

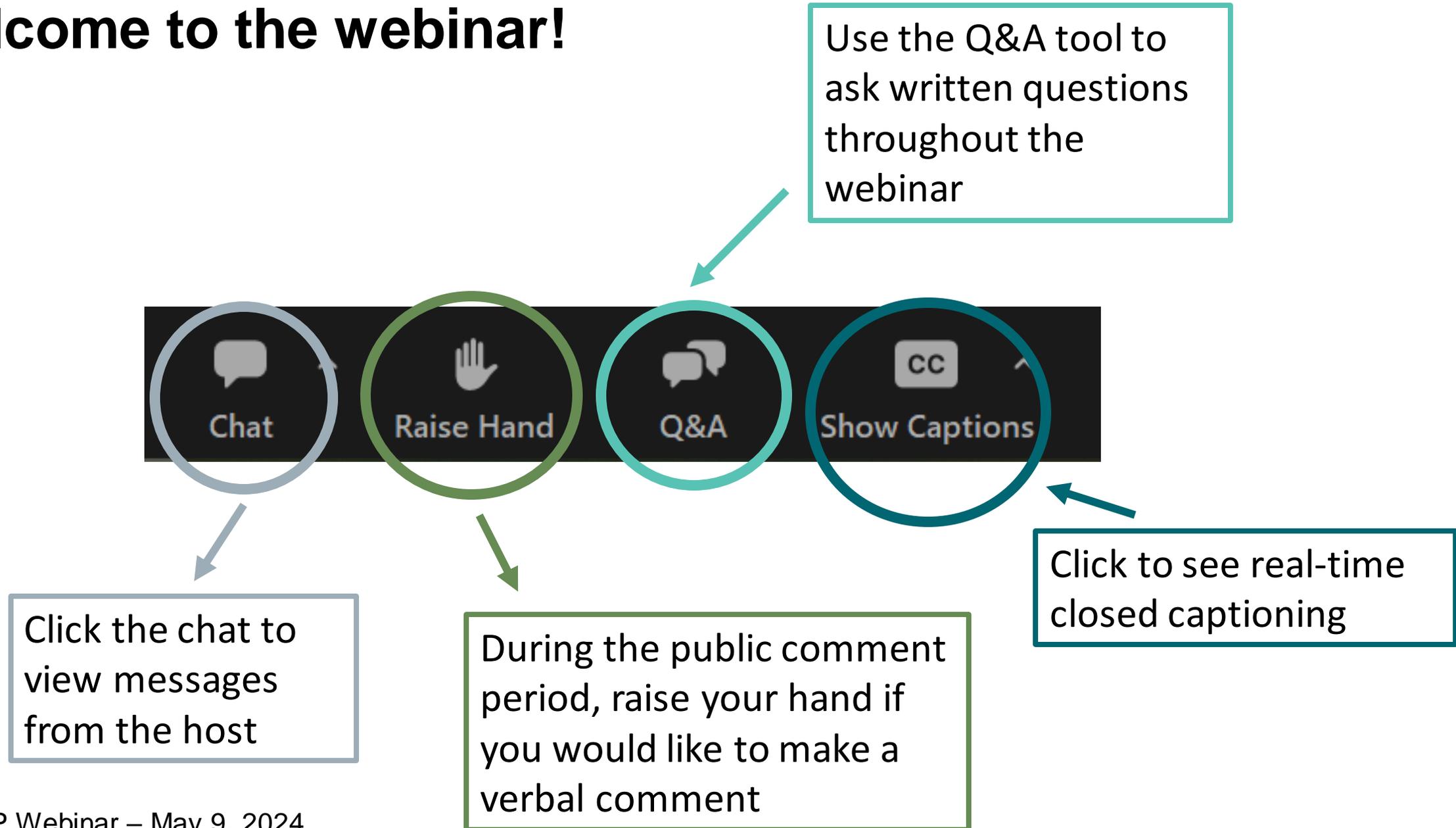
# Local and regional delivery infrastructure needs

Public webinar

May 9, 2024



# Welcome to the webinar!



# 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](mailto:irp@pse.com) for additional input to PSE
- Aim to focus on the webinar topic
- Public comments will occur after PSE's presentations

# Safety moment

## May is National Electrical Safety Month!

- Use outlet covers or caps to keep children safe
- Test your smoke alarms monthly
- Keep kites and balloons away from overhead power lines
- Never run extension cords through water or snow
- Wear gloves and footwear when operating electrical tools and store away from flammable liquids and gas

# Today's speakers

## **Sophie Glass**

Facilitator, Triangle Associates

## **Kara Durbin,**

Director, Clean Energy Strategy

## **Brian Tyson,**

Manager, Clean Energy Planning and Implementation

## **Eleanor Ewry**

Manager, Transmission Strategy and Planning

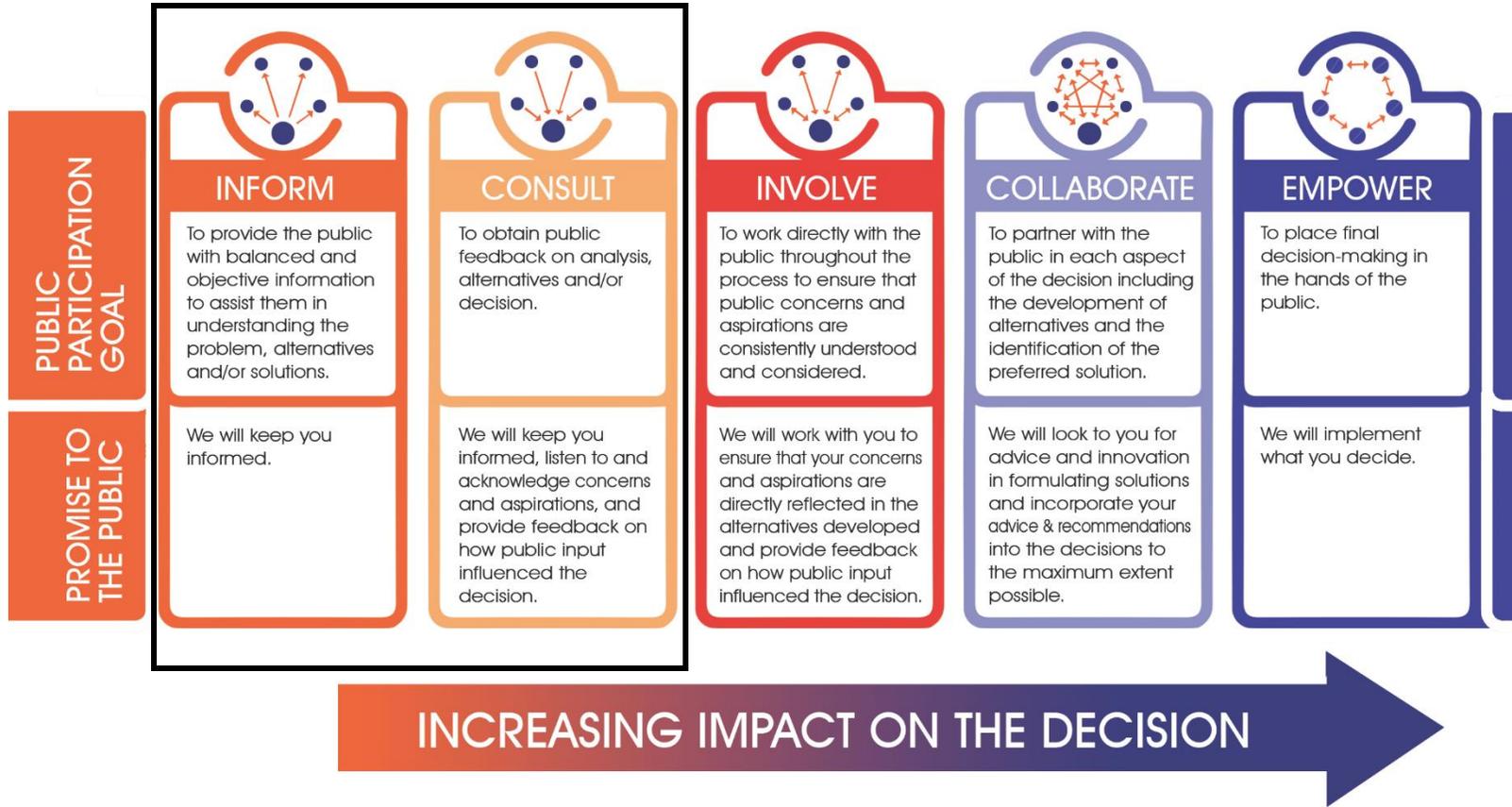
## **Reid Shibata**

Manager, Grid Modernization Strategy & Enablement, PSE

# Agenda

Time	Agenda Item	Presenter / Facilitator
4:00 p.m. – 4:05 p.m.	Introduction and agenda review	Sophie Glass, Triangle Associates
4:05 p.m. – 4:10 p.m.	Equity in the IRP	Kara Durbin, PSE
4:10 p.m. – 4:20 p.m.	Delivery infrastructure in Clean Energy Transformation Act (CETA) context	Brian Tyson, PSE
4:20 p.m. – 4:35 p.m.	Regional grid overview	Eleanor Ewry, PSE
4:35 p.m. – 4:50 p.m.	Local grid overview	Reid Shibata, PSE
4:50 p.m. – 5:00 p.m.	Next steps and public comment opportunity	Sophie Glass, Triangle Associates
5:00 p.m.	Adjourn	All

# IAP2 Spectrum



# Equity in the IRP

Kara Durbin, PSE



# Upcoming equity in the IRP discussions

**Equity Advisory  
Group**  
May 21, 2024

**IRP Public  
Webinar**  
June 6, 2024

**RPAG webinar**  
June 12, 2024

Preliminary topics:

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

# Delivery infrastructure in CETA context

Brian Tyson, PSE



# 2022-2025 Clean Energy Implementation Plan (CEIP) review

## Goals and targets



2025	<ul style="list-style-type: none"> <li>Coal-free electricity</li> <li>Increase from 35% to 63% clean electricity</li> </ul>
2030	<ul style="list-style-type: none"> <li>Carbon-neutral electric system</li> </ul>
2045	<ul style="list-style-type: none"> <li>100% clean electricity</li> </ul>

## Customer benefits

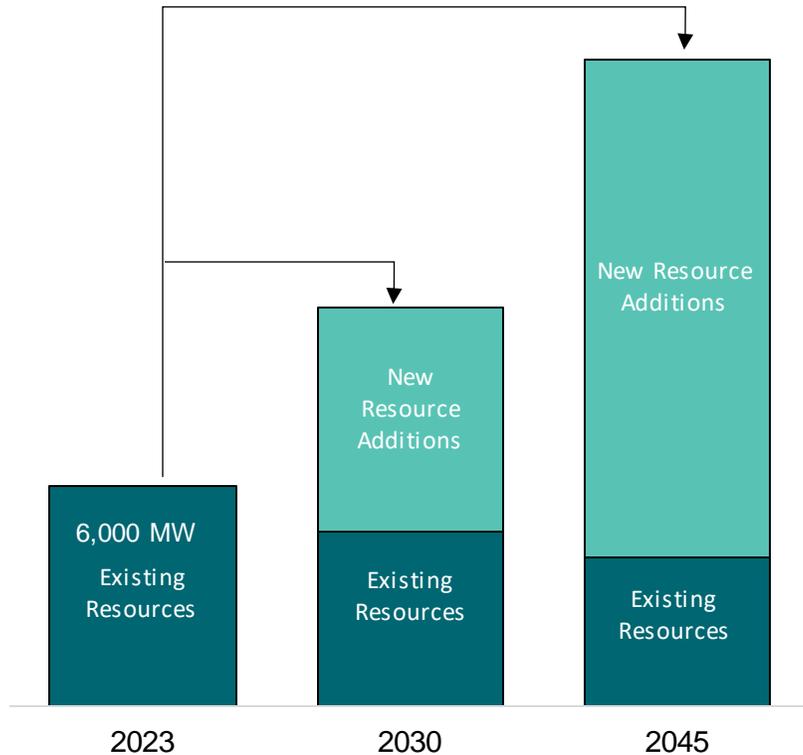
	Energy benefits
	Non-energy benefits
	Burden reduction
	Public health
	Environment
	Cost reduction
	Energy security
	Risk reduction
	Resiliency

## 2025 clean resources

	<p>Utility-scale renewables</p>  <p>800 MW (approx.)</p>
	<p>Distributed renewables</p>  <p>80 MW</p>
	<p>Demand response</p>  <p>86 MW</p>
	<p>Energy efficiency</p> <p>934,337 MWh</p>

# Electric generating resources need estimated to almost double by 2030

**+ 15,000 MW**  
new resources



## By 2030 that's equivalent to\* ...

- + 23 Wild Horse size wind projects
- + 5 Whitehorn size peaking facilities
- + 700 shipping containers for battery storage  
~97 acres (4.2 million sq. ft.) double stacked
- + 35,500 residential solar installations
- + 450 school community solar projects
- + 190 commercial solar installations

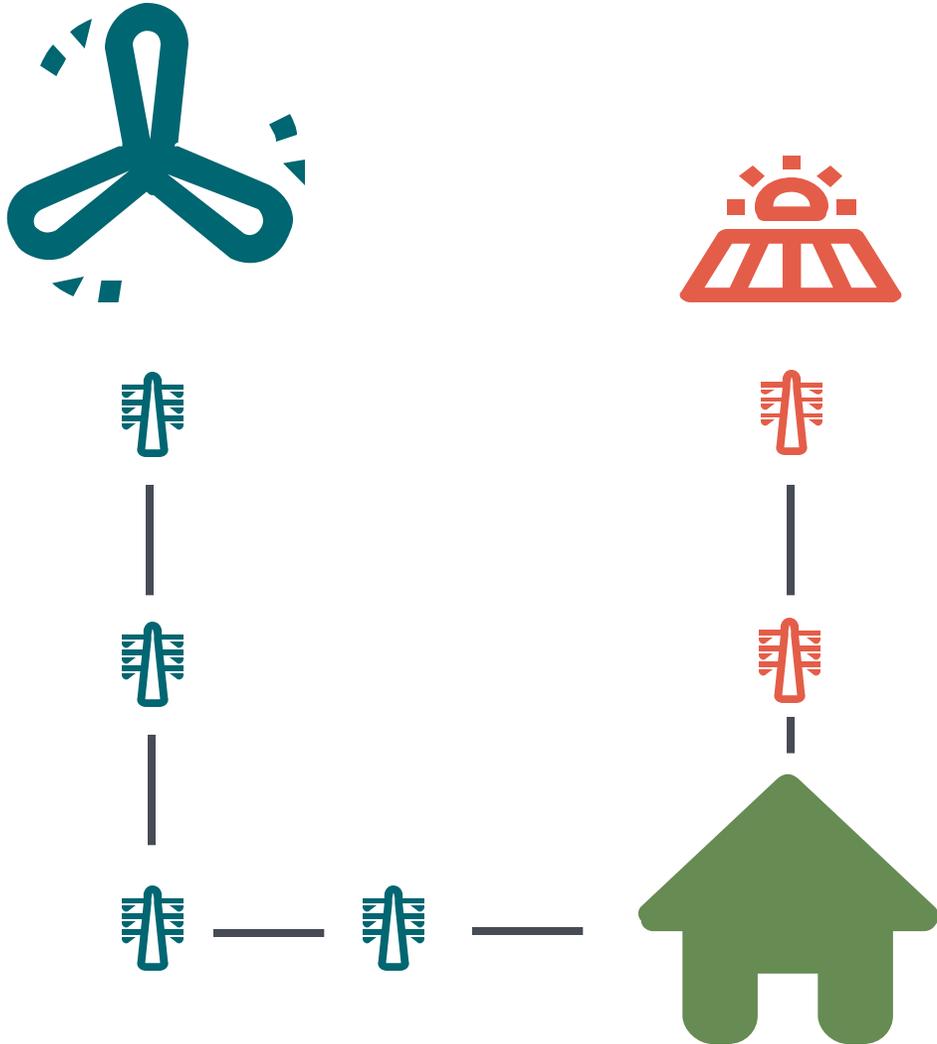
\*Equivalent measures are illustrative

# Regional grid overview

Eleanor Ewry, PSE

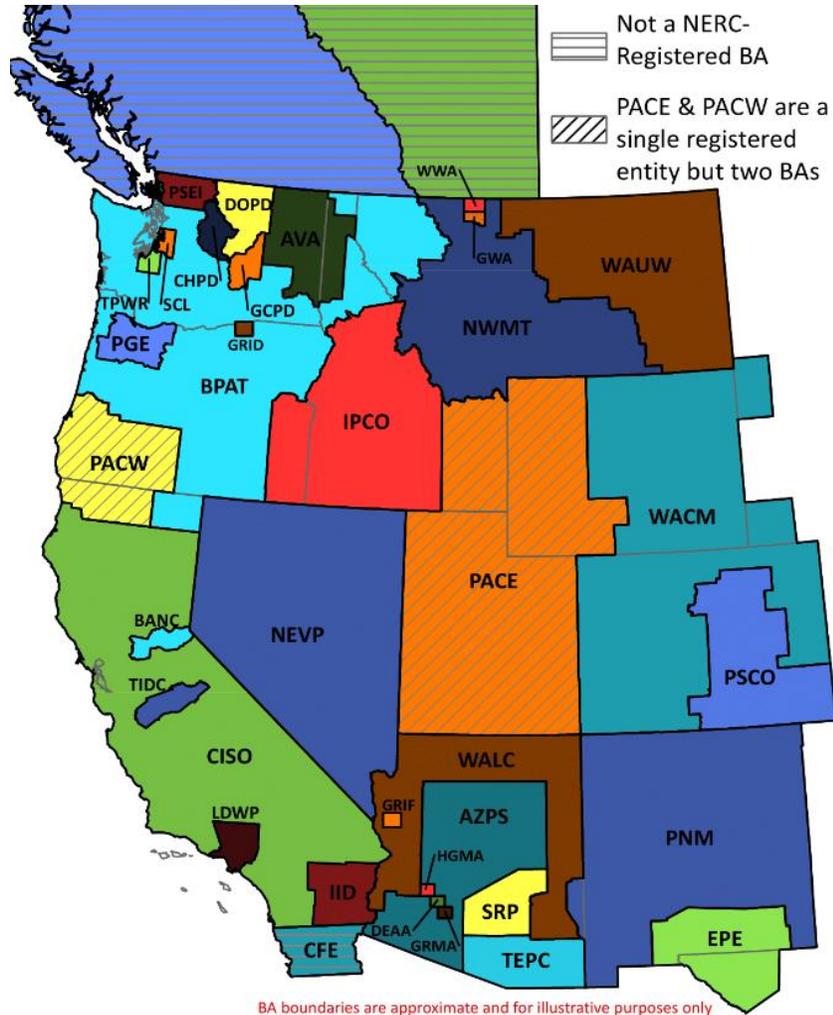


# How transmission constraints shape power delivery



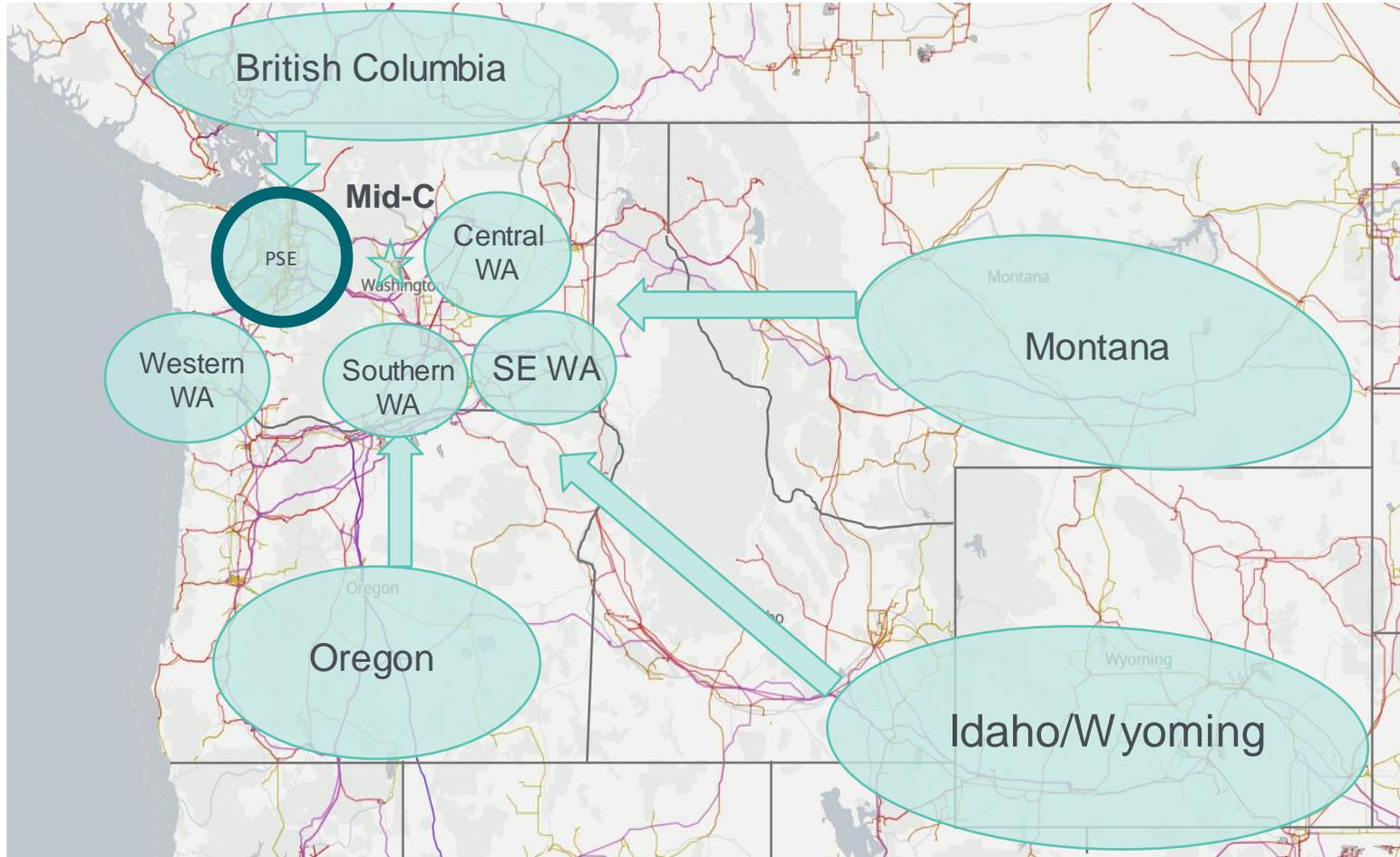
- PSE uses a capacity expansion model for generation planning
- The generation is optimized to meet PSE loads, peak capacity, and CETA targets
- Transmission constraints can shape what types of generation and amount of power that can be delivered back to PSE
- Cost and capacity are key transmission constraints

# Challenge: acquiring transmission capacity for renewable generation



- PSE has a relatively small territory, localized in NW Washington
- Renewable resources are scattered across the Western Electricity Coordinating Council (WECC)
- PSE must work with surrounding balancing authorities to secure transmission across the WECC

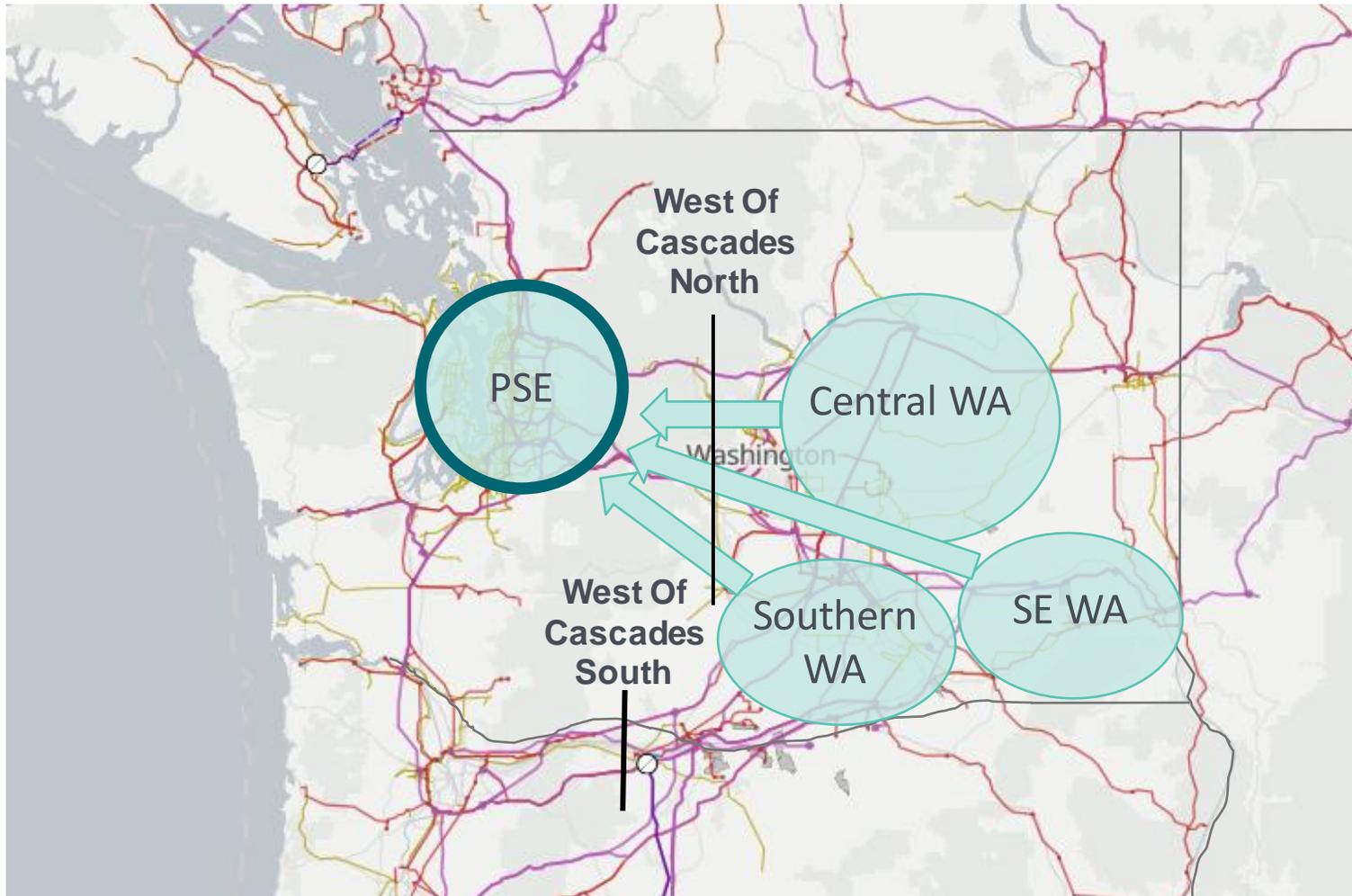
# Clean Energy Zones in the West



Open Infrastructure Map: <https://openinframap.org/#2/26/12>

- PSE identified nine regions with high potential for renewable energy development
- Primarily includes a mix of wind, solar, and hybrid resources
- Resources are geographically diverse, and located remote from PSE's service territory

# PSE relies on BPA to provide regional transmission



- Bonneville Power Administration (BPA) owns and operates the regional transmission system
- Existing BPA paths across the Cascades are at capacity
- No additional capacity will be made available without significant transmission builds
- Current BPA timeline for new capacity is ~2040

# Transmission options PSE is exploring

Given the constraints on the regional transmission for new resources, PSE will explore several options:

- Co-location of resources into existing locations to optimize transmission
- Bonneville Power Administration (BPA) solution in 2040
- PSE self-build solution
- Joint BPA and PSE solution

# Local grid overview

Reid Shibata, PSE



# Puget Sound Energy's delivery system overview

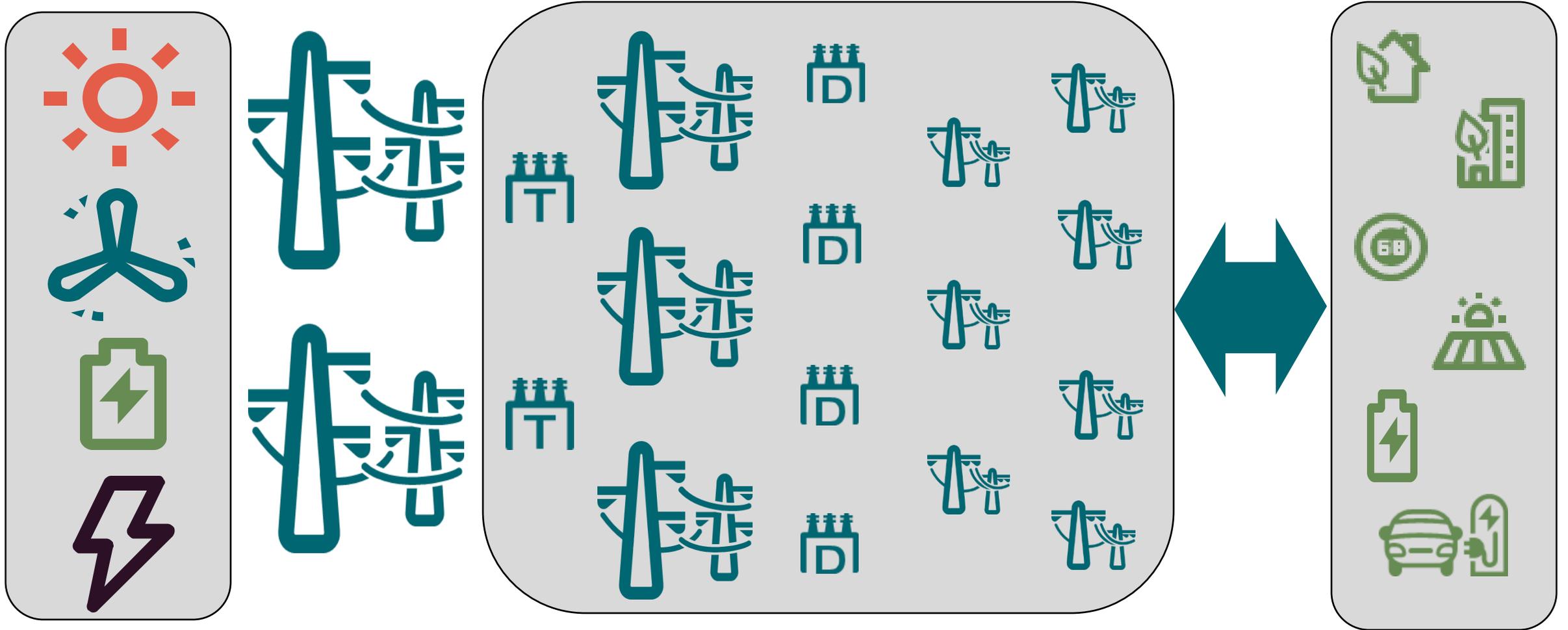
- Service area: 6,000 square miles, primarily in Western Washington
  - Electric – 8 Counties
  - Natural Gas – 6 Counties
- Over 1.2 million electric customers;
- Nearly 900,000 natural gas customers
- 2,600 miles electric transmission system
- 23,700 miles electric distribution system



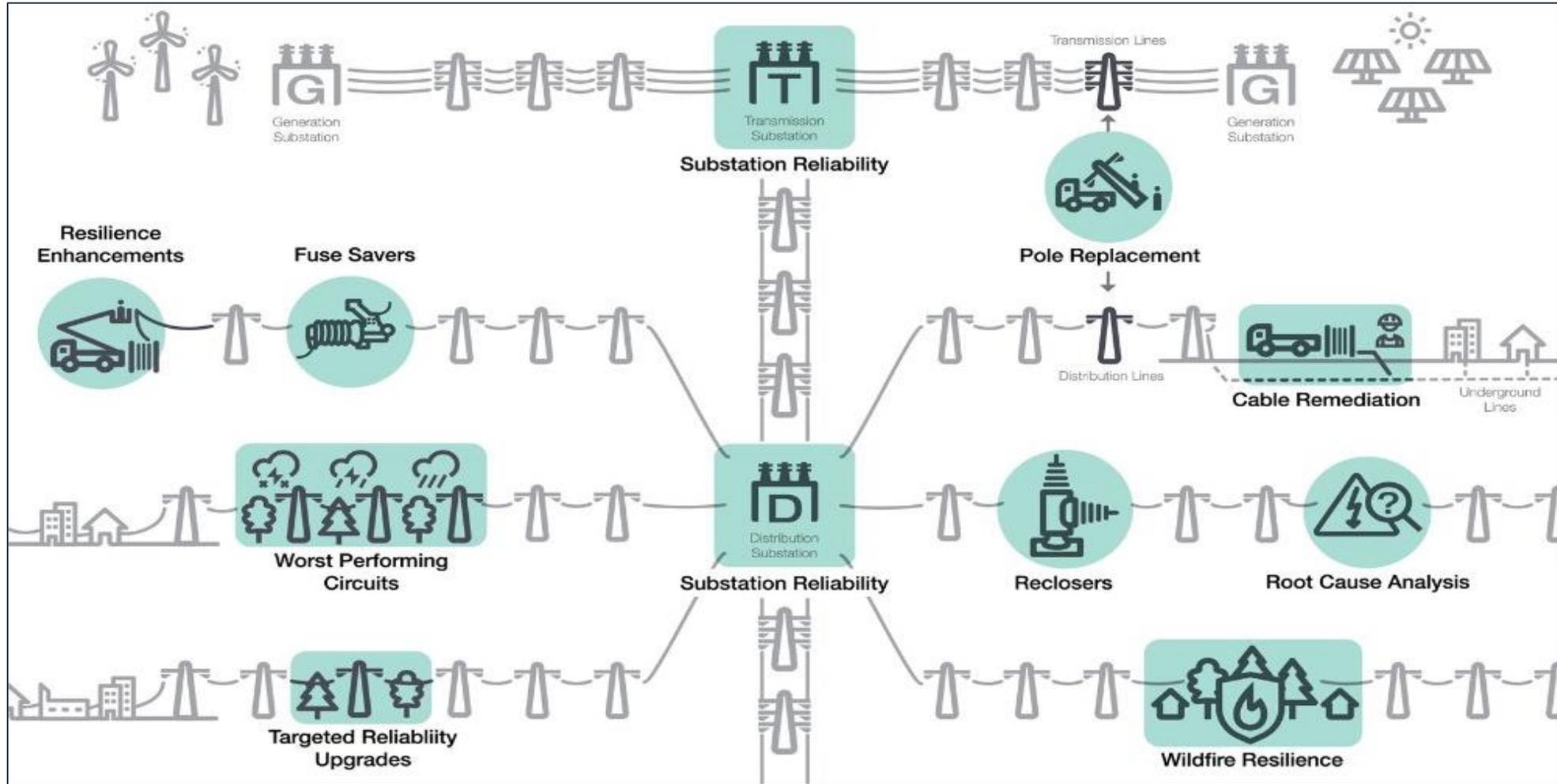
*PSE's transmission & distribution system can wrap one full rotation around Earth's equator!*



# Delivery system overview



# How PSE sustains the grid and prepares for a clean energy future

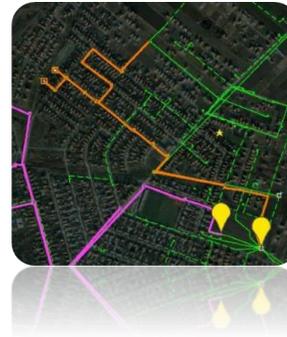


# We must advance the capabilities of the grid to enable the two-way flow of clean energy

- **Data and Foundational Technology**



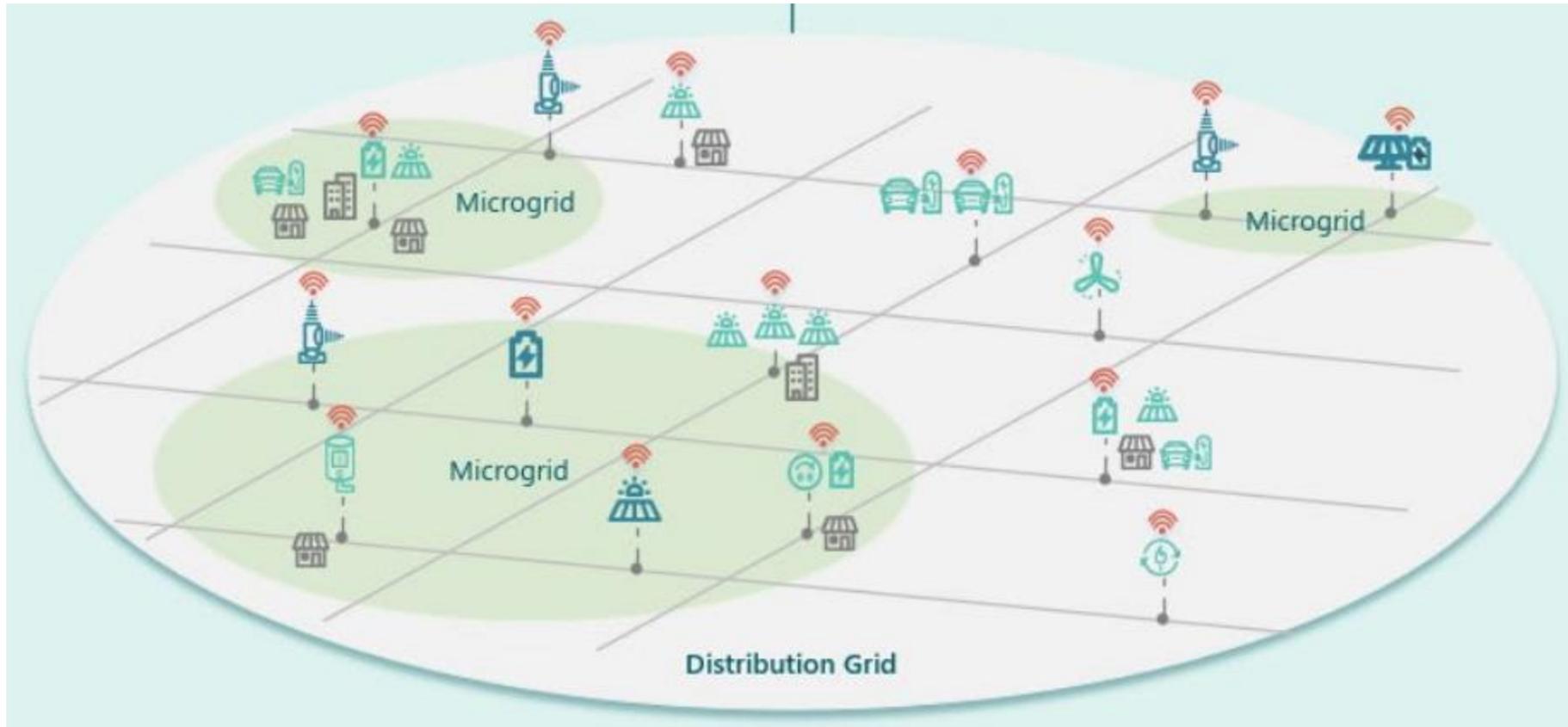
- **Automation & Optimization**



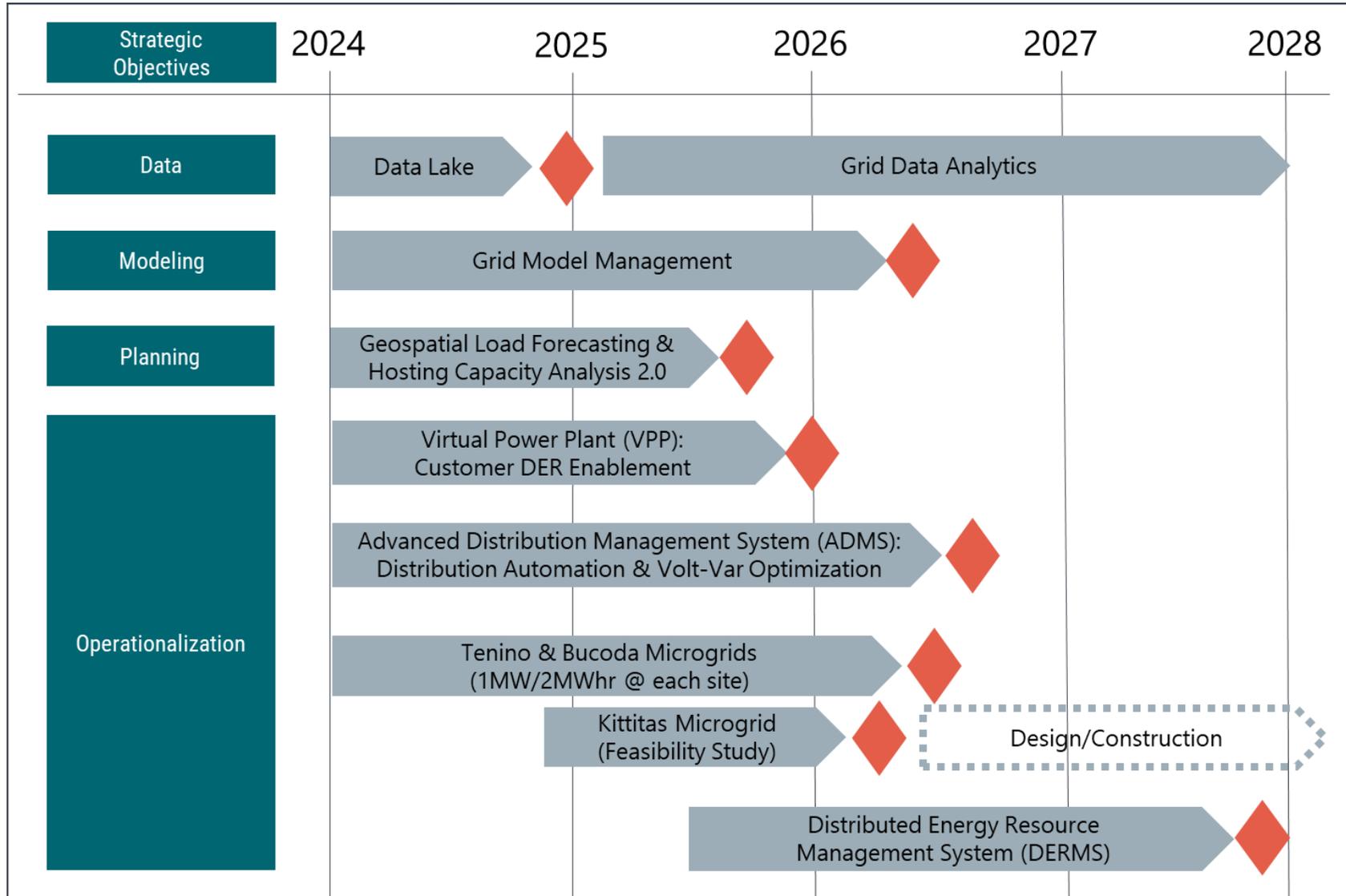
- **Distributed Energy Resources (DER) Enablement**



# Orchestration of customer distributed energy resources (DER) and microgrids



# Grid DER technology enablement roadmap



# Next steps

Sophie Glass, Triangle Associates

May 9, 2024



# Upcoming activities

Date	Activity
May 16, 2024	<a href="#">Feedback form</a> closes for this webinar
May 14, 2024	Western Resource Adequacy Program (WRAP) overview RPAG meeting



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Leave a voice message at 425-818-2051

# Public comment opportunity

Please raise your “hand” if you would like to provide comment.



**Thanks for joining us!**



# Appendix



# Acronyms

Acronym	Meaning
ADMS	Advanced Distribution Management System
BPA	Bonneville Power Administration
CCA	Climate Commitment Act
CEIP	Clean Energy Implementation Plan
CETA	Clean Energy Transformation Act
CEZ	Clean energy zone
DER	Distributed Energy Resources
DERMS	Distributed Energy Resource Management System
IAP2	International Association of Public Participation
IRA	Inflation Reduction Act
IRP	Integrated Resource Plan
kW	Kilowatt
kWh	Kilowatt hour
MW	Megawatt
MWh	Megawatt hour
VPP	Virtual power plant
WECC	Western Electricity Coordinating Council
WRAP	Western Resource Adequacy Program