Cowlitz Restoration and Recovery Program
(CRR Program)

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Natural Resources / Generation
Public Utility Board – Study Session
April 24, 2019
Today’s Discussion

- In Lieu of Fish Passage Decision
- Cowlitz Restoration and Recovery Program (CRR)
- Proposed CRR implementation Strategy
- Principles of the PUB Resolution to enable the CRR
Upstream Fish Passage – Hotly Contested

Cowlitz Tribe and Friends of the Cowlitz

- Wanted “gravel to gravel” fish passage
- Fish Ladders or Elevators
- Many Failed Fish Ladders in Northwest (e.g. Deschutes River)
- Industry was moving towards Trap and Haul

Bonneville Ladder
Pelton Ladder
Resulting FERC License Article
Upstream Fish Passage

March 2002, FERC License Issuance
  • Requires trap and haul and/or volitional passage

In Lieu of Fish Passage
  • Place $15 million into an Interest bearing account by 2003
  • Conduct Fish Survival Studies for 14 years
CRR Program Development Timeline

- **2002**: FERC License Incorporates Settlement Agreement
- **2016**: Modify FERC license to allow abandonment of volitional release earlier than 14 years
- **2015**: Agencies Recommend abandoning volitional passage
- **2017**: Tacoma & Fisheries Technical Committee (FTC) Craft CRR Program
- **2018**: US Fish & Wildlife + NOAA Approve CRR
- **2019**: FERC Approves CRR
- **2036**: FERC License Expires
CRR Requirements

Fund Recovery of Endangered Species Act-listed salmon and steelhead in the upper basin:

- Habitat restoration and protection projects
- Hatchery-associated production projects
Habitat Restoration and Protection

- In-stream restoration
- Streamside tree plantings
- Purchase Land
Hatchery-Associated Production Examples

- Fish release site improvements
- Supplemental fish plantings
- Acclimation facilities
CRR Program Elements

- Grant based
- Uses existing state processes to select projects
- Promotes and maintains partnerships
- Encourages sustainability
- Considers value of hatchery programs along side habitat programs
Grant Program

Leverage existing Fish Habitat Program

Salmon Recovery Funding Board Process (SRFB)
- Funds fish habitat projects for Washington State
- Annual open solicitation process
- Relies on Lead Entities to conduct technical reviews

Lower Columbia Fish Recovery Board
- Lead Entity for the Cowlitz River
- Created Salmon and Steelhead Recovery Plans
- Composed of local governments, tribes and natural resource management agencies
- Proposed projects go through rigorous technical review and ranking
- Agreed to incorporate Tacoma Habitat Projects
Habitat Project Selection

Criteria include:

Fit to Salmon Recovery Strategy

✓ Alignment with recovery plan

Certainty of Success

✓ Scope and approach
✓ Coordination, sequence of events, uncertainties
✓ Qualifications, community support and stewardship

Benefit to Fish

✓ Target population & stream reach
✓ Protection, access and restoration

Cost & Benefit

✓ Reasonable cost
✓ Match greater than 15%
Grant Program Benefits

Tacoma’s CCR Fund has grown to $17.8 M

Expands SRFB Program in Cowlitz Basin
  ✓ Matching funds for SRFB projects – 15% minimum
  ✓ Encouraging larger more comprehensive projects

Projects have demonstrated regional support
  ✓ Fosters partnerships
  ✓ Program coordination

Considers hatchery-related projects
  ✓ Not in SRFB process
Grant Program

Novel Hatchery Production Program

**Hatchery Associated Production Team (HAP)**
- ✓ WDFW & Tacoma Power - soliciting NOAA and Tribes
- ✓ Use selection criteria and rank
- ✓ Make recommendation to FTC-CRR Subcommittee

**Fisheries Technical Committee’s – CRR Subcommittee**
- ✓ Assure LCFRB and HAP recommendation are in alignment with our priorities

**Fisheries Technical Committee**
- ✓ Reviews and agree on final list
- ✓ Created Cowlitz Salmon and Steelhead Recovery Plans
Sustainable Use of Funds

Anticipate expenditure rate of $2-3 million per biennium

- Funds budgeted as part of biennial budget process
- Allows for development of high-quality, large multi-year projects
- Promotes ecosystem enhancement economy
- Ensures sustainable funding for sponsor organizations

Ability to fund large projects exceeding $3 million

- Example: land procurement project
- Requires additional Board approval
Program Administration

Board Approve Biennial Budget
• Typically $3 million

Project Selection Process:
• Cowlitz Fisheries Technical Committee and the Lower Columbia Fish Recovery Board
• Technical merit and FERC directives

TPU Director Executes Contracts
• Fund projects selected by FTC
TPU Director Delegation Rational

Benefit

- FTC authorized by FERC to select projects
- Limits project proponent motivation to escalate and create controversy for Tacoma
- Avoids disruption to extensive selection process

Risk

- Tacoma lose control over Habitat vs. Hatchery project selection process
- Administrative and/or legal constraints
- Board approves funds, not the work or contractor
Accountability

Annual presentation to the Board

• All new and currently funded CRR projects
• Anticipated expenditure rate of funds for upcoming year
• Program changes
# Project Review and Approval Process

<table>
<thead>
<tr>
<th>Stage</th>
<th>January - May</th>
<th>May - September</th>
<th>September - December</th>
</tr>
</thead>
<tbody>
<tr>
<td>Applicant</td>
<td>Apply for Habitat Project</td>
<td>Apply for Hatchery Project</td>
<td>Rank &amp; Recommend Projects, CRR</td>
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<tr>
<td>LCFRB</td>
<td>Rank &amp; Recommend Projects, Regional</td>
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<tr>
<td>FTC and CRR Sub.</td>
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<td>Rank &amp; Recommend Projects, CRR</td>
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<tr>
<td>Tacoma Power</td>
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<td>Establish Contracts</td>
<td>Brief TPU Board</td>
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<td>TPU Director</td>
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<td>Approve Contracts</td>
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</table>
PUB Resolution Principles Enabling CRR

- CRR Program is grant-based
- Funding rate constrained to $3 million per biennium unless special approval from the Board
- TPU Director is delegated signature authority for grantee contracts
- Board oversight occurs as part of an annual program report
Questions?

Tacoma Public Utilifish

SurvivetheSound.org: May 6-10
Tacoma Power

Energy Risk Management/Operations & Trading Update

Ying Hall
Energy Risk Manager

Todd Lloyd
Assistant Power Manager, Resource Operations & Trading
Resource Operations & Trading
Commercial Operations Update

Graph 1: Tacoma System Flows Have Been Below Adverse
(Tacoma System Hydro Flows, Water Year 1929 – 2019)
Commercial Operations Update

Graph 2: Federal System Flows Have Been Below Average
Commercial Operations Update

Graph 3: Last 10 Years of Flows Have Been Good
(Tacoma System Flows Annual Avg., Water Year 1929 – 2019)
Commercial Operations Update

Graph 4: Current Snowpack is Below Average
(Current Snowpack Conditions, % of Normal)
Commercial Operations Update

Graph 5: Current Cowlitz Elevation Is Well Below Normal
(Cowlitz Elevation, Current vs. Historic)
Commercial Operations Update

Graph 6: Market Prices Have Been Above Budget Since Q3’18
(Market vs. Budget Prices, 2018 – 2022)
Commercial Operations Update

Graph 7: We’ve Been Selling Less than Budgeted, Purchasing More
(Actual vs. Budget Wholesale Volumes, 2019 – 2020)
Wholesale Net Revenues
Wholesale Net Revenues

Graph 8: Q1’19 Actuals Below Budget, But Still Have Time to Recover
(Cumulative Actual vs. Budget Wholesale Net Revenues, 2019 – 2020)
Wholesale Net Revenues

Graph 9: Estimated 70% Probability of Making Budget
(Risk Model Simulation of Biennial Net Revenues, 2019 – 2020)

70% probability of exceeding the biennium budget of $79.3M
Wholesale Net Revenues

Graph 10: $6M Below Budget Due to Poor Hydro, Purchases
(Cumulative Wholesale Net Revenue Variance, Jan – Mar 2019)
Section 3

Hedging Program & Credit Risk Management
Hedging Program

Overview

Hedging Program Objective

A hedging program is part of Tacoma Power’s energy risk management policy.

The objective of the hedging program is to:

✓ Stabilize net revenues from wholesale operations
✓ Protect against very low wholesale revenue outcomes

Hedging Program Design

The hedging policy enforces dollar cost averaging of surplus sales and prohibits holding deficit positions.

The program has a two year horizon, and utilizes physical forward contracts.

Allowable hedge ratio governed by “hedging bands” that:

✓ Limit the maximum amount hedged far into the future
✓ Require progressively more surplus be hedged as time to delivery gets closer
Hedging Program

Graph 11: Current Hedging Program Performance Is Not Typical
(Hedging Program, 2017 – 2020)
Credit Risk Management

Overview

Background

- Tacoma Power frequently sells electricity to wholesale trading partners or “counterparties”
- Tacoma Power incurs credit exposure – money that the utility could lose in the event of a counterparty default

Credit Risk Management Program

Tacoma Power manages credit risk by:

- Extending credit to investment grade counterparties only
- Setting exposure limits based on creditworthiness
- Daily monitoring of credit quality
- Daily monitoring of exposure
- Actions include stopping trading with a specific counterparty, requesting collateralization
## Wholesale Credit Exposures

### Graph 12: Current Credit Exposures Are Low
(Top 15 Counterparty Credit Exposures)

<table>
<thead>
<tr>
<th>Rank</th>
<th>Counterparty</th>
<th>Internal Model Rating</th>
<th>Letter of Credit Collateral</th>
<th>Loss in Event of Default</th>
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<tbody>
<tr>
<td>1</td>
<td>Brookfield Energy Marketing LP</td>
<td>BBB-</td>
<td>$2,500,000</td>
<td>$0</td>
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<td>2</td>
<td>Sacramento Municipal Utility District</td>
<td>AA-</td>
<td>$679,071</td>
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<td>3</td>
<td>Avangrid Renewables, LLC</td>
<td>A-</td>
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<td>4</td>
<td>Puget Sound Energy, Inc.</td>
<td>BBB</td>
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<tr>
<td>5</td>
<td>Portland General Electric Co.</td>
<td>BBB</td>
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<td>6</td>
<td>Calpine Corporation</td>
<td>B+</td>
<td>$2,750,000</td>
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<td>7</td>
<td>Exelon Generation Company, LLC</td>
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<td>8</td>
<td>Morgan Stanley Capital Group, Inc.</td>
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<td>9</td>
<td>EDF Trading Limited</td>
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<td>Powerex Corp.</td>
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<td>BP Energy Company</td>
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<td>12</td>
<td>DTE Energy Company</td>
<td>BBB</td>
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<td>13</td>
<td>Eugene Water &amp; Electric Board</td>
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<td>14</td>
<td>CP Energy Marketing Inc.</td>
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<td>15</td>
<td>Black Hills Power, Inc.</td>
<td>A-</td>
<td>$1,025</td>
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