Focus 2028
Federal Hydropower Program

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Feb 11th 2016
Capital Reinvestment Program

- Total Capital Expended
- Total Capital Approved

Year: 1996 to 2023
Millions $:
- 2008 peak
- 2014 decline

2/8/2016
Backlog of Reinvestment Need
Capital Investment Program by Stage

($000) Program Dollars by Stage

- Long Term Planning
- Short Term Planning
- In Execution
- Small Cap
- CIR Request

2/8/2016
Major Projects Identified to begin within 10 yrs

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O&M Expenses - Benchmarking

- Industry-wide, hydro utilities are responding to aging infrastructure and increased regulatory requirements through their capital investment and O&M programs.
- FCRPS O&M Expenses are lower than most large hydro utilities in North America.

- Benchmarking data from EUCG, Inc.
- Includes 6 North American hydro utilities > 3500 MW total capacity.
- FY 2014 Corps data. Reclamation data is comparable per kW.
- F&W = Fish and Wildlife.
- F&W Expenses include BPA program, direct funds, and appropriations.

2/8/2016
Columbia River Fish Mitigation (CRFM)

- Total Completed CRFM Expenses: $1,496,558,871
- Principal paid to date (up to 1996): $130,143,000
- Interest paid 1996-2015: $488,000,000
- Outstanding CRFM Debt: $1,392,629,852

Note: $75 million in new CRFM ~ $5 million in amortized annual expense
Performance Management in the FCRPS

• Key metrics are tracked monthly for FCRPS plants to encourage continuous improvement and industry-leading performance:
  
  – Safety
  – Financial Performance
  – Unit Availability and Forced Outage
  – Maintenance

• Maintenance and investment work is scheduled throughout the year to minimize impacts to system performance and maximize work execution.
NPV of Different Funding Levels (6% Discount)

- Lifecycle cost minimization analyses have shown that there are benefits in growing the Capital Program beyond the current funding level of approximately $200 million per year.
FCRPS O&M Non-Routine Expenses - Overview

• About 17% of all O&M Expenses are for Non-Routine Extraordinary Maintenance, the large infrequent repair activities associated with failing equipment, as well as long-term scheduled maintenance such as the Grand Coulee Third Powerplant Overhaul.

• As condition of aging infrastructure has degraded, costs have increased over time

![FCRPS Non-Routine Expenses ($000's)]
Rate Impact of a $300 Million Capital Program

- Preliminary results from a long term rates study suggest that rates will be slightly lower in 2028 with a $300m per year hydro capital program level than with a $200m per year program due to increased generation from higher unit availability and reduced Non-Routine Expense.

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Capital Program Level Impact on Generation

Change in Lost Generation Risk from Baseline (GWh)

-7,000 -6,000 -5,000 -4,000 -3,000 -2,000 -1,000 0 1,000 2,000


- $400M
- $350M
- $300M
- $250M
- $200M
- $150M
- $100M
Capital Program Impact on Non-Routine Expense

2/8/2016
A $200 million program cannot keep up with degrading condition as the percentage of equipment in Good or Fair condition declines for all Strategic Classes over time.
A $300 million program effectively sustains equipment in Good or Fair condition through 2028 and slightly increases the percentage by 2045 for the majority of the Strategic Classes.
Asset Investment Excellence Initiative

“... The FCRPS is comprised of billions of dollars in assets and provides great economic and social benefits for the Pacific Northwest region and beyond.

As such, we owe it to our stakeholders to be World Class managers of those assets to ensure the long term viability of those benefits for the good of the Nation and future generations. It is our goal to develop a long-term asset investment plan to provide for certainty, efficiency, affordability and reliability of the System’s long-term value.”

Excerpt from the “Statement of Strategic Intent” developed by the three agencies’ executives, February 2015

- Elliot Mainzer, Administrator, Bonneville Power Administration
- Lorri Lee, Director, North Pacific Regional Office, Bureau of Reclamation
- BG John Kem, Commander, Northwestern Division, U.S. Army Corps of Engineers
Asset Investment Excellence Initiative Objectives

**Long Term Program Planning**

- System Asset Plan (20 + year FCRPS Asset Plan for the System)
- Identification of requirements
- “Valuing” requirements
- Prioritizing & Optimization
- Bundling work when justified
- Aligning requirements with affordability

**Contracting and Procurement**

- Increased lead time and better scopes to develop acquisition strategies and tools
- More regional and interagency acquisition strategies
- Higher consistency between Corps Districts and with Reclamation in working with industry

**Program Execution**

- Proper lead time for design, contracting, and project planning and staffing
- Certainty in future workload and funding
- Shared Lessons Learned
- Improved project execution

**Human Capital**

- Necessary lead time to program staffing for major projects
- Increased interagency teamwork on recruiting, retaining and training our staffs
Long-term Planning Process – Capital Program

- FCRPS Hydro Asset Strategy
- Return on Investment
- Condition Assessments (hydroAMP)
- Bundling Capital Projects
- Planned Outages
- Rates Impacts

Value Framework

System Asset Plan (SAP)

US Army Corps of Engineers

updated annually

John Day Dam, Powerhouse, 2006
Asset Investment Excellence Initiative - Timeline

**System Asset Plan (SAP)**
- **FY16**
  - Q1: Initial Value Framework Tool
  - Q2: CS5 Task Order Award
  - Q3: APT develops new framework, tools and “Initial” SAP
  - Q4: Continues current capital approval process

**Asset Planning Team**
- **FY17**
  - Q1: FY17 SAP 1 (May)
  - Q2: Initial SAP
  - Q3: Long-term capital planning
  - Q4: Real-time management of the capital investment program

**Capital Work Group**
- **FY18**
  - Q1: Transition to real-time management of capital program
  - Q2: SAP’s Value Framework expands to include the entire FCRPS
  - Q3: APT develops new framework, tools and “Initial” SAP
  - Q4: Continues current capital approval process

**Contracting & Procurement Task Force**
- **FY19**
  - Q1: Develops acquisition strategy and leads the development of contracting tools
  - Q2: Coordinates interagency acquisition tools where it adds to efficiency and effectiveness
  - Q3: Develops human capital plans and policies to support the capital program
  - Q4: Increases interagency human capital programs and opportunities

**Human Capital Task Force**
- **FY19**
  - Q1: Develops human capital plans and policies to support the capital program
  - Q2: Increases interagency human capital programs and opportunities

**hydroAMP**
- **FY19**
  - Q1: hydroAMP program improvements

**hydroAMP Program Improvements**

**SAP Notes:**
1. Initial SAP will not use the CS5 Value Framework
Financial Disclosure

• This information has been made publicly available by BPA on February 11, 2016 and contains information not reported in BPA’s financial statements.