

# Integrating More Renewable Energy

NW Clean & Affordable Energy Conference

May 29, 2015

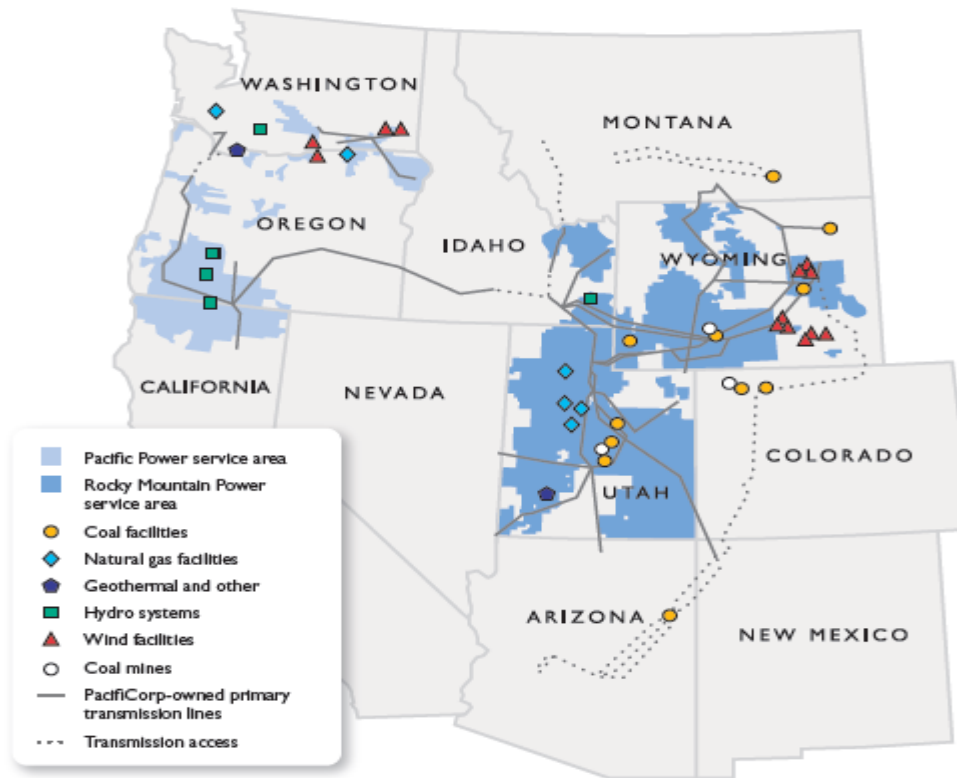


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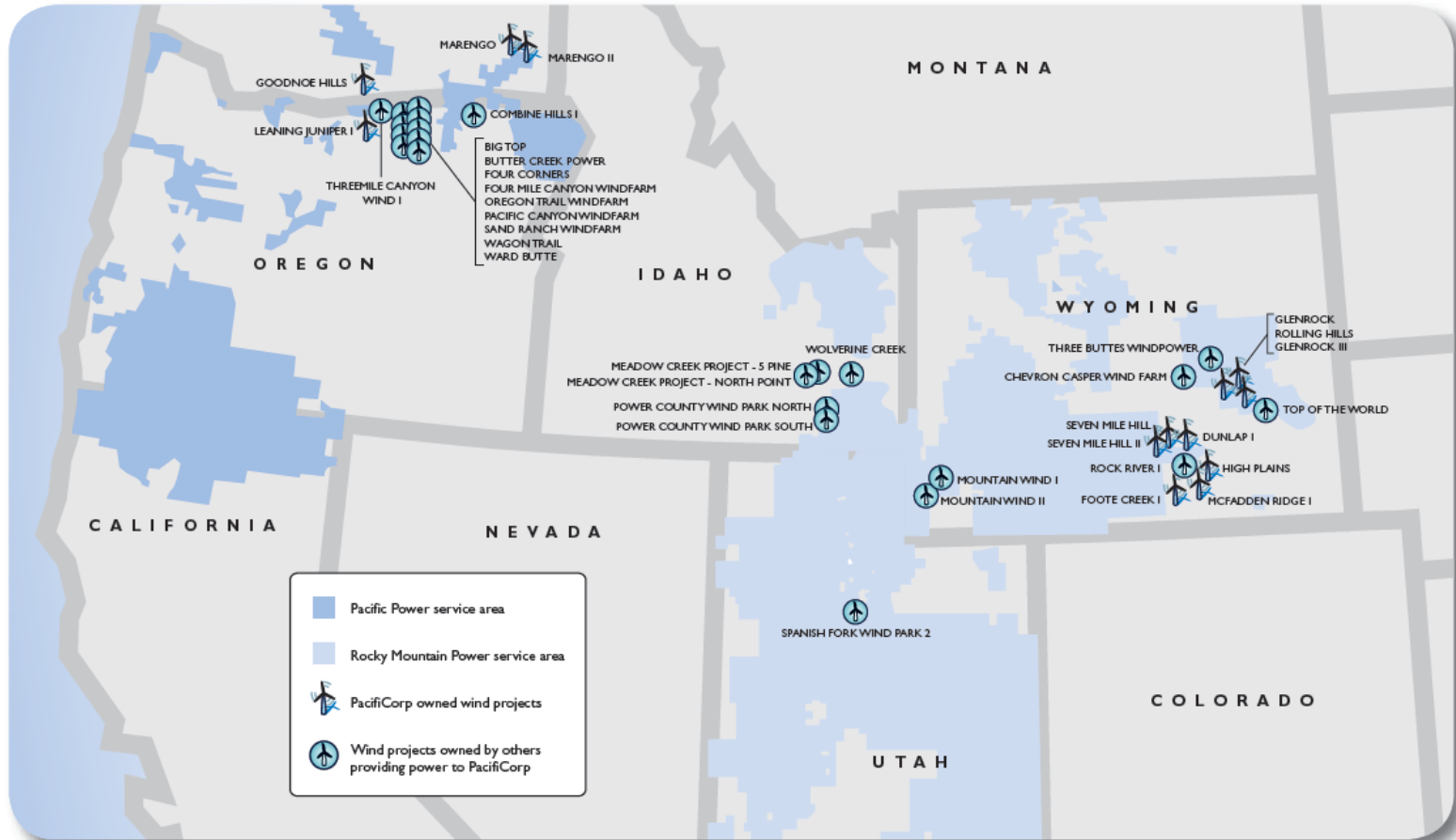
 **PACIFIC POWER**

*Let's turn the answers on.*

# Generation and Service Territory



# Wind Resource Locations



# VER Integration Challenges

- Limited or no dispatchability
- Sudden changes in VER output can jeopardize system reliability
  - Degradation of frequency response
- Over Generation
- Cost of integrating VERs may impact overall power costs

# PacifiCorp's Efforts to Effectively Integrate VERs

- Effective day-ahead and real-time forecasting of VERs
- Integration of VER forecasts into daily business and market operations practices
  - forecasts are not just for situational awareness
- Utilizing more dispatch flexibility across PacifiCorp's entire generation fleet
- Reliance on natural gas storage to provide intra-day dispatch flexibility on gas turbines
- Regional Diversity
  - Energy Imbalance Market
  - Broader Balancing Authority Areas