

# Portland General Electric Transmission System

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# Who We Are

Oregon's Largest Utility

Sixth Largest Publicly Traded  
Company in Oregon

Serve ~875,000 Retail Customers  
with ~20 million MWh/year

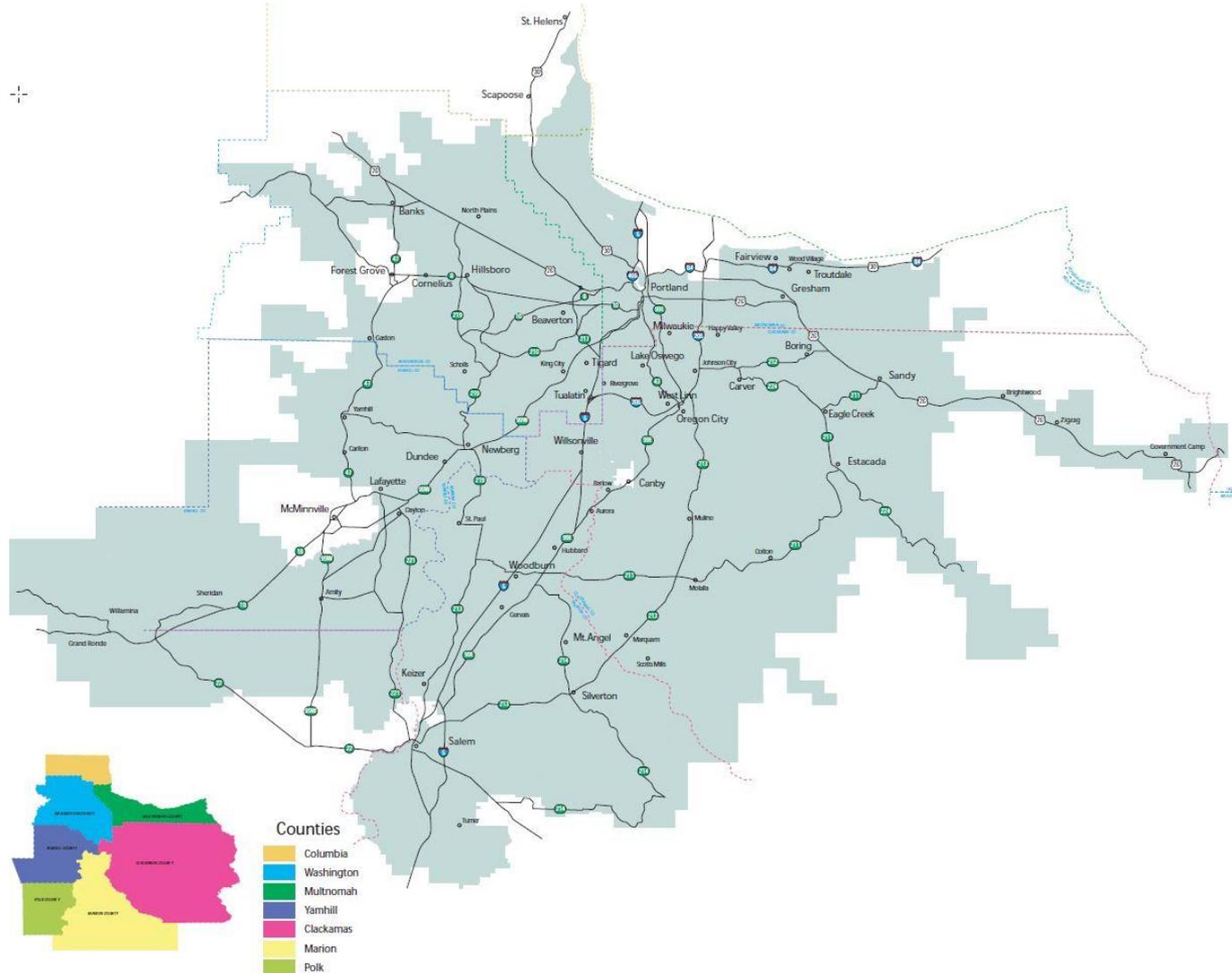
~40 percent of load served from  
Carbon Free sources

Targeting 80% Carbon Free by  
2050



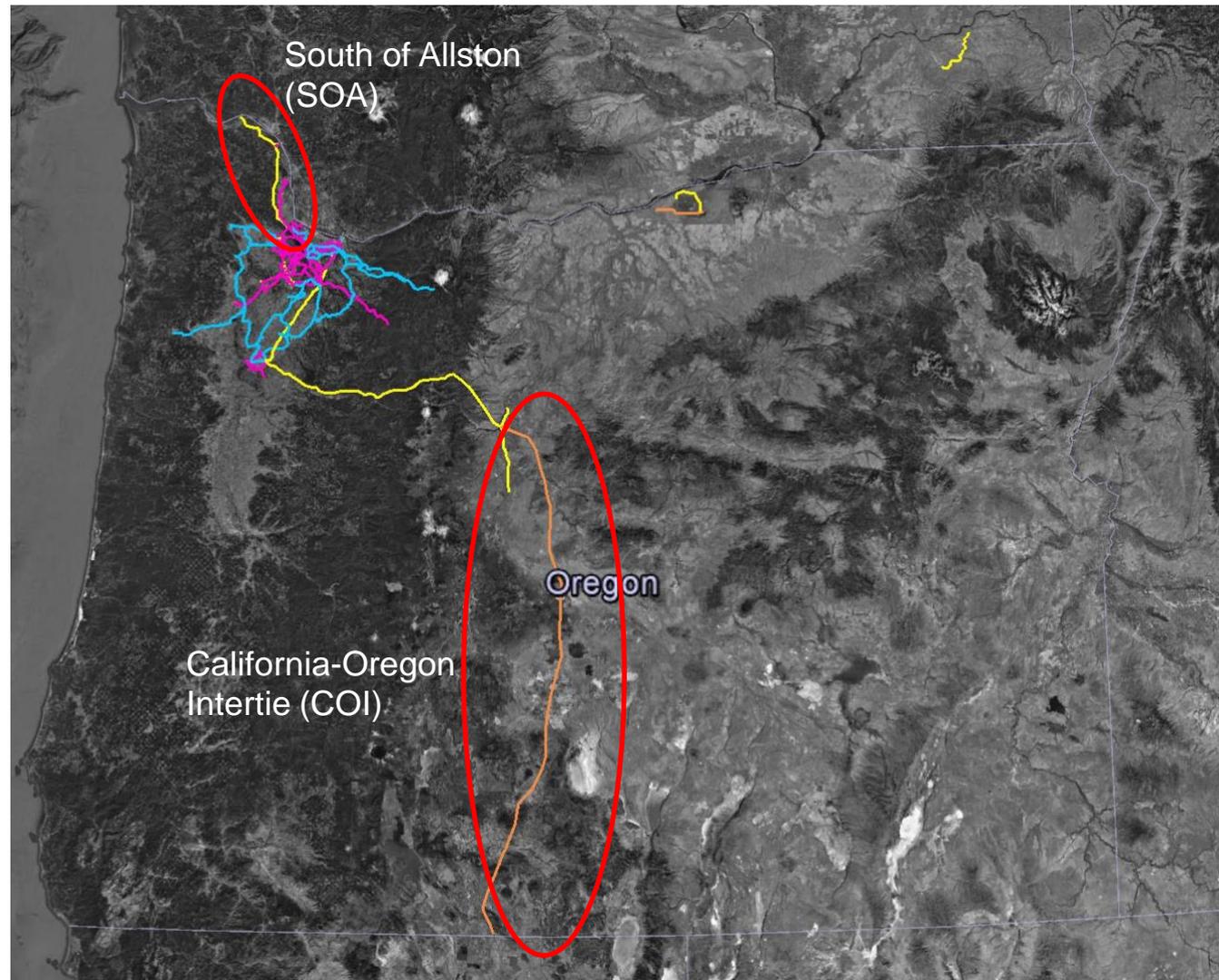
# Service Territory

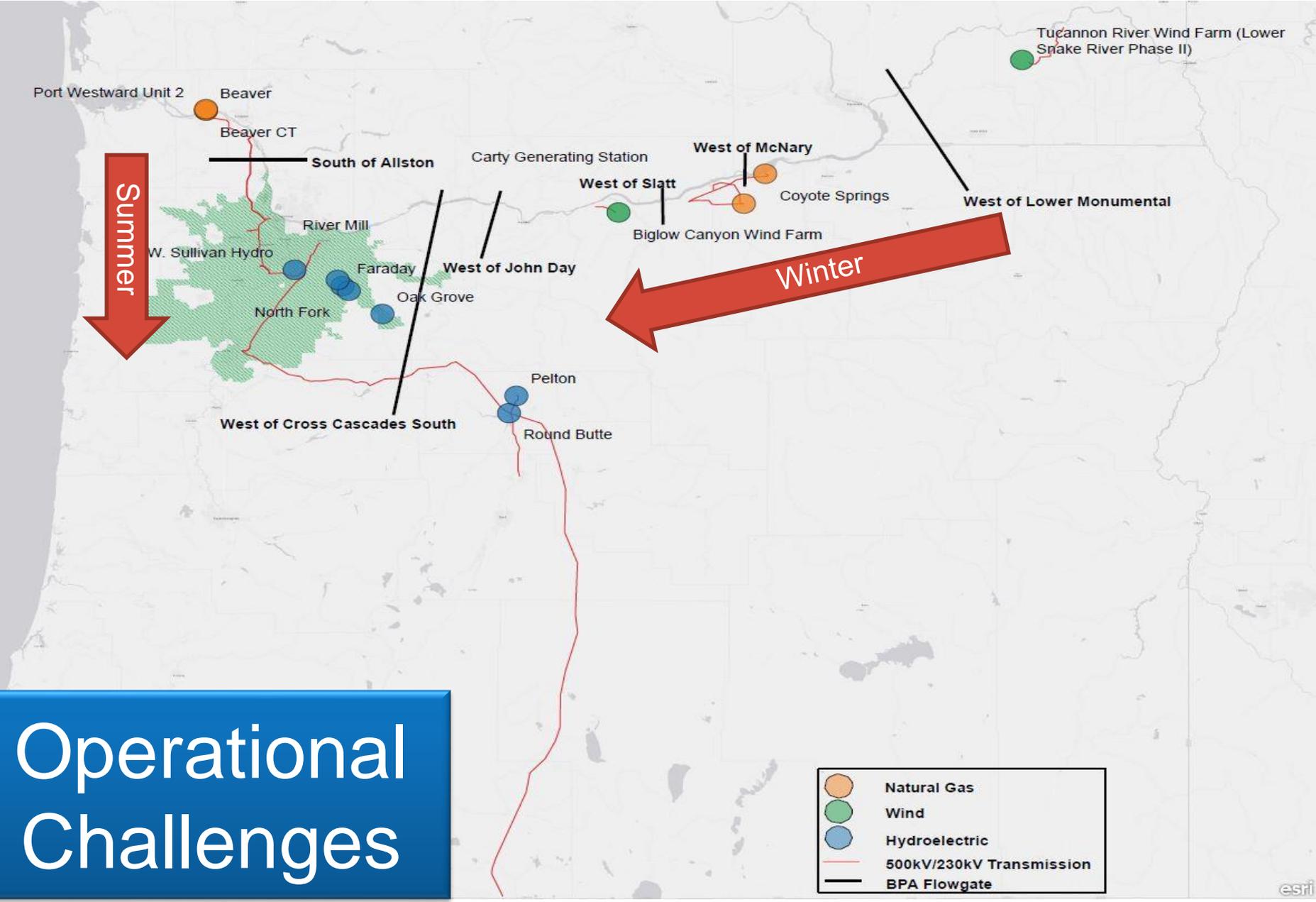
- Population of ~ 1.9 Million
- ~ 4,000 Square Miles
- 3,976 MW 2017 Peak Load
- 27,457 Distribution Circuit Miles
- 1,250 Transmission Circuit Miles



# PGE Transmission/Distribution Systems

- System largely concentrated between Portland and Salem
- Consists mainly of 115kV and other lower voltages
- Joint-owner in multiple major higher voltage paths





# Operational Challenges



esri

# Interconnections and Joint Paths

Heavily interconnected to BPA with capacity currently at least 4500MW

- Used primarily for importing remote generation

Interconnect to PAC West, but much lower capacity ranging from 325-400MW

- Full capacity used for EIM participation

Interconnect at various voltages with Salem Electric, EWEB, Forest Grove L&P, and several Public Utility Districts (PUD)

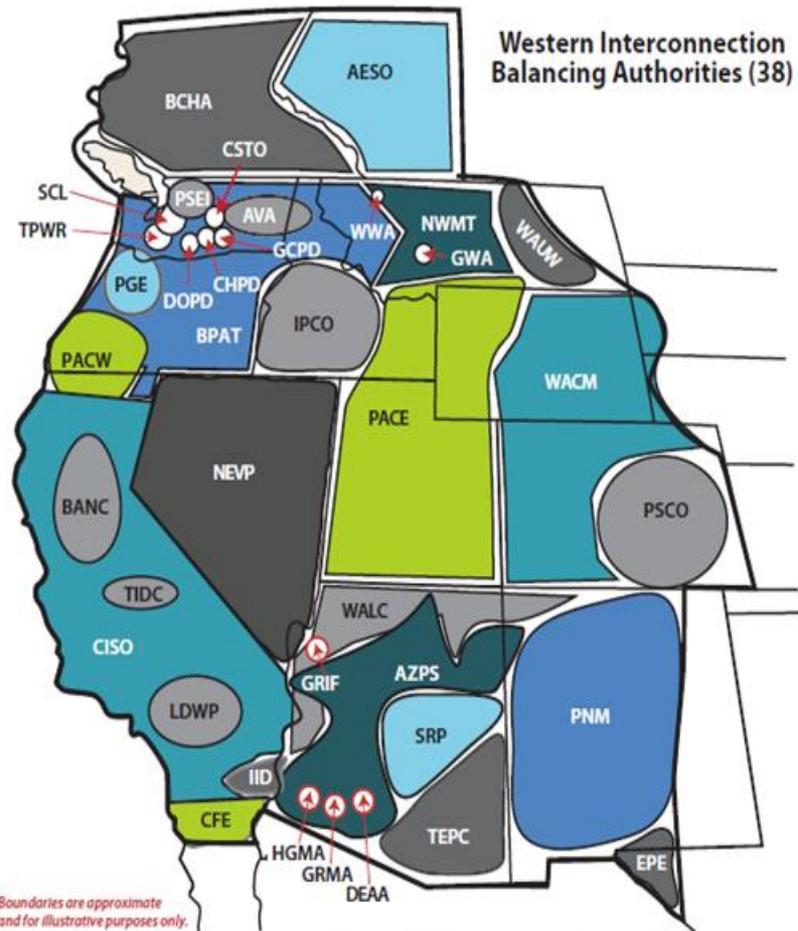
Joint owner of South of Allston with BPA and PAC West

- Normal path rating of 3100MW (N-S)
- PGE Transmission owns ~26% depending on rating
- Used by PGE Operations to deliver generation to load

Joint owner of California-Oregon Intertie

Normal path rating of 4800MW (N-S)

- PGE owns ~20%
- Capacity sold to multiple parties, including PGE load-serving entity



Source: Western Electricity Coordinating Council

# Transmission Functions

- **Balancing Authority (BA)** - The responsible entity that integrates resource plans ahead of time, maintains load-interchange-generation balance within a Balancing Authority Area, and supports Interconnection frequency in real time.
- **Transmission Operator (TOP)** - The entity responsible for the reliability of its “local” transmission system, and that operates or directs the operations of the transmission Facilities.
- **Transmission Owner (TO)** - The entity that owns and maintains transmission Facilities.
- **Transmission Planner** - The entity that develops a long-term (generally one year and beyond) plan for the reliability (adequacy) of the interconnected bulk electric transmission systems within its portion of the Planning Authority area.
- **Transmission Service Provider (TSP)** - The entity that administers the transmission tariff and provides Transmission Service to Transmission Customers under applicable Transmission Service agreements.

# Transmission Planning

- Required by FERC to conduct studies for reliability, compliance, and to identify future transmission needs
- Local and regional planning conducted in open and transparent process
- Bi-annual regional transmission plan – 10 year horizon
  - PGE is a member of Northern Tier Transmission Group (NTTG)
- Bi-annual local transmission plan – 10 year horizon
  - Near Term (1-5 years) and Longer Term (6-10+)
- Inter-regional transmission planning coordination – facilitated by NTTG
- Annual load and resource forecasts
- Reliability and Compliance Studies completed annually – 1, 5, 10 year horizons

# Questions?

