



# PPC Initiatives In Motion

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Presentation to Mid-West Electric Consumers Association

December 7, 2022

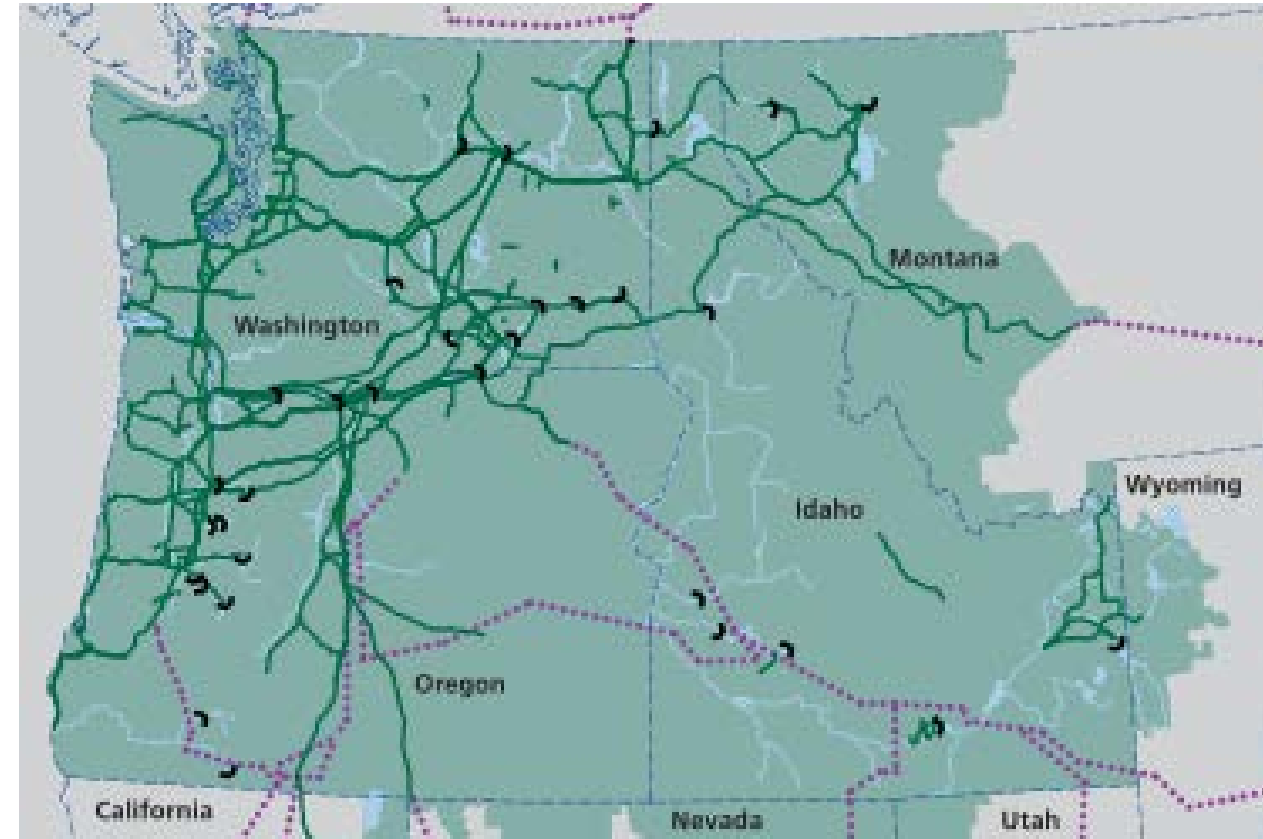
# Public Power Council Overview

- Since 1966, PPC has helped consumer-owned NW utilities have a unified voice on key energy issues
- We focus on the FCRPS and the Bonneville Power Administration at the regional and federal levels
- PPC represents more than 100 public power entities across 6 states – very small to very large
- We are governed by a 21-member Executive Committee that is a “working board.”
- From BPA rates and contracts to power supplies to costs for fish and other investments – PPC covers it
- Affordability, reliability and preservation of value are core to our mission



# BPA at a Glance

- DOE's largest Power Marketing Agency (PMA)
- Majority of funding is from public power customer rates, not appropriations. Known as "self-funded"
- 31 hydroelectric facilities, one nuclear power plant and some market purchases = 22,422 capacity and 11,621 sustained peak (120 hour). +95% clean
- 15,000+ miles of high voltage transmission
- One of the world's largest fish mitigation programs: about \$300 M in hard cost + \$300 M in lost opportunity
- Average Tier One power price: 3.56 cents per kw hour
- Average long term firm transmission: 1.533 per kw month
- 2020 operating revenues: \$3.684 billion



# PPC Value Proposition to Members

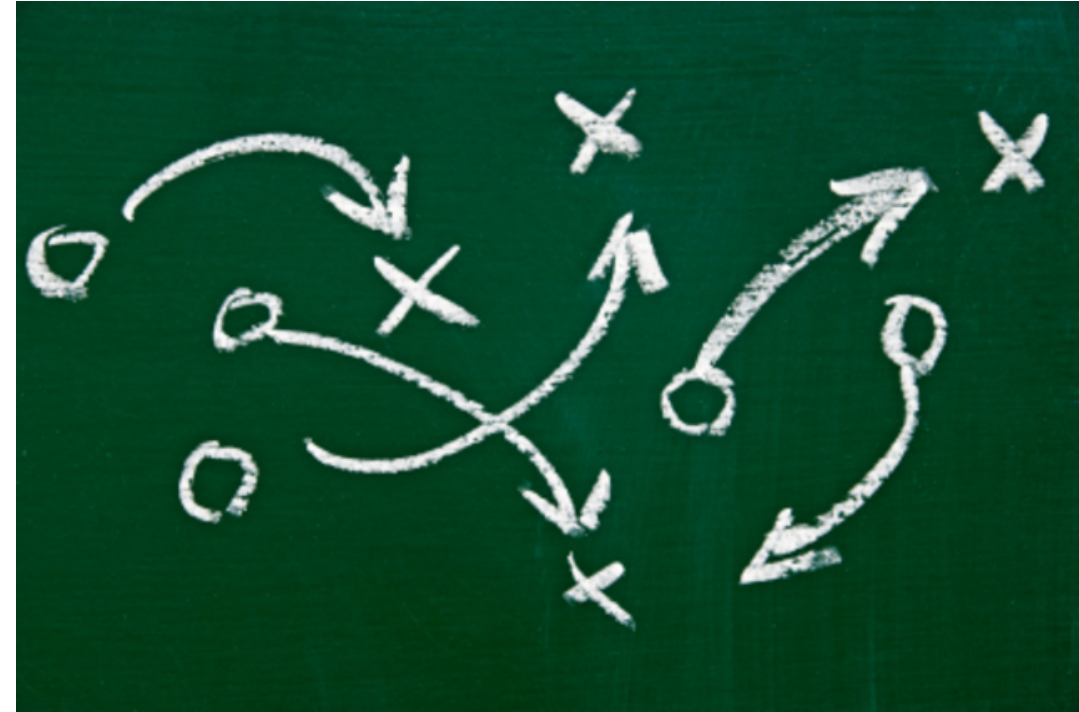
We are the lead voice for NW public power on BPA issues, using data and analytics to develop common policy positions that get real results.

## Examples:

- BPA rate cases, contracts, programmatic costs, financial policies
- Fish mitigation policies and costs
- Legislative/federal affairs advocacy/defense
- Columbia River Treaty: rebalancing inequity
- Development and Resource Adequacy program analysis

# Today's Gameplan

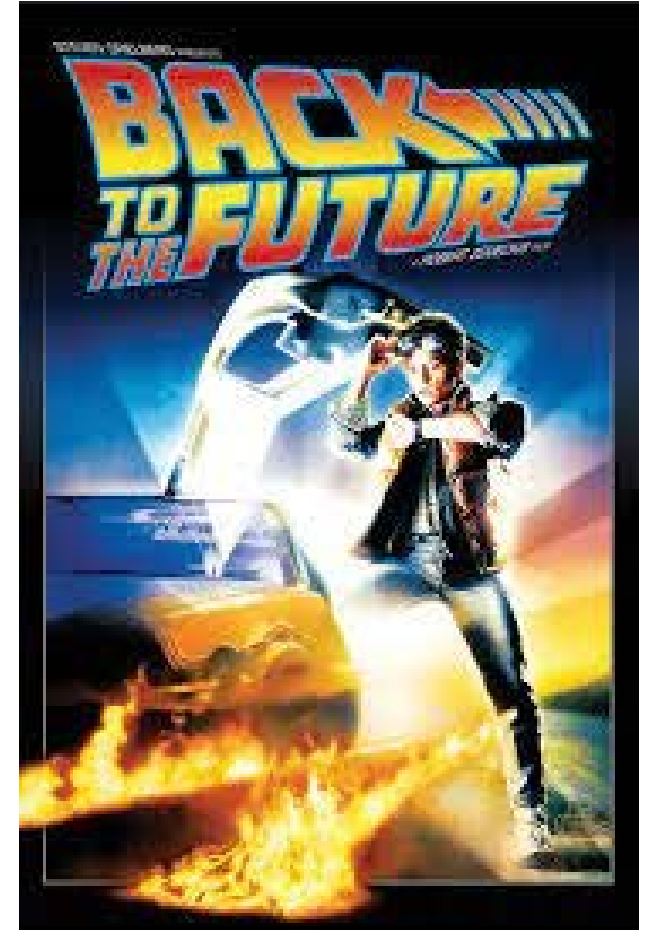
- PPC's top priority initiative: new contracts with BPA
- Lower Snake River Dam (LSRD) issues: our focus and case study metrics
- Western market development efforts and our approach





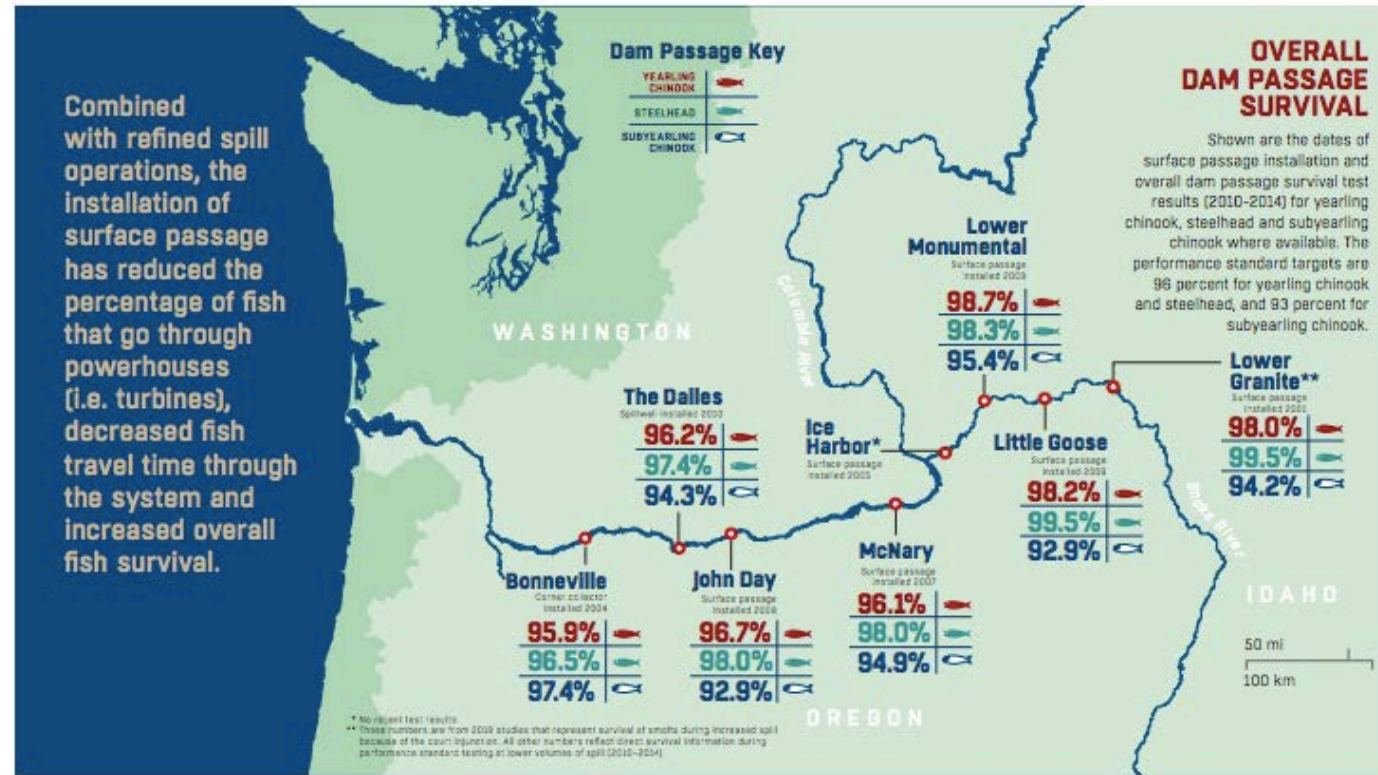
# Back to the Future: Post-2028

- Current contracts with BPA run through September 30, 2028
- Utilities will have choices
- Strong PPC focus on making sure BPA offers the best array of options for customers
- PPC is working as a convener for ALL of public power, not just a subset
- We have to find solutions that are durable enough to work for ALL NW public utilities.



# PPC's Focus on the LSRDs

- Four hydro projects in Snake River; flows into Columbia
- The last projects built; focus of environmental community
- Extremely low cost: \$14 MWh
- Key in renewables integration
- Higher up river/more fish travel/sometimes lower flow
- Average annual: 940 Mwa
- Sustained peak: 2,650 MW



# PPC's Focus on the LSRDs

- We have been actively engaging our members on the value of LSRDs
- Defendant party in the federal CRSO litigation
- Two tracks of particular focus this past year:
  - Murray-Inslee process
  - White House division, CEQ, and (baseless) NOAA study
- Litigation moved to stay and then extension of stay





# PPC's Focus on the LSRDs

- Our focus: Highlighting the real-world performance of the LSRDs
- PPC's work is designed to complement the work of others
- The real world is delivering a silver lining: more case examples



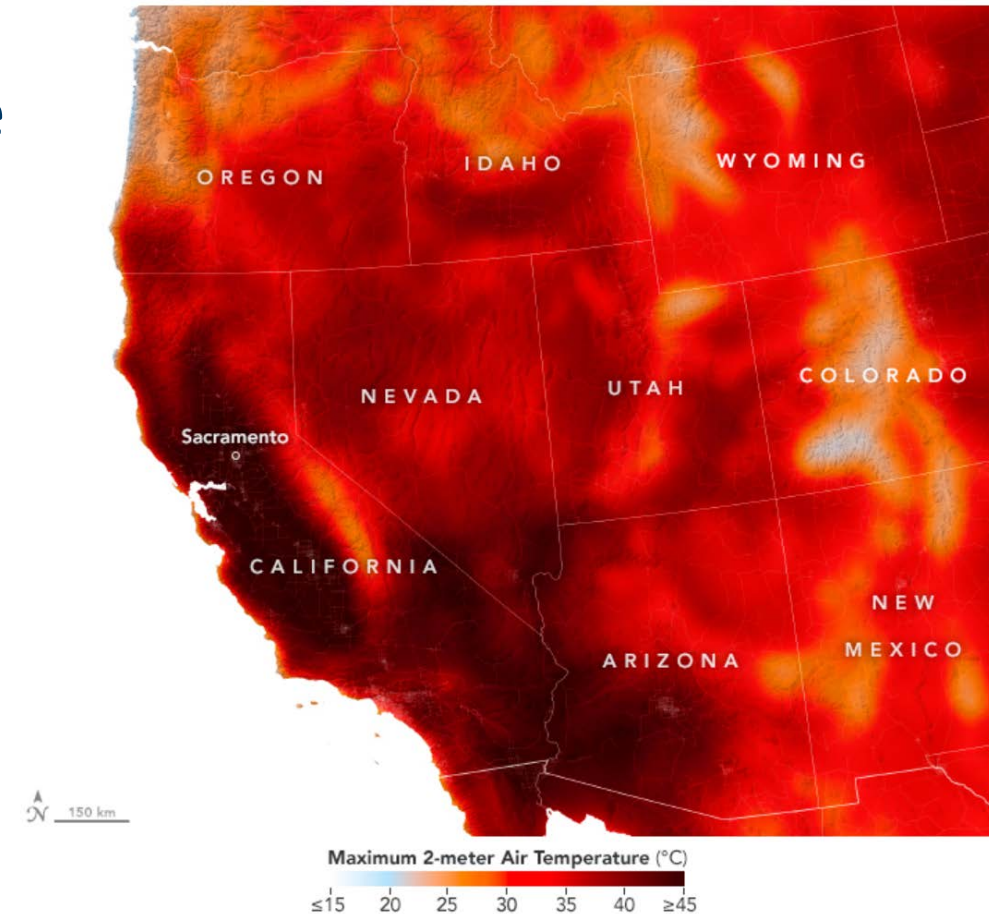
# PPC's Focus on the LSRDs

- Top takeaways from PPC analysis via our staff and Energy GPS:
  - The makeup of the Pacific NW grid is rapidly changing
  - The analysis estimates lost hydro capacity in the thousands of MWs.
  - Without major changes, the grid could enter into acute scarcity
- Our bottom line:

**The risk of blackouts is higher now than in the  
20 years since the Western Energy Crisis.**

# LSRD Case Study: Labor Day West Wide Heat

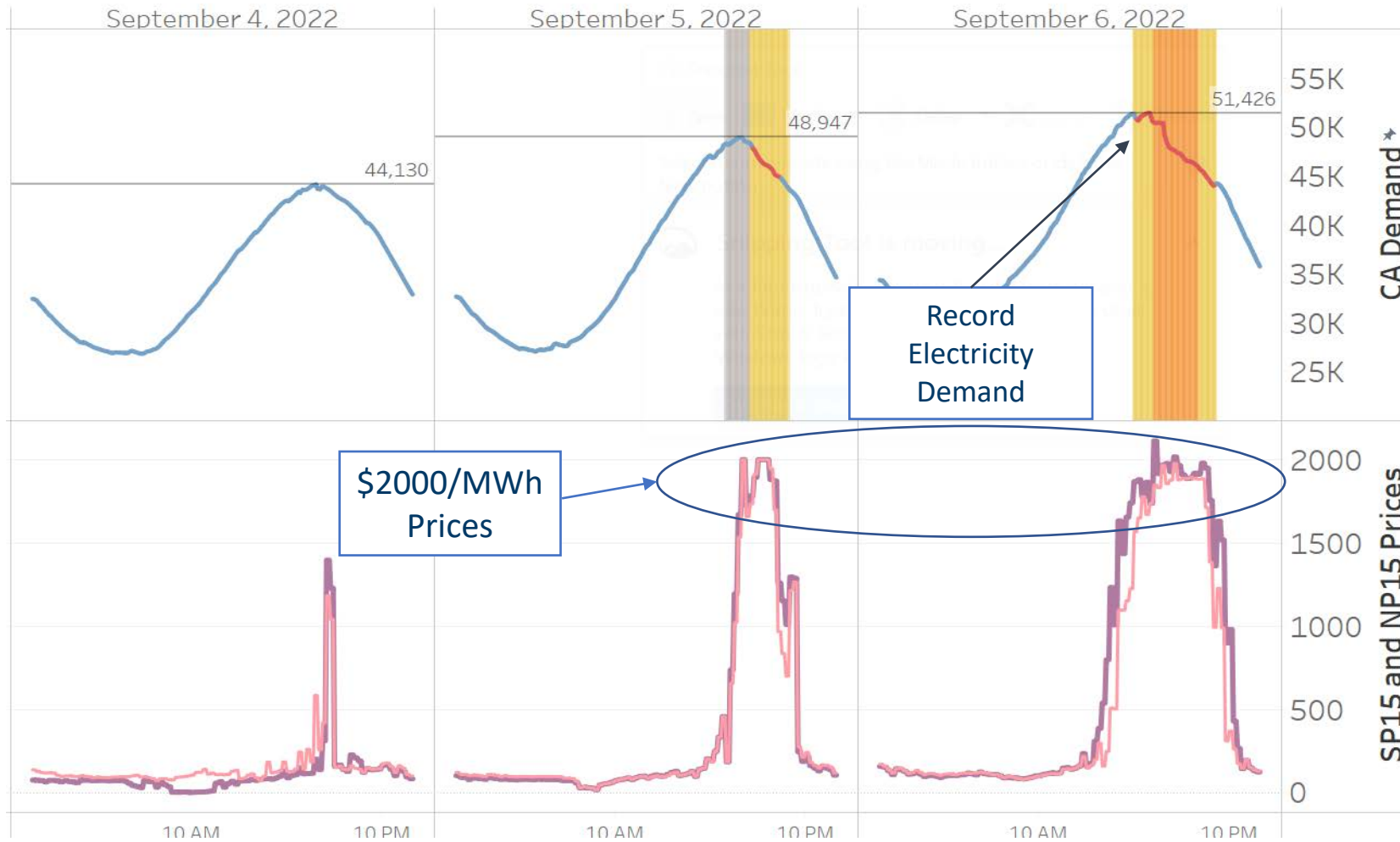
- The west experienced a significant heat wave in early September.
- Sacramento temperature reached 116°F. That's 30°F higher than normal this time of the year.
- Northwest hydro to the rescue (again)!



September 6, 2022

↓ JPE

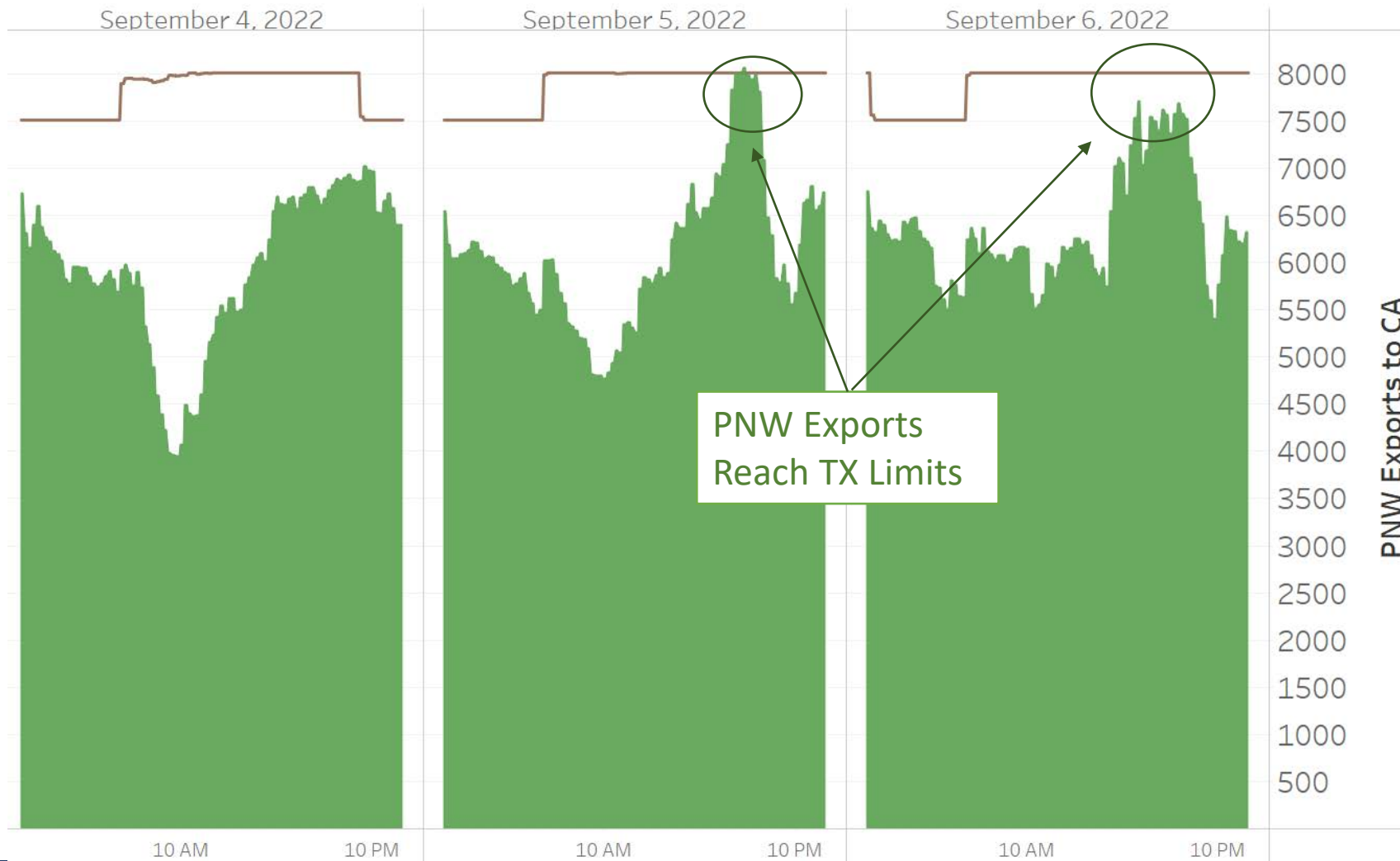
# California Demand Breaks All Time Records



- California demand exceeds 51 GW
- Prices in CA reach \$2000/MWh.
- CA enters energy emergency conditions

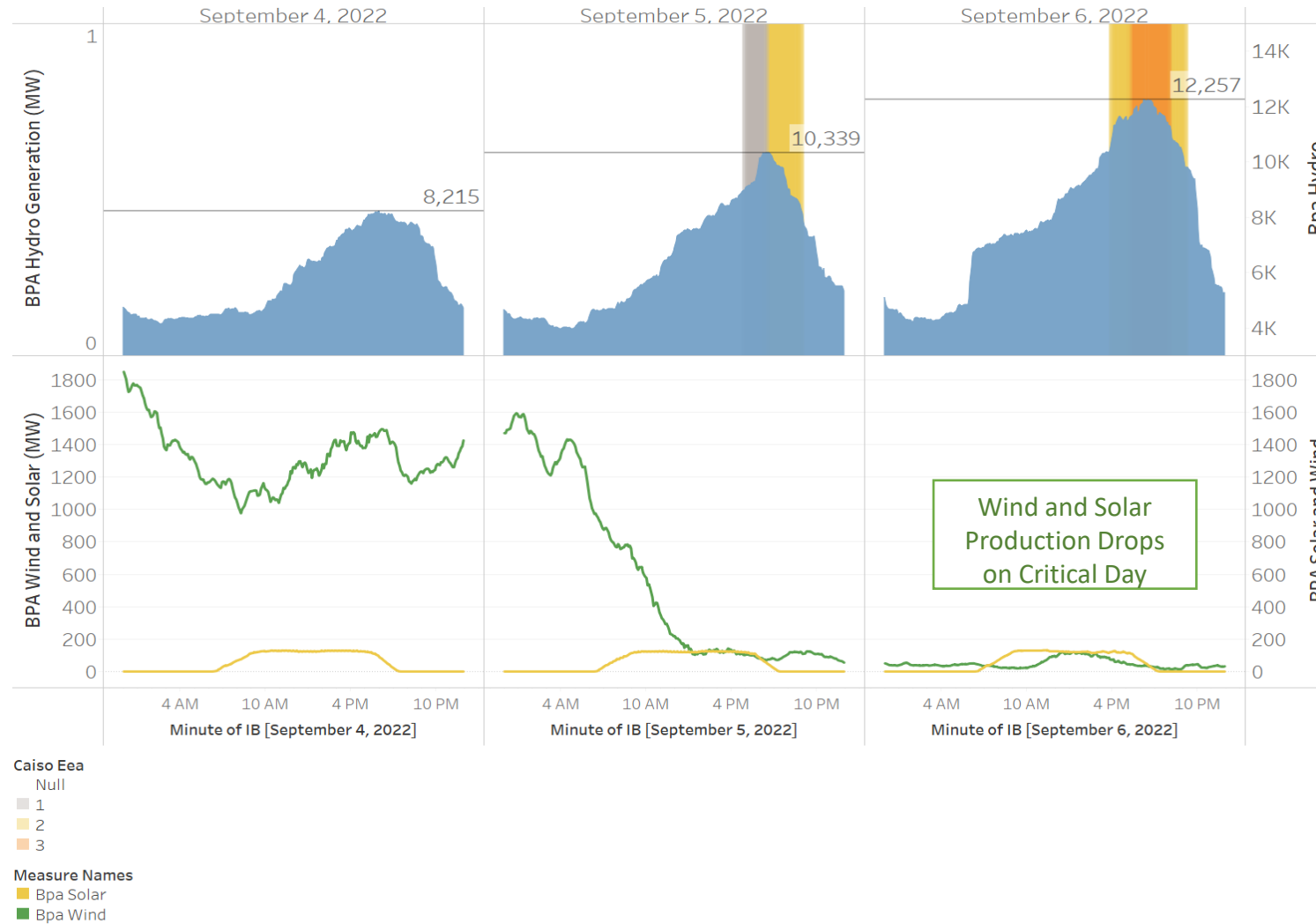


# PNW Hydro Ramps to Export to CA



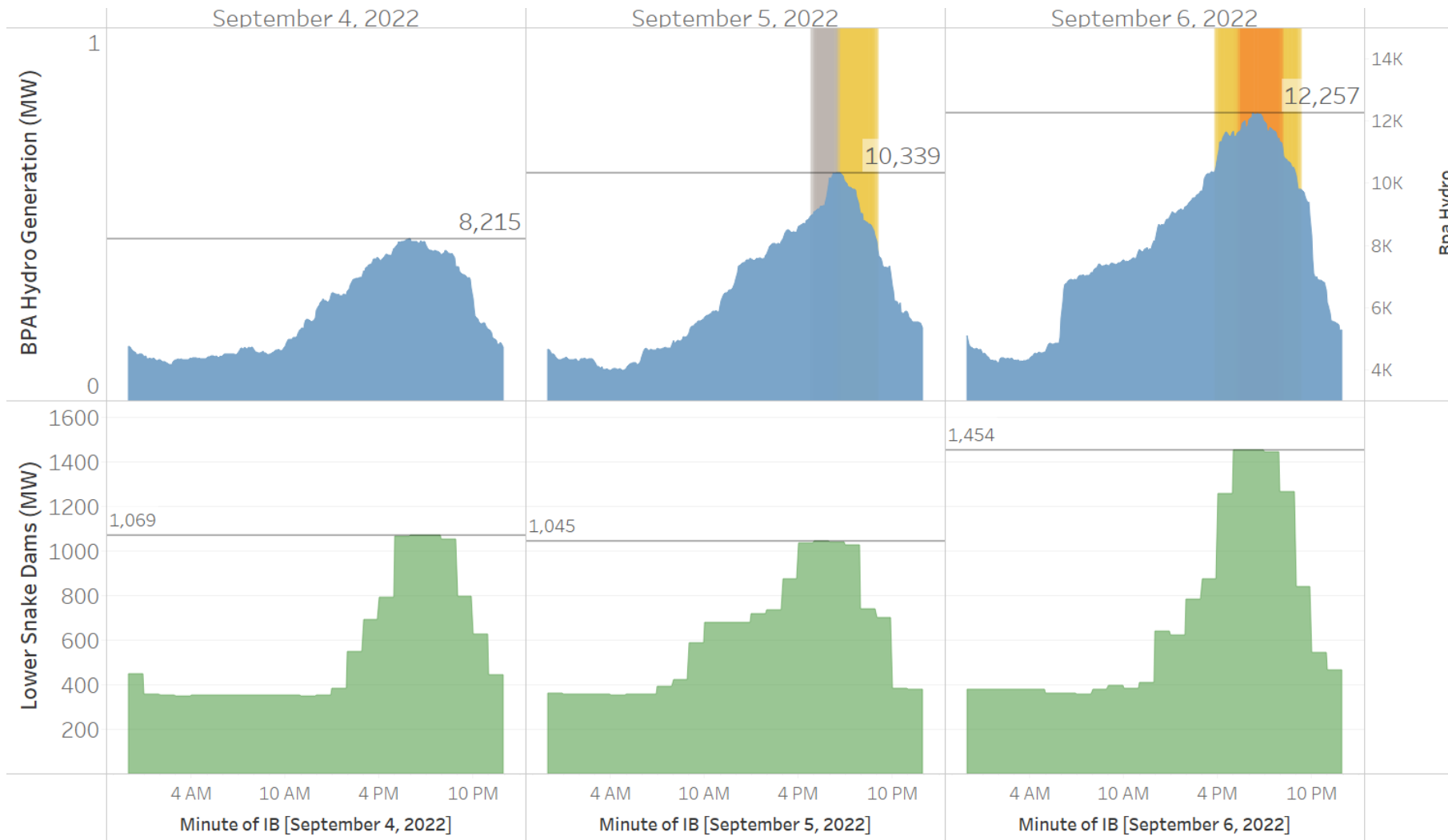
- We max out available transmission to export to CA.
- Between 7.5 GW – 8.0 GW of exports occur during the CA emergency conditions.

# PNW Hydro Ramps to Export to CA



- PNW Hydro ramps up to 12.5 GW and peaks coincident with CA energy emergencies.
- PNW Wind production is close to zero during critical day and hours.

# Lower Snake Dams Provide Essential Capacity



- Lower Snake Projects provide 1,454 MW of capacity during the most critical hours.
- Beyond 1,454 MW of capacity, projects ramp 1,000 MW to meet CAISO ramping needs.

# Key Findings

- The West – particularly California – experienced unprecedented heat in early Sept. 2022, resulting in new all-time electricity demands.
- Prices in California reached \$2000/MWh and CAISO entered energy emergency conditions that enable the curtailment of firm load.
- Exports from the Pacific Northwest increased to 8,000 MW the maximum volume that transmission paths to California can support.
- Pacific Northwest hydro played the critical role of increasing generation to prevent load curtailment in California. The Lower Snake dams provided 1,400 MW of capacity during most critical hours.



# “Frameworks” Under Discussion for Western Markets

- Real-time/Energy Imbalance Market
  - Ex. CAISO EIM, SPP WEIS
- **Day-Ahead Market**
  - CAISO EDAM, SPP Markets+
- Regional Transmission Organization (RTO)
  - CAISO, MISO, NE ISO, SPP or previous NW attempts like Grid West/Indigo

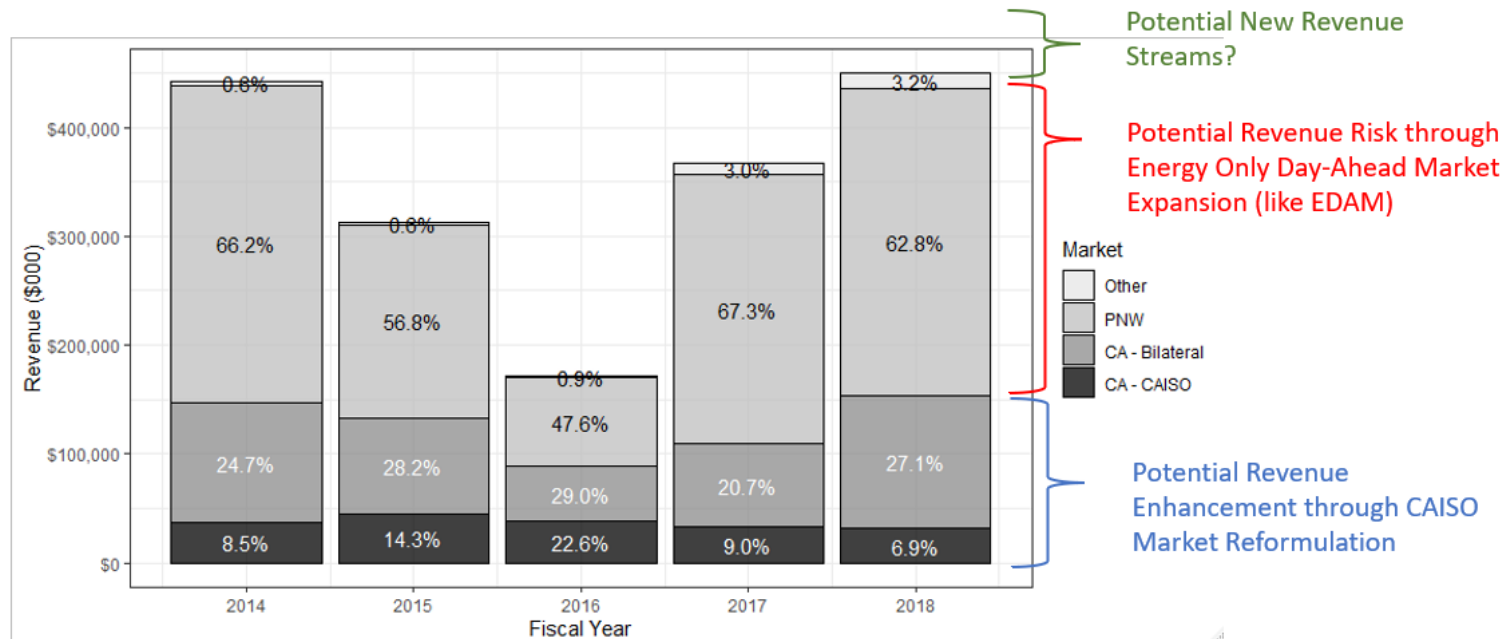


# BPA EIM Business Case

- BPA identified both quantitative and qualitative benefits:
  - Managing transmission congestion – avoidance of small fixes
  - Additional optimization of resources
  - Experience in regional markets
- BPA Power Services estimated benefit of \$29 to \$34M in net benefits
  - Largely resulting from purchase of inexpensive energy during times of high supply, allowing BPA to store water and generate later.
- Transmission benefits were not quantified

# Day-Ahead Much Larger Impact Than EIM

## BPA Secondary Sales – Potential Day-Ahead Impact



Source: FERC EQR

- Formation of day-ahead market would require additional scrutiny of market design and governance.
- PPC collaborating with other entities on day-ahead market design analysis.

# What Does This Mean for BPA & Preference Customers

- BPA's sale of surplus supply directly impacts the agency's power rates by offsetting system costs.
  - The “signals” sent by an integrated market influence both the demand for BPA's products and the price that BPA receives for that product.
  - BPA's surplus is clean, reliable, and carbon free – all attributes which are valuable to the market and should be valued by the market and for which BPA should be compensated.
- Could provide potential access to additional low-cost resources which would help BPA further economize its system.
  - BPA's EIM business case is largely based on importing low-cost solar generation in the middle of the day and generating at higher cost hours.
- Could improve access to non-federal resources.
  - More efficient use of transmission could increase access.



# Issues to Watch for BPA/Preference Customers

- Poor market design and price formation could prevent appropriate compensation BPA's valuable system and the attributes it provides.
  - Would decrease secondary revenues and increase power rates.
- Without incentives to invest in capacity, energy only markets (like EIM & day-ahead) can allow participants to lean on the long-term investments of others.
  - Resource sufficiency tests are a stand in for a strong and consistent RA program in the footprint.
  - Without consistent reliability standards, protections are needed to ensure those with long-term investments in capacity and transmission are not inappropriately leaned on during times of need.
- Some trade-off between efficiency and local control is required.
  - Good governance is critical to ensure that participants still have a voice.

# RTO Impact Would Be Even Bigger

- A Regional Transmission Organization (RTO) provides additional services beyond day-ahead and real-time optimization:
  - Resource Adequacy Program
  - RC Services
  - Transmission Planning
  - Transmission Service Provider
  - Consolidated Balancing Authority Area
- Historically the West has preferred a more “incremental” approach
  - Note that many of these services are currently offered to the West under regional programs, but not centralized under one provider.



## QUESTIONS?

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