Storage	Not Distributed Storage
7	Reduce Energy Cost Burdens*	Utility Scale Resources, Energy Efficiency, Demand Response	Emerging Technology, Distributed Resources
	Project Footprint Scale		
8	Siting – Potentially Benefiting a Disadvantaged Community	TBD	TBD
9	Local Energy Service Provided	Assumed Location within PSE Service Territory	Assumed Location Outside of PSE Service Territory
10	Increase the Quality and Quantity of Jobs	Energy Efficiency, Demand Response	Utility-scale Resources, Distributed Resources
11	Change in Land Use/Viewshed	Not Wind or Solar	Wind, Solar, PHES
12	Increase Noise Exposure	Mitigation Measures Available	Mitigation Measures Unavailable
13	Affect Community Safety	Not Battery, Nuclear, or Thermal	Battery, Nuclear, Thermal
14	Improve Outdoor Air Quality*	Non-Emitting	Emitting
15	Improve Community Health*	Non-Emitting, Non-Toxic	Emitting & Potentially Toxic
16	Decommissioning Benefits	TBD	TBD
17	Potential Wildlife/Plant Community Impacts	Mitigation Measures Available	Mitigation Measures Unavailable

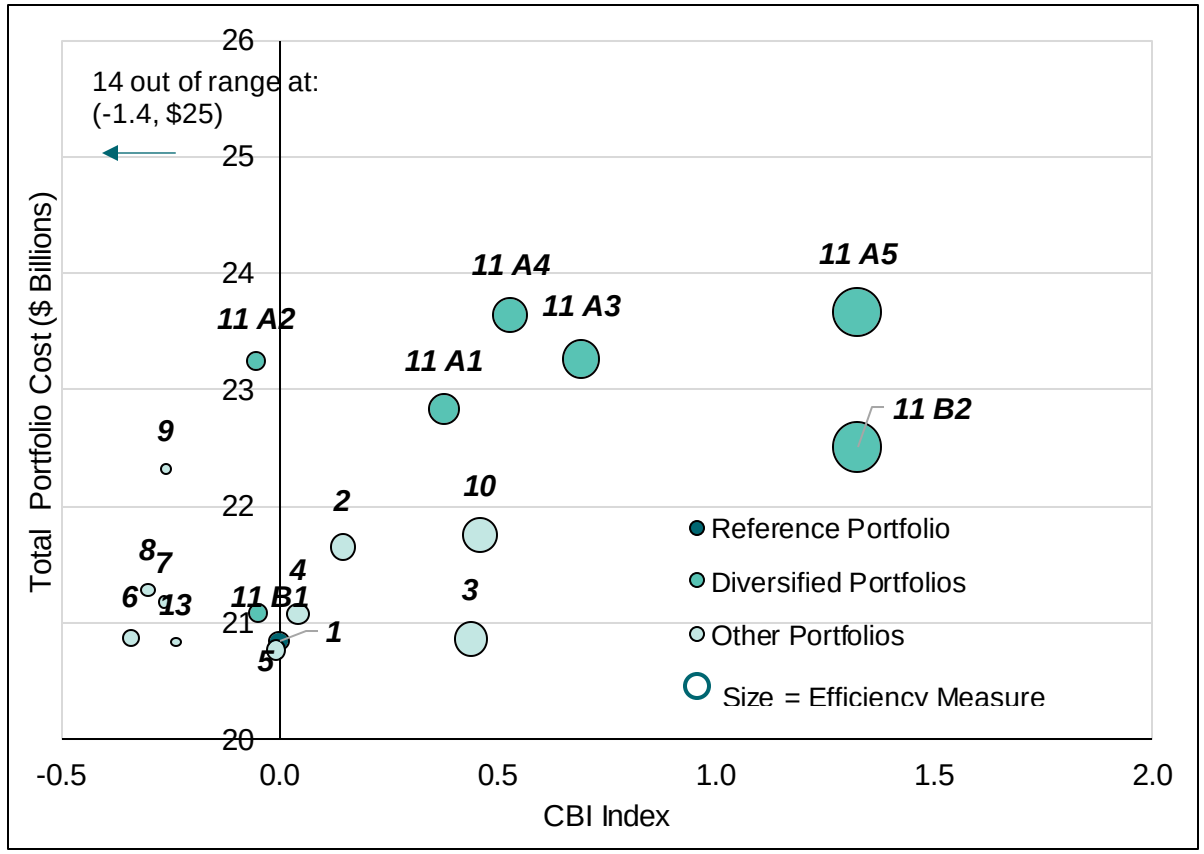
* Denotes Customer Benefit Indicator

Draft Equity Enabling Scores for the 2023 Electric Progress Report generic resources

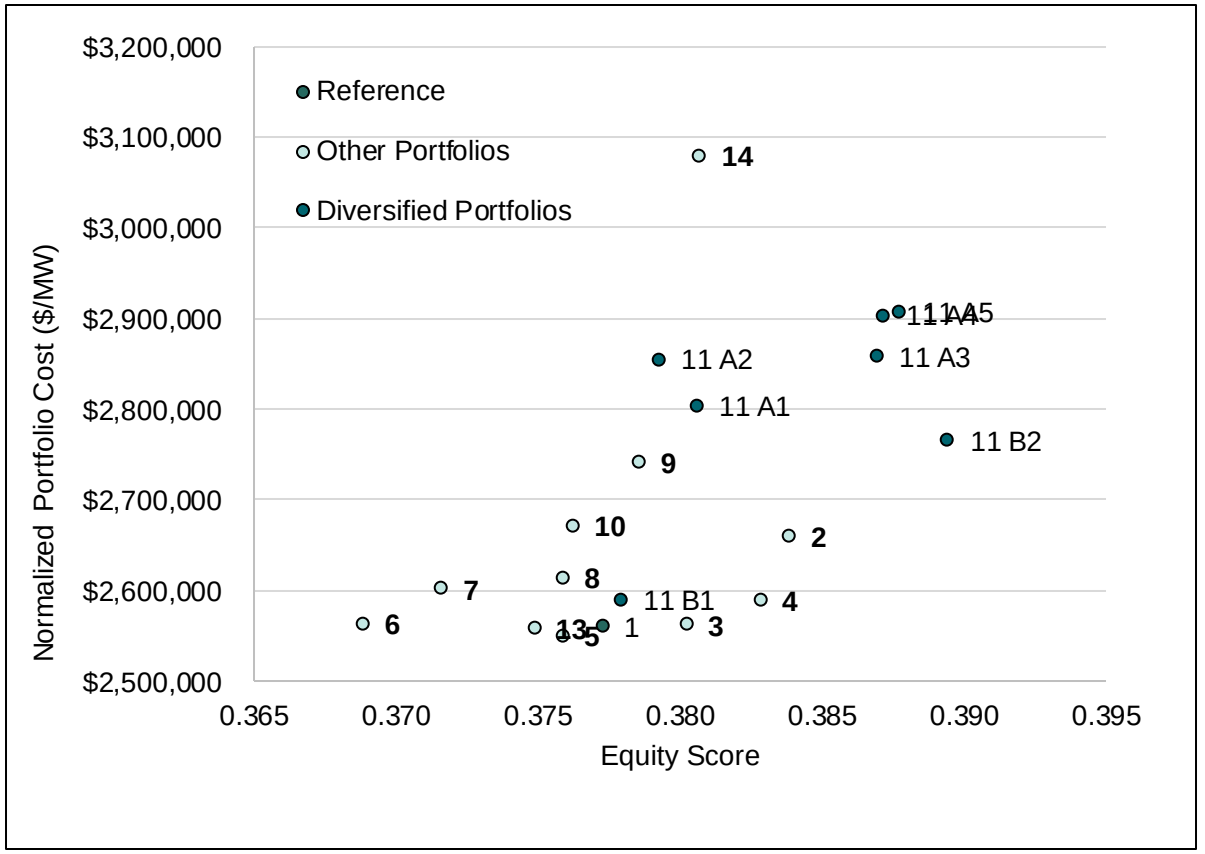


Results comparison: 2023 EPR to 2025 IRP

2023 EPR



2025 IRP



Most desirable portfolios in lower, right corner of each chart

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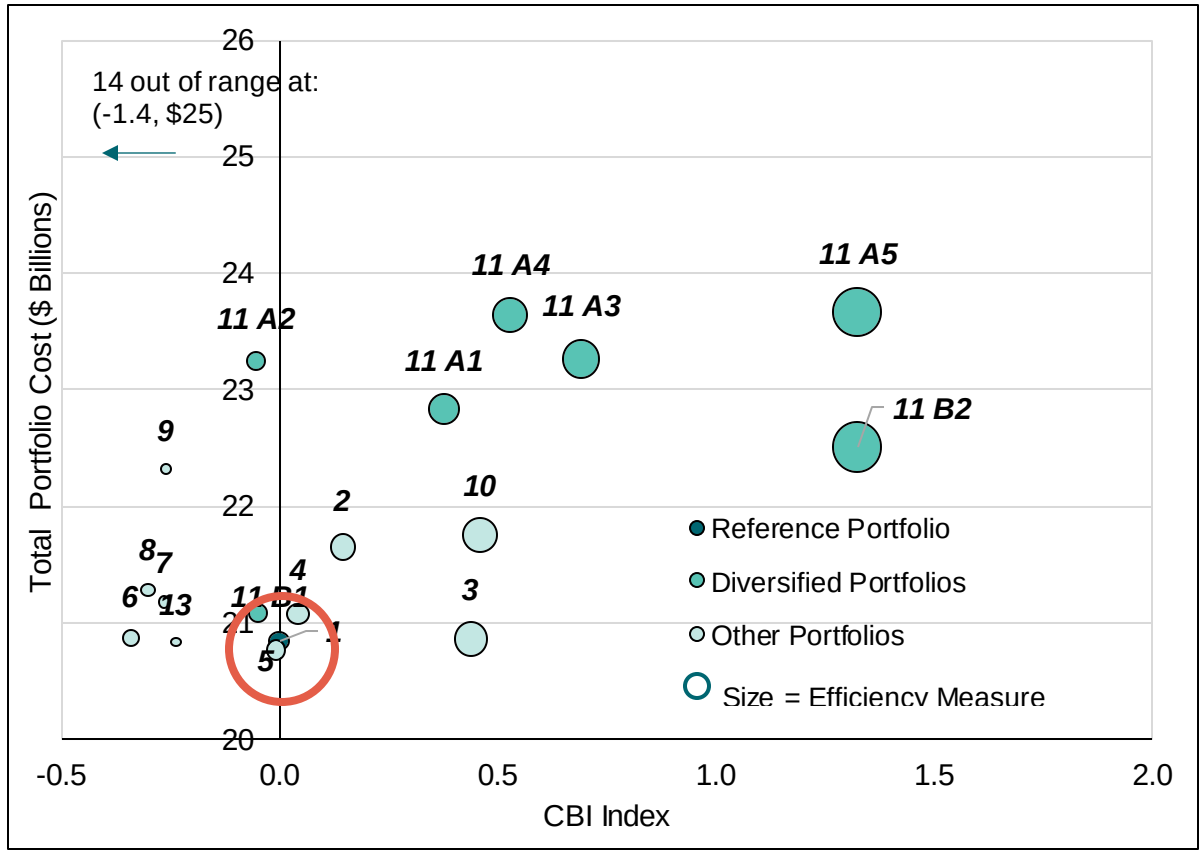
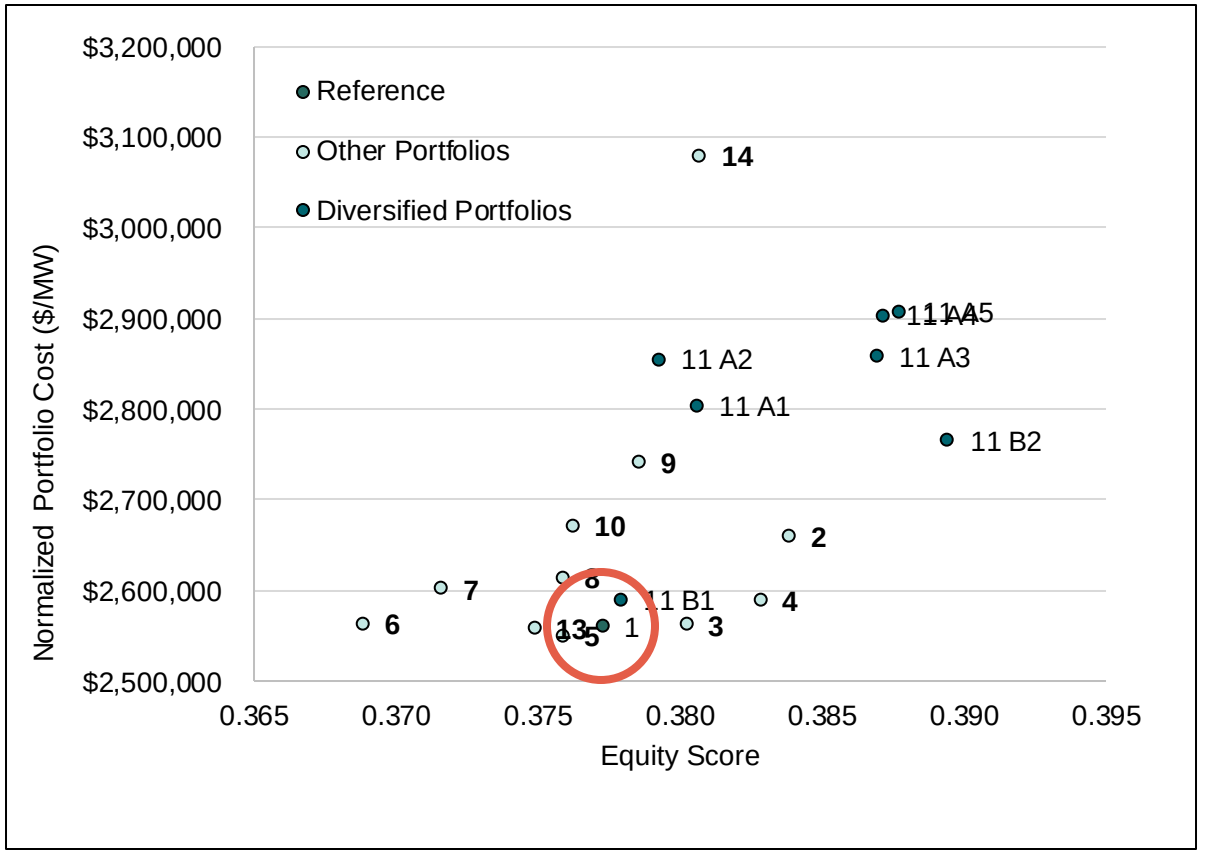
Results comparison: 2023 EPR to 2025 IRP

2023 EPR



2025 IRP



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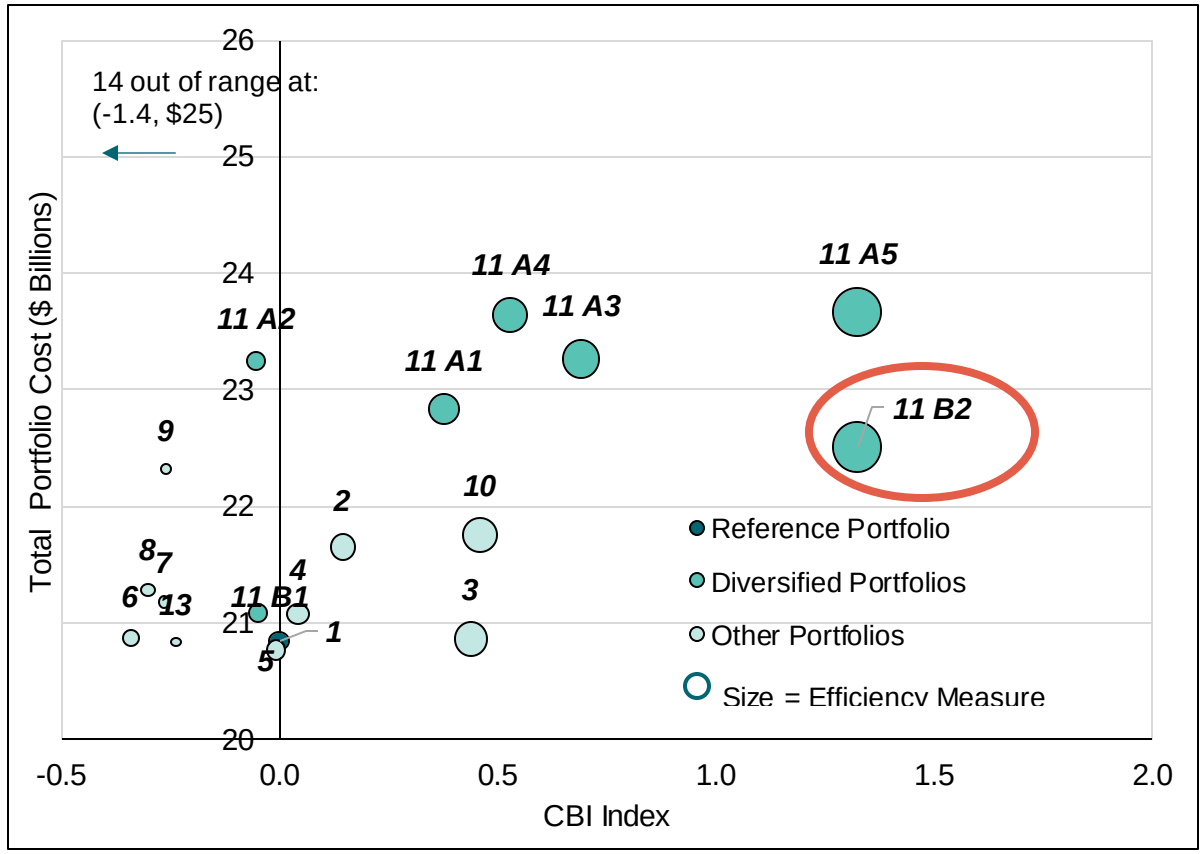
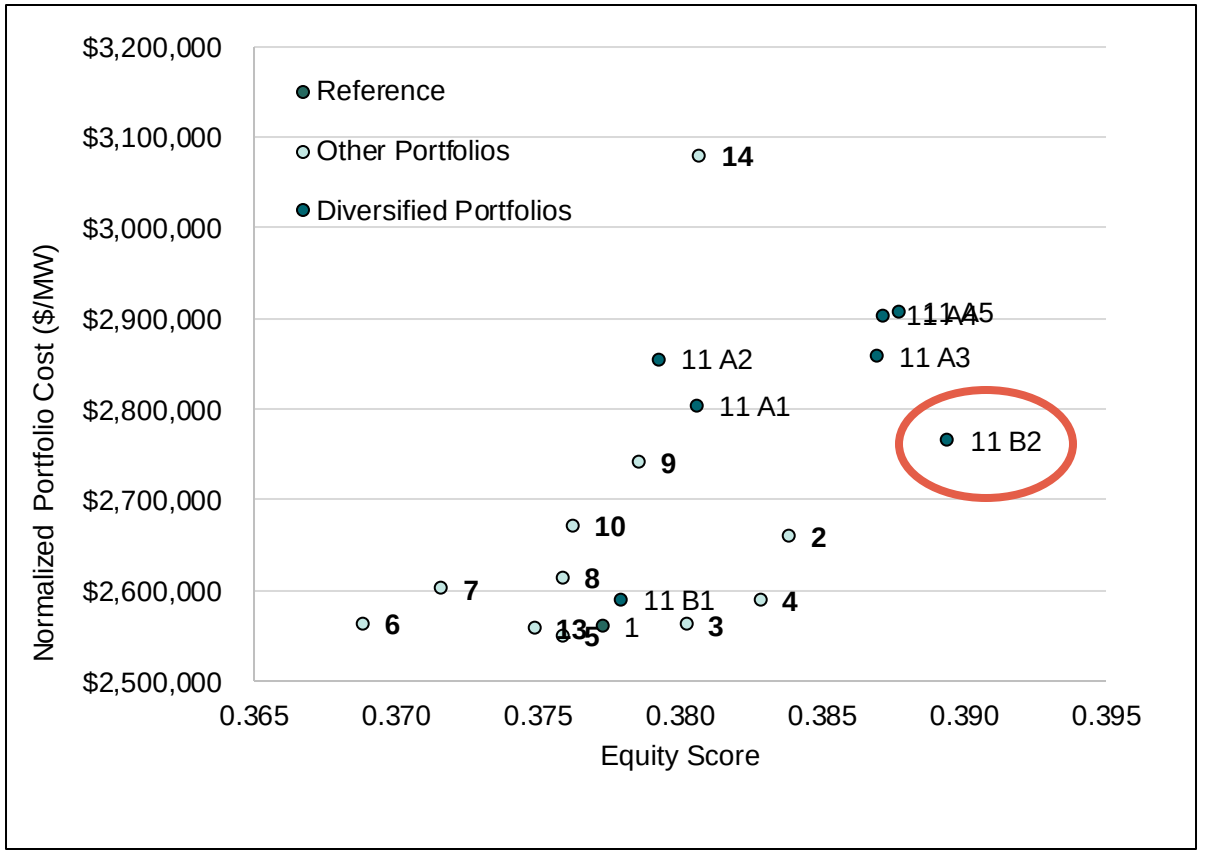


2025 IRP



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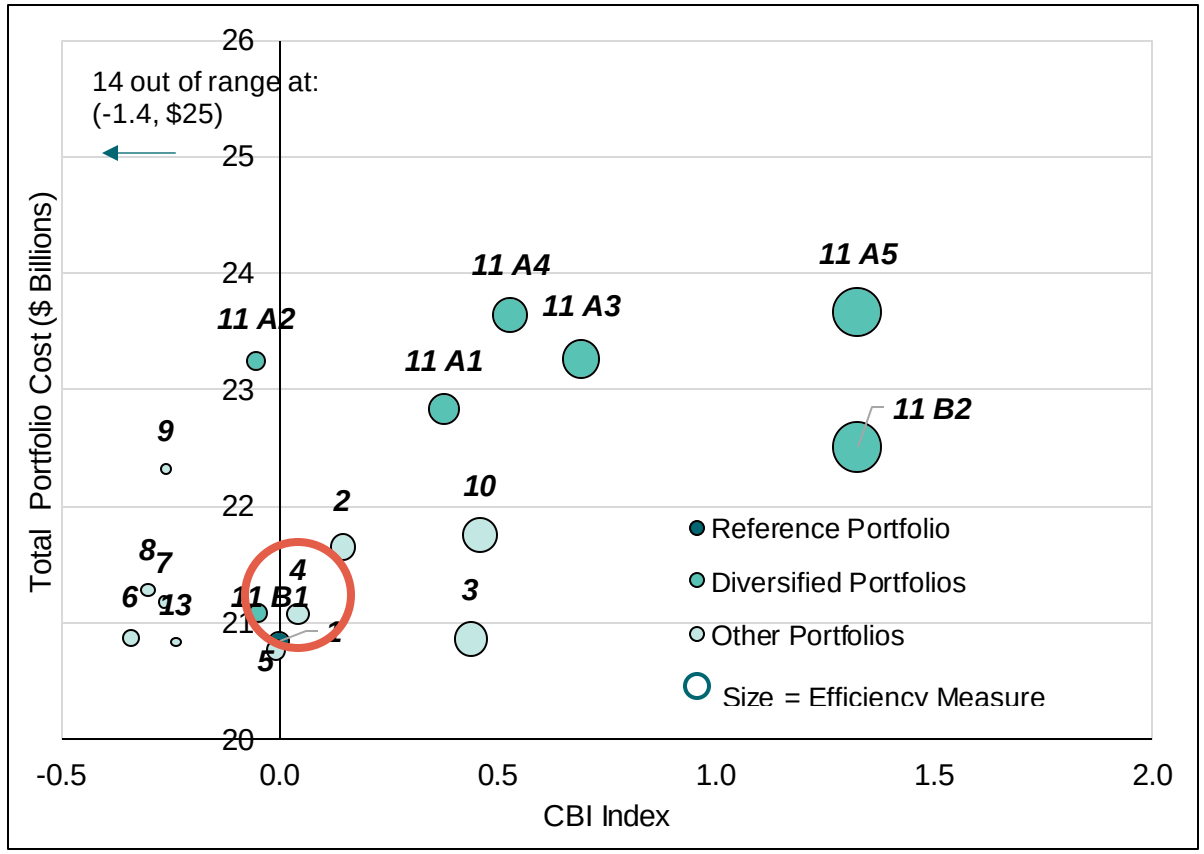
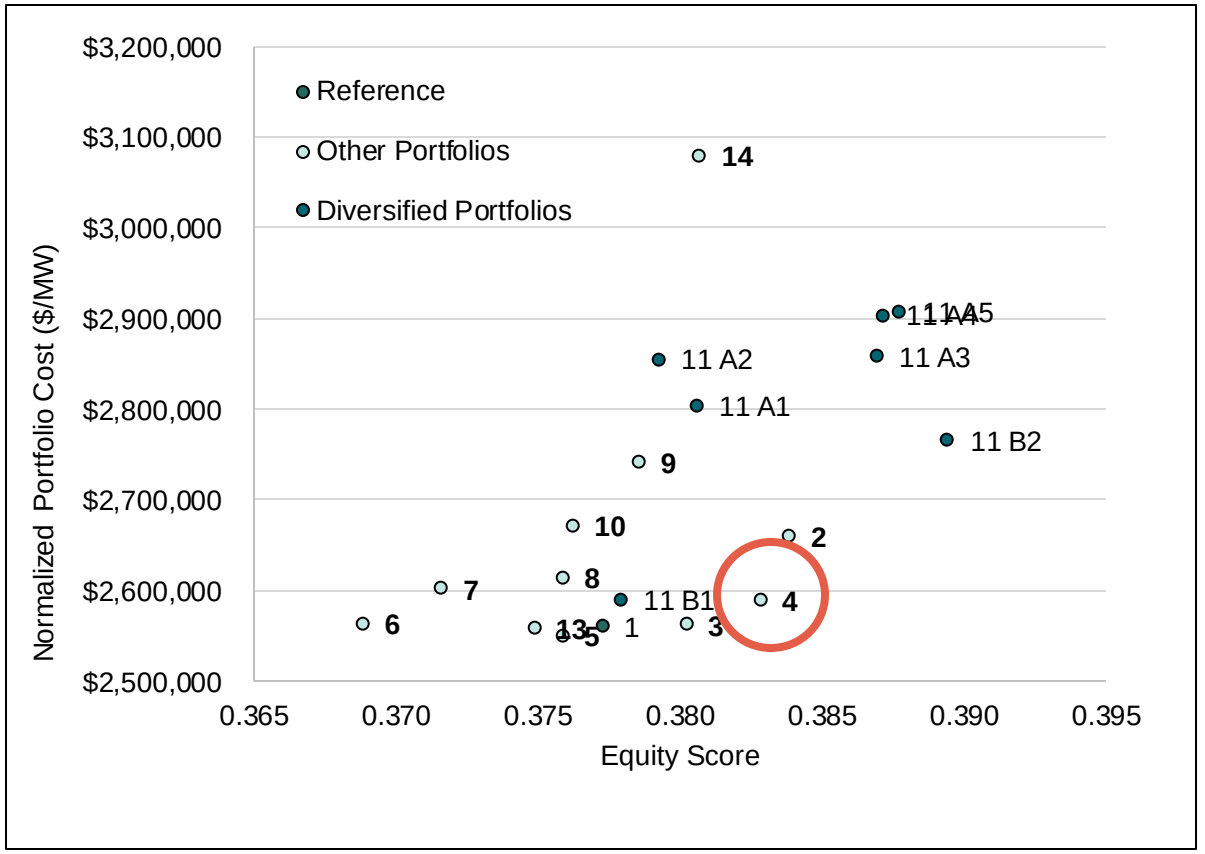


2025 IRP



Most desirable portfolios in lower, right corner of each chart

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Discussion

- **What do you think of the proposed improvements to the portfolio benefits analysis?**
- **Are there other considerations you would like to see included?**

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Maximum Customer Benefit Sensitivity

Tyler Tobin

Senior Energy Resource Planning Analyst

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Regulatory framework

The Maximum Customer Benefit sensitivity is set forth in:

WAC 480-100-620 (10) (c): At least one sensitivity must be a maximum customer benefit scenario. This sensitivity should model the maximum amount of customer benefits described in RCW 19.405.040(8) prior to balancing against other goals.

RCW 19.405.040(8): In complying with this section, an electric utility must, consistent with the requirements of RCW 19.280.030 and 19.405.140, ensure that all customers are benefiting from the transition to clean energy: Through the equitable distribution of energy and nonenergy benefits and reduction of burdens to vulnerable populations and highly impacted communities; long-term and short-term public health and environmental benefits and reduction of costs and risks; and energy security and resiliency.

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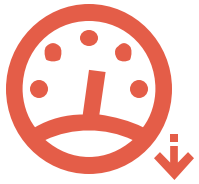
Benefits to maximize

Category	Metric
Energy Benefits	• Improve participation in clean energy programs • Local energy service provided
Non-energy Benefits	• Improved home comfort • Increase in quality and quantity of clean energy jobs
Public Health	• Improved community health • Improved community safety
Environmental Benefits	• Reduced GHG Emissions • Reduced land use change • Reduced noise exposure • Improved outdoor air quality • Reduced wildlife/plant community impacts
Cost and Risk Reduction	• Reduce energy cost burdens
Energy Security and Resiliency	• Decrease in frequency and duration of outages • Improved access to reliable clean energy

Conservation



Demand Response

Distributed Solar and Storage

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Recommended sensitivity

Maximize Distributed Energy Resources, Demand Response and Conservation

- Customer surveys suggest interest in local, distributed resources are desirable
- This sentiment is also reflected in the Portfolio Benefit Analysis, which scores distributed energy resources, demand response and Conservation higher than other resource groups
- What is maximized:
  - Distributed Energy Resources – full market potential of distributed energy resources as determined by National Renewable Energy Laboratory's Distributed Generation Market Demand (dGEN) model
  - Demand Response – select all demand response programs identified in 2025 IRP Conversation Potential and Demand Response Assessment (CPA)
  - Conservation – select highest cost conservation bundle from 2025 IRP CPA

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Discussion

- **What do you think of the proposed approach to the Maximum Customer Benefit Sensitivity?**
- **Are there other considerations or metrics we should consider?**

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Gas portfolio equity analysis

Hannah Wahl

Associate Energy Resource Planning Analyst, PSE

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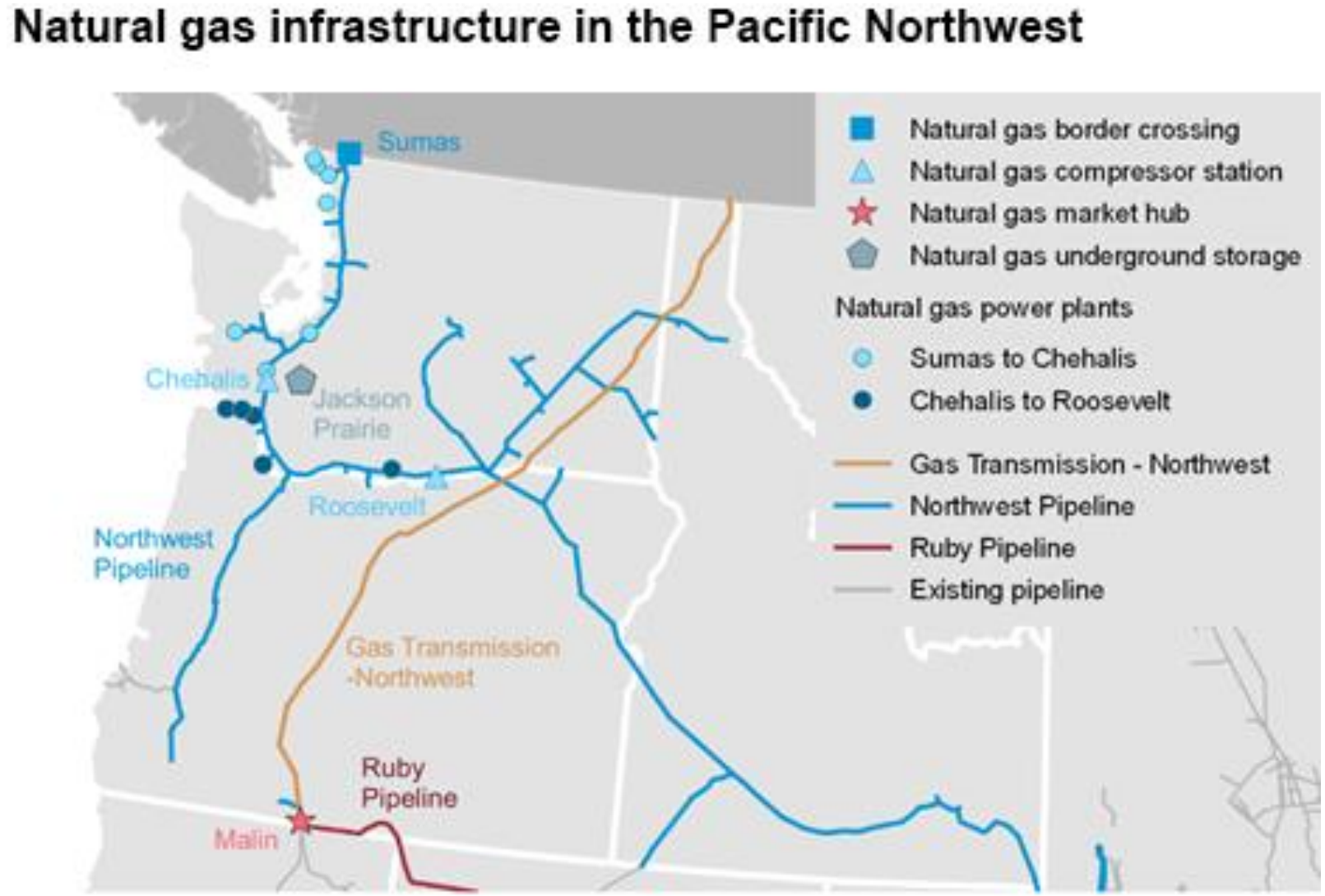
Regional overview scope of the Gas IRP

- Evaluates the least cost approach for delivering gas
- Performs equity analysis of regional pipelines and availability of fuels

Learn more in our November 6, 2023 Equity in Delivery System Planning public meeting



Source: U.S. Energy Information Administration

Resource alternatives in the Gas IRP

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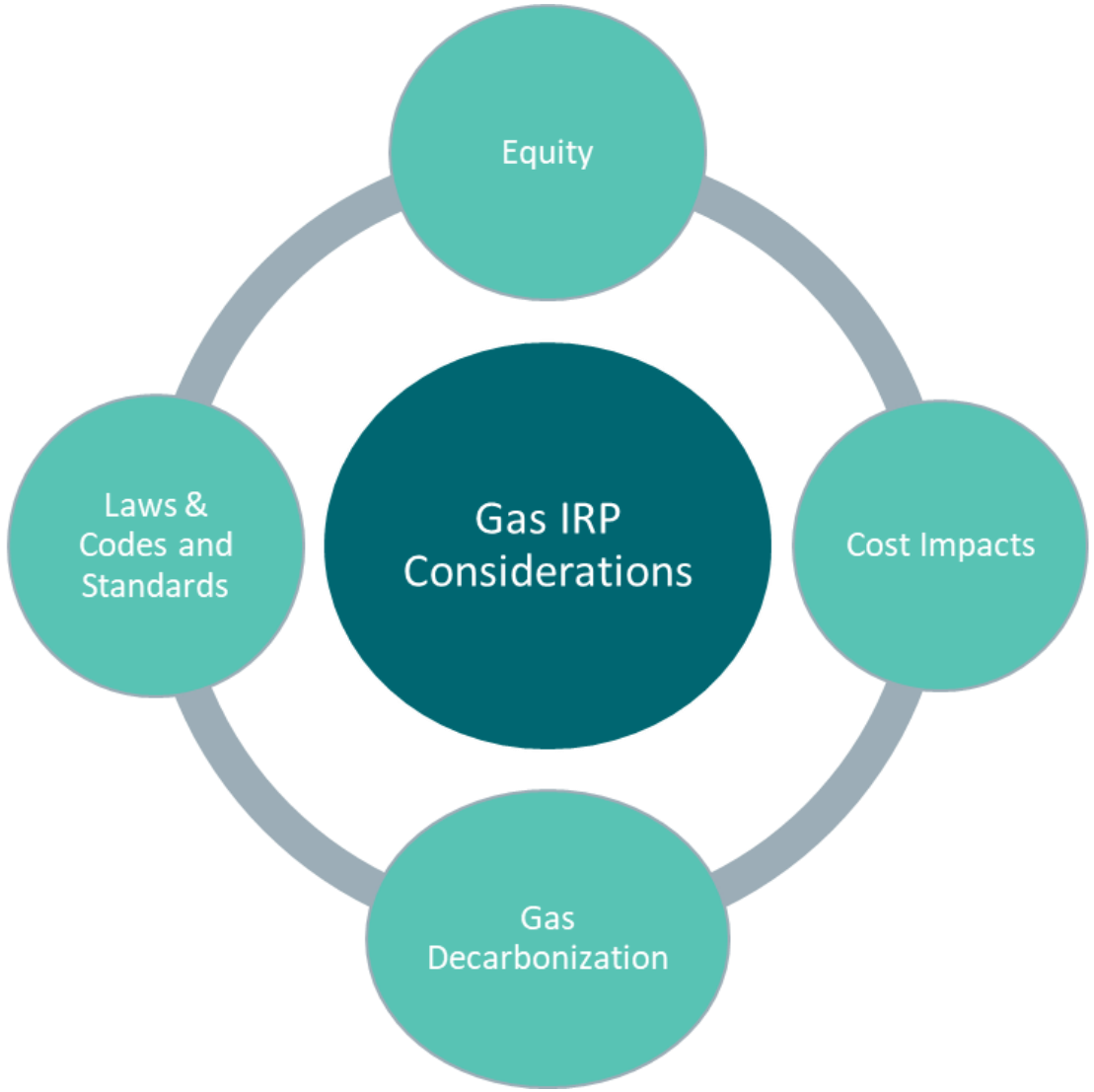
Equity as input to IRP decision framework



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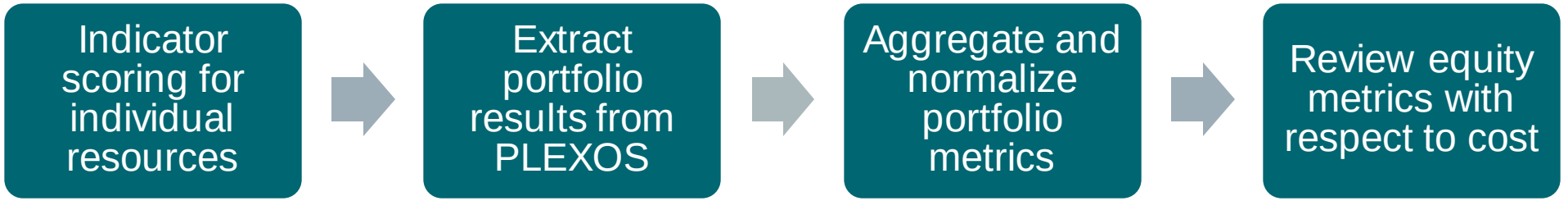
Gas Equity Scorecard Assessment

Distributive justice

- The Gas Equity Scorecard Assessment will predict how well a portfolio will enable distribution of burdens and benefits
- Same methodology as Electric Portfolio Benefit Analysis with different set of CBIs and resources
- Aligns with distribution system planning for consistency within PSE
- Trackable across future IRPs



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Customer Benefit Indicators

CETA category	Indicator	Metric
Energy Benefits Non-energy Benefits Reduction of burdens	Improved participation in clean energy programs from highly impacted communities and vulnerable populations	Number and percentage of participation in energy efficiency and electrification programs or services by PSE customers
Non-energy Benefits	Increase in Quality and quantity of clean energy jobs	Quantity of clean energy jobs available in the region
Non-energy Benefits	Improved home comfort	Dollar in net present value (NPV) for energy efficiency programs
Environment	Reduced Greenhouse gas emissions	Quantity of greenhouse gas emissions emitted by a resource
Resilience	Decrease frequency and duration of outages	Total system reliability
Risk Reduction Energy Security	Improved access to reliable, clean energy	Increase in reliable energy

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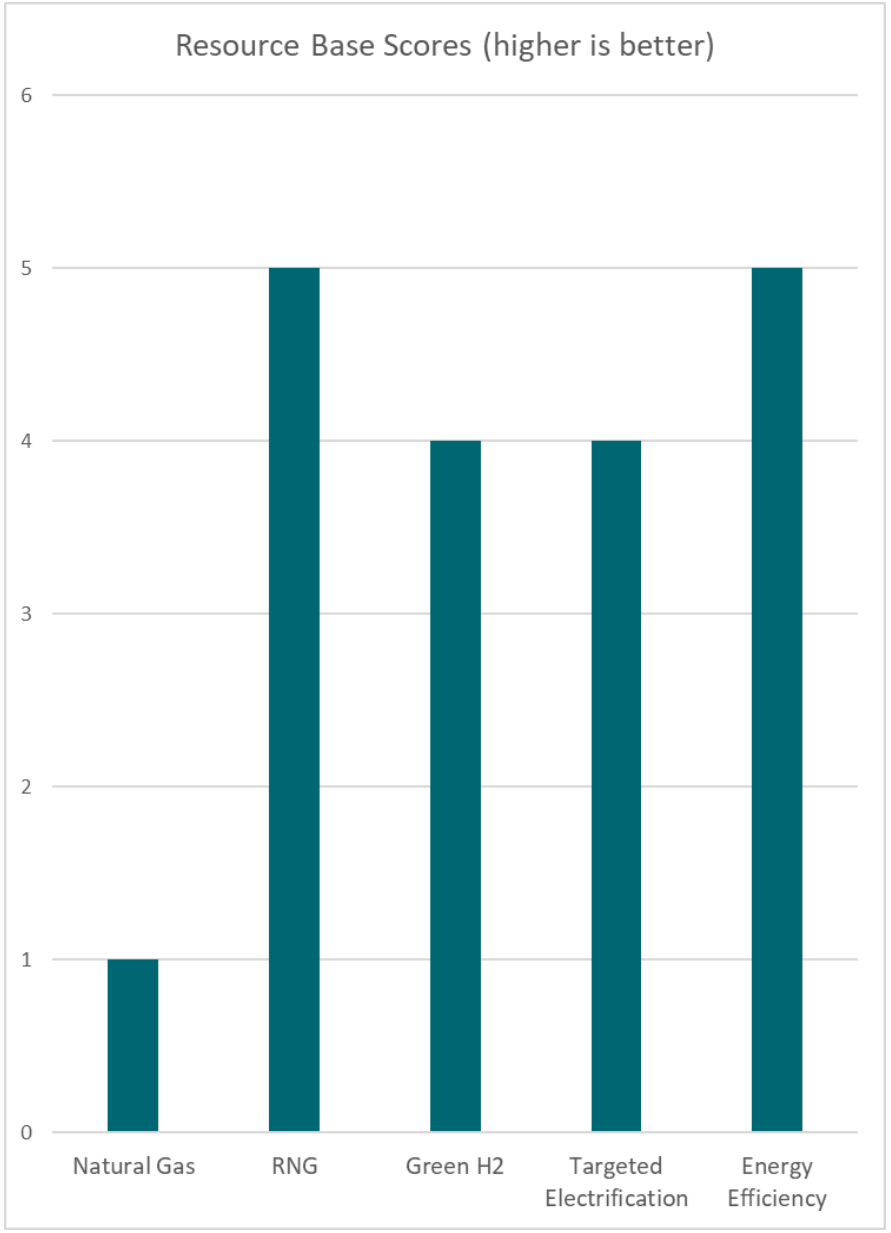
Resource scoring

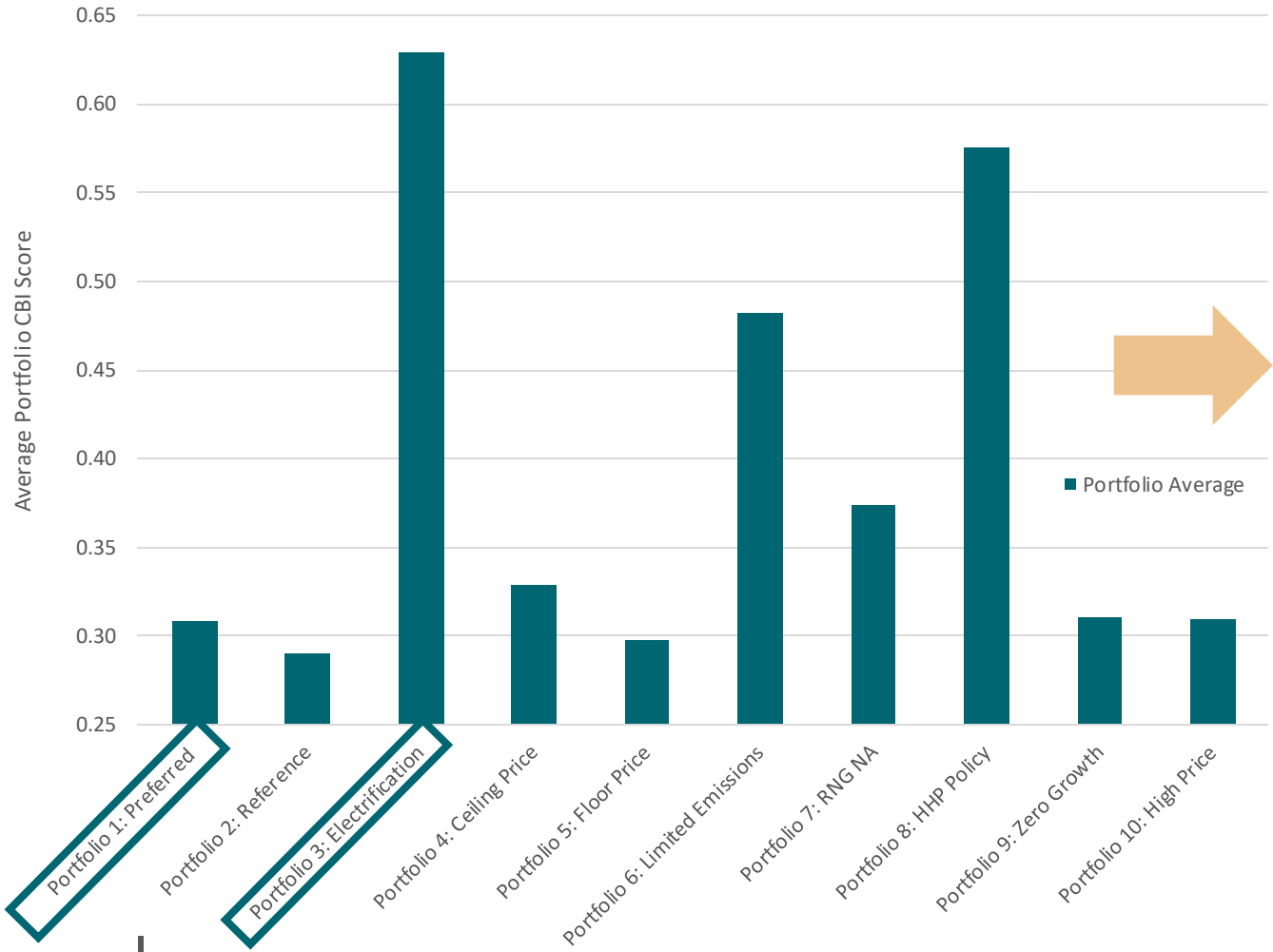
Indicator	Criteria Score = 1	Criteria Score = 0
Improved participation in clean energy programs from highly impacted communities and vulnerable populations	Energy Efficiency, Targeted Electrification, RNG	Natural Gas, Green H2
Increase in quality and quantity of clean energy jobs	RNG, Green H2, Targeted Electrification, Energy Efficiency	Natural Gas
Improved home comfort	Energy Efficiency, Targeted Electrification	Natural Gas, RNG, Green H2
Reduced Greenhouse gas emissions	RNG, Green H2, Targeted Electrification, Energy Efficiency	Natural Gas
Decrease frequency and duration of outages	Natural Gas, RNG, Energy Efficiency, Green H2	Targeted Electrification
Improved access to clean, reliable, energy	RNG, Green H2	Natural Gas, Targeted Electrification, Energy Efficiency

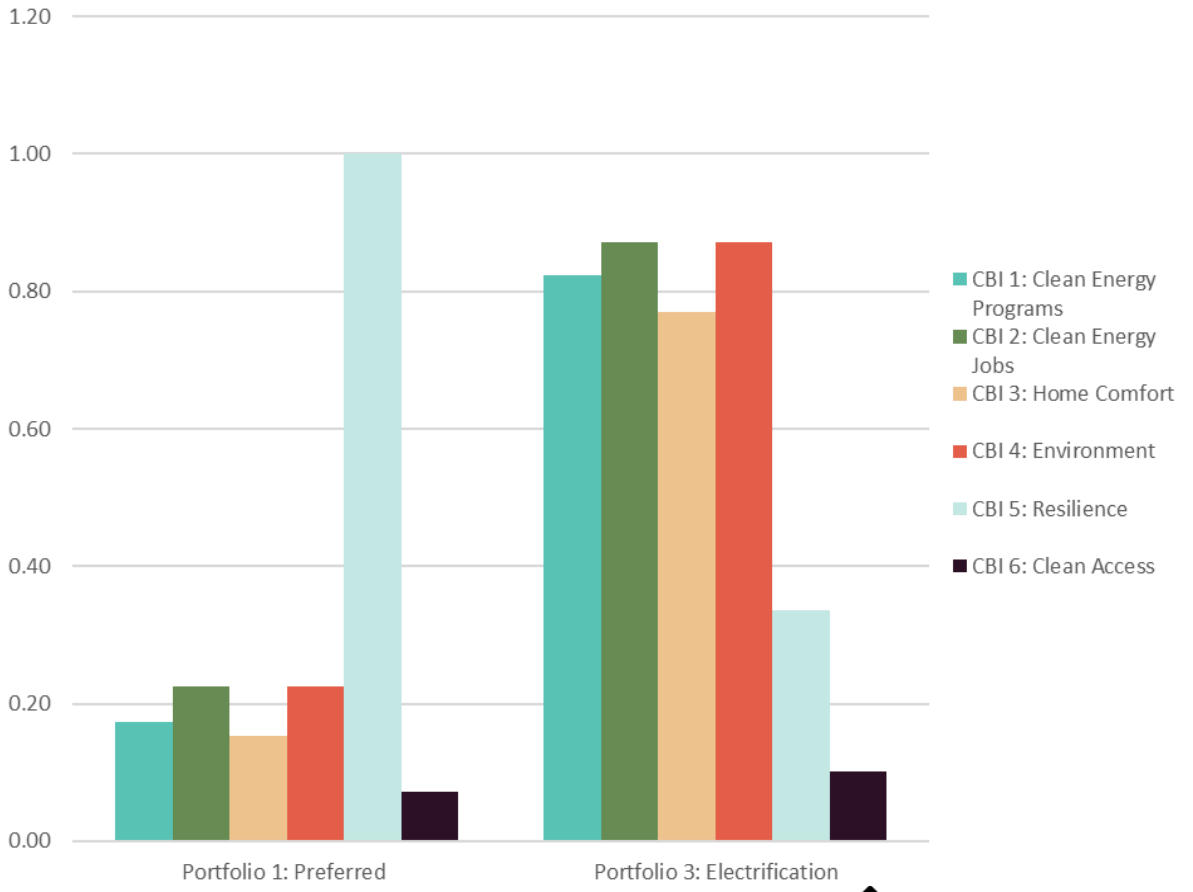
Note: Alternative Fuels consist of Renewable Natural Gas (RNG) and Green Hydrogen (Green H2)



PUGET SOUND ENERGY

To Illustrate the potential results we'll look at the 2023 Gas IRP portfolios scores





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Example of how the 2023 Gas IRP portfolios indicator scores vs. cost could look

*Note: this is an illustrative exercise, this was not completed for the 2023 Gas IRP

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Discussion

- **What do you think of the proposed approach for the gas portfolio equity analysis?**
- **Are there other considerations or metrics we should consider?**

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Next steps

Sophie Glass, Triangle Associates

June 12, 2024

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Upcoming activities

Date	Activity
June 19, 2024	Feedback form closes for this webinar
July 17, 2024	RPAG meeting: Gas modeling process, scenarios, and resource alternatives


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Thanks for joining us!

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Appendix

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Acronyms

Acronym	Meaning
BDR	Bill discount rate
CBI	Customer benefit indicator
CCA	Climate Commitment Act
CEIP	Clean Energy Implementation Plan
CETA	Clean Energy Transformation Act
DER	Distributed Energy Resources
EAG	Equity Advisory Group
EPR	PSE's 2023 Electric Progress Report
HELP	Home Energy Lifeline Program
IAP2	International Association of Public Participation
IRA	Inflation Reduction Act
IRP	Integrated Resource Plan
NG	Natural gas
MW	Megawatt
MWh	Megawatt hour

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