

FY 2014 – FY 2023 WORKPLACE SERVICES FACILITIES ASSET MANAGEMENT STRATEGY

FACILITIES ASSET MANAGEMENT (NWM)
VERSION 1.0

This asset strategy was prepared before BPA's proposal to reduce costs. Spending levels in this document do not tie to proposed reductions. The strategy will be revised upon conclusion of the CIR and the IPR.



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EXECUTIVE SUMMARY

INTRODUCTION

Workplace Services (NW) provides planning, management and governance of facilities asset management, facilities maintenance and operations, space management, printing services, mail services, and office services for the Bonneville Power Administration (BPA). The Facilities Management Officer (FMO) is responsible for office facilities strategic planning and for overseeing and managing BPA's facilities asset management programs. This includes establishing the asset performance objectives, targets and standards in alignment with BPA's asset management policies, strategic objectives, including asset management objectives and guidelines.

This Facilities Asset Management Strategy (AMS) sets the direction for how BPA will systematically and comprehensively meet these responsibilities through an optimized approach that balances risks, needs, opportunities and constraints. It addresses requirements from FY 2014 to FY 2023 and replaces the Facilities AMS published in FY 2012.

PROFILE OF PHYSICAL ASSETS

BPA owns and operates an estimated 2.7 million square feet of facilities valued at over \$1.15 billion across Oregon, Washington, Idaho, Montana, and California. This includes over 1,000 buildings at more than 400 sites that include critical infrastructure, such as control centers and substation control houses, in addition to maintenance shops, administrative offices and warehouses. Workplace Services is also responsible for the GSA-owned BPA Headquarters building, corporate commercially leased spaces, and various non-building assets at each site such as sewer systems, fences, and roads.

The average age of BPA owned facilities and supporting infrastructure is 38 years with 60% of facilities assets beyond their estimated useful life (EUL) and in need of either major renovation or capital replacement. Prioritizing this work within available funding and project delivery resource limits is a primary strategic challenge. Other strategic challenges include emerging operational and regulatory requirements that result in out of cycle requests and immature or non-existent facilities planning and maintenance management systems.

The Facilities Asset Management (FAM/NWM) organization provides planning and programmatic oversight of BPA facilities and associated infrastructure that supports the breadth of BPA operations. For the purpose of clarifying the scope of this Facilities AMS, the following definition shall apply:

Facilities are defined as 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. Components that directly generate, transmit, or control marketed/high voltage power or station service are excluded as are electrical support systems for the control centers, and the initial funding and construction of new facilities/upgrades driven by transmission system needs. Assets also excluded from the scope of this strategy are cyber security systems, IT equipment and personal property. These excluded assets are managed through separate asset management strategies, including the Transmission Asset Management Strategy.

ASSET CRITICALITY – GROUPED BY FACILITY PRIORITY

PRIORITY LEVEL	ASSET GROUPING	ASSET TYPE		
1	UTILITY 1	Control Center Data Center	Control House Microwave	
2	UTILITY 2	Control House Control/Maintenance Relay House	Microwave Engine Generator Bldgs	
3	OFFICE, MAINTENANCE & SPECIAL	Office – Mission Critical Maintenance HQ Maintenance Shop	Meter Houses Storage – HazMat Storage – Special	
4	STORAGE	Office – Mission Support Training & Research Pump House	Storage – Vehicle Storage – Site Utilities Storage – General	
5	OTHER	Untanking Tower Oil House Lease	Abandoned Other	

STRATEGIC FACILITIES OBJECTIVES

Workplace Services will meet BPA’s strategic goals of integrated asset management by achieving the following objectives:

- 1. PRIORITIZED ASSET OPTIMIZATION** – Manage facilities assets and prioritize work through disciplined and coordinated processes that optimizes mission criticality, risk, resources, return on investment, and sustainability, while also maintaining sufficient agility to meet emerging requirements.
- 2. OPERATIONAL ALIGNMENT** – Comprehensively integrate Facilities initiatives and projects with other asset categories to the extent practicable.
- 3. ASSET LIFE CYCLE MANAGEMENT** – Manage facilities assets with a life cycle perspective and improve facilities and processes through a continuous *Plan-Do-Check-Act* cycle.

STRATEGIC CHALLENGES

There are several external and internal issues which could/will impact Workplace Services investment decisions for this Facilities AMS. Some issues can be resolved and are subjects of the Strategic Initiatives that follow, while others are best viewed as drivers or constraints and simply must be managed or mitigated:

- Backlogs of facilities maintenance and replacement
- Emerging operational requirements
- Evolving regulatory requirements
- Immature or non-existent facilities planning and maintenance management systems

BACKLOG OF FACILITIES MAINTENANCE AND REPAIR (BMAR) OR REPLACEMENT

Many of BPA facilities and supporting infrastructure are beyond their EUL and in need of substantial repair, renewal, or capital replacement. This work represents a substantial challenge to prioritizing work within BPA's available funding and staffing limits.

EMERGING OPERATIONAL REQUIREMENTS

BPA's expansion investment program consists of capital projects required to increase capacity and improve reliability to meet load growth, generation interconnections, customer service requests, and provide congestion relief. Similarly, BPA continues to strengthen the resiliency of operations which may prompt replacements, systems monitoring capabilities and/or installation of redundancy to existing facilities in the future. These out of cycle requirements may drive changes to forecasted asset repair and maintenance plans.

EVOLVING REGULATORY COMPLIANCE

SECURITY – BPA's implementation of security requirements from the Department of Energy's Graded Security Policy, the North American Electric Reliability Corporation Critical Infrastructure Protection Standards (NERC-CIP) and the Department of Homeland Security Presidential Directive (HSPD) 12 results in time-sensitive projects to install and maintain high cost/high tech security equipment in facilities and to control personnel access in some areas. Such projects challenge BPA with rapid coordination and amended space planning to support requirements.

FEDERAL LAWS/GUIDELINES – Federal laws, such as the National Energy Conservation Policy Act of 1978, the Energy Policy Act of 2005, Energy Independence and Security Act of 2007, and the guidance of Executive Orders 13423 and 13514 call for improved building performance for new and renovated federal facilities as well as improved tracking of facilities performance.

BUILDING CODES (LIFE SAFETY) – Many aged BPA facilities were constructed prior to the advent of modern life safety, fire protection and seismic event codes. In many cases, this represents an unacceptable risk to personnel, assets and to BPA operations. While existing buildings are not mandated to comply with modern codes unless they undergo a major renovation, BPA is challenged to address the priority of these concerns in the context of risk-to-value and cost-to-benefit analyses.

HAZARDOUS MATERIALS (LIFE SAFETY) – Asbestos, lead, mercury and polychlorinated biphenyls (PCB) are just a few of the known or suspected hazardous materials that may exist in BPA facilities and represent potential hazards to personnel. Abatement of hazardous materials often adds significant cost and time to routine repairs and may limit the extent of repairs.

IMMATURE FACILITIES PLANNING AND MAINTENANCE MANAGEMENT SYSTEMS

LIMITED WORKFORCE FORECAST – Emerging operational requirements often require dynamic staffing support. While staffing levels for federal employees (BFTE) may be reasonably forecasted, the absence of annual agency supplemental labor contract employee (CFTE) forecasts poses a significant challenge to Workplace Services in providing the right type of work/support space in the proper quantities when required. Unforeseen changes in CFTE staffing lead to sub-optimization of the facilities inventory and reactionary facilities planning with lasting impacts.

OFFICE SPACE CONSTRAINTS – Workplace Services enables BPA operations by providing employees and contract staff adequate space to perform their work. BPA space standards ensure consistency across the organization in the quality and quantity of space provided to employees. In addition to the application of these standards, BPA needs to maintain an appropriate amount of swing space to allow for employee/organizational moves and changes in staffing levels. Currently,

BPA has a deficit of swing space in the Portland Vancouver metropolitan area to meet forecasted staffing requirements.

ASSET INFORMATION – Workplace Services requires readily available access to current and accurate information for facilities and infrastructure for which BPA is responsible in order to optimize maintenance, operations and replacement activities. BPA’s current information systems for asset ownership, leases, sales, condition, portfolio and systems composition, performance, cost of ownership, etc., are either maintained and/or owned by various BPA organizations with differing priorities and accuracies or, non-existent (e.g., an Enterprise Asset Management (EAM) Computerized Maintenance Management System (CMMS)). The absence of a singular enterprise system of record for facilities information inhibits the ability to consistently make informed business decisions.

CONSTRAINED LABOR RESOURCES – Workplace Service relies upon BPA’s recently restructured facilities project delivery method via Transmission’s Project Management Office (TEP) for facilities project management and Sourcing Services (NSS) for procurement. The volume of projects being administered by BPA has the potential to constrain resources and impact the amount of facilities work which may be performed.

STRATEGIC INITIATIVES

In order to manage the operations, planning, and execution risks of the Strategic Challenges above, Workplace Services identified the following actions necessary to achieve its long-term objectives:

1. PRIORITIZED ASSET OPTIMIZATION

1A. ESTABLISH STANDARDS - Key business partners were consulted and core lines of service were assessed in the development of Version 1 Service Standards with an initial deployment made within the Critical Facilities portfolio at BPA’s Dittmer Control Center and Munro Control Center. The implementation of these enhanced standards will serve as the basis for future efforts to integrate client service level requirements to asset life cycle planning and execution, including capital investment and operations and maintenance (O&M) planning and execution. This effort will extend to other areas of the asset life cycle such as design, maintenance and code standards.



1B. IMPROVE TRACKING OF INFRASTRUCTURE INVESTMENT - With the establishment of these enhanced Service Levels, Workplace Services is adding several new service, maintenance, repair and performance metrics to track capital and expense expenditures required to maintain the agreed upon service levels for BPA facilities. This will enable Workplace Services to understand the true cost for providing consistent service levels to facility occupants, and identify investment opportunities for more efficient facility/systems replacement for ongoing cost avoidance.

1C. DEVELOP ASSET MANAGEMENT SERVICES

PEOPLE – As reported in the BPA Asset Management Enterprise Process Improvement Plan (EPIP), Facilities Asset Management was formed in 2006 and is responsible for planning and oversight of BPA facilities. Much progress has been made across the BPA in developing asset management skills and capacity. Asset managers across the BPA come from many professions including engineers, architects, and facilities specialists. For these reasons, there remains an opportunity to develop a generalized standard of practice and competencies for asset management practitioners. Facilities Asset Management will initiate work on developing staff in accordance with a competency framework set forth in the Federal Buildings Personnel Training Act (FBPTA) of 2010. As part of continuing to enable the practice of asset management, Facilities Asset Management will continue to monitor needs, provide tools, and provide support in the areas of succession management, knowledge management and skills development, change management and communication.

TOOLS AND DATA – An important area for ongoing development is implementation of standardized tools supporting asset management processes. By integrating the various systems together, Workplace Services will be able to make more informed infrastructure decisions on behalf of the BPA. To facilitate this, the following tools are being developed and/or implemented:

ASSET REGISTRY – The majority of BPA facilities assets are captured in an asset registry and Facilities Asset Management is in the process of conducting a review of the existing data and any gaps to support asset management planning.

LIFE CYCLE COST ANALYSIS AND CAPITAL PLANNING – Standardized tools for calculating the Total Cost of Ownership (TCO) for assets.

REPORT AUTOMATION – Work is under way to automate reporting of standardized facilities asset, maintenance and budget status reports for broad dissemination within the BPA.

DATA STANDARDIZATION – It is important that BPA facilities data standards are established. These standardized values are required for asset reporting and prioritization.

STANDARDIZED COMPUTER MAINTENANCE MANAGEMENT SYSTEM (CMMS) – Facilities Asset Management created and implemented an interim Computerized Maintenance Management Systems (iCMMS) to bridge the gap until the BPA decides upon the implementation of an enterprise CMMS. This system will be populated in FY 14.

2. OPERATIONAL ALIGNMENT

2A. ENABLE INTEGRATED INFRASTRUCTURE DECISION MAKING - Development of staff and asset management tools will allow Workplace Services to undertake life cycle valuations and quantitative sustainability assessments associated with facilities projects. This will require sufficient resources and training to ensure that life cycle costing for projects and maintenance tasks is achieved.

Ongoing staff development along with the maturation of the facility data and systems, will represent a huge advance in the development and execution of the facilities program. However, additional efficiencies can and should be realized via close coordination with other facilities strategic partners.

The establishment of a joint working group between Facilities Asset Management, other Category Asset Managers, Subject Matter Experts (SME) and others as appropriate, will enable the sharing of potential and planned work with a proper context of operational and life cycle renewal costs.

2B. ESTABLISH PARTNERSHIP AGREEMENTS – In 2013 Facilities Asset Management established Partnership Agreements with Transmission Engineering partner organizations in order to clarify roles and responsibilities and promote efficient workflow. This represents a major milestone toward maturing the BPA structure for facilities planning and project execution. Further Partnership Agreements will be pursued with Transmission Field Services to clarify roles and responsibilities for field operations and maintenance activities beyond the Portland-Vancouver metropolitan area.

2C. ESTABLISH ASSET MANAGEMENT PLANS – Facilities Asset Management established an Asset Management Plan (AMP) for critical assets at the Dittmer Control Center. This model will serve as a basis for further implementation within the Critical Facilities portfolio. Additional AMP will be developed for the facilities portfolio as appropriate. In some cases, asset specific AMP's are appropriate, in other cases, complex-wide or portfolio-wide AMP's will be developed.

3. ASSET LIFE CYCLE MANAGEMENT

3A. ESTABLISH ASSET MANAGEMENT PROCESSES – The Facilities AMS is intended to act as the reference strategy for the coordinated asset management and services provided by Workplace Services organizations. Practice and performance expectations, as well as responsibilities, of a consolidated Facilities Asset Management program continue to evolve. As such, the framework of this AMS and its sub-components will require regular review and development to respond to emerging operational needs and organizational alignments.

3B. CONTINUALLY IMPROVE THE ASSET MANAGEMENT SYSTEM – BPA's Asset Management Policy (BPAM Chapter 660) states that leading industry practices, such as the British Standards Institute, Publically Available Specification 55, will become the basis for asset management practices and use a Plan-Do-Check-Act cycle. Included in the standard are areas not necessarily addressed in the previous AMS. These include:

- Training and awareness programs for staff.
- Performance tracking and corrective action mechanisms or tools.
- Documentation and records for asset management.
- Asset management plans.
- Asset management practice performance measurement, internal review and checking.
- Benchmarking infrastructure investment, service provision and risk management to other industry organizations and federal agencies.

RESULTS TO BE ACHIEVED

BPA and its stakeholders can expect that the general health and reliability of critical and mission essential facilities assets will improve through informed and conscientious repair and replacement efforts in accordance with industry standard practices.

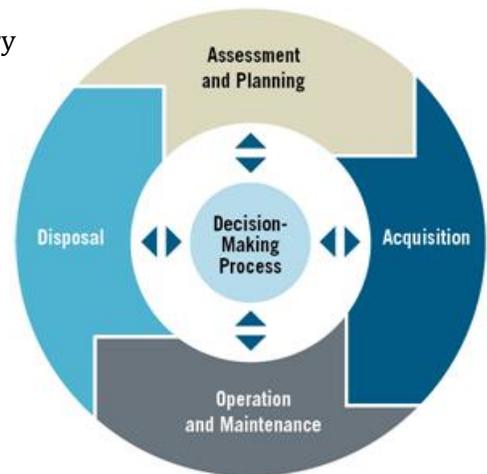
BPA will further develop and implement facilities asset management capabilities with leading industry practices in order to ensure:

- Performance standards for Critical Assets are met and established
- Investments are prioritized to meet mission requirements and strategic intent
- Returns on investments are predictable
- Assets are managed to maintain reliability and safety

Maturation of the BPA facilities asset management systems will be guided by the Strategic Facilities Objectives and seen through developments in the areas below.

PRIORITIZED ASSET OPTIMIZATION

- Infrastructure investment, service provision and risk management are projected to be benchmarked to industry and other federal agencies by FY 16.
- Facilities asset registry information is projected to be validated, associated facilities information to be mapped, and policy issued to clarify roles and responsibilities for data ownership and maintenance by FY 16.
- Personnel performing building operations and maintenance, energy management, sustainability, water efficiency, safety (including electrical safety), building performance measures and design functions are projected to receive core competency training for their positions, per the FBPTA of 2010 by FY 15.



OPERATIONAL ALIGNMENT

- Forums with other asset category partners, Transmission Planning and other SMEs to coordinate efforts will convene regularly. Processes and tools are projected to be developed to support these efforts by FY 15.
- Facilities service, maintenance, design, performance and quality management standards are projected to be formally established by FY 15.
- Asset Management Plans will be developed for core business portfolios by FY 15.

ASSET LIFE CYCLE MANAGEMENT

- Facilities performance and corrective action mechanisms are projected to be tracked and reviewed in order to update the AMS appropriately by FY 14.
- Asset management performance measurement and internal reviews are projected to be performed by FY 14.
- Facilities asset management decisions are projected to be archived to maintain documentation and records for asset management by FY14.

This focused strategy will inform us of the state of our assets as well of their level of performance, both in terms of meeting customers' needs and economic targets while identifying areas of the asset management systems that can be improved.

PROPOSED SPENDING LEVELS

The proposed level of investment represents a comprehensive forecast to maintain reliability and operation of BPA facilities.

PROPOSED CAPITAL PLAN, FY 2014 – FY 2023

(All figures shown in millions of dollars)

CAPITAL PROGRAM	Actual FY 12	Actual FY 13	FY 14	FY 15	FY 16	FY 17	FY 18	FY 19	FY 20	FY 21	FY 22	FY 23	10-YR TOTAL
In-Flight Expand	1.0	7.9	33.4	11.0	13.0	0.0	57.4						
Maintenance HQ's	0.4	3.6	18.4	6.0	8.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	32.4
Business Continuity	0.5	4.3	15.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	15.0
Station Service Upgrade	0.0	0.0	0.0	5.0	5.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	10.0
Core Sustain	2.2	5.7	6.4	13.0	23.4	30.8	22.8	22.8	22.5	22.5	22.5	22.5	209.4
Small Capital Projects	0.8	1.2	0.0	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	13.5
HazMat Abatement	0.3	0.1	0.0	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	4.5
Asset Decommission	0.0	0.0	0.0	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	4.5
Maintenance HQ's	0.0	0.0	0.6	0.6	16.0	12.0	0.0	0.0	0.0	0.0	0.0	0.0	29.2
Comm Bldg Replace	1.0	3.3	3.9	1.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	4.9
Ross Bldg Replace	0.0	0.0	0.0	3.0	3.0	16.0	20.0	20.0	20.0	20.0	20.0	20.0	142.0
Critical Facilities	0.0	1.1	1.9	1.9	1.9	0.3	0.3	0.3	0.0	0.0	0.0	0.0	6.8
Station Service Upgrade	0.0	0.0	0.0	4.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	4.0
Non-Core Sustain (<\$3M)	0.4	2.3	2.4	2.4	2.5	2.2	2.2	2.2	2.5	2.5	2.5	2.5	23.8
HQ Capital Projects	0.4	2.3	2.4	2.4	2.5	2.2	2.2	2.2	2.5	2.5	2.5	2.5	23.8
Non-Core Sustain (Compliance)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Security Upgrades	<i>Program to shift from security to facilities in FY15. Funding levels included in Security strategy.</i>												
TOTAL NON-CCP CAPITAL	3.5	16.0	42.2	26.4	38.9	33.0	25.0	25.0	25.0	25.0	25.0	25.0	290.5
Low (P10)			37.9	23.8	35.0	29.7	22.5	22.5	22.5	22.5	22.5	22.5	261.4
High (P90)			46.4	29.0	42.8	36.3	27.5	27.5	27.5	27.5	27.5	27.5	319.6
2014-2017 TOTAL			140.5										

Non-Core Sustain/Expand (CPP)	0.0	0.0	0.0	0.4	6.8	20.8	8.8	14.4	14.0	6.0	10.0	10.0	91.2
Maintenance HQ's	0.0	0.0	0.0	0.4	0.8	14.8	8.8	14.4	14.0	6.0	0.0	0.0	59.2
New Facility Projects	0.0	0.0	0.0	0.0	6.0	6.0	0.0	0.0	0.0	0.0	10.0	10.0	32.0
TOTAL CCP-EXPAND CAPITAL	0.0	0.0	0.0	0.4	6.8	20.8	8.8	14.4	14.0	6.0	10.0	10.0	91.2

TOTAL CAPITAL	3.5	16.0	42.2	26.8	45.7	53.8	33.8	39.4	39.0	31.0	35.0	35.0	381.7
Low (P10)			37.9	24.1	41.1	48.4	30.4	35.5	35.1	27.9	31.5	31.5	343.5
High (P90)			46.4	29.5	50.3	59.2	37.2	43.3	42.9	34.1	38.5	38.5	419.9
2014-2017 TOTAL			168.5										

PROPOSED EXPENSE PLAN, FY 2014 – FY 2023

(All figures shown in millions of dollars)

EXPENSE PROGRAM	Actual FY 12	Actual FY 13	FY 14	FY 15	FY 16	FY 17	FY 18	FY 19	FY 20	FY 21	FY 22	FY 23	10-YR TOTAL
FAM Program Requirements		2.5	3.6`	3.6	3.7	3.8	3.9	3.9	4.0	4.1	4.2	4.3	39.1
Facilities Assets** Upgrade Replace/Renovate/Repair	16.4	13.3	12.4	16.1	12.9	13.2	13.5	13.7	14.0	14.3	14.6	14.9	139.6
Ross Facilities Base O&M	2.8	2.8	2.7	2.7	2.8	2.8	2.9	3.0	3.0	3.1	3.1	3.2	29.4
Field Facilities Base O&M	5.5	5.6	5.2	5.3	5.4	5.5	5.6	5.7	5.8	5.9	6.1	6.2	56.6
Critical Facilities O&M/ Upgrade/Replace/Repair	UNK	1.8	3.3	3.4	3.4	2.6	2.6	2.7	0.6	0.6	0.6	0.6	20.4
HQ O&M/Upgrade/Replace/ Renovate/Repair	20.4	20.6	5.6	5.7	5.9	6.0	6.1	6.2	6.3	6.5	6.6	6.7	61.6
Lease Costs			15.2	15.4	15.3	15.6	15.8	16.0	16.3	16.6	16.8	17.1	160.1
TOTAL EXPENSE	45.1	46.5	48.0	52.3	49.4	49.4	50.3	51.3	50.1	51.0	52.0	52.9	563.5
Expense Alternatives for Capital Replacement Work			-	-	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	40.0
TOTAL EXPENSE WITH ALTERNATIVES	45.1	46.5	48.0	52.3	54.4	54.4	55.3	56.3	55.1	56.0	57.0	57.9	603.5

* DRAFT ONLY – Expense Budgets to be further developed through the IPR process.

** Portfolio-wide IT cable plant replacement has not been fully defined. Program costs and funding source included within are preliminary place holders and to be determined in future discussions with IT and agency planners.

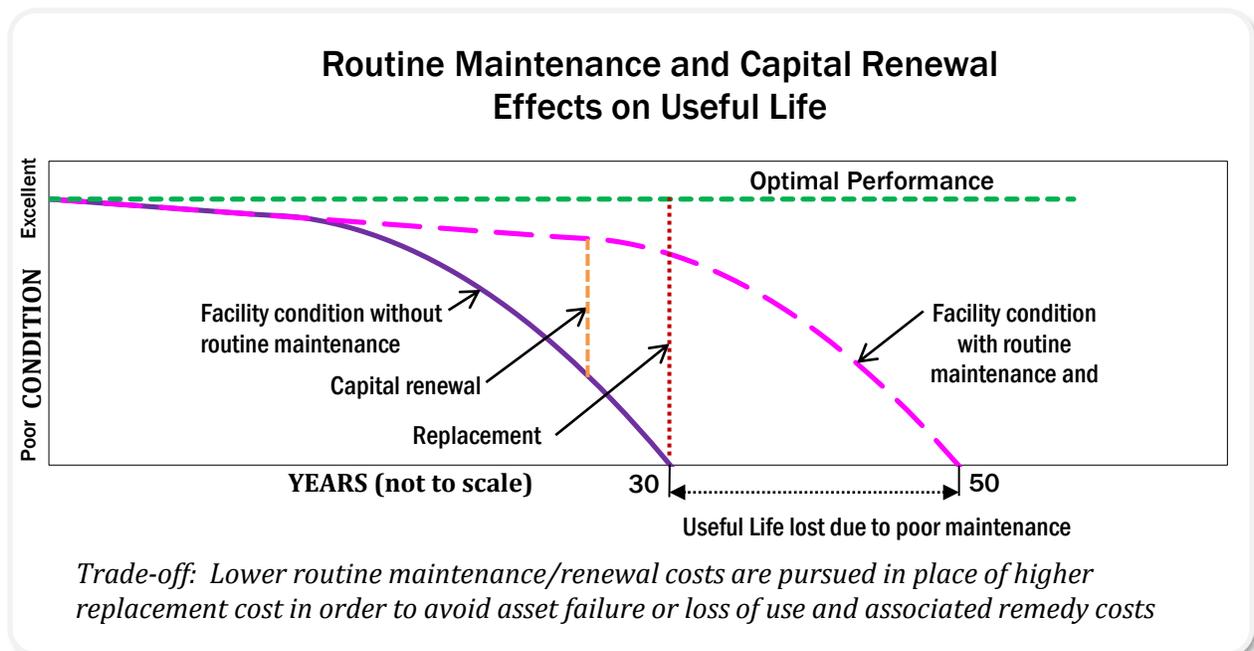
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I. ASSET CATEGORY OVERVIEW

A primary role for facility management in both government and commercial industry is to balance short-term and long-term asset needs. By aligning expenditures with operational requirements an agency seeks to maximize the useful life of assets, assess asset functionality and provide for a planned program of repair, improvement and restoration to meet organizational needs.

Facilities activities may be categorized and accounted for in three ways: maintenance (expense), capital renewal (capital/expense), replacement (capital). Maintenance is defined as services that help restore assets or systems to design or sufficient conditions, and is accounted for via expense funding. Capital renewal is the planned replacement of aged or obsolete building systems that have reached the end of their useful life and also includes major renovations (>50% of the replacement value) and expansions of existing facilities to extend their service life. Federal Energy Reliability Corporation (FERC) accounting rules require a mixture of capital and expense funding for renewal activities. Facility replacement is the action of disposing of and rebuilding obsolescent or degraded assets via capital expenditure.

Without recurring reinvestment in facilities and building systems, older facilities will fall into a state of ever-deteriorating condition and functionality, which increases the cost of future maintenance and repair.



KEY ACCOMPLISHMENTS (2012 – 2013)

Since the 2012 Integrated Program Review (IPR) and Capital Investment Review (CIR), Facility Asset Management invested, through its strategic partners in Transmission Engineering and Transmission Services, over \$30 million in repairing or replacing critical facilities in the BPA system. Facility Asset Management has:

- Executed 99% of the forecasted expense budget for replacements, upgrades or repairs;
- Invested \$20 million in an Alternate Operations Center to bolster business continuity
- Completed \$4 million of seismic upgrades at 2 critical buildings;
- Executed over \$2.8 million in roads and parking upgrades and repairs projects.

In the building replacement/additions area, Facility Asset Management has invested over \$19 million in capital construction projects that include:

- Invested \$19 million in new two modern Maintenance Headquarters;
- A complete modernization and asbestos remediation at the control house at Custer and Monroe substations located near Bellingham, WA
- A new water distribution system at the Longview substation in Longview, WA., that replaced a 70-year-old system; and

In addition to direct facilities work, Facility Asset Management has made progress in improving the overall management of the program. Facility Asset Management has:

- Implemented a robust Program Management function with subject matter experts;
- Adopted the International Code Council's model building codes, which will result in a portfolio that is more consistent and more compliant;
- Created a site irrigation and xeriscaping policy to reduce water consumption and promote site maintenance in a consistent, sustainable, economical and efficient manner;
- Completed an in-depth assessment of current operations and maintenance practices;



McNary Maintenance Headquarters (Photo: BPA)



Munro Scheduling Center (Photo: BPA)

FACILITIES ASSETS AND SERVICES PORTFOLIO

PROFILE OF FACILITY SERVICES

Workplace Services (NW) provides a comprehensive program of facilities and critical asset management and associated other facility services as follows:

FACILITIES OPERATIONS (NWF) is responsible for planning, operations and maintenance of the GSA delegated headquarters office facility in Portland, and all commercially leased office space throughout the BPA region and Washington DC to ensure a safe, reliable, and productive environment. This organization reviews and evaluates facilities within their area of responsibility and develops and implements options that meet strategic agency requirements including the federal initiatives and mandates for sustainability.

FACILITIES ASSET MANAGEMENT (NWM) is responsible for the overall strategic planning, governance, and oversight of agency facilities in accordance with BPA asset management policies in *BPA Manual: Chapters 660 and 661*. This includes program planning, oversight, development of policy and guidance, establishment of condition assessment criteria, project prioritization, financial management, technical oversight and support, facility standard development and implementation, and performance analysis and reporting. The organization is comprised of engineers, architects, technical specialists, technicians, contractors and facilities asset management and program management experts. NWM responsibilities also include the operations and maintenance of the critical facilities and critical systems at agency control centers and data centers that support the agency's mission and business critical assets. Additionally, NWM (via NWMR) is responsible for the complete operations and maintenance of the ~240 acre Ross Complex, which accounts for ~30% of the total BPA owned facilities portfolio.

OPERATIONS AND PLANNING (NWP) is responsible for establishing policy, standards, and metrics for the office services program, mail services and printing services for the agency. The office services program includes the transportation program and subsidies, parking, conference room scheduling, the office supply program, non-IT office equipment program, delivery and receiving, motor pool and valet parking. Operations and Planning supports Workplace Services business operations planning and reporting, process improvement analysis, client strategies and feedback.

FACILITIES ASSETS

All site buildings, associated mechanical, electrical, structural, and utility systems, surrounding grounds and other fixed improvements upon the land within the sites controlled by the agency.

BUILDINGS

Any permanent structure with a roof, walls and floor which shelters people or property from the elements. This includes control houses, relay houses, maintenance headquarters, pole barns, shops, and vehicle storage. Control and Meter houses on remote sites also fall into this category.

NON-BUILDINGS

Any permanent infrastructure, such as fixed cranes, fences, pavements, water distribution, storm and sanitary sewer systems, and other site improvements and appurtenances fall into this category.

FIELD PERSONAL PROPERTY

Any modular, portable or otherwise movable "building" (with or without Z numbers) such as metal cabinets/enclosures, Conex or similar storage boxes/shipping containers, sheds, and latrines are considered personal property of the field.

SPACE MANAGEMENT (NWS) is responsible for the management and administration of all interior office space design, move services, ergonomics and furniture acquisitions at BPA. This function analyzes office and light industrial space requirements, evaluates space use, and coordinates with other service providers (e.g., network, desktop services, phone, facilities operations) to move staff within BPA owned and leased office facilities. Space Management develops BPA space and furniture standards and related policies.

PROFILE OF FACILITY ASSETS

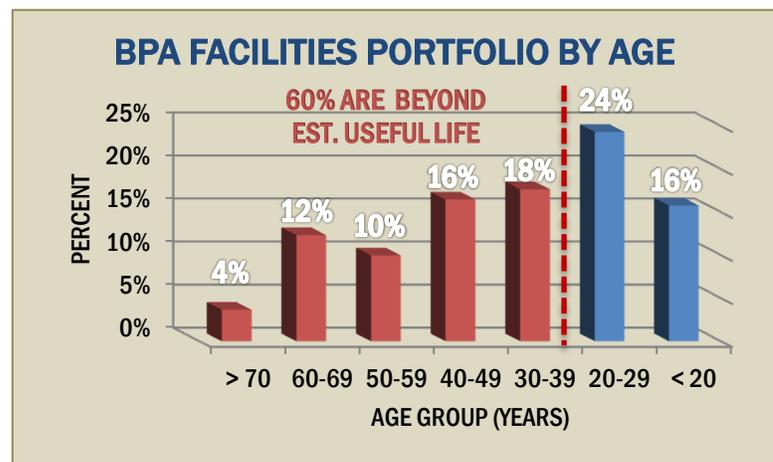
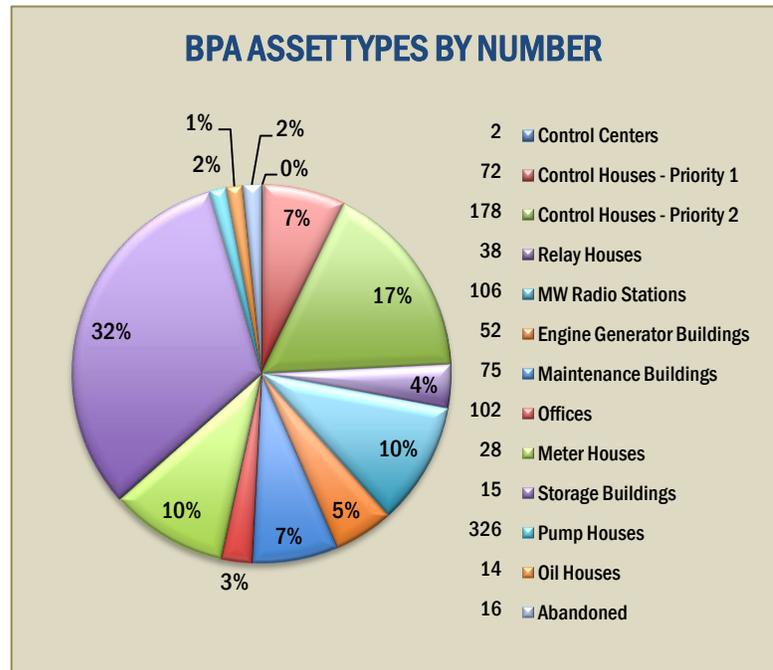
BUILDING ASSETS

BPA facilities directly support the operation and maintenance of the transmission system and consist of 1,000+ facilities, such as: control centers, control houses, relay houses, microwave radio buildings, maintenance buildings, offices, meter houses, storage buildings and oil houses. Assets are prioritized by operational criticality, type and system.

To improve facilities coordination across programs, all facilities work, supporting building systems and fixed infrastructure, e.g., network cable plant, etc., is included for prioritized execution in this AMS.

The majority of the portfolio (60%) is older than 30 years old and in need of elevated levels repair and maintenance, or in many instances, replacement. Backlog of maintenance and repair (BMAR) grew significantly over the past decade due to difficulties prioritizing and executing facilities work. The volume of BMAR drives facility reliability to unhealthy levels.

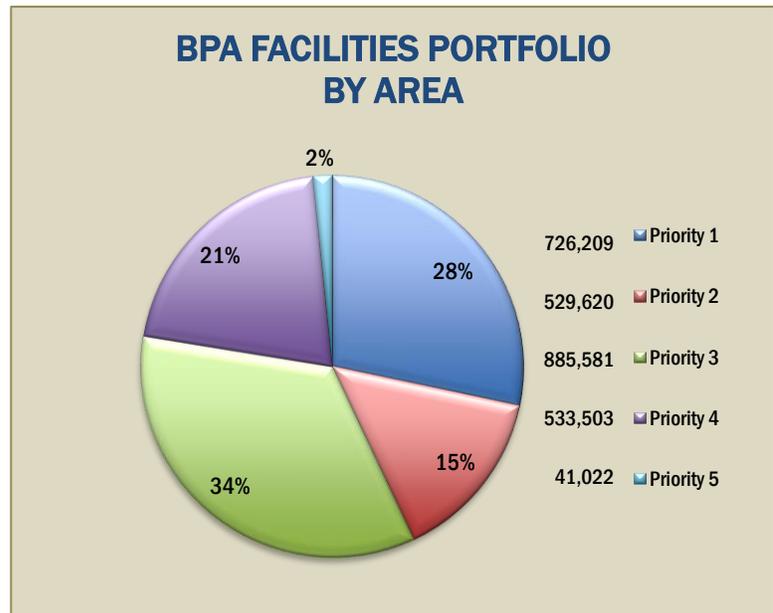
BPA is challenged to address a large number of premature assets/systems failures, long before the expected useful life (EUL), which is compounded by a lack of renewal. Renewal or replacement are cost-effective solutions for degrading facilities conditions.



NON-BUILDING ASSETS

Facilities Asset Management began an inventory of non-building assets in 2013 and roughly 60% of site infrastructure, utilities, fencing, paving, landscape elements and site appurtenances are identified, with the balance being inventoried over the next two years.

To improve oversight for facilities in accordance with the agency Graded Security Plan, physical security related projects will be integrated into the facilities portfolio. FY 14 Critical Asset Security Plan (CASP) projects and FY 15 NERC-CIP Compliance Enhancement projects and budget will be managed by NWM.

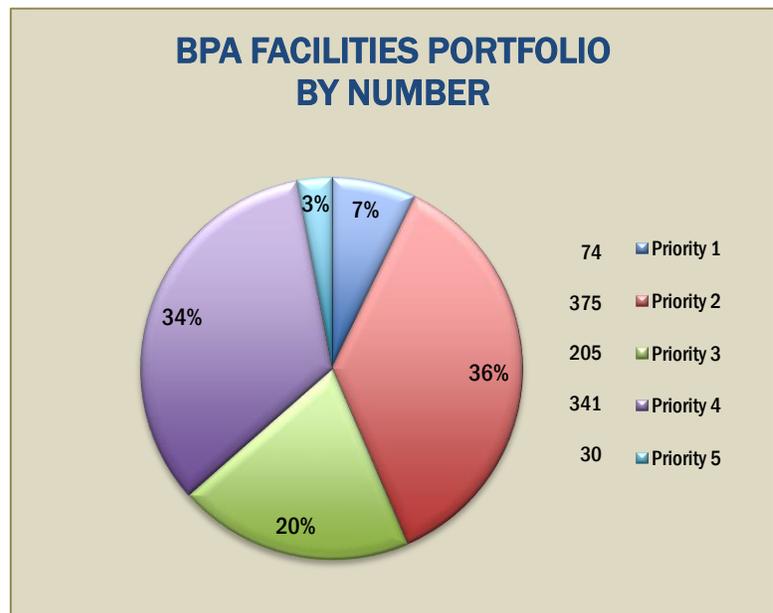


FIELD PERSONAL PROPERTY

Materials, equipment and non-fixed enclosures assets are specifically excluded in this strategy, as they support itinerant or temporary organizational needs on BPA sites.

LAND

While BPA real property assets are specifically excluded in this strategy, as they are within the purview of the Transmission Real Property Services (TER) organization, NWM actively collaborates with Transmission to inform facilities decisions and facilities asset registry information for the over 400 sites in the BPA service area.



ASSET CRITICALITY AND PRIORITIZATION

CONTINUITY OF OPERATIONS

In accordance with the *BPA Manual, Chapter 133: Continuity of Operations*, Facilities Asset Management supports and enables BPA Continuity of Operations by appropriately identifying and categorizing facilities and associated functions. In doing so, FAM appropriately identifies critical assets and provides specialized support to ensure their operability. Dedicated support for agency business continuity and critical assets is provided by the FAM Critical Facilities Team which

provides 24-hour support and response. Furthermore, the focused efforts of the Critical Facilities Team bridge the continuity gap between immediate tenant needs and life cycle management through the creation of Asset Management Plans to support Primary Mission Essential Functions (PMEF).

In general, critical assets and systems are those whose failure will directly affect the reliability of grid operations or business critical applications. The critical systems are prioritized by the impact they have on safety, reliability, and performance.

ASSET GROUPING

Facilities are grouped according to mission criticality as follows: Primary Mission Essential Functions or Priority 1 assets, Mission Essential Functions (MEF) or Priority 2 and 3 assets, and Essential Support Activities (ESA) or Priority 4 and 5 assets.

ASSET CRITICALITY – GROUPED BY FACILITY PRIORITY

PRIORITY LEVEL	ASSET GROUPING	ASSET TYPE		
1	UTILITY 1	Control Center Data Center	Control House Microwave	
2	UTILITY 2	Control House Control/Maintenance Relay House	Microwave Engine Generator Bldgs	
3	OFFICE, MAINTENANCE & SPECIAL	Office – Mission Critical Maintenance HQ Maintenance Shop	Meter Houses Storage – HazMat Storage – Special	
4	STORAGE	Office – Mission Support Training & Research Pump House	Storage – Vehicle Storage – Site Utilities Storage – General	
5	OTHER	Untanking Tower Oil House Lease	Abandoned Other	

A site may have numerous assets in multiple asset groupings. For example, a substation may have a control house, a maintenance shop, a warehouse, and a small storage shed, each with its own potential impact to BPA’s operations. FAM has defined asset criticality by facility asset types rather than for individual sites. This provides prioritized and focused attention to assets with limited resources. Failure of these facilities could have immediate and serious impacts to the operation of the power system, in addition to impacts on employee productivity and safety.

SYSTEM GROUPING

Just as each Asset Grouping has varying levels of prioritization, each system within an asset poses a different level of importance as relates to the operation of the building. The criticality of building systems reflects the role that a system plays in keeping an asset functioning safely, efficiently, and reliably.

The American Society for Testing and Materials (ASTM) E1557 Uniformat II standard establishes a classification of building systems and related site work. Systems are major components common to most buildings and usually perform a given function, regardless of the design specification, construction method, or materials used. Using this standard, FAM has categorized systems into five priority groupings based again on the impacts a system has on the operation of the transmission and power system and in supporting critical business functions. The figure below shows a summary of the five priority levels and representative examples of the types of systems associated with each.

Blue area highlights examples of systems FAM would repair or replace as a high priority		System Priority				
		Priority	Priority	Priority	Priority	Priority
		1	2	3	4	5
System Category	Substructure, Shell, Interior Construction, Special Construction, & Finishes	Roof Exterior Doors Superstructure	Exterior Walls Stairs		Foundations	Interior Walls Interior Finishes Ceilings
	Electrical, Plumbing, & Fire Protection	Domestic Water Emergency Light & Power Fire Protection	Branch Wiring Lighting Equipment	Restroom Fixtures Drinking Fountains	Roof Drainage	Natural Gas Distribution
	Communication & Security	Security Alarm & Detection	Public Address			
	Heating, Ventilation, & Air Conditioning	Heat/Cooling Units Controls	Gas Supply	Air Distribution Exhaust Fans		
	Equipment & Conveying Systems		Elevators Wheelchair Lifts	Warehouse Equipment	Kitchen Equipment Central Vacuum	Vehicle Lifts Power Washing
	Site Development, Utilities, & Site Construction	Fences / Gates	Site Lighting Water Supply	Parking Lots	Sidewalks	Landscape

The table below, also provides a representative sample of systems that have been identified as Priority 1 and that have the most significant potential impact on asset operation:

SYSTEM PRIORITY – LEVEL 1		
• Controls and Instrumentation	• Fences and Gates	• Roof Openings
• Cooling Generating Systems	• Fire Protection	• Roofing
• Dust and Fume Collectors	• Floor Raceway Systems	• Special HVAC
• Emergency Light and Power	• Glazed Roof Openings	• Superstructure
• Exterior Doors	• Grounding Systems	• Terminal and Package Units
• Exterior Stairs and Fire Egress	• Heat Generating Systems	

ROLES AND RESPONSIBILITIES

Facility Asset Management (FAM) is responsible for overall strategic planning and direction, governance, and oversight of the agency's facilities in support of the agency asset management program. This includes agency program planning and oversight, development of policy and guidance, establishment of condition assessment criteria, project prioritization, financial management, technical oversight and support, development and implementation of facility standards, and performance analysis and reporting. In addition, FAM performs the following:

PROGRAM PLANNING

- Maximizes the long-term operational and economic value of the Facilities assets
- Prepares and maintains Facilities Asset Plans outlining requirements for specific program areas and assets
- Prepares and maintains a comprehensive inventory of Facilities Assets
- Establishes policies for Facilities assets

WORK PLAN – DEVELOPMENT, COORDINATION, AND APPROVALS

- Projects the need for new or expanded facilities assets in coordination with stakeholders and strategic partners
- Identifies and ranks mandatory, essential, desirable and deferrable repair, replacement, and expansions of Facilities Assets based on need, risk, and ROI
- Develops rolling work plans including projects prioritized based on need, risk, execution capabilities, funding availability, and ROI

BPA FACILITIES ROLES AND RESPONSIBILITIES

			ROLES & RESPONSIBILITIES (FACILITIES)				
			Activity	Standards	Budget	Planning	Execution
ASSETS & SYSTEM TYPES	Facilities & Non-Bldg Assets	<i>Architectural</i>	New Facilities	NW/T	NW/T	NW/T	NW/T
		<i>Mechanical</i>	Upgrades & Replacements	NW	NW	NW	NW/T
		<i>Electrical</i>	Maintenance	NW/T	NW/T	NW/T	NW/T
		<i>Civil</i>	Metrics & Targets	NW	NW	NW	NW
		<i>Other</i>					

NW - WORKPLACE SERVICES

T - TRANSMISSION SERVICES

FACILITIES MAINTENANCE (HEADQUARTERS AND ROSS COMPLEX)

Day-to day building operations at for the leased facilities at Headquarters and the Vancouver Mall complex, which includes planning and carrying out facilities upgrades and improvements as requested by clients and interacting with property owners and managers to assure effective operations is performed under the oversight of Facility Operations (NWF).

HEADQUARTERS (PORTLAND, OR)

With the increasing age of the Headquarters facility, increased critical facility infrastructure and static or reduced funding, it becomes increasingly more important to maintain a high level of efficiency and sustainability.

BPA HEADQUARTERS MAINTENANCE REQUIREMENTS FOR GSA OWNED FACILITIES

		BPA DELEGATED REPAIR AUTHORITY	GSA CAPITAL REPLACEMENT & MODERNIZATION RESPONSIBILITY
ASSET SYSTEM	ROOFING	<ul style="list-style-type: none"> • Repair all roofing: tile, slate, shingle, build-up, metal, rigid fiberglass, including vents, skylights, drains, downspouts, gutters, caulking, and flashing 	<ul style="list-style-type: none"> • Replace entire roof or entire segment or level of roofing
	MECHANICAL	<ul style="list-style-type: none"> • Repair and maintain sub-systems such as air handling units, perimeter fan coil units, cooling coils, heating coils, and control systems • Repair, maintain, or replace failed plumbing fixtures • Repair and maintain HVAC equipment and systems 	<ul style="list-style-type: none"> • Replace entire HVAC or plumbing system as determined by Building Evaluation Report (BER) and through Asset Business Planning
	ELEVATORS	<ul style="list-style-type: none"> • Maintain regular service, repairs, and maintenance contracts 	<ul style="list-style-type: none"> • Perform ADA upgrades and whole system replacements
	ELECTRICAL	<ul style="list-style-type: none"> • Maintain and repair service and distribution systems, power systems, lighting fixtures, electrical service ground systems, including wiring repairs and circuit breaker maintenance 	<ul style="list-style-type: none"> • Replace and upgrade entire electrical and power systems

ROSS COMPLEX (VANCOUVER, WA)

Ross Facilities (NWMR) oversees the operations at the Ross Complex, a 235 acre primary electrical distribution center situated in Vancouver Washington. The NWMR responsibilities span a wide range of maintenance and service objectives. The Ross Complex primary service initiatives encompass operations, maintenance and repair thru the use of both BPA Facilities permanent staff, contractors and service contracts.

A brief sample of these activities is as follows:

ROUTINE WORK REQUESTS

- Heating System and Cooling System trouble calls;
- Plumbing equipment/system repairs;
- Reasonable Accommodations Issues;
- Minor painting, minor structural repairs;
- Tree trimming, street sanding and snow/ice removal;
- After hours emergency response work requests

PREVENTATIVE MAINTENANCE

- Portable Fire Extinguisher inspections and annual certifications
- Air Compressor maintenance
- Fluid storage tank inspections
- Automatic gate inspections
- Low voltage electrical system preventative maintenance
- Roadway and parking system maintenance

MASTER CONTRACTS

- HVAC Systems Maintenance and Repair Services
- Janitorial Services
- Crane Maintenance Services
- Elevator Maintenance Services
- Landscaping Services
- Fire & Life Safety System Maintenance Services
- Fluid Storage Tanks Maintenance & Inspection Services
- Food Services

COMMERCIAL OFFICE LEASES

NWF budgets, pays and manages the cost of office leases for BPA and contributes to strategic assessments of long-term office space requirements and options. NWF follows the basic support process for Real Property Services to ensure proper decision criteria are met:

- Obtain requirements/interface with Stakeholders (IT/client usage)
- Use information from forms to develop required package
- Review properties with Realty and determine viable options
- Evaluate RFOs
- Make selection of leased site/building
- Space Management (NWS) finalizes floor plan (with Clients/IT)
- Take finalized plans to Landlord for implementation
- Track lease costs to ensure lease contract compliance.

SPACE MANAGEMENT SERVICES

Space Management (NWS) manages and administers all interior office space allocation, space design, move services, furniture inventory and furniture acquisitions. In addition NWS performs the following:

- Project Management for interior space upgrade related projects;
- Facilitates initiatives to look at how buildings are being used, to study space requirements & business requirements, Facilities issues, general issues, and opportunities to improve buildings and overall space;
- Studies the use of existing buildings to maximize office space use where appropriate;
- Provides short and long term solutions to house people in office spaces;
- Maintains record drawings of all major buildings;
- Procures all of the office furniture and some light industrial furniture.

SUPPORT OPERATIONS

Operations and Planning (NWP) provides business partners (internal customers), with the following:

- Vehicles for business travel and alternate commute programs;
- Conference rooms for meeting;
- Office supplies for daily work needs;
- Mail pick-up and delivery, mail list development and maintenance;
- Media consulting and print shop services;
- Facilitation / support of agency sustainability initiatives.

FACILITIES PROGRAMS / ASSET MANAGEMENT PLANS

In keeping with *BPA Manual, Chapter 660: Agency Asset Policy* and leading asset management practices, NWM is actively developing Asset Management Plans (AMP) for a number of asset types which would benefit from focused and life cycle planning. Asset Management Plans are to be developed, reviewed and renewed on a biannual basis in accordance with the agency IPR and CIR cycle for Asset Categories. The following program areas are identified for further or future AMP development:

FACILITIES MANAGEMENT PLAN

In the past, FAM's work plan had been prioritized by individual work requirements associated with specific building systems which were ranked and competed for funding. The resulting work plan was a mix of small projects spread across BPA's service territory. These smaller projects addressed multiple issues, at different times at the same site. This resulted in a lack of communication and coordination, duplication of work efforts and frustration among field personnel. Also, due to the competition for resources, in contracting, design, as well as in construction, many projects were left incomplete at the end of each fiscal year with significant funds remaining unused.

BPA recent success in programming and executing facilities work is a direct result of large projects at select sites with coordinated work from multi-disciplinary teams from multiple programs, e.g. Transmission expansion, seismic upgrades, security enhancements, etc.. To build upon that success, the FAM Program Management team has developed a program in which Architects and Engineers (A/E) will evaluate prioritized sites and deliver work packages to the Transmission Engineering Projects (TEP) organization for execution where they will be implemented in a coordinated fashion with other projects across the agency for optimization of resources and scheduling efficiencies. The Site Evaluation and Schematic Design Document Program (SER/SDD) will commence in 2014.

CRITICAL FACILITIES PROGRAM

The Critical Facilities Team was established to provide a dedicated support for BPA's Mission Essential Functions and business critical assets.

The critical facility systems are comprised of standby generators and fuel handling systems, redundant emergency electrical distribution systems, uninterruptable power systems, redundant electrical service feeds, independent mechanical infrastructure for heating and cooling and secondary domestic water systems: The systems are configured and located to protect the following critical operations:

POWER SERVICES OPERATION

- BPA Headquarters: JTS Data Centers, Duty Scheduling Center, Weather Forecasting Center, Critical Business Systems.
- Ross Complex: Z992 Data Centers, Emergency Scheduling Center, Critical Business Systems
- Munro Scheduling Center (Opening FY14)

TRANSMISSION

- Ross complex: Dittmer Control Center
- Munro Control Center, Munro Scheduling Center (Opening FY14)

The asset systems contained within the critical facilities are summarized below:

CRITICAL FACILITIES - SYSTEMS		
• Turbine Generators	• Emergency Electrical System	• Emergency Lighting
• Electrical Service	• Critical Mechanical Cooling	• Architectural Systems
• Electrical Distribution	• Fire Detection and Alarm	• HVAC
• Uninterruptable Power Supply	• Fire Suppression	• Utility (Water, Sewer) Systems

At present, accurate detailed condition information is unavailable for the critical systems. Work is ongoing to progressively capture relevant data to assist in future work’s programming and asset renewal.

SUSTAINABILITY ACTION PLAN

Facilities Asset Management developed the Sustainability Action Plan (SAP) as a way to document BPA coordinated efforts and approach towards meeting the agency’s Sustainability Cross Agency Targets (XAT) and to identify partnership and coordination opportunities within other BPA asset categories, functional programs and organizations. The SAP outlines a biannual plan in specific actions to address energy, water, materials, and operational efficiencies. Each year the FAM SAP will be updated based on the program and Federal requirements.

MAINTENANCE HEADQUARTERS ASSET PLAN

There is an ongoing and increasing need to cost-effectively address consolidated facilities requirements in support of the Transmission Services field maintenance and operations over the next decade. The Maintenance Headquarters Asset Plan is currently being executed under the guidance of the MHQ 10-Year Strategic Plan program. The 10-Year Strategic Plan establishes a road map to plan new facilities and major upgrades at MHQ installations. This roadmap has identified a prioritized list of facilities in highest need of capital renewal or replacement and delineates a set of strategic objectives that standardize the minimum facility requirements necessary for supporting operational excellence within Transmission Field Services (TF). Overarching goals of this program include facility standardization, cost predictability, improved asset life cycle management, improved TF internal operations and TF service reliability.

ROSS COMPLEX STRATEGIC FRAMEWORK PLAN

Facilities Asset Management is developing a Ross Complex Strategic Framework Plan (SFP), to guide facilities and space management support of key BPA missions. NWM established Transmission and IBS sponsor support via a Project Management Plan, and intends for the Ross SFP to serve as an Asset Management Plan and to guide future facilities and space support on the Ross Complex. The core drivers of this effort seek to provide solutions for resolving conflicting space needs between increased Ross Complex staffing needs and continued industrial expansion and emphasis of BPA mission goals including: (1) improved continuity supporting Grid Operations, (2) facility support of Ross Complex security, (3) ongoing support of improved energy efficiency and sustainability initiatives and (4) cross-agency facility governance.

PORTLAND-VANCOUVER OFFICE SPACE STRATEGY

Space Management Services works in partnership with Facilities Asset Management to develop solutions for workplace upgrades and space accommodations of BPA facilities and leased properties. To this end, NWS is pursuing a long-term strategy for the staffing at Ross-Van Mall per recommendations from the NWM initiated Ross Complex Strategic Framework Plan. The goal of

the Portland-Vancouver Office Space Strategy (PVOSS) is to identify cost effective optimization of staffing allocation which addresses immediate BPA space needs while providing flexibility for future fluctuations in staffing. Recent trends show an average 4.25% growth in staffing over the last 5 years, reflecting BPA's system expansion. Current forecasts by NWS predict this growth rate to continue for the next 5-10 years which will exceed current office capacity in the Portland-Vancouver area. It is anticipated that cost effective staffing solutions will result in an optimized combination of leased space and BPA owned facilities, determined in large part by first cost, expected long term benefits and retained space flexibility, capable of accommodating evolving economic climates.

DEMOLITION/DECOMMISSION ASSET PLAN

The Demolition/Decommission Asset Plan is a key component of "cradle to grave" asset optimization. The BPA facilities portfolio is heavily weighted towards facilities 30 years and older with a significant number exceeding 50 years of operation. Many of these facilities are approaching functional obsolescence, end-of-life (EUL) status due to seismic or internal safety concerns or EUL due to deferred maintenance exceeding replacement costs. Under the Demolition/Decommission Asset Plan, poorly maintained, non-functional or permanently vacant structures that have been identified by FAM as having negative benefits to the BPA are slated for demolition or decommissioned. This may occur when the current replacement value (CRV) exceeds the cost of deferred maintenance or cost of required upgrades. Demolition or decommissioning is a cross-agency coordination effort typically performed in conjunction with building site occupants.

HAZARDOUS MATERIAL ABATEMENT PLAN

Due to the age of BPA's facility portfolio, a number of structures contain hazardous building materials including lead, asbestos, polychlorinated biphenyls (PCB's), and mercury. The uncertainties of where these materials are located, their risk to exposure, and the lack of consistent guidance and training to safely work around these materials presents an unacceptable risk to the Agency and personnel in the absence of an abatement plan.

This is an ongoing initiative which establishes internal safety and abatement parameters by which FAM funds, coordinates and disposes of hazardous building materials. Removal and disposition of HAZMAT materials is conducted by contracted field experts which mitigates the risk of non-compliance with OSHA and EPA regulations.

BPA HEADQUARTERS CAPITAL PROJECTS PLAN

The BPA Headquarters is a leased facility, which capital appropriations needs between \$2.2-2.5 million per year. These expenditures support BPA workplace standards, facility-based business needs for FAM partners and ongoing improvement of Agency energy efficiency goals. Recent investments in support of the above include mechanical system upgrades, more efficient office space standards via the "Work Solutions Program under Space Management Services, and workplace support functions including kitchen and restroom right sizing and efficiency upgrades. As a leased facility, the primary driver for capital allocation at this facility is asset optimization.

PRIORITIZATION

Facilities Asset Management strives to optimize asset management efforts by addressing the right project at the right time and to appropriately assess risks in accordance with the BPA Risk Management Process. In order to insure that the facilities requirements are addressed in the proper order, FAM uses an Asset Prioritization Matrix during project intake and approval to assist

with the appropriate project categorization. This tool cross-references the asset and system priorities the matrix to assist in ranking and identifying potential risks to the transmission system and employee safety of issues arising at BPA sites and facilities.

ASSET PRIORITIZATION MATRIX

UTILITY 1	1	ASSET PRIORITY (by grouping)	Yellow	Orange	Red	Red	Red
UTILITY 2	2		Green	Yellow	Orange	Red	Red
OFFICE, MAINTENANCE & SPECIAL	3		Cyan	Green	Yellow	Orange	Red
STORAGE	4		Light Blue	Cyan	Green	Yellow	Orange
OTHER	5		Light Blue	Light Blue	Cyan	Green	Yellow
			SYSTEM PRIORITY (w/examples)				
			5	4	3	2	1
			INTERIOR FINISHES, LANDSCAPE	SPECIALIZED EQUIPMENT	FIXTURES, PAVING, WINDOWS	UTILITIES, ELEVATOR, STRUCTURE	ROOF, HVAC, FIRE SAFETY

SITE PRIORITIZATION INDEX

The Site Prioritization Index (SPI) was developed by the Program Management Team to assist with providing rigor to programming facilities work in a multi-program environment. The SPI methodology hinges on prioritization of an entire site rather than specific and individual work requirements; with the understanding that selected sites will involve, to the extent feasible, major facility improvements across the building systems and respective technical disciplines.

The criteria for site selection included identifying the work plans of previous programs as weighted criteria combined with additional weight given to sites identified from data within the asset registry, available lists based on Transmission grid criticality, operational importance, and continuity of operations. Operation efficiency (sustainability) projects, which result in significant utility expenditure savings, as well as sites part of the Maintenance Headquarters AMP are also incorporated into the methodology. The SPI has a defined 1-3 year programming prioritization horizon, with a less rigid 4-10 year forecast, understanding that the index is a living document dependent on many factors each of which are understood to be fluid. As such, the index will be periodically refined to optimize success as appropriate.

In the absence of an Enterprise Project Management Office and embedded Business Intelligence system to coordinate planning, execution and performance tracking across business lines, the SPI programming methodology provides the basis for substantive coordination with other BPA Asset

Categories. In doing so, FAM works to refine a common planning methodology. Facilities Asset Management is actively pursuing better integration of programmed facilities work with related programming efforts and tools being developed within Transmission (Transmission Asset Plan) and Transmission Planning (Project Portfolio).

SAMPLE SITE PRIORITIZATION INDEX (SPI)

SiteName	TotalPoints	SeismicPoints	EnergyPoints	TransPoints	VFAEstiPoints	VFAReqPoints	ElecPoints	MHQStratPoints	MEPPoints
Covington Substation	57	7		10	5	5	10	10	10
Alvey Substation	43	10		10	5	5	8		5
Big Eddy Substation	40		5	10			10	5	10
Olympia Substation	39	5		10	5	5	4		10
Bell Substation	38			10	5	5	8		10
Paul Substation	38	9	5	10	3	3	8		
Maple Valley Substation	35	9		10	4	4	8		
McNary Substation	35			10	5	5		10	5
Chief Joseph Substation	33			10	4	5	9		5
Tacoma Substation	31	8		10	4	3	6		
Ross Complex	30	10			5	5		10	
John Day Substation	30		5	10	4	4	7		
Snohomish Substation	29			10	5	5	9		
Troutdale Substation (BPA)	29	6	5	10	4	4			
Sickler Substation	29		5	10	4	4	6		
Echo Lake Substation	28	8	10	10	0				
Ashe Substation	27			10	5	5	2		5
Grizzly Substation	27		5	10	3	3	6		
Custer Substation	27			10	5	5	7		
Schultz Substation	27		10	10	3	4			
Slatt Substation	27		10	10	3	4			
Marion Substation	24		10	10	1	3			
Taft Substation	24		10	10	2	2			
Vantage Substation	23			10	3	3	7		
Hot Springs Substation	23			10	4	4	5		
Raver Substation	23		10	10	1	2			
Monroe Substation	22			10	4	3	5		
Hanford Substation	22			10	3	2	7		
Wautoma Substation	22	7	5	10	0	0			

LEGEND			
SPI CATEGORY		CATEGORY ORG. & TITLE	CATEGORY DESCRIPTION
Seismic (0-10 Points)	=	(TEL) Seismic Upgrade Assessments	FY13 = 10 points, FY14 = 9 points, etc.
Sustainability (0-10 Points)	=	(NWM) High Energy Usage	Electricity bills >\$30,000/year = 10 points, <\$30,000/yr = 5 point
Trans/PP (0-10 Points)	=	(NN) Priority Pathways	Tier 1 = 20 points, Tier 2 = 10 points, Tier 3 = 1 point
VFA Req Est \$ (0-5 Points)	=	(NWM) Estimated value of VFA Reqs.	Proportionally ranked (1-5 points) by total value of requirements
# VFA Req (0-5 Points)	=	(NWM) Number of VFA Reqs.	Proportionally ranked (1-5 points) by total number of requirements
Elec Upgrade (0-10 Points)	=	(TESD) Station Service Upgrades	FY13 = 10 points, FY14 = 9 points, etc.
MHQ Strategy (0-10 Points)	=	(NWM) 10-Year MHQ Strategy	FY13-15 = 10 points, FY16-17 = 5 points, FY18+ = 1 point
MEP (TESF) (0-10 Points)	=	(TESF) MEP Assessments	FY13 = 10 points, FY14+ = 5 points
Civil/StormWtr (0-10 Points)	=	(TELF) Civil Stormwater Assessments	Critical issue = 10 points, Potentially critical issue = 5 points

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II. ASSET MANAGEMENT OBJECTIVES

The overall, long-term objective of the Facility Asset Management program is to optimize, or fully leverage, the asset portfolio to provide reliable, sustainable assets that fully 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.

As such, the overarching Workplace Services organization created long-term Strategic Objectives and initiated a benchmarking effort and is establishing key metrics to better enable the agency to track the performance of facilities assets and services over time.

STRATEGIC OBJECTIVES

1. PRIORITIZED ASSET OPTIMIZATION

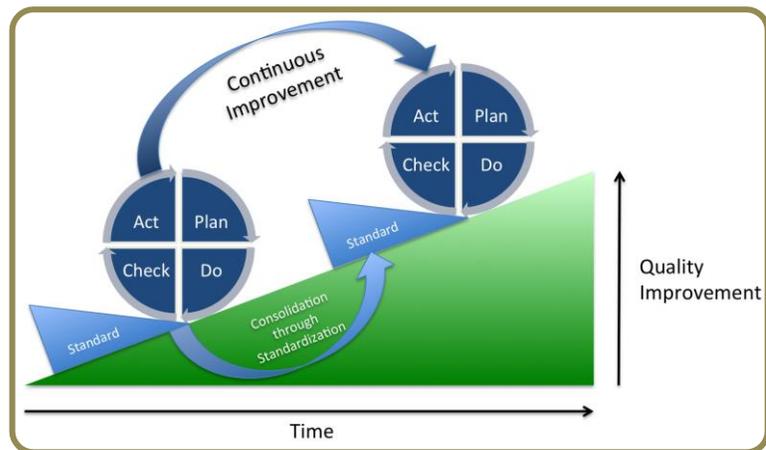
Manage facilities assets and prioritize work through disciplined and coordinated processes that optimizes mission criticality, risk, resources, return on investment, and sustainability, while also maintaining sufficient agility to meet emerging requirements.

2. OPERATIONAL ALIGNMENT

Comprehensively integrate Facilities initiatives and projects with other asset categories to the maximum extent practicable.

3. ASSET LIFE CYCLE MANAGEMENT

Manage facilities assets with a life cycle perspective and improve facilities and processes through a continuous Plan – Do – Check – Act cycle.



STRATEGIC ALIGNMENT

The Workplace Services strategic objectives directly support BPA's strategic priorities by maintaining Transmission assets in a cost effective manner with continuous process improvement. As such, strategic objectives were developed with a focus on the following BPA strategic priorities:

PRESERVE INFRASTRUCTURE ASSET VALUE

The coordinated efforts of Workplace Services seek to provide an appropriate level of service, repair and reinvestment to agency assets at the necessary time. By prioritizing work by asset criticality, Facilities Asset Management provides for continuous operations without disruption.

ADVANCE ENERGY EFFICIENCY

Cost-effective and sustainable solutions will be pursued through the integration of life cycle cost analysis. Operational, financial and environmental sustainability are addressed at all stages of the project from initiation to activation.

OPERATIONAL EXCELLENCE / ENGAGEMENT

Industry best practices for strategic asset management and process improvement will be applied, and tools and training provided to help staff develop the habits and skills needed to enable and improve operations.

TECHNOLOGY INNOVATION

In an effort to align with emerging technology and practices, Workplace Services collaborated with the Technology Innovation (TI) group in 2013 to better understand the applicability of industry best practices for sustainability on BPA operations. While Workplace Services does not currently have active TI efforts underway in this Asset Management Strategy, synergies do exist for future collaboration in the areas of enterprise facilities information management, energy management, and energy efficiency. Such opportunities will be explored during the creation of Asset Management Plans.

STRATEGIC PRIORITY AND STRATEGIC OBJECTIVE MATRIX

		STRATEGIC PRIORITIES (BPA)					
		Preserve Infrastructure Asset Value	Columbia River Treaty Review	Advance Energy Efficiency	Balance Capabilities & Resources	Endangered Species Stewardship	Operational Excellence / Engagement
STRATEGIC OBJECTIVES (WORKPLACE SERVICES)	Prioritized Asset Optimization	● *		● *			● *
	Operational Alignment	●		● *			●
	Asset Life Cycle Management	○		○			● *

● *Direct Influence*
 ○ *Indirect Influence*
 * *TI Opportunity*

STRATEGIC INITIATIVES AND EXECUTION RISKS

The Strategic Initiatives described in detail below were developed to assist in bridging the gaps between the targeted asset performance objectives and the current situational status. The successful implementation of the following also identifies pertinent execution risks for each.

1. PRIORITIZED ASSET OPTIMIZATION

1A. ESTABLISH STANDARDS

Building, operating and maintaining the “right things right” is critical. Standardizing the various elements in an asset’s life cycle is a key towards enabling consistent and cost-effective analysis. This results in a more uniform portfolio where efficiencies of design, construction and O&M activities/costs are realized and that facilitates the utilization of “apples to apples” lagging indicator data that will drive improvements to standards; i.e., constant process improvement.

SERVICE LEVEL STANDARDS

In 2013, a working group consisting of key business partners was consulted and core lines of facilities services were assessed in the development of V1 Service Standards (see Addendum A-16) with an initial deployment made within the Critical Facilities portfolio at BPA's Dittmer Control Center and Munro Control Center. This implementation will serve as the basis for future focus on linking client business unit service level requirements to asset life cycle, design, capital investments, operations and maintenance (O&M) procedures. The intent is to develop metrics to track the delivery, cost and efficacy of these standards and to have them reviewed by the same/similar committee and updated every 24 months.

DESIGN STANDARDS

It has been noted in various professional literature that 80% of one's ability to positively affect Operations and Maintenance are determined by the decisions made during the design and construction of facility assets. The more standardized the portfolio is, the more economies of scale can be leveraged in areas such as spare parts, technical training, specialized tools, preventive and corrective maintenance tasks etc. This fact suggests that there should be a tight relationship between desired service levels and the decisions made during the design/construction phase. As such, Facilities is intending to adapt the International Code Council building codes (ICC) and GSA's P 100 Design Standards and adapt them to the Agencies unique requirements as needed.

MAINTENANCE STANDARDS

Clear and objective service standards will drive the selection and implementation of industry best maintenance practices for the various assets/systems/components within the Facilities portfolio. Execution of such by qualified personnel; documented in a CMMS, will not only result in better asset reliability, performance and lower life cycle cost of ownership, but the historical data compiled will also inform improvements to design, service and maintenance standards in the future. FAM is currently reviewing and evaluating the published preventative maintenance standards from the Government Services Administration (GSA) and the Internal Revenue Services (IRS). These are targeted to be initially implemented at the Ross Complex and are intended to serve as a General Standard Template that could be adopted and adapted to the varying asset system requirements at sites across the Agency.

MATERIAL STANDARDS

The existence of system components within the built environment that serve the same function(s) but are of differing sources/design/manufacture, adds unnecessary overhead and cost in terms of spare parts, training, specialized tools, training, etc. Currently, the Critical Facilities Team (CFT) is beginning to standardize among asset systems and equipment. This includes using the same manufacturer for electrical panels, switchgear, and Uninterruptable Power Supplies (UPS). This also includes having the same HVAC System setup at Headquarter and DCC and in the future in Z992 and Munro. This initiative will endeavor to leverage and expand upon this effort across the facilities portfolio.

INITIATIVE EXECUTION RISKS

Risk:	Facility standards are not adopted and/or consistently implemented due to a lack of "buy in"				
Risk Group:	Transmission Asset Health				
Owner/Control	NW/TE/TF				
Consequence:	4	Likelihood:	3	Risk Score:	.20-High

Risk:	A lack of effective, comprehensive design and service standards undermines the credibility of program needs and negatively effects funding levels.				
Risk Group:	Capital Availability and Prioritization				
Owner/Control	NW/TE/TF				
Consequence:	4	Likelihood:	3	Risk Score:	.20-High

1B. IMPROVE TRACKING OF INFRASTRUCTURE INVESTMENT

With the establishment of these enhanced Standards, Workplace Services is adding several new service, maintenance, repair and performance metrics to track capital and expense expenditures required to maintain the agreed upon service levels for BPA facilities. This will enable Workplace Services to understand the true cost for providing consistent service levels to facility occupants, and identify investment opportunities for more efficient facility/systems replacement for ongoing cost avoidance.

INITIATIVE EXECUTION RISKS

Risk:	If the information that drives the various performance metrics is missing or inaccurate, it becomes very difficult to correctly prioritize and staff needed work and to forecast staffing levels.				
Risk Group:	Workload/Resource Balancing				
Owner/Control	NW/TE/TF				
Consequence:	4	Likelihood:	5	Risk Score:	.36-High

Risk:	Inefficient staffing and/or incorrect prioritization of resources, leads to a deterioration of our assets.				
Risk Group:	Transmission Asset Health				
Owner/Control	NW/J/NH				
Consequence:	4	Likelihood:	5	Risk Score:	.36-High

1C. DEVELOP ASSET MANAGEMENT SERVICES

PEOPLE

As reported in the BPA Asset Management Enterprise Process Improvement Plan (EPIP), Facilities Asset Management was formed in 2006 and is responsible for the planning and oversight of BPA facilities. Much progress has been made across the BPA in developing asset management skills and capacity. However, the personnel performing building operations and maintenance, energy management, sustainability, water efficiency, safety (including electrical safety), building performance measures and design functions across the Agency come from many professions including engineers, architects, and facilities specialists. For these reasons, there remains an opportunity to develop a generalized standard of practices and competencies for said asset management practitioners.

Facilities Asset Management will initiate work on developing staff in accordance with a competency framework set forth in the Federal Buildings Personnel Training Act (FBPTA) of 2010. [\(link\)](#) As part of continuing to enable the practice of asset management, Facilities Asset Management will continue to monitor needs, provide tools, and to provide support in the areas of succession

management, knowledge management and skills development, change management and communication.

TOOLS AND DATA

An important area for ongoing development is implementation of standardized tools supporting asset management processes. By integrating the various systems together we will be able to make more informed infrastructure decisions on behalf of the BPA. To facilitate this, the following tools are being developed and/or implemented:

ENTERPRISE ASSET REGISTRY

- Develop risk assessments for asset failures, capacity or functional inadequacy, technological obsolescence, and other risks;
- Create and validate equipment failure curves;
- Prioritize replacements and maintenance actions so that maintenance and replacements can be timed and targeted to greatest benefit;
- Quantify maintenance and replacement backlogs, and optimize plans for alleviation;
- Create asset performance objectives, metrics and targets, and monitor and enable reporting;
- Justify proposed investment levels in budgets, asset strategies, and business cases;
- Monitor the completion of scheduled replacement, maintenance and other tasks;
- Enable information for the development of life cycle cost analyses;
- Supply the asset accounting process with needed asset information more efficiently; and
- Provide data to inform the development of depreciation studies.
- Provide the data necessary to document compliance with various regulatory requirements such as:
 - EO 13327 Federal Real Property Asset management
 - EO 13514 Federal Leadership in Environmental, Energy and Economic Performance
 - CFR 41 Part 102-84 Annual Real Property Inventories
 - OMB directive m-12-12 "Freeze the Footprint"

LIFE CYCLE COST AND CAPITAL PLANNING

Standardized tools for calculating the Total Cost of Ownership (TCO) for assets.

REPORT AUTOMATION

Work is under way to automate reporting of standardized facilities asset, maintenance and budget status reports for broad dissemination within the BPA.

DATA STANDARDIZATION

BPA facilities data standards will be established with standardized values required for asset reporting and prioritization. Such values shall also include those necessary for resource management tracking (energy, water, materials, greenhouse gas emissions, etc.) which support asset operational and environmental sustainability.

STANDARDIZED COMPUTER MAINTENANCE MANAGEMENT SYSTEM (CMMS)

Facilities Asset Management proposed a project and supporting business case for a CMMS since FY11, which has yet to successfully compete for IT resources. As such, FAM has created and implemented an interim Computerized Maintenance Management Systems (iCMMS) to bridge the gap until the BPA decides upon the implementation of an enterprise CMMS. This system will be populated with in FY14.

INITIATIVE EXECUTION RISKS

Risk:	If the data systems that track the health and efficacy of our assets are missing or inadequate, already constrained resources could be expended on the wrong things.				
Risk Group:	Workload/resource balancing				
Owner/Control	NW/J				
Consequence:	4	Likelihood:	5	Risk Score:	.36-High

Risk:	If resources are inaccurately targeted, higher priority work is not completed and the assets deteriorate. Or, if the highest priority work is accurately identified but technical skills are not optimal due to inadequate training programs, the assets could deteriorate.				
Risk Group:	Transmission Asset Health				
Owner/Control	NW/J/NH				
Consequence:	4	Likelihood:	5	Risk Score:	.36-High

Risk:	Incomplete, inaccurate or missing data about our facilities makes Continuity planning and disaster recovery, very difficult				
Risk Group:	Business Continuity				
Owner/Control	NW/J/TE/NN				
Consequence:	4	Likelihood:	5	Risk Score:	.36-High

2. OPERATIONAL ALIGNMENT

Comprehensively integrate Facilities initiatives and projects with other asset categories to the maximum extent practicable.

2A. ENABLE INTEGRATED INFRASTRUCTURE DECISION MAKING

Ongoing staff development along with the maturation of the facility data and systems will represent a huge advance in the development and execution of the facilities program. However, additional efficiencies can and should be realized via close coordination with other facilities strategic partners.

The establishment of a joint working group(s) between Facilities Asset Management, other Category Asset Managers, Subject Matter Experts (SME) and others as appropriate, will enable the sharing of potential and planned work with a proper context of operational and life cycle renewal costs.

INITIATIVE EXECUTION RISKS

Risk:	Inter-departmental communications and planning is not effective due to a lack of buy in, workload or other factors resulting in either missed opportunities for project synergies or unnecessary work.				
Risk Group:	Workload/Resource Balancing				
Owner/Control	NW/TF/TE				
Consequence:	4	Likelihood:	4	Risk Score:	.28-High

2B. ESTABLISH PARTNERSHIP AGREEMENTS

In 2013 Facilities Asset Management established Partnership Agreements with Transmission Engineering partner organizations in order to clarify roles and responsibilities and promote efficient workflow (see Appendix A-4). This represents a major milestone towards maturing the BPA structure for facilities planning and project execution. Further Partnership Agreements will be pursued with Transmission Field Services to clarify roles and responsibilities for field operations and maintenance activities beyond the Portland-Vancouver metropolitan area.

INITIATIVE EXECUTION RISKS

Risk:	Partnership agreements are not in place or ineffective leading to conflicting priorities and underperformed work plans.				
Risk Group:	Workload/Resource Balancing				
Owner/Control	NW/TF/TF				
Consequence:	4	Likelihood:	4	Risk Score:	.28-High

Risk:	Continuing underperformance of the work plans undermines program credibility and has a negative effect of funding levels.				
Risk Group:	Capital Availability and Prioritization				
Owner/Control	NW/TE/TF				
Consequence:	4	Likelihood:	4	Risk Score:	.28-High

2C. ESTABLISH ASSET MANAGEMENT PLANS

Facilities Asset Management established an Asset Management Plan (AMP) for critical assets at the Dittmer Control Center. This model will serve as a basis for further implementation within the Critical Facilities portfolio. Additional AMP will be developed for the remainder of the facilities portfolio as appropriate. In some cases, asset specific AMP's are appropriate, in other cases, complex-wide or portfolio-wide AMP's will be developed.

INITIATIVE EXECUTION RISKS

Risk:	Management plans are not in place and/or not adequately aligned with other asset category plans leading to uncoordinated and unnecessary work.				
Risk Group:	Workload/Resource Balancing				
Owner/Control	NW/J/TE/T				
Consequence:	4	Likelihood:	4	Risk Score:	.28-High

Risk:	The execution of uncoordinated and/or unnecessary work, undermines the program credibility and has a negative effect on funding levels.				
Risk Group:	Capital Availability and Prioritization				
Owner/Control	NW/J/TE/TF				
Consequence:	4	Likelihood:	4	Risk Score:	.28-High

3. ASSET LIFE CYCLE MANAGEMENT

BPA’s Asset Management Policy (BPAM Chapter 660) states that leading industry practices, such as the British Standards Institute, Publically Available Specification 55, will become the basis for asset management practices and use a Plan-Do-Check-Act cycle. The initiatives in this section are generally aimed at the “Check-Act” part of this constant process improvement cycle.

3A. ESTABLISH ASSET MANAGEMENT PROCESSES

The Workplace Services Facilities Asset Management Strategy is intended to act as the reference AMS for all BPA facilities infrastructure. Practice and performance expectations, as well as responsibilities, of the Facilities Asset Management program continue to evolve. As such, this strategy and its sub-components will require regular updates to align and respond to emerging operational needs.

INITIATIVE EXECUTION RISKS

Risk:	The forecasting and implementation of resources and staff may not be optimal if the strategy is not updated to reflect changes in the business environment.				
Risk Group:	Workload/Resource Balancing				
Owner/Control	NW				
Consequence:	4	Likelihood:	4	Risk Score:	.28-High

Risk:	If the strategy is not updated to reflect change in the business environment, funding levels could become inadequate.				
Risk Group:	Capital Availability and Prioritization				
Owner/Control	NW				
Consequence:	4	Likelihood:	4	Risk Score:	.28-High

3B. CONTINUALLY IMPROVE THE ASSET MANAGEMENT PROGRAM

RESOURCING – CONTRACTING STRATEGY

There is no denying that in order to deliver the comprehensive, cradle to grave, asset management program currently being developed; more resources will be required; especially in the areas of addressing the BMAR and day to day O&M. Given the current political and fiscal realities, there is also no doubt that the vast majority of these resources will be contractors and/or contracted service. As such, several high-level alternatives need to be assessed:

ALTERNATIVE 1 - Use large, General Construction Contracts to manage the rehabilitation, service and repair activities conducted by sub-contractors. These General Construction contractors are usually centrally located in major metropolitan areas. No contractor offers a full range of services or products, therefore, sub-contractors would be required.

ALTERNATIVE 2 - Generate a limited number of MASTER Contract's related to specific maintenance and/or services utilizing geographic vendors. These contracts could be easily replicated for use in the various transmission districts or regions using local service vendors. This approach would reduce administrative and travel costs.

ALTERNATIVE 3 - Pursue a Performance Based Contract (PBC) solution; something new at BPA. There are certain key characteristics that make performance-based contracts different from other contract forms used by the Agency. The concept of PBC is centered on a contract instrument that defines performance expectations in terms of outcomes or results as opposed to methods, processes, systems or broad categories of work activity. To the maximum extent possible, it describes the work in terms of what is to be the required output rather than how the work is to be accomplished

RESOURCING – SPARE PARTS STRATEGY

Whether a planned component replacement (Preventive Maintenance), or a break-fix repair, having ready access to the parts and materials required is key to the execution of a world class maintenance/asset management program. The absence of such leads to increased failure rates, longer equipment downtime and erodes at the productivity and efficiencies that would otherwise be realized.

There are two basic approaches to a spare parts strategy: order it when you need it or have stock on hand/on the shelf. However the cost vs. effectiveness of these two approaches needs to be considered. In general, the greater the operational criticality of a part is and the longer it takes to acquire; the more likely it should be held as inventory on hand. However, if failure of the part has minimal negative effects and/or is readily available, the more likely it should be ordered when needed (Note: An effective planning and scheduling function starts to tip the scales even more towards acquisition when required).

While currently more of a pre-expensed bench stock than a true inventory spare parts function, the Critical Facilities Team are beginning to stock a limited quantity of spares parts at the sites to provide a readily available source of replacement parts in which to repair equipment whose failure would render a critical facility inoperable over an extended period. Parts will be under the control of the Critical Facilities Team at each location. As spares are used to repair failed equipment, sites will immediately report their use to the CFT for replenishment or repair of the failed component/part. Absent of a true CMMS, development of an inventory database to document the current inventory and updating the inventory as new parts are added is planned for 2014. Other improvements include:

- Training and awareness programs for staff.
- Performance tracking and corrective action mechanisms or tools.
- Documentation and records for asset management.

ASSET MANAGEMENT PLANS

- Asset management practice performance measurement, internal review and checking.
- Benchmarking infrastructure investment, service provision and risk management to other industry organizations and federal agencies.

INITIATIVE EXECUTION RISKS

Risk:	The forecasting and implementation of resources and staff may not be optimal if the program is not updated to reflect changes in the business environment.				
Risk Group:	Workload/Resource Balancing				
Owner/Control	NW				
Consequence:	4	Likelihood:	4	Risk Score:	.28-High

Risk:	All long term, strategic objectives will be negatively impacted if the personnel that manage and implement the program do not possess the required core competencies.				
Risk Group:	Talent Adequacy				
Owner/Control	NW/NH/TE/TF				
Consequence:	4	Likelihood:	4	Risk Score:	.28-High

Risk:	If the program is not constantly reviewed and updated to reflect change in the business environment, funding levels could become inadequate.				
Risk Group:	Capital Availability and Prioritization				
Owner/Control	NW				
Consequence:	4	Likelihood:	4	Risk Score:	.28-High

RISK ASSESSMENT

Workplace Services' Strategic Objectives and supporting Strategic Initiatives assessed the execution risk and impacts on Top Enterprise Risks in accordance with agency risk methodology.

STRATEGIC INITIATIVE EXECUTION RISKS

		ENTERPRISE RISKS (BPA)										
		TOP TIER							OTHER			
		Changing Business Environment	Workload / Resource Balance	Talent Adequacy	Transmission Asset Health	Regulatory & Compliance	Capital Availability & Prioritization	HCM Compliance	EIM / Market Redesign	Business Continuity	Cascadia Subduction Zone (CSZ) Earthquake	Cyber Attack
STRATEGIC INITIATIVES (WORKPLACE SERVICES)	<i>1. Prioritized Asset Optimization</i>	n/a	●	●	●	●	●	○	n/a	●	●	n/a
	1A. Service Level Standards	-	.10	.10	.20	.02	.20	.03	-	.10	.08	-
	1B. Improve Tracking of Infrastructure Investment	-	.36	.10	.36	.14	.14	-	-	-	-	-
	1C. Develop Asset Management Services	-	.36	.28	.36	.14	.14	.03	-	.36	.24	-
	<i>2. Operational Alignment</i>	n/a	●	●	●	●	●	n/a	n/a	●	●	n/a
	2A. Enable Integrated Infrastructure Decision Making	-	.28	.03	.10	.05	.14	-	-	.10	.03	-
	2B. Establish Partnership Agreements	-	.28	.03	.10	.03	.28	-	-	.10	.03	-
	2C. Establish Asset Management Plans	-	.28	.03	.10	.05	.28	-	-	.10	.03	-
	<i>3. Asset Life Cycle Management</i>	n/a	●	●	●	●	●	n/a	n/a	●	○	n/a
	3A. Update the Asset Management Strategy	-	.28	.10	.10	.03	.28	-	-	.10	.03	-
3B. Continually Improve Asset Management System	-	.28	.28	.10	.03	.28	-	-	.10	.03	-	

● Direct Influence

○ Indirect Influence

METRICS

Facility Condition Index (FCI) is an industry standard whereby agencies can assess and monitor the health of their asset portfolio. FCI is simply the ratio of the total cost of identified repairs and the assets total replacement value, as shown below:

$$FCI = \frac{\text{Maintenance, Repair, and Replacement Deficiencies of the Facility}}{\text{Current Replacement Value (CRV) of the Facility}}$$

A cross agency team that was convened in the spring of 2013, developed many, new service levels targets that were incorporated into an approved document called "V1 Service Level Standard," (see Appendix A-6). One of the metrics chosen was to set FCI targets, based on building category priority, for use as a performance indicator as shown below.

In addition, commencing FY14,-Q1, NW has implemented several dozen new performance metrics in accordance with industry standards, such as O&M costs/sq. ft., energy intensity/sq. ft., number of work orders open for more than 24 hours, space management moves, customer satisfaction, etc. These can be seen in Appendix A-7.

FACILITIES CONDITION INDEX – TARGET METRIC	
Critical Systems	FCI of 0 to 5%
Priority 1 Assets	FCI of 5 to 10%
Priority 2 & 3 Assets	FCI of 10% to 15%
Priority 4 Assets	FCI of 12.5 to 17.5%
Priority 5 Assets	FCI of 15 to 20%+

III. INVESTMENT RECOMMENDATIONS

Facilities Asset Management's (FAM) first investment priority is to cost-effectively address BPA's backlog of deferred maintenance, maintain the health of non-distressed assets and provide reasonable facility options for BPA expansion projects. FAM estimates expensed asset upgrades, replacements, renovations and repairs to average \$14 million per year for FY14-23. Expected capital investments are estimated to average \$38.1 million per year over the next 10 years of which \$29 million is sustain capital and \$9.1 million is budgeted for expansion projects. FAM's expenditures will be heavily weighted towards sustainment projects reflecting the size and number of facilities in need of capital renewal. Determination of this weighting is based on two factors:

1. The total value of BPA's facility assets is valued at over \$1.1 billion over the five state territories. The established industry standard for capital renewal is a baseline of 2% of the replacement value which equates to \$22 million per year. This represents the expenditures necessary to sustain a reasonable level of health for Facility assets across the Agency. The risks of substantial deferment of capital renewal investments for a portfolio of this size includes (1) the added cost of deferred maintenance over routine maintenance (2) the compounded growth of future expenditures needed to regain asset optimization and maximize the life of existing assets and (3) the impact of facility conditions on the efficiency of BPA operations.
2. BPA follows the Department of Energy's use of the Facility Condition Index (FCI). This is a metric which uses the cost of maintenance; repair and replacement deficiencies for a given facility to derive a score that can be benchmarked against industry baseline standards (see Metrics of this Asset Plan for targets). Based on known database maintenance requirements, the Agency facility portfolio has an average FCI score of 0.47. FCI scores below 0.10 are considered poor by accepted industry standards. Although this is a blended score giving equal weight to different facility types, the magnitude of deviation from any acceptable standard of facility health is indicative of the current state of BPA structures. FCI scoring can be aggregated to quantify the overall state of BPA's facilities as well as a prioritization tool through a facility-by-facility approach. As FAM continues to conduct facility condition assessments, the FCI metric will become a more prominent and valuable tool for the forecasting and modeling of resource allocation and support of the long-term health and value of BPA assets.

Given the capital resources available at the Agency level for the foreseeable future, the above points support the view that, while successful execution of high value expansion projects is an important component supporting BPA operations, sustainment of existing assets is the overriding priority that will require continued capital investment.

RECOMMENDED CAPITAL PROJECTS

EAST SIDE ALTERNATE OPERATING FACILITY (EAOF)

The EAOF project, aka the Munro Alternate Scheduling Center has been initiated to significantly improve BPA's capability to recover and restore scheduling operations, IT Disaster Recovery and Alarm Monitoring capability. Successful commissioning of this project will satisfy the IG recommendations from the 2007 IG audit and meet continuity directives.

In addition this investment supports the Transmission service line's plans to adopt a new business model: Real-time (24/7) transmission scheduling functions will operate simultaneously from two geographically dispersed sites which are not susceptible to the same risks. This model creates a greater level of assurance that commercial operations for the Agency and our partners are not interrupted and are consistent with emerging industry trends.

This new model necessitates an alternate, full-time operations site which is geographically separate from the Dittmer Control Center. This alternate site includes permanent scheduling desks similar to those at Dittmer and supports scheduling staff permanently stationed at the alternate site.

This project specifically addresses the agency risk of inadequate business continuity preparedness by providing an alternate facility which allows for full devolution capability for the critical functions of Power and Transmission scheduling, NERC-CIP alarm monitoring, and IT Disaster Recovery in the event that the primary facilities in the Portland/Vancouver area are rendered inoperable. The project is currently on schedule for completion and occupancy in FY14.

MAINTENANCE HEADQUARTERS CAPITAL RENEWAL AND STANDARDIZATION PROGRAM

FAM has established a master strategy for Transmission Field Services (TF) maintenance facilities approved by the Capital Allocation Board (CAB) in FY11. This program was developed by evaluating current maintenance activities, work practices, and facilities infrastructure and formalized in the *Maintenance Headquarters 10-Year Strategic Plan*. The program reflects industry standards and leading practices, and considers alternatives for providing required facilities. Analysis resulted in strategic and prioritized proposals for upgrades at existing maintenance facilities and provides a roadmap for new facility construction to support current and anticipated maintenance activities. The following maintenance headquarters (MHQ's) have been identified as high need facilities requiring replacement or substantial reinvestment.

CHARLES LUCE AND McNARY MAINTENANCE HEADQUARTERS - This investment consists of two new interdependent maintenance headquarters; the C. Luce MHQ is under construction in Pasco, WA, the McNary MHQ, also under construction, will be located in McNary, OR.

This is the first implementation of Tier 1 MHQ facilities developed under the Maintenance Headquarters 10-Year Strategic Plan. These projects address numerous health/safety issues and operational inefficiencies at the present Pasco, Franklin and McNary sites.

The C. Luce MHQ replaces the former leased facilities in Pasco containing safety concerns including lack of functionality, exposure to asbestos, vehicle exhaust, building code violations, and faulty fire suppression systems. In addition to facility related operational inefficiencies, poor lighting, HVAC balancing, working environment, and non-compliant head room head clearance have rendered further investment in these facilities a negative benefit to the BPA. The new Tri-Cities MHQ will appropriately address these concerns and consolidate 68 personnel including crews and staff from Pasco, Franklin and Walla Walla.

The former McNary facility was located in an end-of-life modular trailer. It presented a number of safety and health issues, the primary being lack of structural integrity and degraded conditions of asbestos containing materials (ACMs). The new facilities address all facilities related life-safety issues.

ROSS MAINTENANCE HEADQUARTERS - The Ross MHQ proposal is the second Tier 1 project proposed under the Maintenance Headquarters 10-Year Strategic Plan. It will bring

together maintenance crews, administrative personnel and field representatives from a number of Headquarters-based functional groups into a new, contemporary facility. This project has been identified as a high priority need to TF and is currently seeking approval for construction.

The purpose and intent of the new MHQ installation is to establish a new functional environment in line with Goals & Objectives the design of which will go beyond the pragmatic to promote and sustain significantly enhanced work procedures that embody substantial time/cost savings in O&M activities over existing facilities. Project benefits include greater emphasis on continuity of operations through seismically braced structures, co-location of working groups currently dispersed in separate locations, consolidation and reduction of parts and equipment, lower cost of operations and faster daily and emergency response time.

COVINGTON MAINTENANCE HEADQUARTERS - The Covington Maintenance Headquarters is the third of four Tier 1 MHQ facilities identified in the long term Strategic MHQ Plan to bring the Agency's inadequate Maintenance Headquarters up to an appropriate level of performance and function. The Covington site houses TF administrative staff, craft personnel and field crews in a number of unkempt and functionally deficient buildings and modular trailers that range in age, the earliest dating from Bonneville's founding. Buildings are not code-compliant and have ceased to function at the minimum level necessary to supports the TF's mission requirements. Given these deficiencies, they are expensive to operate and maintain.

Facilities with negative benefits to the Agency (high capital renewal value or functional obsolescence) are planned to be replaced. These include a new MHQ administrative building, High Bay shop and Heavy Mobile Equipment Mechanic's (HMEM) Garage. The proposed structures seek to centralize personnel for improved communication and team work, provide safer and more efficient working spaces, adequate storage and enhanced protection of materials and equipment.

THE DALLES/BIG EDDY MAINTENANCE HEADQUARTERS - The Starr Complex, location of the Dalles/Big Eddy maintenance headquarters, is currently the focal point for seven significant Transmission system components and is being strategically considered for at least four (4) Agency logistics centers. It is a major North-South and East-West transmission gateway and the on-site Celilo Converter station is the origin of DC intertie to California. Additionally, the Star Complex operates and maintains power houses and transmission lines feeding from the Dalles and John Day Dams making it a strategically important location for MHQ activities.

The exiting MHQ facilities are in poor condition (with exception of HMEM Garage) and the cost of capital renewal for primary MHQ structures exceeds replacement values. With the growing strategic importance of this site, existing facilities that have been considered outdated and approaching end-of-useful-life are now also anticipated to be inadequate in size and functionality in the near future.

The new The Dalles/Big Eddy MHQ facility will accommodate a full complement of TF field Operations and Maintenance functional groups consisting of 43 personnel including the TF District Manager. The facility will be the "home base" for these crews that will have O&M responsibilities within regional territories outside of the MHQ. Additional office area cubicles are to be provided for designated field service personnel (FSP) and hoteling

cubicles for itinerant user flexibility in the office area. The core components of the project will include a new co-located office hub and high bay structure. The existing HMEM Garage is in good condition and will remain in operation, as-is. Further development of this project will follow the Goals & Objectives set forth in the Maintenance Headquarters 10-Year Strategic Plan.

SNOHOMISH MAINTENANCE HEADQUARTERS - The scope of this investment includes a Maintenance Headquarters facility comprising of office and craft spaces to centralize personnel, provide safe and efficient working spaces, and decommissioning of outdated or ineffective facilities.

The Snohomish site houses administrative staff and craft personnel in a number of aged buildings, including a dilapidated 1971 maintenance facility, a Regional Office modular trailer, a 1950 maintenance building and a NERC-CIP control house. A large number of craft personnel are located in the Snohomish Control house for lack of space creating one of the top NERC-CIP traffic sites in the BPA system with increased risk for security compliance violations. Additionally, as the regional maintenance responsibilities for the area have grown, there has become a pervasive shortage of office space and materials & equipment storage for maintenance crews, which affects productivity and parts/materials longevity.

Benefits of this proposed investment include recouped power available for sale due to increased energy efficiency of consolidated/modern buildings. Avoided maintenance costs associated with upkeep of obsolete buildings operating beyond their useful life. Productivity gains due to staffing co-location and improved performance of mission essential functions derived from adequate facilities support of communication and performance of routine and emergency maintenance.

REDMOND MAINTENANCE HEADQUARTERS - The Redmond MHQ Facility is a 50+ year old structure identified in 2001 for reinvestment in order to meeting growing operational needs. Additionally, its central location relative to other field sites has made it an ideal hub as conference center and support node for other outlying maintenance facilities.

The existing facility lacks adequate office space and adjacencies with District Operations Manager and staff housed in a double wide, craft services operate without sufficient work space, obsolete mechanical and electrical systems which do not have the capacity to support both shop equipment and office space. Overhead doors are too small to accommodate large vehicles with boom lifts. The HMEM garage also lacks a level slab complicating routine vehicle maintenance and does not have adequate ceiling height, lighting or ventilation. The former Helicopter Hangar now serves as an ad-hoc, stand-alone central conference room lacking restrooms and other basic support services.

Capital renewal requirements may include an administrative addition, an extensive remodel of the existing building, remodel of defunct heliport for regional auditorium/conference area upgrade mechanical and electrical building systems and construction of a stand-alone HMEM facility. This project has the widest cost bracket as it has the largest number of development scenarios.

Expected benefits include appropriate space allocation for monthly district meetings, recouped power available for sale due to substantial energy savings, avoided O&M costs and productivity gains associated with co-location of staffing into one building. The project is

also expected to yield improved Fleet operations via better shop capabilities, improved safety conditions and greater labor flexibility.

LEWISTON MAINTENANCE HEADQUARTERS - The Lewiston facility is a smaller MHQ installation including substation maintenance, system protection control and power systems control functions. The facility is dilapidated and poorly maintained lacking in shop space, materials and equipment storage, staging areas, office space and yard storage. Additionally, it does not have the robust communications capabilities or the capacity for effective MHQ coordination with dispatch operations.

This project is projected to require either land acquisition or procurement of a leased facility that cost-effectively provides an improved working environment and enhanced productivity benefits. Development/acquisition options and associated benefits are forthcoming upon forthcoming investigation of the best available scenarios.

BELL STATION SERVICE REBUILD

This project is a collaborative effort between Facilities Asset Management and Substation Engineering. It replaces AC station service assets serving the Bell Complex, Munro Control Center (MCC) and the currently under construction Munro Scheduling Center (MSC). Existing station service equipment is operating beyond rated lifespan and without redundancy serving key facilities.

Relevant priorities covered in the Asset Management Strategy for the Bell Station Service Upgrade include greater station service reliability for BPA facilities at lower life cycle cost, enhanced standardization of parts and equipment providing lower O&M costs and reduced reliance on specialized labor, improved risk management from time based maintenance (system failure) procedures to reliability-centered maintenance (RCM) to strategically manage failure risk, and improve safety by way of older station equipment replacement to increase operator safety through mitigate of arc flash risk

ROSS COMPLEX HMEM GARAGE

The Ross Heavy Mobile Equipment Mechanic's (HMEM) Garage is BPA's flagship garage performing a wide range of tasks ranging from routine maintenance of BPA passenger vehicles to complete tear down and rebuild of BPA Fleet Management's largest boom trucks. It is housed in a modified 1939 shop space and cannot adequately accommodate BPA's modern large heavy mobile equipment. Additionally, there are numerous facility related safety concerns and productivity limitations associated with the present location which have been identified by BPA Safety, consulting firms and the Department of Energy. The most notable limitation is a lack of proper vertical clearance for installation of a bridge crane necessitating outdoor boom removal adjacent to mixed traffic including personal vehicles, and often performed in inclement weather, requiring more manpower and slower service as a function of additional required safety precautions.

A new, dedicated HMEM facility is planned to cost-effectively service BPA's modern fleet of heavy mobile equipment. Based on recent modernization efforts elsewhere in the BPA Fleet system, productivity benefits of 2-3x are expected through facility enhancements including bridge crane service, adequately sized bays, co-location of Fleet Management personnel and numerous environmental and safety improvements (e.g. fall protection, ventilation, proper working clearances, exterior circulation conflicts).

ROSS COMPLEX STATION SERVICE REBUILD

The Ross Complex is BPA's largest logistic center and communications hub housing many unique functions critical to the continuity of grid operations. Station service infrastructure supporting these functions has surpassed rated life with several single points of failure operating without redundancy. This investment addresses the risk of both isolated and a campus-wide failures including Dittmer Dispatch operations and the Z-992 Ross Communication Hub. The proposed investment will improve reliability and redundancy for the Ross Complex and enable safer maintenance procedure for field crews who currently perform routine maintenance on exposed legacy equipment currently operating at elevated risk of arc flash.

COMMUNICATIONS BUILDING REPLACEMENTS

FAM has completed a series of communication building assessments under a sustain program to evaluate the integrity of BPA's microwave communications infrastructure. The results of the assessments determined that a number of radio communications buildings are at or past their expected life and in need of replacement. Operationally, these buildings collectively serve several purposes, most notably, (1) the continual monitoring and traffic control of the grid, (2) protection from rolling outages due to line faults and BPA Security purview of the NERC-CIP network. Because of the importance of each one of these functions, the microwave buildings are classified as Tier 1 structures and cannot be allowed to fail. In addition to limited life expectancy, modern communications needs have become more robust and some structures are no longer able to support the growth needs of housed equipment.

This ongoing program has successfully executed a number of high value targets. Overriding program goals integrate scheduled communications equipment replacements with BPA partners to mitigate risk of loss to power generation, transmission reliability, continuity compliance and security compliance in addition to providing more robust mechanical and electrical systems to address continued growth in data transfer.

ROSS COMPLEX STRATEGIC FRAMEWORK PLAN CAPITAL REPLACEMENT PROJECTS

Pursuant to the Ross Strategic Framework Plan (under development), FAM anticipates sustained reinvestment and replacement of facility assets supporting Transmission Services on the Ross Complex. Capital renewal targets will be part of a phased growth strategy following key development criteria described under "Ross Facilities Framework Plan".

Specific actions arising out of the Strategic Framework Plan are likely to include migration of some functions from a single point of operation to a distributed cross-agency model (i.e. Central Warehouse functions split to primary and secondary locations), seismic strengthening of occupied structures, consolidation of like functions (districting), circulation improvements supporting job site safety and work efficiency, cost-effective office use development for unloading of some portion of high-cost leased facilities in Vancouver, proper allotment of work space for specialized functions (e.g. Ross HMEM Garage) and retention of open space for future industrial expansion.

Capital replacement expenditures are approximated to be \$20M/yr. beginning FY18 through FY23. The program scope and future expenditures will be reevaluated on a rolling 5 year basis.

ROSS COMPLEX COMMUNICATIONS CENTER (Z-992) RELOCATION

The Ross Communications Center is the control point for data transfer of Dispatch Operations, BPA intranet, and BPA telecommunications. As such, it is a critical function to the Ross Complex and the Agency. A combination of technological improvements requiring smaller footprints (or possibly cloud-based, zero footprint) and forthcoming guidance on NERC-CIP facility requirements may render some or all functions performed in this building inappropriate for its present location.

It is anticipated that an opportunity to consolidate communications function either at existing leased space at BPA Portland HQ or remote distributed computing will lead to a long term savings for communications hub relocation. As the BPA IT team awaits further NERC-CIP guidance, scope is undefined at this moment but is expected to be forthcoming towards the end of FY14.

PROPOSED CAPITAL PLAN, FY 2014 – FY 2023

(All figures shown in millions of dollars)

CAPITAL PROGRAM	Actual FY 12	Actual FY 13	FY 14	FY 15	FY 16	FY 17	FY 18	FY 19	FY 20	FY 21	FY 22	FY 23	10-YR TOTAL
In-Flight Expand	1.0	7.9	33.4	11.0	13.0	0.0	57.4						
Maintenance HQ's	0.4	3.6	18.4	6.0	8.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	32.4
Business Continuity	0.5	4.3	15.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	15.0
Station Service Upgrade	0.0	0.0	0.0	5.0	5.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	10.0
Core Sustain	2.2	5.7	6.4	13.0	23.4	30.8	22.8	22.8	22.5	22.5	22.5	22.5	209.4
Small Capital Projects	0.8	1.2	0.0	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	13.5
HazMat Abatement	0.3	0.1	0.0	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	4.5
Asset Decommission	0.0	0.0	0.0	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	4.5
Maintenance HQ's	0.0	0.0	0.6	0.6	16.0	12.0	0.0	0.0	0.0	0.0	0.0	0.0	29.2
Comm Bldg Replace	1.0	3.3	3.9	1.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	4.9
Ross Bldg Replace	0.0	0.0	0.0	3.0	3.0	16.0	20.0	20.0	20.0	20.0	20.0	20.0	142.0
Critical Facilities	0.0	1.1	1.9	1.9	1.9	0.3	0.3	0.3	0.0	0.0	0.0	0.0	6.8
Station Service Upgrade	0.0	0.0	0.0	4.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	4.0
Non-Core Sustain (<\$3M)	0.4	2.3	2.4	2.4	2.5	2.2	2.2	2.2	2.5	2.5	2.5	2.5	23.8
HQ Capital Projects	0.4	2.3	2.4	2.4	2.5	2.2	2.2	2.2	2.5	2.5	2.5	2.5	23.8
Non-Core Sustain (Compliance)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Security Upgrades	<i>Program to shift from security to facilities in FY15. Funding levels included in Security strategy.</i>												
TOTAL NON-CPP CAPITAL	3.5	16.0	42.2	26.4	38.9	33.0	25.0	25.0	25.0	25.0	25.0	25.0	290.5
Low (P10)			37.9	23.8	35.0	29.7	22.5	22.5	22.5	22.5	22.5	22.5	261.4
High (P90)			46.4	29.0	42.8	36.3	27.5	27.5	27.5	27.5	27.5	27.5	319.6
2014-2017 TOTAL			140.5										

Non-Core Sustain/Expand (CPP)	0.0	0.0	0.0	0.4	6.8	20.8	8.8	14.4	14.0	6.0	10.0	10.0	91.2
Maintenance HQ's	0.0	0.0	0.0	0.4	0.8	14.8	8.8	14.4	14.0	6.0	0.0	0.0	59.2
New Facility Projects	0.0	0.0	0.0	0.0	6.0	6.0	0.0	0.0	0.0	0.0	10.0	10.0	32.0
TOTAL CPP-EXPAND CAPITAL	0.0	0.0	0.0	0.4	6.8	20.8	8.8	14.4	14.0	6.0	10.0	10.0	91.2

TOTAL CAPITAL	3.5	16.0	42.2	26.8	45.7	53.8	33.8	39.4	39.0	31.0	35.0	35.0	381.7
Low (P10)			37.9	24.1	41.1	48.4	30.4	35.5	35.1	27.9	31.5	31.5	343.5
High (P90)			46.4	29.5	50.3	59.2	37.2	43.3	42.9	34.1	38.5	38.5	419.9
2014-2017 TOTAL			168.5										

RECOMMENDED EXPENSE PROJECTS

The expense investment plan includes funding for:

1. Evaluating existing conditions to address the backlog of maintenance and repair;
2. Continue base level maintenance;
3. Funding for facility-related business continuity initiatives, including the implementation of facilities seismic hardening program;
4. One time and ongoing expense costs for new building projects;

CURRENT EXPENSE PROJECT DESCRIPTIONS

FACILITY MANAGEMENT AND REPAIR

1. Emergency/Unplanned Building Repairs and Building renovations. (BPA-wide) This is a continuing project for the critical repair, renovation, remodeling and upgrading of various facilities throughout BPA. Requirements include abatement of health or safety hazards and emergency or unanticipated repairs of building systems or components.
2. Exterior painting. (BPA-wide) This is a continuing project for interior and exterior painting at various BPA facilities where the painting has deteriorated.
3. Parking Lot and Garage Repairs. (BPA-wide) This is a continuing project for the repair and maintenance to parking lots and vehicle storage areas at various locations throughout BPA. Parking lot surfaces are removed, the base re-compacted and a new surface course installed. In some cases, asphalt paving is milled down and resurfaced.
4. Stormwater drainage system evaluation and repairs. (Select BPA Sites) Storm water back-ups into substation yards due to failure to inspect and clean storm drain system outfalls, swales and drainage vaults. These failures have also been caused by adding new impervious surfaces which drain into existing, under-sized systems which becomes overwhelmed during heavier runoffs. These projects assess the situation and recommend a plan for implementing a solution.
5. Xeriscaping. (Select BPA sites). 4 sites were identified to implement xeriscaping in accordance with the Irrigation policy. In order to comply with this policy, changes will be made to the irrigation system and landscaping so less water and maintenance effort is required to support the landscape.
6. Retro-commissioning. (Select BPA sites). Retro-Commissioning work within this project includes two primary activities: (1) testing mechanical equipment, control systems and control devices to verify that operation is consistent with the respective original design drawings or specifications and (2) creating a list of potential control and/or installation upgrades to improve function and/or energy efficiency.
7. Metering. (BPA Wide) These projects aim to implement utilities metering (energy, water, gas) at all facilities wherever practicable by the end of calendar (CY) 2016. The Agency understands that metering and reviewing energy consumption is fundamental to successfully managing and ultimately reducing utility infrastructure loads.

PREVENTATIVE MAINTENANCE

Maintaining and operating systems requires proactive service and support options to help drive the highest system availability. The objective of any preventative maintenance program is to prevent unplanned, reactive maintenance. To accomplish this, maintenance personnel must have a working knowledge of the equipment, its required maintenance, and the spare parts to be stocked. There must be an effective system to inform the staff of the priorities and frequency of maintenance which needs to be done. A record of the repairs made to each piece of equipment should be kept. This allows the program managers to make appropriate judgments about the maintenance program, the quality and condition of equipment, and when replacement should be planned.

LOW COST/NO COST OPPORTUNITIES

Below is a list of opportunities with little to no cost for implementation, resulting in energy savings.

LIGHTING – Replace ineffective and inefficient lighting with new energy saving fixtures and/or lamps. Energy incentives reduce the payback to .5 years for station serviced sites and 2-5 years for those sites served by Public Utilities. Projects are underway at several BPA sites.

WATER USE REDUCTION/IRRIGATION POLICY – Test the integrity of our site water systems to identify and repair water leaks from broken pipes and toilets. Also the Irrigation Policy, which was adopted in June 2013, minimizes and in some cases eliminates the use of potable water for irrigation. Both items see less than a year payback 95% of the time.

REPLACEMENT AND RENEWAL

Office/MHQ Facilities Renewal. (BPA-wide) The Site Evaluation and Schematic Design Documents (SER/SDD) Program will commence in FY14. The program begins with a comprehensive site survey of real plant property and the site. The survey evaluates the major systems of a facility consisting of, non-building assets, structural, architectural, mechanical, electrical, plumbing, conveying systems (elevators), fire and life safety, and sustainability including evaluations of specific elements within each system. Each area will be evaluated to determine if there is sufficient physical evidence, including life cycle cost analysis, to warrant replacement of the building system or if repair is recommended. This evaluation will be used as a basis for evaluating and addressing deferred maintenance and future renewal costs. The recommendations will be developed into work packages for execution by our strategic partners.

REPLACEMENT UPON FAILURE

Projects for repairs and replacements at BPA facilities in the event of a major systems failure, such as a large HVAC system or other unforeseen event are ongoing. If a system failure should occur, there is the potential that a BPA facility may shut down, suspending services to residents and disrupting BPA business. Although the BPA's emphasis on capital renewal and preventative maintenance is intended to ensure these kinds of interruptions are avoided, funding will enable potential disruptions to be corrected in a timely manner.

PROPOSED EXPENSE PLAN, FY 2014 – FY 2023

(All figures shown in millions of dollars)

EXPENSE PROGRAM	Actual FY 12	Actual FY 13	FY 14	FY 15	FY 16	FY 17	FY 18	FY 19	FY 20	FY 21	FY 22	FY 23	10-YR TOTAL
FAM Program Requirements		2.5	3.6	3.6	3.7	3.8	3.9	3.9	4.0	4.1	4.2	4.3	39.1
Facilities Assets Upgrade/ Replace/Renovate/Repair	16.4	13.3	12.4	16.1	12.9	13.2	13.5	13.7	14.0	14.3	14.6	14.9	139.6
Ross Facilities Base O&M	2.8	2.8	2.7	2.7	2.8	2.8	2.9	3.0	3.0	3.1	3.1	3.2	29.4
Field Facilities Base O&M	5.5	5.6	5.2	5.3	5.4	5.5	5.6	5.7	5.8	5.9	6.1	6.2	56.6
Critical Facilities O&M/ Upgrade/Replace/Repair	UNK	1.8	3.3	3.4	3.4	2.6	2.6	2.7	0.6	0.6	0.6	0.6	20.4
HQ O&M/Upgrade/Replace/ Renovate/Repair	20.4	20.6	5.6	5.7	5.9	6.0	6.1	6.2	6.3	6.5	6.6	6.7	61.6
Lease Costs			15.2	15.4	15.3	15.6	15.8	16.0	16.3	16.6	16.8	17.1	160.1
TOTAL EXPENSE	45.1	46.5	48.0	52.3	49.4	49.4	50.3	51.3	50.1	51.0	52.0	52.9	563.5
Expense Alternatives for Capital Replacement Work			-	-	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	40.0
TOTAL EXPENSE WITH ALTERNATIVES	45.1	46.5	48.0	52.3	54.4	54.4	55.3	56.3	55.1	56.0	57.0	57.9	603.5

* Draft Only – Expense Budgets to be further developed through the IPR process.

SUMMARY OF RECOMMENDED INVESTMENTS

As set forth in the Executive Summary, the Strategic Facilities Objectives define FAM's overriding responsibility to support BPA mission requirements. The recommended projects and programs represent the highest need investments supporting these goals.

FORWARD VISION

As an enabling facilities partner to all BPA asset categories and steward of prudent asset management, the ability to sustain and appropriate BPA's existing asset base is FAM's highest priority. This position puts FAM and the BPA in best standing to successfully execute the Strategic Facilities Objectives for proposed investments. All recommended investments presented herein are driven in part or whole by the need to sustain BPA operations. They reflect a continued need to execute the objectives of asset optimization, operational alignment and efficient life cycle management vis-à-vis reactive development, maintenance and repair. To this end, expected benefits realized from successful execution of these investments include:

- Retained continuity of BPA mission critical operations
- Highest and best use of BPA facility assets
- Long-term reduction of base O&M costs
- Support for continued high level function of BPA internal operations
- Labor productivity gains via work environment optimization
- Improved management of non-facility assets/reduced need for future expansion
- Agency level risk mitigation (e.g. safety, code compliance, transmission reliability)

STRATEGIC CHALLENGES

The quality and capability of BPA facilities have a substantial impact on the benefits listed above and it is therefore imperative that FAM addresses the growing backlog of deferred maintenance. The primary challenge moving forward will be that of prioritization: balancing the need to retain and maximize the life of ageing assets while providing the best available options for cost-effective expansion projects serving our partners. These challenges are often simultaneously present in any given project. In addition to BPA capital constraints, FAM is challenged with appropriating its capital requirements in coordination with:

- Migration to improved data collection/management systems
- Execution of newly developed partnership agreements
- Staffing growth to manage current shortfalls, attrition and anticipated workload expansion.

To this end, FAM is adopting a measured approach which realizes both internal constraints and the realities of our current economic environment. As the Facilities Asset Management group continues to mature and expected capital availability increases in out years, expenditures addressing capital renewal and O&M will expand under planned programs currently in early stage execution or pre-implementation (e.g. *Maintenance Headquarters Program, Ross Strategic Framework Plan and Field Facilities O&M Program*).

The parallel challenge balancing investment with capital availability will be successful coordination and project execution with our allied partners, Facilities Engineering (TESF) and

Transmission Project Management (TEP) under a newly formed partnership agreement. Substantial deferment of facility capital investment will impact not only FAM's ability to execute, but our allied partner's ability to forecast and manage workflow, retain skilled labor and operate as trusted partners.

As an agency tasked with the safe and reliable management of power generation and energy transmission, it cannot be overstated the extent to which BPA's \$1.1+ billion in facility assets enable mission critical BPA goals. The Agency faces a number of long-term economic challenges; however, the Facility Recommended Investments represent minimum levels by which the BPA can continue to sustain our facility asset base and base O&M requirements moving forward. Repeated funding shortfalls pose an increased likelihood of failure to manage key agency risks associated with business continuity, life-safety and regulatory compliance. Given the size of our asset base, protracted funding cuts of both expense and capital needs may dictate that the BPA will never reach a point of sustainment, directly impacting the Agency's cost of operations.

FAM's recommended capital and expense investment portfolio follows a measured, risk-based approach which realizes our current stage of maturation while addressing BPA's long-term need to direct facilities resources towards sustainment of its existing building stock. With limited capital, prioritization of asset optimization is anticipated to continue for the foreseeable future until BPA facility asset life cycle management overcomes the existing backlog of high priority structures and redirects investments towards preventative maintenance. The recommended 10-year facilities plan of Recommended Investments delineates the early phase path towards achieving this goal.

A-1 FACILITIES ASSET MANAGEMENT PLANS

Asset Management Plan creation is in various stages of development for Facilities Program Areas. Available information may be provided via the BPA intranet for internal audiences, and by request for external audiences. Subsequent Asset Management Strategies will include further iterations of the following targeted Asset Management Plan areas.:

FACILITIES MANAGEMENT PLAN

CRITICAL FACILITIES PROGRAM

SUSTAINABILITY ACTION PLAN

CONTROL HOUSES/RELAY HOUSE ASSET MANAGEMENT PLAN

MAINTENANCE HEADQUARTERS ASSET PLAN

COMMUNICATION BUILDING ASSET MANAGEMENT PLAN

ROSS COMPLEX STRATEGIC FRAMEWORK PLAN

PORTLAND-VANCOUVER OFFICE SPACE STRATEGY

DEMOLITION/DECOMMISSION ASSET MANAGEMENT PLAN

HAZARDOUS MATERIAL ABATEMENT ASSET MANAGEMENT PLAN

BPA HEADQUARTERS ASSET MANAGEMENT PLAN

A-2 RISK ASSESSMENT TEMPLATE

Workplace Services organizations conduct risk assessments in accordance with the policies and procedures of *BPA Manual, Chapter 670: Enterprise Risk Management Policy*, to make risk informed decisions which guide project prioritization and execution. The following templates are used inform organizational decisions:

RISK SEVERITY					
LIKELIHOOD	LOW	BALANCED	HIGH		
(5) = .90	0.05	0.09	0.18	0.36	0.72
(4) = .70	0.04	0.07	0.14	0.28	0.56
(3) = .50	0.03	0.05	0.1	0.2	0.4
(2) = .30	0.02	0.03	0.06	0.12	0.24
(1) = .10	0.01	0.01	0.02	0.04	0.08
(0) = .00	(1) = .05	(2) = .10	(3) = .20	(4) = .40	(5) = .80
CONSEQUENCES					

Risk 01:					
Risk Group:					
Owner/Control					
Consequence:		Likelihood:		Risk Score:	0.08
Mitigation:					
Trigger:					
Treatment:					

Include **execution risks** called out in the AIS, Business Case submittal, or impacts identified by the project team. Enter risks that are of a high probability of occurrence and/or a high risk to the organization, project and/or strategic objectives. Mitigations are actions used to prevent risks from occurring. Triggers are events or conditions which indicates that a risk occurred, is likely to occur, or is a leading indicator. Treatments are how the risk will be addressed once the trigger has occurred. Risk Groups are Operational, Strategic, Financial, Legal/Regulatory/ Compliance, and Hazard per the BPA Business Risk Framework and [Business Risk Inventory](#).

LIKELIHOOD SCALE		
LEVEL	DESCRIPTOR	FREQUENCY
5	ALMOST CERTAIN	Occurring or will happen in most conditions (Once a year or more)
4	LIKELY	Probably happen in most conditions (about once in every 2 years)
3	POSSIBLE	Should happen at some time (maybe once every 5 years)
2	UNLIKELY	Could happen at some time (maybe once every 10 years)
1	RARE	Could happen (maybe once every 30 years)

CONSEQUENCES SCALE					
PROJECT OBJECTIVE	(1) INSIGNIFICANT = .05	(2) MINOR = .10	(3) MODERATE = .20	(4) MAJOR = .40	(5) EXTREME = .80
COST	Insignificant Cost increase	< 10% cost increase	10-20% cost increase	20-40% cost increase	> 40% cost increase
SCHEDULE	Insignificant Schedule increase	< 5% time increase	5-10% time increase	10-20% time increase	> 20% time increase
SCOPE	Scope decrease barely noticeable	Minor areas of scope affected	Major areas of scope affected	Scope reduction unacceptable to sponsor	Project end item is effectively useless
QUALITY	Quality degradation barely noticeable	Only very demanding applications are affected	Quality reduction requires sponsor approval	Quality reduction unacceptable to sponsor	Project end item is effectively useless
SAFETY	Insignificant Safety issue	Minor areas of Safety affected	Major areas of Safety affected	Safety reduction unacceptable to sponsor	Safety is effectively compromised
SYSTEM RELIABILITY	Insignificant System Reliability issue	Only very demanding applications are affected	System Reliability reduction requires sponsor approval	System Reliability reduction unacceptable to sponsor	System Reliability is effectively compromised
ENVIRONMENTAL STEWARDSHIP	Insignificant Environmental issue	Minor areas of Environmental affected	Major areas of Environmental affected	Environmental reduction unacceptable to sponsor	Environmental is effectively compromised
REGIONAL ACCOUNTABILITY	Insignificant Regional Accountability issue	Only very demanding applications are affected	Regional Accountability reduction requires sponsor approval	Regional Accountability unacceptable to sponsor	Project end item is effectively useless
LOW RATES / AGENCY FINANCES	Insignificant impact to Rates	Minor impact to Rates	Major impact to Rates	Rates impact unacceptable to sponsor	Rates are significantly compromised
REGULATORY COMPLIANCE	Insignificant Regulatory Compliance issue	Only very demanding applications are affected	Regulatory Compliance requires sponsor approval	Regulatory Compliance issue unacceptable to sponsor	Regulatory Compliance is significantly compromised

A-3 CAPITAL PROJECT PRIORITIZATION

SNOHOMISH MAINTENANCE HEADQUARTERS:

- a. Low: \$9M
- b. Base: \$10M
- c. High: \$13M

Scope includes co-location facility and option for either new high bay in-line with the Strategic Plan or smaller vehicle high bay and remodel existing maintenance + storage structures. No new HMEM required for this project.

REDMOND MAINTENANCE HEADQUARTERS:

- a. Low: \$7.5M
- b. Base: \$10M
- c. High: \$13M

This includes an administrative addition, an extensive remodel of the existing building, remodel of defunct heliport for regional auditorium/conference area (Redmond enjoys a central location so has frequent large meetings), upgrade mechanical and electrical building systems and construction of a standalone HMEM facility. This has the widest bracket as it has the largest number of development scenarios.

LEWISTON MAINTENANCE HEADQUARTERS:

- a. Low:\$7.5M
- b. Base:\$8.5M
- c. High:\$10M

Smaller scale MHQ but will require property acquisition. No HMEM support needed. Should follow the MHQ Strategic Plan guidelines in most respects with the understanding that \$2-\$3.5M may be required for property acquisition, permits, and possibly extensive site development. The high cost scenario may be conservative but until property is identified, we will need a liberal cost bracket.

A-4 PARTNERSHIP AGREEMENT

Purpose

The intent of this Partnership Agreement (PA) is to formalize the work execution relationship between Facilities Asset Management (NWM) and supporting organizations. The agreement specifically defines roles and responsibilities with respect to facility projects funded by NWM.

Scope

The scope of this Partnership Agreement is restricted to NWM funded NEF projects, as performed by NWM, TEP, TESF and TETQ, and is applicable to the FY 2014 capital and expense project work-plan and schedule, and any capital projects initiated in 2013 subsequent to the execution of this agreement

Stakeholders

The following organizations represent the parties to this PA:

- Facilities Engineering (TESF)
- Transmission Project Management (TEP)
- Construction Management and Inspection (TETQ)
- Facilities Asset Management (NWM)

Terms of Agreement

This agreement

- Constitutes the services, tasks, and responsibilities of each organization (detailed in Appendix A) associated with execution of expense and capital projects funded by Facilities Asset Management.
- Stipulates the intent of each organization to complete the projects as per the agreed upon capital and expense work-plans and associated schedules
- Stipulates the obligation to negotiate between the applicable organization(s) and NWM any proposed changes to budget, schedule, and or scope of projects in the work-plans prior to changes being finalized.
- Stipulates the intent of FAM to provide funding to partner organizations for CFTE labor, project related travel costs, contracts, and materials required to complete approved projects.
- Stipulates the intent of each organization to plan for and budget BFTE resources required to complete facility projects.
- Stipulates the intent of the partners to review this agreement at the end of FY 2014 and amend as appropriate to reflect lessons learned and process improvements

Appendix A

This agreement includes the following appended documents

- Services, Tasks, and Responsibilities

Signatures

 Steve Capps Manager NW 11/6/13	 Richard Becker Manager TES 11/7/13	 Brian Scott Manager TEP 11/12/2013	 Mike Hull Manager TET 11/7/13
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SERVICES, TASKS, AND RESPONSIBILITIES

ASSET PLANNING - NWM

Program Planning

- Responsible for maximizing the long-term operational and economic value of the Facilities assets
- Responsible for life cycle management of all Facilities assets
- Prepares and maintains a Facilities Asset Strategy outlining short and long-term program objectives, major initiatives, and funding levels
- Prepares and maintains Facilities Asset Plans outlining requirements for specific program areas and assets
- Prepares and maintains a comprehensive inventory of Facilities Assets
- Responsible for asset condition assessments and assessment tools
- Responsible for space & building efficiency audits
- Responsible for establishing and maintaining service level standards for facilities assets
- Responsible for facilities asset design and maintenance standards
- Responsible for facilities asset data, data analysis, reporting methodologies, and facilities asset metrics
- Responsible for establishing policies for Facilities assets

Work Plan – Development, Coordination, and Approvals

- Projects the need for new or expanded facilities assets in coordination with stakeholders, asset program managers, and Transmission engineering
- Identifies and ranks mandatory, essential, desirable and deferrable repair, replacement, and expansions of Facilities Assets based on need, risk, and ROI
- Develops rolling work plans including projects prioritized based on need, risk, execution capabilities, funding availability, and ROI
- Coordinates facilities work plan with Transmission program and project management to enable portfolio planning
- Coordinates with TEP for project management resource commitments
- Coordinates and communicates work plan with resource organizations including Contracting, IT, Security, Space Management, Environment, and Transmission Engineering to allow for resource level planning
- Coordinates and communicates work plan priorities with stakeholders (Examples: TF, TO, TG, IT, KE, NN, NS)

Individual Project Requirements

- Responsible for establishing and communicating project requirements through the use of Project Requirement Documents and Preliminary Project Management Plans including;
 - Preliminary scope statement
 - Preliminary designs and existing site conditions
 - Preliminary estimate and approved budget
 - Preliminary project constraints and exclusions
 - Applicable program requirements, policies, and standards

Project Approvals and Targets

- Approves project funding for design phase
- Coordinates project management resource commitments and hand off to project manager
- Responsible for coordinating business case and business case approval process
- Reviews and approves modifications to preliminary budget, scope, and schedule
- Reviews and approves Project Management Plan
- Reviews and coordinates business case target re-sets

Design Phase - Reviews, Modifications, and Approvals

- Participates in design reviews for alignment with applicable program requirements, policies, and standards
- Participates in bidability and constructability reviews for alignment with applicable program requirements, business case requirements, policies, and standards

Construction Phase – Reviews, Modifications, and Approvals

- Review and approve final design package and estimated construction budget
- Approves project for construction based on funding availability and execution capabilities in coordination with Transmission Engineering
-

PROJECT MANAGEMENT – TEP

Initiate Project

- Support Business Case creation for capital projects
 - Work in concert with the Program Management Team to prepare and submit Business Cases to ensure that the projects are feasible and clearly identified.
- Preliminary PMP Preparation
 - Identify a location and structure for the project electronic file storage
 - Facilitate conversations with Outage Dispatch, Planning, Design, Field, Force Account, and Contracting to identify long lead time for outage planning required by the scope of work
 - Coordinate and facilitate bundling of work opportunities as they arise during the project initiation phase

Plan Project

- Resource Manager Coordination
 - Coordinate with Resource Managers to identify and assign SMEs to the project team
- Conduct Project kick-off
- Project Management Plan Development (PMP)
 - Facilitates project team in development of the Project Management Plan and ensures plan completion
- Project Scope
 - Facilitates the project team in development of a detailed scope statement
- Project Schedule
 - Facilitates the project team development of the overall schedule
 - Facilitates the project team development of a detailed cost breakdown
 - Responsible for reviewing and verifying project cost estimates
- Project Risks
 - Facilitates the project team development in the application of the Agency Decision Framework for Risk Management.
- Human Resource Management
 - Work with Resource/Performance Managers to identify and acquire team members
- Quality Management
 - Develops the Quality Management Plan for the project
- Communications Management
 - Identify the communications requirements for the project.
- Procurement Management
 - Identify and assesses procurement needs and develops a plan of action
 - Coordinate procurement activities for the project
- Project Monitoring and Control
 - Continuous management of project scope, schedule, costs, quality, human resources, communications, risks, and procurement to identify variances from defined tolerances

Design Execution

- Access, Badging and Permitting
 - Work with Project Engineer(COTR) to ensure that all access, badging and permitting requests are submitted
- Site Review
 - Ensure a site review of the existing facility is conducted (physical review preferred)
- Review Design Activity
 - Coordinate with TESP to ensure the design is completed on schedule
- Monitor Contracts
 - Monitors contract costs, schedule, and scope as they affect the project
- Update Scope, Schedule and Estimate
 - Manage the scope, schedule, and costs throughout the project
- Update Project Management Plan
 - Update the Project Management Plan to reflect approved changes

- Constructability/Operability Review
 - Ensure that a constructability/operability review is conducted
- Design Package issuance
 - Receives completed design package issued from PE/PA and coordinates with PE/PA and CM to determine appropriate means of construction execution.
- Review with Program Manager
 - Before moving to the Construction phase, request review and approval from the Program Manager
 - Provide program manager with construction phase resource availability for consideration in project construction phase timing

Construction Execution

- Project Solicitations
 - Establish a procurement schedule with the assigned Contracting Officer (CO) including conduct pre-bid tour(s), bid evaluations, and contractor(s) selections.
 - Ensure the Development of Statements of Work and/or specifications for external contracts.
 - Ensure CM is involved in the review and acceptance of the Statement of Work prior to procurement
 - Generate project contract request
 - Lead the team in development of bid package acceptance criteria
- Conduct Pre-Bid Site Tours
- Facilitate review of Construction Bid Packages
 - Ensure CO awards the contract (based on the PM's and CM's recommendations and the evaluation team's result).
- Refine and Detail Construction Schedule as necessary
- Access, Badging and Permitting
 - Work with Construction Manager(COTR) to ensure that all access, badging and permitting requests are submitted
- Material Procurement Management
 - For BPA supplied materials work with the Supply Chain to ensure the delivery of materials
- Construction
 - Review detailed Construction Schedule and address Requests for Information in conjunction with CM
- Change Control
 - Modify schedule, budget or scope to reflect accepted changes
 - Ensure change requests that result in a modification to an existing contract go to the CO
- Monitor Construction Activities
 - Takes appropriate actions to realign scope, schedule, and costs to reflect changes
- Final Acceptance and Site Walk-Through
 - Monitor final acceptance activities and ensure plans are in place to address any deficiencies
- Verify As-Built Drawings
 - Verify the As-Built drawings are complete and go to the appropriate group

Monitor and Control Project

- Monitor the project activities against the Project Plan
- Control changes and recommend preventative actions in anticipation of possible problems
- Communicate project performance
- Conduct integrated change control to ensure only approved changes are implemented

Close Project

- Confirm Project Completion
 - Review project execution against the defined scope and confirm that project requirements have been satisfied
 - Review the issues log, verify all applicable items have been addressed, and archive in the project storage location
- Conduct Project Closeout Meetings
 - Schedule project closeout meetings. Participants may include, but are not limited to, the project sponsors, customers, project team and key stakeholders
- Complete Final Documentation
 - Update the project storage location to include all of the project closeout documentation

- Provide information to the appropriate personnel to facilitate the completion and submittal of any final project accounting documentation
- Verify the closure/completion of permits
- Ensure hand off of warranty's and warranty management process to FAM personnel
- Identify and communicate any new O&M requirements to FAM personnel
- Ensure that all O&M documentation is provided to appropriate facilities O&M and/or district personnel
- Close Contracts
 - Verify with the CO and CM (COTR) that all invoicing has been received
 - Verify that warranty letters have been issued
- Close Work Orders
 - Complete the Work Order (WO) completion process
- Close Business Case – where applicable

PROJECT ENGINEER/ARCHITECT (PA/PE) – TESH

Project Initiation Support

- Provide PA/PE support and manage A/E contracts through 50% design in support of Business Case Creation for capital projects In concert with the Program Manager
- Review and provide input to A/E proposed facility improvements and the resulting Project Requirements Document (PRD)

Project Planning Support

- Participate in the development of the Project Management Plan
- Provide input as Subject Matter Expert (SME) for development of a detailed scope statement
- Responsible for determination of type, size, and capacity of new facilities components in alignment with approved Facilities design standards and policies as applicable
- Identify needs for third party commissioning of equipment for project planning purposes
- Develop a detailed design schedule and provide input into overall project schedule
- Develop design and construction cost estimate based scope of work identified in PRD
- Participate in the application of the Agency Decision Framework for Risk Management

Execute Design

- Conduct Site Review
- Perform and Document Project Design (directly or through contractor)
 - Determine if contract A/E services are needed to support design
 - Responsible for procurement and selection of A/E design services as needed
 - Manage impacts to contracting office work load through use of available contracts as appropriate
 - Monitor contract costs and schedule for A/E services
 - Coordinate all design activities among design team members when design is being completed internally
 - Produce drawings, design documents, construction specifications, calculations and technical documents required for project construction
 - Ensure compliance with all applicable statutory regulations, codes and BPA standards
- Scope, Schedule and Estimate
 - Manage design to the scope, schedule, and costs throughout the project and recommend changes to PM where necessary
- Advise the PM of proposed changes to the Project Management Plan
- Participate in the constructability and bidability reviews
- Issue Completed Design Package for Construction

Construction Execution Support

- Participate in development of bid package acceptance criteria
- Review and evaluate Construction Bid Packages
- Participate in Pre-Construction Meeting
- Change Control
 - Review and approve any changes that affect design or equipment operation
- Construction Project Support Activities

- Review and approve all technical submittals for material and equipment
- Review and answer Requests For Information (RFIs) related to or affecting project design
- Provide technical consultation to PM as needed during construction.
- Conduct testing and commissioning of new facility equipment as required
- Receive as-built drawings from PM at conclusion of project
- Update facility record drawings to reflect as-built conditions, post to Project Wise, and distribute new drawings as needed

Project Close Support

- Participate in project close out meetings
- Complete Final Documentation
 - Update the project storage location to include all of the engineering project closeout documentation.
 - Provide record data (make, model, capacity) for new equipment to FAM based on as-built data.

CONSTRUCTION MANAGEMENT - TETQ

Design Execution Support

- Constructability/Operability Review
 - Conduct a constructability/operability review on the construction documents.
 - Schedule a construction and operability session is to resolve any issues

Execute Construction

- Prepares the site & coordinates with other construction professionals such as architects and engineers
- Ensure that all access, badging and permitting requests are submitted and completed
- Construction
 - Creates detailed Construction Schedule in conjunction with Construction Contractor & PM
 - Address Requests for Information (RFIs) in conjunction with PM
 - Route RFIs that may impact design through PA/PE for review
 - Interpret contract provisions to resolve claims and issues, settle contract issues that arise
- Change Control
 - Maintain the change request log
 - Informs PM of changes that require modification to schedule, budget or scope
 - Informs CO of changes that require modification to contracts
- Monitor Construction Activities
 - Monitors construction activities and gathering status information for communication
 - Conduct monthly status meetings to ensure project construction is within scope, on schedule and within budget
 - Notify PM of any changes to construction activities which might impact the project scope, schedule or costs
- Inspect construction and perform quality assurance activities
- Final Project Acceptance
 - Ensures that the new facility or equipment installed is tested and commissioned
 - Coordinate and schedule start-up and commissioning activities with Facilities O&M staff and PA/PE as needed
 - Ensure that all required vendor training takes place with appropriate personnel
- Site Walk-Through
 - Conduct site walk-through and create punch list with PM, and PA/PE and ensure all final project acceptance steps have been completed
 - Communicate final acceptance, or changes needed to address any deficiencies, to the PM
- Verify As-Built Drawings
 - Receive and forward As-Built drawings to the PM
- Close Contracts
 - Conduct contract closeout
 - Verify that all invoicing has been received

A-5 REGULATIONS AND GUIDANCE

Workplaces Services is guided by the following list of regulations and guidance pertaining to the planning, design, construction, operations and maintenance of federal facilities.

FEDERAL REGULATIONS AND GUIDANCE

- [National Historic Preservation Act of 1966](#)
- [Architectural Barriers Act \(ABA\) of 1968](#)
- [National Environmental Policy Act of 1970](#)
- [Federal Water Pollution Control Act of 1972](#)
- [National Energy Conservation Policy Act of 1978](#)
- [Americans with Disabilities Act of 1990](#)
- [Energy Policy Act of 1992](#)
- [Energy Policy Act of 2005](#)
- [Energy Independence and Security Act of 2007](#)
- [Executive Order 12072](#), *Federal Space Management*
- [Executive Order 12196](#), *Occupational Safety and Health Programs for Federal Employees*
- [Executive Order 13321](#), *Requirements for Energy Efficiency and Standby Power*
- [Executive Order 13327](#), *Federal Real Property Asset Management*
- [Executive Order 13423](#), *Strengthening Federal Environmental, Energy, and Transportation Management*
- [Executive Order 13514](#), *Federal Leadership in Environmental, Energy, and Economic Performance*

BPA GUIDANCE

- BPA MHQ 10-Year Master Plan (June 2011)
- BPA Storm Water Management Design, STD-DS-000043
- BPA Code Manual: Code Compliance Evaluation for Existing Buildings (January 2011)
- BPA Physical Security Policy, STD-DS-000023-00-01
- BPA Seismic Requirements, STD-DS-000001
- BPA Manual, Chapter 1037: Office, Workstation and Furniture Standards
- BPA Interior Finish Standards, Ross Complex and Field Locations (April 2012)

FEDERAL PARTNER GUIDANCE

- U.S. General Services Administration, *Site Selection Guide*
- U.S. General Services Administration, *Site Security Design Guide*

INDUSTRY GUIDANCE AND STANDARDS

- ICC 2012 family of codes (with IECC & IGCC Overlay to meet or exceed AIA 2030 Challenge)
- Fall Protection IAW ANSI Z359 (for Travel Restraint) and OSHA 1910.269

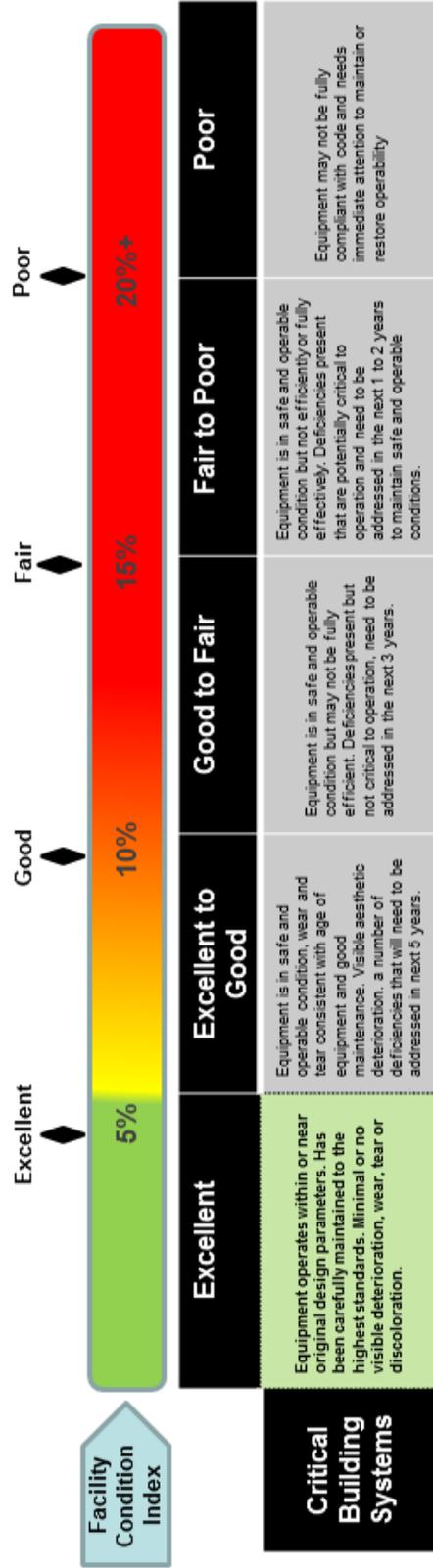
A-6 SERVICE LEVEL STANDARDS V1

Service Level Standards

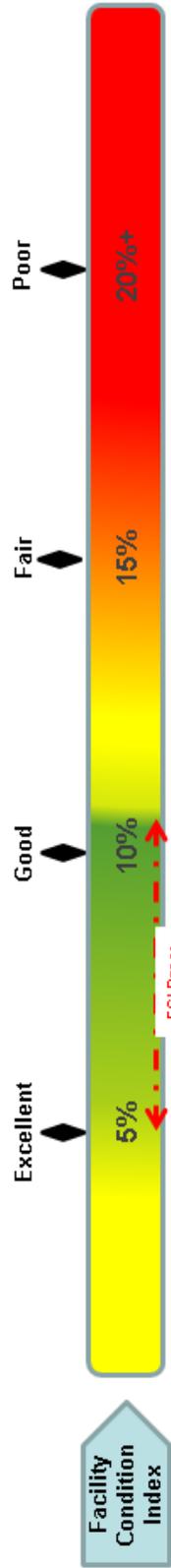
(To be reviewed every 24 months)

Facility Strategic Objective	Performance Metric	Target	
1. Safeguard power system reliability	Safeguard of power system equipment	0 outages resulting from facility asset failure	
	Health and condition of facilities measured by Facility Condition Index (FCI) score	Critical systems	FCI of 0 to 5%
		Priority 1 assets	FCI of 5 to 10%
		Priority 2 & 3 assets	FCI of 10% to 15%
		Priority 4 assets	FCI of 12.5 to 17.5%
Priority 5 assets	FCI of 15 to 20%+		
2. Safeguard health and safety of facility users	FCI = Maintenance, Repair, and Replacement Deficiencies of the Facility Current Replacement Value of the Facility	100% compliance (where standards apply) with "Data Center Facility & Infrastructure Standards" & "NFPA® 110 Standard for Emergency and Standby Power Systems."	
3. Productive work environment	Reliability of critical facility systems and standby power systems	Critical System Preventative Maintenance Program's (PMP's) Completed on schedule 95% of the time	
4. Cost effective & Sustainable buildings	Proactive and risk based maintenance	Non-critical PMP's Completed on schedule 90% of the time	
	Response time to building/system failure (See service request definitions in appendix)	Emergency service requests	Immediate response
5. Maximize long term value		Urgent service requests	24 hour response
	Routine service requests	Scheduled	
6. Optimize utilization	Compliance with "Facilities Code and Energy Efficiency Policy" and BPA safety policies and manual where applicable to facilities	Compliance audits with corrective action complete within audit prescribed timeframes	
	Facilities are "Fit for intended purpose" and long term value maximized	Asset Plans consistent with PAS 55 specifications and Facility Quality Index (FQI) score (FQI is a future numeric target)	
Miscellaneous Facility Standards (See appendix)	Compliance audits with corrective action complete within audit prescribed timeframes	Compliance audits with corrective action complete within audit prescribed timeframes	

FCI Target – Critical Systems

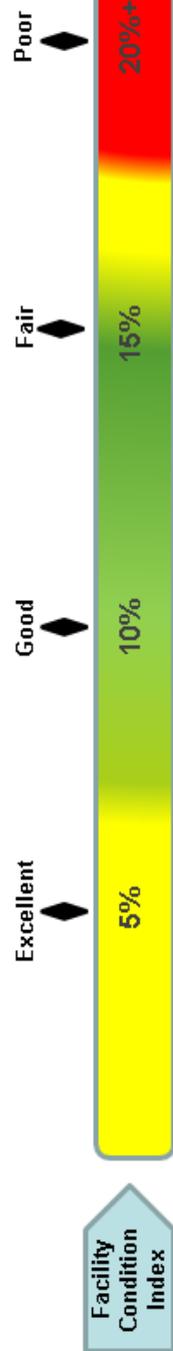


FCI Targets – Priority 1 Assets



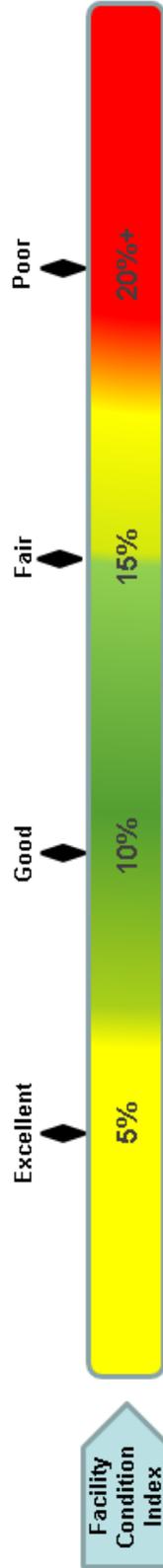
	Excellent	Good	Fair	Poor	
	5%	10%	15%	20%+	
	Excellent	Excellent to Good	Good to Fair	Fair to Poor	
	Excellent	Excellent to Good	Good to Fair	Fair to Poor	
Major Building Systems	Equipment operates within or near original design parameters. Has been carefully maintained to the highest standards. Minimal or no visible deterioration, wear, tear or discoloration.	Equipment is in safe and operable condition, wear and tear consistent with age of equipment and industry standard maintenance practices evident. Some visible deterioration but aesthetic in nature. A number of deficiencies present that will need to be addressed in next 6 years.	Equipment is in safe and operable condition but may not be fully efficient. Deficiencies present but not critical to operation but need to be addressed in the next 3 years to maintain safe and acceptable operable conditions.	Equipment is in safe but marginal operating condition may not be operating efficiently fully effectively. Deficiencies present that are potentially critical to operation and need to be addressed in the next 1 to 2 years to maintain safe and restore acceptable operable conditions.	Equipment may not be fully compliant with code and needs immediate attention to maintain or restore operability
Exterior Structure	Walls, fascia's, overhangs, doors, windows and casings in as new state of repair and free of noticeable pitting and corrosion. Roof free of corrosion or deterioration. Concrete surfaces free of cracked or damaged areas. Storm water systems functioning as intended, in excellent repair and free any obstructions or debris	Walls, fascia's, overhangs, etc in good state of repair with minor pitting, surface deterioration and corrosion, but aesthetic in nature. Storm water systems functioning, in good repair and free of obstructions. A number of deficiencies present that will need to be addressed in next 5 years to maintain structure integrity and/or restore as new appearance	Walls, fascia's, overhangs, doors, windows and casings in reasonable state of repair. Noticeable pitting, surface deterioration and corrosion but primarily aesthetic in nature. Storm water systems functioning, in reasonable repair and generally free of obstructions, deficiencies present that need to be addressed in next 3 years to maintain system integrity	Walls, fascia's, overhangs, doors, etc. in a deteriorated state of repair. Substantial pitting, surface deterioration and corrosion. Storm water systems functioning but with some small restrictions. A number of deficiencies present that will need to be addressed in next 1 or 2 years to maintain structure integrity and prevent premature failure	Exterior surfaces prematurely failing, structure in need of immediate repair to prevent structure integrity failures and/or safety and/or health risks. Storm water systems not or only partially functioning. Potential candidate for demolition or replacement
Interior Structure	Interior walls, doors, flooring, stairways, trim, cabinets counters and ceiling free of damage, deterioration, cracks, or defective materials and noticeable discoloration defects that would render an unsightly appearance..	Interior walls, doors, flooring, stairways, trim, cabinets counters and ceiling with some noticeable deterioration, cracks, or defective materials and discoloration defects but not unsightly. A number of deficiencies may be present that need to be addressed in next 5 years to maintain structure integrity	Interior walls, doors, flooring, stairways, trim, cabinets counters and ceiling with noticeable deterioration, cracks, or defective materials and discoloration defects and bordering on unsightly. A number of deficiencies present that will need to be addressed in next 3 years to maintain structure integrity	Interior walls, doors, flooring, stairways, trim, cabinets counters and ceiling in deteriorated state with substantial cracks, or defective materials and discoloration. Interior somewhat unsightly. A number of deficiencies present that will need to be addressed in next 1 or 2 years to maintain structure integrity.	Interior surfaces failing, structure in need of immediate repair to prevent structure integrity failures and/or safety and/or health risks.

FCI Targets – Priority 2 Assets



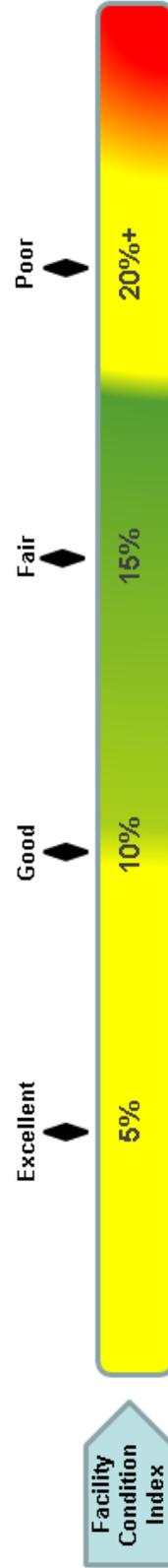
	Excellent	Excellent to Good	Good to Fair	Fair to Poor	Poor
Major Building Systems	Equipment operates within or near original design parameters. Has been carefully maintained to the highest standards. Minimal or no visible deterioration, wear, tear or discoloration.	Equipment is in safe and operable condition, wear and tear consistent with age of equipment and industry standard maintenance practices evident. Some visible deterioration but, aesthetic in nature. A number of deficiencies present that will need to be addressed in next 5 years.	Equipment is in safe and operable condition but may not be fully efficient. Deficiencies present but not critical to operation but need to be addressed in the next 3 years to maintain safe and acceptable operable conditions.	Equipment is in safe but marginal operable condition may not be operating efficiently fully effectively. Deficiencies present that are potentially critical to operation and need to be addressed in the next 1 to 2 years to maintain safe and restore acceptable operable conditions.	Equipment may not be fully compliant with code and needs immediate attention to maintain or restore operability
Exterior Structure	Walls, fascia's, overhangs, doors, windows and casings in as new state of repair and free of noticeable pitting and corrosion. Roof free of corrosion or deterioration. Concrete surfaces free of cracked or damaged areas. Storm water systems functioning as intended, in excellent repair and free any obstructions or debris	Walls, fascia's, overhangs, etc in good state of repair with minor pitting, surface deterioration and corrosion, but aesthetic in nature, storm water systems functioning, in good repair and free of obstructions. A number of deficiencies present that will need to be addressed in next 5 years to maintain structure integrity and/or restore as new appearance	Walls, fascia's, overhangs, doors, windows and casings in reasonable state of repair. Noticeable pitting, surface deterioration and corrosion but primarily aesthetic in nature. Storm water systems functioning, in reasonable repair and generally free of obstructions; deficiencies present that need to be addressed in next 3 years to maintain system integrity	Walls, fascia's, overhangs, doors, etc. in a deteriorated state of repair. Substantial pitting, surface deterioration and corrosion. Storm water systems functioning but with some small restrictions. A number of deficiencies present that will need to be addressed in next 1 or 2 years to maintain structure integrity and prevent premature failure	Exterior surfaces prematurely failing, structure in need of immediate repair to prevent structure integrity failures and/or safety and/or health risks. Storm water systems not or only partially functioning. Potential candidate for demolition or replacement
Interior Structure	Interior walls, doors, flooring, stairways, trim, cabinets counters and ceiling free of damage, deterioration, cracks, or defective materials and noticeable discoloration defects that would render an unsightly appearance.	Interior walls, doors, flooring, stairways, trim, cabinets counters and ceiling with some noticeable deterioration, cracks, or defective materials and discoloration defects but not unsightly. A number of deficiencies may be present that need to be addressed in next 5 years to maintain structure integrity	Interior walls, doors, flooring, stairways, trim, cabinets counters and ceiling with noticeable deterioration, cracks, or defective materials and discoloration defects and bordering on unsightly. A number of deficiencies present that need to be addressed in next 3 years to maintain structure integrity	Interior walls, doors, flooring, stairways, trim, cabinets counters and ceiling in deteriorated state with substantial cracks, or defective materials and discoloration. Interior somewhat unsightly. A number of deficiencies present that will need to be addressed in next 1 or 2 years to maintain structure integrity.	Interior surfaces failing, structure in need of immediate repair to prevent structure integrity failures and/or safety and/or health risks.

FCI Targets – Priority 3 Assets



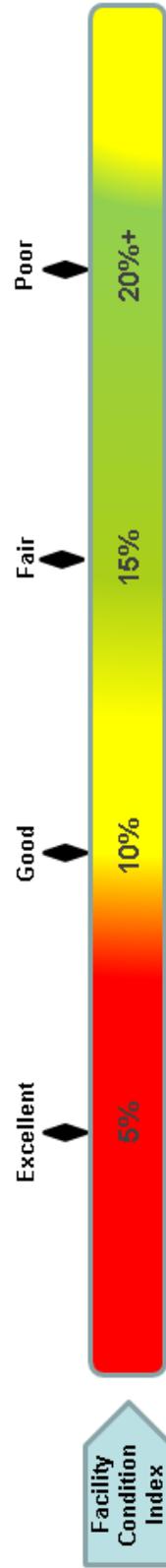
	Excellent	Good	Fair	Poor	
Major Building Systems	Equipment operates within or near original design parameters. Has been carefully maintained to the highest standards. Minimal or no visible deterioration, wear, tear or discoloration.	Equipment is in safe and operable condition, wear and tear consistent with age of equipment and industry standard maintenance practices evident. Some visible deterioration but aesthetic in nature. A number of deficiencies present that will need to be addressed in next 5 years.	Equipment is in safe and operable condition but may not be fully efficient. Deficiencies present but not critical to operation but need to be addressed in the next 3 years to maintain safe and acceptable operable conditions.	Equipment is in safe but marginal operable condition may not be operating efficiently fully effectively. Deficiencies present that are potentially critical to operation and need to be addressed in the next 1 to 2 years to maintain safe and restore acceptable operable conditions.	Equipment may not be fully compliant with code and needs immediate attention to maintain or restore operability
Exterior Structure	Walls, fascia's, overhangs, doors, windows and casings in as new state of repair and free of noticeable pitting and corrosion. Roof free of corrosion or deterioration. Concrete surfaces free of cracked or damaged area's. Storm water systems functioning as intended, in excellent repair and free any obstructions or debris	Walls, fascia's, overhangs, etc in good state of repair with minor pitting, surface deterioration and corrosion, but aesthetic in nature, storm water systems functioning, in good repair and free of obstructions, A number of deficiencies present that will need to be addressed in next 5 years to maintain structure integrity and/or restore as new appearance	Walls, fascia's, overhangs, doors, windows and casings in reasonable state of repair. Noticeable pitting, surface deterioration and corrosion but primarily aesthetic in nature. Storm water systems functioning, in reasonable repair and generally free of obstructions; deficiencies present that need to be addressed in next 3 years to maintain system integrity	Walls, fascia's, overhangs, doors, etc. in a deteriorated state of repair. Substantial pitting, surface deterioration and corrosion. Storm water systems functioning but with some small restrictions. A number of deficiencies present that will need to be addressed in next 1 or 2 years to maintain structure integrity and prevent premature failure	Exterior surfaces prematurely failing, structure in need of immediate repair to prevent structure integrity failures and/or safety and/or health risks. Storm water systems not or only partially functioning. Potential candidate for demolition or replacement
Interior Structure	Interior walls, doors, flooring, stairways, trim, cabinets counters and ceiling free of damage, deterioration, cracks, or defective materials and noticeable discoloration defects that would render an unsightly appearance.	Interior walls, doors, flooring, stairways, trim, cabinets counters and ceiling with some noticeable deterioration, cracks, or defective materials and discoloration defects but not unsightly. A number of deficiencies may be present that need to be addressed in next 5 years to maintain structure integrity	Interior walls, doors, flooring, stairways, trim, cabinets counters and ceiling with noticeable deterioration, cracks, or defective materials and discoloration defects and bordering on unsightly. A number of deficiencies present that need to be addressed in next 3 years to maintain structure integrity	Interior walls, doors, flooring, stairways, trim, cabinets counters and ceiling in deteriorated state with substantial cracks, or defective materials and discoloration. Interior somewhat unsightly. A number of deficiencies present that will need to be addressed in next 1 or 2 years to maintain structure integrity.	Interior surfaces failing, structure in need of immediate repair to prevent structure integrity failures and/or safety and/or health risks.

FCI Targets – Priority 4 Assets



	Excellent	Good	Fair	Poor	
	5%	10%	15%	20%+	
	Excellent	Excellent to Good	Good to Fair	Fair to Poor	
	Excellent	Excellent to Good	Good to Fair	Fair to Poor	
Major Building Systems	Equipment operates within or near original design parameters. Has been carefully maintained to the highest standards. Minimal or no visible deterioration, wear, tear or discoloration.	Equipment is in safe and operable condition, wear and tear consistent with age of equipment and industry standard maintenance practices evident. Some visible deterioration but aesthetic in nature. A number of deficiencies present that will need to be addressed in next 5 years.	Equipment is in safe and operable condition but may not be fully efficient. Deficiencies present but not critical to operation, but need to be addressed in the next 3 years to maintain safe and acceptable operable conditions.	Equipment is in safe but marginal operable condition may not be operating efficiently fully effectively. Deficiencies present that are potentially critical to operation and need to be addressed in the next 1 to 2 years to maintain safe and restore acceptable operable conditions.	Equipment may not be fully compliant with code and needs immediate attention to maintain or restore operability
Exterior Structure	Walls, fascia's, overhangs, doors, windows and casings in as new state of repair and free of noticeable pitting and corrosion. Roof free of surfaces free of cracked or damaged areas. Storm water systems functioning as intended, in excellent repair and free any obstructions or debris	Walls, fascia's, overhangs, etc in good state of repair with minor pitting, surface deterioration and corrosion, but aesthetic in nature, storm water systems functioning, in good repair and free of obstructions. A number of deficiencies present that will need to be addressed in next 5 years to maintain structure integrity and/or restore as new appearance	Walls, fascia's, overhangs, doors, windows and casings in reasonable state of repair. Noticeable pitting, surface deterioration and corrosion but primarily aesthetic in nature. Storm water systems functioning, in reasonable repair and generally free of obstructions, deficiencies present that need to be addressed in next 3 years to maintain system integrity	Walls, fascia's, overhangs, doors, etc. in a deteriorated state of repair. Substantial pitting, surface deterioration and corrosion. Storm water systems functioning but with some small restrictions. A number of deficiencies present that will need to be addressed in next 1 or 2 years to maintain structure integrity and prevent premature failure	Exterior surfaces prematurely failing, structure in need of immediate repair to prevent structure integrity failures and/or safety and/or health risks. Storm water systems not or only partially functioning. Potential candidate for demolition or replacement
Interior Structure	Interior walls, doors, flooring, stairways, trim, cabinets counters and ceiling free of damage, deterioration, cracks, or defective materials and noticeable discoloration defects that would render an unsightly appearance.	Interior walls, doors, flooring, stairways, trim, cabinets counters and ceiling with some noticeable deterioration, cracks, or defective materials and discoloration defects but not unsightly. A number of deficiencies may be present that need to be addressed in next 5 years to maintain structure integrity	Interior walls, doors, flooring, stairways, trim, cabinets counters and ceiling with noticeable deterioration, cracks, or defective materials and discoloration defects and bordering on unsightly. A number of deficiencies present that need to be addressed in next 3 years to maintain structure integrity	Interior walls, doors, flooring, stairways, trim, cabinets counters and ceiling in deteriorated state with substantial cracks, or defective materials and discoloration. Interior somewhat unsightly. A number of deficiencies present that will need to be addressed in next 1 or 2 years to maintain structure integrity.	Interior surfaces failing, structure in need of immediate repair to prevent structure integrity failures and/or safety and/or health risks.

FCI Targets – Priority 5 Assets



	Excellent	Excellent to Good	Good to Fair	Fair to Poor	Poor
Major Building Systems	Equipment operates within or near original design parameters. Has been carefully maintained to the highest standards. Minimal or no visible deterioration, wear, tear or discoloration.	Equipment is in safe and operable condition, wear and tear consistent with age of equipment and industry standard maintenance practices evident. Some visible deterioration but aesthetic in nature. A number of deficiencies present that will need to be addressed in next 5 years.	Equipment is in safe and operable condition but may not be fully efficient. Deficiencies present but not critical to operation but need to be addressed in the next 3 years to maintain safe and acceptable operable conditions.	Equipment is in safe but marginal operable condition may not be operating efficiently fully effectively. Deficiencies present that are potentially critical to operation and need to be addressed in the next 1 to 2 years to maintain safe and restore acceptable operable conditions.	Equipment may not be fully compliant with code and needs immediate attention to maintain or restore operability
Exterior Structure	Walls, fascia's, overhangs, doors, windows and casings in as new state of repair and free of noticeable pitting and corrosion. Roof free of corrosion or deterioration. Concrete surfaces free of cracked or damaged areas. Storm water systems functioning as intended, in excellent repair and free any obstructions or debris	Walls, fascia's, overhangs, etc in good state of repair with minor pitting, surface deterioration and corrosion, but aesthetic in nature. Storm water systems functioning, in good repair and free of obstructions. A number of deficiencies present that will need to be addressed in next 5 years to maintain structure integrity and/or restore as new appearance	Walls, fascia's, overhangs, doors, windows and casings in reasonable state of repair. Noticeable pitting, surface deterioration and corrosion but primarily aesthetic in nature. Storm water systems functioning, in reasonable repair and generally free of obstructions, deficiencies present that need to be addressed in next 3 years to maintain system integrity	Walls, fascia's, overhangs, doors, etc. in a deteriorated state of repair. Substantial pitting, surface deterioration and corrosion. Storm water systems functioning but with some small restrictions. A number of deficiencies present that will need to be addressed in next 1 or 2 years to maintain structure integrity and prevent premature failure	Exterior surfaces prematurely failing, structure in need of immediate repair to prevent structure integrity failures and/or safety and/or health risks. Storm water systems not or only partially functioning, Potential candidate for demolition or replacement
Interior Structure	Interior walls, doors, flooring, stairways, trim, cabinets counters and ceiling free of damage, deterioration, cracks, or defective materials and noticeable discoloration defects that would render an unsightly appearance..	Interior walls, doors, flooring, stairways, trim, cabinets counters and ceiling with some noticeable deterioration, cracks, or defective materials and discoloration defects but not unsightly. A number of deficiencies may be present that need to be addressed in next 5 years to maintain structure integrity	Interior walls, doors, flooring, stairways, trim, cabinets counters and ceiling with noticeable deterioration, cracks, or defective materials and discoloration defects and bordering on unsightly. A number of deficiencies present that will need to be addressed in next 3 years to maintain structure integrity	Interior walls, doors, flooring, stairways, trim, cabinets counters and ceiling in deteriorated state with substantial cracks, or defective materials and discoloration. Interior somewhat unsightly. A number of deficiencies present that will need to be addressed in next 1 or 2 years to maintain structure integrity.	Interior surfaces failing, structure in need of immediate repair to prevent structure integrity failures and/or safety and/or health risks.

SPACE MANAGEMENT SERVICE STANDARDS

Facility Strategic Objective	Space Management Strategic Objective	Performance Metric	Target
<ol style="list-style-type: none"> 1. Safeguard power system reliability 2. Safeguard health and safety of facility users 3. Productive work environment 4. Cost effective & Sustainable buildings 5. Maximize long term value 6. Optimize utilization 	<ul style="list-style-type: none"> • Safeguard health and safety of physical environment • Positive, Productive work environment • Sustainability • Maximize long term value • Optimize space utilization 	Compliance with DOE established office space average square foot allocation standard	Average 200 usable square foot per person - Portland and Vancouver
		Office space policy for workspace size and layout	Percent of workstations set to BPAM standard as part of moves
		Interior Gross Area per person in office space	Percent of total workstations that meet BPAM policy/standards
		Churn rate for moves	Maintain or exceed baseline of 316 IGA per person
		Percent of Swing Space	Moves as a percent of workspace occupants.
		Level of service - Cycle time to complete day to day moves	Discretionary moves per capita
Compliance with applicable office interiors codes	Swing Space between 10% - 15% based on industry benchmark		
Level of service - Customer Satisfaction with overall move process	Average of 10 days from time move date is set by space management		
Cost of Service	Safety Walk thru/reviews with corrective action complete within the prescribed timeframes		
	Overall Satisfaction rate of 3.4 or higher		
	Average cost per move		
	Average cost per workstation adjustment		

A-7 WORKPLACE SERVICES PERFORMANCE METRICS

Metric	HQ	Ross	Reported Frequency
SPACE			
TCO/GSF	No	No	Annual
TCO/USF	No	No	Annual
Discretionary Moves	Yes	Yes	Monthly
Churn Rate	Yes	Yes	Monthly
On-Time Delivery of SC Request	Yes	Yes	Monthly
Total Workstations set to standard*	Yes	Yes	Monthly
Total eligible workstations set to standard*	Yes	Yes	Monthly
Utilization Rate	Yes	Yes	Annual
PgM/PM Management			
Estimating Index	No	No	Rolling
Project Soft Costs	No	Yes	Rolling
Design Costs	No	Yes	Rolling
Budgeted vs. Actuals*	No	Yes	Rolling
HQ and Ross Facilities			
O&M costs/GSF	Yes	No	Annual
Custodial Costs/GSF	Yes	Yes	Annual
Landscaping Costs/GSF	Yes	Yes	Annual
Energy Costs/GSF	Yes	Yes	Quarterly
Energy Use/GSF	Yes	Yes	Quarterly
Water Use/GSF	Yes	Yes	Quarterly
O&M Costs/CRV	Yes	No	Annual
Preventive MX Costs/GSF	Yes	No	Annual
Preventive MX tasks executed on time	No	Yes	Annual
% Emergency Costs/Total annual O&M costs	No	No	Annual
% Unscheduled Costs/Total O&M Costs	No	No	Annual
Open Emergency Requests	Yes	Yes	Monthly
# Emergency Requests	No	Yes	Monthly
# Urgent Requests	No	Yes	Monthly
# Routine Requests	No	Yes	Monthly
Repair Costs/Total O&M Costs	Yes	No	Annual
Customer Satisfaction	Yes	Yes	Quarterly
Deferred MX Backlog	Yes	Yes	Annual
PM vs. Emergency MX	Yes	No	Quarterly
Work Order turnaround time	Yes	Yes	Quarterly
O&M Costs/Replacement Costs	No	No	Quarterly
FCI	Yes	Yes	Annual
O&M Costs/GSF/Customer Satisfaction	No	No	Annual
O&M Costs/FTE/Customer Satisfaction	No	No	Annual
Custodial Costs/GSF/Customer Satisfaction	No	No	Annual
Custodial Costs/FTE/Customer Satisfaction	No	No	Annual
Critical Facilities			
Critical Equipment Uptime	Yes	Yes	Monthly
Critical Equipment Availability	Yes	Yes	Monthly

A-8 MAINTENANCE CONDITIONS

Overview and explanation

SWITCHYARD DRAINAGE ISSUES

Poor pavement and drainage structures maintenance...



...can cause outfalls and ditches to fail which allows storm water to back up.

SWITCHYARD DRAINAGE ISSUES (CONT.)

Silt infiltrates switchyard rock, altering its electrical properties.



Saturated soils weaken, putting structures at risk. Standing water increases hazards to electrical workers.

SWITCHYARD DRAINAGE ISSUES (CONT.)



Effects of frost heave and saturated soils



GROUNDWATER INFILTRATION ISSUES

Critical sump pumps failing, putting control house basements at risk of flooding. A majority are not alarmed.



Infiltrated water reaches high levels, creating collateral damage and safety concerns.



ROOF MAINTENANCE

Presence of leaves, moss and saturated roof areas damages roof structure.



Roof drainage structures blocked. Saturated roofing materials.

AGED FACILITIES

Failed downspouts.



Deferred maintenance. Exposed asbestos-containing window glazing and lead paint.

CODE VIOLATIONS



Water heater installation with four code violations

EROSION DAMAGE

Severe erosion damage puts BPA oil tanks, fence, wood & steel structures at risk.



Repairs almost complete

A-9 BUILDING AND SYSTEM RESPONSIBILITIES

Facility Asset Management's current understanding of the functional roles and responsibilities between NW and their strategic partners are as follows:

Assets	Asset Mgmt		Design Standards		Eng. Design - New Fac.		Eng. Design- Existing Fac.		Construct - New Fac.		Construct - Existing Fac.		O&M Standards		Operate & Maintain		Decomm. & Demolish		
	Org	Role	Org	Role	Org	Role	Org	Role	Org	Role	Org	Role	Org	Role	Org	Role	Org	Role	
Major Facility Assets																			
Buildings																			
Control House	NW	R/A	TE	R	TE	R	NW /TE /TF	R	T/N /P	R	TE/ NW /TF	R	TF	R	TF	R	TF	R	
Control Center	NW	R/A	NW	R/A	NW	R/A	NW	R/A	T/N /P	R	TE/ NW	R	TO	R	TO	R	TF	R	
Data Center	NW	R/A	NW	R/A	NW	R/A	NW	R/A	T/N /P	R	TE/ NW	R	TO	R	TO	R	TF	R	
Microwave	NW	R/A	TE	R	TE	R	NW /TE /TF	R	TE	R	TE/ NW /TF	R	TF	R	TF	R	TF	R	
Relay House	NW	R/A	TE	R	TE	R	NW /TE /TF	R	TE	R	TE/ NW /TF	R	TF	R	TF	R	TF	R	
Eng. Gen. Bldg	NW	R/A	TE	R	TE	R	NW /TE /TF	R	TE	R	TE/ NW /TF	R	TF	R	TF	R	TF	R	
Meter Houses	NW	R/A	TE	R	TE	R	NW /TE /TF	R	TE	R	TE/ NW /TF	R	TF	R	TF	R	TF	R	
Administration	NW	R/A	TE	R	TE	R	NW /TE /TF	R	TE	R	TE/ NW /TF	R	TF	R	TF	R	TF	R	
Research	NW	R/A	TES T	R	TES T	R	TES T	R	NW	R	R	R	NW	R	NW	R	NW	R/A	
Office - Guard house / Guard Station	NW	R/A	SEC	R	SEC	R	SEC	R	SEC	R	SEC	R	NW	R	NW	R	TF	R	
Storage - Fuel and Hazardous Material	NW	R/A	TE	R	TE/ KE	R	TE/ KE	R	TE/ KE	R	TE/ KE	R	TF	R	TF/ KE	R	TF	R	
Maintenance HQ	NW	R/A	NW	R/A	NW /TE /TF	R/A	NW /TE /TF	R	NW	R/A	NW /TF	R	TF	R	TF	R	TF	R	
Maintenance Shop	NW	R/A	TF/ NW	R	NW /TE	R/A	NW /TE /TF	R	TF/ NW	R	NW /TF	R	TF	R	TF	R	TF	R	
Office - Classroom / Training	NW	R/A	TE/ NW	R	TE/ NW	R	TE/ NW	R	NW	R/A	TE/ NW /TF	R	TF	R	TF	R	TF	R	
Pump House	NW	R/A	TE	R	TE	R	TE	R	NW	R	TE/ NW /TF	R	TF	R	TF	R	TF	R	
Storage	NW	R/A	TE	R	TE	R	TE	R	NW	R	TE/ NW /TF	R	TF	R	TF	R	TF	R	
Portable storage	TF	R/A																	
Vehicle storage	NW	R/A	TE	R	TE	R	TE	R	NW	R	TE/ NW /TF	R	TF	R	TF	R	TF	R	
Hangar	NW	R/A	TE	R	TE	R	TE	R	NW	R	TE/ NW /TF	R	TF	R	TF	R	TF	R	
Oil House	NW	R/A	TE/ KE	R	TE/ KE	R	TE/ KE	R	NW /KE	R	TE/ NW /TF	R	TF/ KE	R	TF/ KE	R	KE	R/A	
Commercial Office Leases	NW																		
Other Rental/Lease	TE/ NW	R/A	NW	R/A	NW	R/A	NW	R/A	NW	R/A	NW	R/A	NW	R/A	NW	R/A	NW	R/A	
Abandoned	NW	R/A	TE/ KE/ NW	R	TE/ NW	R	TE/ NW	R			TE/ NW /TF	R	TF	R	TF	R	TF	R	

Assets	Asset Mgmt		Design Standards		Eng. Design - New Fac.		Eng. Design- Existing Fac.		Construct - New Fac.		Construct - Existing Fac.		O&M Standards		Operate & Maintain		Decomm. & Demolish	
	Org	Role	Org	Role	Org	Role	Org	Role	Org	Role	Org	Role	Org	Role	Org	Role	Org	Role
Major Facility Assets																		
Primary Building Systems		-		-		-		-		-		-		-		-		-
<i>Architectural Systems</i>																		
Substructure	= Bld g	?	TE	R	TE	R	TE	R	TE	R	TE	R	TF	R	TF	R	TF	R
Superstructure	= Bld g	?	TE	R	TE	R	TE	R	TE	R	TE	R	TF	R	TF	R	TF	R
Building Exterior	= Bld g	?	TE	R	TE	R	TE	R	TE	R	TE	R	TF	R	TF	R	TF	R
Building Interior	= Bld g	?	TE	R	TE	R	TE	R	TE	R	TE	R	TF	R	TF	R	TF	R
<i>Mechanical Systems</i>																		
HVAC	= Bld g	?	TE	R	TE	R	TE	R	TE	R	TE	R	TF	R	TF	R	TF	R
Plumbing - Including Permanent Eyewash and Shower Units	= Bld g	?	TE	R	TE	R	TE	R	TE	R	TE	R	TF	R	TF	R	TF	R
Smoke Detection and Alarm Systems including Controls	= Bld g	?	TE	R	TE	R	TE	R	TE	R	TE	R	TF	R	TF	R	TF	R
Fire Suppression Systems including Controls	= Bld g	?	TE	R	TE	R	TE	R	TE	R	TE	R	TF	R	TF	R	TF	R
<i>Electrical Systems</i>																		
Electrical Systems - Distribution and components serving non-transmission system components	= Bld g	?	TE	R	TE	R	TE	R	TE	R	TE	R	TF	R	TF	R	TF	R
Site lighting	NW	R/A	TE	R	TE	R	TE	R	TE	R	TE	R	TF	R	TF	R	TF	R
<i>Special Systems</i>																		
Portable Fire Extinguishers Required by Fire, Life, and Safety Codes	= Bld g	R	TE	R/A	TE	R/A	TE/TF/NW	R	TE/TF/NW	R	TE/TF/NW	R	TE/TF	R/A	TF	R	TF	R
Vehicle Fuel Supply Systems Including Tanks	NW	R	TE	R/A	TE	R/A	TE/TF/NW	R	TE/TF/NW	R	TE/TF/NW	R	TE/TF	R/A	TF	R	TF	R
Nonfixed Cranes/lifts	Tenant	R	TE	R/A	TE	R/A	TE/TF/NW	R	TE/TF/NW	R	TE/TF/NW	R	TE/TF	R/A	TF	R	TF	R
Fixed Cranes	NW	R	TE	R/A	TE	R/A	TE/TF/NW	R	TE/TF/NW	R	TE/TF/NW	R	TE/TF	R/A	TF	R	TF	R
Telecom infrastructure [switch to wall]	NW	R	TE	R/A	TE	R/A	TE/TF/NW	R	TE/TF/NW	R	TE/TF/NW	R	TE/TF	R/A	TF	R	TF	R

Assets	Asset Mgmt		Design Standards		Eng. Design - New Fac.		Eng. Design- Existing Fac.		Construct - New Fac.		Construct - Existing Fac.		O&M Standards		Operate & Maintain		Decomm. & Demolish	
	Org	Role	Org	Role	Org	Role	Org	Role	Org	Role	Org	Role	Org	Role	Org	Role	Org	Role
Major Facility Assets																		
Transmission Related Building Systems (see Elec Demarcation Document for more detailed info and examples)																		
Service panels and wiring that support high voltage systems/contr ol panels	TP	R/A	TE	R/A	TE	R/A	TE/TF/NW	R	TE/TF/NW	R	TE/TF/NW	R	TE/TF	R/A	TF	R	TF	R
medium voltage panels serving transmission system components and non-trans system components 600v to 15Kv	TP/NW	R/A	TE	R/A	TE	R/A	TE/TF/NW	R	TE/TF/NW	R	TE/TF/NW	R	TE/TF	R/A	TF	R	TF	R
Low voltage panels serving non-trans system components only 600V	NW	R/A	TE	R/A	TE	R/A	TE/TF/NW	R	TE/TF/NW	R	TE/TF/NW	R	TE/TF	R/A	TF	R	TF	R
Emergency Power Equipment																		
Engine Generators for Control House, Meter House, Microwave, Radio	NW	R/A	TE	R/A	TE	R/A	TE	R/A	TE	R/A	TE	R/A	TE/TF	R/A	TF	R/A	TF	R/A
Engine Generators and fuel tanks for other uses	NW	R/A	TE	R/A	TE	R/A	TE	R/A	TE	R/A	TE	R/A	TE/TF	R/A	TF	R/A	TF	R/A
Battery Plants	TP	R/A	TE	R/A	TE	R/A	TE	R/A	TE	R/A	TE	R/A	TE/TF	R/A	TF	R/A	TF	R/A
Battery Plants for critical facilities	NW																	
Battery Rooms	NW	R	TE	R/A	TE	R/A	TE/TF/NW	R	TE/TF/NW	R	TE/TF/NW	R	TE/TF	R/A	TF	R	TF	R
Ventilation	NW	R	TE	R/A	TE	R/A	TE/TF/NW	R	TE/TF/NW	R	TE/TF/NW	R	TE/TF	R/A	TF	R	TF	R
Explosion Proof Lighting	NW	R	TE	R/A	TE	R/A	TE/TF/NW	R	TE/TF/NW	R	TE/TF/NW	R	TE/TF	R/A	TF	R	TF	R
Lighting Inverters	NW	R	TE	R/A	TE	R/A	TE/TF/NW	R	TE/TF/NW	R	TE/TF/NW	R	TE/TF	R/A	TF	R	TF	R
UPS Systems	TP	R	TE	R/A	TE	R/A	TE/TF/NW	R	TE/TF/NW	R	TE/TF/NW	R	TE/TF	R/A	TF	R	TF	R
UPS Systems for critical facilities	NW	R	TE	R/A	TE	R/A	TE/TF/NW	R	TE/TF/NW	R	TE/TF/NW	R	TE/TF	R/A	TF	R	TF	R
Signs On Substation Fencing	TP/NNT	R	TE	R/A	TE	R/A	TE/TF/NW	R	TE/TF/NW	R	TE/TF/NW	R	TE/TF	R/A	TF	R	TF	R

Assets	Asset Mgmt		Design Standards		Eng. Design - New Fac.		Eng. Design- Existing Fac.		Construct - New Fac.		Construct - Existing Fac.		O&M Standards		Operate & Maintain		Decomm. & Demolish	
	Org	Role	Org	Role	Org	Role	Org	Role	Org	Role	Org	Role	Org	Role	Org	Role	Org	Role
Major Facility Assets																		
Portable Eye Wash Units Required by OSHA	NW	R	TE	R/A	TE	R/A	TE/TF/NW	R	TE/TF/NW	R	TE/TF/NW	R	TE/TF	R/A	TF	R	TF	R
Fixed Eye Wash Units Required by OSHA	NW	R	TE	R/A	TE	R/A	TE/TF/NW	R	TE/TF/NW	R	TE/TF/NW	R	TE/TF	R/A	TF	R	TF	R
Primary Infrastructure Assets																		
Low-Voltage (<440V) Electrical Distribution System	NW	R	TE	R/A	TE	R/A	TE/TF/NW	R	TE/TF/NW	R	TE/TF/NW	R	TE/TF	R/A	TF	R	TF	R
Potable Water Supply & Distribution System	NW	R	TE	R/A	TE	R/A	TE/TF/NW	R	TE/TF/NW	R	TE/TF/NW	R	TE/TF	R/A	TF	R	TF	R
Grey Water System	NW	R	TE	R/A	TE	R/A	TE/TF/NW	R	TE/TF/NW	R	TE/TF/NW	R	TE/TF	R/A	TF	R	TF	R
Site Irrigation System	NW	R	TE	R/A	TE	R/A	TE/TF/NW	R	TE/TF/NW	R	TE/TF/NW	R	TE/TF	R/A	TF	R	TF	R
Sanitary Sewer System	NW	R	TE	R/A	TE	R/A	TE/TF	R	TE/TF	R	TE/TF	R	TE/TF	R/A	TF	R	TF	R
Storm Water Drainage	NW	R	TE	R/A	TE	R/A	TE/TF/NW	R	TE/TF/NW	R	TE/TF/NW	R	TE/TF	R/A	TF	R	TF	R
Natural Gas Source & System	NW	R	TE	R/A	TE/TF	R	TE/TF/NW	R	TE/TF/NW	R	TE/TF/NW	R	TE/TF	R/A	TF	R	TF	R
Railways & Rail Spurs	NW	R	TE	R/A	TE/TF	R	TE/TF/NW	R	TE/TF/NW	R	TE/TF/NW	R	TE/TF	R/A	TF	R	TF	R
<i>Paving - Asphalt/Concrete/Gravel</i>																		
Roadways, including associated Ditches, Culverts and Bridges																		
Facility Access Roads	NW	R	TE	R	TE/TF/NW	R	TE/TF/NW	R	TE/TF/NW	R	TE/TF/NW	R	TF	R	TF	R	TF	R
Access Roads	TP	R	TE	R	TE/TF/NW	R	TE/TF/NW	R	TE/TF/NW	R	TE/TF/NW	R	TF	R	TF	R	TF	R
Roadways Within Site	NW	R	TE	R	TE/TF/NW	R	TE/TF/NW	R	TE/TF/NW	R	TE/TF/NW	R	TF	R	TF	R	TF	R
Parking Areas	NW	R	TE	R	TE/TF/NW	R	TE/TF/NW	R	TE/TF/NW	R	TE/TF/NW	R	TF	R	TF	R	TF	R
Service Areas - Loading Docks, Etc.	NW	R	TE	R	TE/TF/NW	R	TE/TF/NW	R	TE/TF/NW	R	TE/TF/NW	R	TF	R	TF	R	TF	R
Curbing	NW	R	TE	R	TE/TF/NW	R	TE/TF/NW	R	TE/TF/NW	R	TE/TF/NW	R	TF	R	TF	R	TF	R
Pedestrian Paving																		
Sidewalks Within Facility Fencing	NW	R	TE	R	TE/TF/NW	R	TE/TF/NW	R	TE/TF/NW	R	TE/TF/NW	R	TF	R	TF	R	TF	R

Assets	Asset Mgmt		Design Standards		Eng. Design - New Fac.		Eng. Design- Existing Fac.		Construct - New Fac.		Construct - Existing Fac.		O&M Standards		Operate & Maintain		Decomm. & Demolish	
	Org	Role	Org	Role	Org	Role	Org	Role	Org	Role	Org	Role	Org	Role	Org	Role	Org	Role
Major Facility Assets																		
Sidewalks Within Substation Switchyard	NW	R	TE	R	TE/TF/NW	R	TE/TF/NW	R	TE/TF/NW	R	TE/TF/NW	R	TF	R	TF	R	TF	R
Stairways	NW	R	TE	R	TE/TF/NW	R	TE/TF/NW	R	TE/TF/NW	R	TE/TF/NW	R	TF	R	TF	R	TF	R
<i>On-Site Landscaping</i>																		
Softscaping - Including Site Grading & Slopes	NW	R	TE	R	TE/NW/TF	R	TE/NW/TF	R	TE/NW/TF	R	TE/NW/TF	R	TE/TF	R/A	TF	R	TF	R
Hardscaping - Retaining Walls, Pavers, Etc.	NW	R	TE	R	TE/NW/TF	R	TE/NW/TF	R	TE/NW/TF	R	TE/NW/TF	R	TE/TF	R/A	TF	R	TF	R
<i>Fencing - Including Gates</i>																		
Fence and Gates on Station Sites	NW	R	TE	R/A	TE/NW	R/A	TE/TF/NW	R	TE/TF/NW	R	TE/TF/NW	R	TE/TF	R/A	TF	R	TF	R
Fence and Gates associated w/ Transmission Line rights-of-way	TP	R	TE	R/A	TE/NW	R/A	TE/TF/NW	R	TE/TF/NW	R	TE/TF/NW	R	TE/TF	R/A	TF	R	TF	R
<i>Security Systems</i>																		
Alarm and Security Systems	NW	R	SEC	R	SEC	R	SEC	R	SEC	R	SEC	R	TF/NW	R	SEC	R	SEC	R
Card readers and cameras	NW	R	SEC	R	SEC	R	SEC	R	SEC	R	SEC	R	NJ	R	SEC	R	SEC	R

FINANCIAL DISCLOSURE

This information has been made publicly available by BPA on February 18, 2014 and contains information not reported in BPA financial statements.