

# Transmission Strategy & Expense IPR Workshop

**May 18, 2010**  
**All day 9-12 and 1-4**

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<b>9:30</b>	<b>Benchmarking</b> <ul style="list-style-type: none"> <li>• FERC Form 1</li> <li>• Transmission Benchmarking Community Survey</li> <li>• Staffing Benchmarking</li> </ul>	<b>16-25</b>	<b>Robin Furrer</b>
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<b>3:45</b>	<b>Next Steps-</b> May 10th follow-up items- Rate Case vs Actuals 2007-2009 (to be posted), Staffing Workshop- June		<b>Robin Furrer</b>



# Transmission Overview for FY 2012-2013

Although Transmission operating costs are increasing at a faster rate than inflation, revenues are also accelerating due to the success of 2008 and 2009 NOS. With revenues increasing, rate pressures are minimized.



## Why are operating costs exceeding inflation?

- Taking care of existing infrastructure
- Increasing complexity in mandatory compliance
- Integrating renewables on the grid resulting in operational complexities

## What trends are offsetting operating costs?

- Lower than expected debt service
- Higher than projected revenues
- Relatively stable reserves
- Efficiencies from business automation and process improvements
- Favorable short-term commodity pricing
- New strategic sourcing agreements



# Key Program Drivers

## Drivers from last 2010-2011 IPR:

- Taking care of aging infrastructure and building new
- Increasing complexity in mandatory compliance
- Automation - regulatory and business requirements
- Operational complexities Introduced by high levels of renewables on the Grid
- Technology innovation investments
- Economic uncertainties

## New drivers for 2012-2013 IPR:

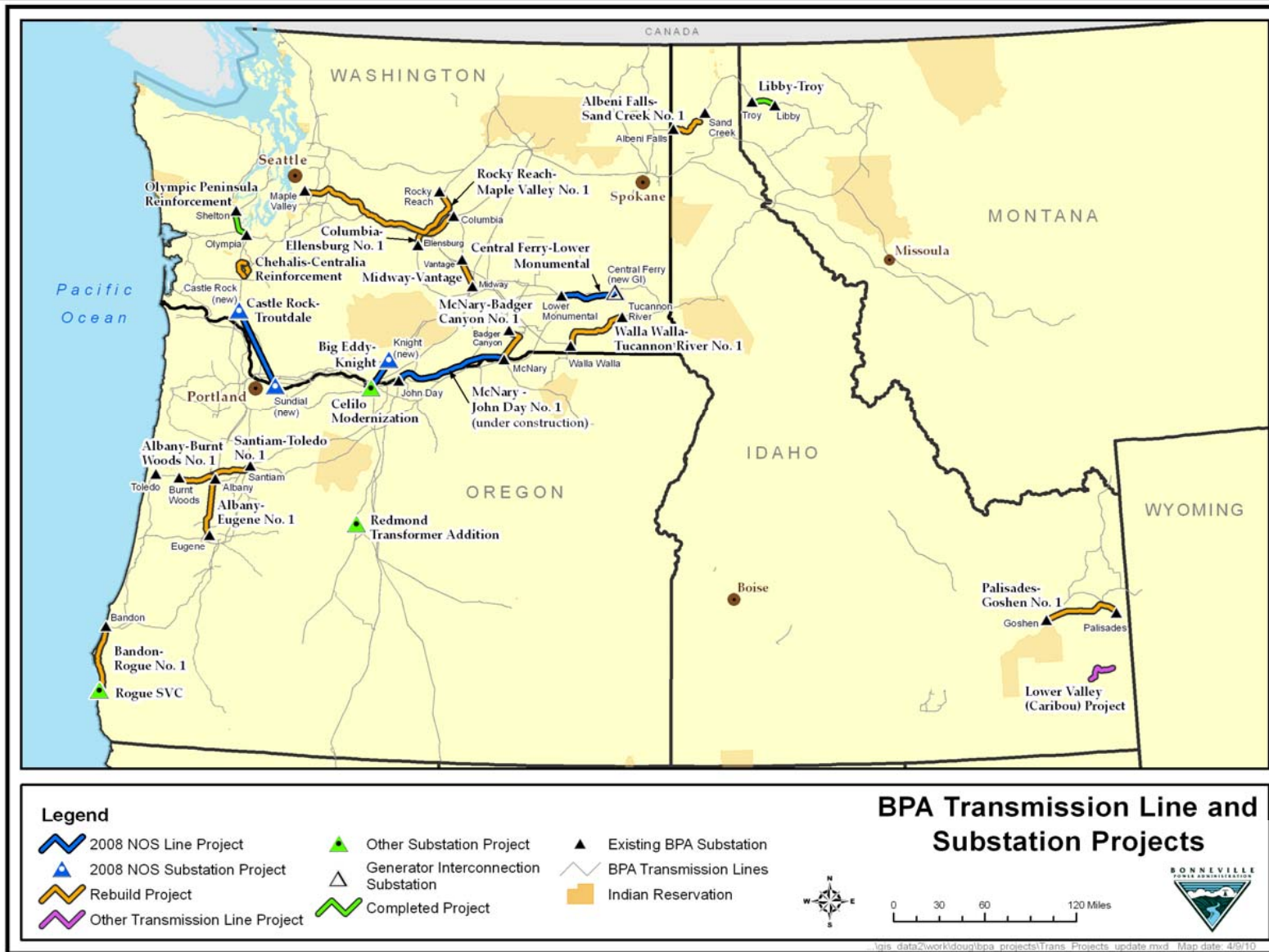
- Increasing emphasis on cyber and physical security
- Accomplishing increasing Program Levels in the most effective way
- Climate change- equipment maintenance, upgrade, and replacement and SF6

*Drivers shown on pages 5-9 are identified from an incremental expense impact (FY11 rate case to FY11 IPR Program Levels) with high (\$5-10M), medium (\$3-5M), and low (\$1-3M) designations. Levels do not reflect capital.*



# Driver #1 - Taking care of existing infrastructure and building new

High



## Driver #2 - Increasing complexity in mandatory compliance

- **Over 110 mandatory reliability standards** High
  - Evolving to cover a wider range of contingencies than power systems were originally planned to meet.
  - Some standards, in particular those that are considered top priorities by NERC and FERC, are increasing in scope and complexity.
  - Subject Matter Experts are more involved in the development process of standards to ensure results driven standards are written with the emphasis placed on improving reliability
  
- **Environmental stewardship: Clean Water Act (CWA) , Toxic Substances Control Act (TSCA)**
  - EPA increasing enforcement on compliance with the Clean Water Act
  - Executive Order 13541: Reduce and minimize the quantity of toxic and hazardous chemicals and materials acquired, used, and disposed by FY 2015
  - EPA leadership indicating desire to sunset the PCB use authorization and phase out equipment that uses or contains PCBs
  
- **FERC Order 890 Implementation and Tariff Compliance**
  - Ongoing open season obligations to pursue further expansion of infrastructure need





## Driver #3 - Automation - Regulatory and Business Requirements

There are many information technology systems underway, primarily in operations and the marketing & scheduling organizations. Low

- OASIS functionality - Implement FERC requirements and Efficiency improvements
- Scheduling functionality - E-Tag to support reliability, new products and customer interfaces
- NERC reliability standards - Mandated changes in ATC (available transfer capability) methodology.
- Commercial Business System Reinforcement - Support industry standard OASIS and scheduling functionality
- Wind integration - System and Process Changes
- RODS Replacement - Retirement of legacy platform
- Transmission Process Improvement (TPIP) - multiple systems ranging from Transmission Asset System (TAS) to Microsoft Project Integration (MSPI) to Work Plan Scheduling System (WPSS).



## Driver #4 - Operational Complexities of Integrating Renewables

- Northwest renewable portfolio standards (RPS) are driving a steep ramp-up in new wind resources Medium
- A portion of the renewable generation is being developed for export to other areas of the West and California
- Continuing growth is creating operational challenges
- Higher penetration of wind resources exacerbates reliability issues, particularly during
  - Fall and Winter Season High spring run-off (when BPA must spill according to the BiOp),
  - Low load conditions when BPA is at minimum generation,
  - Mandatory fish flows, and
  - During times when certain BiOp requirements are in effect





## Driver #5 - Technology Innovation Investments

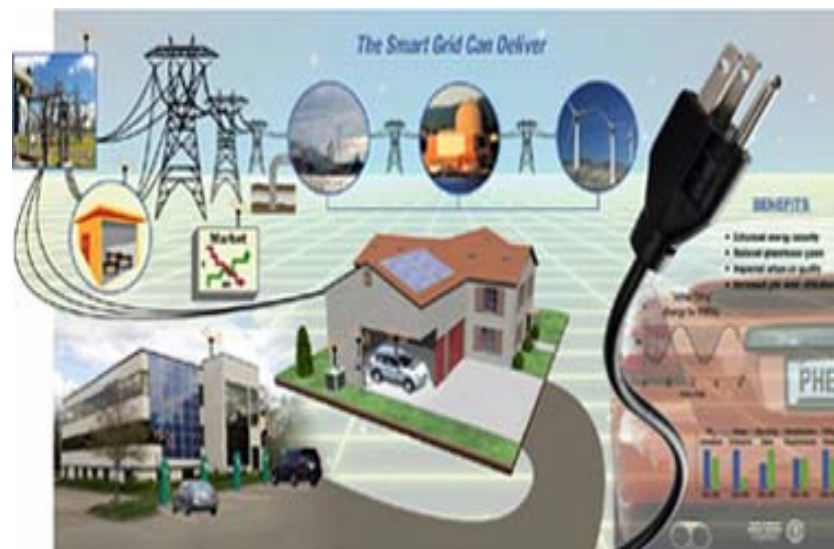
### Technological innovation is instrumental to the success of many industry-wide initiatives:

- Integrating efficient renewable generation,
- Integrating intermittent generation,
- Enhancing the reliability and efficiency of system operations,
- Deploying demand response programs,
- Enabling energy storage devices and
- Developing distributed generation sources.

### “Smart grid” technologies planned include:

- Western Interconnection Synchrophasor Project (WISP)
- Northwest Smart Grid Demonstration Project

Low



## Driver #6 - Economic Uncertainties

Low

- Load dynamics
- Deploying demand response programs
- Future market price uncertainty
- Commodity cost uncertainty (steel, copper, etc.)
- Changing labor market (rate of retirement, applicant pool)



## Driver #7 - Increasing emphasis on cyber and physical security

Low

**As standards are evolving and compliance with them becomes more difficult, BPA-T has stepped up efforts to secure the reliability of its portion of the nation's bulk electric system.**

- Federal legislation could mandate even tighter compliance requirements for both physically and electronically protecting the grid and grid operations equipment.
- New technologies requiring secure implementations will be necessary to operate the grid in a smarter, more "green" manner.
- New standards or interpretations could greatly impact workload

### **Specific focus areas include:**

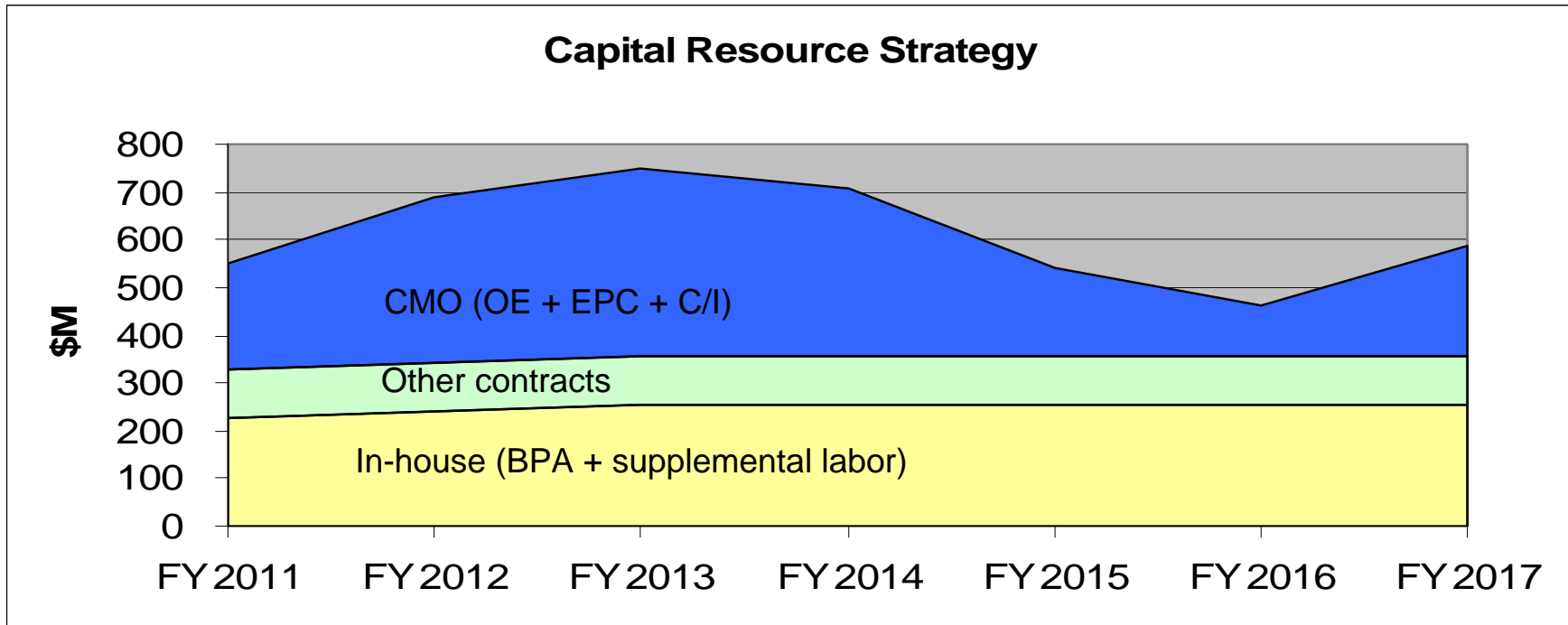
- Smart Grid - implementing it in a secure manner
- Implementing cyber and physical security requirements at BPA substations (indoor)
- Implementing physical security requirements at BPA substations (outdoor)
- Preparing for and implementing changes in the NERC compliance standards: CIP versions 2 and 3
- Preparing for and implementing the major change in determining how subsystems to the Bulk Electric System are determined, NERC CIP version 4



# Driver #8 – Accomplishing The Additional Work Effectively

- Given BPA-T’s internal workforce constraint of \$200M (direct \$), BPA has developed a contract strategy that will ensure the completion of the sustain and expansion capital programs.
- The Contract Management Office (CMO) and other contracting strategies provide an increase in capacity to meet the capital program needs.
- Specific CMO objectives include achieving the increased capital program contracting without increasing employee levels as well as meeting project/program objectives within budget, scope, and schedule.

High



Owner’s Engineer (OE), Engineer, Procure, Construct (EPC), and Contract Administration and Inspection (C/I)



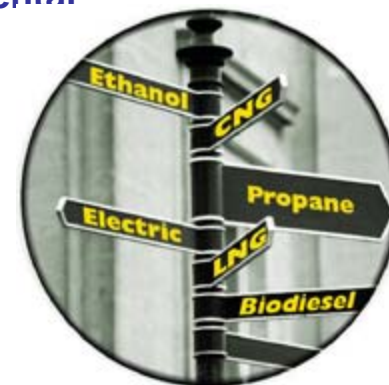
## Driver #9 - Climate change- equipment maintenance, upgrade, replacement, and SF6

The Executive Orders direct BPA to reduce its fossil fuel usage, increase its alternative fuel usage, and report (ultimately decrease) on Green House Gas emissions. These actions also support BPA's agency wide strategy map directive of Environmental Stewardship.

Low

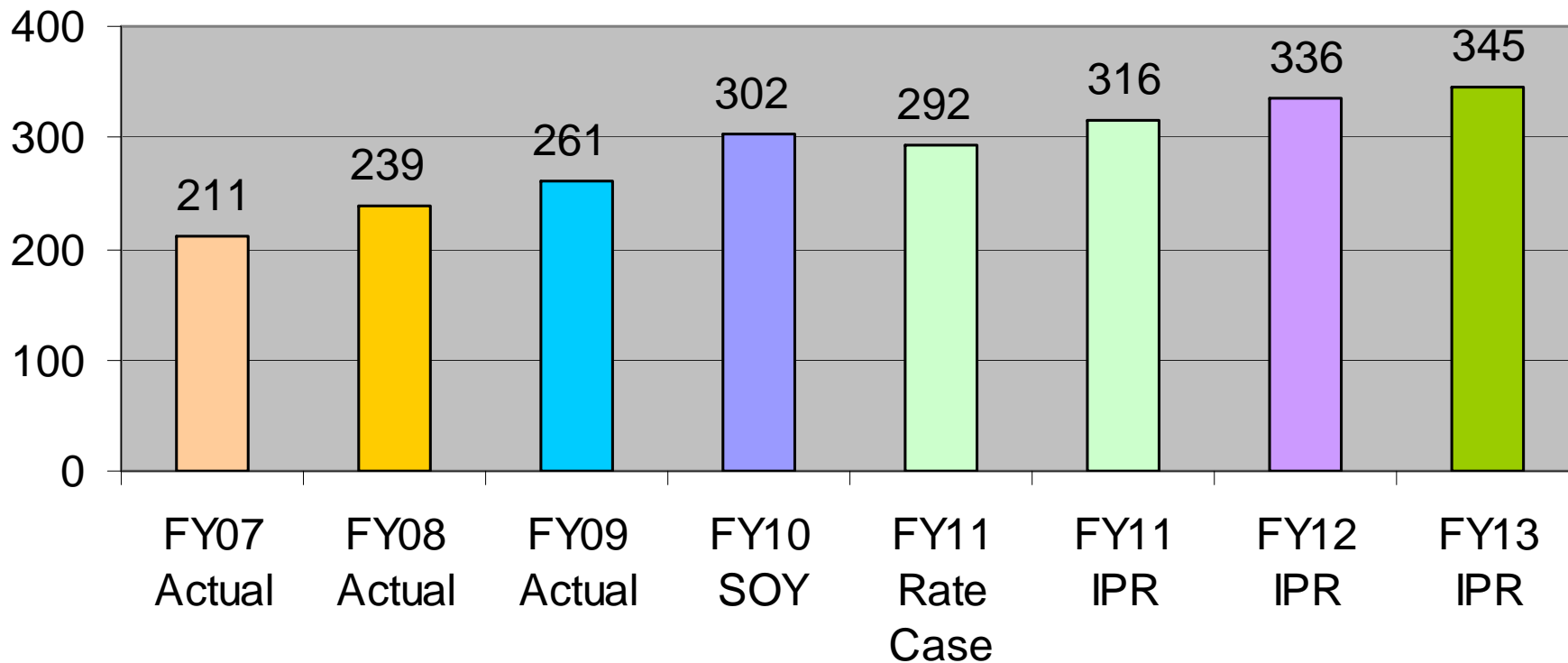
### Specific initiatives include:

- Fleet
  - Increasing use of alternative fuels, B20, E85
  - Purchasing hybrid and electric vehicles
  - Increasing vehicles with Tier III and Tier IV emissions
  - Implementing idle reduction technologies to reduce emissions
- Field Services
  - Leaky Equipment Repair: Continue targeting equipment for repair by pairing SF6 tracking data and the SF6 FLIR camera to locate equipment leaks.
  - Known emissions (other than leaky equipment): Issue a crew alert outlining proper SF-6 evacuation procedures to avoid venting SF6 to atmosphere during internal inspection.
  - Unaccounted-for emissions: With the mass-balance method depending heavily on accurate weighing of the bottles and tight inventory accounting, do the following:
    - Require monthly SF6 inventory reporting so that inventory discrepancies can be dealt with in a timely manner.
    - Utilize accurate, industrial-type scales by all crews.
    - Use equipment nameplate to estimate the amount of SF6 pulled from equipment and returned to the warehouse during retirement or during a gas swap
- Calculate the amount of SF6 put into leaky equipment using the differential-pressure method.



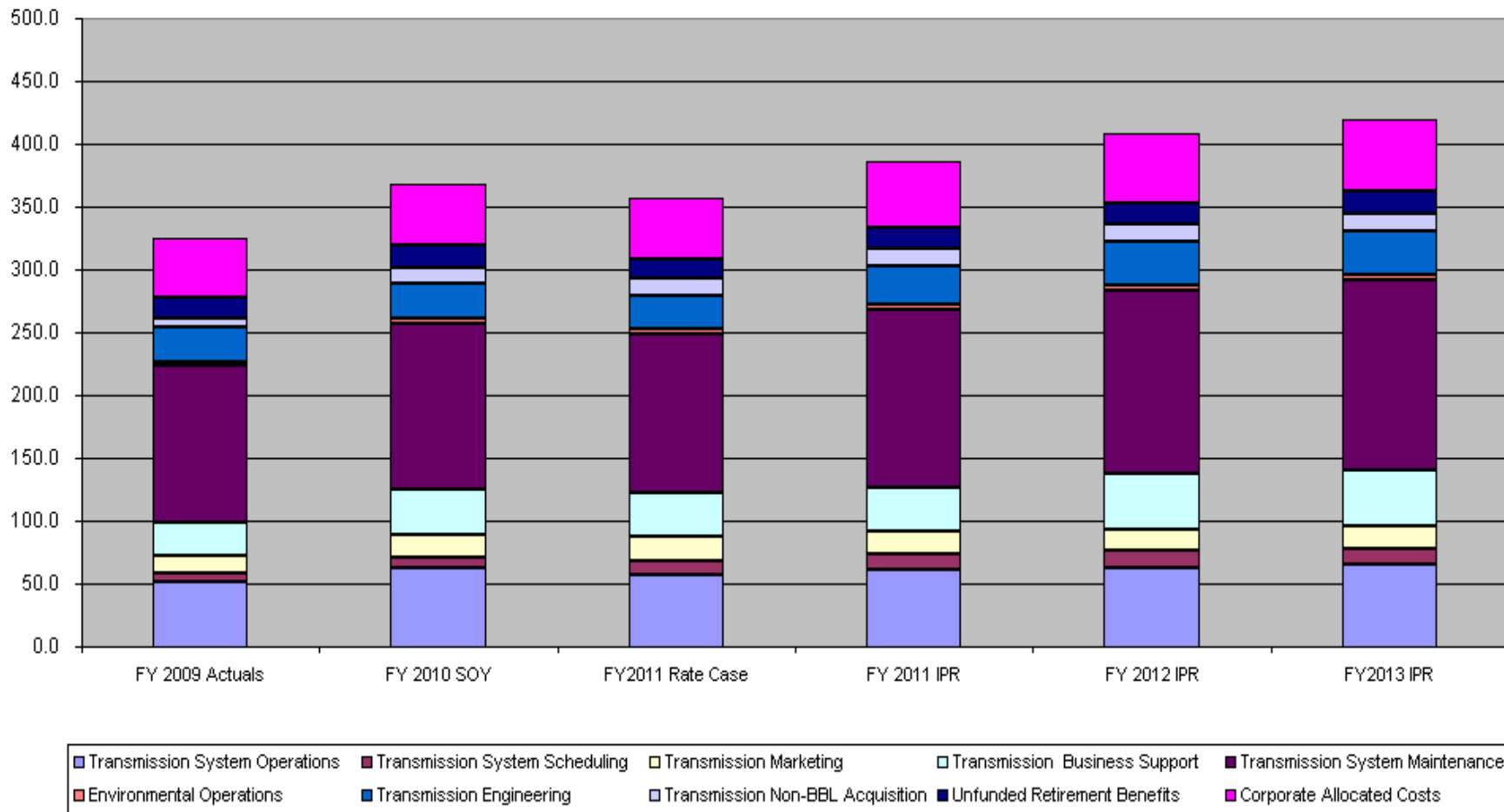
## Transmission Expense Programs (\$M)

Includes System Ops, Scheduling, Marketing, Business Support, System Maintenance, Non-BBL Ancillary Svcs, and System Engineering Programs





**TRANSMISSION Operating Expense Programs**  
(\$in Millions)



# Transmission Program Benchmarking

In an effort to validate IPR program trends and ensure our costs are in line with utility best practices, we have the following benchmarking efforts underway:

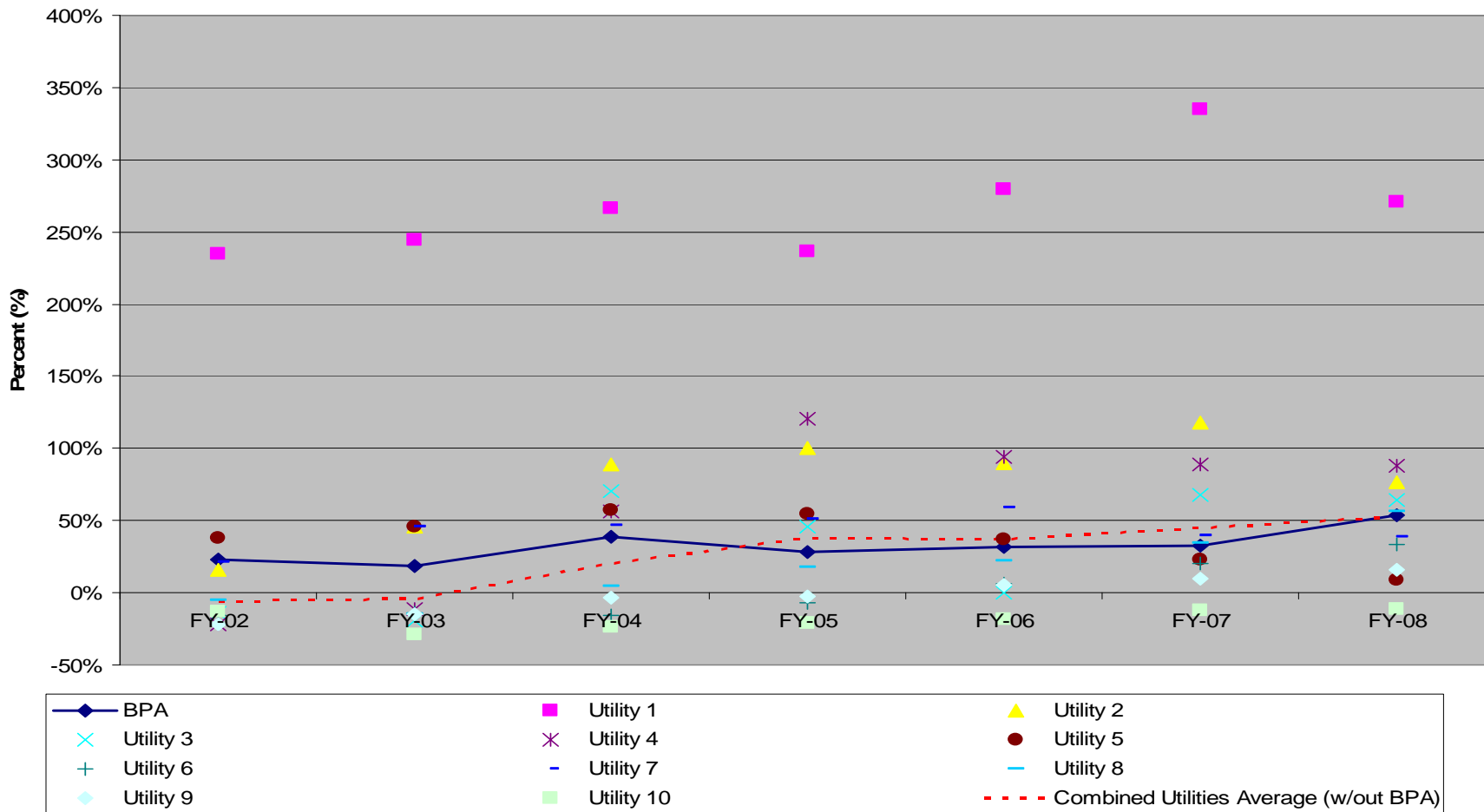
- FERC Form 1 Total Transmission Costs Data
- Transmission Benchmarking Community Survey- 1st Quartile Consulting
- Staffing Benchmarking- Navigant

These processes will assess performance, identify best practices, develop and reinforce change efforts, and track long-term progress. Benefits may be seen in improved operational performance, customer satisfaction, and financial performance



# FERC FORM 1 DATA- GENERAL UTILITY TREND (1 of 2)

Transmission Operation Expenses (accumulative % Increase)

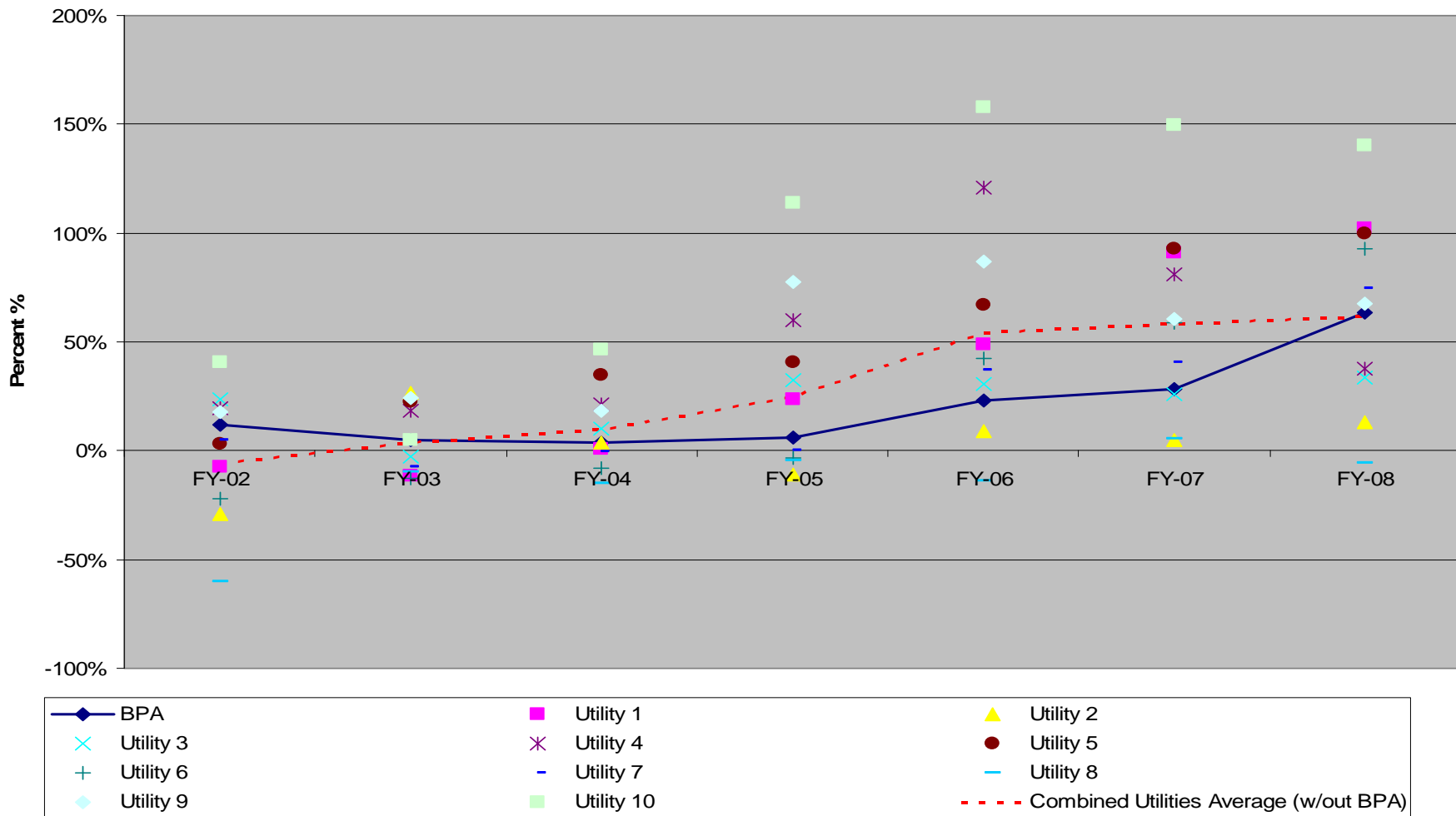


Approximate annual average increase per year using FY01 as a base year: BPA 7%, Utility 1- 40%, Utility 2- 10%, Utility 3- 16%, Utility 4- 14%, Utility 5- 2%, Utility 6- 8%, Utility 7- 5%, Utility 8- 7%, Utility 9- 3%, Utility 10- 9%. Data from FERC Form 1 Line 91



# FERC FORM 1 DATA- GENERAL UTILITY TREND (2 of 2)

Transmission Maintenance Expenses (accumulative % increase)



Approximate Annual Average Increase per year, using FY01 as a base year

BPA- 8% Utility 1- 11% Utility 2- 3% Utility 3- 4% Utility 4- 7% Utility 5- 11% Utility 6- 12% Utility 7- 9% Utility 8- 11% Utility 9- 9% Utility 10- 16%

Ferc Form 1 Line 99



## Transmission Benchmarking Community Survey (1 of 2)

The annual survey will cover all major aspects of Transmission organizations including:

Costs	Reliability and customer response
Safety	Operations and maintenance
Replacement and new business capital	Vegetation management
Staffing & outsourcing	

With more than 400 multi-part questions and utility collaboration, data is more detailed and standardized than FERC Form 1 data and is also normalized to BPA system parameters.

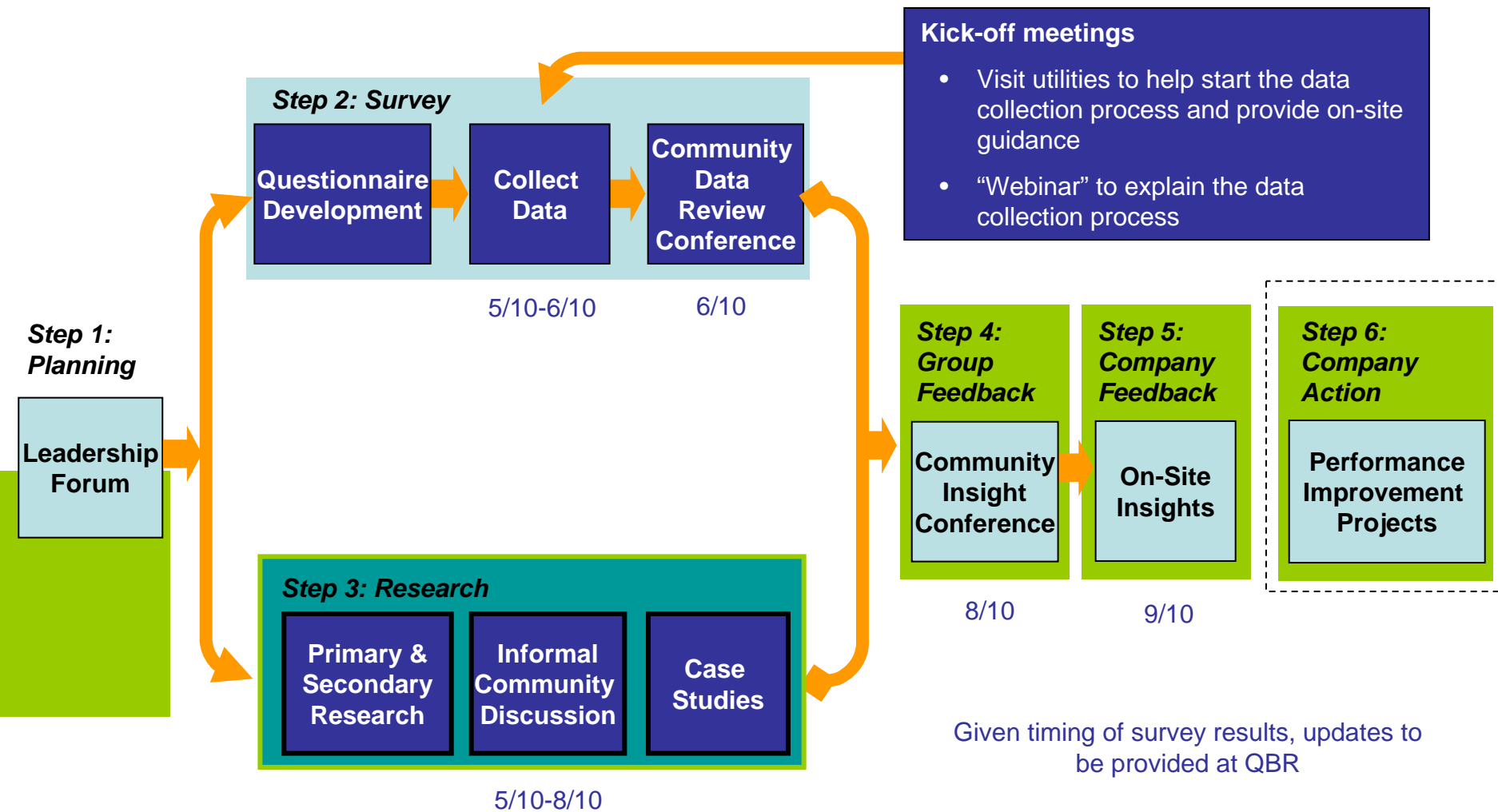
Additionally there are three detailed practice areas for this year; these include:

- Improving new business performance
- Capital investment value management
- NERC requirements

2009/2010 participating utilities include: Austin Energy, BG&E, BC Hydro, CenterPoint Energy, CPS Energy, Entergy (multiple operating companies), E.ON U.S. (LG&E and Kentucky Utilities), Exelon (PECO & ComEd) , Hydro One, Hydro-Quebec, Kansas City Power & Light, National Grid (multiple operating companies), Northwestern Energy, Omaha Public Power, Oncor Electric Delivery, PacifiCorp, PEPCO, PG&E, PSE&G, Seattle City Light, Tennessee Valley Authority, We Energies, Westar.



# Transmission Benchmarking Community Survey (2 of 2)





# Transmission Staffing Benchmarking

**Primary objective was to benchmark staffing in BPA's Transmission Services and Supply Chain organizations against staffing at other utilities**

**Secondary objectives include:**

- Compare actual and benchmark staffing to identify gaps
- Review unique conditions and work practices at BPA to identify factors that might help explain variances between the actual and benchmark staffing
- Compare use of supplemental staff and contractors at BPA compared to their use at other good performing utilities

**Scope of work:**

- Staffing benchmarks included BPA employees, supplemental labor and contracted services
- Organization analyzed by typical utility work functions
- Staffing benchmarks were developed in 41 transmission work functions and 9 Supply Chain work functions



# Normalizing Data to BPA System Characteristics

Variables (2009 Values And 3-Year Average Changes) Used To Normalize Staffing

Miles of Overhead Transmission Line

Miles of Underground Transmission Cable

Number of Substations

Operating Revenue

Population Served

Power Purchased, Received & Delivered

Substation kVA

Territory Size

Transformer Capacity

Transmission Plant Construction Expenditures

Transmission Plant Capital Budget



# Transmission Industry Work Functions (1 of 2)

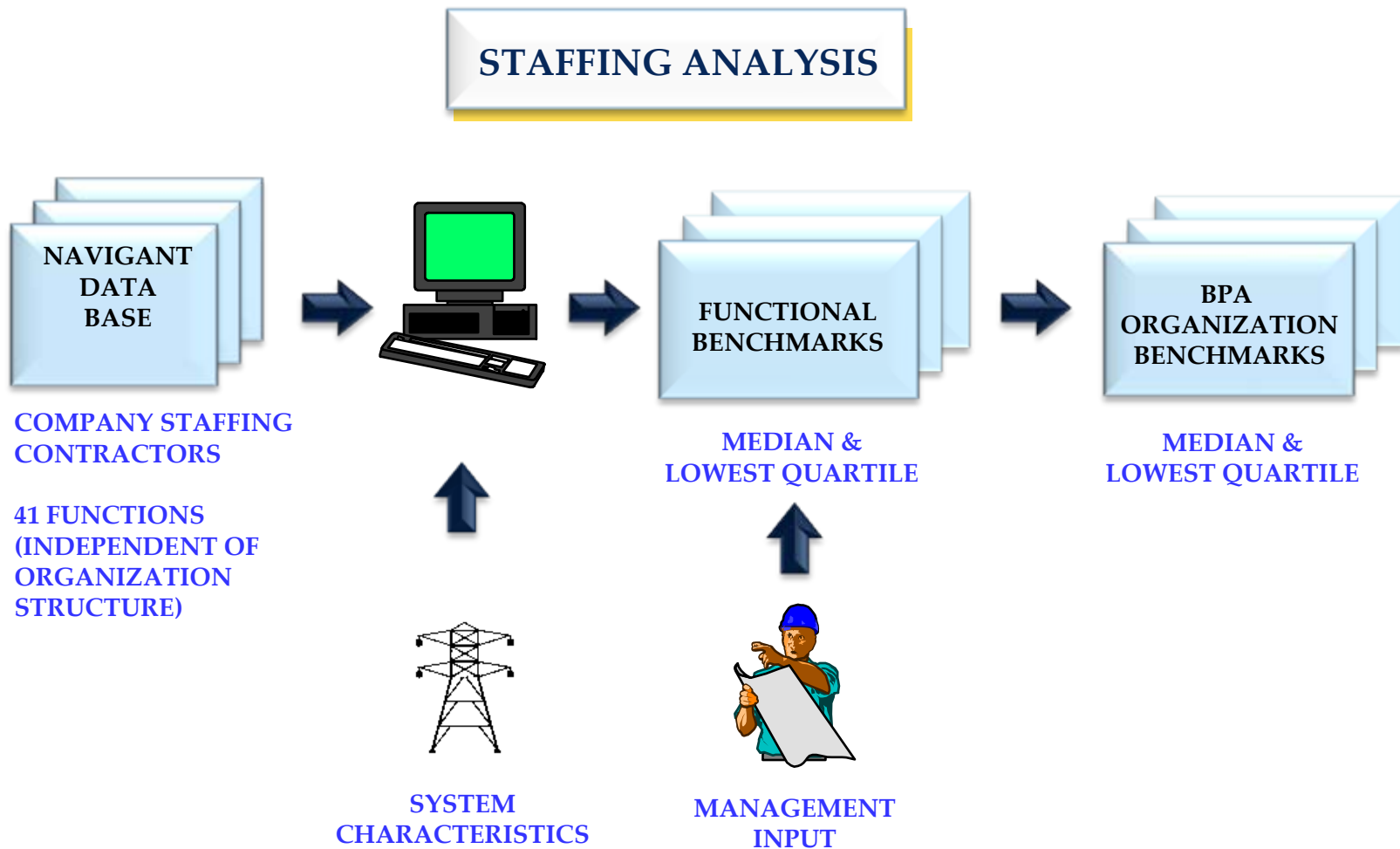
Operations & Maintenance	Engineering & Construction	Services
<p><b>Communications Services</b></p> <p><b>Facilities</b></p> <p><b>Metering &amp; Test</b></p> <p><b>Relay Engineering &amp; Test</b></p> <p><b>Security</b></p> <p><b>Station Maintenance</b></p> <p><b>Station Operations</b></p> <p><b>Training</b></p> <p><b>Transmission Line Maintenance</b></p> <p><b>Vegetation &amp; ROW Clearing</b></p> <p><b>Vehicle Maintenance</b></p> <p><b>Work Scheduling</b></p>	<p><b>Asset Management</b></p> <p><b>Communications Engineering</b></p> <p><b>Project Management</b></p> <p><b>Service Design</b></p> <p><b>Standards</b></p> <p><b>Station Construction</b></p> <p><b>Station Design &amp; Drafting</b></p> <p><b>Station Engineering</b></p> <p><b>Transmission Engineering</b></p> <p><b>Transmission Line Construction</b></p>	<p><b>Aviation</b></p> <p><b>Forecasting</b></p> <p><b>Laboratory</b></p> <p><b>Maps, Records &amp; Surveys</b></p> <p><b>Power Contracts</b></p> <p><b>Rights &amp; Permits</b></p> <p><b>Transmission Sales Support</b></p> <p><b>Transmission Sales Systems</b></p> <p><b>Transmission Sales</b></p>



# Transmission Industry Work Functions (2 of 2)

Planning & System Ops	Administration	Supply Chain
<p><b>Grid Planning</b></p> <p><b>Non-Utility Generator Planning</b></p> <p><b>System Operations Support</b></p> <p><b>System Operations</b></p> <p><b>Transmission Planning</b></p>	<p><b>Administration</b></p> <p><b>Business Support</b></p> <p><b>Clerical</b></p> <p><b>Management Support</b></p> <p><b>Management</b></p>	<p><b>Clerical</b></p> <p><b>Contracts</b></p> <p><b>Environmental</b></p> <p><b>Facilities</b></p> <p><b>Management</b></p> <p><b>Materials Management</b></p> <p><b>Purchasing</b></p> <p><b>Transportation</b></p> <p><b>Warehouse</b></p>





# Transmission System Operations



# Transmission System Operations

Transmission System Operations	2009 Actuals	2010 SOY	2011 TR-10 Rate Case	2011 IPR	2012 IPR	2013 IPR
CONTROL CENTER SUPPORT	11,400,420	12,019,884	13,541,472	13,746,000	14,137,179	14,554,493
INFORMATION TECHNOLOGY	4,572,020	7,932,582	6,761,202	6,638,546	6,773,896	6,936,123
POWER SYSTEM DISPATCHING	11,138,057	11,434,178	11,863,794	12,000,000	12,399,838	12,816,798
SUBSTATION OPERATIONS	19,167,809	19,905,262	19,205,532	20,526,054	21,171,176	21,849,019
TECHNICAL OPERATIONS	5,241,705	10,975,048	6,096,454	8,211,600	8,435,963	8,675,531
<b>Total</b>	<b>51,520,012</b>	<b>62,266,954</b>	<b>57,468,455</b>	<b>61,122,200</b>	<b>62,918,052</b>	<b>64,831,964</b>

## Program Description

- System Operations contains expenses for power system dispatching, technical operations, substation operations, control center support and Transmission IT costs, including Agency Services costs for IT that are allocated to Transmission Services.

**Strategic Objectives-** S2 - FCRPS Operations & Expansion, S8 - Climate Change, S6- Renewable Energy

## Key Products and Outputs

- Many of the programs are heavily involved in providing technical expertise in support of NERC mandatory reliability standard and federal cyber security standards.
- Power System Dispatching- Provides dispatching, control, and monitoring of the electric operation of the Federal transmission system, including load, frequency and voltage control of Federal generating plants to ensure a safe and reliable system.
  - Monitors power system conditions and takes proactive actions to ensure a safe and reliable system.
  - Manages generation load balance
  - Responsible for voltage control and control of power system stability tools (e.g. Remedial Action Schemes (RAS))
  - Manages outages in real-time coordinating switching activity with field crews to support construction, maintenance and repair of facilities
  - Coordinates BPA operations with interconnected utilities
  - Determines priorities and provides direction for emergency restoration activities
  - Provides long and short term outage coordination including responsibility for the NWPP 45 day outage planning process
  - Provides training to ensure NERC Operator certification requirements are met



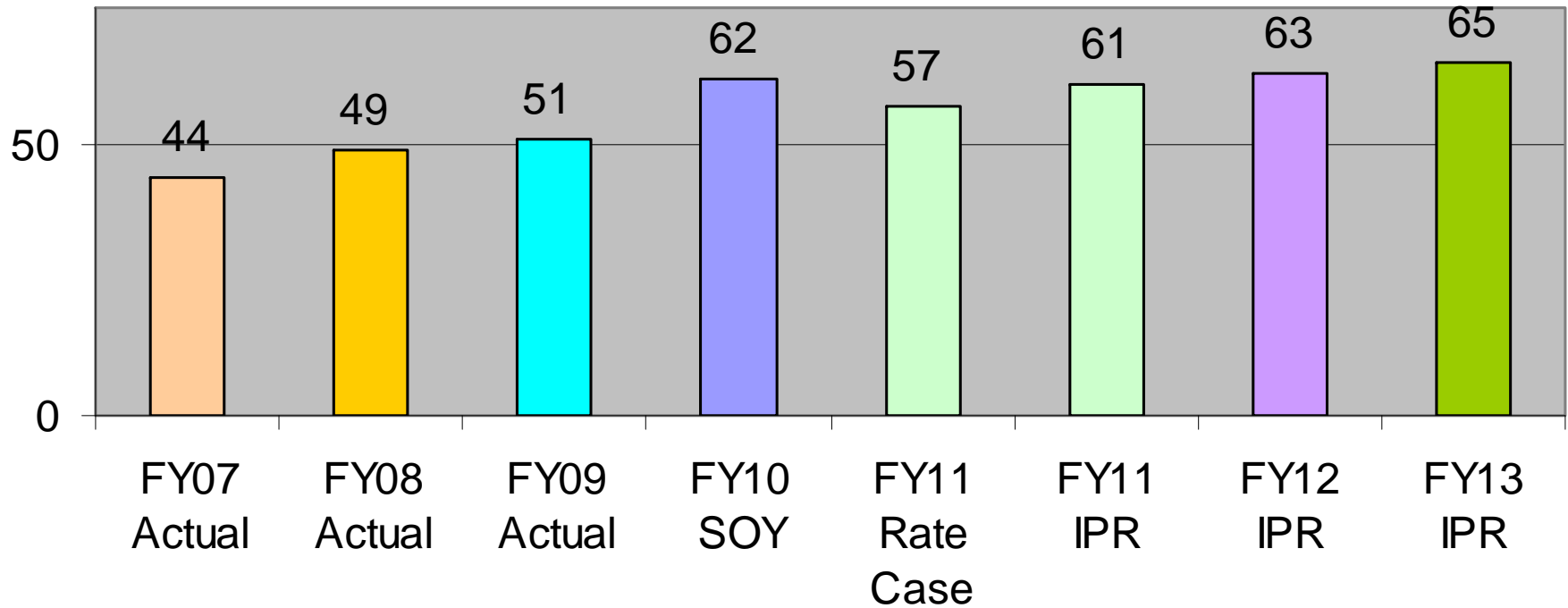
# Transmission System Operations

## Key Products and Outputs (continued)

- Technical operations
  - Operational engineering support for real-time operations – completing operational studies in support of dispatch, development and maintenance of standards, guides and procedures supporting real-time operations (e.g. Dispatching Standing Orders, etc.), coordination and power system analysis support for outage scenarios, engineering oversight for AGC, RAS, under frequency and under voltage load shedding, variable energy resources, e.g. wind, maintaining engineering line ratings to support operational studies.
  - Management of power system operational data to support internal analysis, regulatory reporting and external requests
  - Transmission Emergency Management - planning, maintaining and exercising Transmission Service’s emergency response capabilities
  - Transmission Reliability Program – programmatic responsibility for NERC Reliability standards including strategic direction and policy development; manages and coordinates responses to NERC/WECC standards development process requests, etc.; responsible for external coordination and supports agency reliability objectives.
- Control Center Support – Planning, engineering, design, construction and operation and maintenance support for automation used by Power System Dispatchers to operate and control the transmission grid, e.g. energy management systems such as SCADA, AGC, etc. Also includes support for:
  - Infrastructure – engine generators/HVAC, access control, network, hardware (e.g. servers, workstations, data acquisition devices), operating and application software.
  - Provides for 24X7 monitoring of Control Center automation as well as system wide communications network
- Substation Operations
  - Field Operations – Station inspections, switch orders, switching, first response, emergency response, and outage planning.
  - Develops policies, procedures and standards for Substations Operations, responsible for maintenance of BPA’s Switching and Clearance procedures, management of access to energized facilities and maintenance of the Operations Technical Manual. Provides leadership and support for the Substations Operations Apprentice Craft Committee.
- Information Technology –costs dedicated 100% in support of Transmission IT projects and Agency Services IT costs allocated to Transmission via G&A allocations.



## System Operations Program (\$M)



# Transmission System Operations

## FY 2012-13 Program Spending Drivers

- **FY 2011 IPR Changes as compared to FY2011 Rate Case**
  - **Substation Operations +\$1.3M**
    - Negotiated hourly wage increase, \$700K
    - Decrease in lapse of field operation positions, \$600K
  - **Technical Operations +\$2.1M**
    - Operational support for wind
    - Operational management of new flowgates as a result of new ATC methodology
    - Completing core workload - RAS, outage analysis, study workload, support of commercial activity - business practices, etc.
    - Support of WECC disturbance analysis and line rating workload reflects actuals, \$544K
    - Shift of personnel from Security Enhancement program, \$378K
    - Risk of delaying Dynamic Transfer Capability (DTC) studies
  
- **FY 2012-13 IPR Changes:**
  - **FY 2011 IPR changes carry forward into 2012 and 2013 with only an adjustment for inflation.**



# Transmission Scheduling

# Transmission Scheduling

Transmission Scheduling	2009 Actuals	2010 SOY	2011 TR-10 Rate Case	2011 IPR	2012 IPR	2013 IPR
SCHED-AFTER-THE-FACT	310,352	48,351	447,393	447,393	456,016	465,067
SCHED-MANAGE SPRVISION & ADMIN	237,381	-	734,000	-	-	-
SCHED-PRE-SCHEDULING	261,283	105,060	470,382	470,382	479,570	489,195
SCHED-REAL-TIME SCHEDULING	3,491,829	5,218,964	5,027,654	5,027,654	5,117,608	5,213,070
SCHED-RESERVATIONS	789,943	1,267,593	1,073,546	1,073,546	1,094,288	1,116,052
SCHED-TECHNICAL SUPPORT	1,564,134	2,501,186	2,368,651	5,599,502	5,674,361	5,758,541
<b>Total</b>	<b>6,654,922</b>	<b>9,141,153</b>	<b>10,121,626</b>	<b>12,618,478</b>	<b>12,821,843</b>	<b>13,041,925</b>

## Program Description

- The scheduling program contains expenses for reservations, pre-scheduling, real-time scheduling, scheduling after-the fact, and technical support.

**Strategic Objectives-** S1 - Policy & Regional Actions, S4 - Transmission Access & Rates, P1 – Performance, I1 - Systems & Processes

## Key Products and Outputs

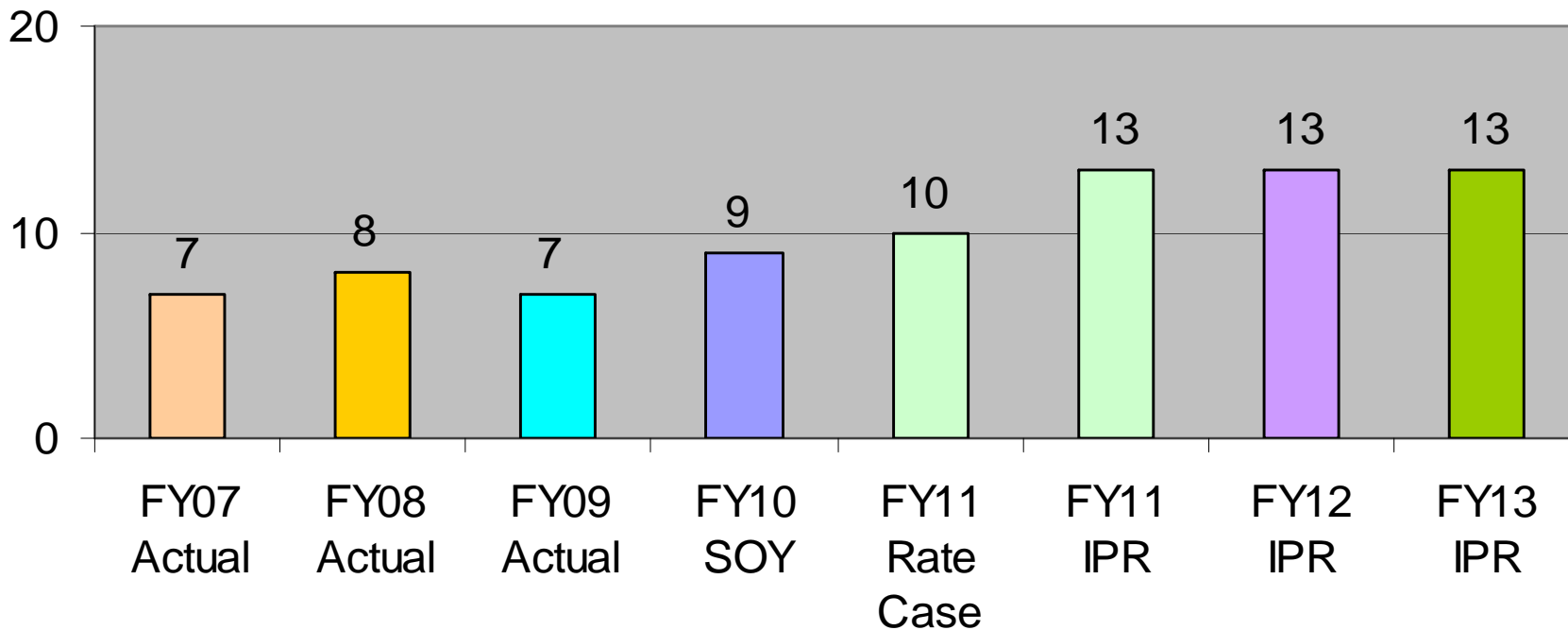
- Scheduling After-The-Fact - Verify net scheduled and net actual interchange, and investigate and resolve discrepancies.
- Pre-Scheduling - Sales/scheduling of transmission for next day(s) operations per the WECC Pre-schedule timeline.
- Real-Time Scheduling - Sales/scheduling of transmission services for next hour delivery; curtail schedules in-hour as system conditions require
- Reservations - Analysis to determine whether specific transmission requests can be granted subject to requirements of the Tariff and FERC orders, runs the market competitions, assists customers with questions about their transmission requests and operation of OASIS.
- Scheduling Technical Support - Technical analysis, manages work requests, develop documentation to support the Real-Time and Pre-schedule functions.





# Transmission Scheduling

## Scheduling Program (\$M)



# Transmission Scheduling

## FY 2012-13 Program Spending Drivers

- **FY 2011 IPR Changes as compared to FY2011 Rate Case:**
  - **Scheduling Technical Support +\$3.2M**
    - \$1M for commercial business support for wind - reps on wind policy and business practices committees. Support for automation of wind operations.
    - \$2.1M commercial wind IT operations, shift from the marketing program
  
- **FY 2012-13 IPR Changes:**
  - **FY2011 IPR changes carry forward into 2012 and 2013 with only an adjustment for inflation.**



# Transmission Marketing

# Transmission Marketing

Transmission Marketing	2009 Actuals	2010 SOY	2011 TR-10 Rate Case	2011 IPR	2012 IPR	2013 IPR
MARKETING IT SUPPORT	22,171	-	2,112,150	-	-	-
MKTG BUSINESS STRAT & ASSESS	5,345,690	6,639,814	7,006,597	6,863,173	7,105,219	7,230,923
MKTG CONTRACT MANAGEMENT	3,556,413	4,963,603	4,905,281	4,394,453	4,510,232	4,603,949
MKTG TRANSMISSION BILLING	2,698,102	2,591,673	2,308,852	2,548,263	2,622,902	2,678,722
MKTG TRANSMISSION FINANCE	398,238	289,450	301,699	299,386	306,392	313,561
MKTG TRANSMISSION SALES	2,297,537	3,054,900	3,261,010	3,261,010	3,318,770	3,380,162
<b>Total</b>	<b>14,318,150</b>	<b>17,539,441</b>	<b>19,895,588</b>	<b>17,366,285</b>	<b>17,863,515</b>	<b>18,207,317</b>

## Program Description

- The marketing program contains expenses related to business strategy & assessment, marketing IT support, billing, finance, contract management, and internal operations.

**Strategic Objectives-** S1 - Policy & Regional Actions, S4 - Transmission Access & Rates, I1 - Systems & Processes, P1 - Performance

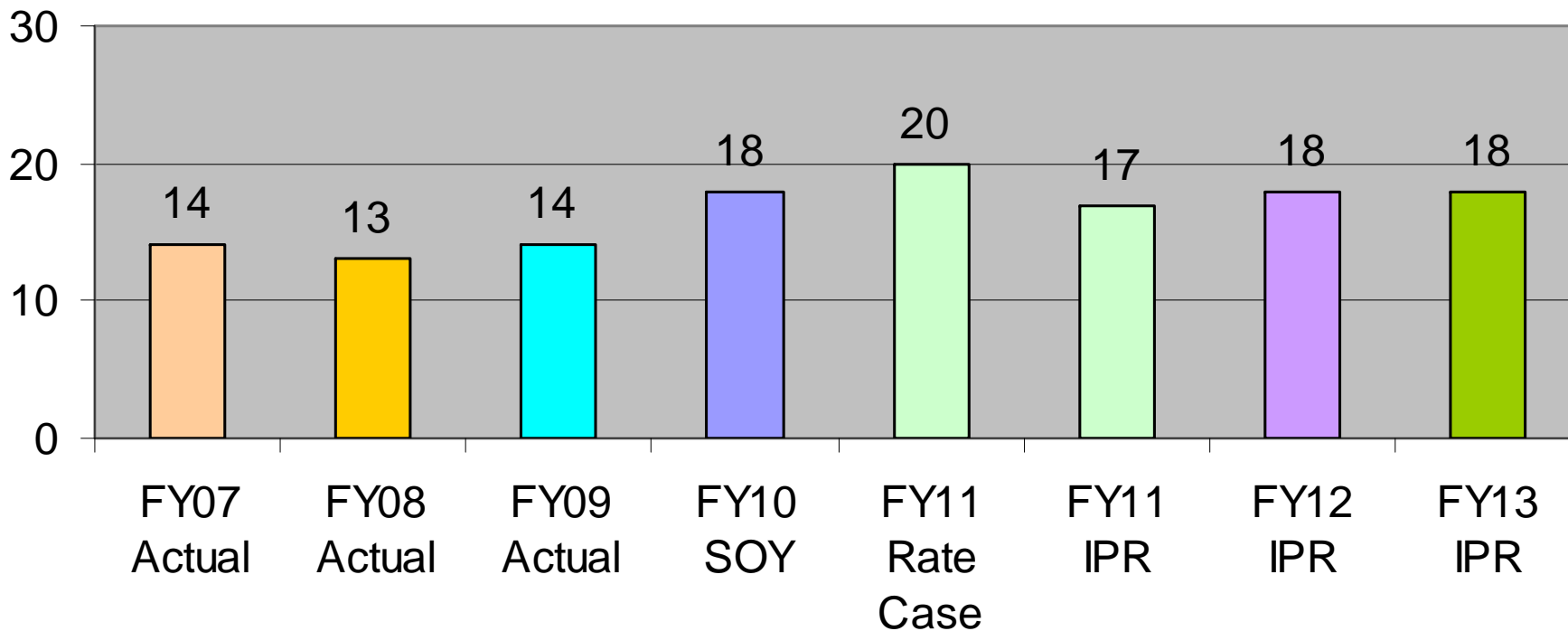
## Key Products and Outputs

- Marketing Business Strategy & Assessment - Transmission business policy, assessments, rate case support, and commercial infrastructure.
- Marketing Contract Management - Analysis and support to Transmission sales to establish, update, or renew transmission contracts.
- Marketing Transmission Finance - Budgeting, accounting, and finance support to Transmission Marketing.
- Transmission Sales- Primarily responsible for customer relationships. Establish, update, or renew transmission contracts, and explain changes in business practices or procedures.



# Transmission Marketing

## Marketing Program (\$M)



# Transmission Marketing

## Drivers of Change:

- Implementation of Network Integration Service (NITS) OASIS
- Increased requirements of additional NERC ATC Standards
- Increased concerns regarding reliability to the Federal System based on additional wind
- Assess and implement Intertie Open Seasons

## FY 2012-13 Program Spending Drivers

- FY 2011 IPR Changes as compared to FY 2011 Rate Case:
  - **Marketing Program, (-\$3.4M)**
    - Business Strategy & Assessment, Marketing IT Support, and Management and Supervision shifted to Technical Support within Scheduling Program

## FY 2012-13 IPR Changes:

- FY 2011 IPR changes carry forward into 2012 and 2013 with only an adjustment for inflation.



# Transmission Non-BBL Acquisition and Ancillary Services

# Transmission Non-BBL Acquisition and Ancillary Services

Transmission Non-BBL Acquisition and Ancillary Services	2009 Actuals	2010 SOY	2011 TR-10 Rate Case	2011 IPR	2012 IPR	2013 IPR
LEASED FACILITIES	6,284,278	5,914,213	6,456,582	6,141,582	6,190,715	6,252,622
NON BBL ANCILLARY SERVICES	638,684	6,735,000	6,735,000	6,735,000	6,788,880	6,856,769
SETTLEMENT AGREEMENTS	-	500,000	500,000	500,000	504,000	509,040
<b>Total</b>	<b>6,922,962</b>	<b>13,149,213</b>	<b>13,691,582</b>	<b>13,376,582</b>	<b>13,483,595</b>	<b>13,618,431</b>

## Program Description

▪ Non-BBL Transmission acquisition and ancillary services includes leased facility payments, settlement agreements, and non-BBL ancillary services for contingent energy, redispatch, generation supplied reactive, and stability reserves.

**Strategic Objectives-** F2 - Cost Recovery, S2 - FCRPS Operations, S4 - Transmission Access & Rates.

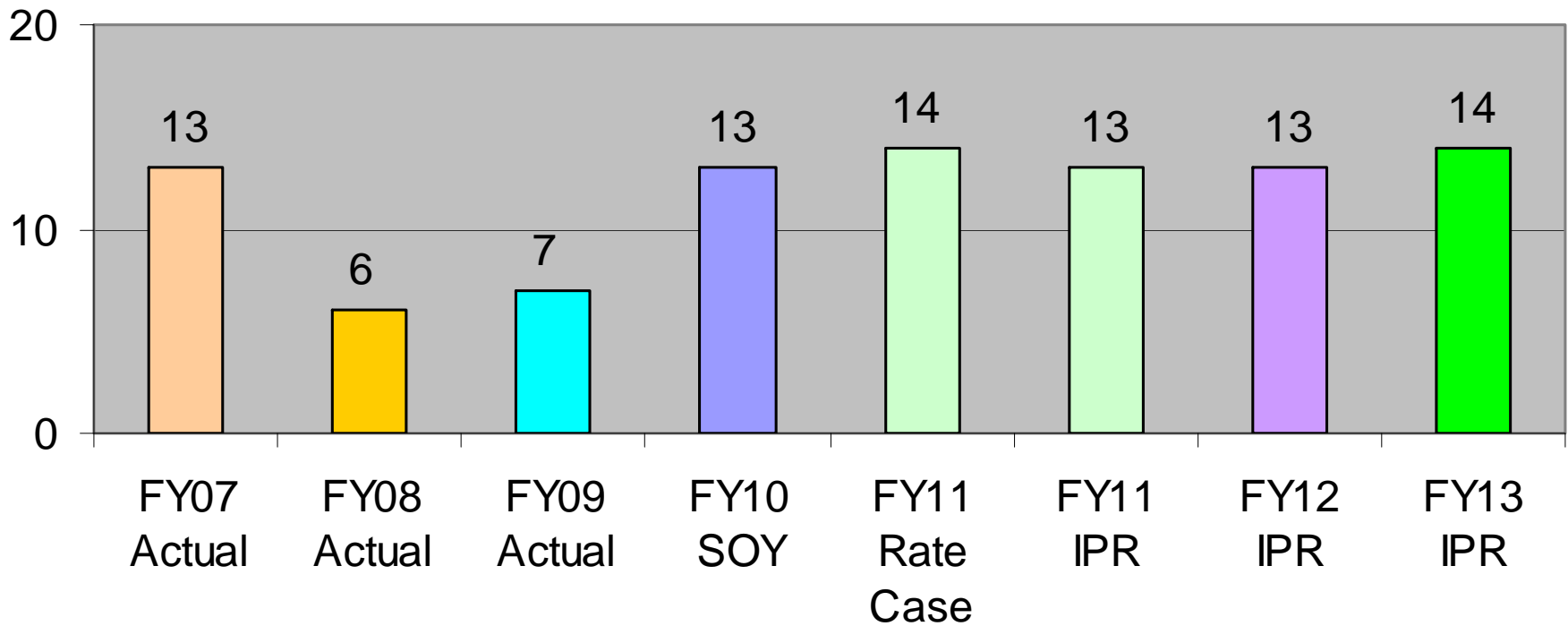
## Key Products and Outputs

- Leased Facilities - Leases and other costs of transmission, delivery and voltage support facilities when such arrangements are operationally feasible and cost effective to deliver power.
- Non-BBL Ancillary Services - Payments to others for generation inputs provided by others.
- General Transfer Agreement - Payments made to customers in the event a settlement is due to marketing activities.





## Non-BBL Ancillary Services Program (\$M)



# Transmission Business Support

# Transmission Business Support

Transmission Business Support	2009 Actuals	2010 SOY	2011 TR-10 Rate Case	2011 IPR	2012 IPR	2013 IPR
AIRCRAFT SERVICES	921,283	2,102,084	1,203,471	2,318,036	2,378,897	2,444,578
EXECUTIVE & ADMIN SERVICES	9,310,545	11,691,392	7,871,014	12,904,998	18,241,611	18,601,352
GENERAL ADMINISTRATIVE	6,452,872	9,113,721	14,864,799	10,581,397	13,052,128	13,337,294
LEGAL SUPPORT - EXPENSE	2,401,088	3,116,774	3,026,654	3,364,189	3,186,933	3,429,120
LOGISTICS SERVICES	3,756,348	9,882,993	6,840,930	5,739,031	5,907,829	6,061,368
SECURITY ENHANCEMENTS EXPENSE	3,185,952	522,000	1,429,256	956,000	977,532	1,001,313
<b>Total</b>	<b>26,028,088</b>	<b>36,428,965</b>	<b>35,236,123</b>	<b>35,863,651</b>	<b>43,744,930</b>	<b>44,875,025</b>

## Program Description

- Business Support includes expenses for logistics services, aircraft services, legal services, internal general & administrative services, and executive and administrative services.

**Strategic Objectives-** I4 - Asset Management, I7 - Risk Informed Decision Making and Transparency, S1 - Policy and Regional Action, I1 - Systems and Processes

## Key Products and Outputs

- Executive and Administrative Services**
  - Transmission Services Management including VP's and managers' labor, outplacement training, employee reimbursements for flu shots, etc. Includes student tuition assistance and travel
- Aircraft Services**
  - Provides aviation support to insure the reliability of the power system. Consists of two fixed wing aircraft, flight crew, mechanics and dispatchers. Transports employees to support the power system.
- General Administrative**
  - Represents the support of the Transmission Services, including training, awards, efficiency projects, balance scorecard/business strategy and asset management not specific to another program.
- Legal Support - Expense**
  - Represents direct legal support for transmission issues, including contracting, right-of-way, etc.



# Transmission Business Support

## Key Products and Outputs (continued)

### ▪ Logistics Services

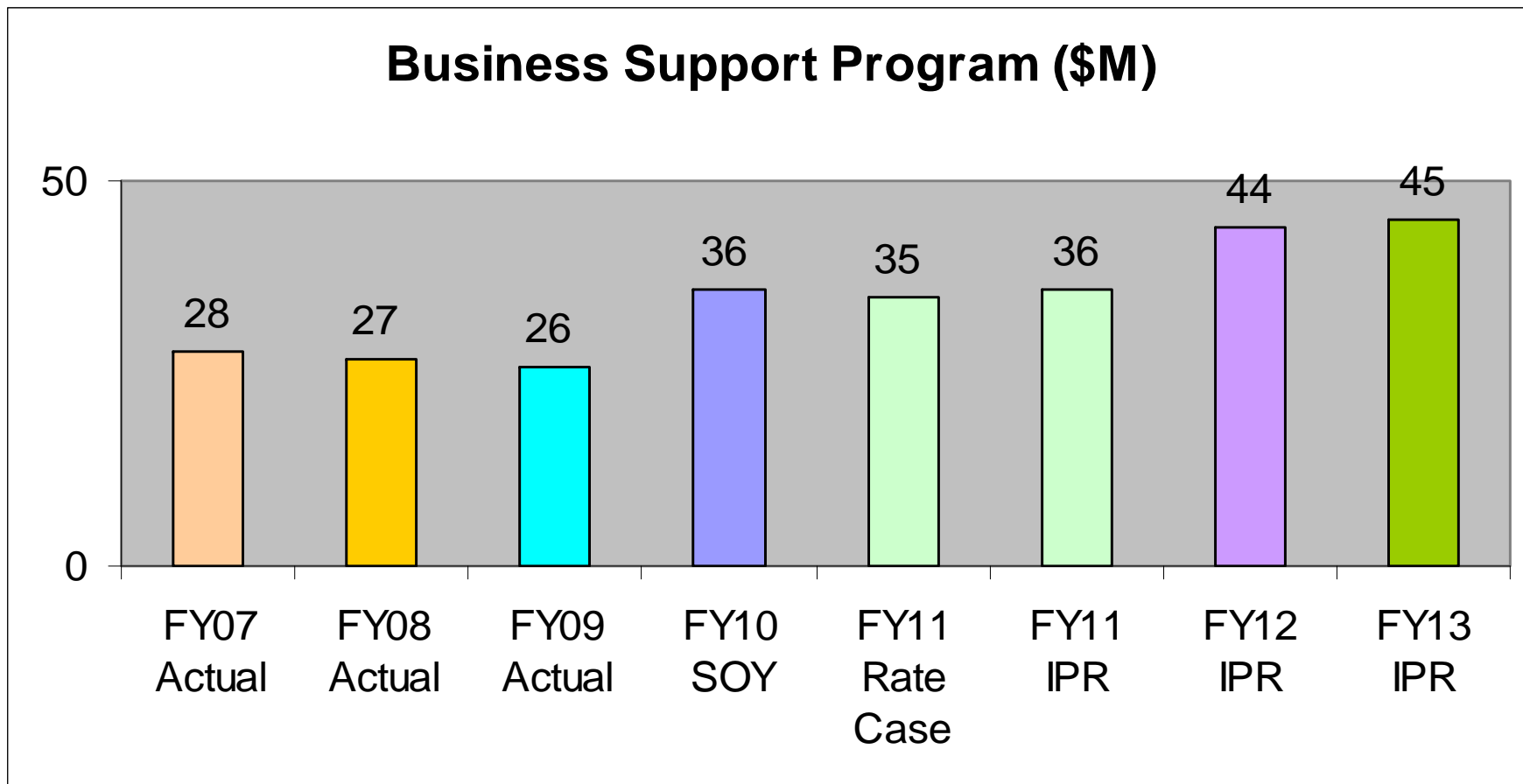
- Materials Handling and Transportation Services, including traffic management, transportation, material handling, shipping, parts pickup, small freight and mail
- Materials Management, including materials and supply purchasing strategy coordination, materials and supply purchasing, stock and direct inventory management, spare parts inventory management, system/order processing, receiving inspection, capital construction material coordination;
- Construction/Services and Field Purchasing, including construction and services purchasing strategy coordination, professional/non-professional services contracting and construction contracting;
- Asset Utilization, including program property management, TEAP coordination, and equipment loan pools;
- Process Management, including continual process improvement of the overall logistics services processes, evaluation and coordination of cross-agency processes in inventory management, purchasing and asset utilization

### ▪ Security Enhancements

- Costs associated with regular maintenance, minor additions, and inspection of physical security measures such as fences, gates, monitors, and special locks.



# Transmission Business Support



# Transmission Business Support

## FY 2012-13 Program Spending Drivers

- **FY 2011 IPR Changes as compared to FY2011 Rate Case:**
  - **Within Business Support there are some internal program restructuring changes to more appropriately reflect the direction of effort. \$4.3M of funds were shifted from General & Administrative to Executive & Administrative Services, yielding no net increase in the overall Business Support program.**
  - **Aircraft Services, +\$1.1M**
    - FAA mandated aircraft maintenance, hangar and aircraft refurbishment, and employee transportation for emergencies.
  - **Logistic Services, -\$1.8M**
    - 100% of Logistic Services is charged into the expense budget and then the capital portion is transferred out. Typically this is 75% capital and 25% expense. In FY2011 allocation of Logistic Services to capital has increased; therefore the credit in base case was too low and the \$1.8M reflects this change.
  - **Security Enhancements, (-\$473K)**
    - \$378K shifted to Regulatory Costs in the Engineering program for emergency management staff.
    - \$439K Increase for enhanced field response to equipment
  
- **FY 2012-13 IPR Changes:**
  - **FY2011 IPR changes carry forward into 2012 and 2013 with only an adjustment for inflation.**



# Transmission Maintenance

# Transmission Maintenance

Transmission Maintenance	2009 Actuals	2010 SOY	2011 TR-10 Rate Case	2011 IPR	2012 IPR	2013 IPR
ENVIRONMENTAL ANALYSIS	66,825	77,970	80,310	80,310	80,952	81,762
HEAVY MOBILE EQUIPMENT MAINT	58,282	(53,380)	(0)	(0)	0	0
JOINT COST MAINTENANCE	141,635	156,749	200,499	200,499	206,741	213,312
NON-ELECTRIC MAINTENANCE	11,280,142	21,672,499	28,055,096	29,291,716	29,752,254	30,272,207
POLLUTION PREVENTN & ABATEMENT	2,906,599	3,635,719	3,915,484	4,063,961	4,174,698	4,261,470
POWER SYSTEM CONTROL MAINT	10,270,560	11,257,940	10,658,781	13,100,000	13,510,531	13,942,646
ROW MAINTENANCE	34,417,269	30,016,610	18,508,417	24,100,000	24,672,429	25,299,601
SUBSTATION MAINTENANCE	25,522,118	23,364,327	22,784,161	27,400,000	29,815,256	30,678,013
SYSTEM MAINTENANCE MANAGEMENT	7,753,452	5,968,413	6,150,516	6,165,131	6,351,940	6,549,743
SYSTEM PROTECTION CONTRL MAINT	11,418,812	13,059,262	11,317,486	12,500,000	12,898,096	13,316,452
TECHNICAL TRAINING	2,465,761	2,571,397	2,723,220	2,823,200	2,915,964	3,013,210
TRANSMISSION LINE MAINTENANCE	21,982,859	23,474,832	26,179,389	25,296,162	26,046,274	26,839,823
<b>Total</b>	<b>128,284,312</b>	<b>135,202,337</b>	<b>130,573,359</b>	<b>145,020,979</b>	<b>150,425,136</b>	<b>154,468,240</b>

## Program Description

- System maintenance contains costs related to technical training, heavy mobile equipment maintenance, and maintenance costs for system management, joint cost, power system control, system protection control, transmission line, substation, and non-electric facilities. Also includes costs related to Environmental Analysis and Pollution, Prevention and Abatement activities.

**Strategic Objectives-** I4 - Asset Management, S9 - Stakeholder Satisfaction, S2 - FCRPS Operations & Expansion, S8 - Climate Change

## Key Products and Outputs

- Environmental Analysis**
  - Provide National Environmental Policy Act (NEPA) and National Historic Preservation Act (NHPA) regulatory compliance through analysis and documentation of impacts related to transmission construction, operation and maintenance activities





# Transmission Maintenance

## Key Products and Outputs (continued)

- **Heavy Mobile Equipment Maintenance (HMEM)**
  - HMEM program covers costs associated with repair and maintenance on all BPA E-plated equipment, Microwave engine generators, substation engine generators, outfitting of BPA/GSA vehicles and maintenance of miscellaneous tools
- **Joint Cost Maintenance**
  - Operations and maintenance of facilities jointly owned by BPA and an outside entity.
- **Non-Electric Maintenance**
  - Inspection and maintenance of the substation grounds and yards. It includes janitorial services; road, parking, curbs, and gutter upkeep; care of grounds, snow removal and cutting grass; water and sewer upkeep; security, fire protection, and alarm system upkeep; heating, cooling, and associated equipment inspections and maintenance; and crane and elevator inspections and upkeep.
- **Pollution, Prevention & Abatement**
  - Develop, coordinate, and manage environmental compliance actions and programs associated with the operation, maintenance, and construction of BPA's transmission system
- **Power System Control**
  - Costs for diagnostic and repair of communications
- **ROW Maintenance**
  - Planning, implementation, and monitoring (project management) of all vegetation-related activities associated w/ ROW's and access road activities. Contracted vegetation management and access road construction crews to accomplish identified maintenance work; danger tree management, management analysis--reporting systems and technology.
- **Substation Maintenance**
  - Service and repair of BPA-owned system power equipment, including transformers, breakers, and other high voltage equipment within BPA substations and energized facilities.



# Transmission Maintenance

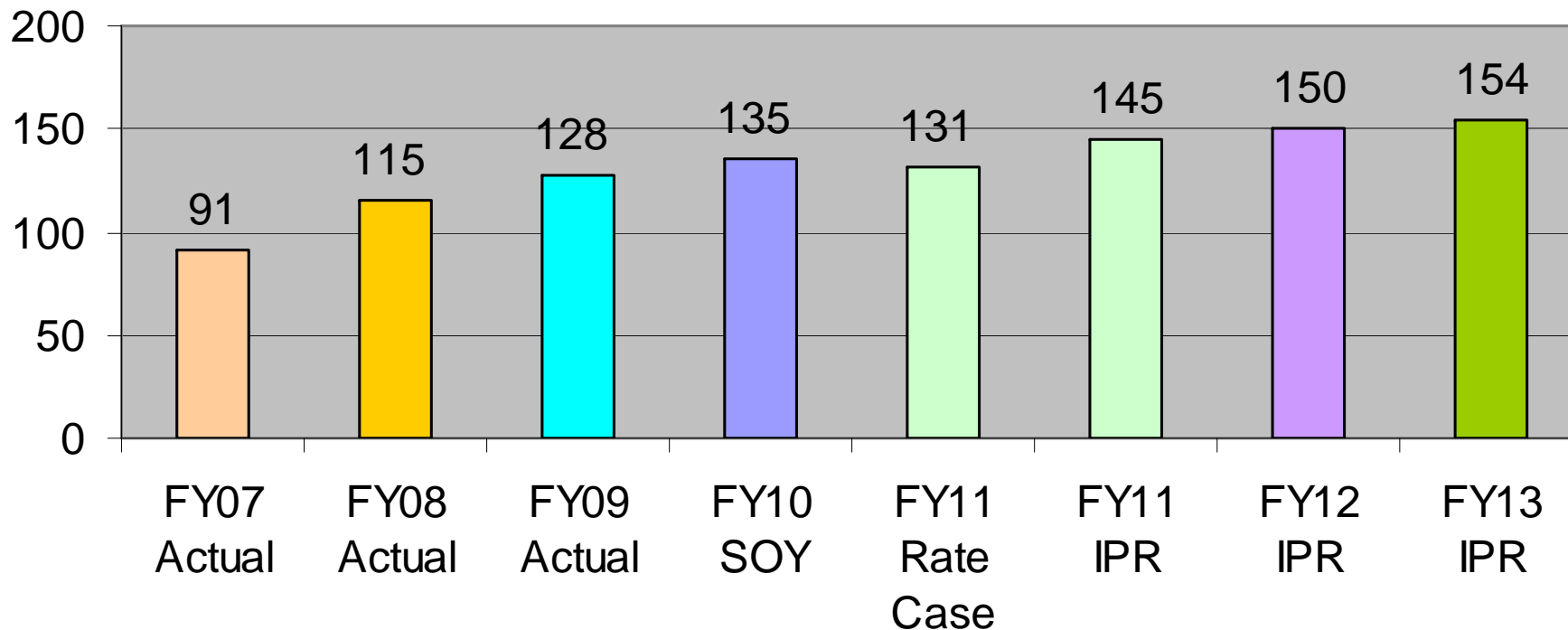
## Key Products and Outputs (continued)

- **System Maintenance Management**
  - Upkeep of capital plant, property, and equipment to insure its intended function in support of the ongoing operations. Includes repairs and minor replacements of plant from point of generation to the entrance to the distribution system.
- **System Protection Control Maintenance**
  - Testing, checking, maintaining, and adjusting meters, gauges, and other instruments, relays, controls, and other equipment in the plant
- **Technical Training**
  - Coordinating and providing training for apprentices (electrician, lineman, operator), craftsman, lineman, electrician, operator and engineer training and T Professional training for annual employees
- **Transmission Line Maintenance**
  - Maintenance and repair of nearly 15,000 circuit miles of overhead transmission lines and transmission line structures and fixtures such as steel towers, wood poles, cross arms, insulators, overhead conductors and devices, as well as roads and trails.

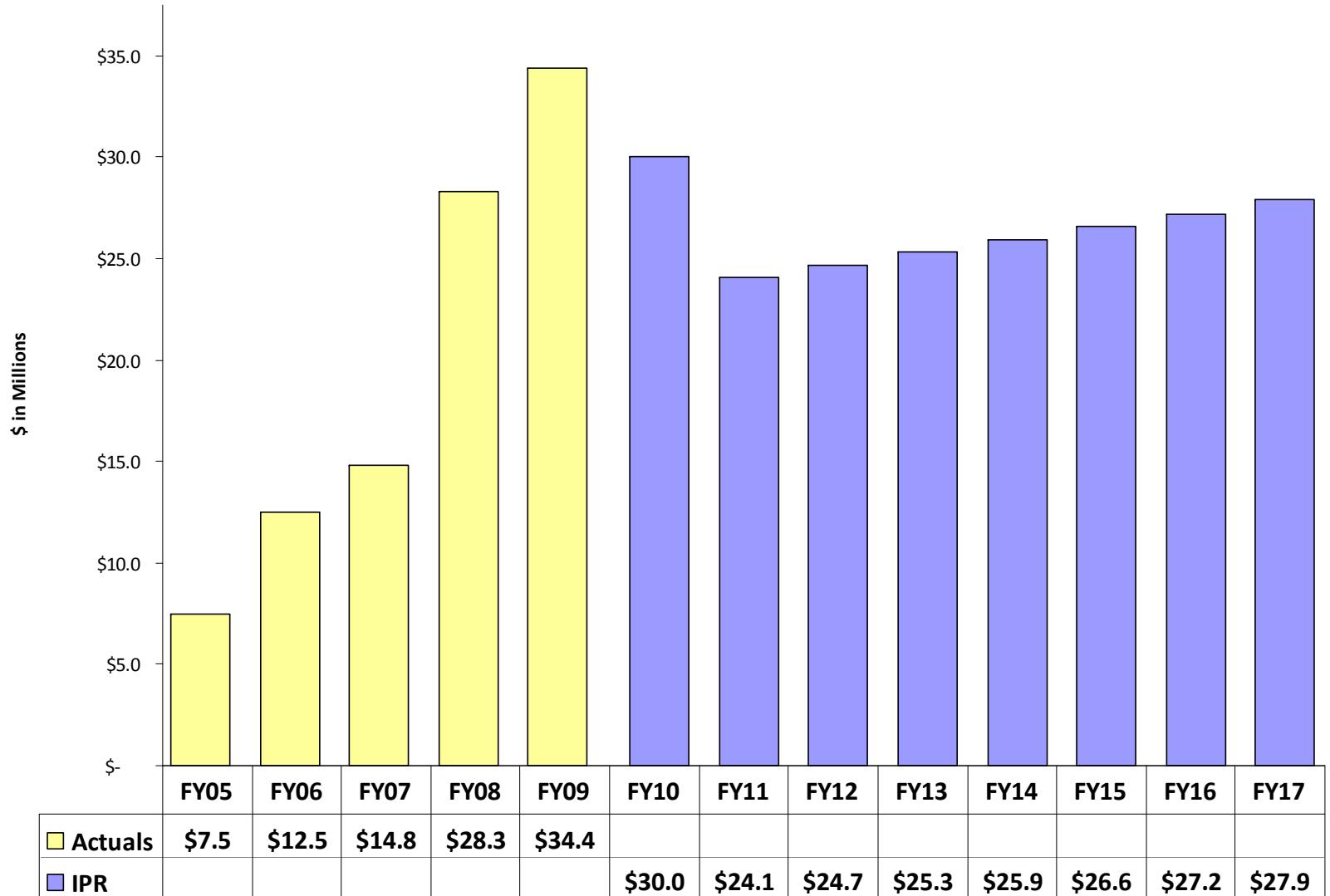


# Transmission Maintenance

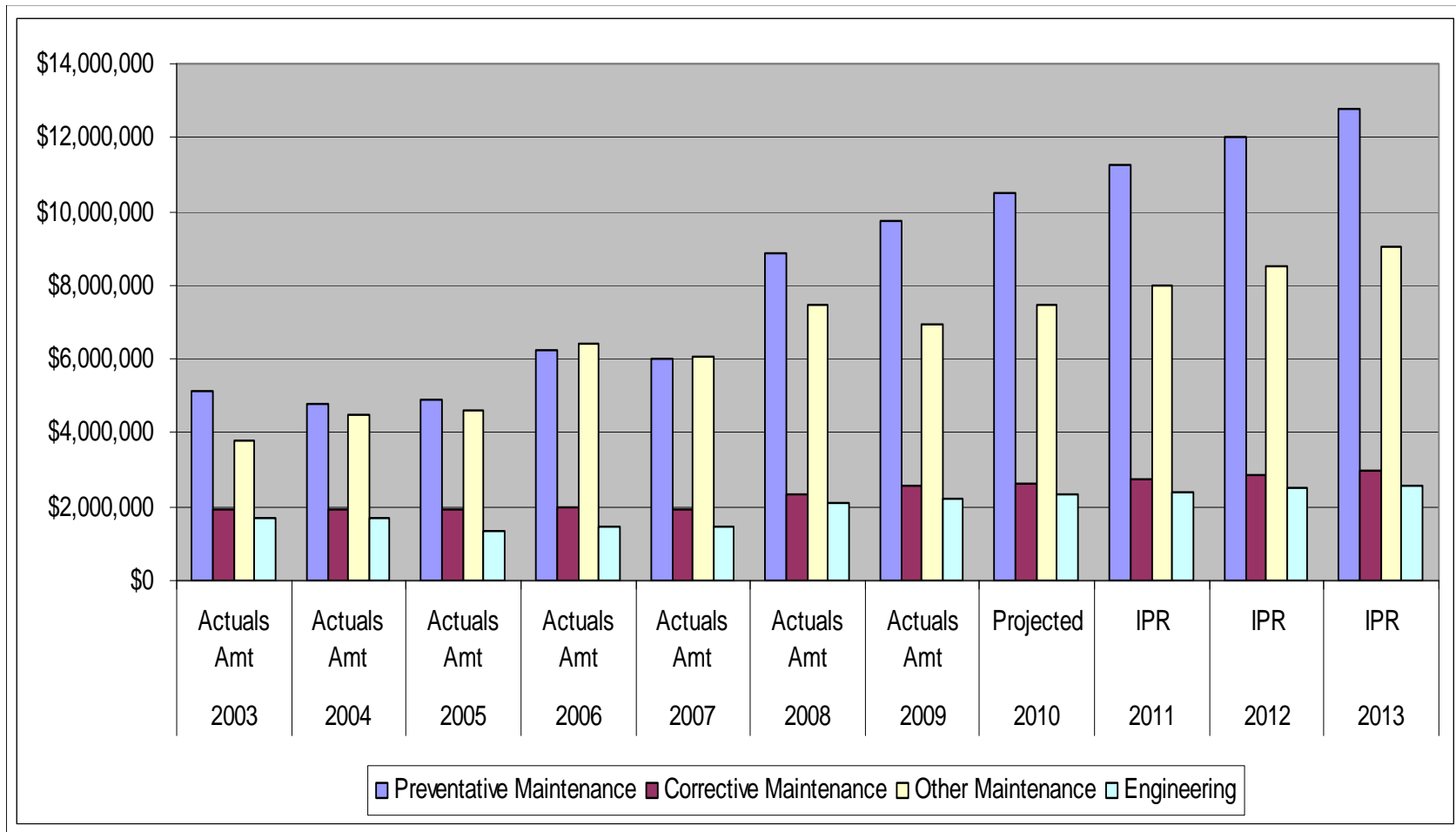
## System Maintenance Program (\$M)



# ROW Budget History and Forecast



# Substation RCM Trending



# Transmission Maintenance

## FY 2012-13 Program Spending Drivers

- **FY 2011 IPR Changes as compared to FY2011 Rate Case:**
  - **Substation maintenance, \$4.7M**
    - Environmental stewardship related to aging/leaking equipment including transformer testing, dry outs, sorbent maintenance and overhauls; prioritized jointly with BPA EF&W, \$1.4M
    - Laboratory business case, \$300k
    - Engineering expertise associated with failing transformers and components such as load tap changers, \$2M
    - Increased maintenance associated with aging equipment and additional infrastructure requiring maintenance, \$1M
    - Seismic hardening, \$500k
    - *Program includes \$500k efficiency gain for the new Cascade system that better informs priority, risk and equipment health decision making*
  - **PSC Maintenance, \$2.4M**
    - Increasing failures associated with failing asset health and new technology interfaces (digital/analog), \$500k
    - Analog to digital circuit moves, \$500K
    - NERC CIP projections in the field and control center, \$700K
    - Redlines and drawing updates and as-builts, \$400K
    - Control center expertise, \$300K
  - **SPC Maintenance, \$1.2M**
    - Engineering expertise associated with new technology additions while old technology remains, \$300K
    - Increasing failures associated with aging equipment, \$700K
    - PMU/synchrophasor engineering work, standards, test gear, \$200K



# Transmission Maintenance

## FY 2012-13 Program Spending Drivers (continued)

- **FY 2011 IPR Changes as compared to FY2011 Rate Case:**
  - **ROW Maintenance, \$5.6M**
    - Increased vegetation preventive maintenance (cycle) using asset health approach, \$2.8M
    - Increased use of LiDAR as a key diagnostic, \$0.7M
    - Realty associated with orchard impacts, crops damage and off ROW vegetation management, \$2.1M
    - Program includes \$750k efficiency gain anticipated from Strategic Sourcing of contract vegetation removal
  - **Transmission Line Maintenance, (-\$600k)**
    - Program includes \$500k efficiency gain for the new Cascade system that better informs priority, risk and equipment health decision making
    - Rescheduled sign replacement program based on system and safety priority

## FY 2012-13 IPR Changes:

- **FY 2011 IPR changes carry forward into 2012 and 2013 with an adjustment for inflation.**
  - **\$1M/year Seismic Hardening**



# Transmission Engineering



# Transmission Engineering

Transmission Engineering	2009 Actuals	2010 SOY	2011 TR-10 Rate Case	2011 IPR	2012 IPR	2013 IPR
CAPITAL TO EXPENSE TRANSFER	6,100,706	3,695,107	4,000,000	4,000,000	4,032,000	4,072,320
ENVIRONMENTAL POLICY/PLANNING	1,332,748	1,777,565	1,853,415	1,783,483	1,823,179	1,854,449
REGULATORY COSTS	5,148,765	7,863,535	5,082,837	6,758,487	7,700,268	7,867,689
RESEARCH & DEVELOPMENT	6,994,116	6,663,225	5,700,544	6,579,691	8,688,116	9,114,490
TSD PLANNING & ANALYSIS	8,028,628	8,483,236	8,811,024	11,907,712	12,278,522	12,669,656
<b>Total</b>	<b>27,604,963</b>	<b>28,482,668</b>	<b>25,447,820</b>	<b>31,029,373</b>	<b>34,522,085</b>	<b>35,578,604</b>

## Program Description

- System engineering consists of costs in support of the research and development program, transmission system planning and analysis, region association fees, including the allocated costs for industry restructuring, and costs associated with cancelled capital projects and inventory adjustments.

**Strategic Objectives-** I4 - Asset Management, I5 - Technology Innovation, S2 - FCRPS Operations & Expansion, S8 - Climate Change

## Key Products and Outputs

- Capital to Expense Transfer**
  - Conduct annual analysis of Bonneville’s outstanding capital work orders to assess whether they should be expensed. Includes cancelled projects.
  - As obsolete inventory is identified and disposed of, it is expensed.
- Environmental Policy Planning**
  - Ensures statutory/regulatory environmental compliance requirements are accomplished through appropriate biological, physical, and cultural investigations and social and economic analyses of BPA decisions, or actions that it carries out or funds.



# Transmission Engineering

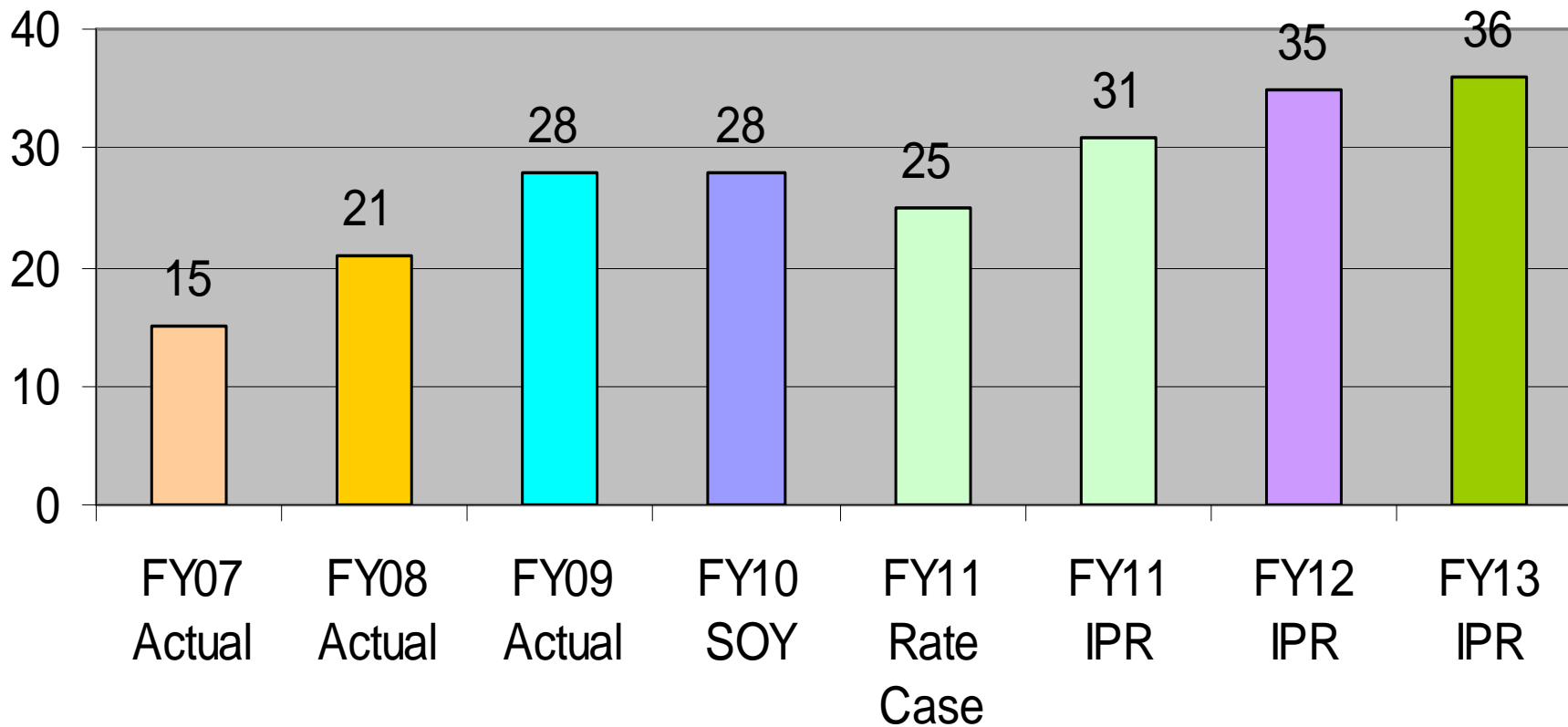
## Key Products and Outputs (continued)

- **Research & Development**
  - Conduct research focused on technologies related to business challenges BPA faces including reliability, energy efficiency, and integration of renewable energy resources.
  - Oversight of BPAs R&D program. Technologies of interest are identified in BPA's Technology Roadmaps. A portfolio of research is selected every year through BPA's Portfolio Decision Framework
- **TSD Planning and Analysis**
  - Provide technical support activities, such as transmission system planning and studies to optimize portions of the system. Provide support for non-wires solutions studies and pilot projects.
- **Regulatory & Regional Association Fees**
  - Western Electricity Coordinating Council (WECC) dues and loop flow payments, DOE licensing costs for radio frequencies and NERC CIP compliance program costs. Also includes costs related to industry restructuring.



# Transmission Engineering

## System Engineering Program (\$M)



# Transmission Engineering

## FY 2012-13 Program Spending Drivers

- **FY 2011 IPR Changes as compared to FY2011 Rate Case:**
  - **TSD Planning & Analysis, +\$3.1M**
    - Expense indirect in support of the larger capital program, \$1.1M
    - Colstrip Montana study, \$700K
    - Wind integration- integration studies, network open season, WIT, \$900K
    - Asset management, \$200K
    - Non-wires, \$100K
    - Grid modeling software, \$100K
  - **Regulatory & Association Fees, +\$1.7M**
    - Support for NERC CIP compliance requirements, \$1.3M
    - Radio frequency support relicensing, \$550K
- **FY 2012-2013 IPR Changes:**
  - **\$2.1M/year Technology Innovation - reflects the R&D requested increases**
  - **\$1M/year Regulatory - E-Discovery and OATT Risk Mitigation**



# Wind Costs- Multiple Programs

## Wind Integration: FY 2010 Forecast WIT/WIND Budget vs. Actuals

	<b>Budget (Forecasted start of FY10)</b>	<b>Actuals (Through 5/12/10)</b>	<b>EOY Forecast<sup>3</sup> (Approx. by 9/30/10)</b>
<b>Capital Program (Direct cost Gen Interconnection work)</b>	\$63,809,900	\$11,676,662	\$35,658,214
<b>Expense Program</b>			
▪ <b>Technical Operations (WIT)<sup>1/2/</sup></b>	\$4,950,000	\$1,443,300	\$3,000,000
▪ <b>Control Center Support (WIT)</b>	Included in TO Budget for WIT	Included in TO Budget for WIT	Included in TO Budget for WIT
▪ <b>Marketing, Business Strategy and Assessment (WIND)</b>	Included in TO Budget for WIT	Included in TO Budget for WIT	Included in TO Budget for WIT
Internal Reimbursables— <b>Renewables Mitigation (Transmission billed to Power)</b>	\$1,050,000	\$1,050,000	\$1,050,000

Notes:

1. Beginning FY11, budgets for Marketing and sales WIT and WIND activities would be carried under the Marketing Program instead of Technical Operations Program.
2. FY10 budgets and actuals in the Technical Operations Program includes costs for WIND and WIT from the Marketing and Sales organization.
3. End of Year Forecast is an approximation based on actuals to date.



## Wind Integration: FY 2011-2014 Forecast

	2011 Estimate	2012 Estimate	2013 Estimate	2014 Estimate
<b>Capital Program (Direct Cost Gen Interconnection)</b>	\$57,784,700	\$35,266,700	\$36,450,300	\$24,328,500
<b>Expense Program</b>				
<b>Technical Operations (WIT) <sup>1</sup></b>	\$300,000	\$300,000	\$300,000	\$300,000
<b>Control Center Support (WIT)</b>	\$300,000	\$300,000	\$300,000	\$300,000
<b>Marketing, Business Strategy and Assessment (WIND) <sup>2</sup></b>	\$238,000	\$244,000	\$250,000	\$256,353
<b>Internal Reimbursables <sup>3</sup></b>	\$2,220,000	\$2,275,500	\$2,332,387	\$2,390,697

### Notes:

1. Beginning FY11, budgets for Marketing and Sales WIT and WIND activities would be carried under the Marketing Program instead of Technical Operations Program.
2. FY10 budgets and actuals in the Technical Operations Program includes costs for WIND and WIT from the Marketing and Sales organization.
3. In FY12 and FY13, Transmission's share of Corporate and Legal WIT expenses will be \$210,000 each year.



# IPR – Transmission 5% Cost Reduction Scenario



## Summary Cost Reduction

<b>TRANSMISSION 5% REDUCTIONS BY PROGRAM</b>						
	<b>FY12 Cut</b>	<b>FY 13 Cut</b>	<b>FY 12 IPR</b>	<b>FY 13 IPR</b>	<b>FY 12 Cut as % of Budget</b>	<b>FY 13 Cut as % of Budget</b>
<b>Business Support</b>	\$2,551,128	\$2,628,091	\$43,744,930	\$44,875,025	5.8%	5.9%
<b>Marketing</b>	\$1,426,913	\$1,456,697	\$17,863,515	\$18,207,317	8.0%	8.0%
<b>Non-BBL</b>	\$111,536	\$112,111	\$13,483,595	\$13,618,431	0.8%	0.8%
<b>System Engineering</b>	\$1,900,183	\$1,994,023	\$34,522,084	\$35,578,604	5.5%	5.6%
<b>System Maintenance</b>	\$7,469,591	\$7,730,113	\$150,425,136	\$154,468,240	5.0%	5.0%
<b>System Operations</b>	\$2,342,036	\$2,295,110	\$62,918,052	\$64,831,964	3.7%	3.5%
<b>Scheduling</b>	\$ 54,000	\$ 54,000	\$12,821,843	\$13,041,925	0.4%	0.4%
	\$15,855,387	\$16,270,145	\$335,779,155	\$344,621,506	5%	5%



# System Operations – Reduction Scenario (1 of 3)

Transmission System Operations	2012 IPR	2012 IPR Reduction Scenario	Delta	2013 IPR	2013 IPR Reduction Scenario	Delta
CONTROL CENTER SUPPORT	14,137,179	13,022,179	1,115,000	14,554,493	13,413,848	1,140,645
INFORMATION TECHNOLOGY	6,773,896	6,289,460	484,436	6,936,123	6,541,338	394,785
POWER SYSTEM DISPATCHING	12,399,838	12,032,838	367,000	12,816,798	12,441,357	375,441
SUBSTATION OPERATIONS	21,171,176	21,071,176	100,000	21,849,019	21,746,719	102,300
TECHNICAL OPERATIONS	8,435,963	8,160,363	275,600	8,675,531	8,393,592	281,939
<b>Total</b>	<b>62,918,052</b>	<b>60,576,016</b>	<b>2,342,036</b>	<b>64,831,964</b>	<b>62,536,854</b>	<b>2,295,110</b>

Program Line Item	Description of Reduction	Average reduction	Impact of Reduction	Risk: Medium High
Control Center Support	Decrease contractor staffing for technology support	\$850K per year	<p>Could not deliver on both core workload and new initiatives, e.g. renewable generation, Smart Grid, Columbia Grid/Joint Initiatives, synchrophasers, key O&amp;M support for control center automation. Eliminate maintenance support for the Transmission Path Summary application on RODS.</p> <p>Continued delay in completing infrastructure O&amp;M and Preventive Maintenance tasks. The risk is lack of maintenance will eventually lead to failure.</p>	High
	Reduce O&M Support for DC RAS at Munro Control Center. Project has been delayed one year so O&M staffing can also be delayed.	\$140K in FY 2012	Risk of not being prepared to support new equipment once installed	Medium
	Delay full staffing of Control System Monitor administration	\$126k per year	Doesn't fully implement CSM workload structuring effort, risks to not meeting full system monitoring requirements	Medium



## System Operations – Reduction Scenario (2 of 3)

Program Line Item	Description of Reduction	\$ Amount of Reduction	Impact of Reduction	Risk: Medium High
Information Technology	<p>Reduce IT costs by reducing/deferring project planning, enhancements and O&amp;M support costs.</p> <p>Cancel or delay some expense projects in FY12 &amp; FY13 &amp;/or some capital project deliveries in FY10 and FY11 to achieve O&amp;M savings in FY12 and FY13. Projects to be delayed could include parts of Transmission Commercial Systems Reinforcement (TCSR) and OATI enhancements; as well as expansion or support efforts for Transmission Scheduling (TSAS) and Commercial Business Support Application (CBSA) systems as well as non-TCSR IT Change Order Costs.</p> <p>These costs constitute a significant portion of the IT development &amp; support costs required to keep Transmission’s commercial systems current with industry changes, operating efficiently and adapting to the demands of the Transmission Commercial Market growth and evolution.</p>	\$484K per year	<p>This reduction represents about 15-20% of the commercial system costs and presents the following risks.</p> <ul style="list-style-type: none"> <li>▪ Risk of meeting industry timelines for conducting NT business on OASIS</li> <li>▪ Risk of not achieving compliance initiatives in the time frame targeted.</li> <li>▪ Risk of impacting tariff reciprocity and compliance efforts.</li> <li>▪ Risk of not meeting the regions objectives for Wind Integration and other regional Transmission market initiatives , such as Intertie Open Seasons and Redispatch.</li> <li>▪ Risk of system performance and design not keeping up with market trends, demands and internal business information needs.</li> <li>▪ Risk of not being able to offer new market products - which could impact future revenue possibilities.</li> </ul>	High



## System Operations – Reduction Scenario (3 of 3)

Program Line Item	Description of Reduction	\$ Amount of Reduction	Impact of Reduction	Risk: Medium High
Power System Dispatching	Delay full staffing of new Wind/Visualization desk by 1 year	\$200K per year	Unable to effectively manage the growing amount of renewables on the grid	High
	Reduce Dispatcher Training Facility staff	\$192K per year	Shifts additional training work to existing BPA staff and contractors. If work cannot be absorbed there is a risk of not meeting NERC required operator training requirements.	High
Technical Operations	Reduce contract support for operational system studies	\$275K per year	Timeliness and analytical rigor of some operational studies will be reduced. For example, this may result in a more conservative margin for the Dynamic Transfer Capability (DTC) value since engineering judgment may need to be more heavily relied upon.	High
Substation Operations	Reduce contractor support for Operations Technical Manual maintenance	\$101K per year	The Operations Technical Manual is used by field operations staff as a source of technical reference information. Not keeping it up to date impacts the quality of field operations and possibly impairing safe and reliable operations.	Medium



# Marketing– Reduction Scenario (1 of 2)

Transmission Marketing	2012 IPR	2012 IPR Reduction Scenario	Delta	2013 IPR	2013 IPR Reduction Scenario	Delta
MARKETING IT SUPPORT	-	-	-	-	-	-
MKTG BUSINESS STRAT & ASSESS	7,105,219	5,939,719	1,165,500	7,230,923	6,041,273	1,189,650
MKTG CONTRACT MANAGEMENT	4,510,232	4,380,721	129,511	4,603,949	4,471,315	132,634
MKTG TRANSMISSION BILLING	2,622,902	2,491,000	131,902	2,678,722	2,544,309	134,413
MKTG TRANSMISSION FINANCE	306,392	306,392	-	313,561	313,561	-
MKTG TRANSMISSION SALES	3,318,770	3,318,770	-	3,380,162	3,380,162	-
<b>Total</b>	<b>17,863,515</b>	<b>16,436,602</b>	<b>1,426,913</b>	<b>18,207,317</b>	<b>16,750,620</b>	<b>1,456,697</b>

Marketing & Scheduling Programs were evaluated as one program and the reductions were taken solely from the Marketing Program.

Program Line Item	Description of Reduction	\$ Amount	Impact of Reduction	Risk: Medium High
Mktg Transmission Billing	50% Reduction in Customer Support Services' participation in Customer Account Teams	\$132K per year	Limit research and analysis into billing issues, disputes and problems to individual customer billing issues that have a material (1% audit standard revenue impact on the customer.	High
Business Strategy and Assessments	Reduce support of wind initiatives, NERC ATC Standards, Intertie Open Seasons, Redispatch, Network Integration Transmission Services (NITS) OASIS and commercial systems improvements	\$1.17M per year	<ul style="list-style-type: none"> <li>▪ Risk of not meeting industry timelines for conducting NT business on OASIS</li> <li>▪ Risk of not achieving compliance initiatives in the time frame targeted.</li> <li>▪ Risk of impacting tariff reciprocity and compliance efforts.</li> <li>▪ Risk of not meeting the region's objectives for wind integration and other regional Transmission market initiatives, such as Intertie Open Seasons and Redispatch.</li> <li>▪ Risk of system performance and design not keeping up with market trends, demands and internal business information needs.</li> <li>▪ Risk of not being able to offer new market products - which could impact future revenue possibilities.</li> </ul>	High



## Marketing– Reduction Scenario (2 of 2)

Program Line Item	Description of Reduction	\$ Amount	Impact of Reduction	Risk: Medium High
Mktg Contract Management	Reduce contract support	\$130K per year	Lengthen the time to validate and make contract data available to downstream systems and customer contract data management.	Medium



# Business Support – Reduction Scenario (1 of 3)

Transmission Business Support	2012 IPR	2012 IPR Reduction Scenario	Delta	2013 IPR	2013 IPR Reduction Scenario	Delta
AIRCRAFT SERVICES	2,378,897	2,249,274	129,623	2,444,578	2,303,950	140,628
EXECUTIVE & ADMIN SERVICES	18,241,611	17,281,611	960,000	18,601,352	17,615,493	985,859
GENERAL ADMINISTRATIVE	13,052,128	12,852,128	200,000	13,337,294	13,137,294	200,000
LEGAL SUPPORT - EXPENSE	3,186,933	3,028,352	158,581	3,429,120	3,258,447	170,673
LOGISTICS SERVICES	5,907,829	4,904,905	1,002,924	6,061,368	5,032,737	1,028,631
SECURITY ENHANCEMENTS EXPENSE	977,532	877,532	100,000	1,001,313	899,013	102,300
<b>Total</b>	<b>43,744,930</b>	<b>41,193,802</b>	<b>2,551,128</b>	<b>44,875,025</b>	<b>42,246,934</b>	<b>2,628,091</b>

Program Line Item	Description of Reduction	\$ Amount	Impact of Reduction	Risk: Medium High
Aircraft Services	Reduce airplane flight hours to support transportation needs of the agency.	\$195K per year	Reduced availability to provide contract support for transportation when TC does not have aircraft assets to meet customer needs. Employees will need to take commercial carrier which may be at higher cost and longer travel time.	Medium
Executive & Admin Services and General Admin.	Reduced funding to appropriately staff customer support functions. Sample reductions include not implementing sub-hourly billing products and services during FY 2012-13, limiting the number of meter 'communication' conversions (for example, from cellular to Transmission Control Protocol/Internet Protocol) to the current 30 per year, and reducing research and analysis into billing issues, disputes and problems to individual customer billing issues that have a material (1% audit standard) revenue impact on the customer.	\$960K per year	<p>Increased risk exposure from A-123 internal control findings associated with system and process deficiencies and lack of remediation.</p> <p>Reduced response timeliness to customer information requests into metering, billing, contracts, and load forecasts issues that affect customers</p> <p>Reduced bill, meter and load forecast data QC checks</p> <p>Reduced validation of compliance with internal contract policies and standards, and contract authentication</p> <p>Reduced analytical support associated with policy decision impacts on customer support systems and processes</p> <p>Reduced support and responsiveness to AE Customer Account Teams</p>	High



## Business Support – Reduction Scenario (2 of 3)

Program Line Item	Description of Reduction	\$ Amount	Impact of Reduction	Risk: Medium High
Executive & Admin Services and General Admin.	Reduce Corporate risk office support	continued	Increases risk of failing to identify and appropriately mitigate key enterprise risks. General slowing of the BPA's Business Continuity program, reducing its ability to effectively respond to a significant disruptive event.	High
	Reduce OWCP Forecast		Uncertainty of medical costs and compensation obligations. OWCP budget set at 2.2% greater than current year's forecasted actuals.	Medium
General Administrative	Reduce support for compliance program	\$140K per year	Decrease in supplemental labor impacts compliance-related work; increases risk in meeting timelines; affects key agency transmission reliability target.	High
	Reduce Transmission student tuition reimbursement	\$60K per year	Impacts prior commitment with existing students to fund tuition; may create inability to attract high caliber talent for succession planning	Medium
Legal Support Expense	No Legal hearing officer services provided in FY12 and forego FY13 second hearing officer and arbitration services. Services would have provided support for the number and complexity of new pricing issues facing Transmission as a consequence of wind integration, the stepped-up capital program, and FERC's recent NOI on renewables integration	\$158K per year	Increases risk of identifying early-on potential customer contract implementation issues, avoiding implementation mistakes, and rectifying contract issues, post-execution. Although 2012 is an-off rate case year, it is prudent to budget for a hearing officer. If the hearing officer is cut it will leave Transmission in the position of having to self-fund these services. Cutting one of the hearing officers runs a high risk of procedural errors and customer dissatisfaction.	High





## Business Support – Reduction Scenario (3 of 3)

Program Line Item	Description of Reduction	\$ Amount	Impact of Reduction	Risk: Medium High
Logistic Services	<p>Reduce level of support for Logistic Services through reducing the amount of transportation services available to Transmission for delivery of materials, e.g. transformer oil delivery</p> <p>Reduce or eliminate Cycle counts for inventory,</p> <p>Reduce crew / vehicle / equipment movement,</p> <p>Eliminate custom spooling of wire</p> <p>Eliminate sorts in asset utilization and return only factory sealed boxes</p> <p>Reduce the number of Contracting Officer Assistants supporting the Contracting Officers for Capital and O&amp;M procurement</p>	\$1M per year	<p>Overall reductions result in a high risk of negative impact on capital program execution. Reduced special delivery runs could impact project schedules.</p> <p>A reduction in staff (5%) will result in FERC mandated cycle counts being reduced or suspended.</p> <p>Shifts workload to Transmission Force Account and Maintenance.</p> <p>Only full spools will be sent to the field for construction projects, resulting in extra costs to the project and additional waste.</p> <p>Disposing partial cases that contain useable material, will increase costs to projects (that would otherwise receive credit for the return)</p> <p>Project start dates will be put at risk since Supply Chain Services may not be able to meet contract timelines and HCA and DOE IG mandated document storage policies.</p>	<p>High</p> <p>Medium</p> <p>High</p> <p>Medium</p> <p>Medium</p> <p>High</p>
Security Enhancements	Limit security system alarms response to normal business hours. Do not allow use over-time for response after hours, weekends, overnight, etc.	\$101K per year	Impact would be exposure to security breaches beyond core business hours.	High



# System Maintenance – Reduction Scenario (1 of 3)

Transmission Maintenance	2012 IPR	2012 IPR Reduction Scenario	Delta	2013 IPR	2013 IPR Reduction Scenario	Delta
ENVIRONMENTAL ANALYSIS	80,952	76,905	4,047	81,762	77,674	4,088
HEAVY MOBILE EQUIPMENT MAINT	0	0	-	0	0	-
JOINT COST MAINTENANCE	206,741	206,741	-	213,312	213,312	-
NON-ELECTRIC MAINTENANCE	29,752,254	26,558,816	3,193,438	30,272,207	26,916,045	3,356,162
POLLUTION PREVENTN & ABA TEMENT	4,174,698	3,972,593	202,106	4,261,470	4,054,618	206,853
POWER SYSTEM CONTROL MAINT	13,510,531	13,110,531	400,000	13,942,646	13,533,446	409,200
ROW MAINTENANCE	24,672,429	24,172,429	500,000	25,299,601	24,788,101	511,500
SUBSTATION MAINTENANCE	29,815,256	27,965,256	1,850,000	30,678,013	28,786,063	1,891,950
SYSTEM MAINTENANCE MANAGEMENT	6,351,940	6,031,940	320,000	6,549,743	6,222,383	327,360
SYSTEM PROTECTION CONTRL MAINT	12,898,096	12,798,096	100,000	13,316,452	13,214,152	102,300
TECHNICAL TRAINING	2,915,964	2,815,964	100,000	3,013,210	2,910,910	102,300
TRANSMISSION LINE MAINTENANCE	26,046,274	25,246,274	800,000	26,839,823	26,021,423	818,400
<b>Total</b>	<b>150,425,136</b>	<b>142,955,545</b>	<b>7,469,591</b>	<b>154,468,240</b>	<b>146,738,127</b>	<b>7,730,113</b>

Program Line Item	Description of Reduction	\$ Amount	Impact of Reduction	Risk: Medium High
Non-Electric Maintenance	Delay lowest priority projects from backlog of deferred non-electric facilities maintenance.	\$3.1M per year	Deferral of work will incur higher costs in outyears, Emergency repairs may increase with higher costs and newly identified non-electric projects may not be addressed.	Medium
Pollution Prevention and Abatement	Reduce service contracts needed for cleanup and disposal of contaminated items.	\$200K per year	Reduction would put at risk the ability to be in compliance with environmental requirements.	High
Power System Control Maintenance	Delay the backlog reduction of community system documentation.	\$400K per year	Inaccurate communication system documentation will reduce crew efficiency and decrease system reliability and worker safety.	High



## System Maintenance – Reduction Scenario (2 of 3)

Program Line Item	Description of Reduction	\$ Amount	Impact of Reduction	Risk: Medium High
ROW Maintenance	Reduce all expense really activities not directly associated with clearing vegetation hazards on ROW.	\$500K per year	The elimination of off ROW vegetation management will increase outages to off ROW vegetation impacting reliability.	High
Substation Maintenance	Reduce corroded equipment painting program.	\$100K per year	Will increase costs in outyears. Shortens asset life. Requires more emergency response due to catastrophic failure. Corroded towers increase safety risk.	Medium
	Reduce quality control program.	\$100K per year	Increases programmatic risk and potential for compliance issues.	High
	Reduce load tap changer factory support; delay repair of two leaking transformers; defer maintenance on U bushings.	\$1.05M per year	Increased risk of violent equipment failures, environmental noncompliance, and reduction of system reliability	High
	Reduce seismic hardening.	\$250K per year	Delay restoration following a seismic event. Would increase the scope of outages from a seismic event.	Medium
	Abolish implementation of the lab business case recommendations.	\$350K per year	Deteriorates the labs resulting in an eventual closure, stranding investments, outsourcing of work at higher costs (up to 300% more). Diminishes BPA's recognized expertise in the industry and ability to provide expert services.	High



## System Maintenance – Reduction Scenario (3 of 3)

Program Line Item	Description of Reduction	\$ Amount	Impact of Reduction	Risk: Medium High
System Maintenance Management	Delay centralized work planning and evaluation initiative and new processes.	\$320K per year	Decreased crew efficiency, system availability, and potential for under-delivery on maintenance programs and unavailability of staff for capital work	High
System Protection Control Maintenance	Reduce bench and field testing of new technology for relays and controls	\$100K per year	Increases risk for system reliability because we will be installing equipment that has not been sufficiently tested.	High
Technical Training	Reduce technical expertise for apprenticeship and craftsmen programs.	\$100K per year	Results in less thorough training program and less skilled workforce. Potential for increased human and operating errors, negatively impacting reliability and safety.	High
Transmission Line Maintenance	Reduce the helicopter air patrol program.	\$300K per year	Reduces in detailed line inspections results in unknown condition assessments and a potential for emergency failures.	High
	Reduce safety initiative for re-signing towers.	\$500K per year	Increase operational errors and safety risk. Shifts costs to the next rate period.	High



# Engineering – Reduction Scenario

Transmission Engineering	2012 IPR	2012 IPR Reduction Scenario	Delta	2013 IPR	2013 IPR Reduction Scenario	Delta
CAPITAL TO EXPENSE TRANSFER	4,032,000	4,000,000	32,000	4,072,320	4,000,000	72,320
ENVIRONMENTAL POLICY/PLANNING	1,823,179	1,739,763	83,416	1,854,449	1,769,650	84,798
REGULATORY COSTS	7,700,268	7,249,907	450,361	7,867,689	7,407,208	460,481
RESEARCH & DEVELOPMENT	8,688,116	8,253,710	434,406	9,114,490	8,658,766	455,724
TSD PLANNING & ANALYSIS	12,278,522	11,378,522	900,000	12,669,656	11,748,956	920,700
<b>Total</b>	<b>34,522,085</b>	<b>32,621,902</b>	<b>1,900,183</b>	<b>35,578,604</b>	<b>33,584,581</b>	<b>1,994,023</b>

Program Line Item	Description of Reduction	\$ Amount	Impact of Reduction	Risk: Medium High
Environmental Policy & Planning	Reduce support for NEPA and NHPA coverage for projects	\$84K per year	Would place BPA in jeopardy of not being in compliance with Federal law and risk lawsuits or directives of non-compliance that could shut down or delay projects.	High
Regulatory Costs	Reduce grid operations information system security management (ISSM) office support.	\$450K per year	Increased risk of meeting cyber security mandatory requirements, e.g. Smart Grid, CIP Version 3&4, and Critical Cyber Assets in field locations.	High
Research & Development	Reduce funding of R&D Technology Innovation projects. Negate the Technology Innovation Program budget ramp-up to reach one half of one percent.	\$444K per year	<p>Jeopardizes achievement of incremental improvements in real time grid operation capability, which is expected to add 100-500MW during nonpeak hours for many paths without building new transmission lines. Estimated savings are project to be \$250k to \$1M per year.</p> <p>Puts at risk advancement in seismic standards, equipment stabilization and hardening, thereby reducing BPA's seismic preparedness capabilities in face of the expected 9 magnitude subduction earthquake overdue in the Pacific Northwest.</p>	High



## Engineering – Reduction Scenario

Program Line Item	Description of Reduction	\$ Amount	Impact of Reduction	Risk: Medium High
TSD Planning & Analysis	<p>Reduction in internal construction services in support of the capital program.</p> <p>After completion of the Montana Colstrip study in FY11, fund no additional study work in the area of planning and/or asset management.</p>	<p>\$304K per year</p> <p>\$607K per year</p>	<p>Will not meet the commitment to develop and complete BPA capital projects (including meeting NERC reliability criteria), customer requested projects, and interconnection of renewable generation.</p> <p>Reduced support for capital program and inability to complete planning studies for wind integration requests.</p>	<p>High</p> <p>High</p>



# Next Steps

## Detailed Workshop Schedule

### 2010 Integrated Program Review (IPR) Workshop Schedule

\*All workshops are subject to change as necessary\*

	Workshop Topic	Date	Time
-	<b>Asset Management Overview</b> <i>Pre-IPR meeting held at the Quarterly Business Review</i>	May 3, 2010	3:00-4:00 PM
1	<b>Executive Welcome and Overview</b> <i>Executive Welcome, Introductions, Process Overview Power, Transmission, Corporate overview</i>	May 10, 2010	9:00-1:00 PM
2	<b>Federal Hydro Asset Strategy &amp; Capital Discussion</b> <i>FCRPS Hydro Asset Strategy Federal Hydro Capital Program for FY 2012-17</i>	May 13, 2010	9:00-12:00 PM
3	<b>Transmission Asset Strategies &amp; Capital Discussion</b> <i>Transmission Asset Strategies Transmission Capital Programs for FY 2012-17</i>	May 17, 2010	9:00-4:00 PM
4	<b>Transmission Expense</b> <i>Transmission Expense Programs for FY 2012-13</i>	May 18, 2010	9:00-12:00 PM
5	<b>Transmission Overflow</b> <i>Discuss Remaining Topics, Follow Ups, Etc.</i>		1:00-4:00 PM
6	<b>Power Internal Operating Costs, Acquisition/Ancillary Services &amp; Residential Exchange</b> <i>Power Internal Operating Cost for FY 2012-13 Power Acquisition and Ancillary Services for FY 2012-13 Residential Exchange Program for FY 2012-13</i>	May 19, 2010	9:00-12:00 PM
7	<b>Columbia Generating Station (CGS)</b> <i>CGS Expense and Capital Program for FY 2012-17</i>		1:00-4:00 PM





## Detailed Workshop Schedule

### 2010 Integrated Program Review (IPR) Workshop Schedule

\*All workshops are subject to change as necessary\*

	Workshop Topic	Date	Time
8	<b>FCRPS Hydro Operation &amp; Maintenance Program and Cultural Resources</b> <i>FCRPS Hydro O&amp;M Program for FY 2012-13</i> <i>Cultural Resources Program</i>	May 20, 2010	9:00-12:00 PM
9	<b>Fish &amp; Wildlife, Lower Snake River Comp (LSRC) and Northwest Power Planning Council (NWPPC)</b> <i>F&amp;W Expense &amp; Capital Program for FY 2012-17</i> <i>LSRC Program for FY 2012-13</i> <i>NWPPC Expense Program for FY 2012-13</i> <i>Columbia River Fish Mitigation (CRFM) FY 2012-17</i>		1:00-4:00 PM
10	<b>Power Overflow</b> <i>Discuss Remaining Topics, Follow Ups, Etc.</i>	May 24, 2010	9:00-12:00 PM
11	<b>Energy Efficiency &amp; Renewable Resources</b> <i>Energy Efficiency Expense &amp; Capital Program for FY 2012-17</i> <i>Renewable Resources for FY 2012-13</i>		1:00-4:00 PM
12	<b>Facilities Asset Strategy</b> <i>Facilities Asset Strategy</i>	May 25, 2010	9:00-10:30 AM
13	<b>Information Technology (IT) Asset Strategy</b> <i>IT Asset Strategy</i>		10:30-12:00 PM
14	<b>Agency Services</b> <i>Agency Services Expense &amp; Capital Programs for FY 2012-2017</i>		1:00-4:00 PM
15	<b>General Manager Meeting</b>	June 8, 2010	9:00-12:00 PM
16	<b>General Manager Meeting</b>	July 13, 2010	9:00-12:00 PM



## Ways to Participate

- All forums are open to the public and will be noticed on the Integrated Program Review (IPR) external website at: <http://www.bpa.gov/corporate/Finance/IBR/IPR/>.
- Representatives from the Corps of Engineers, Bureau of Reclamation and Energy Northwest will be participating in the IPR process including presentations.
- All technical and managerial workshops will be held at BPA Headquarters.
- If participating by phone please dial into the bridge at 503-230-5566, then any time during or after the message and the double beep, enter 3981#. Presentation material will be posted on the IPR external website prior to the workshop taking place.
- The IPR process will include a public comment period for proposed program spending levels. The comment period opens May 10, 2010 and will close on July 29, 2010.
- Comments can be submitted at any of the scheduled workshops or submitted in writing to:
  - Bonneville Power Administration, P.O. Box 14428, Portland, OR 97293-4428,
  - Email to [comment@bpa.gov](mailto:comment@bpa.gov),
  - Faxed to (503) 230-3285



## BPA's Financial Disclosure Information

- All FY 2010-2017 information has been made publicly available by BPA on May 14, 2010 and does not contain Agency-approved Financial Information.
- All FY 2005-2009 information has been made publicly available by BPA and contains Agency-approved Financial Information.
- All FY 2011 Rate Case data has been developed for publication in rates proceeding documents and is being provided by BPA.

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