

Capital Investment Review Kick-Off

March 8, 2012

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Participant Code: 206389

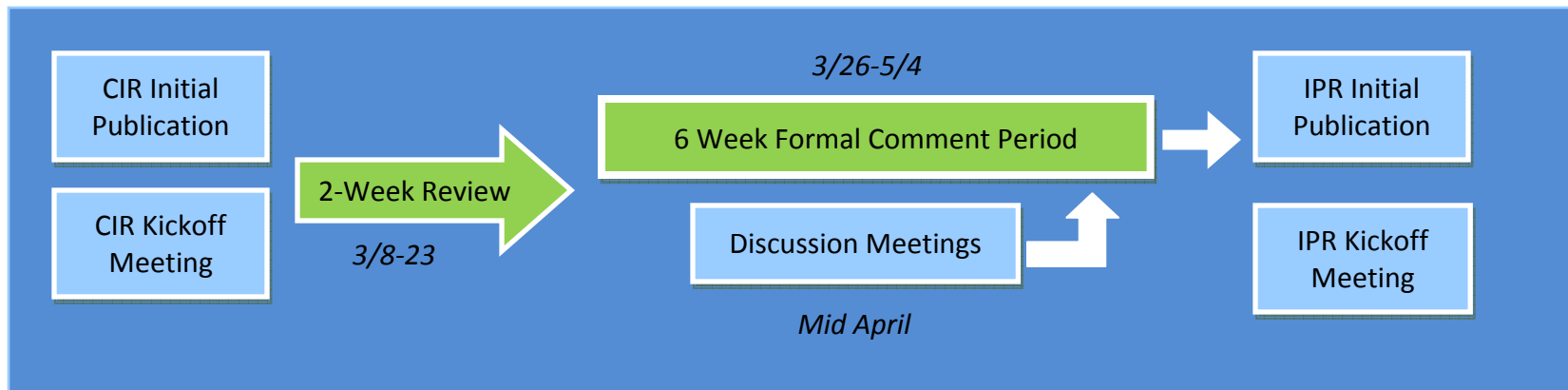


Capital Investment Review

- This Capital Investment Review (CIR) is an opportunity for BPA to share with stakeholders the strategic drivers of BPA's long-term capital investment program based on its asset strategies.
- These asset strategies provide a 10-year plan for asset management and the associated capital spending forecasts.
- This review of the asset strategies will include insight into how BPA makes capital investment decisions based on a comprehensive method of evaluating asset condition, determining most important investments, and preparing the associated capital spend forecasts.
- For this first Capital Investment Review, we have a complete suite of draft asset strategies for your review and comment.
- Capital spending levels drive power and transmission rates. The single biggest revenue requirement category is capital related costs.

Capital Investment Review

- Your input and comments on these draft asset strategies will be taken into consideration in the final long-term asset strategies.
- This capital review process is, in part, preparation for the upcoming Integrated Program Review, which will establish both the capital and expense spending levels reflected in the FY 2014 – FY 2015 Power and Transmission rates.



Capital Investment Review

Lessons Learned

In response to customer feedback, this CIR process is taking a new approach.

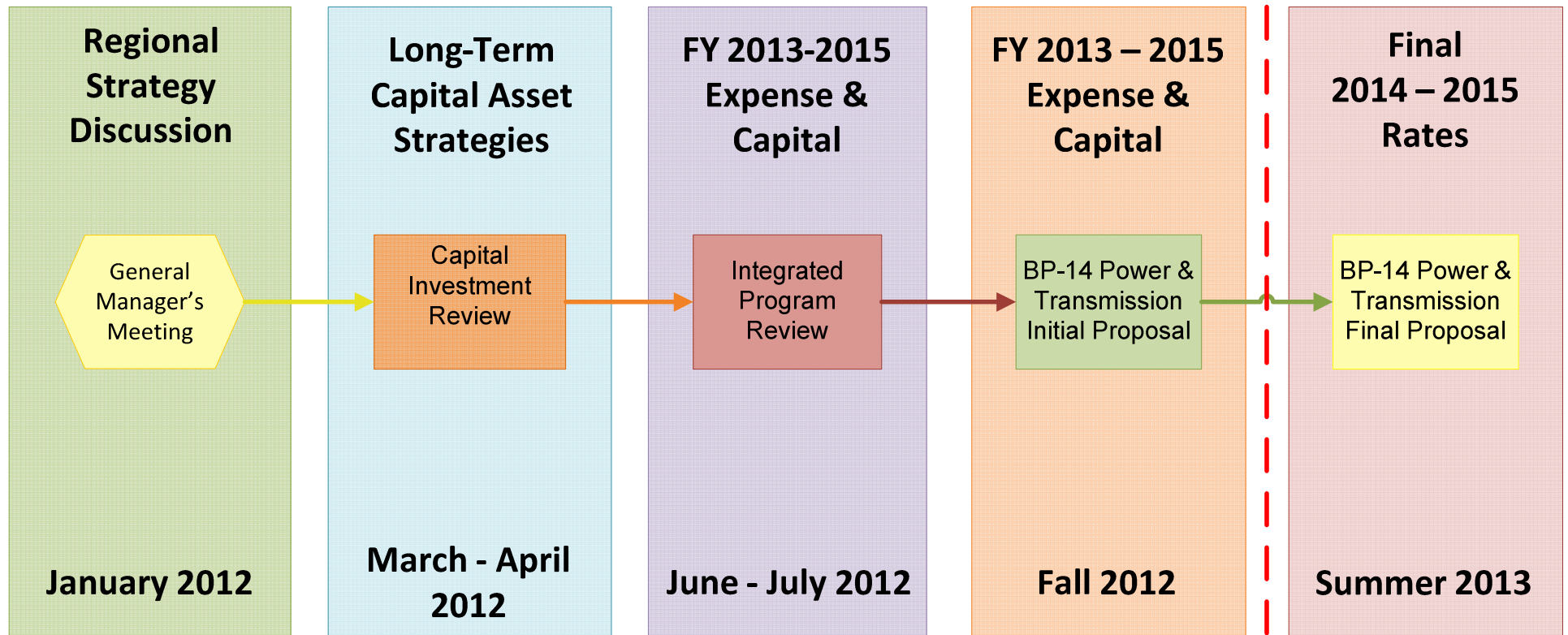
This new approach will:

- Provide consolidated information in one comprehensive publication.
- Provide both detailed strategies and summaries for easier review.
- Allow participants to request additional information or meetings on specific asset strategies during the two week review of the initial publication.
- Hold timely requested meetings in April.
- Allow participants ample time to comment on draft asset strategies and proposed long-term capital investment levels with a six-week public comment period.



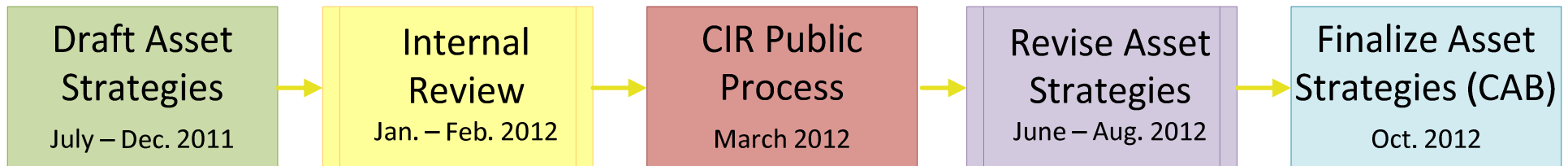
2012 Public Involvement

The CIR process will inform the Integrated Program Review (IPR).



Asset Strategy Development

- Agency policies provide strategic guidance to the business units before they develop their draft asset strategies.
- These draft strategies are given significant internal review by the cross Agency's Asset Management Council and BPA's executives.
- While still in draft, these strategies are being released for stakeholder comment during the CIR.
- The final strategies will take into consideration the public comment.
- Implementation of the asset strategies begins October 2012 and will influence the FY 2014 – FY 2015 rates.

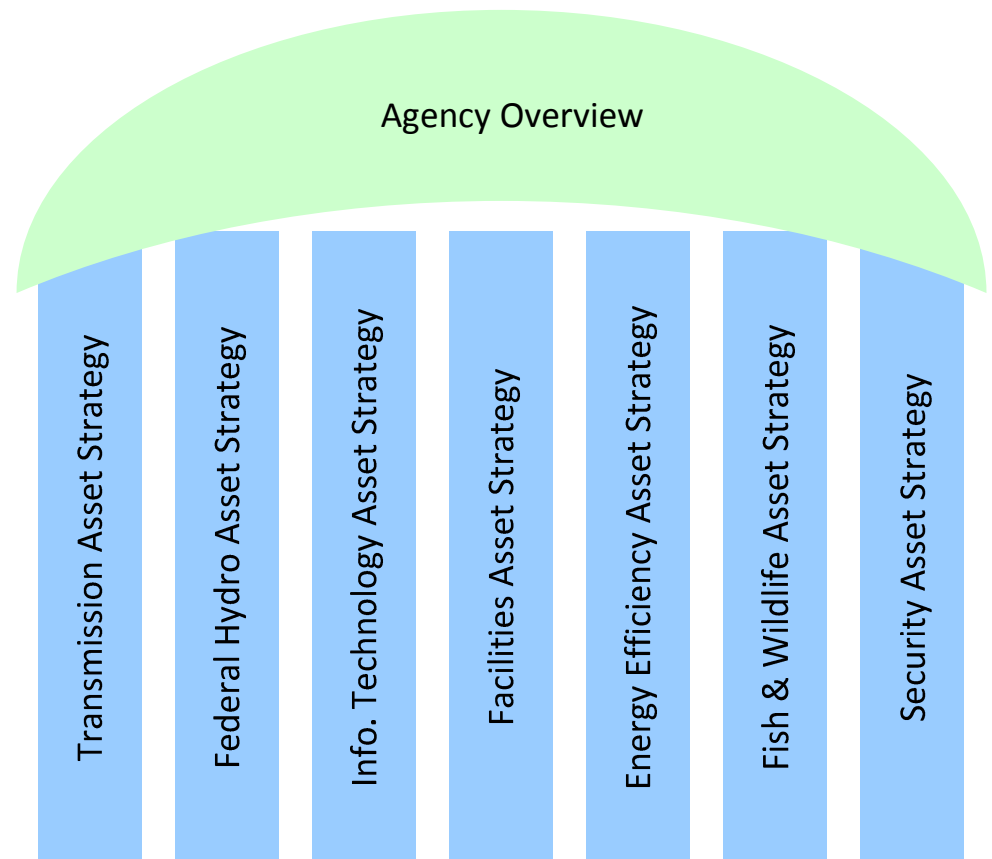


Agency Overview

Asset Strategies

The Agency Overview integrates and gives context to the following asset strategies:

- Transmission
- Federal Hydro
- Information Technology
- Facilities
- Energy Efficiency
- Fish & Wildlife
- Security



Agency Overview

Role of Asset Strategies

- Scope: Maintenance and investment in replacements, upgrades and additions in the power and transmission system over a 10-year planning horizon
- Purpose: Chart the course for managing equipment and facility health, performance and costs
- Goal: Maximize long-term operational and economic value of the assets
- Accomplished by: Maintaining and investing in the system so that:
 - Assets operate efficiently and effectively and provide the capacity and capabilities needed to meet BPA's mission of effectively maintaining or improving reliability, availability, and adequacy of BPA assets.
 - Total economic costs are minimized over the long-term

Agency Overview

Strategic Challenges

■ **Aging Infrastructure**

- Much of the critical infrastructure is nearing or exceeding its design life.
- Deteriorating condition of some critical assets poses significant reliability and availability risks.
- Much of the transmission, federal hydro and non-electric facilities asset base must be replaced or upgraded to maintain system performance for the long-term.

■ **Technology Risks and Opportunities**

- Technological obsolescence has become a major risk factor for maintaining long-term reliability and managing maintenance and repair costs.

■ **Increasing Demand on the Power & Transmissions System**

- Renewable Portfolio Standards (RPS) adopted by Pacific Northwest states and California are driving significant growth in renewable resources in the region and straining the current infrastructure.

■ **Increasing Compliance Requirements**

- Reliability, Security, and Endangered Species Act requirements.

Agency Overview

Strategic Priorities

For 2012 – 2017, the agency is pursuing six strategic priorities, four of which have a direct bearing on our investment and maintenance strategies:

- Preserve and enhance the value of the power system
- Preserve and enhance the transmission system
- Implement our Endangered Species and other fish and wildlife related responsibilities
- Advance energy efficiency



Agency Overview

Prioritizing Projects

Given the strategic priorities, BPA's asset management objective is that capital projects are prioritized through a systematic, transparent risk informed methodology that:

- Assets operate efficiently and effectively and provide the capacity and capabilities needed to meet health and safety, reliability, availability, adequacy, and other standards
- Total economic costs are minimized over the long-term. (Total economic costs include not only costs incurred by BPA, but costs potentially incurred by customers and other stakeholders should assets fail to perform)

The prioritization must align with the agency's asset management strategies; recognize the business needs of individual asset categories; and enable efficient and timely decision making.

Agency Overview

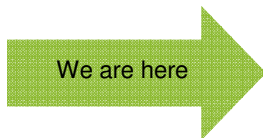
Capital Allocation and Project Prioritization

Proposed strategies are developed for each asset category

Asset performance objectives, risk assessments, evaluations of strategy recommendations proposed planning levels, and proposed criteria for prioritizing capital projects

“Affordability” is determined

Rate impacts and access to capital impacts of proposed strategies are assessed



Stakeholder review

Asset strategies are revised as necessary

Decisions made on level of capital spend that the Agency can “afford”

Capital is allocated strategically across asset categories

Ceilings on capital spend (capital budgets) are finalized for each asset category

Capital Allocation Board reviews and approves the strategies

Priority projects are submitted for approval

Basic Sequence

Agency Overview

Proposed Capital Project Prioritization

Capital projects are prioritized *separately* for **Sustain** and for **Expand** projects

Sustain

- **Defined as:** Capital projects where the primary purpose is to replace, modernize or refurbish equipment and facilities in order to maintain asset capabilities and performance
- **Prioritization:** Investments are determined through asset condition/risk assessments in the asset strategies
- **Highest priority** is assigned to projects that address the most critical assets at greatest risk, based on condition assessments. Condition assessments cover risks of:
 - Safety or health issue
 - Operational failure or technological obsolescence
 - Environmental damage; or
 - Security breach or noncompliance
- Emergency situations take precedence. In no case are sustain projects cancelled or deferred if it would lead to a violation of standards, tariff provision or other legal commitments and requirements.

Expand

- **Defined as:** Capital projects where the primary purpose is to add capacity or flexibility and to increase operational output/productivity
 - **Prioritization:** Investment involves two steps
 1. Segregate mandatory expand projects from discretionary projects
 2. Prioritize the discretionary investment using agency-level criteria/process
 - **Mandatory expansion projects** are investments that a law, appropriations act, regulation, tariff, or contract requires be made. Mandatory projects are limited to investments that, if not made, will result in non-compliance.
-
- **Expansion projects that do not meet the mandatory test** are subject to **priority ranking** at the **agency level**.
 - Once priority ranked, a **cut line is drawn** to delineate “go” or “no-go”. The result: a **single agency prioritized list of discretionary expansion projects**.

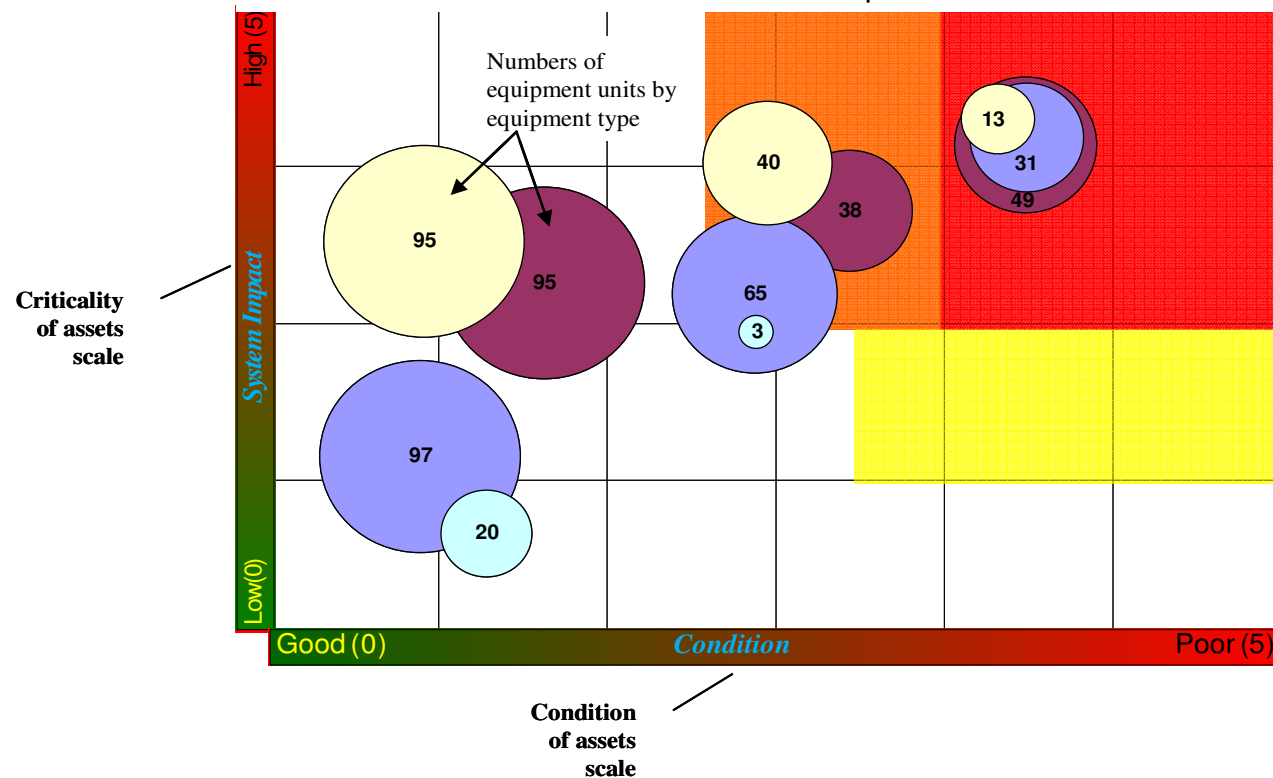
Agency Overview

Prioritization of Sustain Projects

Sustain investments are prioritized via the asset strategies

This prioritization assigns highest priority to the most critical facilities and equipment at greatest risk

Risk-based prioritization of "sustain" projects
Illustrative example



Projects that address assets in the red zone are assigned the highest priority, followed by assets in the orange zone and then the yellow zone



Transmission

Transmission Asset Strategies

Purpose & Objective

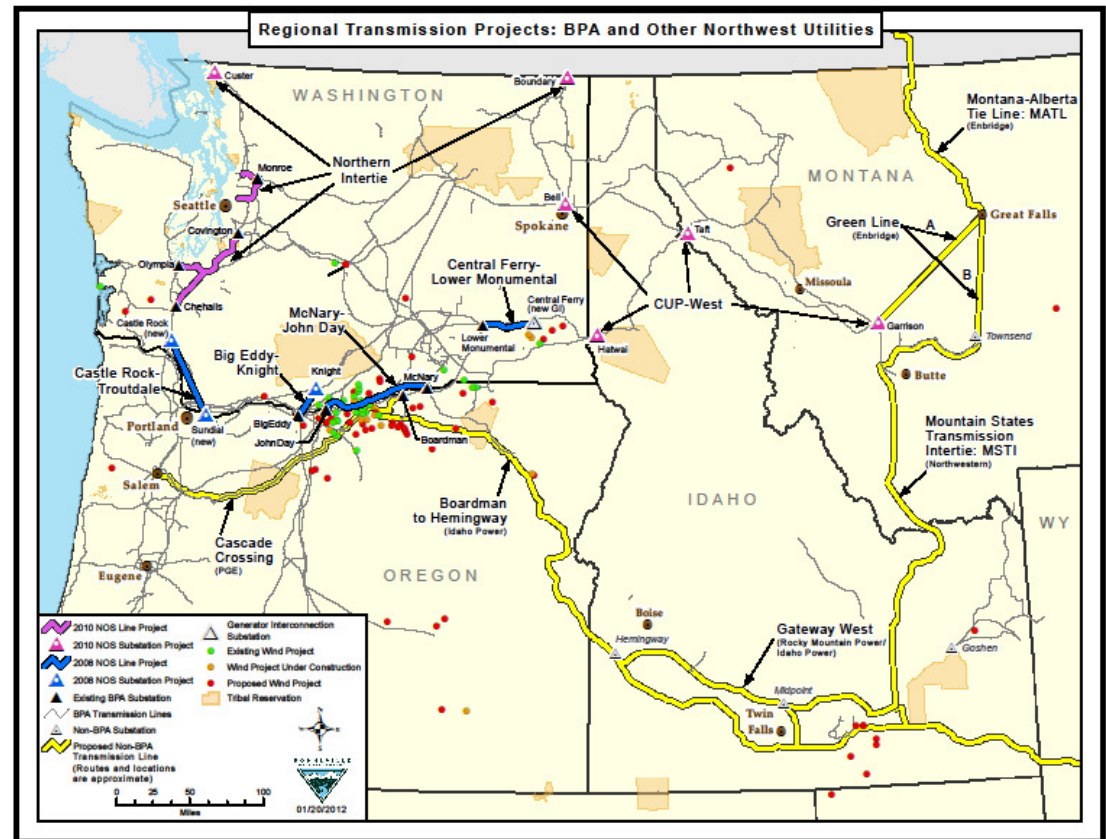
BPA owns and manages about three-fourths of the region's high-voltage transmission assets, spanning four states and approximately 300,000 square miles. These assets provide transmission service to a population of more than 12 million across eight states. BPA's Transmission Asset Management Strategy provides the roadmap for managing the health, performance, costs and risk of these assets.

The strategic ambition is two-fold:

- Ensure that critical existing assets, including transmission lines, substations, control center equipment, and other facilities and equipment are **sustained** to meet reliability and availability requirements.
- Ensure that **Expansion** of the system provides the needed transmission capacity into the future.

Vision for Managing Transmission Assets

We will manage our assets to achieve high reliability, availability and adequacy standards and maximize economic value for the region. We will use efficient and transparent practices that are effective in managing risks and delivering assets.



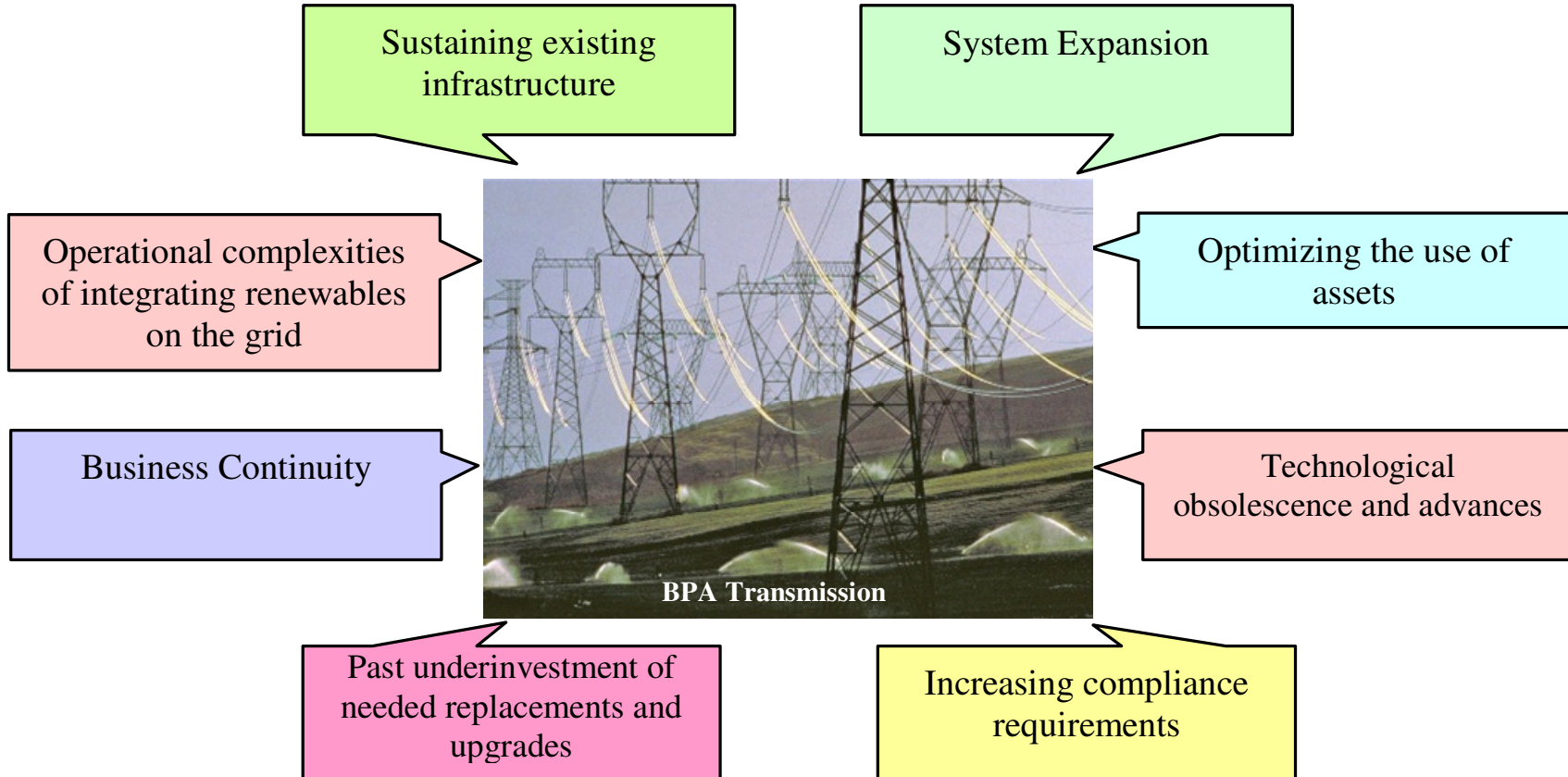
Transmission Asset Strategies

Key Accomplishments in FY 2010-11

- Transmission executed 72% of its direct capital spending on the Transmission capital program key agency target, including projects funded in advance, in FY 2010. This improved to 95% in FY 2011 through project management process improvements and the increased use of contract management office administered owner's engineer contracts.
- The **Sustain** programs met many key targets toward replacing at-risk assets. Some accomplishments include
 - A total of 2,130 wood poles were replaced as part of the life extension portion of the Wood Line strategy, 1,278 poles in FY 2010 and 852 poles in FY 2011.
 - The Steel Lines Sustain program successfully replaced over 1,500 miles of spacer dampers in the FY 2010-11 timeframe.
 - In FY 2010-11, 97% of the access road projects planned in support of the Wood and Steel Lines programs were completed on schedule and within budget.
- The **Expansion** Program efforts have been focused on developing and constructing numerous large projects, many of which were identified during the previous IPR process. Key projects include:
 - Main Grid
 - John Day–McNary, Lower Mid-Columbia, Forest Grove, and Ostrander
 - Upgrades & Additions
 - 500 kV single phase spare transformers at 5 key substations
 - California-Oregon Intertie (COI) Series Capacitor Control and Protection System Upgrade
 - Communications upgrades
 - Other Projects
 - Spectrum Relocation Project
 - Central Ferry Substation for Generation Interconnection

Transmission Asset Strategies

Key Drivers



Transmission Asset Strategies

Key Risks

Meeting reliability and availability standards

▪ **Sustain**

- Aging infrastructure, resulting in higher maintenance expenses and risk of failure
- Replacement backlog due to periods of underinvestment
- Technological obsolescence
- Equipment maintainability and availability

▪ **Expand**

- Integrating wind and other new generating resources has increased stress on the grid.
- Increased congestion
 - Can force a change in the optimal dispatch of generating resources leading to higher regional costs for delivered power
 - Requires new capacity and flexibility be added to the system to meet tariff and regulatory requirements and provide adequate, efficient, and reliable service.
- A heavily loaded system constrains the Agency's ability to schedule outage time for needed maintenance, repairs, replacements, and construction.

Transmission Asset Strategies

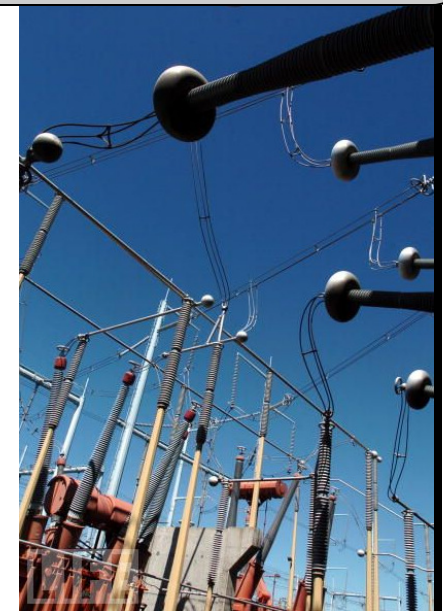
Preferred Strategy

The 2012-2021 asset management strategy consists of a prioritized set of sustain and expand investments to meet transmission objectives and drivers.

The forecast equals \$3.9 billion in direct capital costs¹, with 46% of the direct capital being allocated to sustain projects, 46% to expand projects, and 8% for the Celilo upgrade project. Customer requested projects (PFIA) total \$328 million and capitalized indirects equal \$483 million for a total capital program of \$4.7 billion for the ten year timeframe.

- The forecast has been updated and reshaped to stay within the capital investment level presented during the 2011 Strategic Capital Discussions.
- The exception is the Celilo Upgrade project which has been estimated at a total of \$324 million, direct capital cost, an increase of \$216 million since the 2010 IPR. With AFUDC and overheads, the total capital cost is estimated to be \$428.1 million.
 - Given its criticality, the Celilo project is now being treated separately from other forecasted spending estimates due to the large capital outlay required. If included in the base it would squeeze out many other necessary projects. It can be funded from non-Treasury sources and costs will be recovered only from parties benefiting from the California Oregon Intertie.
- The following projects are **not** represented in the proposed 10 year forecast due to project uncertainty and budget limitations:
 - Network Open Season 2012 (\$ to be determined)
 - Boardman to Hemingway/MISTI (\$300-400 million)
 - Boardman Substation – Morrow County Server Load (\$30 million)
 - Changes to Caribou Sub/Hooper Springs (\$29 million)
 - Pending Central Ferry – Lower Monumental Decision (Could result in schedule shift impacting implementation of other projects)
 - Regional imbalance market (\$ to be determined)

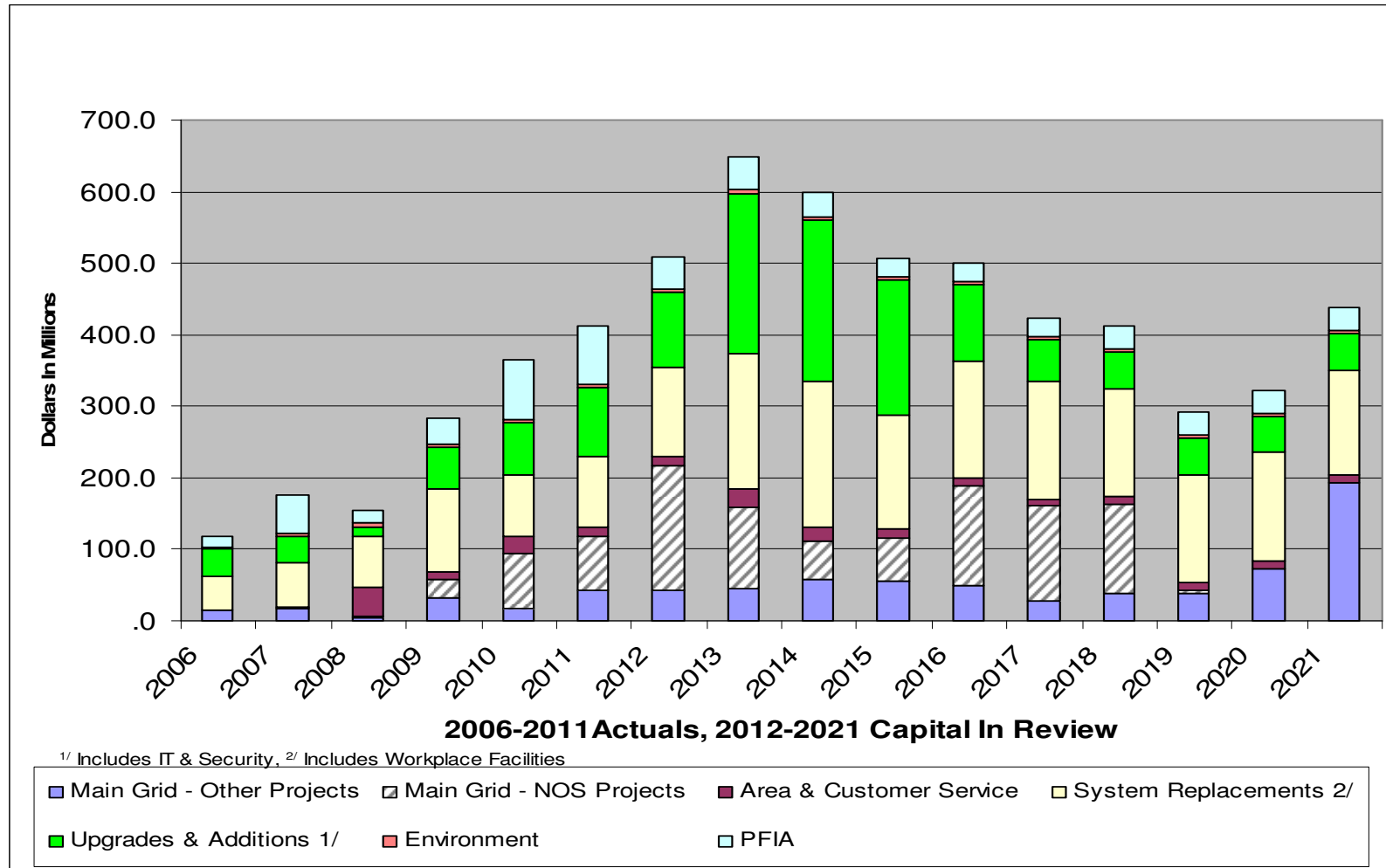
Sustain strategies objectives: Manage risks of aging infrastructure, technological obsolescence, and constraints to implementation. Slow down or eliminate growing backlogs and reach the optimal steady state of replacements.



Expand strategy objectives: Add capacity and flexibility, increase operational output, improve reliability and meet load growth. Address interconnection of generation, meet customer service requests, and relieve transmission congestion.

Transmission Asset Strategies

Direct Capital by Category



This chart shows the overall capital program for the Transmission Business Unit including IT, Security, Non-electric Facilities, and Environment. This also includes the breakout of the Network Open Season (NOS) investments.

Transmission Asset Strategies

Capital Forecast

Capital Costs (In Millions, Nominal)

	Current rate period		Next rate period		4-Year Total	FY 2016	FY 2017	FY 2018	FY 2019	FY 2020	FY 2021	10-Year Total	
	Actuals FY 2011	FY 2012	FY 2013	FY 2014									FY 2015
Capital Costs (excluding AFUDC and Corporate Overheads)													
Transmission													
Sustain Programs:													
AC Substations	12.4	18.2	40.8	39.7	25.9	124.6	17.2	18.0	23.2	23.2	23.2	23.2	252.6
DC Substations	4.7	11.3	11.3	7.2	4.5	34.3	-	-	-	-	-	-	34.3
Control Center	4.9	3.8	7.3	7.4	7.6	26.1	7.7	7.8	7.0	7.0	7.0	7.0	69.6
Power Systems Control and Telecom.	19.9	22.1	85.1	70.0	59.0	236.2	47.7	29.6	37.3	37.3	37.3	37.3	462.7
Rights of Way	17.7	24.1	26.1	23.4	23.6	97.2	17.7	17.7	11.3	11.3	11.3	11.3	177.8
System Protection and Control	5.8	7.4	26.2	29.0	28.1	90.7	34.8	28.3	21.7	21.7	21.7	21.7	240.6
Steel Lines	14.9	32.7	28.4	16.5	12.6	90.2	12.9	13.1	11.5	11.5	11.5	11.5	162.2
Wood Pole Lines	36.4	29.1	43.5	59.0	40.1	171.7	38.1	40.9	36.0	36.0	36.0	36.0	394.7
TEAP Tools	1.0	0.9	1.0	1.0	1.0	3.9	1.1	1.0	1.1	1.0	1.1	1.1	10.3
Expand Program:													
Main Grid	118.2	216.1	158.3	112.6	116.8	603.8	189.6	160.0	163.0	43.0	74.0	194.0	1,427.4
Area and Customer Service	12.9	13.2	27.3	17.5	12.1	70.1	10.0	10.0	10.0	10.0	10.0	10.0	130.1
Upgrades and Additions	54.5	53.7	28.9	23.0	19.0	124.6	21.5	21.4	17.5	17.0	16.5	16.0	234.5
Subtotal	303.3	432.6	484.2	406.3	350.3	1,673.4	398.3	347.8	339.6	219.0	249.6	369.1	3,596.8
PDCI (Celilo) Upgrade Project		1.3	85.4	116.1	93.6	296.4	27.6	-	-	-	-	-	324.0
Transmission Indirects (Capitalized)	45.4	41.5	45.6	46.1	47.0	180.2	47.9	48.9	49.9	50.9	51.9	52.9	482.6
Projects Funded In Advance	81.3	45.2	45.0	35.0	25.0	150.2	25.0	25.0	32.0	32.0	32.0	32.0	328.2
Total with Indirects and PFIA	430.0	520.6	660.2	603.5	515.9	2,300.2	498.8	421.7	421.5	301.9	333.5	454.0	4,731.6

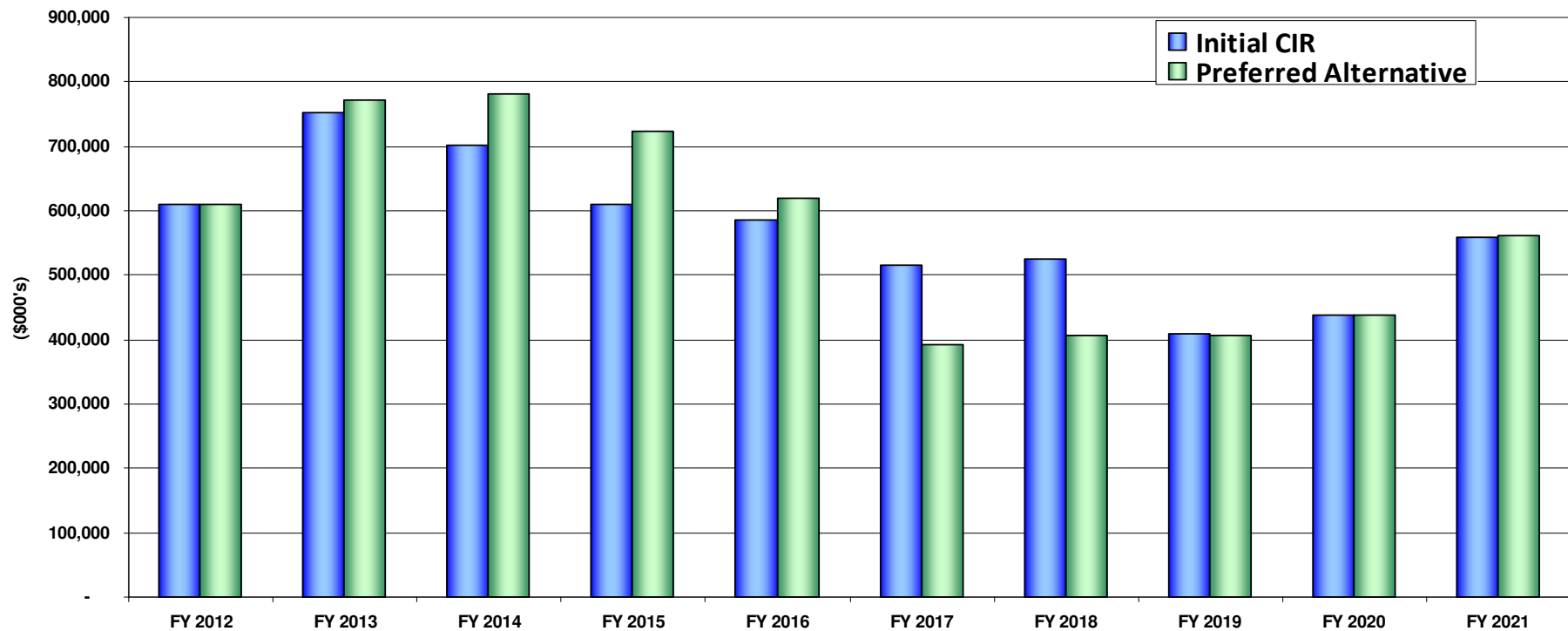
Transmission Asset Strategies

Summary

The initial CIR forecast and the preferred alternative have the same total ten year investment

- The alternate forecast is preferred and keeps I-5 Corridor and Northern Intertie projects on the originally proposed schedule
- The initial CIR forecast delays the I-5 and Northern Intertie projects, calling upon alternatives to meet load service obligations and providing a reliable transmission system during the delay period

Transmission Capital



Facilities Asset Management



Facilities Asset Management Strategy

Purpose, Scope & Accomplishments

Facilities Asset Management (FAM) is responsible for the planning and management oversight of non-electric facilities (NEF), as well as other site-development systems such as fences, parking lots, sidewalks, driveways, and other non-electric structures.

Includes all site buildings, their associated mechanical, structural, and utility systems, surrounding grounds, and other fixed improvements upon the land within the sites controlled by the Agency.

Represents a replacement cost of roughly \$1.15 billion.

The NEF portfolio currently consists of 1013 buildings such as control houses, data centers, office buildings, and storage facilities at 434 sites located across the Agency's service area of 300,000 square miles.

Since the 2010 IPR, FAM has, through its strategic partners in Transmission Engineering and Transmission Services made the following **accomplishments**:

- Invested over \$30 million in repair and replacement of critical facilities in the BPA system
- Invested over \$19 million in capital construction projects
- Made improvements to the overall administration of the program

Facilities Asset Management Strategy

Objectives & Drivers

The overall, **objective** of FAM is to **optimize** BPA's asset portfolio. FAM provides reliable, sustainable, non-electric assets that meet current and known future Agency business needs, and ensure performance and condition standards that comply with all applicable regulations, while minimizing the life cycle costs. To meet this overall objective FAM has indentified four long term objectives:

- Systems are in place to assess health and performance of assets
- Investments are prioritized based on need, risk and return on investment
- Execute industry standard O&M practice
- Assets are sustainable and compliant

The following are **drivers** of the FAM program and asset strategy:

- Expected Levels of Service
- Business Continuity
- Historical Requirements
- Functionally Outdated Assets
- Expansions
- Executive Orders
- Security
- Building Codes (Life/Safety)
- Hazardous Materials (Life/Safety)

Facilities Asset Management Strategy

Risks & Strategy

The following is a list of **risks** identified in meeting FAM's objectives:

- Unreliable access to required resources
- Potential funding issues
- Inaccurate/incomplete data

FAM's asset **strategy** employs principles designed to meet one or more program objectives:

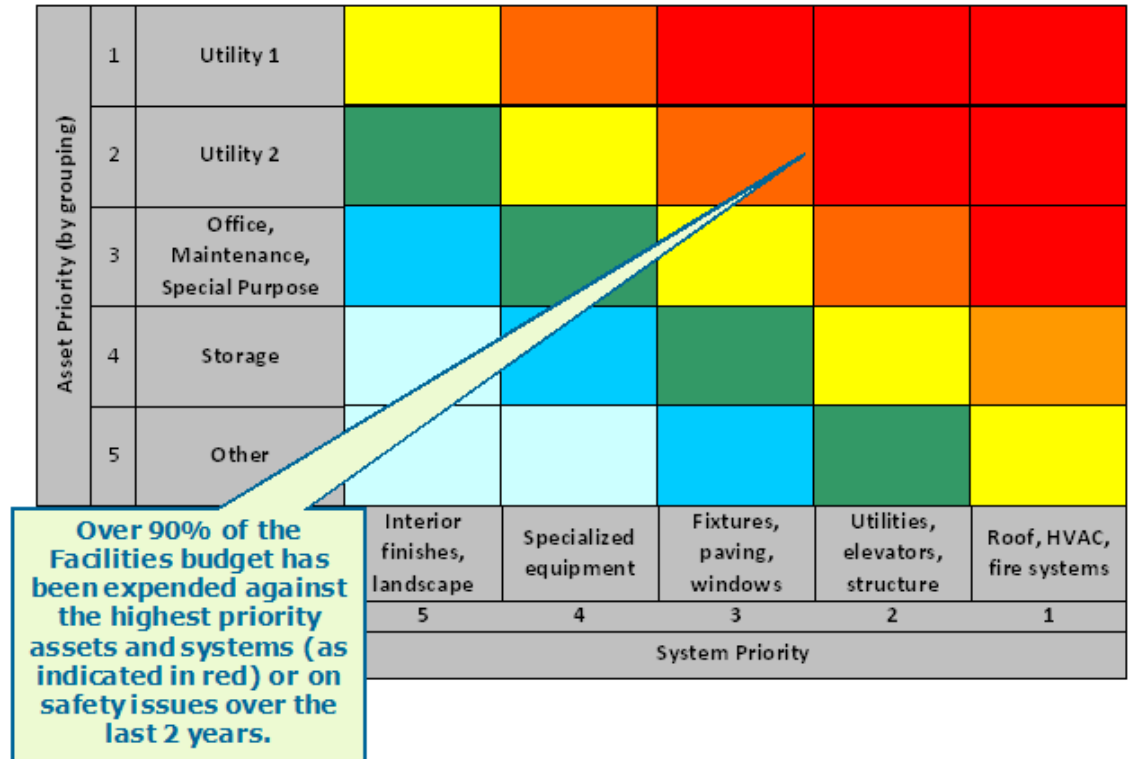
- Asset Program Specific Investment Strategies
- Best Maintenance Practices
- Capital Governance
- Continuity of Operations
- Design Standards and Materials Specifications
- Facility Information Management System
- Funding Options
- Hazardous Materials Management
- Integrated Planning
- MECA Bi-annual Work Planning and Scheduling
- Organizational Alignment
- Project Documentation and Turnover
- Repair, Replace or Decommission Methodology
- Resources
- Service/Reliability Expectations
- Space Management: Utilization/Remodel

Facilities Asset Management Strategy

Prioritization

When **prioritizing** projects FAM considers many factors. The criticality, or importance; of facility assets is dependent upon their role in the operation of the power market/delivery system and in ensuring business continuity.

- FAM defines asset criticality by asset type rather than for individual sites.
- Each system with the asset poses a different risk to the operation of the building. The criticality of the systems reflects the role that system plays in keeping an asset functioning safely, efficiently, and reliably.
- The program's asset and system's importance, along with the condition or health of the assets drives the primary prioritization methodology and is reflected in the actual allocation of funds expended of the two year period.



Facilities Asset Management Strategy

Strategies & Recommendation

The initial CIR **scenario** has an insufficient capital allocation thru FY 2015. Critical facilities projects expected to occur in FY12 have shifted into FY13 and projects to provide space in the Portland/Vancouver area have been added.

Capital Scenario (\$ Million) – Preferred Alternative

	Actuals FY 2011	FY 2012	FY 2013	FY 2014	FY 2015	FY 2016	FY 2017	FY 2018	FY 2019	FY 2020	FY 2021	10-Yr Total
Condition Assessment Projects	1.9	1.9	1.5	1.5	1.3	1.3	1.3	1.3	1.3	1.3	1.3	13.6
Miscellaneous New Building Projects	3.5	-	-	4.2	6.0	6.0	6.0	6.0	6.0	6.0	6.0	46.2
Hazardous Materials Abatement	0.8	0.5	0.5	0.5	0.5	0.5	0.5	-	-	-	-	3.0
Asset Decommissioning		-	-	0.6	0.5	0.6	0.5	0.4	0.2	0.3	0.2	3.3
Sustainable Investments		0.4	1.5	-	-	-	-	-	-	-	-	1.9
Maintenance HQ Projects	0.0	4.0	21.0	11.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0	106.0
Communications Building Replacements	1.4	3.0	3.0	3.0	1.0	-	-	-	-	-	-	10.0
Portland Vancouver Office Space Strategy	1.0			11.0	6.0	.05		4.8	4.4	4.4	.1	31.2
Headquarters Leasehold Improvements	1.9	2.2	2.2	2.3	2.3	2.4	2.4	2.5	2.5	2.6	2.6	24.1
Business Continuity	0.4	3.0	12.0	-	-	-	-	-	-	-	-	15.0
Total	11.0	15.0	42.0	34.0	28.2	20.1	20.4	25.0	24.4	24.5	20.2	254.3

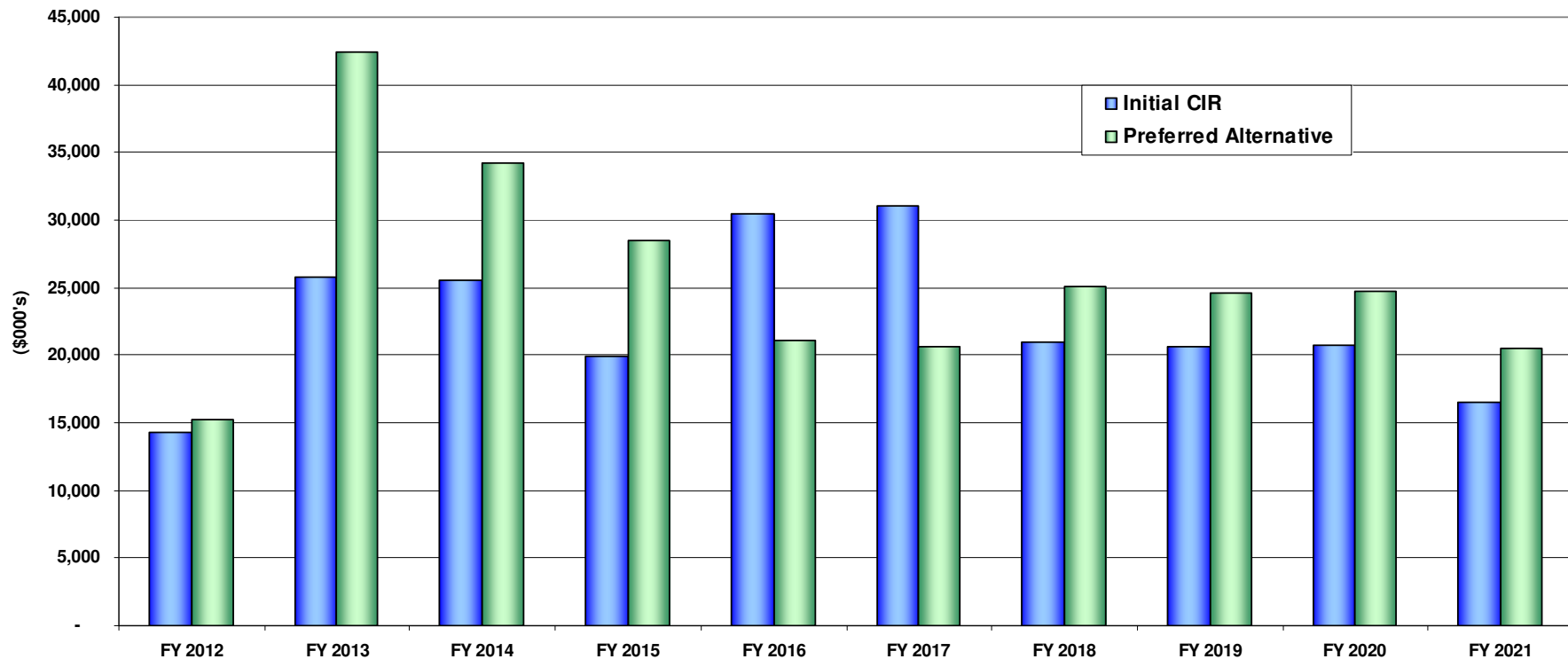
To meet asset strategy goals, space requirements in the Portland/Vancouver area, and critical business needs, FAM recommends this scenario, requiring reshaping the base over 10 years and adding an additional \$32M.

Facilities Asset Management Strategy

Summary

Facilities Asset Management (FAM) is responsible for the planning and management oversight of BPA's non-electric facilities (NEF), as well as other site-development systems such as fences, parking lots, sidewalks, driveways, and other non-electric structures.

Facilities Capital





Security



Security Asset Strategy

Purpose, Scope & Objective

Security and Continuity of Operations (OSCO)

- Protects over 300 facilities, with an estimated value of \$4.5 billion dollars.
- Provides security to ~ 5,000 employees and contractors and thousands of visitors annually.
- Designs security infrastructure that is compliant with ever-evolving regulatory requirements, yet balanced with BPA operational needs.

OSCO delivered BPA's first-ever Physical Security Infrastructure Asset Management Strategy in 2012. It is designed to ensure BPA accomplishes its **objectives** of compliance, life safety, critical infrastructure protection and performance assurance through a prioritized deployment of initial security system installation and subsequent life-cycle maintenance to address the ever changing security threats and compliance requirements, balanced against sound business principles.

Security Asset Strategy

Accomplishments

BPA has made great strides in strengthening its security posture by initiating several operational excellence initiatives. These initiatives supported the following **accomplishments**:

- Organizational realignment supporting a newly developed security strategy
- Process redesign to support security's capital program
- Resurrection of an IT support team dedicated to meeting ongoing needs of security as it transitions from mechanical and analog systems to digital and information based systems
- Improved security asset inventory tracking system allowing for better trending and maintenance planning

Security Asset Strategy

Drivers & Risks

Drivers – The Security Asset Strategy is based on NERC CIP, DHS, DOE, and FERC requirements as well as risk-informed protection strategies.

Risks – Foregoing/delaying the Security Asset Strategy could result in:

- NERC CIP Requirements – Risk of unauthorized access to critical cyber assets
- Protection of Essential (Tier 4) Assets – Inability to improve or enhance security systems at essential sites to address repeated security incidents
- Performance Testing & Preventative Maintenance & Replacement & Renewal Program – Lack of awareness of failing or faulty security systems and equipment
- System Reliability Projects – Gaps in current systems and processes preventing or delaying O&M projects to address weakness in current infrastructure
- Protection of Critical Transmission Assets – Continual “medium risk” of terrorism

Security Asset Strategy

Strategies & Recommendation

The initial CIR **scenario** has an insufficient capital spending thru FY 2015, primarily due to NERC CIP v. 5 (est. \$9.3 to \$12.5M) with mandatory implementation as early as Jan. 1, 2015.

Capital Scenario (\$000s) – Preferred Alternative

	FY 2010 IPR Budget	4,190	4,948	4,947	4,942	5,700	5,699	6,232	5,443	5,445	5,436	52,982
Initiative	FY	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	Total
1	Tier 2 Critical Site Protection	2,900	3,377	4,153	3,200	5,887	7,070	5,710	4,145	-	-	36,442
1	Tier 3 Critical Site Protection	-	-	-	-	-	-	-	-	1,000	1,000	2,000
2	NERC CIP Version 2 & 3 at 17 sites	450	-	-	-	-	-	-	-	-	-	450
2	NERC CIP Version 2 & 3 at 36 sites	840	800	-	-	-	-	-	-	-	-	1,640
2	NERC CIP Version 4 at 33 sites	-	4,125	-	-	-	-	-	-	-	-	4,125
2	NERC CIP Version 5	-	-	12,500	-	-	-	-	-	-	-	12,500
3	Non-Transmission and Tier 4 Sites Protection	-	500	500	-	500	500	500	500	-	500	3,500
5	Capital update of failing systems	-	-	-	900	-	-	-	-	1,000	-	1,900
TOTAL CAPITAL		4,190	8,802	17,153	4,100	6,387	7,570	6,210	4,645	2,000	1,500	62,557
Delta between budget and project estimates		0	3,854	12,206	-842	687	1,871	-22	-798	-3,445	-3,936	9,575

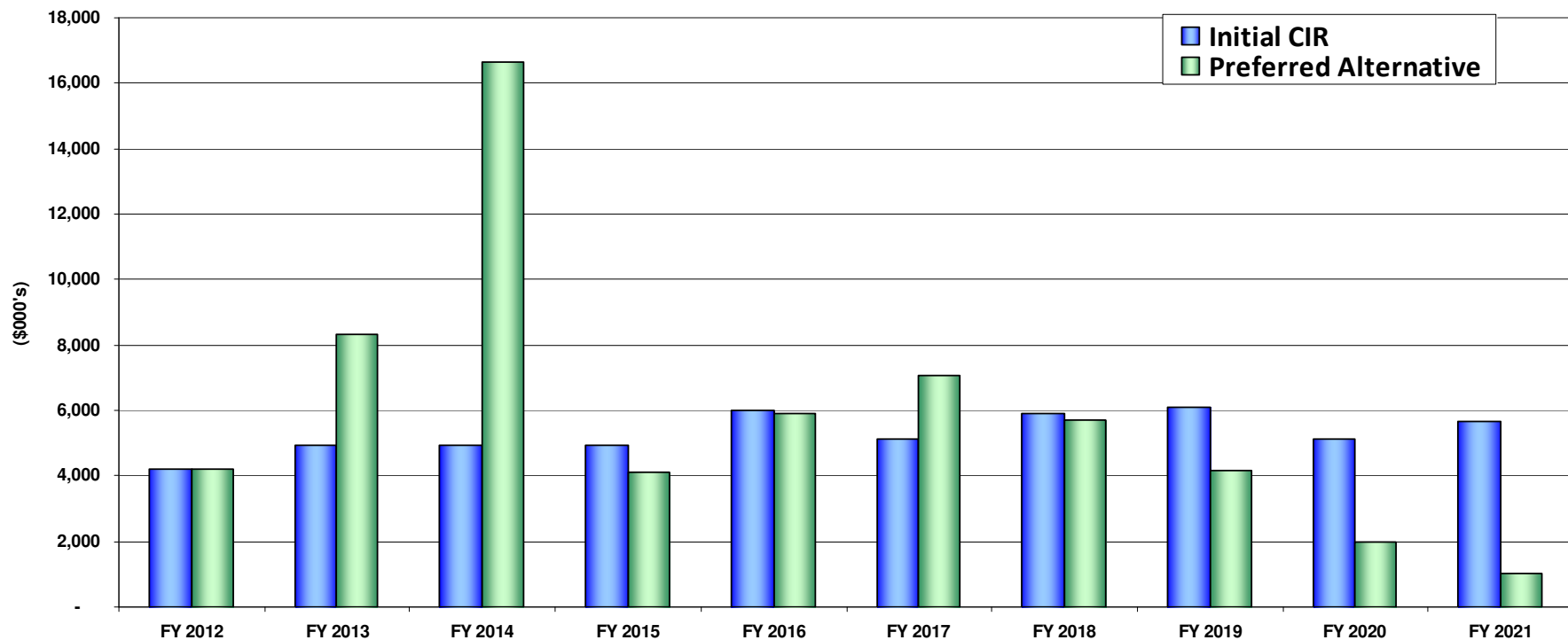
To meet compliance obligations & its primary mission, OSCO recommends an this scenario, requiring reshaping the base over 10 years and adding an additional \$10M.

Security Asset Strategy

Summary

To meet compliance obligations & its primary mission, OSCO recommends reshaping the base over 10 years and adding an additional \$10M.

Security Capital



Information Technology



Information Technology Asset Strategy

Purpose, Scope & Accomplishments

Information Technology (IT) was centralized in FY 2005 with the mandate to reduce and contain the cost of information technology at BPA through improved and efficient management of the Agency's information technology assets.

The IT asset strategy covers:

- 1.7% of the Agency's Plant In Service total capital assets
- 5% of the Agency's planned FY 2012 capital spend

The IT approach has led to the **accomplishment** of the successful management of O&M costs of IT infrastructure while continuing to meet the Agency's evolving and emerging business needs by absorbing new service contracts and additional labor costs. The strategy has saved the Agency \$42 million from FY 2002 through FY 2012 as measured by the difference between FY 2005 actual costs with yearly inflation.

The majority of savings to date has been achieved through implementing new cost effective technologies and revamping technology strategies.

Information Technology Asset Strategy

Objectives & Risks

The IT asset strategy encompasses controlling costs while optimizing resources and balancing the individual business units' needs with overarching Agency **objectives**:

- Reliable and secure use of IT resources
- Optimize total cost of ownership
- Balancing business units' requirements with Agency strategic objectives
- Securely maintain and operate assets in accordance with regulations and laws
- Institutionalize Operational Excellence through adoption of industry maturity models

A **risk** to meeting IT goals and objectives continues to be deferring infrastructure refreshes in order to achieve Agency strategic objectives and to respond to emerging regulatory compliance requirements (e.g. NERC CIP and Federal Information Security Management Act). These deferrals in our refresh schedule resulted in:

- 50% of personal computing devices
- 40% of Storage Area Network (SAN) storage
- 25% of production servers

Being in service beyond their refresh rates

Information Technology Asset Strategy

Strategy

The IT asset **strategy** focuses on infrastructure assets as an approach for each category.

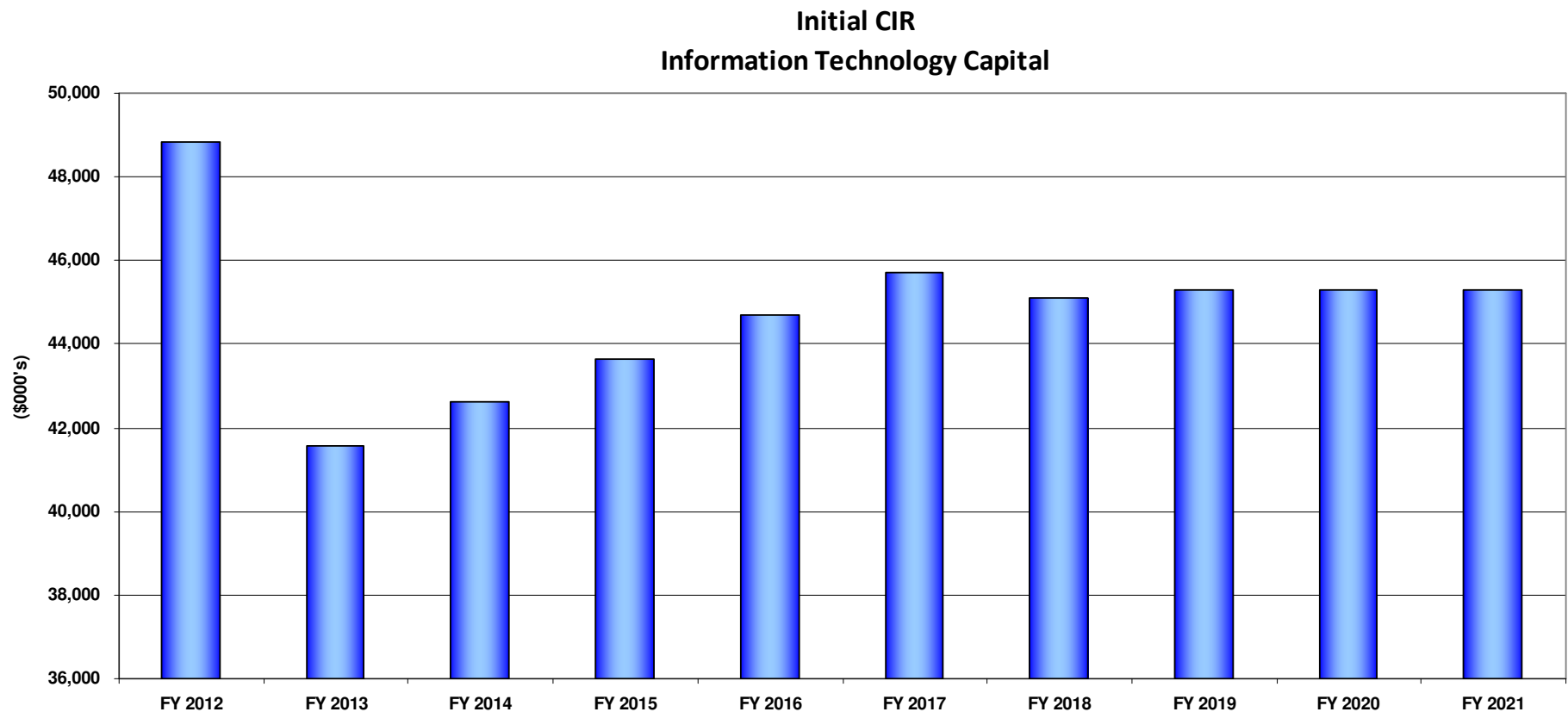
Infrastructure assets – A complete refresh of this asset category (e.g. server, desktop, network, etc.) based on the asset's refresh rate. This would include implementation of new operating systems and upgrades of the base image components. This approach offers the following benefits:

- Reduces disruption to operational environment by aligning hardware replacements and software upgrades
- Maintains assets within acceptable condition (extending assets' life beyond industry standard refresh rates) to meet reliability and performance requirements
- Maintains a highly homogenous and standardized environment which reduces operation costs
- Minimizes hardware costs utilizing volume discount purchasing
- Optimizes total cost of ownership of infrastructure assets

Information Technology Asset Strategy

Summary

Information Technology (IT) reduces and contains the cost of information technology at BPA through improved and efficient management of the Agency's information technology assets.



Federal Hydro



Federal Hydro Asset Strategy

Background

The Federal Columbia River Power System (FCRPS) provides low-cost reliable power to the Pacific Northwest.

The FCRPS is comprised of 31 hydroelectric plants – 21 operated by the Army Corps of Engineers and 10 by the Bureau of Reclamation. The FCRPS has an overall capacity of 22,060 MW and, in an average water year, produces 76 million megawatt-hours of electricity.

The 2014 hydro asset strategy focuses on three primary objectives:

- Low-cost power
- Power reliability
- Stewardship of the environment and human safety



Federal Hydro Asset Strategy

Overview

The preferred plan for large capital in this strategy is unchanged from the 2010 IPR Recommended Plan.

- A large capital program level of about \$250 million per year provides a stable program that can be efficiently resourced for at least 15 years without accumulating a high level of risk.
- This program level is less costly in the long run than scenarios that reduce funding further.
- The preferred plan does not include costs for modernization of John W. Keys Pump Generating Plant or other uncommitted economic opportunity investments (e.g., additional units at Dworshak, Libby, or John Day).

The plan maintains an average condition rating for unit reliability equipment above a score of 7 (scale of 10) and reduces lost generation risk to less than 300 aMW within a decade.

The incremental cost of the hydro system under this plan is \$6.50/MWh (levelized 2012 dollars). When sunk costs are added to the incremental cost, the energy cost of production is \$10 per MWh (also in levelized 2012 dollars).

Over \$100 million in capital spending is targeted for McNary Dam in the next 4 years, primarily at high risk power train and station service equipment in marginal or poor condition.

Federal Hydro Asset Strategy

Key Accomplishments Since 2010: Capital Program

In the 5-year period, FY2007 to FY2011, the hydro program invested \$608 million in repairs, replacements, and improvements to electrical and mechanical features of the system. The annual average cost was \$122 million, or \$5.50 per kW-year.

–Key **Accomplishments**:

- Completion of runner replacements at Grand Coulee Left and Right Powerplants increasing average annual generation by 41 aMW
- Completion of Bonneville I rehabilitation
- Completion of Detroit powerhouse fire restoration
- Refurbishment of cranes and other auxiliary equipment
- Initiation of SCADA replacement at Grand Coulee and Hungry Horse
- Initiation of pre-overhaul work at Grand Coulee Third Powerplant
- Initiation of runner replacements at Chief Joseph units 1 – 16, Palisades, Hills Creek and Lookout Point
- Initiation of turbine replacement study and generator rewinds at McNary
- Initiation of design for fish friendly runners at Ice Harbor
- Initiation of exciter and governor replacements at various projects
- Initiation of spillway gate rehab at Willamette Valley projects

Federal Hydro Asset Strategy

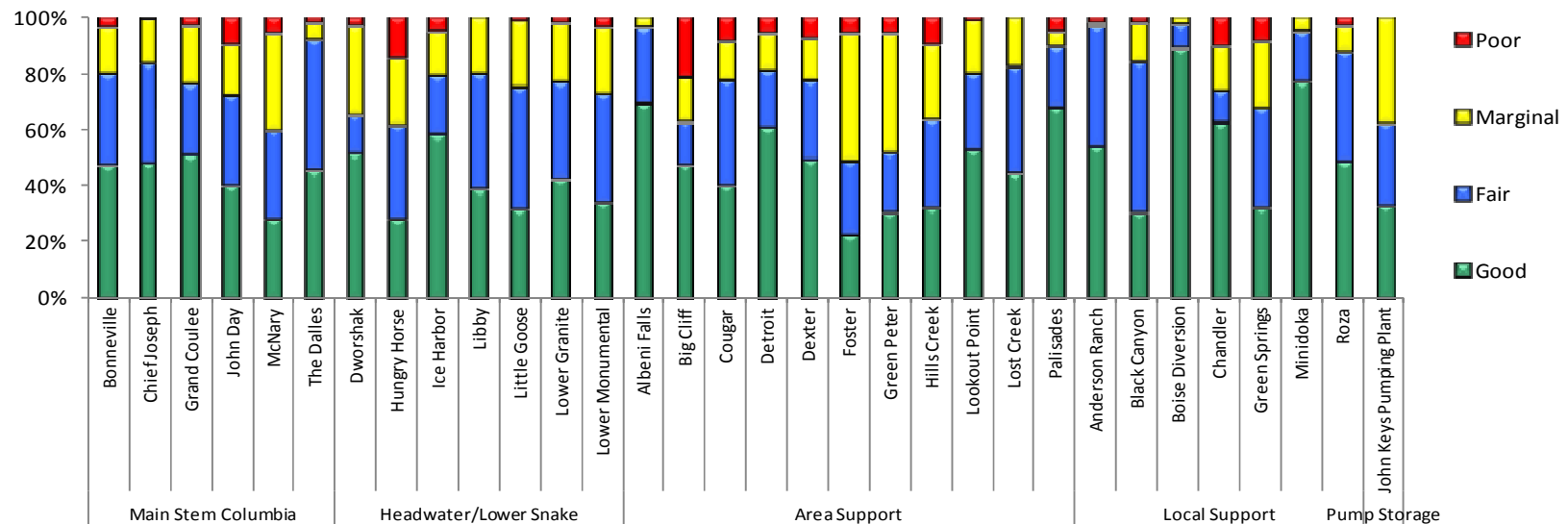
Drivers: Equipment Condition

Routine maintenance activities identify and address deficiencies prior to their posing threats to equipment reliability. Even with effective maintenance programs, condition will eventually deteriorate to the point where inadequate reliability will warrant re-investment.

There are few redundant or spare components in hydroelectric generating facilities and, as such, it is important that the condition of major components be understood and managed.

The FCRPS hydro program uses hydroAMP to assess the condition of seven power train components: unit transformers, generator windings, generator rotors, exciters, governors, unit breakers, and turbine runners. Condition of other equipment is assessed using a simplified framework based on hydroAMP.

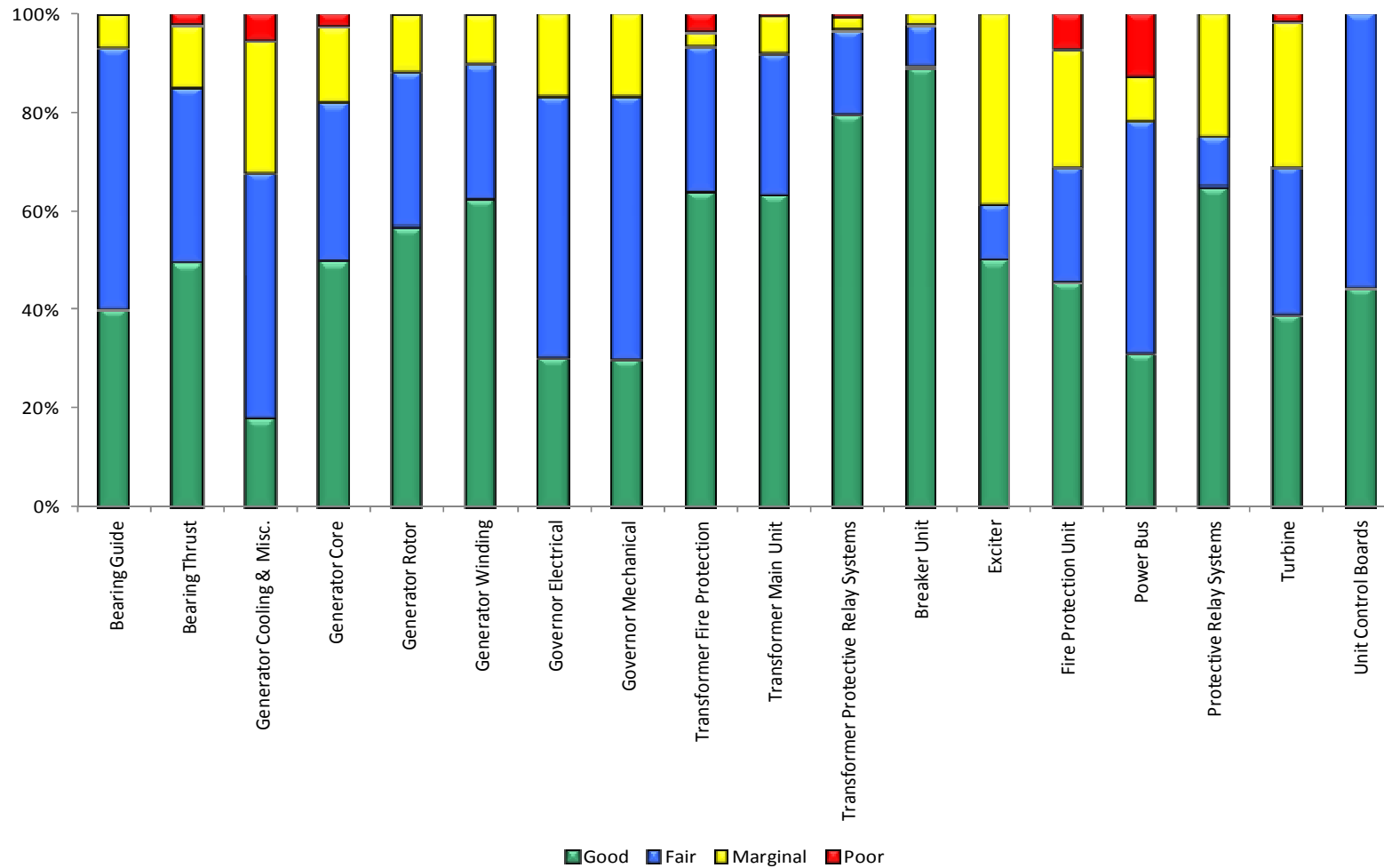
Current Condition by Plant: All Equipment



Federal Hydro Asset Strategy

Drivers: Equipment Condition

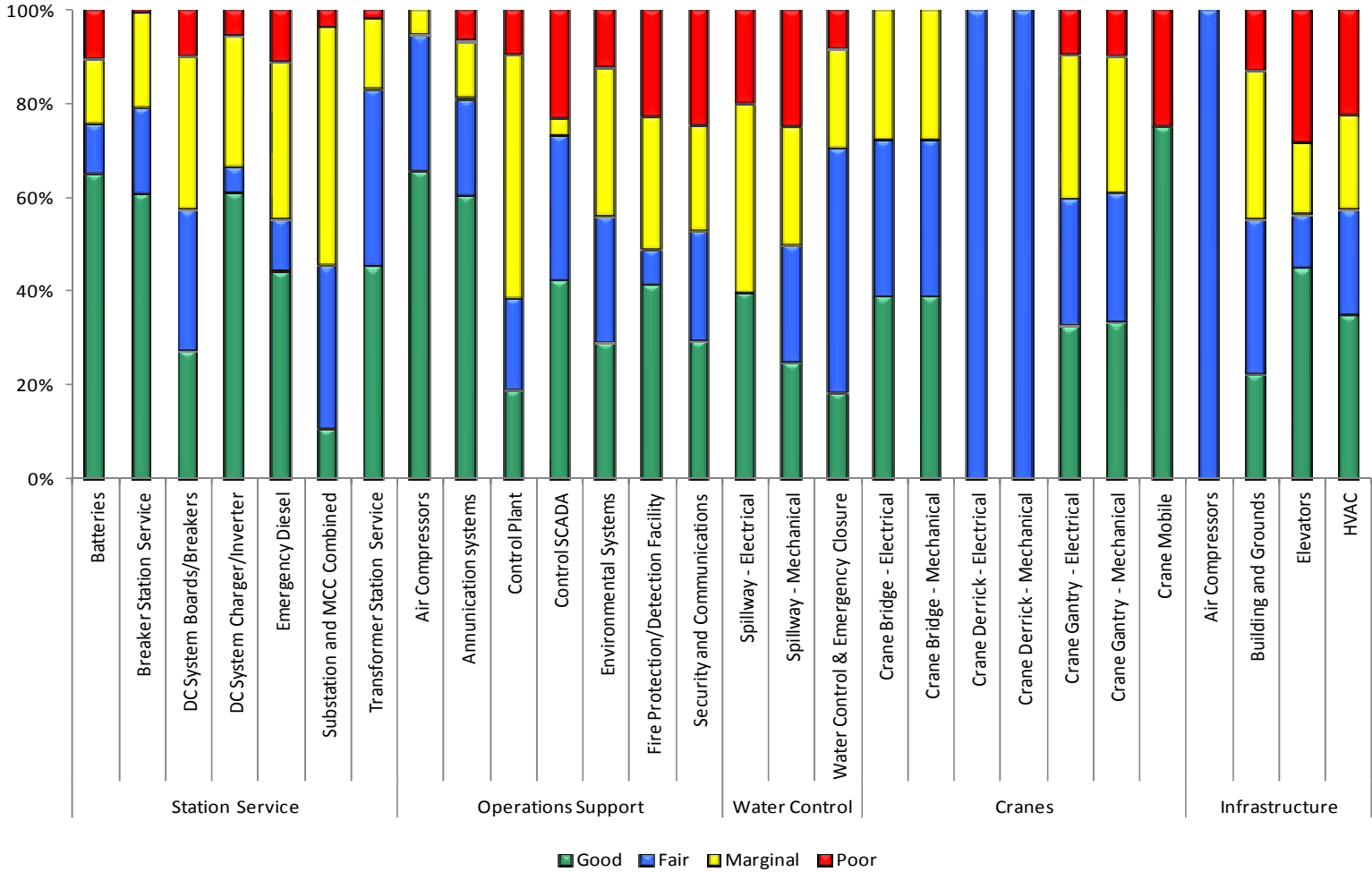
Current Condition: Unit Reliability Equipment



Federal Hydro Asset Strategy

Drivers: Equipment Condition

Current Condition: Other Equipment



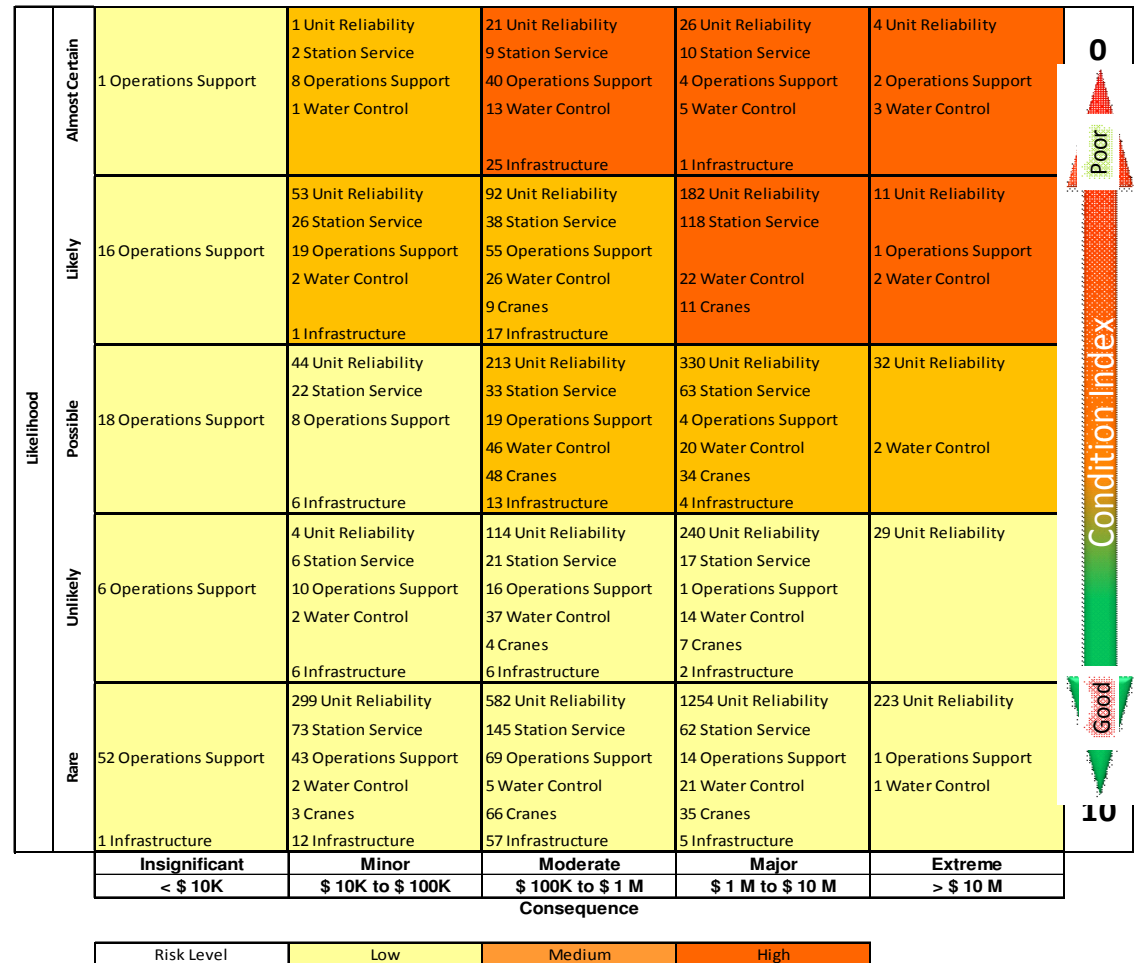
Federal Hydro Asset Strategy

Drivers: Risk

The Federal Hydro asset strategy relies on risk maps to chart the likelihood of failure for specific equipment components against the associated safety, environmental or economic consequences of that failure. Using this information, the strategy takes a risk-based approach to identifying the optimum time for making new investments. This is consistent with the approach used in the 2010 IPR.

The following figure is an example of a financial risk map for all power train components in the FCRPS, based on the current assessment of condition and lost generation value. Equipment components are grouped into the equipment types show on the previous pages. The number preceding each equipment type listed in the map corresponds to the number of like equipment components of similar financial consequence and similar likelihood of failure.

Similar maps are derived for safety and environmental risk.



Federal Hydro Asset Strategy

Risk

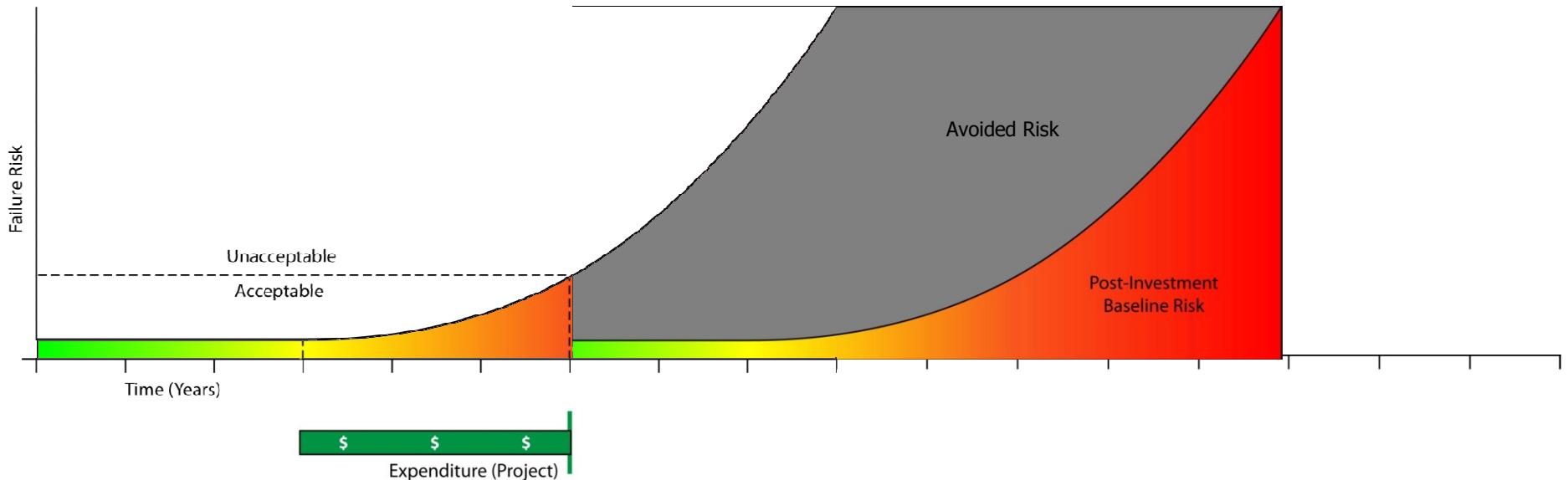
The hydro asset strategy uses a risk management approach to forecast the least-cost time for making future equipment replacements.

Knowing the condition of hydropower equipment is key to understanding risk.

And understanding how condition is likely to degrade informs how risk will increase over time.

HydroAMP – a condition assessment framework developed by the Corps, Reclamation, Hydro-Quebec and BPA – is used by the FCRPS hydro program to assess the condition of hydro plant equipment.

Wait too long to make an investment and risk costs grow unacceptably high; or, make an investment too soon and economic value is taken off the table.

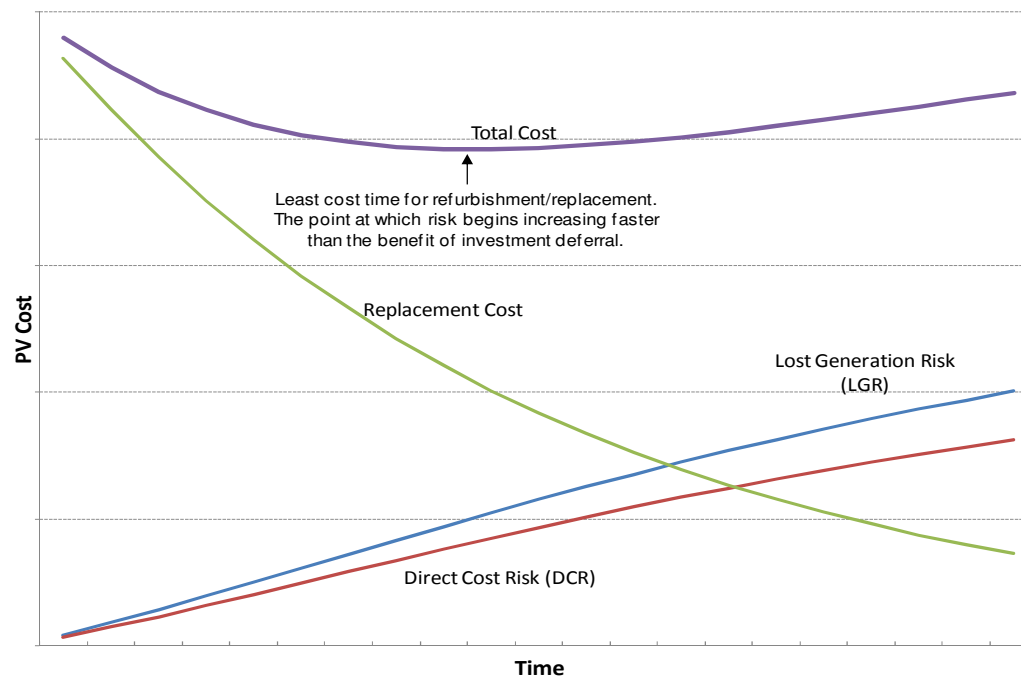


Federal Hydro Asset Strategy

Prioritization

Without intervention, condition degrades over time and the risk of equipment failing to perform as expected increases. Three factors influence the prioritization of investments:

- Replacement Cost, Lost Generation Risk, and Direct Cost Risk



The **Total Cost** is the present value sum of replacement and risk costs. The cost minimum of this curve is the point at which cost risk is forecasted to begin growing faster than the benefit of investment deferral. This represents the optimum timing for equipment replacement.

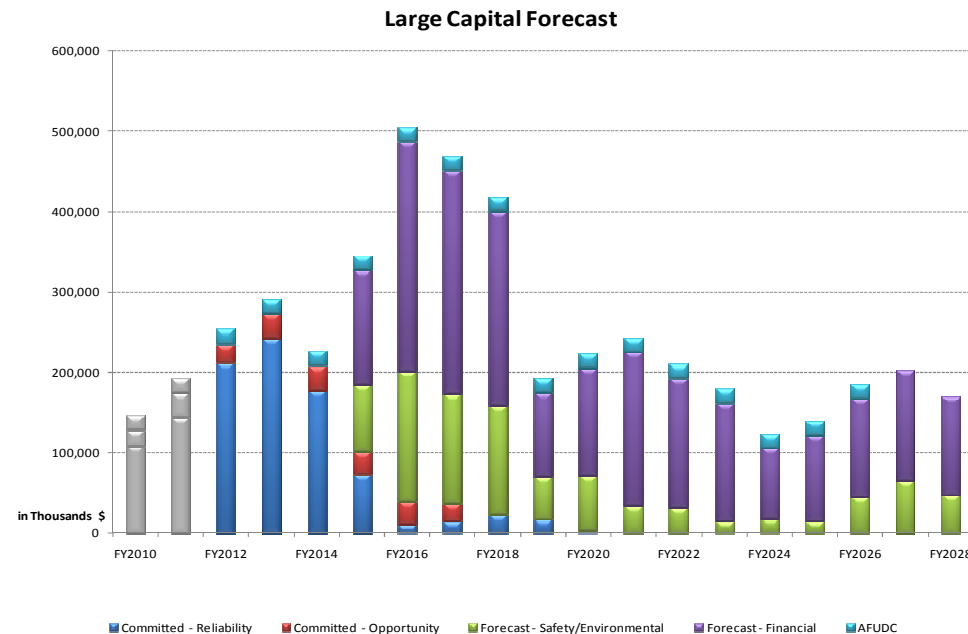
Federal Hydro Asset Strategy

Prioritization: Least Cost Case

The “least cost case” is the Total Cost for all equipment modeled if replaced at their cost minima. To determine the least cost case, each equipment component is evaluated in yearly time steps and forecasted for refurbishment/replacement if it meets either of the following criteria:

- First, if its condition places it into a high risk category for safety or environment
- Second, if financial risk costs are increasing faster than investment deferral benefits, i.e., the equipment component is at the cost minimum

The least cost case does not reflect limitations of resource and scheduling constraints and is therefore a theoretical but unrealistic plan. But it is useful for determining the costs associated with various constraints and informing discussions about whether or not it makes sense to mitigate them.



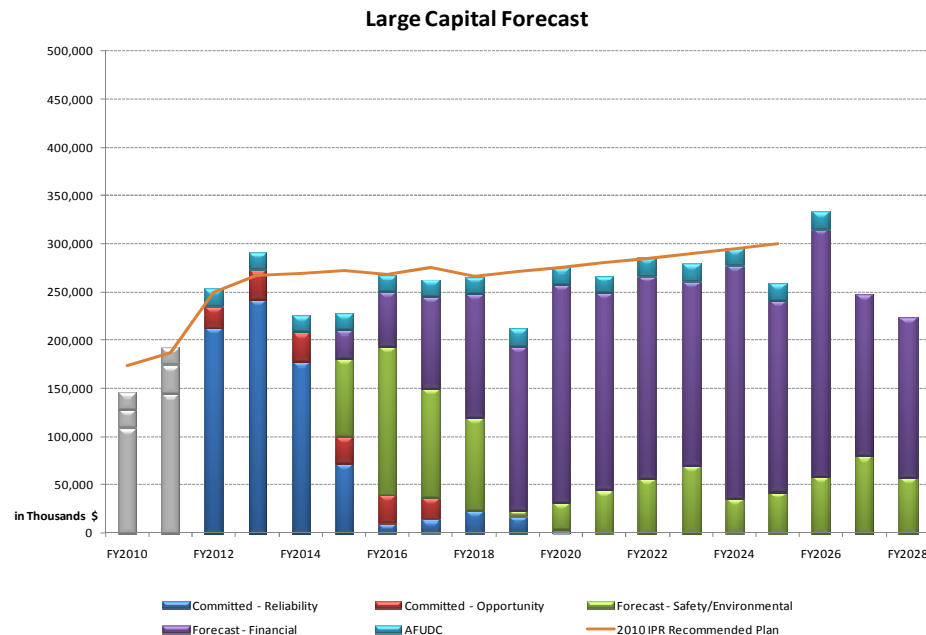
Federal Hydro Asset Strategy

Modeling Funding Constraints: 2010 IPR Recommended Plan

To model funding constraints, an additional step is introduced into the modeling approach. An annual funding limitation is defined, then the prioritization proceeds as follows:

- Committed projects proceed as scheduled
- High risk safety and environmental projects are selected as previously described
- Financial risk driven projects are selected as described until an annual funding limitation is reached, after which investment in equipment in which financial risk is increasing the least is deferred until the following year, where it is re-evaluated using the same prioritization logic

When funding constraints are applied, total cost for the system (system cost) increases because new investments are deferred past their cost minima.



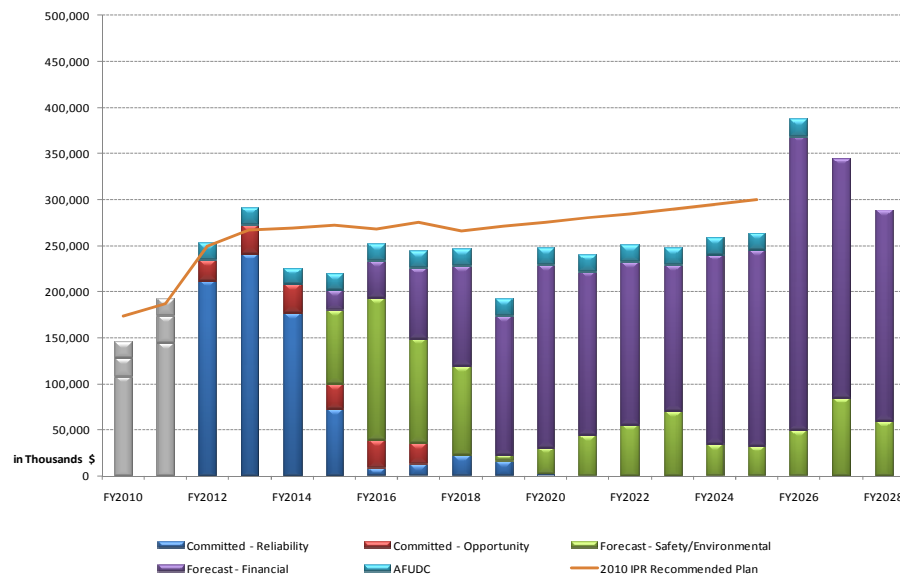
Federal Hydro Asset Strategy

Modeling Funding Constraints: Additional Reductions

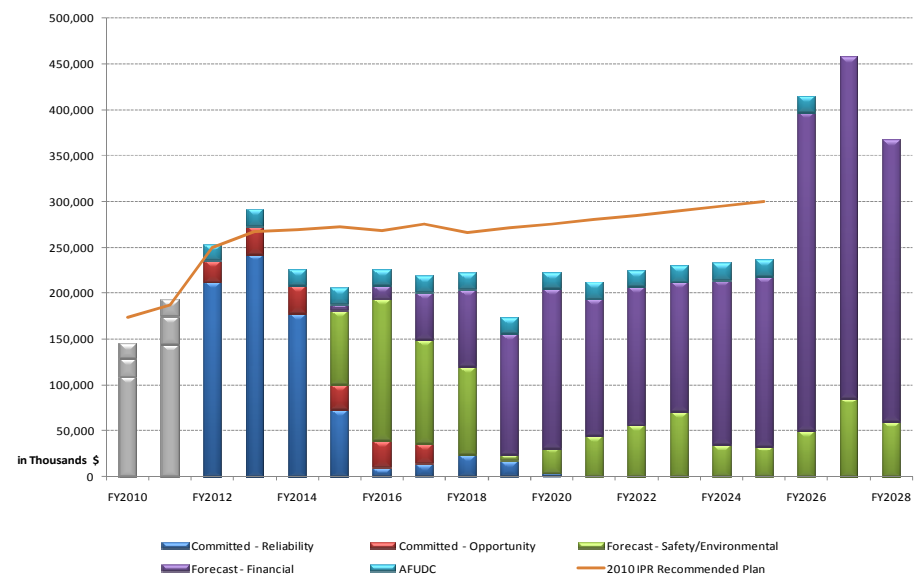
Consistent with work done for BPA's "Access to Capital" effort, we look at the effects of addition funding constraints in this strategy. The following charts show the impact of 10 and 20 percent capital funding reductions relative to the 2010 IPR Approved Plan budget level.

While the John W. Keys III Pump Generating Plant is not evaluated in this strategy, the effect of funding Keys within budget limits is relatively close to the effect of incremental 10 percent capital reductions, i.e., funding Keys within the 2010 IPR Recommended Plan forecast has roughly the same effect on other investments as a 10 percent reduction in funding availability.

10% Reduction
Large Capital Forecast



20% Reduction
Large Capital Forecast

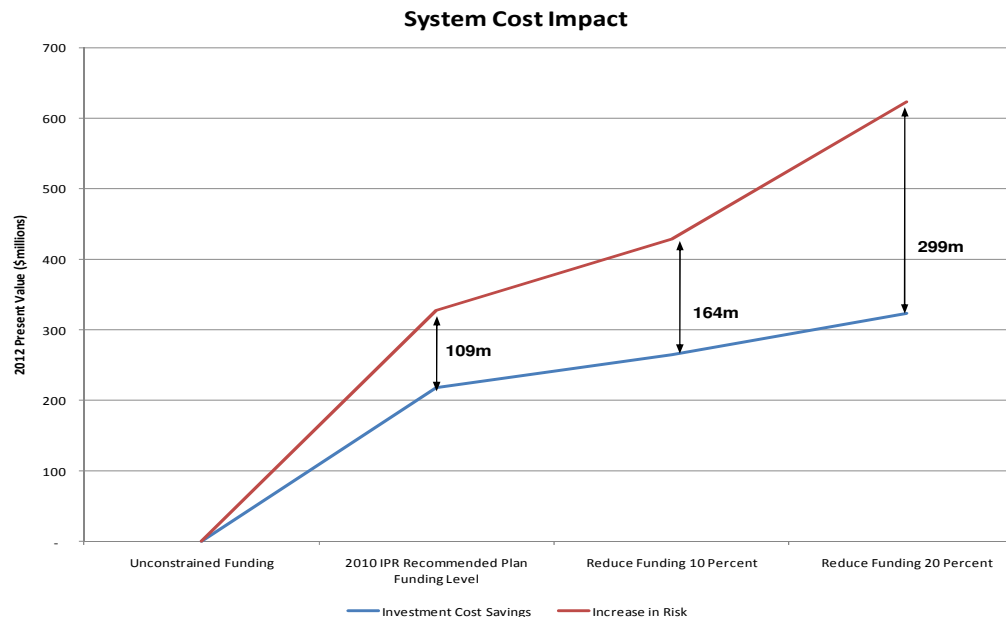


Federal Hydro Asset Strategy

Modeling Funding Constraints: System Cost Impacts

The net present value of additional capital reduction scenarios are increasingly negative (higher system cost) because funding constraints cause more investments to be deferred beyond their cost minima, i.e., investment deferral benefits are less than the increase in financial risk costs. Higher capital reduction scenarios also result in higher program need beyond the constrained funding period which would require a significant increase in resources to accomplish. The strategy does not estimate a cost for inefficiencies associated with ramping up these resources.

The following chart shows the system cost impact of various capital budget reduction scenarios relative to the least cost case (no funding constraints).



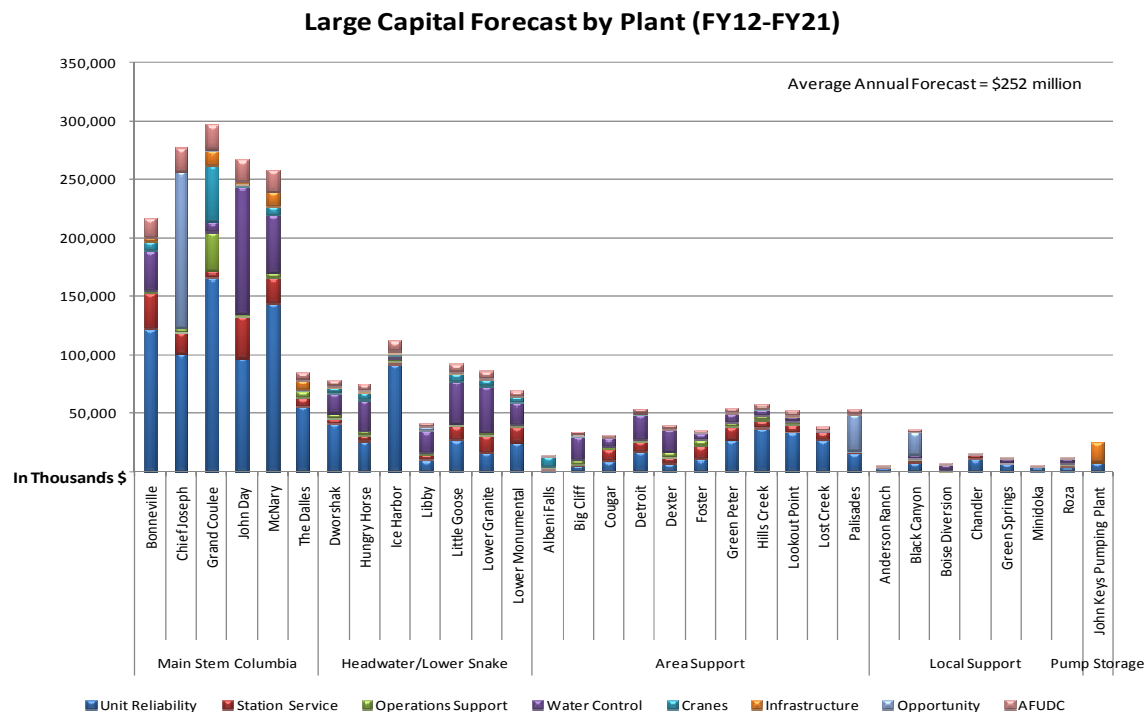
Federal Hydro Asset Strategy

2014 Strategy Preferred Plan

2010 IPR Recommended Plan identified a relatively stable capital program level of about \$250 million/year.

The preferred plan for the 2014 strategy is unchanged from the 2010 IPR Recommended Plan.

- The plan identifies a relatively stable program level both during and after for constrained funding period.
- It identifies a scheduling and staffing resource capability that can be sustained for a decade or more.
- The plan excludes costs for modernizing the John W. Keys III Pump-Generating Plant and other uncommitted economic opportunity investments.



Federal Hydro Asset Strategy

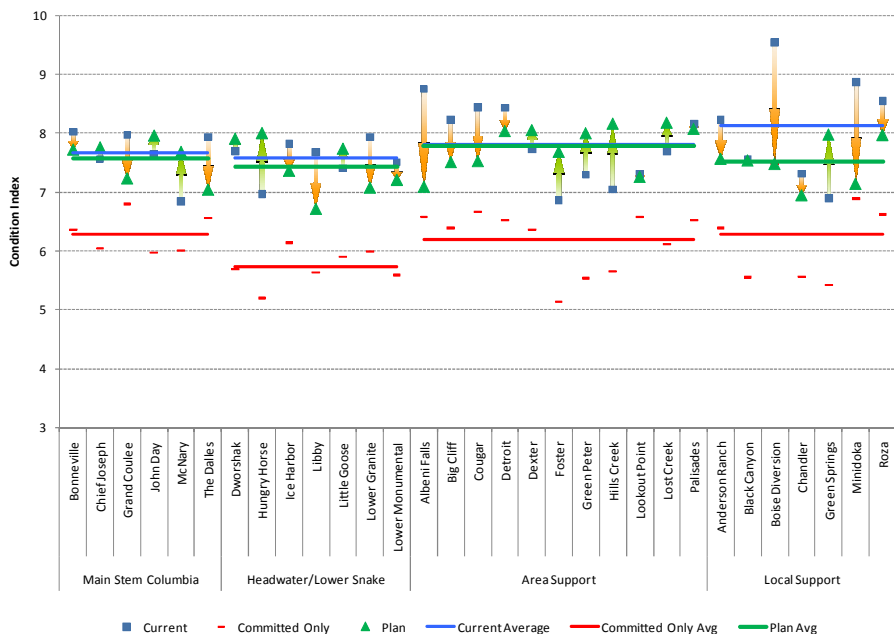
2014 Strategy Preferred Plan

The average condition of equipment in 2022 is forecast to be similar to average condition today except in the Local Support class, where average condition declines.

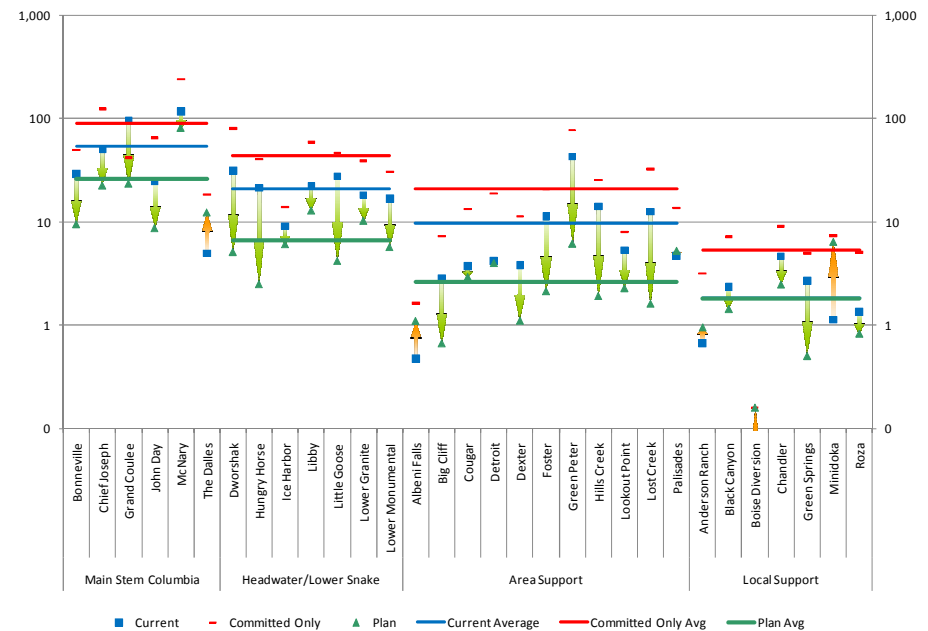
Lost Generation Risk (LGR) is forecasted to decline from 587 aMW today to 247 aMW in 2022.

- In 2022, McNary will still have 80 aMW of risk because the turbine runner replacement program will just be getting underway. LGR in future years should decline.
- Grand Coulee and Chief Joseph have forecasted LGR of about 20 aMW.
- Most other plants are forecasted to have LGR of less than 10 aMW.

Condition by Plant in 2022: Unit Reliability Equipment



Lost Generation Risk by Plant in 2022

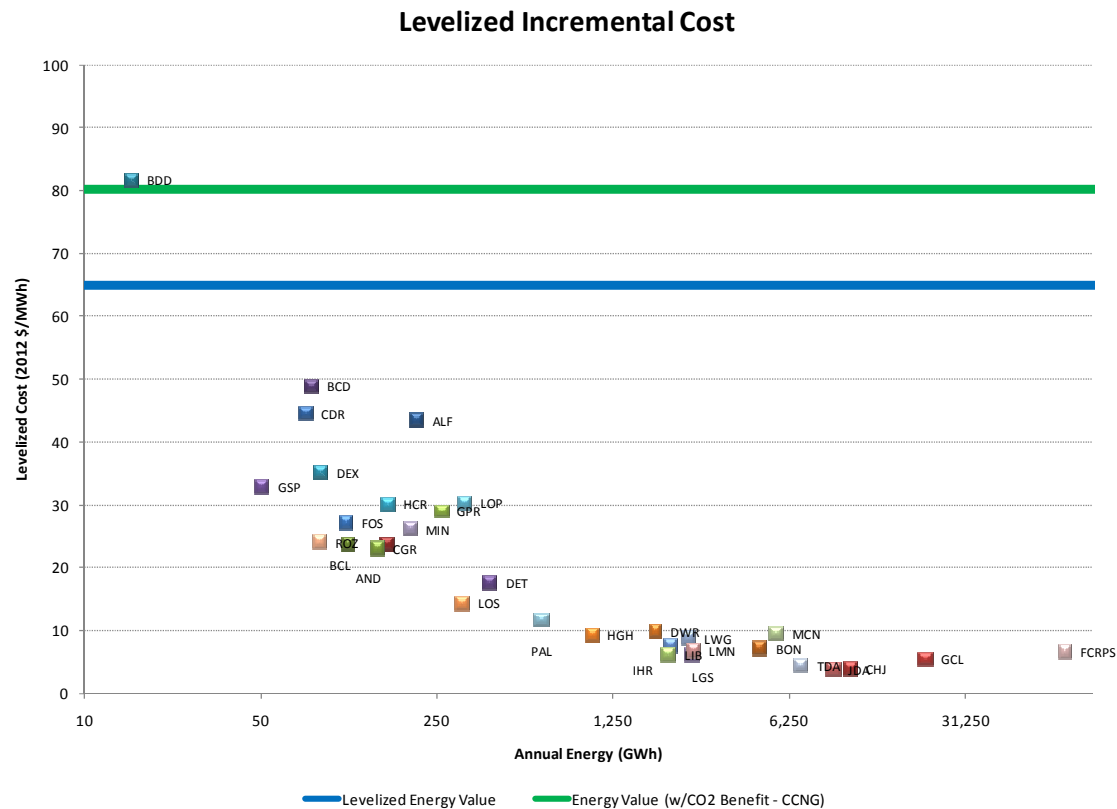


Federal Hydro Asset Strategy

2014 Strategy Preferred Plan

Levelized incremental costs of the FCRPS capital and O&M programs under the preferred plan are about \$6.50/MWh in 2012 dollars, about 11% of the value of power generated by the system.

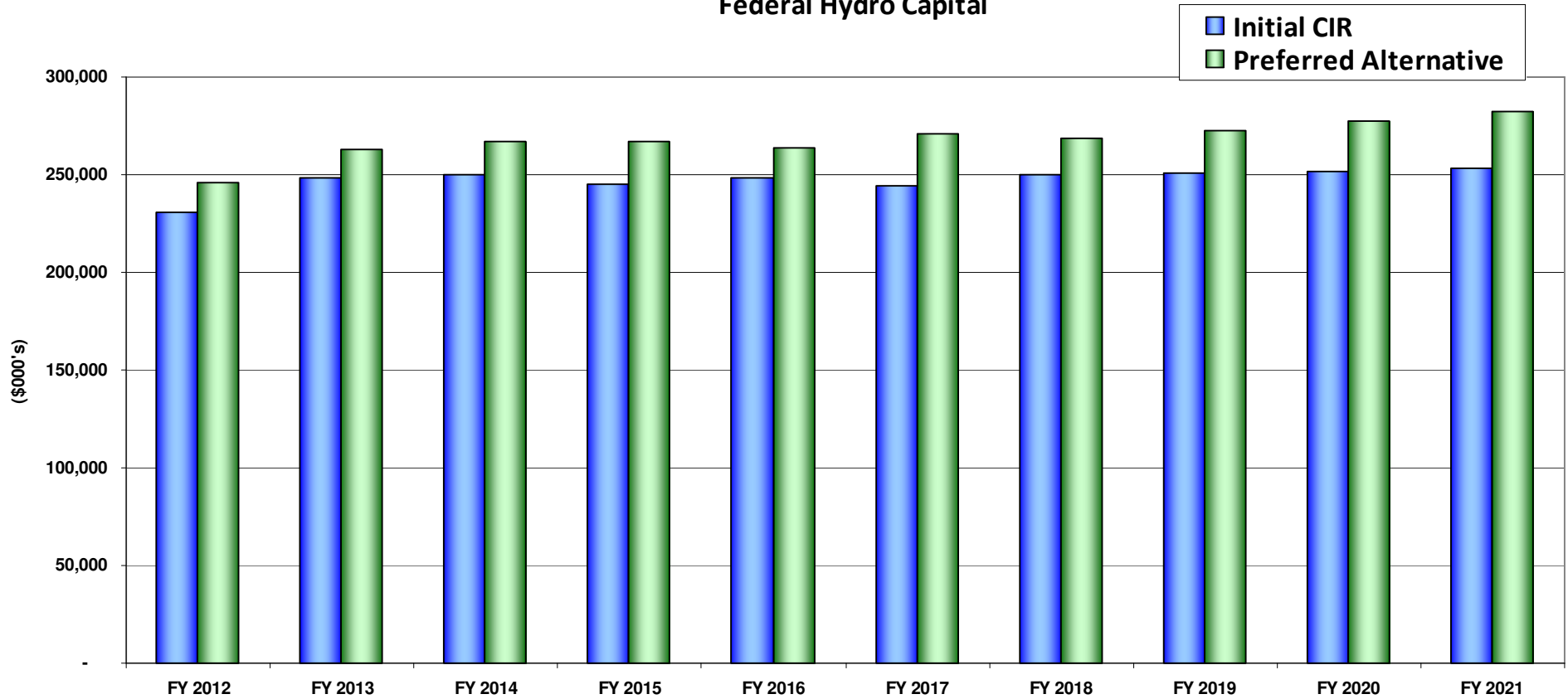
Costs for all plants except Boise Diversion (which has a disproportionately high allocation of O&M costs) are below the value of power generated by the facility.



Federal Hydro Asset Strategy

Capital Summary

Federal Hydro Capital



Federal Hydro Asset Strategy

Implementing the Strategy

The Capital Workgroup is the primary mechanism for implementing the Asset Strategy.

- The capital program is managed by a 3-Agency Capital Workgroup.
- The CWG meets six times per year to review and approve new investments.
- Capital program managers also meet six times per year to:
 - review investments identified in the asset strategy and, from that, develop a high level plan for out years; and,
 - to do real-time management of active subagreement contracts in order to prioritize and schedule projects within the program budget.

The CWG uses staging to order projects within the program based on each project's level of maturity.

- Stage 1: Equipment identified in the asset strategy not yet aggregated into projects. Stage 1 items are not considered “ripe”, that is, the need is not yet certain and near, rather it is based on a forecast of future condition and risk.
- Stage 2: Equipment identified in the asset strategy aggregated into first order projects. Schedules are high level and fluid. These projects are not yet ripe.
- Stage 3: Mature projects that are not yet in flight, but are next in line. These projects are considered “ripe”; the need to undertake the project is certain and the timing is near.
- Stage 4: Mature projects that are in flight (committed). Projects are ranked to support real-time management.

Federal Hydro Asset Strategy

Implementing the Strategy: McNary

Individual unit reliability at McNary is a highly important because it acts as a hydraulic bottleneck on the Lower Columbia.



Unit	Transformer	Legend for Condition Rating	
		Cond. Index	Rating
1A		8 to 10	Good
1B		6 to 7.9	Fair
1C		3 to 5.9	Marginal
1D		<3	Poor

Unit	Generator Rotor	Generator Stator	Exciter	Governor	Turbine	Unit Breaker
1						
2						
3						
4						
5						
6						
7						
8						
9						
10						
11						
12						
13						
14						

Ownership: Corps of Engineers
Strategic Class: Main Stem Columbia
Location: Columbia River; RM 292
In-service Date: December 1953
Capacity: 1,120 MW (5% of FCRPS)
Average Generation: 622 aMW (7% of FCRPS)

FY2010 O&M expense: \$20.4 million
FY2010 int. & depr.: \$4.4 million
FY2007-15 capital program: \$20.3 million/yr

Annual revenue @ PF rate: \$168.9 million

Federal Hydro Asset Strategy

Implementing the Strategy: McNary

Committed capital investment activities at McNary are addressing unit reliability improvements on transformers, generator rewinds, exciter and governor replacements, and fire protection; station service upgrade; crane refurbishments; and infrastructure improvements on levee drainage pumps and potable water systems.

Turbine runner replacement design activities are underway. The effort will target improvements in fish passage and runner efficiency. Water control forecasts also include work on draft tube and emergency closure bulkheads.

Row Labels	2007	2008	2009	2010	2011	2012	2013	2014	2015
Committed - Reliability	8,129	5,923	15,855	17,192	20,690	20,067	34,356	29,713	10,642
Unit Reliability	6,198	3,352	13,311	16,443	18,975	15,297	16,100	18,186	8,732
Station Service	198	2,341	840	717	961	1,501	6,785	10,120	1,768
Water Control		238	1,704	38	68	109			
Cranes					167	1,209	3,394		
Infrastructure	1,733	(9)		(7)	518	1,952	8,077	1,407	141
Committed - Opportunity	568	409	292	97	83	12			
Powerplant Efficiency Improvements	568	409	292	97	83	12			
Forecast - Safety & Environmental Risk									9,958
Operations Support									758
Water Control									9,200
Forecast - Financial Risk									8,422
Unit Reliability									8,337
Station Service									85
Grand Total	8,697	6,332	16,147	17,289	20,773	20,079	34,356	29,713	29,022

Federal Hydro Asset Strategy

Summary

The preferred plan for large capital in this strategy is unchanged from the 2010 IPR Recommended Plan.

- A large capital program level of about \$250 million per year provides a stable program that can be efficiently resourced for at least 15 years without accumulating a high level of risk.
- This program level is less costly in the long run than scenarios that reduce funding further.
- The preferred plan does not include costs for modernization of John W. Keys Pump Generating Plant or other uncommitted economic opportunity investments (e.g., additional units at Dworshak, Libby, or John Day).

The plan maintains an average condition rating for unit reliability equipment above a score of 7 (scale of 10) and reduces lost generation risk to less than 300 aMW within a decade.

The incremental cost of the hydro system under this plan is \$6.50/MWh (levelized 2012 dollars). When sunk costs are added to the incremental cost, the energy cost of production is \$10 per MWh (also in levelized 2012 dollars).

Over \$100 million in capital spending is targeted for McNary in the next 4 years, primarily at high risk power train and station service equipment in marginal or poor condition.



Energy Efficiency

Energy Efficiency Asset Strategy

Purpose and Objectives

BPA is committed to partnering with public power customers to achieve public power's share of the Council's Sixth Power Plan efficiency target (504 aMW from 2010 – 2014).

BPA is pursuing energy efficiency as one of six strategic priorities. Advance energy efficiency: Meet 85 percent of the load growth of regional public utilities through energy efficiency and conservation over 20 years.

To meet the target, Energy Efficiency is pursuing savings through three avenues:

- Utility Program Savings (programmatic savings)
- Market Transformation Savings
- Non-Programmatic Savings

Energy Efficiency's ultimate **objective** is to partner with public power customers to acquire public power's share of the Sixth Power Plan's target for cost effective conservation at the lowest cost possible while allowing for maximum local control and flexibility in implementation and having strong assurance the target will be met.

Energy Efficiency Asset Strategy

Accomplishments

The annual targets for fiscal years 2010 and 2011 were **80** and **99** aMW respectively, for programmatic savings and market transformation (NEEA). BPA and public power achieved **91** aMW in 2010 and **118** aMW in 2011 in those savings categories.

6th Plan Savings Summary (aMW)

Savings by funding source	2010 Actual	2011 Estimated	2012 Projected	2013 Projected	2014 Projected	Total Savings
BPA Funded Programmatic Savings	57	105	46	42	39	289
Utility Self Funded Savings	23	2	16	14	13	68
Norpac	0	1	6	0	5	12
Market Transformation (NEEA)	11	11	8	8	8	46
Non-Programmatic	15	14	14	14	13	70
Carryover	0	0	11	11	11	34
Total Annual Savings	106	132	102	89	89	518
Total Reported 6th Plan Savings*	103	128	98	86	89	504
Self-Funded % of Total	29%	2%	25%	25%	25%	19%

*Savings toward the 6th Plan targets count 1 year measure life savings once, in 2014, though savings are achieved annually and counted toward annual target (e.g. Scientific Irrigation Scheduling).

Energy Efficiency Asset Strategy

Key Drivers & Risks

Key drivers behind Energy Efficiency investments:

- Energy efficiency is considered a priority resource in the Pacific Northwest Electric Power Planning and Conservation Act of 1980
- Energy efficiency is the least cost resource
- Reducing BPA utility customers' exposure to higher costs for serving above Rate Period High Water Mark (RHWM) load amounts
- Reducing regional electricity consumption, which helps reduce the need for, and cost of, acquiring power and reduces the need for new transmission and distribution investments

Risks that could jeopardize meeting Energy Efficiency's objectives:

- Costs for acquiring energy efficiency are higher than what the Agency has budgeted
- Utility customers do not self-fund enough savings to meet public power's target
- Timing of BPA budgeting and the setting of regional savings targets do not align
- Utility customers may be hampered in their ability to implement programs and acquire savings due to contractor infrastructure being compromised during a "conservation roller-coaster"

Energy Efficiency Asset Strategy

Strategy & Costs

Energy Efficiency's **strategy** is a multi-year approach based on Policy Framework which rests on allocating capital funding to customers on a Tier One Cost Allocator (TOCA) basis and budgeting that requires customers in aggregate to self-fund 25% of public power's programmatic savings target.

BPA's energy efficiency **costs** of acquisition are based on:

- The amount of savings for measures or projects implemented by utilities and paid for by BPA, and
- The amount that BPA offers in reimbursements for each measure or project

For individual measures BPA makes determinations of reimbursements individually based on four key factors:

- Incremental measure cost
- Levelized cost of the proposed reimbursement over the lifetime of the measure
- First-year cost per kWh of the proposed reimbursement
- Market situation of the measure

BPA pays no more than incremental measure cost and does not allow levelized cost of reimbursements to exceed the avoided cost of energy efficiency as defined in the Sixth Power Plan.

Energy Efficiency Asset Strategy

Total Annually Reported Programmatic Energy Savings (aMW)

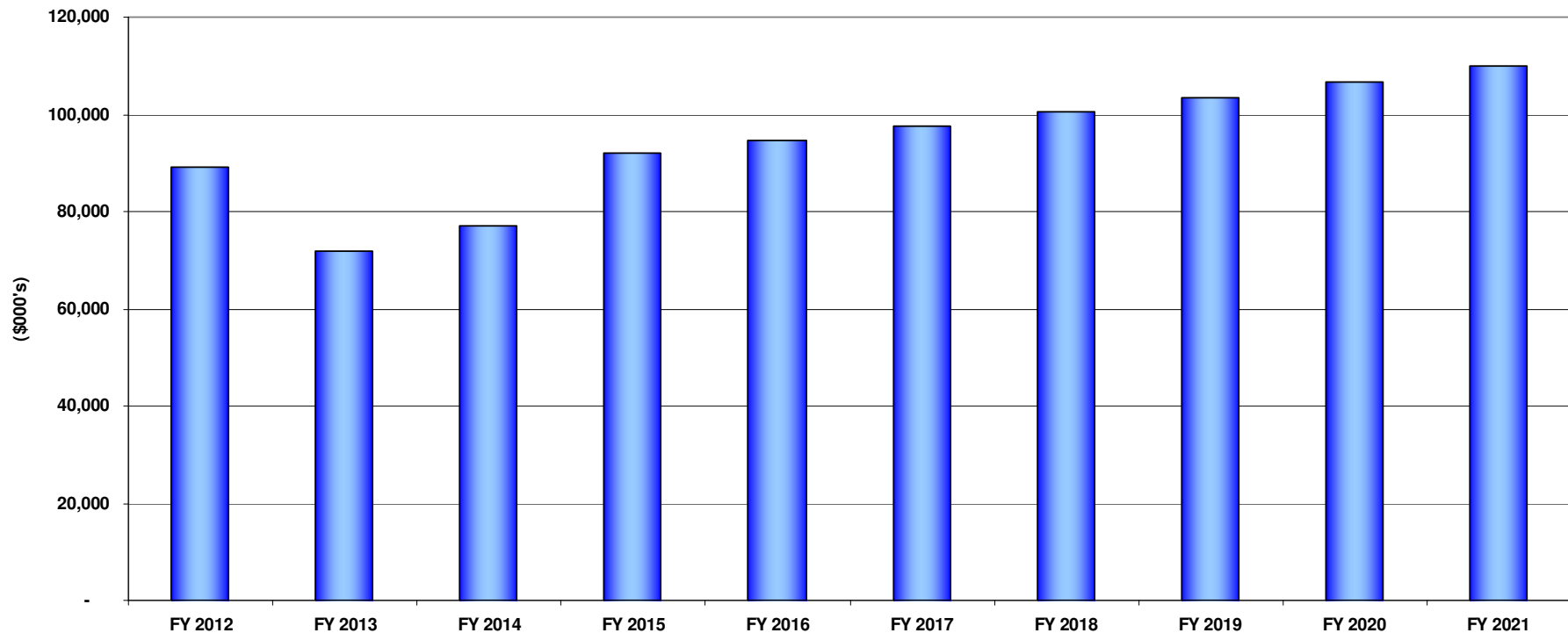
	2010 Actual	2011 Estimated	2012 Projected	2013 Projected	2014 Projected	2010-2014 Total
Portfolio	80	107	62	56	51	356
By Sector						
Residential	31	39	28	25	21	143
Commercial	24	26	18	15	11	94
Industrial	14	30	7	7	8	67
Agriculture	8	9	5	5	5	32
DSEI	0	1	1	2	2	5
Federal	3	3	3	3	3	15

Energy Efficiency Asset Strategy

Summary

Energy Efficiency's ultimate objective is to partner with public power customers to acquire public power's share of the Sixth Power Plan's target for cost effective conservation at the lowest cost possible while allowing for maximum local control and flexibility in implementation and having strong assurance the target will be met.

Initial CIR
Energy Efficiency



The question of whether to capitalize or expense our programmatic Energy Efficiency costs will be addressed as part of the strategic discussions on how to achieve the agency's future investment needs within our current borrowing authority ceiling.

Fish & Wildlife



Fish & Wildlife Asset Strategy

Purpose & Objectives

BPA is committed to its responsibilities for mitigating the impacts of the federal hydro system on fish and wildlife. BPA funds and manages one of the largest fish and wildlife protection programs in the nation; investing under applicable law several hundred million dollars each year to make dams safer for fish, restore damaged habitat, protect threatened lands and provide artificial production.

BPA works collaboratively with the Northwest Power and Conservation Council and on-the-ground partners including states, Tribes, natural resource management agencies, Non-Government Organizations, and others.

Capital dollars in the F&W program are used for:

- Construction of new hatcheries
- Construction of fish screens and devices in tributaries (not at FCRPS dams)
- Land acquisitions for wildlife and resident fish



Objectives:

- The **objectives** for land include increasing habitat for wildlife and resident fish and the associated credits towards meeting the Administrator's defined obligations.
- Hatcheries produce fish for harvest, to help supplement species of concern and increase adult fish returns that contribute toward recovery of species listed as threaten or endangered under ESA, and to support Treaty Trust responsibilities.
- Fish passage objectives include improving access to habitat for fish rearing and spawning (e.g., replacing culverts) and to reduce loss of fish at irrigation diversions.

Fish & Wildlife Asset Strategy

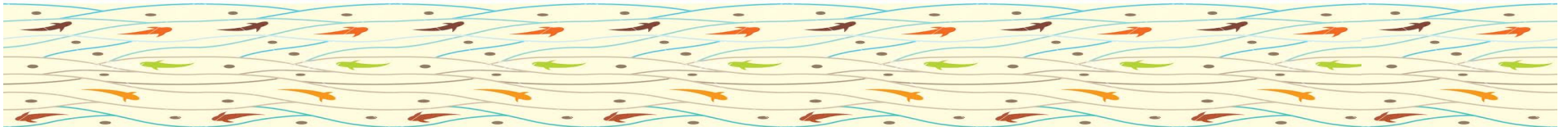
2010-11 Accomplishments & Drivers

Recent Fish & Wildlife **accomplishments** include:

- Development of asset plans that identify critical assets are being maintained to ensure value is sustained year after year through O&M funding.
- Construction of Chief Joseph Hatchery to rebuild upper Columbia River salmon and steelhead stocks and to enable terminal fisheries for the first time in decades.
- Protected nearly 50,000 acre-feet of stream water due to installing fish screens.
- Opened approximately 700 miles of habitat for migrating fish through passage improvements at manmade barriers.

The Fish & Wildlife funding level is being driven by the following **drivers**:

- Accords and other long-term agreements for wildlife and resident fish mitigation.
- Accords and BiOp commitments for construction of hatcheries to increase adult fish returns to contribute to rebuilding of weak stocks and provide opportunity for harvest, including Treaty Trust.
- Accord and BiOp commitments for Fish passage improvements in tributaries as off-site mitigation for FCRPS dams.



Fish & Wildlife Asset Strategy

Risks, Prioritization & Strategy

There are many uncertain **risks** that characterize the Fish and Wildlife Program and salmon recovery and wildlife mitigation:

- **Wildlife Land Acquisitions:** Willing sellers in priority locations
- **Hatchery:** Design, permit requirements, integration with weak stock management
- **Fish Passage:** Willing private land owners, permit requirements, weather
- **Other risks:** Scientific uncertainties, impacts of human population growth, changing climate, regulatory requirements, court-ordered actions

The highest **priorities** are BiOp projects, Columbia Basin Fish Accords and long-term agreements, and then other Fish and Wildlife Program projects. Overtime, new long-term agreements are possible for Idaho and Montana.

Fish & Wildlife's **strategy** focuses on the following areas:

- **Secure, protect, and improve habitat for wildlife:** BPA seeks to achieve permanent protection and sustainable O&M funding to maintain benefit and value including use of upfront endowment funds
- **Hatchery production:** that supports mitigation and Treaty Trust responsibilities that minimize any adverse impacts to wild fish populations and contribute to recovery
- **Access to habitat:** Passage improvements that improve access to habitat and reduce impact of water withdrawals
- **Long-Term Agreements:** that identify our obligations and provide certainty of mitigation

Fish & Wildlife Asset Strategy

Costs

Currently there is a growing O&M responsibility due to past investments, which are met through the expense budget. Effective oversight of O&M expenditures is part of our asset management strategy. The FY 2012 proposal for the capital Fish & Wildlife budget is:

- Land Acquisitions \$26.8 million
- Hatchery \$24.2 million
- Passage/ Other: \$8.7 million
- Total: \$59.8 million

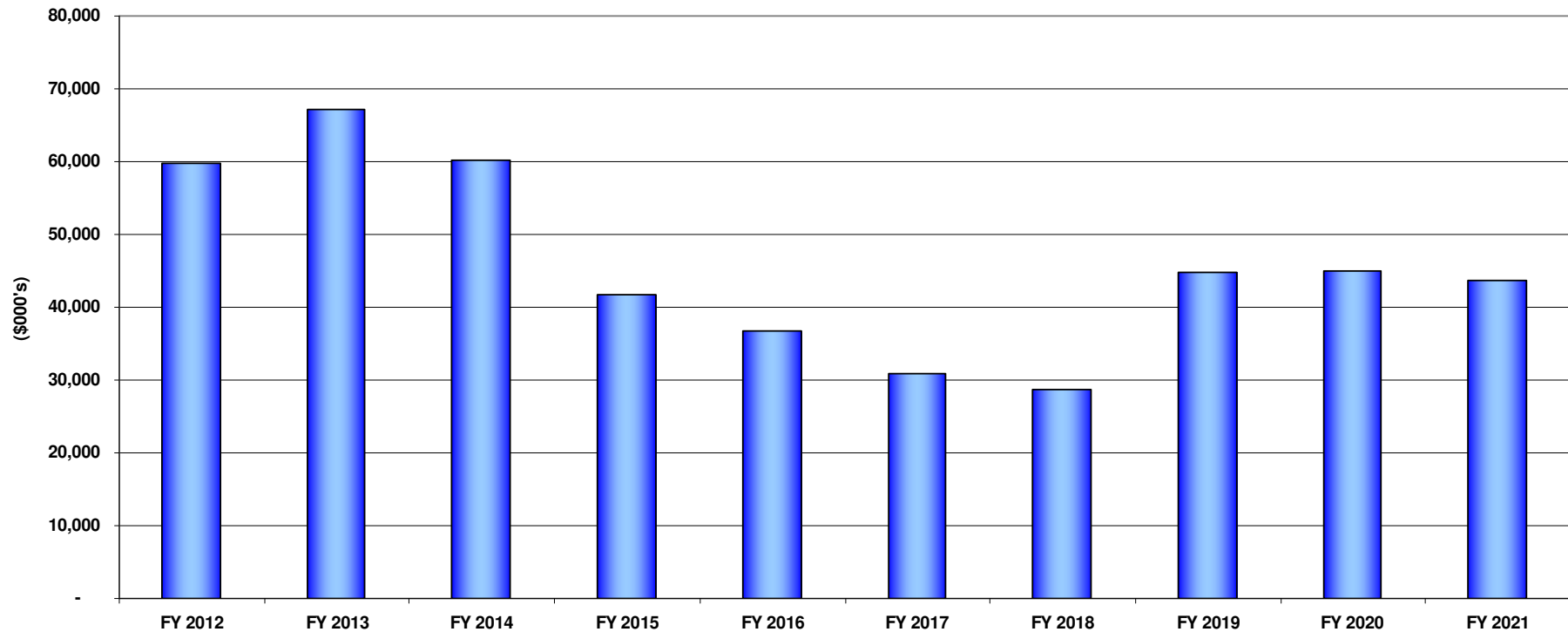


Fish & Wildlife Asset Strategy

Summary

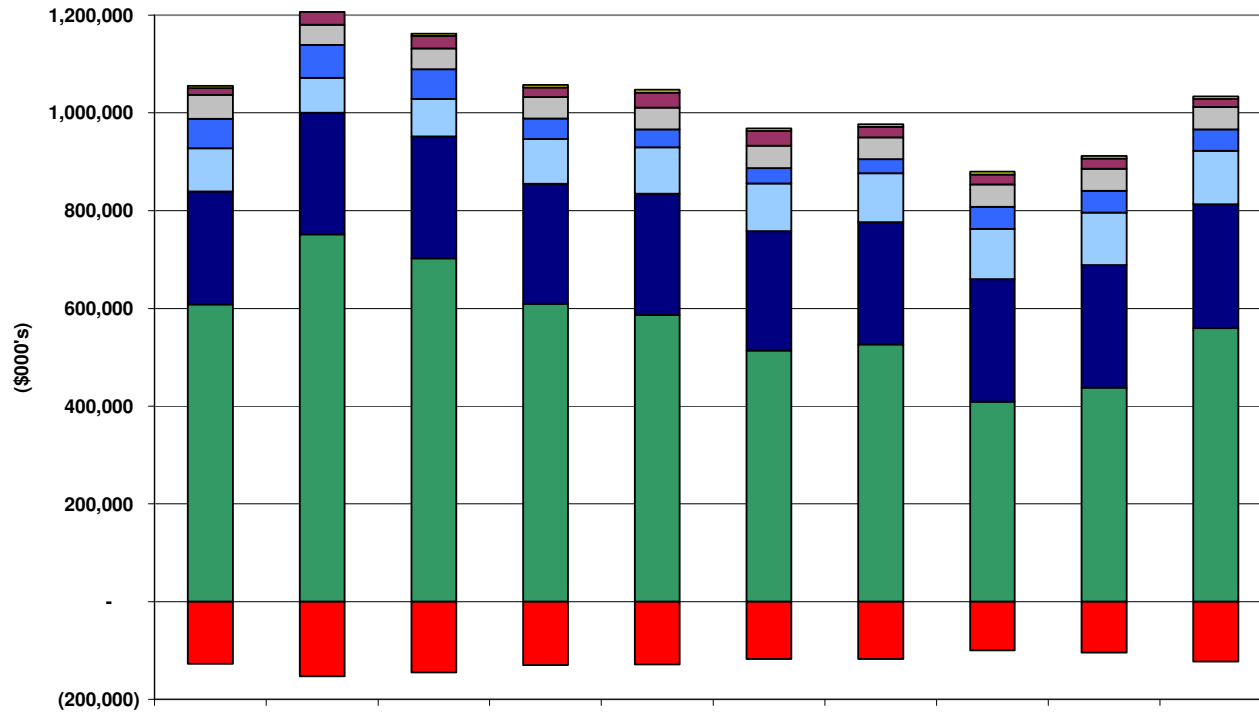
BPA is committed to its responsibilities to mitigating the impacts of the federal hydro system on fish and wildlife. Capital dollars in the Fish and Wildlife program are used for construction of new hatcheries, construction of fish screens and devices in tributaries, and land acquisitions for wildlife and resident fish.

Initial CIR
Fish & Wildlife Capital



Total Capital Investments

Projected By Asset Category



	FY 2012	FY 2013	FY 2014	FY 2015	4-Year Total	FY 2016	FY 2017	FY 2018	FY 2019	FY 2020	FY 2021	4-Year Total
Security	4,190	4,948	4,947	4,942	19,027	5,977	5,153	5,897	6,103	5,152	5,673	52,982
Facilities	14,258	25,775	25,593	19,866	85,492	30,470	31,046	20,979	20,629	20,764	16,475	225,855
IT	48,845	41,570	42,610	43,649	176,674	44,688	45,727	45,104	45,312	45,312	45,312	448,129
F&W	59,785	67,145	60,275	41,807	229,012	36,650	30,795	28,646	44,806	45,033	43,599	458,541
EE	89,000	72,000	77,000	92,000	330,000	94,760	97,603	100,531	103,547	106,653	109,853	942,947
Hydro	230,624	248,349	249,802	245,082	973,857	248,293	244,288	249,935	250,717	251,488	253,250	2,471,829
Trans	608,570	751,598	702,283	609,909	2,672,360	586,533	514,113	526,170	408,964	437,732	559,741	5,705,613
Subtotal	1,055,272	1,211,386	1,162,510	1,057,255	4,486,423	1,047,371	968,726	977,262	880,078	912,135	1,033,902	10,305,896
Lapse	(126,924)	(152,852)	(144,714)	(129,558)	(554,048)	(128,303)	(116,900)	(117,241)	(99,635)	(104,440)	(122,392)	(1,242,959)
Total w/Lapse	928,349	1,058,534	1,017,796	927,698	3,932,376	919,067	851,826	860,021	780,443	807,695	911,510	9,062,938

Access to Capital Update

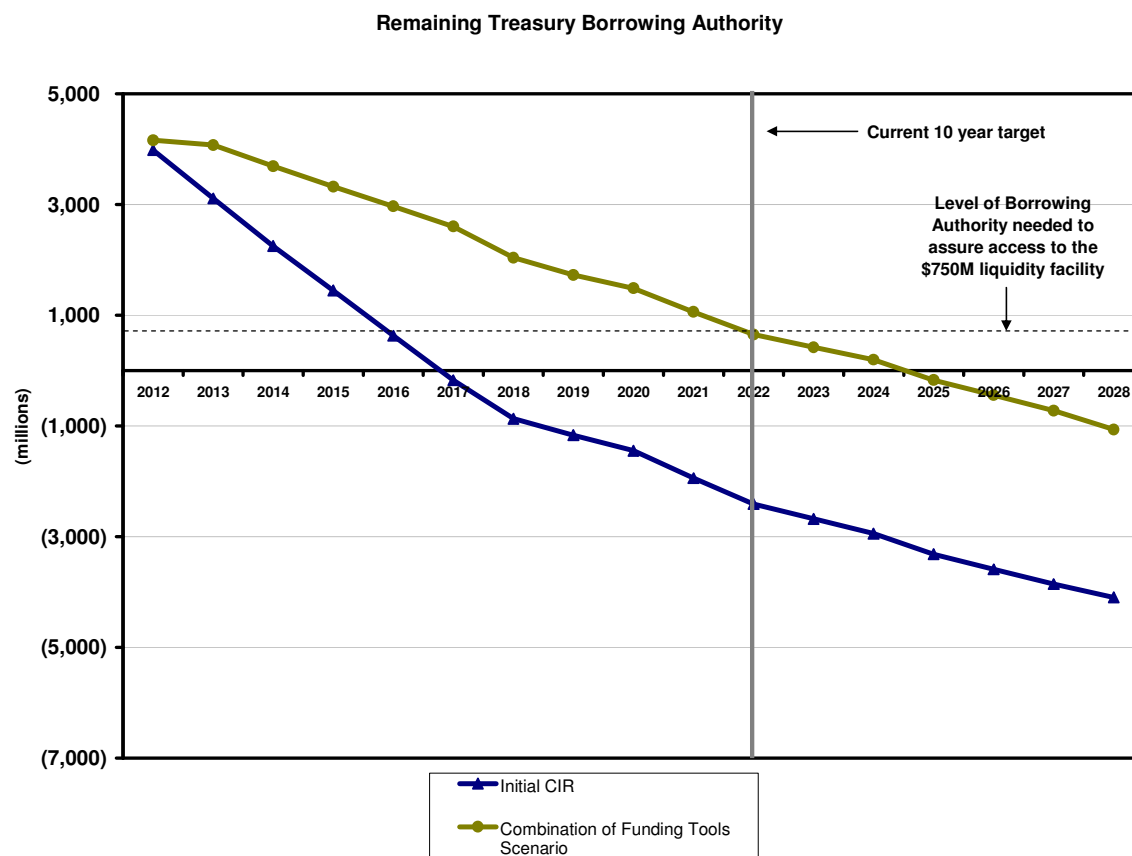
Overview

- The proposed capital spending has an impact on remaining Treasury borrowing authority and will eventually be reflected in Power and Transmission rates.
- As we set rates for the 2014/15 rate period, we will need to embed assumptions not only about capital spending but about capital funding sources too.
- BPA's major goals regarding access to capital are:
 - Maintaining continued access to Treasury borrowing authority on a rolling 10-year basis using a mix of federal and non-federal sources of capital, which includes reserving \$750 million of the Treasury borrowing authority for the Treasury line of credit, which provides for risk mitigation in lieu of holding equivalent financial reserves.
 - Ensuring capital financing requirements are met at least overall cost.
- There is no easy answer for implementing new non-federal financing tools given their advantages and disadvantages.

Access to Capital Update

Potential Impact of Alternative Tools

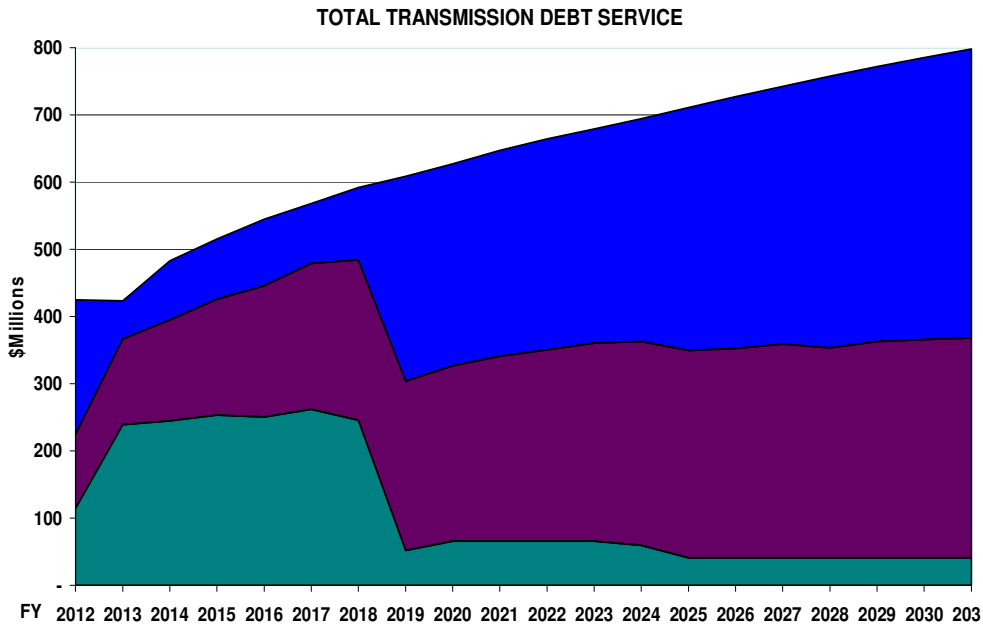
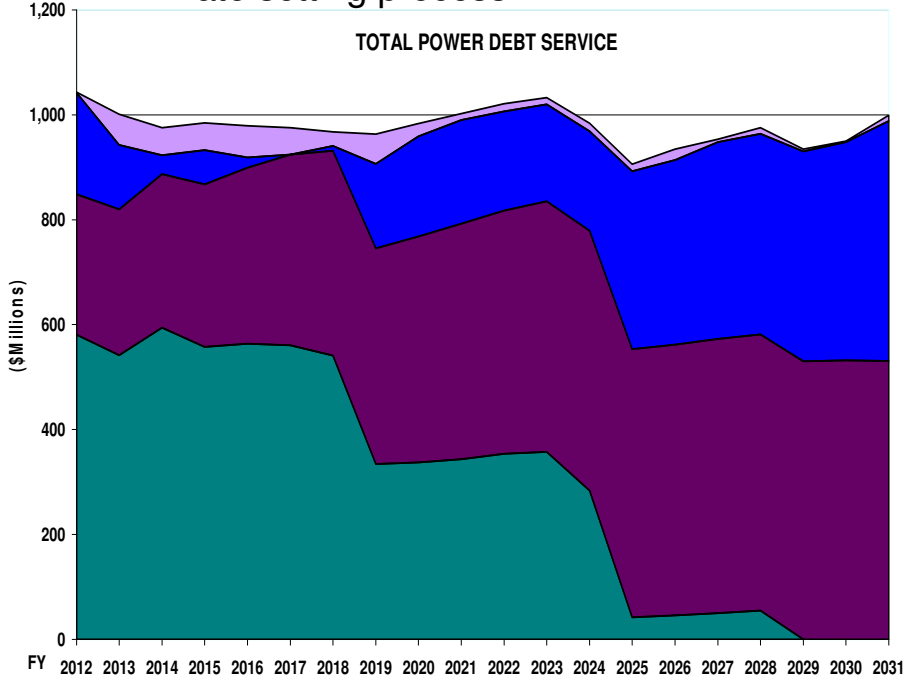
- Absent other actions, BPA expects to run out of Treasury borrowing authority in FY 2016.
- Using the new base capital funding levels, a scenario was identified that successfully extended access to Treasury borrowing authority to the 10-year target using a broad set of financing tools, as follows:
 - \$300 million of Transmission cash reserves
 - 30% of Transmission's capital program being lease financed
 - \$1.7 billion prepayment program for Power
 - \$37 million of revenue financing for Power and \$61 million for Transmission in 2022



Access to Capital Update

Forecasted Debt Service

- The relationships of the major debt service components associated with the base capital funding levels are depicted in the following two graphs.
- There is no discernable difference when compared with the Combination of Funding Tools Scenario (not shown here).
- Debt service is a major component of BPA's overall costs which is ultimately recovered in the rate setting process.



■ Non-Federal Debt Service
 ■ Federal Gross Interest
 ■ Federal Amortization
 ■ Irrigation Assistance

■ Federal Amortization
 ■ Federal Gross Interest
 ■ Non-Federal Debt Service

Access to Capital Update

Recent Activities

- We have suspended further work on third-party financing for conservation investments.
- We are aggressively seeking opportunities to lease finance transmission investments where possible.
- With a regional work team, we have refined and held further discussions on the details of a power prepayment program.
- Additional workshops and opportunities for interested parties to participate in developing solutions and comment on proposed funding tools are planned later this year.

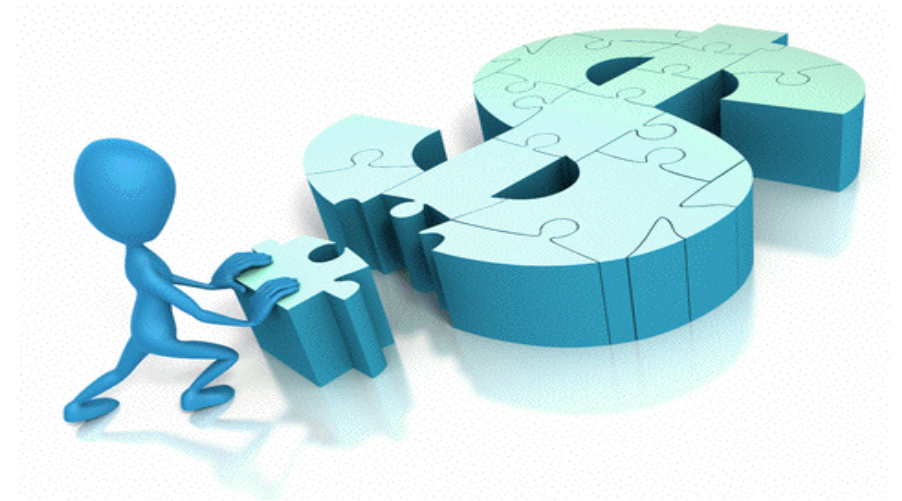
Proposed Investment Levels

Relationship between Capital Investments and the Revenue Requirement

How many \$millions of capital does it take to create at a minimum, through depreciation/amortization, an annual cost of \$1 million in the revenue requirement?

Asset Category	Capital Investment (millions)
Federal Hydro	75
Transmission	40
Environment	15
Facilities	15
Fish & Wildlife	15
Energy Efficiency	12
Information Technology	5

Excludes interest impacts



Capital Investment Review

Next Steps

- The CIR material includes 3 levels of detailed information.
 - This Power Point summary is available for a quick reference.
 - A summary publication of the draft asset strategies will be available March 8th.
 - Detailed asset strategies also will be provided on March 8th.
- If you need additional information or clarification on these draft strategies, e-mail that request to BPAFinance@bpa.gov by March 23rd.
 - Follow-up information, and if necessary, workshops are planned for the week of April 16th in order to respond to these follow-up items.
 - Close of comment on the CIR is May 4th in order to consider and reflect comments in the development of the IPR proposed spending levels.

Capital Investment Review

Comments can be sent to:

Participants have an opportunity to submit comments on BPA's draft asset strategies and proposed capital spending levels during a eight week public comment period beginning March 8, 2012 and concluding May 4, 2012. Comments can be submitted online; by email; or by mail to: BPA, P.O. Box 14428, Portland, OR 97293-4428

Please send questions to:

BPAFinance@BPA.gov



Thank you

Capital Investment Review

Financial Disclosure

This information has been made publicly available by BPA on March 7, 2012 and contains information not reported in agency financial statements.