Integrated Program Review 2
Corps and Reclamation O&M

February 15, 2017
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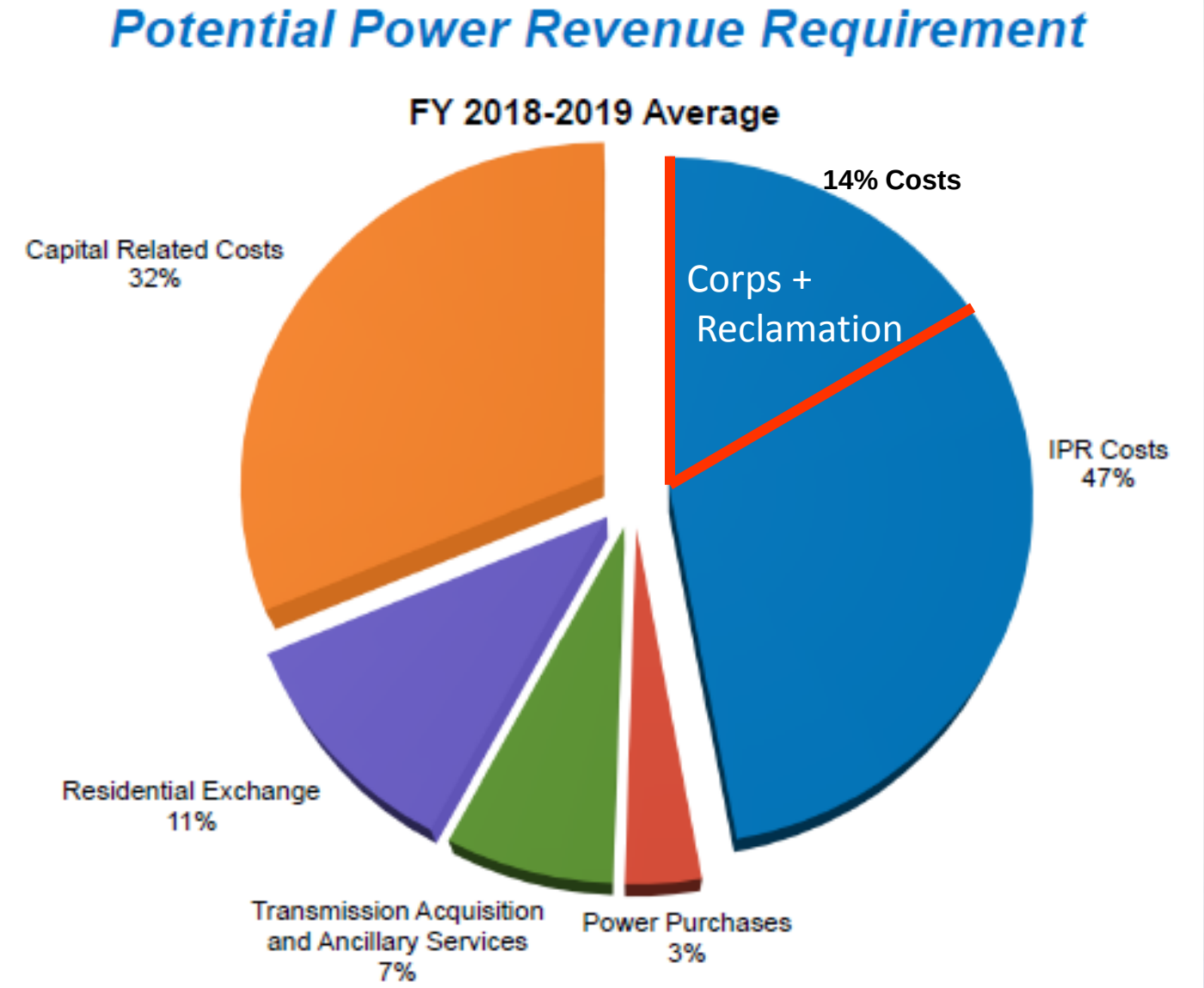
Corps and Reclamation O&M Expense



*from IPR Kickoff

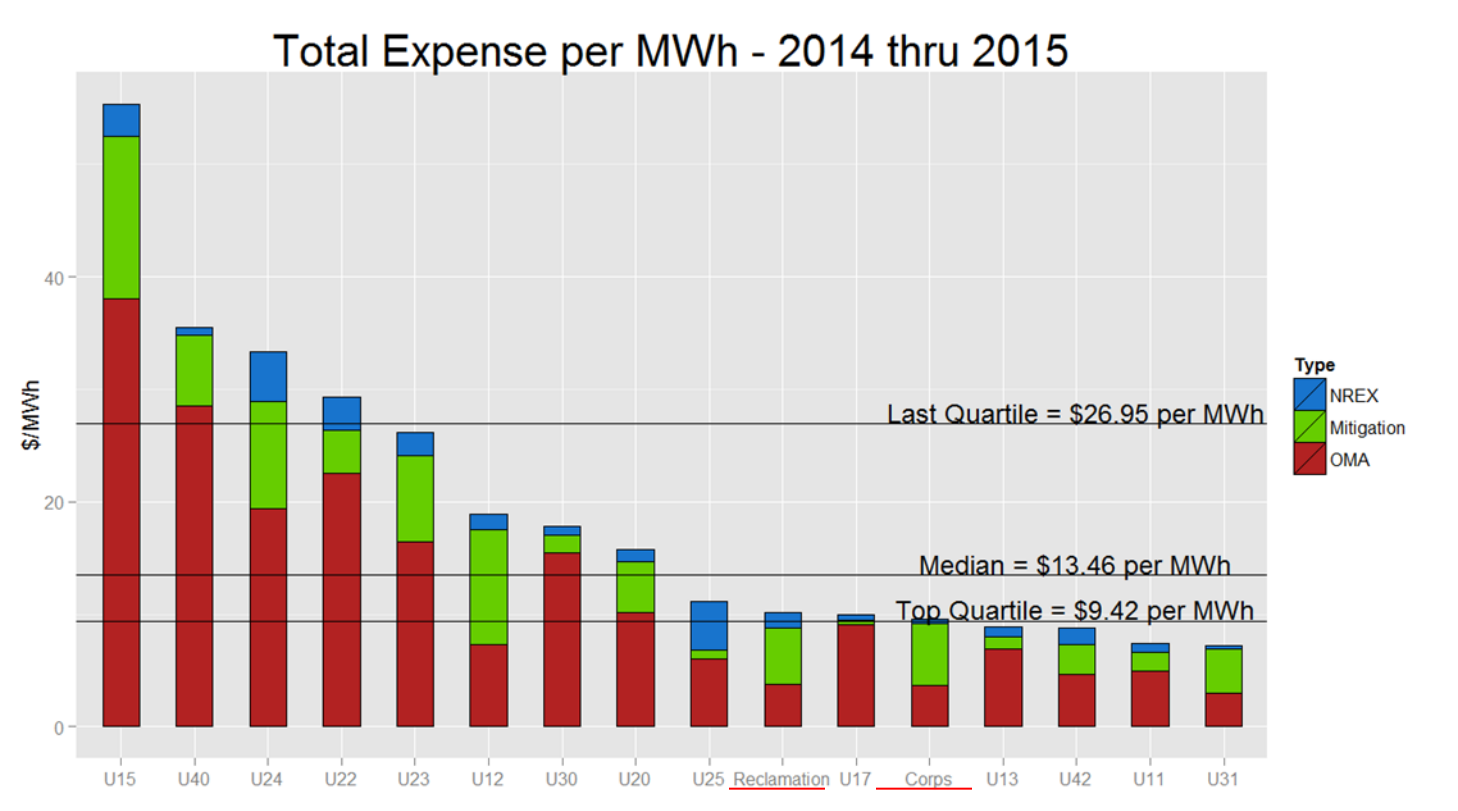
Summary of '18–'19 Budget Proposal

- Two-year average annual budgets in $ millions:

Scenario	Reclamation	Corps	CRSO Cost	Total
BP-16 Rate Case	157.5	247.4		404.9
IPR close-out	164.6	254.5		419.1
IPR 2 proposal	162.1	252.5	5.1	419.7
Two-Year Change from BP-16	2.9%	2.1%		3.6%

Hydropower Benchmarking – O&M Cost

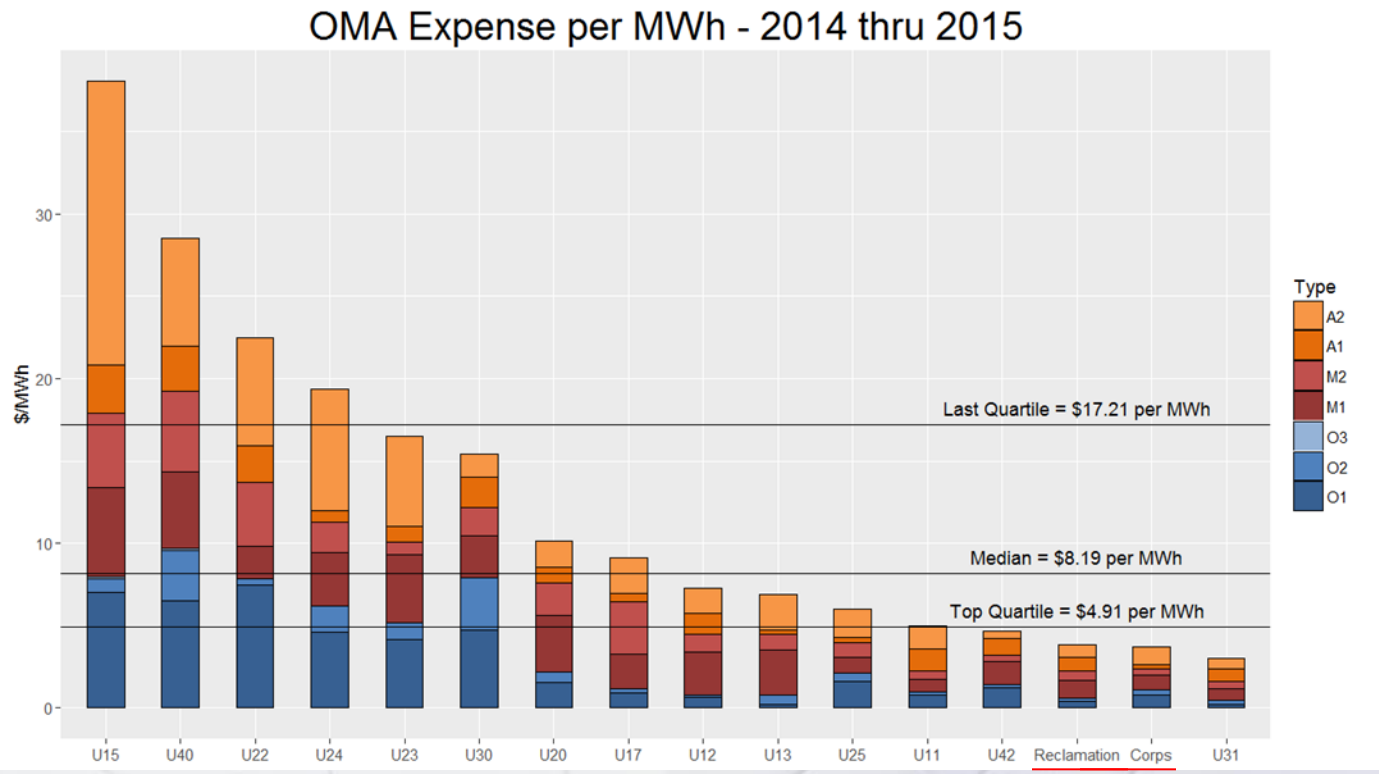
- The FCRPS is among the lowest cost hydropower fleets in EUCG.
  - The EUCG database contains nearly half of all North American hydro capacity.
  - Mitigation costs, which include fish & wildlife, recreation, and cultural resources, are very high relative to others in the industry.



*Data from EUCG, Inc. – All 16 North American hydro fleets shown – average fleet is ~ 22 plants and 4,500 MW
*Costs include appropriated share of joint costs and some BPA internal costs in order to enable comparison with hydro industry

Hydropower Benchmarking – O&M Cost

- Removing mitigation costs and focusing on operation, maintenance and administrative costs only shows the FCRPS to be one of the lowest-cost hydroelectric fleets in North America.
- This is despite the fact that our capital re-investment was at one of the lowest rates in the industry for many years.



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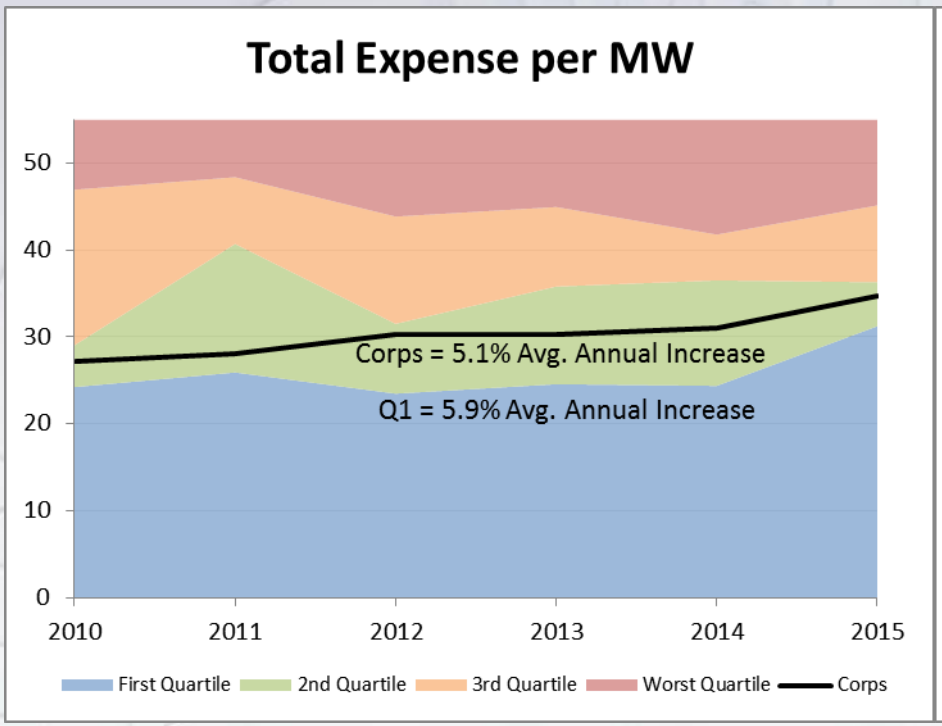

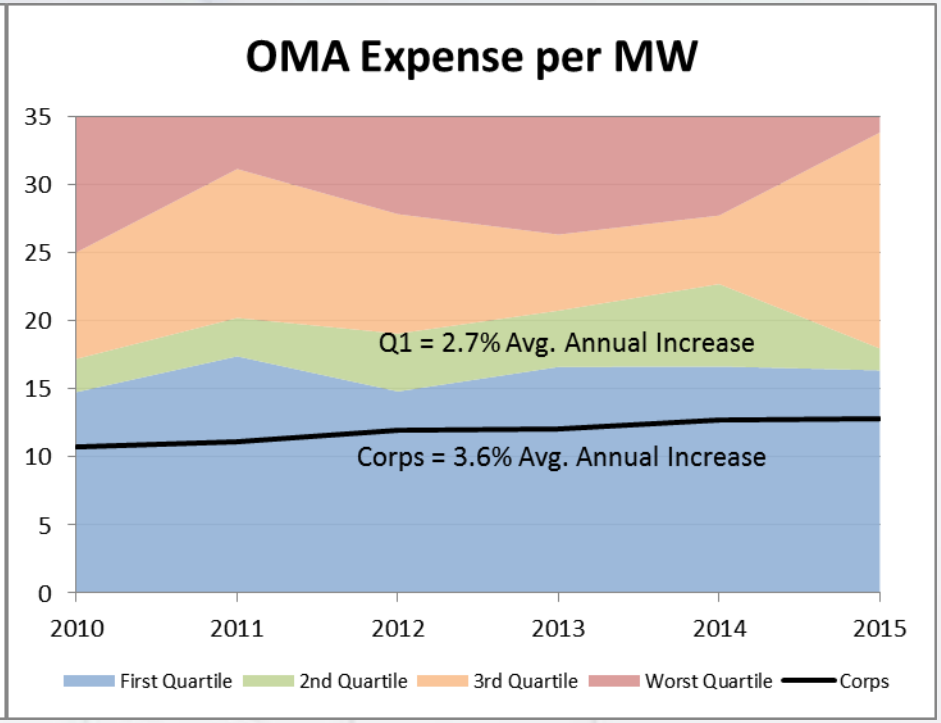

- Major cost drivers include incorporating mandated wage increases for our labor force of skilled craftsmen, while maintaining aging infrastructure & responding to increased regulation & mitigation requirements.
- These pressures are not unique to the FCRPS in the hydro industry.
- More work will be required in order to offset those increased requirements and be a consistent top quartile performer in total O&M expense.

*Data from EUCG, Inc. – All 16 North American hydro fleets shown – average fleet is ~ 22 plants and 4,500 MW
*Corps data only (Reclamation joined EUCG in 2014) – Reclamation performance per MW is very similar to Corps
*Costs include appropriated share of joint costs and some BPA internal costs in order to enable comparison with hydro industry

Long-term Operational Excellence

- Both agencies are successfully implementing O&M best-practices programs such as World Class Hydro at Grand Coulee, Power Reviews, and maintenance management systems.
- A long-term asset management strategy is essential to meet needs in the future. The focus for the last few years has been on the capital strategy with Asset Investment Excellence Initiative. Developing a regional O&M strategy is needed to complement this as well as to meet changing demands.
- Investment in the development of an Operational Excellence plan is needed now. It is critical to manage assets efficiently and effectively while providing a sustainable solution to management of rates and overall costs.
- Operational Excellence development needs to be balanced with budget reductions to avoid creating higher risk.
- FCRPS agencies are committed to Operational Excellence.
  - Cost management efforts
  - National Federal Asset Management directives
  - Funding limitations from appropriations

Long-term Operational Excellence

- For this effort to produce results, study is needed to establish programs that can increase the efficiency of O&M programs.
- We plan to investigate several O&M program areas to identify efficiencies:
  - Centralized warehousing and engineering
  - Remote operation and automation
  - Utilizing multi-skilled craftsman at smaller facilities
  - Implement more effective workload planning & scheduling utilizing Maximo
  - Implement Reliability Centered Maintenance (RCM) on critical systems to optimize maintenance requirement and implementing zero defect strategies

Columbia River System Operations Costs

- At the time of IPR 2 presentations, it is undetermined where funding will be obtained for the federal-court-mandated Columbia River System Operations Environmental Impact Statement preparation.
  - If this is funded by other means outside of the expense budget for the Corps and Reclamation, it would allow for more certainty in the budget process.

- Estimated Costs:

	Reclamation	Corps	BPA
FY 2018	$1,430,916	$3,598,000	$4,700,000
FY 2019	$1,520,490	$3,598,000	$4,800,000
Total	$2,951,406	$7,196,000	$9,500,000

CORPS OF ENGINEERS
O&M EXPENSE BUDGETS

‘18 – ’19 Two-Year Average O&M Budgets

Scenario	Reclamation	Corps	Total ($M)
BP-16 Rate Case	157.5	247.4	404.9
Field request	176.7	271.1	447.8
Budget submission	170.2	266.5	436.7
Initial IPR	167.1	257.0	424.3
IPR close-out	164.6	254.5	419.1

- The Corps’ field request assumed labor increases of 1% to 3% and non-labor increases (e.g. contracts and materials) of 3%. It also included:
  - Hydropower Engineering Internship Program increases
  - O&M costs for new GDACS equipment in the Willamette Valley
  - Additional requirements for Environmentally Acceptable Lubricants
  - Additional power funding to match appropriations provided to maintain assets placed in service via CRFM.
- It also reflected a $5 million annual increase in the NREX program to address several large projects that have been deferred for many years.
- The Corps decided to absorb $4.5 million of the increases in their routine O&M program and reduced their request to BPA by that amount.

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- Reduced $9.5 million in the Initial IPR through scaling back planned NREX program from $25 million to an average of $18.5 million and by reducing an additional $3 million in the routine O&M program.
  - Deferring all projects except high risk or legally mandated.
- The IPR close-out included an additional $2.5 million annual reduction, which will be taken from the routine program and achieved through:
  - Forgo incentive programs
  - Optimize Cultural Resources and Fish & Wildlife budgets
  - Reduce staffing budgets (vacancy rates)
  - Mandated reductions across all plants

Risks/Impacts from IPR1 and IPR2 Reductions

- Reductions in program would affect capacity to support both capital program as well as execute O&M program due to reduced workforce.

- Reduced manpower impacts critical maintenance such as:
  - Cyclical requirements such as arc flash assessments at the operating projects.

- Planned and scheduled cyclic maintenance activities to extend performance and reliability would be reduced or eliminated. For example:
  - Painting and corrosion prevention would effectively stop
  - Maintenance cycles on generators and turbines would likely be extended
  - Work on spillway gates and other components would likely be deferred

- Risks are significant to all business lines and missions if we fall into a deferred maintenance cycle again. Running equipment to failure and/or putting off required maintenance will have substantial long-term negative impacts.

Risks/Impacts from IPR1 and IPR2 Reductions

- Reductions of warehouse stock and spare parts inventory, affecting our ability to quickly respond to forced outages and routine work.
- Decreased flexibility to respond to changing conditions, whether operational (equipment failures, increased generation demands), environmental (EIS/BiOp/related litigation) or reliability mandates.
- Reduce capability to sustain a fully trained workforce
- Safety risks will likely increase even with control measures.

Potential IPR 2 Budget Reductions

- The Corps has considered an additional reduction of up to $2 million. This would reduce the budget request for each year of the rate case to $252,457 thousand – an annual reduction of **$2.0 million** to the ceiling published in the IPR close-out.

- This does not account for costs associated with CRSO EIS.
  - FY18 = $3.6M
  - FY19 = $3.6M

- This would be managed by decreasing our roughly $150 million labor budget by 1.25% as well as additional cost efficiencies.
  - For FY 18, it will affect the power-specific program more acutely than joint programs.
  - It will be achieved by reducing overtime, increase hiring lags, review of positions before filling (looking at temps, terms, contractors) and maintaining a higher vacancy rate.
  - Continue to evaluate efficiencies in all programs.

IPR 2 Budget Reduction Proposal (Cont)

- FY18 Joint-use and Environmental Stewardship appropriated budgets have been submitted for Presidents Budget
  - Reductions focused on Power-specific program to reduce risk of losing appropriated funds. FY 2019 is currently under development.

- Maintains several programs:
  - Hydropower Engineering Intern Program
  - Personnel for maintaining safety program
  - Maintain current WECC/NERC requirements and program

BUREAU OF RECLAMATION O&M EXPENSE BUDGETS

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- Reclamation’s initial field request Included:
  - Third Power Plant (TPP) Overhaul forecast expenditures
  - Increases to non-labor (materials and supplies)
  - Full staffing levels at Grand Coulee
- Reclamation Reduced Field Request by $6.5 million (3.7%)
  - Considered TPP historical expenditures
    - Analyzed construction schedule vs. forecast expenditure
  - Absorbed increases in non-labor in base O&M program
  - Recruitment/retention at Grand Coulee
    - Reduced staffing budget (vacancy rate)

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- Reclamation absorbed additional $3.1 million (1.8%) for the Initial IPR.
  - TPP further reduced:
    - Lessons learned
    - Analyzed construction schedule
- IPR1 imposed additional $2.5 million (1.4%) reduction
  - Represents a $12.1 million (6.8%) total reduction from field request
  - Further reduced staffing budgets
  - TPP Overhaul

Risks/Impacts from IPR1 Reductions

- TPP Overhaul Risks
  - Unforeseen circumstances (not identified with G24 or lessons learned)
    - Require funding
    - Schedule delays
      - Unit availability/power generation
      - Contract mods for schedule delays
- Staffing impacts
  - Ability to plan
    - Maintenance activities
    - Outages
  - Engineering support
  - Decreased project management for ongoing/planned projects

Risks/Impacts from IPR1 Reductions

- Maintenance impacts:
  - Reduced staff to respond to forced outages.
  - Reduced staff to address cyclical requirements.
    - Power review recommendations.
    - Relay report recommendations.
    - NERC/WECC audits (internal and external).
  - Reduced ability to correct non-routine repairs.
    - Known equipment issues that require maintenance personnel but are deferred waiting plant conditions.

Potential IPR2 Budget Reductions

- Reclamation proposed reduction
  - Proposes additional $2.5 million per year reduction above the IPR close-out levels.
    - FY18-19 average = $162.1 million ($163.179 million and $161.103 million respectively)
    - This reduction does not account for CRSO EIS costs:
      - FY18 = $1.43 million
      - FY19 = $1.52 million
  - Full commitment program elements:
    - Safety
    - Security
    - NERC/WECC
    - Contractual Obligations to Others for Water and Power Delivery, i.e. Irrigation Districts

Potential IPR2 Budget Reductions

- Reclamation proposed reduction
  - Impacted program elements:
    - Overtime
    - Hiring (vacancy rates)
    - Cultural resources
    - Coulee TPP overhaul
    - NREX efforts at other facilities
    - Note: Reclamation will manage reduction within these elements to minimize risks.
      - One, some or all elements may be impacted.

Risks/Impacts From IPR2 Reductions

- Base O&M overtime risk:
  - Reduced OT for routine unexpected maintenance activities
  - Increased forced outage rate:
    - Units out of service until crews return on scheduled work days
    - Increase backlog of routine maintenance
      - Increased failures
      - High priority backlog affects scheduling of routine backlog
- Hiring (vacancy rates):
  - Delayed World Class Hydro implementation
    - Centralized planning (capital/NREX)
    - Standardized job plans
      - Note: Impacts ability to achieve long-term program management efficiencies.
    - Wages
      - TC increases are wage survey dependent.
        - » Higher wages could increase vacancy rate leading to work delays.

Risks/Impacts From IPR2 Reductions

- Cultural resource impacts:
  - Ability to plan and deliver stabilization projects for sensitive archaeological sites
    - Trigger policy level meetings with tribes
- Coulee TPP overhaul risks:
  - Higher risk caused by unforeseen circumstances
    - Higher probability unforeseen circumstance may cause funding shortage.
      - Increased outage time
- NREX at other facilities:
  - Hungry Horse lift station would be delayed until next rate case.
  - Minidoka unit and stop logs and gates concrete:
    - Deteriorating causing difficulty to place stop logs
    - Delay to next rate case

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Conclusions

- Majority of the potential reductions for FY 18-19 are considered short-term and temporary. Achievable long-term reductions will need to be identified through our efforts in Operational Excellence.
- Agencies are committed to such changes and implementing in other programs both regionally and nationally.
- Customer feedback on O&M best practices will be crucial, in addition to existing hydro industry forums such as CEATI and EUCG.
- Short-term efforts to reduce budgets may exacerbate problems if we fail to develop long-term strategies.

Contact Us

Comments can be sent to:

Participants can submit comments on BPA's IPR 2 proposed levels during a public comment period beginning February 15 and concluding March 13, 2017. Comments can be submitted:

- Online at www.bpa.gov/comment
- By mail to: BPA, P.O. Box 14428, Portland, OR 97293-4428.
- By email to BPAFinance@BPA.gov

Please send questions to:

BPAFinance@BPA.gov

Financial Disclosure

- This information was made publicly available on February 10, 2017, and contains information not sourced directly from BPA financial statements.