Decarbonization in PGE's Service Area

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Who we are

Oregon headquartered employer since 1889

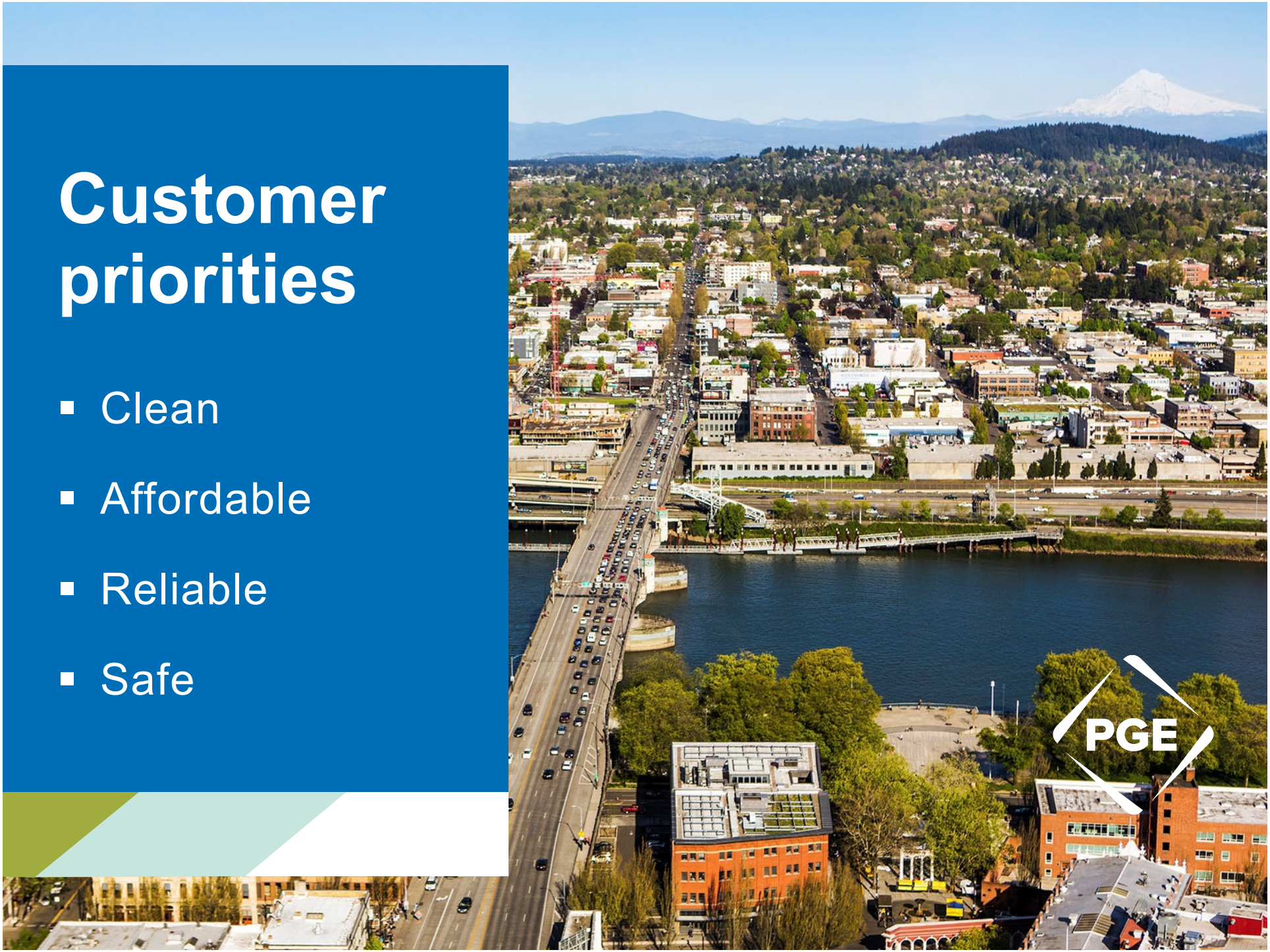
- Operate in 10 counties in Oregon
- Nearly 3,000 employees
- 45,000 annual volunteer hours

Customer focused

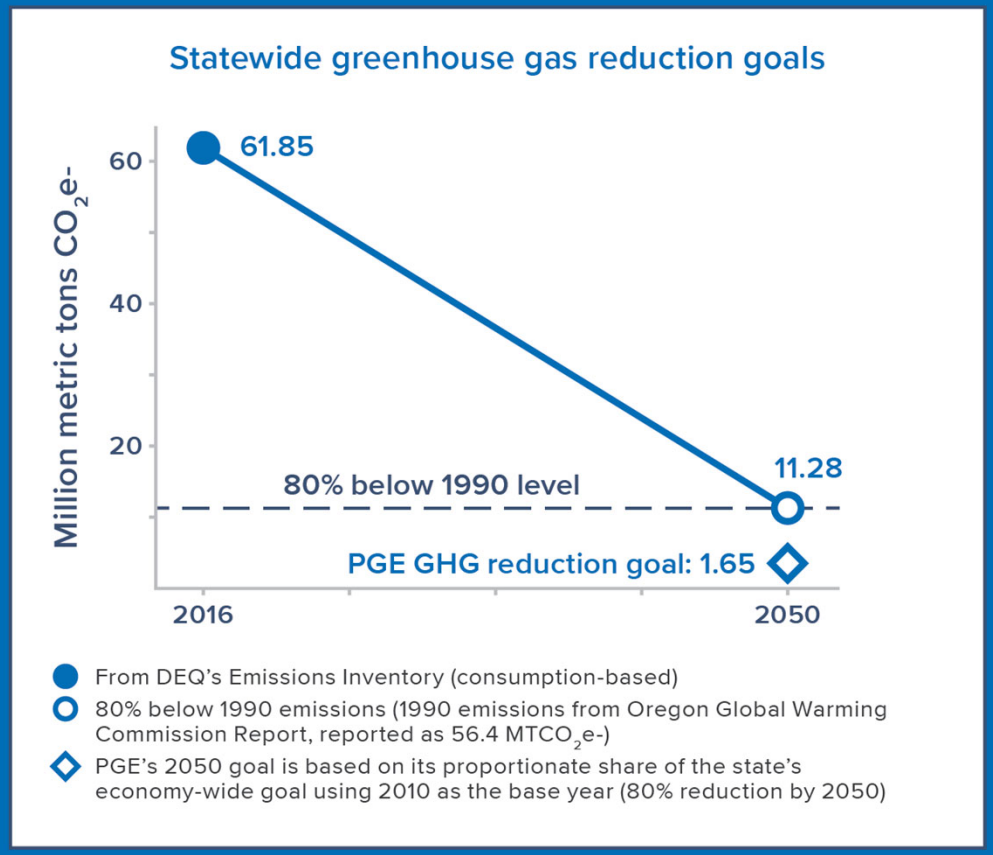
- Serve 50% of Oregon's population and 75% of the state's commercial and industrial activity
  - Nearly 900,000 customer accounts
- Largest voluntary residential renewable program in the country

Customer priorities

- Clean
- Affordable
- Reliable
- Safe



PGE Clean Energy Vision



PGE's Deep Decarbonization Study:

The Road to a Clean Energy Future

PGE's decarbonization study

- Study developed **economy-wide** decarbonization pathways across PGE's service area (including transportation and non-electric end uses in buildings and industry)
- Emissions target: **80% reduction by 2050 economy-wide**, consistent with guidance from the scientific community for limiting global temperature rise to 2°C
- PGE commissioned the study to address key questions:
  - How might energy services be met in PGE's service area in a decarbonized future?
  - What are the implications for PGE's electricity demand – both magnitude and shape?
  - How much renewable infrastructure will be needed to support economy-wide decarbonization and how might the system remained balanced?

Pathways investigated

High Electrification

Fossil fuel consumption is reduced by electrifying end-uses to the extent possible and increasing renewable electricity generation

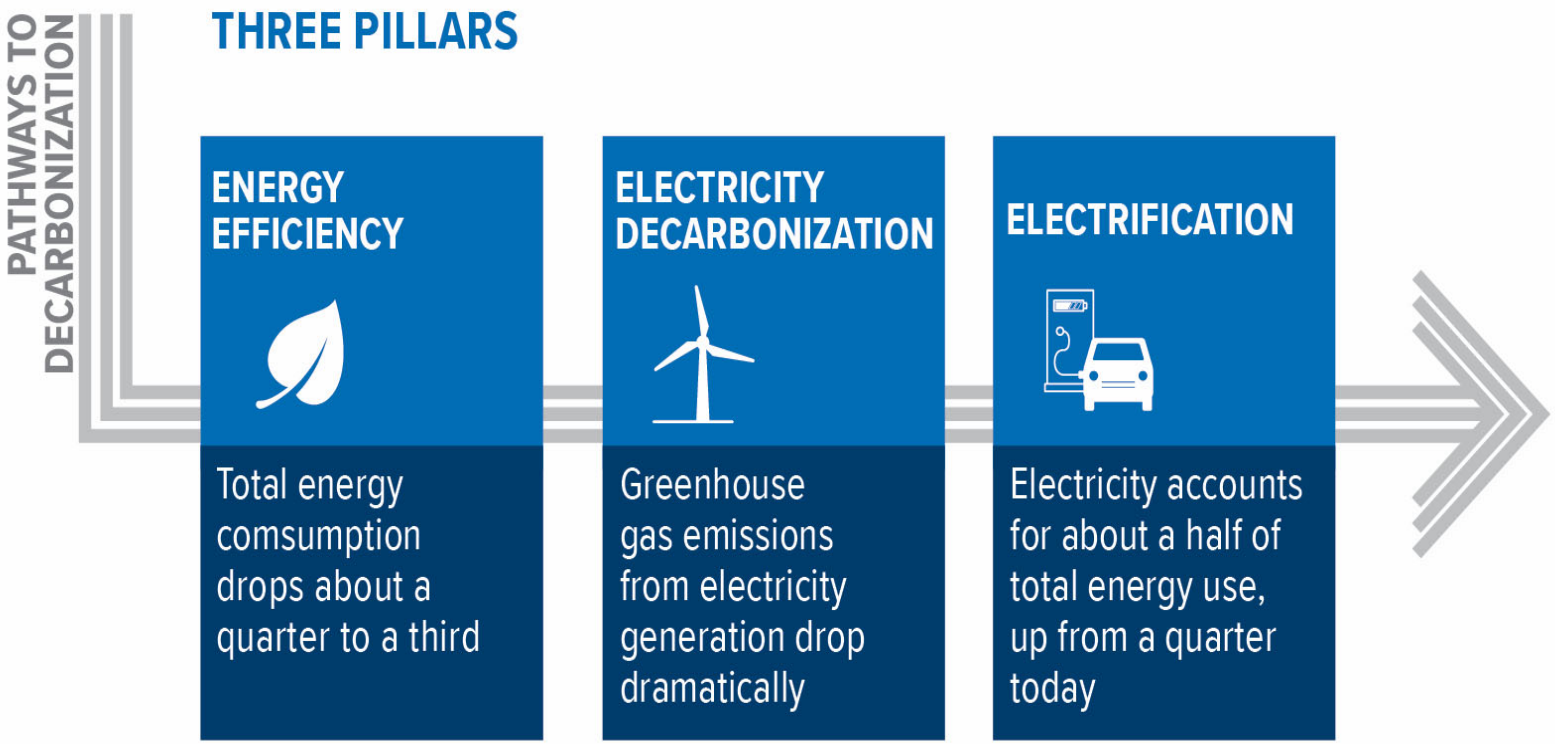
Low Electrification

Greater use of renewable fuels, notably biofuels and synthetic electric fuels, to satisfy energy demand and reduce emissions

High DER

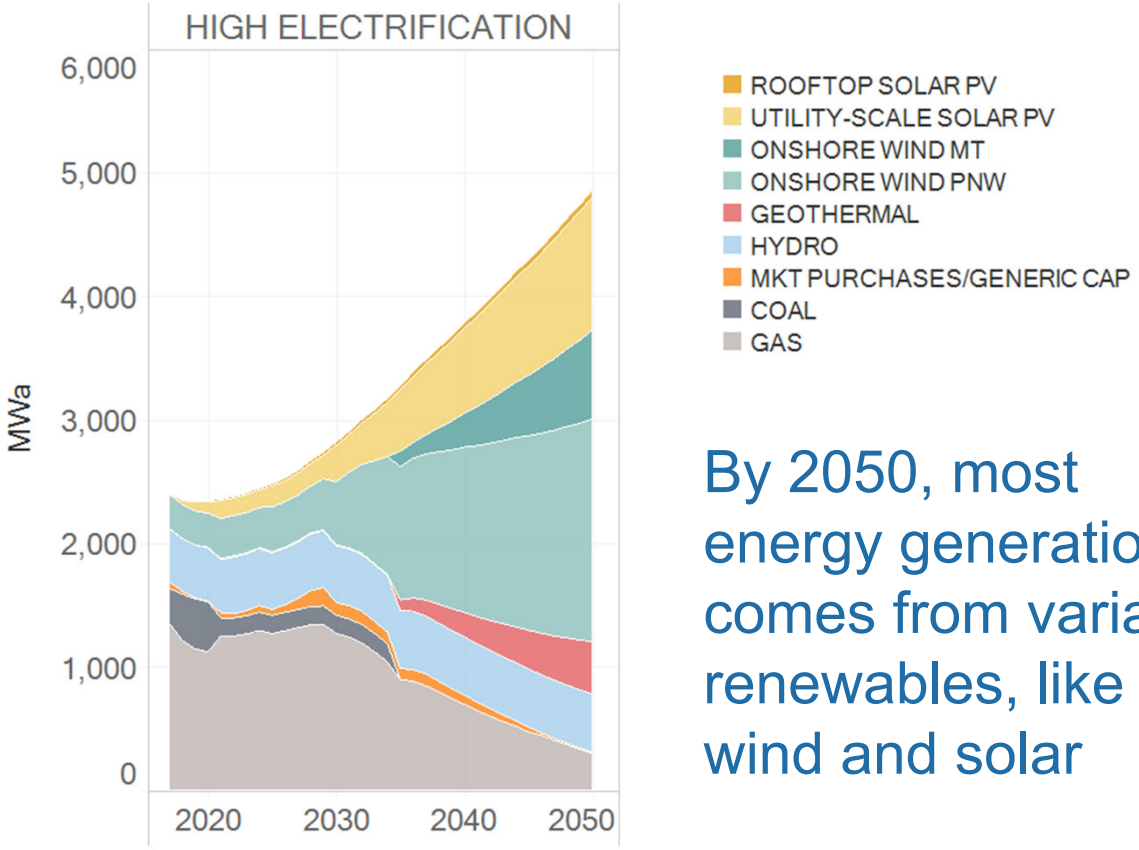
Distributed energy resources proliferate in homes and businesses, which also realize higher levels of electrification

All pathways require success across three pillars to reach the goal



Implications for the electricity system

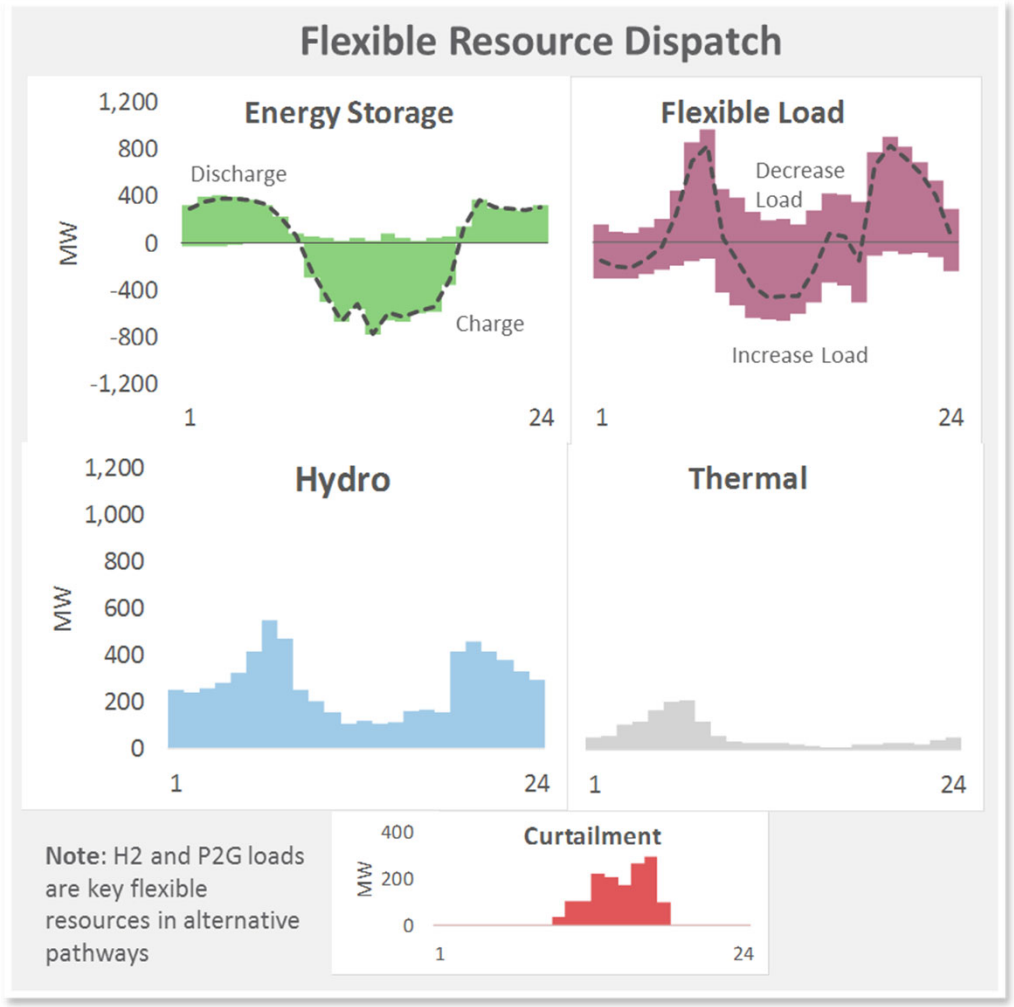
Electricity systems in a deeply decarbonized future will need new capabilities to efficiently integrate variable renewable resources



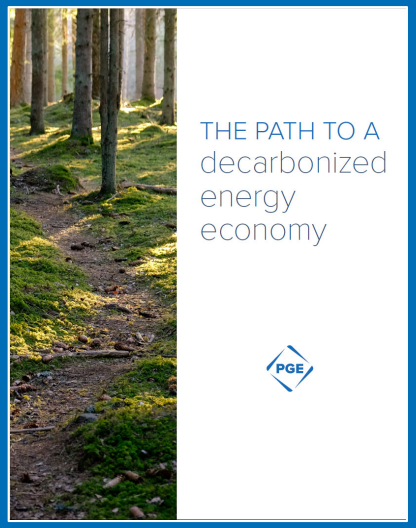
By 2050, most energy generation comes from variable renewables, like wind and solar

Balancing solutions

In a deeply decarbonized future, flexibility in the electricity system is provided by generators, loads, and storage



PGE's Clean Energy Vision



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