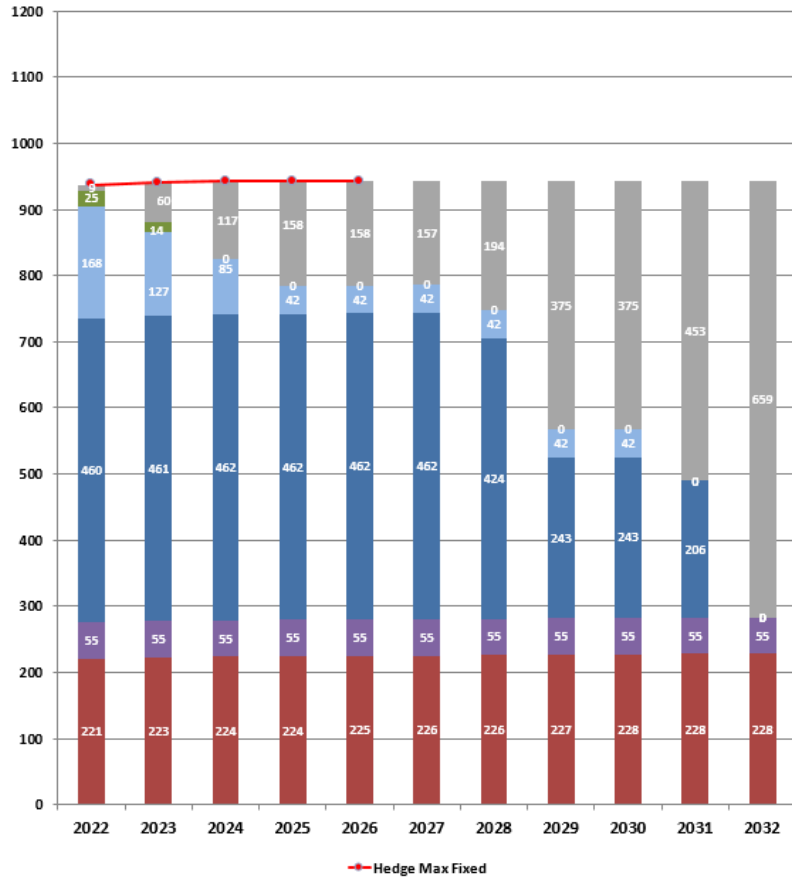


Long-Term Marketing Strategy

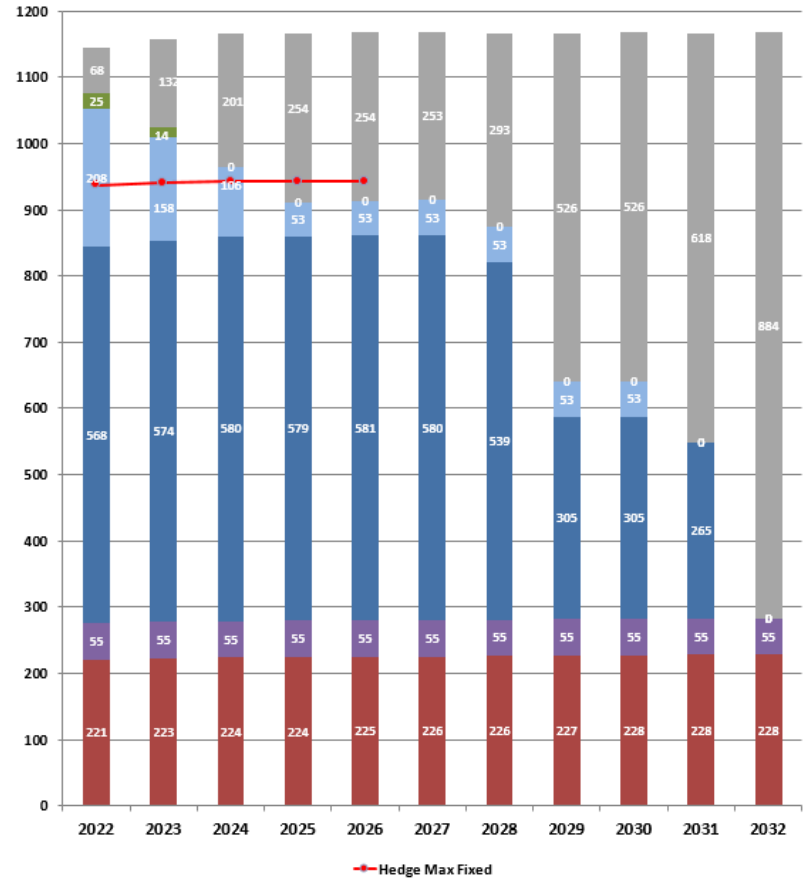


Chelan PUD Inventory

Stressed Water



Average Water



Marketing Overview

- Current Marketing 50/30/20:
 - After meeting retail load uncertainty, reserves and Canadian Entitlement obligations
 - 50% long-term cost based with upfront capacity reservation payment
 - 30% 5-10-year market-based slice contracts
 - 20% retail

Diversifies between cost-based and market-based contracts

50/30/20 Results

- Cost-based slice contracts produced steady margins, mitigate risk of rising hydro system costs
- Market-based slice contracts produced healthy revenues, amounts vary depending on wholesale market conditions
- Cost-based and market-based slice contracts reduce streamflow and outage risk
- Retail revenue increasingly separating from retail cost (net gap nearing 50%)
- Revenue 2020:
 - Market-based slice - \$34.11/MWh
 - Cost-based slice - \$29.46/MWh

Situational Awareness

- Strategic plan seeking retail load growth for economic development with modest (<5%) retail impact
- Declining energy values, but increasing environmental and capacity values
 - Longer-term contracts likely to capture highest value
 - Capacity and environmental values may equal or exceed energy values in the future
- Increased volatility in energy markets - long periods of low energy prices interspersed with bursts of high prices
- Carbon and capacity may provide more stable revenues, but too early to tell

Situational Awareness

- Retail load changes
 - Establishment of HDL rate allows retail load growth at cost of production. Rates established by PUD.
 - Roughly 1% (2 aMW) annual load growth due in part to energy efficiency programs cost-effectively keep retail load growth low
 - Have made progress to develop solar/green product to sell to a large retail load
 - Possibility of developing wholesale pricing options for large new loads in Chelan County
- Resource adequacy
 - Capacity value increasing
 - Uncertainty about how RA will be calculated
 - May increase Chelan's need to retain capacity
 - Reducing value of variable streamflow hydropower
- Independent hydropower operations impacts flexibility and value

Why Market Long-Term Now?

- End of existing long-term contracts in sight
- Market for longer term is good now
 - State mandates increase need for clean capacity
 - Current resource adequacy challenges
 - CETA drives planning now for post-2030
- Potential for government mandates may reduce hydropower value. Efforts to create renewable subsidy parity for hydropower unsuccessful so far.

Contract Risks to Consider

- Reliance on short-term, market-based contracts
 - Market prices may decrease
 - Growth of solar/wind and decline of natural gas leads to low energy prices
 - Market structure doesn't reward hydropower value
 - Resource adequacy standards and mandated use of storage (batteries) creates oversupply of capacity
 - Chelan output may decrease
 - Environmental restrictions limit output of Chelan dams
 - Natural disaster exposure (i.e., earthquake)
 - Revenue not tied to costs
 - Less likely to capture capacity value without longer term
- Reliance on long-term, cost-based contracts
 - Market value may increase
 - Growth of solar/wind and decline of natural gas leads to substantial clean capacity shortfall
 - Higher regulatory standards leads to increase in carbon value
 - Lack of technology development leads to increase in capacity value
 - Longer term contract captures more capacity value, but reduces flexibility for large retail load growth in Chelan County

Current Market Environment

Market Segment	Segment Challenge
PNW IOUs	Procurement process
PNW publics	Not competing on price with BPA Accustomed to supplier relationship with BPA
Marketers	Long-term counterparty risk
California utilities	Transmission access Regulatory structure
External retail entities	Lack of retail access, would need partner

Every option is on the table

Should 50/30/20 Change?

- Growing retail loads for Economic Development
 - Not possible with current retail rate and still meet rate objectives
 - HDL rate is better than retail rate, but likely below current market value creating some impacts to retail rates. 5% rate limit based on constantly-changing market pricing.
 - May be possible to offer wholesale pricing to new Chelan County load using hydro priced the same as to wholesale market or allowing imported power
- Cost-plus, longer-term contracts
 - Provides combination of value (produces margin) and stability (revenues tied to PUD generation costs)
 - Pricing could be structured to capture more, but not all, of the difference between market and cost
 - Cost-plus contracts could be modified to require greater commitment by purchasers to support state/federal actions that affect hydropower value (Treaty, TMDL, oil, etc.)
- Market-based, shorter-term contracts
 - Potentially highest value, but more volatility
 - Could test market acceptance of longer (10-year) slice contracts to capture greater capacity value
 - Retains flexibility to translate market-based contract into retail sale

Proposal

~40-50/20-30/20-30

- Cost-plus contracts (40-50%) – Maintain cost of production payment contract structure - make it above cost but below market. Could be made available for new large load in Chelan County.
- Market-based slice contracts (20-30%) – Explore extending term to 10 years. Amount of aMW could be reduced in future to serve unanticipated retail load growth.
- Retail loads (20-30%) – Assume to increase due to traditional load growth and some use of HDL. HDL use limited to no more than 5% retail rate impact.
 - Choose between reducing cost-plus and market-based slice to accommodate non-HDL load growth
 - Serve new large loads with Chelan hydropower at wholesale price/contract structure or green, non-Chelan supply
- Planning and operational reserves (taken off top)
 - Plan for stressed water conditions
 - Plan for resource adequacy requirements
 - Account for contingency reserves
 - Account for Columbia River Treaty commitments
- Protect against market volatility - create minimal exposure to being short
- Develop market for variable hydropower product

Actions

- Define principles and explore market for post-2027 Alcoa and post-2031 Puget using long-term, cost-plus terms
 - Include commitment to support hydropower (e.g. markets, tax/carbon policy, CRT)
 - Strong provisions Chelan controls investment (capital and O&M) decisions, strong credit provisions
 - Seek to capture a portion, but not all, of the difference between cost and projected market
- Explore market-based sales for 5-10 years
- Create room for retail economic development load growth (out of either slice and/or long-term contract allocations)
 - Keep retail rate impact to 5% or less due to serving economic development loads
- Plan to reduce market-based, 10-year or less, sales to accommodate unanticipated retail load growth
- Offer wholesale priced hydro and create solar/green product. Market to larger new loads.
- Develop market for variable streamflow product
- Retain small amount (1%) in short-term variable market for comparison purposes

Chelan County PUD Portfolio

Guiding Principles

1. Retain sufficient power for Chelan County's current and long-term needs for retail load growth for under 5 MW loads
2. Provide power products to support larger than 5 MW loads within strategic plan guidance to support economic development without raising retail rates by more than 5% cumulative related/resulting to/from economic development
3. Seek to provide adequate revenue to support stable and predictable retail rates that reasonably assures increases do not exceed inflation through 2035, while achieving strategic goals for hydro system capability, distribution reliability and safety
4. Create take or pay contract templates that will be used for all fixed market price and cost of production plus contracts for ease and consistency of administration and understanding
5. Have high assurance of not being short to meet District obligations during wholesale price spikes.
6. Provide a mix of fixed market price and cost of production based contracts that reduces streamflow and outage risk
7. Concentration of wholesale sales should be limited by counterparty and geography

Chelan County PUD Cost of Production

Guiding Principles

1. Maintain District flexibility and control of all operations and maintenance decision making for hydro systems and network transmission systems
2. Maintain District flexibility / control of all asset investment and financing decision making related to the District's hydro systems and network transmission systems
3. Ensure the costs of power reflect all costs of the District's production and delivery of energy, capacity and other ancillary services products
4. Include the ability to pay for capital improvements as we go as determined by the District
5. Ensure that all contractual commitments align with independent operations and potential future coordination
6. Cost of production contracts should include all costs associated with hydropower generation and transmission including contributions towards "pay as you go" capital investment and debt related costs
7. Ensure counter-party support on legislative and regulatory issues of mutual interest to protect and enhance the value of hydro and network transmission systems
8. "Future proof" the template to the extent possible regarding legislative and/or regulatory changes that could negatively impact, or enhance, the value of the District's finances and operations
9. Seek to capture a portion, but not all, of the difference between cost-based and market-based pricing creating value for the District's customer-owners and power purchasers to promote long-term collaborative partnerships and revenue stability