

Export Markets



Michael Corrigan, *Powerex*



June 27, 2023

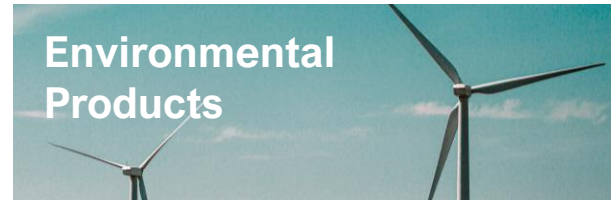
Michael Corrigan

Powerex and Energy Markets

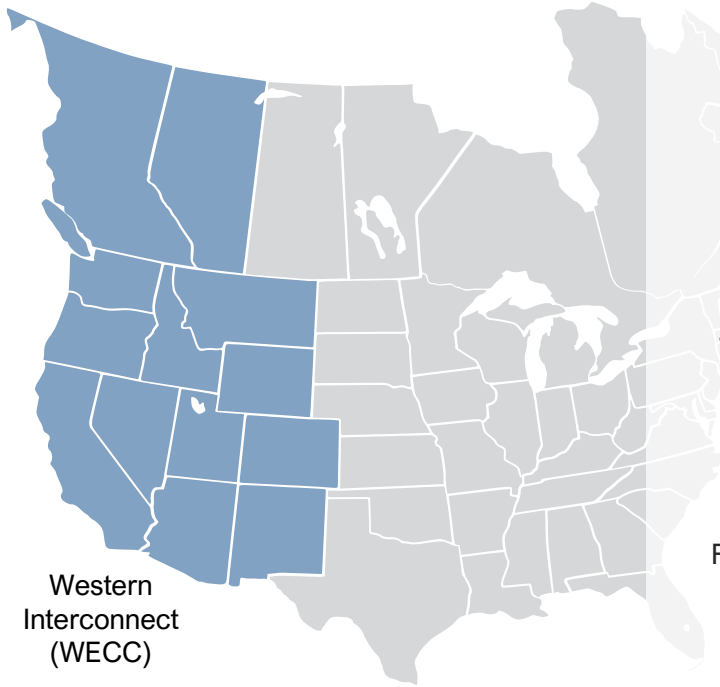
Supply. Flexibility. Commitment.

About Powerex

- Who we are:
 - Subsidiary of BC Hydro (~200 staff)
 - Income used to reduce rates for BC Hydro ratepayers
 - Market Based Rate Authorization (FERC) since 1997
- Active throughout the West:
 - Portfolio of contracted supply, transmission
 - BC Hydro residual capability and flexible capacity



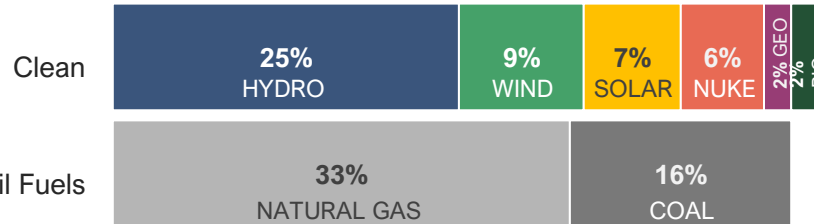
Western Electricity Markets – the Basics



Wholesale Western Electricity Markets

- Prices vary widely across the day, year and region
- Reflect dynamic supply and demand conditions
- Incorporate diverse environmental programs

WECC Resource Mix (2020–2022 Generation)



Western Electricity Market

Resource Diversity – Changing Generation Mix

Hydro

Regional storage and clean supply

Natural Gas

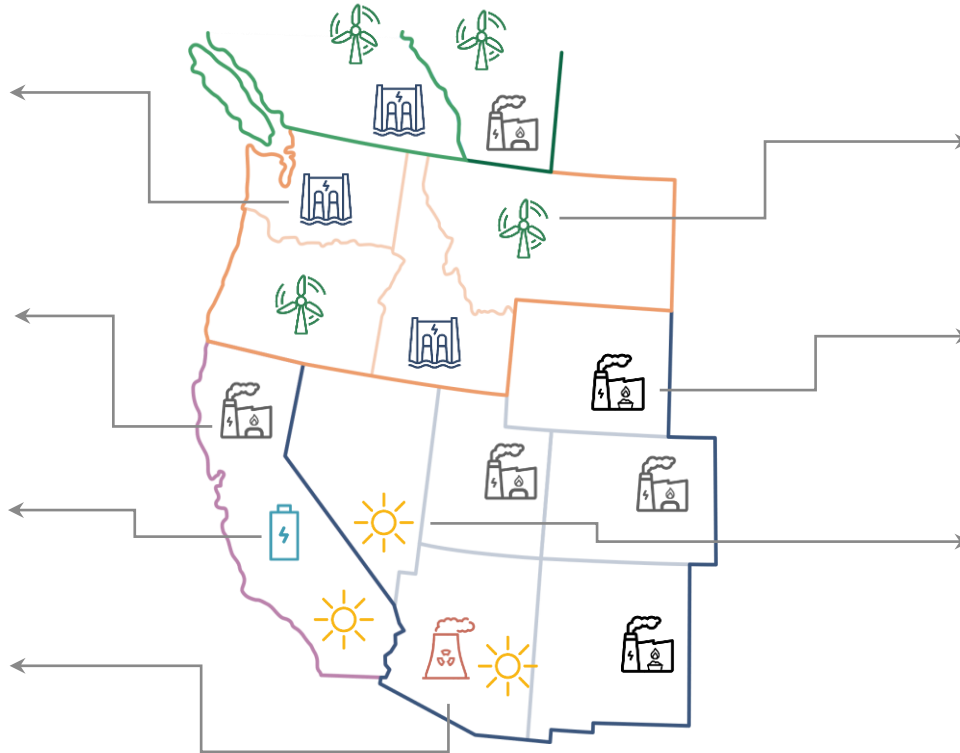
Historically easy to build, Sets price most of the time (natural gas prices also vary widely)

Battery

Rapidly emerging storage solution

Nuclear

Non-emitting, baseload, not growing



Wind

Growing, can drive prices below zero

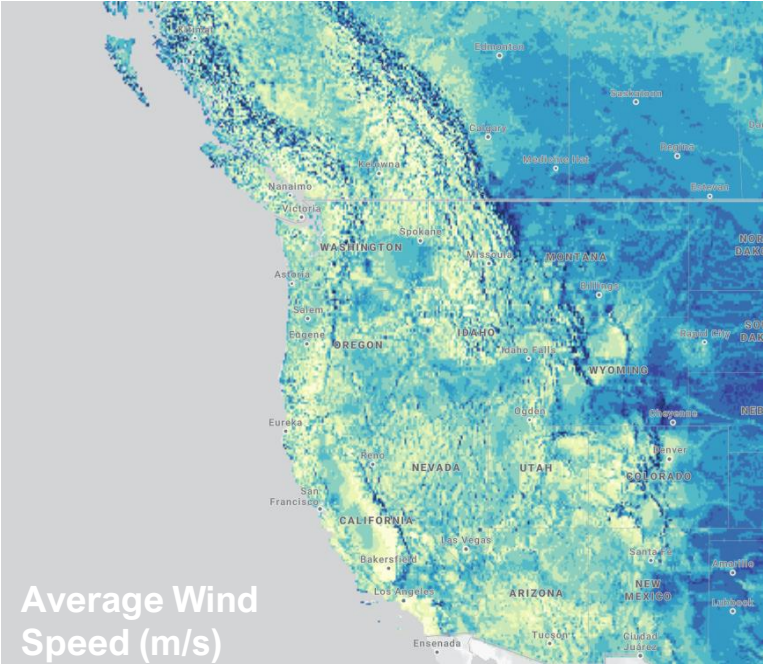
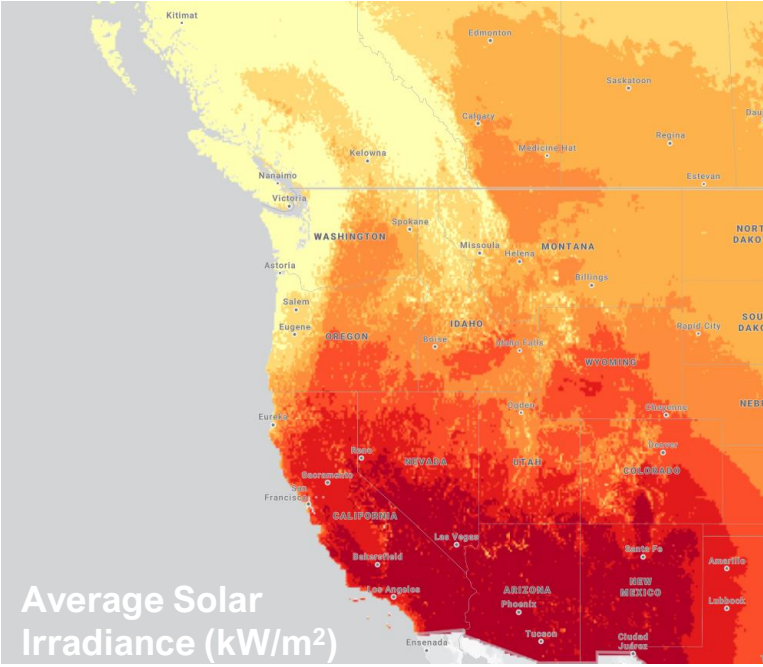
Coal

Retiring rapidly in most of region

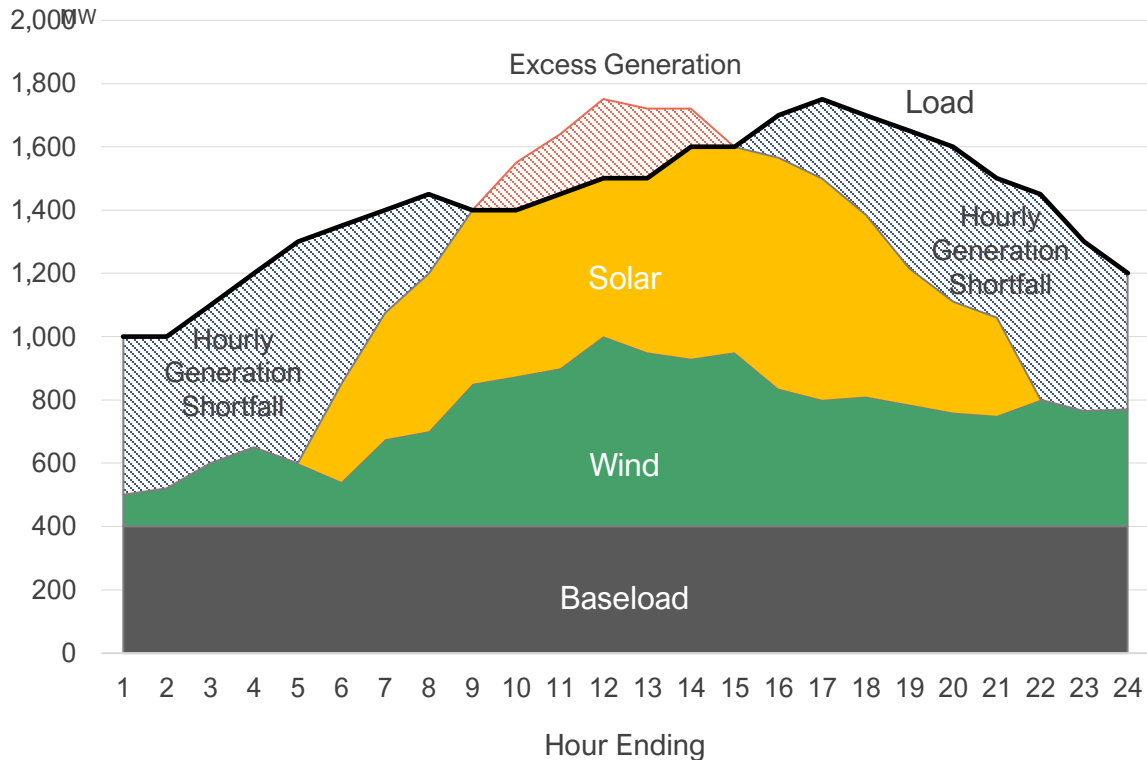
Solar

Rapid cost reduction and supply growth. Often sets electricity price to near zero

Western Solar and Wind Resources



Why Trade at All?



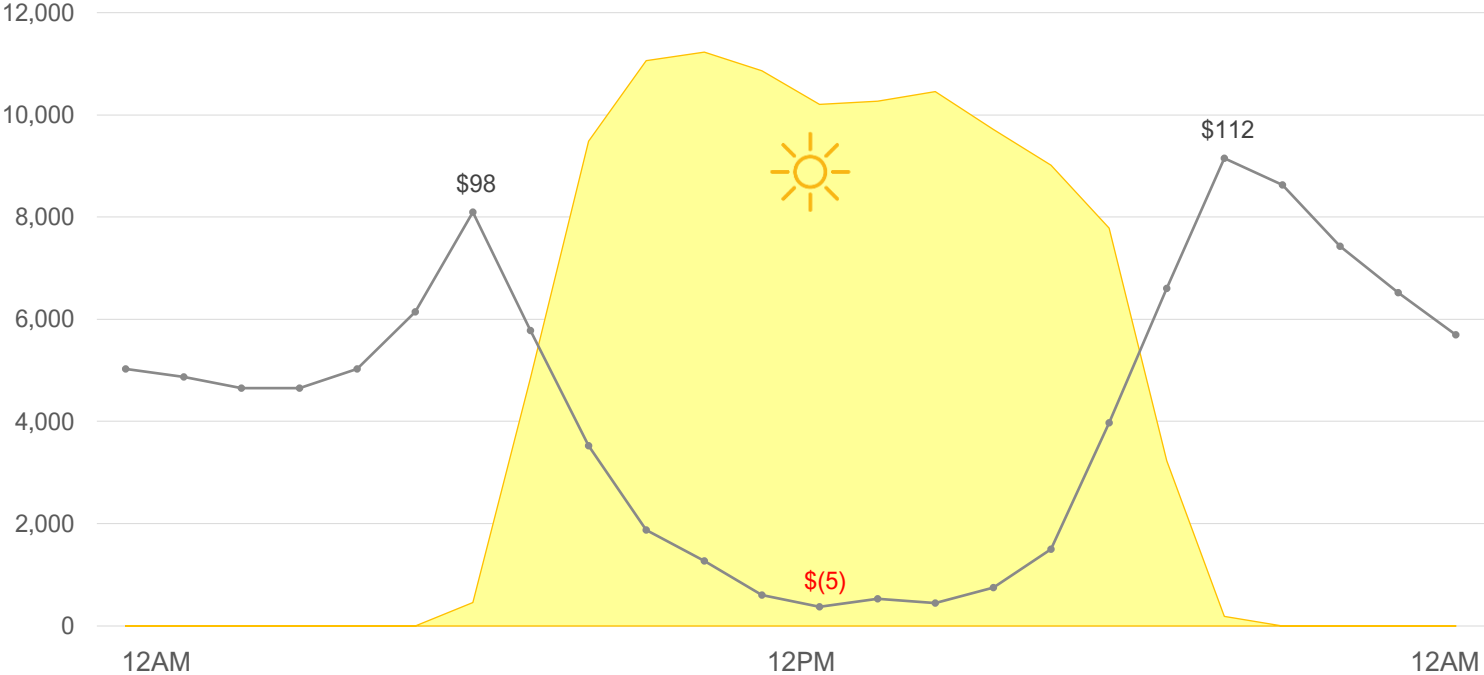
- Utilities can't forecast generation/load balance perfectly
- When generation exceeds load, oversupply depresses price

Western Solar - Price and Supply

Example: April 18, 2023 12:00am to 11:59pm

California

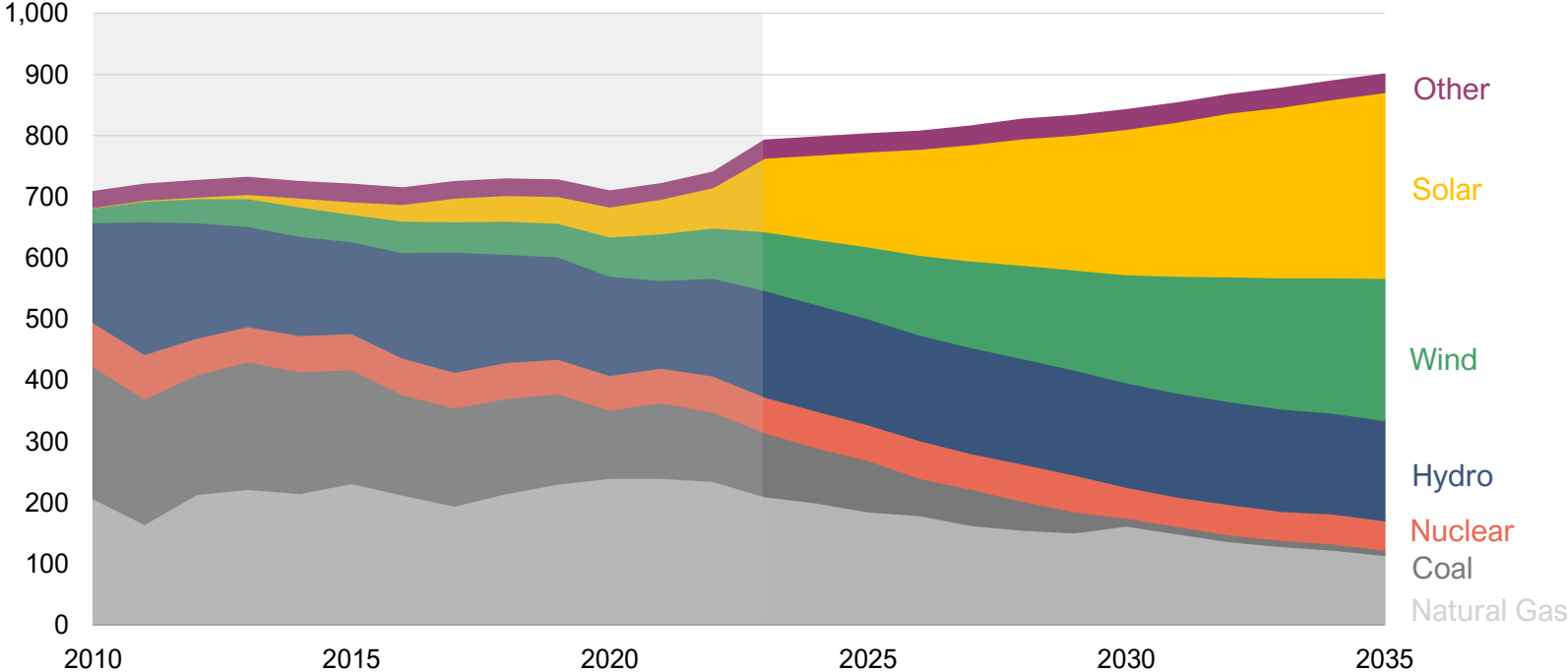
Solar Output (MW) and Hourly California Price (\$/MWh)



Western Electricity Markets

Projected New Resource Requirements

Generation Outlook U.S. WECC (TWh)

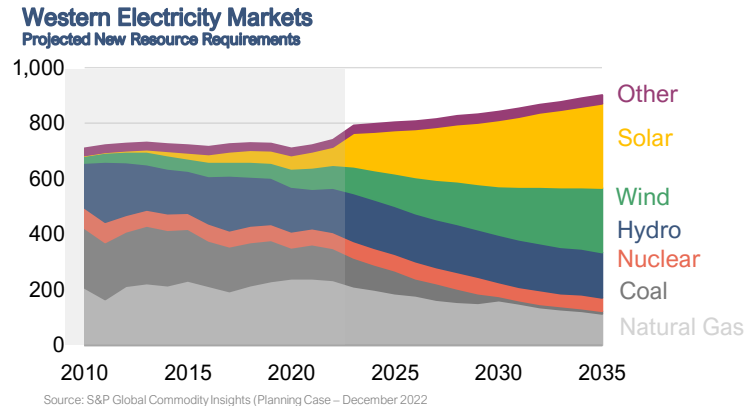


Source: S&P Global Commodity Insights (Planning Case – December 2022)

What are Powerex's U.S. customers looking for now?

From Project Developers:

Local Projects Build/Transfer or Contracted projects that allow Utilities to leverage US tax advantages, minimize transmission costs, provide local jobs and economic development

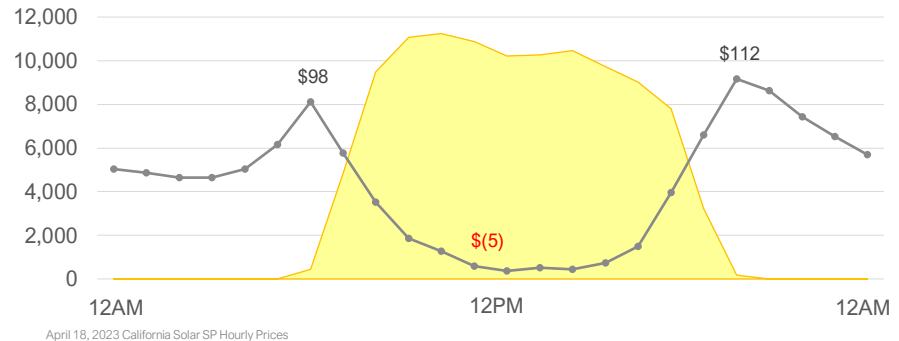


From the Wholesale Market:

- **Firm supply delivered** when the sun goes down and on the coldest (or hottest) days of the year
- **Dispatchable clean supply** that they can shape around their local renewables
- **Buyers of their clean supply** when they have too much

Western Solar - Price and Supply

Example: April 18, 2023 12:00am to 11:59pm





Thank You

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