Douglas PUD Hydro to H2
Renewable Hydrogen Pilot Project

- 5MW electrolyzer (PEM)
- Producing 2-tons of hydrogen per day
- Hydrogen sold wholesale for industrial and transportation uses
- Facility is expandable to meet demand
- Long-term storage is a future goal
Facility is expandable to meet demand
Why Renewable Hydrogen?

• Passed laws granting PUD’s authority to produce hydrogen in 2019
• Helps solve intermittent renewable problems - Hydro, Wind and Solar – predictable fuel
• Input Cost is 70 to 80% Electricity
• Grid Services
  – Reserves
  – Frequency Regulation
  – Load Following
Solving Hydro Production Problems

• Efficiencies created by hydrogen production
  – Mechanical wear-and-tear caused by starts and stops, 4 second adjustments to grid demand
  – Seasonal and variable fuel supply
  – Demand response – grid balancing reserves (15 MW)
Units ramping up and down in 24 hours
Wholesale Market

2019 ON-PEAK DAILY

PRICE

$0.00  $50.00  $100.00  $150.00  $200.00  $250.00  $300.00

Hydrogen Fueled Transportation
Transportation Fueling Infrastructure

- Electric (Lithium-ion) vs. Hydrogen