NOTICE OF CONFIDENTIALITY*:*
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BEFORE THE PUBLIC UTILITIES COMMISSION
OF THE STATE OF COLORADO

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RE: IN THE MATTER OF ADVICE LETTER NO. 1672-ELECTRIC FILED BY PUBLIC SERVICE COMPANY OF COLORADO TO REVISE ITS COLORADO PUC NO. 7-ELECTRIC TARIFF TO IMPLEMENT A GENERAL RATE SCHEDULE ADJUSTMENT AND OTHER RATE CHANGES EFFECTIVE JULY 18, 2014.	**) PROCEEDING NO. 14AL-________E**

DIRECT TESTIMONY AND ATTACHMENTS OF MARK R. FOX

ON

BEHALF OF

PUBLIC SERVICE COMPANY OF COLORADO

June 17, 2014

**BEFORE THE PUBLIC UTILITIES COMMISSION
OF THE STATE OF COLORADO**

* * * * *

RE: IN THE MATTER OF ADVICE LETTER NO. 1672-ELECTRIC FILED BY PUBLIC SERVICE COMPANY OF COLORADO TO REVISE ITS COLORADO PUC NO. 7-ELECTRIC TARIFF TO IMPLEMENT A GENERAL RATE SCHEDULE ADJUSTMENT AND OTHER RATE CHANGES EFFECTIVE JULY 18, 2014.	**) PROCEEDING NO. 14AL-________E**

SUMMARY OF DIRECT TESTIMONY OF MARK R. FOX

Mr. Mark R. Fox is the General Manager, Power Production, Public Service Company of Colorado ("Public Service" or "Company"). In this position, Mr. Fox is the person with primary responsibility for overseeing the construction, operations and maintenance ("O&M"), and decommissioning of Public Service's generation fleet.

In his Direct Testimony, Mr. Fox supports the $401.7 million in 2014 generation capital additions and $728.6 million in 2015 generation capital additions that Company witness Ms. Lisa Perkett utilizes to develop the plant-related roll forward, which is in turn used by Company witness Ms. Deborah Blair to calculate the 13-month average plant in service balance included in the Company's January 1, 2015 through December 31, 2015 Test Year ("Test Year") rate base. Mr. Fox also supports the $176.1 million in adjusted 2013 O&M expenses that are included in the Test Year cost of service.

In support of these requests, Mr. Fox provides an overview of the Company's generation fleet and operations; describes the Company's implementation of its compliance plan under the Clean Air-Clean Jobs Act ("CACJA"), including current budgets and a discussion of variances from prior project estimates; describes how the Company budgets are developed for generation-related projects other than CACJA projects; identifies the Company's generation-related capital additions and planned decommissionings in 2014 and 2015 that are reflected in the Test Year presented by Ms. Blair; and discusses the generation-related O&M expenses that are reflected in the Test Year. Mr. Fox notes that the Company's 2013 O&M expenses are subject to adjustments to reflect reduced non-labor O&M expenses as a result of the Arapahoe 4 decommissioning, increased base commodities costs associated with new or upgraded generation facilities for CACJA compliance, and elimination of a non-recurring expense, in addition to an adjustment for labor expenses explained by Company witness Ms. Ruth Lowenthal.

With respect to the Company's implementation of its CACJA compliance plan, Mr. Fox notes that while there are variances for each project, the most significant being for the Pawnee emissions control project, the Company's implementation of its CACJA plan is now projected to be less than what the Company projected in Proceeding No. 10M-245E, where the Commission approved of the Company's CACJA compliance plan. In addition to presenting projected capital additions and O&M costs for CACJA projects that impact the Test Year cost of service, Mr. Fox also gives an estimate of the CACJA-related capital additions that the Company expects to incur in 2016 and 2017, which the Company proposes to recover through a CACJA rider, subject to true-up. The CACJA rider is discussed in more detail by Company witnesses Ms. Alice Jackson and Mr. Scott Brockett.

Mr. Fox also describes the metrics used in the Company's proposed generation performance benchmarking plan – the Equivalent Availability Factor Mechanism – which is also discussed by Ms. Jackson and included into the modified Electric Commodity Adjustment clause presented by Mr. Brockett. This mechanism will provide an incentive for the Company to improve unit availability and a penalty if performance falls below specified levels. As Mr. Fox explains, using the Equivalent Availability Factor ("EAF") reported into the North America Electric Reliability Corporation ("NERC") Generating Availability Data System ("GADS"), as adjusted for certain identified special circumstances, the plan will benchmark the performance of the Company's Comanche, Hayden, Pawnee, Fort St. Vrain, Rocky Mountain Energy Center, and Cherokee Unit 4 generating units against historic performance levels.

Mr. Fox recommends that the Colorado Public Utilities Commission ("Commission") approve the $401.7 million in 2014 generation capital additions and $728.6 million in 2015 generation capital additions presented in my testimony as reasonable and necessary to support Public Service's generation operations; that the Commission approve the 2013 O&M expense of $176.1 million, as adjusted, as reasonable and necessary to support Public Service's generation operations; and that the Commission find that both levels of costs are a reasonable basis to set rates in the Test Year cost of service.

BEFORE THE PUBLIC UTILITIES COMMISSION
OF THE STATE OF COLORADO

* * * * *

RE: IN THE MATTER OF ADVICE LETTER NO. 1672-ELECTRIC FILED BY PUBLIC SERVICE COMPANY OF COLORADO TO REVISE ITS COLORADO PUC NO. 7-ELECTRIC TARIFF TO IMPLEMENT A GENERAL RATE SCHEDULE ADJUSTMENT AND OTHER RATE CHANGES EFFECTIVE JULY 18, 2014.	**) PROCEEDING NO. 14AL-________E**

DIRECT TESTIMONY AND ATTACHMENTS OF MARK R. FOX

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Attachment No. MRF-2	Cherokee 2x1 Combined Cycle Project Capital Cost Estimate
HIGHLY CONFIDENTIAL Attachment No. MRF-2A	Highly Confidential Version of Cherokee 2x1 Combined Cycle Project Capital Cost Estimate
Attachment No. MRF-3	Hayden SCR Project Capital Cost Estimate
HIGHLY CONFIDENTIAL Attachment No. MRF-3A	Highly Confidential Version of Hayden SCR Project Capital Cost Estimate
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GLOSSARY OF ACRONYMS AND DEFINED TERMS

Acronym/Defined Term	Meaning
CACJA	Clean Air-Clean Jobs Act
Commission	Colorado Public Utilities Commission
CPCN	Certificate of Public Convenience and Necessity
CT	Combustion Turbine
ECA	Electric Commodity Adjustment
EAF	Equivalent Availability Factor
EAFPM	Equivalent Availability Factor Performance Mechanism
EPM	Enterprise Project Management
ERP	Electric Resource Plan
FERC	Federal Energy Regulatory Commission
GAAP	Generally Acceptable Accounting Principles
GADS	Generating Availability Data System
IRS	Internal Revenue Service
NERC	North America Electric Reliability Corporation
NMC	Net Maximum Capacity
NOx	Nitrous Oxides
O&M	Operations and Maintenance
OMC	Outside Management Control

Acronym/Defined Term	Meaning
PCCA	Purchased Capacity Cost Adjustment
PM	Project Manager
Public Service, or Company	Public Service Company of Colorado
RPC	Regional Planning Committee
SCR	Selective Catalytic Reduction
SO2	Sulfur Dioxide
Test Year	January 1, 2015 through December 31, 2015
Tri-State	Tri-State Generation and Transmission
Xcel Energy	Xcel Energy Inc.
XES	Xcel Energy Services Inc.

**BEFORE THE PUBLIC UTILITIES COMMISSION
OF THE STATE OF COLORADO**

** * * * * **

RE: IN THE MATTER OF ADVICE LETTER NO. 1672-ELECTRIC FILED BY PUBLIC SERVICE COMPANY OF COLORADO TO REVISE ITS COLORADO PUC NO. 7-ELECTRIC TARIFF TO IMPLEMENT A GENERAL RATE SCHEDULE ADJUSTMENT AND OTHER RATE CHANGES EFFECTIVE JULY 18, 2014.	**) PROCEEDING NO. 14AL-________E**

<u>DIRECT TESTIMONY AND ATTACHMENTS OF MARK R. FOX</u>

I. <u>INTRODUCTION, QUALIFICATIONS, PURPOSE OF TESTIMONY, AND RECOMMENDATIONS</u>

Q. PLEASE STATE YOUR NAME AND BUSINESS ADDRESS.

A. My name is Mark R. Fox. My business address is 5460 W. 60th Avenue, Arvada, Colorado 80003.

Q. BY WHOM ARE YOU EMPLOYED AND IN WHAT CAPACITY?

A. I am employed by Public Service Company of Colorado ("Public Service" or "Company") as General Manager, Power Production.

Q. ON WHOSE BEHALF ARE YOU TESTIFYING IN THE PROCEEDING?

A. I am testifying on behalf of Public Service.

Q. PLEASE BRIEFLY EXPLAIN YOUR DUTIES AND RESPONSIBILITIES.

A. Within the Energy Supply Business Area, I have primary responsibility for overseeing the construction, operations and maintenance ("O&M"), and decommissioning of Public Service's generation fleet. In this capacity, I am responsible for the development and execution of O&M and capital budgets for these units. A statement of my education and relevant experience is set forth in Attachment A.

Q. WHAT IS THE PURPOSE OF YOUR DIRECT TESTIMONY?

A. The purpose of my testimony is to support the $401.7 million in 2014 generation capital additions and $728.6 million in 2015 generation capital additions that Company witness Ms. Lisa Perkett utilizes to develop the plant-related roll forward, which is in turn used by Company witness Ms. Deborah Blair to calculate the 13-month average plant in service balance included in the Company's January 1, 2015 through December 31, 2015 Test Year ("Test Year") rate base.

I also support $176.1 million in adjusted 2013 O&M expenses for the Energy Supply Business Area that are included in the Test Year cost of service. The O&M costs that I support reflect actual labor costs incurred in 2013 for Energy Supply. Company witness Ms. Ruth Lowenthal supports the increase in labor expenses due to merit and base salary increases for non-bargaining and bargaining employees through December 31, 2015, and Ms. Blair quantifies the increase in total labor expenses included in the Test Year.

To support the generation capital additions for 2014 and 2015 and Energy Supply's O&M expenses included in the Test Year, I provide the following:

- A description of the Company's generation fleet and operations;

- Support for the Company's implementation of its Commission-approved plan under the Clean Air-Clean Jobs Act ("CACJA"). As part of this support, I provide current budgets for our CACJA projects, explaining variances from the capital expenditure estimates we previously provided to the Commission in the course of certificate of public convenience and necessity ("CPCN") or other related proceedings for these projects, and also comparing our currently budgeted capital costs to implement our CACJA compliance plan to what we estimated in our CPCN requests;
- Details regarding the Company's budgeting process for generation-related capital projects other than CACJA projects;
- Identification of the Company's generation-related capital additions and planned decommissions in 2014 and 2015 that are reflected in the Test Year; and
- Support for the level of generation-related O&M expenses (other than the anticipated increase to the labor portion of these expenses, which is supported by Ms. Lowenthal and Ms. Blair) reflected in the Test Year, including proposed adjustments to reflect reduced non-labor O&M expenses as a result of the Arapahoe 4 decommissioning, increased base commodities costs associated with new or upgraded generation facilities for CACJA compliance, and elimination of a non-recurring expense.

In presenting projected capital and O&M cost information, I also provide estimates of, and support for, the CACJA related capital additions that the Company requests to recover in 2016 and 2017 through the Company's proposed CACJA rider. The CACJA rider is discussed in more detail by Company witnesses Ms. Alice K. Jackson and Mr. Scott Brockett.

I also describe the metrics used in the Company's proposed Generation Performance Benchmarking Plan – the Equivalent Availability Factor Performance Mechanism ("EAFPM") – which is also discussed by Ms. Jackson and included into the modified Electric Commodity Adjustment ("ECA") clause presented by Mr. Brockett. This mechanism will provide an incentive for the Company to improve unit availability and a penalty if performance falls below specified levels. Using the Equivalent Availability Factor ("EAF") reported into the North America Electric Reliability Corporation ("NERC") Generating Availability Data System ("GADS"), as adjusted for certain identified special circumstances, the plan will benchmark the performance of the Company's Comanche, Hayden, Pawnee, Fort St. Vrain, Rocky Mountain Energy Center, and Cherokee Unit 4 generating units against historic performance levels.

Q. ARE YOU SPONSORING ANY ATTACHMENTS WITH YOUR TESTIMONY?

A. Yes. I am sponsoring the following Attachments:

- Attachment No. MRF-1 (Energy Supply Capital Additions 2014 and 2015);
- The public and highly confidential version of Attachment No. MRF-2 (Cherokee 2x1 Combined Cycle Project Capital Cost Estimate);
- The public and highly confidential version of Attachment No. MRF-3 (Hayden SCR Project Capital Cost Estimate);

- The public and highly confidential version of Attachment No. MRF-4 (Pawnee SCR and Scrubber Project Capital Cost Estimate); and
- Attachment No. MRF-5 (2013 O&M Expenditures by Object and Federal Energy Regulatory Commission ("FERC") Account)

Q. WHAT RECOMMENDATIONS ARE YOU MAKING IN YOUR TESTIMONY?

A. I recommend that the Commission approve the $401.7 million in 2014 generation capital additions and $728.6 million in 2015 generation capital additions presented in my testimony as reasonable and necessary to support Public Service's generation operations; that the Commission approve the 2013 O&M expense of $176.1 million, as adjusted, as reasonable and necessary to support Public Service's generation operations; and that the Commission find that both levels of costs are a reasonable basis to set rates in the Test Year cost of service.

II. ENERGY SUPPLY FUNCTIONS AND ACTIVITIES

Q. PLEASE PROVIDE AN OVERVIEW OF THE COMPANY'S GENERATION BUSINESS AREA.

A. Public Service's generation activities are to a large extent centrally managed by the Energy Supply Business Area of Xcel Energy Services Inc. ("XES"), Public Service's service company affiliate. By coordinating activities through XES, the Xcel Energy Inc. ("Xcel Energy") utility companies are able to share best practices and achieve efficiencies. The focus of Energy Supply is to help coordinate and to provide support services for the construction, operation, maintenance, decommissioning, and dismantling of the electric generating facilities of Public Service and its sister utility companies within the Xcel Energy Inc. system in a safe, reliable, cost-effective, and environmentally-sound manner. Energy Supply is also responsible for electric generation dispatch and environmental compliance oversight for these generating plants.

There are a total of approximately 2,215 employees in the Energy Supply Business Area in the Xcel Energy system. Of this number, Public Service employs approximately 820 people, most of whom work in our generation plants.

Q. PLEASE DESCRIBE PUBLIC SERVICE'S GENERATION PORTFOLIO.

A. Public Service serves its electric, retail, and wholesale customers in Colorado with power purchased pursuant to long-term power purchase agreements or power generated by its own power plants. The focus of my testimony is limited to the generation that is owned by the Company. We recover all of our capacity and energy costs associated with our purchased power resources through a combination of the Purchased Capacity Cost Adjustment ("PCCA") and ECA riders, which are annually reviewed by the Commission in other proceedings, not through base rates.

Public Service's owned generating plants have a net maximum capacity of over 5,400 MW and represent 55 percent of the total generation capacity available to serve our customers. Our generating facilities use a variety of fuel sources including coal, natural gas, water (hydro), and, at present, wind. Table 1 below provides a breakout of Company-owned generation units and total capacity by fuel type.

Table 1
Summary of Current Generation Units and Capacity

Type	**2013**	
	No. of Units	Total MWs
Coal	12	2,661
Gas	16	2,158
Mixed Fuel	2	244
Hydro	11	350
Wind	1	26

In 2018, after the implementation of our CACJA compliance plan and the retirement of Arapahoe Unit 4 and the Ponnequin wind units, the profile of our generation fleet will be as shown in Table 2 below.

Table 2
Summary of Post-CACJA Generation Units and Capacity

Type	2018	
	No. of Units	Total MWs
Coal	8	2,008
Gas	21	3,079
Mixed Fuel	1	60
Hydro	11	350
Wind	0	0

Q. PLEASE IDENTIFY THE CURRENT GENERATING UNITS IN PUBLIC SERVICE'S GENERATION PORTFOLIO.

A. Public Service's current generating fleet presently includes the following facilities, several of which will undergo significant changes pursuant to our CACJA compliance plan that I discuss in more detail later in my testimony:

<u>Coal:</u>

- *Arapahoe Generating Station*: originally consisting of four units, this two-unit 149 MW generating facility located just south of downtown Denver was retired on December 31, 2013;
- *Cherokee Generating Station*: presently a two unit, 504 MW generating facility located just north of downtown Denver. Unit 2 was retired and converted to a synchronous condenser in 2012 and will continue to operate in that mode. Unit 3 will be retired in 2015 after the new combined cycle facility (Units 5, 6, and 7) at Cherokee station is in-service. Unit 4 is fueled by coal but is configured to be gas fired as a support fuel. This unit will be converted to gas-only operation at the end of 2017;

- *Comanche Generating Station*: a three unit, 1,443 MW generating station in which Public Service has rights to 1,182 MW, located in Pueblo, Colorado;
- *Craig Generating Station*: a three unit, 2,183 MW generating facility located in Craig, Colorado in which Public Service has rights to 84 MW of capacity from two units. This facility is operated by Tri-State as part of the Yampa Project;
- *Hayden Generating Station*: a two unit, 446 MW generating facility located in Hayden, Colorado. Public Service operates this plant on behalf of itself and three other co-owners as part of the Yampa Project. Public Service has rights to 237 MW of capacity from the two units. We are adding emissions control equipment to Hayden plant as part of our CACJA compliance plan; and
- *Pawnee Generating Station*: a one unit, 505 MW generating facility located in Brush, Colorado. We are adding emissions control equipment to Pawnee plant as part of our CACJA compliance plan.

<u>Natural Gas:</u>

- *Blue Spruce Energy Center*: a two unit, 300 MW simple cycle generating plant located in Aurora, Colorado;
- *Fort St. Vrain Generation Station*: a six unit, 1,035 MW combined and simple cycle generating plant that was repowered with gas after the nuclear plant on the site was decommissioned in 1989. This facility is located in Platteville, Colorado;

- *Rocky Mountain Energy Center*: a three unit, 615 MW combined cycle generating facility located in Hudson, Colorado;
- *Alamosa*: a two unit, 35 MW simple cycle gas peaking facility, located in Alamosa, Colorado;
- *Ft. Lupton*: a two unit, 100 MW simple cycle gas peaking facility, located in Ft. Lupton, Colorado; and
- *Fruita*: a single unit, 20 MW single cycle gas peaking facility, located in Fruita, Colorado.

Mixed Fuel:

- *Valmont Generating Station*: a two unit, 237 MW generating facility. Unit 5 is a 184 MW coal-fired unit that can also use natural gas as a fuel and will be retired at the end of 2017. Unit 6 is a 53 MW simple cycle combustion turbine that uses natural gas as a fuel. The original four units have been retired. The facility is located in Boulder, Colorado; and
- *Zuni Generating Station*: a one unit, 60 MW generating station fueled by either natural gas or oil, located near downtown Denver.

Hydro:

- *Ames Hydro Generating Station*: A one unit, 3.8 MW generating facility located near Ophir, Colorado;
- *Cabin Creek Generating Station*: A two unit, 324 MW generating facility located near Georgetown, Colorado;
- *Georgetown Hydro Generating Station*: A two unit, 1.6 MW generating facility located in Georgetown, Colorado;

- *Salida Generating Station*: A two unit, 1.4 MW facility located in Poncha Springs, Colorado;
- *Shoshone Generating Station*: A two unit, 15 MW generating facility located in Glenwood Springs, Colorado; and
- *Tacoma Hydro Generating Station*: a three unit, 4.5 MW generating facility located north of Rockwood, Colorado. Tacoma Unit 3 is presently not operable.

<u>Wind:</u>

- *Ponnequin Wind Farm*: a 26.4 MW wind generating facility located in Weld County, Colorado.

Q. HOW DOES PUBLIC SERVICE MEET THE REMAINDER OF ITS RESOURCE NEEDS?

A. Public Service meets a substantial portion of its generation needs through long-term purchased power agreements. Specifically, Public Service has over 4,000 MW of generating capacity under contract to meet our customers' needs. These generating capacity contracts include over 2,000 MW of wind generation and almost 300 MW of solar generation. Because we recover the costs of these resources through the PCCA and ECA riders and not through base rates, these resources are not the focus of my testimony.

III. TEST YEAR CAPITAL ADDITIONS

A. Overview

Q. PLEASE SUMMARIZE THE CAPITAL ADDITIONS THAT ENERGY SUPPLY WILL MAKE DURING 2014 AND 2015?

A. We are placing $401.7 million of capital additions in service in 2014, and $728.6 million of capital additions in service in 2015.

Attachment No. MRF-1 provides additional detail regarding the capital additions for the base period of 2014 through 2015. The columns in this spreadsheet provide the following information:

Column A	Work Order Number	The parent project number used to denote the project
Column B	Description	A brief description of the project from our budget system
Column C	Estimated In-Service Date	The date the project is expected to be placed into service
Columns D and E	Years 2014 and 2015	The annual amount budgeted to be placed into service for each respective year.
Column F	CACJA	Identification of CACJA compliance projects

Q. PLEASE SUMMARIZE THE MAJOR PROJECTS THAT WILL BE PLACED IN-SERVICE IN 2014.

A. A little less than 75 percent of our budgeted capital additions for 2014 are associated with the installation of SCR technology and new scrubbers at Unit 1 of our Pawnee generating station as part of our CACJA implementation efforts, which I describe further below. This capital addition is budgeted at approximately $296 million. The remainder of our 2014 capital budget is related to routine maintenance work at our plants. This includes additional replacements and upgrades at our Pawnee station, such as replacement of the air heating baskets at Unit 1 budgeted as a capital addition of $4.5 million; as well as additional maintenance work at Unit 1 of our Comanche station, such as the replacement of the Unit 1 coal piping which is budgeted as a capital addition of $1.8 million.

Q. WHAT ARE THE MAJOR PROJECTS THAT WILL BE PLACED IN-SERVICE IN 2015?

A. Approximately 90 percent of our budgeted capital additions for 2015 relate to CACJA projects. The principal cost is the repowering of our Cherokee station to natural gas. This includes the installation of the new 2x1 combined cycle facility at Cherokee, consisting of combined cycle combustion turbines at new Cherokee Unit 5, budgeted for approximately $127 million in capital additions; installation of combined cycle combustion turbines at new Cherokee Unit 6, budgeted for approximately $126 million in capital additions; installation of combined cycle steam turbines at new Cherokee Unit 7, budgeted for approximately $103 million in capital additions; and common costs for this work at the Cherokee station of approximately $243 million in capital additions. All combined, these capital additions are budgeted for approximately $600 million. An additional approximately $58 million in capital additions is related to installation of SCR technology at Unit 1 of our Hayden station, which is also part of our CACJA upgrades.

The remainder of our budget capital additions for 2015 relate to routine maintenance work. Our 2015 capital budget also includes the costs associated with the decommissioning and dismantling of the Arapahoe Generating Station.

Q. PLEASE DISCUSS THE DECOMMISSIONING AND DECONSTRUCTION OF THE ARAPAHOE STATION.

A. The Arapahoe Station was a four-unit coal-fired power plant. Units 1 and 2 were shut down in 2003 due to our efforts to reduce emissions in the metro-Denver area. As part of our CACJA compliance plan, we shut down Unit 3 at the end of 2013, as well as Unit 4 after obtaining Commission approval in our most recent Electric Resource Plan proceeding (Docket No. 11A-869E) to shutdown that unit instead of converting it to gas-only operation. Because none of the units are operating any longer, we will be dismantling the plant and restoring the site. We are submitting a decommissioning plan concurrent with this rate case filing.

We have budgeted approximately $34.8 million in retirement funding for the decommissioning work. We have performed preliminary work to ensure that the vacant plant continues to be safe to those around it and those who will be performing the deconstruction work. We are currently in the engineering and contracting phases of this project and expect to begin performing the physical dismantling sometime in 2015. Ms. Perkett and Ms. Blair discuss how the costs of the decommissioning were developed and would be recovered through rates, respectively.

Q. WHY IS THE PONNEQUIN WIND FARM BEING RETIRED?

A. The Ponnequin Wind Farm makes up about 25 MW of Public Service's total 2,140 MW of wind generation. It was built in a series of phases between 1999 and 2001, and will reach the end of its 15-year life in about 2015. We have determined that the capital investments and ongoing O&M costs necessary to continue the life of this facility are not justified. Therefore, we plan to retire the Ponnequin facility in 2015.

The steel and bolts for this facility will reach the end of their engineering life in 2018/2019, leading to structural fatigue and safety risks associated with the towers possibly falling and causing injuries. Further, we are experiencing failures of the gearboxes, generators, and turbine bearings at an increasing rate which would require us to eventually replace all of the turbines over the course of several years. Finally, due to the vintage of these turbines, spare parts can be costly and difficult to source. Our analysis indicates that replacing this facility with market wind purchases would be the least cost alternative for our customers in lieu of investing in the continued life of the facility.

Ms. Perkett discusses the remaining depreciable life of this asset and the financial and rate impact of its retirement in 2015.

Q. HOW IS THE INFORMATION PROVIDED BY YOU HERE INCORPORATED INTO THE TEST YEAR?

A. Ms. Perkett uses Energy Supply's capital additions budget to develop the plant-related roll forward that is used by Ms. Blair to calculate the 13-month average plant in-service balance used to calculate the Test Year rate base. Ms. Blair provides further discussion regarding the rate-making implications of our capital additions.

Q. ARE YOU CONFIDENT THAT THESE PLANNED CAPITAL ADDITIONS WILL MEET THEIR CURRENT BUDGETS AND BE PLACED INTO SERVICE BY THE END OF THE TEST YEAR?

A. Yes. The capital additions related to CACJA have been planned for a long period of time, and there are no indications that we will need to materially revise our capital budgets for this work or that they will be delayed. As to our routine maintenance capital additions, they are within a reasonably predictable range from year to year.

B. <u>CACJA Projects</u>

Q. WHAT IS THE CLEAN AIR-CLEAN JOBS ACT (CACJA)?

A. In 2010, the Colorado legislature enacted the CACJA to assist in achieving the State's air quality goals. Prompted in part by the possibility of federal intervention into air regulation in the Denver metro area due to multiple pending air mandates, CACJA required Public Service to submit an emissions reduction plan that included the retirement or fuel-switching of a minimum of 900 megawatts of coal-fired generation, which would have to be fully implemented by December 31, 2017. Public Service filed its proposed CACJA compliance plan with the Commission in August 2010, in Proceeding No. 10M-245E, which the Commission approved with modifications in December 2010. Ms. Jackson goes into more detail regarding certain CACJA requirements in her direct testimony.

Q. PLEASE DESCRIBE PUBLIC SERVICE'S CACJA COMPLIANCE PLAN.

A. To comply with CACJA, we are undertaking a variety of projects to significantly reduce the overall emissions of our generation fleet. The Commission approved a plan requiring the early retirement of five Public Service coal-fired generation units, the installation of emission controls at three other coal-fired units, the fuel conversion of two more coal units to natural gas, and the construction of a new combined cycle natural gas plant at our Cherokee station. Subsequently, the Commission approved retiring Arapahoe Unit 4 in a joint order addressing our Electric Resource Plan ("ERP") filing (Proceeding No. 11A-869E) and application for the early retirement of Arapahoe Unit 4 (Proceeding No. 12A-785E), rather than having the unit converted to gas as provided in the original CACJA order. The projects we are implementing as a result of CACJA and subsequent Commission orders are as follows:

Table 3
CACJA Projects

Unit	Action	Date	CPCN Proceeding
Cherokee 1	Retirement	2012	11A-303E
Cherokee 2	Retirement and Conversion to a Synchronous Condenser	2011	11A-303E; 11A-209E
Cherokee 3	Retirement	2015	N/A
Cherokee 4	Conversion to Gas	2017	N/A
Cherokee 5-7	New Construction	2015	11A-609E
Arapahoe 3	Retirement (initial approval to convert to synchronous condenser)	2013	N/A
Arapahoe 4	Retirement (initial approval to convert to gas)	2014	N/A
Valmont 5	Retirement	2017	N/A
Hayden 1	Selective Catalytic Reduction	2015	11A-917E
Hayden 2	Selective Catalytic Reduction	2016	11A-917E
Pawnee	Selective Catalytic Reduction and Scrubbers	2014	11A-325E

Q. WHAT CACJA CAPITAL ADDITIONS DOES PUBLIC SERVICE PROPOSE TO INCLUDE IN THE TEST YEAR?

A. Public Service is requesting cost recovery through base rates for the following CACJA capital projects with 2014 and 2015 in-service dates:

- In August 2014 we will have completed installation of selective catalytic reduction ("SCR") technology at Unit 1 of our Pawnee facility to control nitrous oxides (“NOx”), as well as added new scrubbers to control sulfur dioxide (“SO2”) emissions;

- As discussed by Ms. Jackson these projects will serve as the baseline for the proposed CACJA Rider;
- The conversion of the Cherokee station from coal to natural gas occurs in 2015. This involves the shutdown of Cherokee Unit 3 (Units 1 and 2 were shutdown in 2012 and 2011, respectively), and the start-up of a 569 MW combined cycle gas plant at Cherokee (Units 5, 6, and 7) to begin operation in 2015; and
- SCR technology is being installed at Unit 1 at our Hayden station during 2015 to control the emissions of NOx.

Together, these projects constitute a major part of our compliance with the Commission’s CACJA and subsequent, related orders, representing approximately $296 million in 2014 or nearly 75 percent of Energy Supply’s 2014 capital additions, and $658 million in 2015 or approximately 90 percent of our 2015 capital additions.

Q. WILL ALL CACJA CAPITAL PROJECTS BE IN SERVICE BY THE END OF THE TEST YEAR?

A. No. We will have additional work to complete beyond 2015.

In 2016, we will install SCR technology at Hayden Unit 2, which we estimate to be a $36.1 million capital addition. We will also have some follow-on costs related to the conversion of our Cherokee station conversion to gas

(Units 5, 6, and 7) in 2016, which we estimate will be a capital addition of $3.2 million.

In 2017, Cherokee Unit 4 will be converted to natural gas and Valmont Unit 5 will be retired. Because Cherokee Unit 4 is already configured to be fired by natural gas, conversion of this unit from coal to gas consists mainly of ceasing coal operations and no capital modifications to the plant will be made. Additionally, although we will be retiring Valmont Unit 5, the remaining simple cycle combustion turbine at the Valmont station will remain in-service after Unit 5 is retired, and so we do not have a capital budget for dismantling the plant. Ms. Perkett discusses the impact of the retirement of Valmont Unit 5 on rates.

Public Service is proposing that the capital additions representing the 2016 and 2017 CACJA projects be approved for recovery, subject to true-up, through a CACJA rider that will start in 2016.Ms. Jackson and Mr. Brockett discuss our proposed CACJA rider and recovery of 2016 and 2017 CACJA project capital costs.

Q. WILL IMPLEMENTATION OF THE CACJA PROJECTS ALSO AFFECT PUBLIC SERVICE'S O&M COSTS?

A. Yes. The new 2x1 combined cycle facility at Cherokee and the emissions control projects at Hayden and Pawnee will increase our use of chemicals and water, referred to as base commodities, at those plants to control emissions. As I detail later in my testimony, we are requesting an adjustment of $7.2 million to the historic 2013 O&M expenses to account for this increased CACJA-related O&M cost in the Test Year.

However, because Cherokee Units 5, 6, and 7, and the SCR installation at Hayden Unit 1 will be in service for only the second half of the Test Year, the balance of the annual incremental increase in base commodities for those CACJA projects will not be incurred until 2016. Similarly, half of the annual incremental increase in base commodities for the installation of SCR at Hayden Unit 2 will be incurred in the second half of 2016 when that CACJA project goes into service, with the balance of the annual increase occurring in the first half of 2017. In addition, Cherokee Unit 3 will be retired in 2016, creating savings of approximately $900,000. We are requesting that the Commission account for these costs in our CACJA Rider, subject to true-up.

Q. PLEASE DESCRIBE HOW THE CACJA PROJECTS WERE BUDGETED.

A. The CACJA projects were not developed and budgeted in the course of our regular budgeting process, but rather in response to the specific requirements of the CACJA legislation.

In our proposed CACJA compliance plan, we provided capital cost estimates for each project. We developed our capital cost estimates with the assistance of third-party engineering firms. This involved the engineering consultants developing their cost estimates based on their expertise and experience, which we then refined based on our accounting practices, company experience, and ancillary overhead costs.

The Commission found that our capital cost information was sufficient for approving our plan, but was too high-level for ratemaking purposes. The Commission therefore ordered us to provide more detailed capital cost information in the course of obtaining CPCNs for our CACJA projects, which we did. To be clear, the CPCN estimates addressed the capital expenditures we anticipated to be incurred to build the project. Upon completion, a project's actual capital cost is one of several components used to determine its value as plant in service for the purpose of setting rates. Ms. Perkett discusses the development of the values for the capital additions we are proposing to add to our rate base in this proceeding.

Q. PLEASE DESCRIBE THE MORE DETAILED CAPITAL COST INFORMATION PROVIDED IN THE CPCN PROCEEDINGS?

A. After verifying their accuracy, we presented our previous estimates with much greater supporting detail, which also reflected changes we determined should be made with respect to material costs, as well as likely escalation because the CACJA estimates were in 2010 dollars while the projects will be built and paid for in 2012 to 2016 dollars. As discussed in each of the CPCN proceedings, our estimates were developed according to industry standards for initial cost estimation and included a range of accuracy of approximately +/- 20 percent, which is typical industry practice for estimating project costs at that stage of development. This range narrows as an individual project comes closer to construction and completion. For those CACJA projects that have been completed, we have actual costs that can be compared to the CPCN estimates. For those CACJA projects that are currently in construction, we have narrowed the range of accuracy from +/- 20 percent included in the CPCN estimates, as I discuss in more detail below.

Q. HOW DO THE COSTS OF THE PROJECTS COMPARE WITH THE UPDATED ESTIMATES PUBLIC SERVICE PROVIDED THE COMMISSION?

A. Table 4 provides a comparison of our CPCN capital expenditure estimates to our current budgeted capital expenditure estimates for the projects, several of which have been completed. Our current budgeted expenditures are approximately $18.3 million or approximately 2 percent over our CPCN estimates.

Table 4
Comparison of CACJA Project
CPCN Estimates and Current Budgeted/Actual Costs

Project Title	CPCN Estimated Budget	Current Budget	Variance	Status
Cherokee 2 Synchronous Condenser	$ 9,478,000	$ 8,829,540	-$648,460	Project Complete
Cherokee 2x1 Combined Cycle	$531,525,000	$531,525,000	--	In Construction
Cherokee 1& 2 Retirement	$ 23,050,000	$ 21,645,545	-$1,404,455	Project Complete
Hayden 1 SCR	$ 55,803,000	$ 55,803,000	--	In Construction
Hayden 2 SCR	$ 34,040,000	$ 34,064,000	+24,000	In Construction
Pawnee Scrubber and SCR	$252,045,000	$272,338,000	+$20,293,000	In Construction
Total Cost	$905,941,000	$924,205,085	+$18,264,085	

Q. WHAT COMMENTS DO YOU HAVE ABOUT THE VARIANCE BETWEEN THE ACTUAL OR UPDATED BUDGETED COSTS AND THE COSTS PROJECTED IN THE CPCN PROCEEDINGS?

A. As Table 4 shows, we are over budget as compared to our CPCN estimates almost entirely due to one project, the Pawnee Scrubber and SCR Project. The $20.3 million overage represents an 8 percent increase over our CPCN estimate, which is well within our range of accuracy for that project. I provide more detail about the status of that project and all of the other CACJA projects below.

Moreover, if you compare our current estimated project costs to what we projected for implementation of our entire CACJA plan at the time the Commission approved it, we are projecting that our total CACJA capital costs will be less than what we predicted. We expected that it would cost $928.1 million to implement our CACJA compliance plan, but our present projected cost for target completion is $3.9 million less. As we managed its implementation, we were able to achieve savings to our overall CACJA compliance plan on a portfolio basis by eliminating the three items shown in Table 5, which I discuss further below.

Table 5
Eliminated CACJA Projects

Project Title	CPCN Estimated Budget
Arapahoe 3 Synchronous Condenser	$ 4,890,000
Cherokee 3 Coal Conveyor Modifications	$ 13,198,000
Cherokee 4 Generator Step Up Transformer	$ 4,200,000
Total Cost	$ 22,288,000

Q. PLEASE DESCRIBE HOW THE CURRENT ACTUAL BUDGET FOR THE ARAPAHOE 3 AND CHEROKEE 2 SYNCHRONOUS CONDENSER PROJECTS COMPARES TO PUBLIC SERVICE'S ESTIMATED BUDGET.

A. The scope of these two projects changed from what the Commission approved in its CACJA order. The initial order included synchronous condenser installations on Cherokee Unit 2 ($3,961,000) and on Arapahoe Unit 3 ($4,890,000). In our CPCN proceeding for our Cherokee 2 project (Proceeding No. 11A-209E), the estimate was increased to $9,480,000 primarily because the installation of the synchronous condenser also required us to replace the exciter. The Commission granted our requested CPCN for the Cherokee 2 synchronous condenser as part of a settlement in which the Company agreed to perform an additional study to determine the need for the Arapahoe Unit 3 synchronous condenser project. The results of the study concluded the Arapahoe 3 project was not necessary and it was subsequently cancelled. The Commission in a separate proceeding approved the retirement of Arapahoe 3 (Proceeding No. 12A-846E).

The Cherokee 2 synchronous condenser project was placed in service in 2012. It came in approximately $575,000, or 6 percent, under the budget presented in the CPCN proceeding.

Q. HOW DO THE ACTUAL COSTS FOR THE RETIREMENT OF CHEROKEE UNITS 1 AND 2 COMPARE TO THE COMPANY'S ESTIMATED BUDGET?

A. The retirements of Cherokee 1 and 2 approved in Proceeding No. 11A-303E are complete, and the demolition of those projects was completed for $21.6 million, which is $1.4 million (6 percent) under the $23 million estimate for that project.

Q. PLEASE DESCRIBE THE ESTIMATED AND ACTUAL BUDGETS FOR THE CHEROKEE 3 AND 4 PROJECTS.

A. When Cherokee station was originally assessed for suitability as a combined cycle site, it was thought that the coal conveyor supplying coal to Cherokee Unit 3 would have to be removed from service to facilitate efficient construction of the combined cycle plant. This would have required modifying the Cherokee Unit 4 coal delivery system to supply coal to Unit 3. After preliminary engineering and design was performed, the configuration of the new combined cycle plant was revised and it was determined that Unit 3's coal conveyor could remain in service, which eliminated the need to modify Unit 4's coal delivery system. This design optimization allowed us to avoid an estimated capital expenditure of $13.2 million.

With respect to Cherokee Unit 4, a modification to the existing 115 kV bus at the station allows for the continued use of the existing 115 kV generator step up transformer for the unit, thus eliminating the need for a new transformer and saving another $4.2 million in expenditures.

Q. HOW DOES THE ACTUAL BUDGET FOR THE 2X1 COMBINED CYCLE PROJECT AT CHEROKEE STATION COMPARE TO THE COST ESTIMATE FOR THAT PROJECT IN PROCEEDING NO. 11A-609E?

A. This project is expected to come in on budget and on schedule. While the cost of the Company-supplied equipment (combustion turbines, heat recovery steam generators, steam turbine, and step-up transformers) was lower than originally estimated, the site development costs and the design build contract, which included supply of balance of plant equipment and construction labor, were higher than estimated. These higher costs generally offset the equipment savings. A copy of our current budget estimate for this project is included as public and highly confidential versions of Attachment No. MRF-2, Cherokee 2x1 Combined Cycle Project Capital Cost Estimate, which has a range of accuracy of +/- 2 percent.

Q. PLEASE DESCRIBE THE CURRENT VERSUS ESTIMATED BUDGET FOR THE INSTALLATION OF EMISSION CONTROLS AT THE HAYDEN STATION.

A. Virtually all of the work to be done for the installation of SCR at Hayden Unit 1 is now under contract, resulting in our current budget estimate of $55,800,000, which is equal to the CPCN estimate in Proceeding No. 11A-917E for the project. While the SCR project for Unit 2 at Hayden is not as far along as Unit 1, it is tracking to come in at its budget of $34 million. A copy of our current budget estimate for these projects is included as public and highly confidential versions of Attachment No. MRF-3, Hayden SCR Project Capital Cost Estimate, which has an accuracy range of +/ 7 percent for Unit 1, and +/- 10 percent for Unit 2.

Q. PLEASE DESCRIBE HOW THE CURRENT BUDGET FOR THE SCR AND SCRUBBERS AT PAWNEE STATION COMPARE WITH THE ESTIMATED BUDGET FOR THAT PROJECT IN PROCEEDING NO. 11A-325E.

A. As discussed above, the Pawnee emissions control project has experienced increased costs, with our current budget for the project being $272 million, which is approximately $20.3 million or 8 percent over the $252 million escalated CPCN cost estimate.

As the design of the SCR and scrubber were being developed, it was determined that the operating characteristics of the Pawnee boiler would prevent reliable operation of the new emissions control equipment over the entire load range of the unit. This meant that additional equipment not included in the original estimate would be required to assure reliable operation (i) at low loads in the winter to provide more flexibility for future operation with higher renewable levels, and (ii) at high loads during the summer.

More specifically, steam coil air heaters were added to heat boiler inlet air to provide adequate temperature at the inlet to the scrubber during low temperature and low load operation. A tubular air heater was also added to remove excess heat from the flue gas exiting the boiler at high loads in order to avoid exceeding temperature limits of the catalyst in the SCR. These new components also required larger Induced Draft Fans as well as large motors and fault current limiting reactors for the fans. These changes increased the overall construction cost of the project.

Further, the extensive reinforcement of the structural steel required by the increased project scope required lead abatement that exceeded the original budget by nearly $3 million. A copy of our current budget estimate for this project is included as public and highly confidential versions of Attachment No. MRF-4, Pawnee SCR and Scrubber Capital Cost Estimate which, given the current stage of construction, has a range of accuracy of less than +/- 1 percent.

C. Non-CACJA Capital Additions

Q. IN ADDITION TO CACJA COMPLIANCE, FOR WHAT PURPOSES DOES ENERGY SUPPLY UNDERTAKE INVESTMENTS IN CAPITAL ADDITIONS?

A. Energy Supply generally makes capital additions to its system for three purposes: (1) to construct (or dismantle) new (or decommissioned) generating stations and units ("construction or decommissioning"), such as those included as part of our CACJA compliance plan; (2) to make investments to comply with new environmental FERC, NERC, and other regulatory requirements; and (3) to ensure the continued safe, reliable, and efficient operation of Public Service's existing generation fleet ("routine maintenance").

Q. PLEASE DESCRIBE CONSTRUCTION OR DECOMMISSIONING PROJECTS.

A. Changing system requirements may necessitate the construction of new generation units or decommissioning of old generating units. The need for such investments may result from new environmental mandates, the end of the useful life of a facility, or changes in the level of energy resources needed to serve our customers. An example of this type of project is the decommissioning and dismantling of our Arapahoe Station.

Q. PLEASE DESCRIBE COMPLIANCE PROJECTS.

A. Our plants may require new systems and components to continue to operate reliably and consistently with new regulatory requirements. This type of capital addition can include repowering of units from one fuel to another or the addition of new environmental technology such as scrubbers and other emissions controls. Such capital projects are generally larger than routine maintenance projects and planned over a longer period. They are generally budgeted in addition to our routine maintenance capital spend, and are considered new upgrades.

Q. PLEASE DESCRIBE ROUTINE MAINTENANCE PROJECTS.

A. Our generating stations are large, complex machines that require regular maintenance to ensure they are operating reliably and efficiently. Many of our capital additions take the form of routine maintenance that may involve replacing worn or obsolete parts of our generating units which, under GAAP, IRS regulations, and our capitalization policy are considered capital additions.

We also routinely make safety improvements at our plants, and are required to make the usual investments in our plants to maintain compliance with environmental or other regulatory requirements. We consider these types of capital additions as routine maintenance, which forms the baseline of our annual capital spend.

Q. DOES PUBLIC SERVICE HAVE A PROCESS IN PLACE TO DETERMINE WHICH NON-CACJA CAPITAL PROJECTS IT WILL PURSUE?

A. Yes. Projects are submitted to Energy Supply by our plants, which we then evaluate and rank based on their operational and financial merits.

Q. PLEASE DESCRIBE THE PROCESS BY WHICH NON-CACJA CAPITAL PROJECTS ARE RANKED AND SELECTED FOR FUNDING?

A. Energy Supply has specific evaluation criteria it uses to review and prioritize each capital project, including legislative commitments, financial merit (such as Net Present Value or Present Value of Revenue Requirements), operational factors (such as the impact on outage rates, equipment condition, environmental compliance, and/or regulation (*e.g.*, Grand Canyon Visibility Transport Commission, Clean Air Mercury Act, Clean Air Interstate Rule)), efficiency, reliability, capacity, and safety. Projects that are evaluated include those that may be completed in a single year (for example, replacing the bags in a fabric filter dust collector), as well as those that will require multiple years to complete (for example, constructing a new lime spray dryer).

A ranked list of projects is then evaluated against the available budget for the next year, as well as the planned unit outage schedule for the next several years, and known regulatory factors such as new environmental regulations. This capital budget process allows the Company to develop a capital plan that covers a five-year period, with associated five-year capital expenditures and estimated in-service dates.

As each new fiscal year arrives, the Public Service Regional Planning Committee ("RPC") reviews and validates the list of projects for the next fiscal year, makes adjustments to schedules and/or budgets as required to account for evolving conditions and factors, and proposes a list of projects that meets the planned budget for the next five years. The most recent five years of planning information, capital expenditures, and estimated in-service dates are developed and recorded in the Unifier Enterprise Project Management System ("EPM"). The RPC continually meets throughout the year to make adjustments to projects currently under way.

As the plants identify and develop capital projects, they have specific operational and other data available to them to enable identification and quantification of how the project meets specific criteria. The plants specify the identified information on the project document that they submit as part of the project evaluation and budgeting process.

As each project is reviewed by the RPC, the specific criteria and supporting information are reviewed and verified. The verified information is entered into the EPM where numerical ranks are calculated and a project is prioritized along with other submitted projects.

Q. DOES THIS BUDGETING PROCESS ALSO APPLY TO ENERGY SUPPLY'S CAPITAL MAINTENANCE PROJECTS?

A. Yes. Although we consider certain projects to be routine maintenance because they are needed to keep our plants operational, efficient, and compliant with regulatory requirements, they are still significant capital additions to our system. They, like all other capital additions, are ranked and selected based on need and merit.

Q. DOES THE ENERGY SUPPLY CAPITAL BUDGET UTILIZE "ROUTINE" WORKORDERS FOR SOME PROJECTS?

A. Yes. Our routine workorders fall into six major categories:

Yampa Capital Contributions: As I previously noted, Public Service is a co-owner of the Craig and Hayden stations that are part of the Yampa Project. While Public Service operates the Hayden station and identifies capital additions as line items on our capital budget, Tri-State operates the Craig station. We budget our share of the ongoing maintenance capital additions that Tri-State will make to the Craig station as routine workorders.

Outage Support: Our gas-fired fleet must take regular outages for inspection and servicing, determined by the number of hours they have operated and how many starts they have undergone. This is similar to taking a car in for an oil change and inspection every 5,000 miles. For these planned outages, the turbines and other major pieces of equipment are generally opened and inspected, with repairs made and parts replaced as needed. We use manufacturer recommendations and our historic experience with these units to forecast our expected capital budgets during these outages.

Turbine Parts: These routine workorders are similar to our outage support routine workorders. In 2012 and 2013 we entered into parts exchange programs with the manufacturers of our combustion turbines. Under this program, instead of investing in complete sets of spare and emergency inventory parts upfront on a plant-by-plant basis, we rely on long-term contracts with a qualified parts supplier to provide the parts on a just-in-time basis. The supplier commits to having readily available a complete supply of qualified spare parts to support the Company's turbine overhaul schedule, ensuring we will have the parts we need when we need them. Because of our participation in this program, we budget for our parts purchases for each overhaul on a routine basis. We develop these budgets based on our historic experience with the particular plant and manufacturer recommendations.

Tools: We also budget a small amount for tools that may be capitalized under our capitalization policy. We develop this budget based on the work we expect to perform in a particular year and our past experience.

Emergent Work: A small part of our capital budget is dedicated to emergent work that occurs at our plants. This type of work includes unexpected failure of major equipment such as air compressors, control valves, gearboxes, high-energy pumps, etc. We set this budget based on our historic experience at the plants, as well as the scheduled work that we will be performing at the plants in a given year. The forecasted capital additions under each workorder identify the year in which the capital addition is forecasted to be made.

Small Project Routines: These workorders are our budget for small projects that we routinely perform in a given year. These are the smallest of our routine maintenance projects and are budgeted based on our historic routine work performed. Unlike the emergent work, small project routines are not specific to a particular plant but are instead Energy Supply wide projects.

Q. PLEASE EXPLAIN THE PROCESS YOU FOLLOW TO MANAGE PROJECT IMPLEMENTATION.

A. Capital budgets are finalized at least one year prior to their execution. Part of the project development process includes the identification of key schedule dates and budgetary milestones. Once a capital project has been approved for execution, it is assigned to a Project Manager ("PM"), typically three to six months in advance of the first planned activity required to commence the project. The PM is responsible for working with the plant to review and more fully develop the schedule and monthly cash flow requirements for the assigned project. The PM will typically contact vendors and contractors to firm up cost and schedule data and begin engineering and purchasing activities. If the PM identifies specific information related to changes in cost or the schedule, they advise management and recommend options for consideration. Management then responds as appropriate depending on the specifics of the information provided.

Q. PLEASE EXPLAIN THE PROCESS YOU FOLLOW TO MANAGE THE OVERALL CAPITAL BUDGET ONCE IT IS ESTABLISHED.

A. As discussed by Company witness Mr. Gregory Robinson, Energy Supply is expected to manage to our capital budget. The most important budget management tool is good project planning. If we plan, budget, and implement our projects well, there is little additional management of the overall capital budget needed. However, unexpected events can, and do, occur.

For example, if there is an unexpected failure of a large component at an existing plant, such as the boiler, we must address this when it occurs. Some of our routine workorders exist to meet these needs. Further, we would look to reduce the costs of other budgeted projects, or defer them all together if necessary and possible. However, sometimes we must continue with certain projects as budgeted since they are necessary for the continued reliable operations of our plants, or because putting them on hold would unnecessarily incur costs despite the need for additional expenditures elsewhere. Conversely, if budgeted projects are delayed or deferred, we will generally find other projects to implement because the amount of projects generally exceeds the capital funds available. Consequently, our capital budgets reasonably reflect the amount of capital additions we will place in service during the Test Year, and are a reasonable basis upon which to set rates.

IV. ENERGY SUPPLY O&M EXPENSES

Q. WHAT ARE THE TYPES OF COSTS THAT THE ENERGY SUPPLY INCURS FOR OPERATIONS AND MAINTENANCE?

A. As described earlier in my testimony, a variety of O&M work is performed by Energy Supply. The costs to perform this work generally fall into six categories:

- *Internal Labor* – costs for the labor force that runs our plants and supports Energy Supply activities. Our Internal Labor budget includes planned overtime, and excluding overhaul related work, to ensure we have personnel available to operate our plants at all hours of the day. Internal Labor is the largest component of our O&M costs.
- *Contract Labor* – costs of outside contractors, experts, and other third-party assistance that we utilize to augment our internal core operations and maintenance competencies. Examples include crews we hire to help with overhaul work, as well as experts from our equipment manufacturers to provide expertise on the plants they helped engineer and construct.
- *Base Commodities* – costs primarily for chemicals and water used in the generation process and for the control of emissions. Chemicals for which we incur the most costs include ammonia, lime, sulfuric acid, and mercury absorbent.
- *Materials* – costs for all non-chemical material costs we incur to operate and maintain our plants. This includes everything from steel to personal protective equipment.

- *Craig Partnership* – costs paid to Tri-State to operate the Craig station as part of the Yampa Project described above.
- *Other* – all other costs we incur to operate and maintain our generation plants. This includes transportation fleet costs, utility costs for the plants such as gas, electric and sewer bills, fees such as environmental fees, and other smaller miscellaneous O&M costs.

Q. WHAT WERE PUBLIC SERVICE'S ENERGY SUPPLY O&M COSTS DURING THE 2013 O&M BASE PERIOD?

A. Our actual O&M expenditures during 2013 were $173.2 million. Table 6 below identifies the amount of overall O&M costs by the categories I discuss above. Attachment No. MRF-5, attached to my testimony provides an accounting of these expenditures by Object and FERC accounts.

Table 6
2013 O&M Base Period

Cost Category	$ Millions
Internal Labor	$ 64.8
Contract Labor	$ 46.0
Base Commodities	$ 24.0
Materials	$ 26.3
Craig Partnership	$ 6.6
Other	$ 5.5
Total	$173.2

Q. ARE THE $173.2 MILLION IN 2013 O&M COSTS FOR THE ENERGY SUPPLY BUSINESS AREA YOU DESCRIBE ABOVE REFLECTED IN THE 2015 COST OF SERVICE PRESENTED BY MS. BLAIR?

A. Yes, with four adjustments. As discussed by Ms. Jackson, Public Service is proposing to set rates based on our historic 2013 O&M costs with limited adjustments for known and anticipated changes that we expect to occur between the end of the 2013 base period and December 31, 2015. With respect to the Energy Supply Business Area, our 2013 historic O&M costs as adjusted provide a reasonable level of O&M for the Test Year.

Q. WHAT ADJUSTMENTS ARE YOU PROPOSING TO THE 2013 HISTORIC COST OF SERVICE FOR THE ENERGY SUPPLY BUSINESS AREA?

A. The first adjustment is for the incremental increase in base commodities costs that Public Service will incur in the Test Year for new or upgraded generation facilities for CACJA. The second adjustment is for the reduction in non-labor O&M expenses associated with the retirement of Arapahoe 4, and the third adjustment is for the elimination of a non-recurring expense. Table 7 below summarizes these O&M expense adjustments.

Table 7
O&M Expense Adjustment

Cost	$ Millions
O&M Expense for 2013 Base Period	$ 173.2
Incremental Increase in Base Commodities Costs	$ 7.2
Incremental Decrease in O&M Due to Retirement of Arapahoe 4	$ (3.8)
Elimination of Non-Recurring Expense	$ (0.5)
Adjusted 2013 O&M Expense	**$ 176.1**

Additionally, Ms. Lowenthal supports the fourth adjustment for the increase in total labor expense included in the Test Year due to anticipated merit and base salary increases for non-bargaining and bargaining employees through December 31, 2015 and Ms. Blair quantifies the increase in total labor expenses included in the Test Year cost of service.

Q. WHY IS PUBLIC SERVICE FORECASTING AN INCREASE IN BASE COMMODITIES COSTS?

A. As part of our CACJA compliance plan, emissions control technology is being added to our Hayden and Pawnee stations, and is also part of the new combined cycle gas plant being constructed at our Cherokee station Placing these projects in service will incrementally increase the amount of emissions control chemicals as well as water used at these three plants, thus incrementally increasing Test Year base commodities costs over the level of those costs in 2013.

Q. PLEASE DESCRIBE THE BASE COMMODITIES USED FOR EMISSION CONTROLS.

A. Base commodities are used for a variety of reasons at our plants, but mainly for operations and to control emissions. The base commodities for emissions control include four principal chemicals - ammonia, lime, sulfuric acid, and mercury absorbent - as well as water. I describe how these commodities are used below:

- *Ammonia*- ammonia is used in a SCR system such as those being added to the new Cherokee CTs, and Hayden and Pawnee units. A SCR system reduces the nitrogen oxides in boiler flue gas. The ammonia is received and handled in a liquid form but vaporized and applied just ahead of a large catalyst inside the boiler flue gas ductwork. This is where nitrogen oxides react with the ammonia to form nitrogen and water. Ammonia is also used for boiler water treatment. In this application, it is used directly to raise the pH of the boiler water to specific limits to reduce corrosion of the boiler steel.
- *Lime*- lime is used to remove sulfur dioxide from the flue gas. Lime and water as well as fly ash and water are combined and then both are mixed to make the lime/ash water slurry used in the Spray Dry Absorber ("SDA") that is part of the SO2 removal process of a scrubber.
- *Sulfuric Acid*- sulfuric acid is used to control scale formation in cooling tower waters, reducing solid particle emissions from the towers. The material is received and handled in liquid form. It is then metered into the

cooling tower waters where it controls scale by maintaining the pH balance of the waters within certain limits. Minor amounts are also used in demineralizers.

- *Mercury Absorbents*- activated carbon is currently the industry standard for mercy removal from flue gases. Activated carbon is received in powder form and stored in large silos. From these storage silos, it is metered into the boiler flue gas where it absorbs mercury. The activated carbon containing mercury is ultimately caught in the air quality control system and then conveyed to a secure landfill for safe storage.
- *Water*- water is mixed with the lime and ash fly used to remove sulfur dioxide from flue gas, as described above.

Q. PLEASE DESCRIBE THE IMPACT THAT THE NEW EMISSION CONTROLS WILL HAVE ON PUBLIC SERVICE'S BASE COMMODITIES EXPENSE.

A. We estimate that as a result of the new emission controls that will be placed in service in the Test Year period, our base commodities expense will increase by $7.2 million or approximately 30 percent from its level of $24 million in 2013, to $31.2 million in 2015. The largest portion of this increase is attributable to the increased use of ammonia for the SCR systems being added at our Hayden, Pawnee, and Cherokee stations. We estimate our use of ammonia will quadruple as a result. The next greatest incremental expense is for the lime and water used for the new scrubbers at Pawnee. We estimate a 25 percent increase in our use of lime, and a 20 percent increase in the use of water.

Q. WHY IS PUBLIC SERVICE REQUESTING AN O&M ADJUSTMENT FOR PLANT RETIREMENT?

A. We project that the shutdown of Arapahoe 4 should decrease our O&M expenses by $3.75 million from 2013 levels due to the elimination of the need to operate and maintain the plant.

Q. WHAT IS THE TOTAL AMOUNT OF O&M COSTS THAT THE ENERGY SUPPLY BUSINESS AREA IS PROPOSING FOR THE TEST YEAR COST OF SERVICE PRESENTED BY MS. BLAIR?

A. We are proposing that the Test Year cost of service reflect our historic 2013 O&M costs of $173.2 million with a net upward adjustment of $2.9 million, reflecting the reduced non-labor O&M expenses as a result of the Arapahoe 4 decommissioning, increased base commodities costs associated with new or upgraded generation facilities for CACJA, and elimination of a non-recurring expense.

Q. ARE THESE O&M EXPENSES REASONABLE AND NECESSARY TO CARRY OUT ENERGY SUPPLY'S KEY FUNCTIONS YOU DESCRIBED ABOVE?

A. Yes. These O&M expenses are necessary to ensure that Energy Supply is able to deliver safe and reliable electric service to our Colorado customers.

Q. IS THE COMPANY PROPOSING THAT ANY O&M COSTS BE RECOVERED THROUGH THE CACJA RIDER?

A. Yes. Our CACJA O&M expense for base commodities will continue into 2016 and 2017, and as Ms. Jackson and Mr. Brockett explain, we are proposing to put these costs into the CACJA rider subject to true-up.

V. GENERATION PERFORMANCE BENCHMARKING PLAN

Q. WHY IS THE COMPANY PROPOSING A PERFORMANCE BENCHMARKING PLAN?

A. The performance benchmarking plan that we are proposing – specifically the EAFPM – is intended to give the Company an incentive to ensure the availability of our generating fleet and a penalty if we do not meet our targets. Ms. Jackson discusses the Company's rationale for proposing the plan in more detail. In addition, Mr. Brockett proposed a modified version of our ECA clause as the rate mechanisms to implement this incentive mechanism.

Q. CAN YOU PLEASE DESCRIBE THE PERFORMANCE METRICS THAT ENERGY SUPPLY WILL USE TO GAUGE GENERATION PERFORMANCE?

A. We are proposing to utilize the Equivalent Availability Factor ("EAF") metric as a measure of performance, adjusted for certain special circumstances. EAF is a measure of the availability of the entire capacity of measured generating units for all hours of the year and captures planned and unplanned outages as well as unit de-rates. Under our proposed EAFPM plan, we would calculate a weighted average EAF for our coal and combined cycle fleet based on past performance and then use it to measure our current performance. If the Company's Current Year Weighted Average EAF for selected plants is greater than or equal to the 2nd highest Historic Weighted Average EAF from the period 2009-2013 for selected plants (at or above 84.18 percent), the Company will earn an incentive of $3 million. If the

Current Year Weighted Average EAF is equal to or lower than the 4th highest Historic Weighted Average EAF from the period 2009-2013 for selected plants (at or below 80.76 percent), the Company will be assessed a penalty. If the Current Year Weighted Average EAF for selected plants falls between 80.76 percent and 84.18 percent, non-inclusive, the Company will neither earn an incentive nor be assessed a penalty.

Q. WHY IS THE COMPANY PROPOSING TO USE THE EAF METRIC?

A. EAF is a commonly used industry metric and is reported to the North American Electric Reliability Corporation ("NERC") as part of its Generating Availability Data System ("GADS"). The GADS data system contains the event and performance data of all generating units in the nation greater than 20 MW. Event data consists of any planned or unplanned events that occur to a unit. Performance data is the result of the events and the generation produced by the unit. By using EAF data as reported to GADS, we will be using data that is uniformly reported and subjected to established criteria.

EAF is also a strict measure of plant availability as it captures both planned and unplanned outages as well as unit de-rates. Further, because EAF measures availability, it is a reasonably good metric to measure the performance of both our baseload coal fleet as well as our intermediate combined cycle fleet. Consequently, EAF allows us to measure the performance of our gas and coal fleet in a single metric that measures how often our plants are available to serve our customers.

Q. IS PUBLIC SERVICE PROPOSING TO ADJUST ITS EAF CALCULATIONS IN SPECIAL CIRCUMSTANCES?

A. Yes. First, we propose to adjust our EAF calculation for outage events that are classified as Outside Management Control ("OMC") in the GADS database as these outage events are, by definition, outside of our control. We are given the option to make this adjustment when reporting EAF information to GADS. Second, we propose to adjust our EAF calculations for outage events that are specifically attributable to an order of a state or federal regulatory agency or law. For example, an outage to install emissions control equipment would be excluded from our EAF calculation. We believe that these outages are necessary for us to comply with our legal obligations and therefore should not affect our performance metrics.

Q. WHICH PLANTS IS THE COMPANY PROPOSING TO MEASURE UNDER THE PERFORMANCE PLAN?

A. We are proposing to utilize a weighted average EAF of our Comanche, Hayden, Pawnee, Fort St. Vrain, Rocky Mountain Energy Center generating, and Cherokee Unit 4 stations. This represents our gas and coal fleet that is not nearing retirement.

Q. WHY IS THE COMPANY PROPOSING TO MEASURE ONLY THESE PLANTS?

A. We are proposing to measure only our combined cycle and coal fleet as they have the largest impact on our fuel costs and represent a significant portion of the energy generated on our system. Because our peaking fleet need only be available for a significantly smaller proportion of hours during the year, we do not believe that including them in the performance plan will incentivize efficient use of our resources.

We are also proposing to exclude those generating units that are nearing retirement during the performance plan. As a project reaches the end of its useful life, we reasonably try to limit both capital and O&M expenditures on that unit where possible. That in turn can lead to some degradation in the performance of a unit, but that result is nonetheless reasonable given the short length of the unit's expected remaining life. We are not saying that all capital and O&M expenditures can be eliminated; we still have an obligation to operate the unit in a safe and reliable manner, but in some situations, the need to expend capital and O&M on a unit can be avoided without jeopardizing our ability to operate the unit. In fact, the need to expend capital and O&M on a unit can be a major factor in deciding to retire a unit early. We believe the performance plan needs to reflect this situation, and not provide an artificial incentive to expend capital and O&M on a unit that we would otherwise not expend.

Q. HOW IS THE COMPANY PROPOSING TO CALCULATE ITS HISTORIC PERFORMANCE FOR USE IN THE PERFORMANCE PLAN?

A. We gathered the GADS EAF for the units included in the performance plan for 2009-2013 and weighted each unit by the Net Maximum Capacity ("NMC") ratings for each unit to develop a fleetwide average historic performance baseline. We selected the 2nd highest Historic Weighted Average EAF from the period 2009-2013 and for selected plants (84.18 percent) and the 4th highest Historic Weighted Average EAF from the period 2009-2013 (80.76 percent) as the thresholds or set points of performance for the incentive and penalty payments.

Q. HOW WILL THE COMPANY MEASURE ITS PERFORMANCE DURING THE YEARS OF THE PERFORMANCE PLAN?

A. In the years 2016 and 2017 following the years of the performance plan, 2015 and 2016, we will calculate the weighted average EAF for the plants included in the plan in the same manner as we developed our historic baseline. This weighted average EAF will be compared to the historic 2009-2013 derived set points.

Q. DOES THIS CONCLUDE YOUR DIRECT TESTIMONY?

A. Yes.

Attachment A

Statement of Qualifications

Mark R. Fox

I earned a Master of Business Administration ("MBA") from the University of Phoenix, a Bachelor of Science Mechanical Engineering ("BSME") from the University of Colorado, and a Bachelor of Music Education ("BME") from the University of Denver.

I have held various positions with Xcel Energy since 2002, including Director of Arapahoe and Valmont Stations; Director, Plant Projects; and Manager, Capital Projects.

I am currently the General Manager, Power Production for Xcel Energy. In this position, I am responsible for the leadership, operation and maintenance of Xcel Energy's Public Service Company of Colorado fleet of power generation assets including 9 major power plants comprised of 22 units including coal fired (sub- and super- critical), combined cycle and simple cycle units with a combined capacity in excess of 3500 megawatts. My responsibilities include all aspects of daily operation, overhaul planning and execution, labor relations and management (union and exempt), employee training, environmental and financial performance.

Budget Org ID	Energy Supply
Func Class Descr	(All)

			Activity Year		
Work Order Number	Description	Est ISD	2014	2015	CACJA
10137189	Va Ash Disposal Site Construc	12/31/2007	(0.05)		
10531451	CCH0C-FERC License Application	12/10/2013	(2,604.54)		
10542925	PAW1C - U1 Boiler Acoustic Mon	9/26/2014	(519,573.68)		
10623195	PAW1C - Repl Furnace SH Div Walls	5/25/2014	(5,980,739.69)		
10636058	FSV2C - U2 CT Mark V (Controls)	11/30/2015		(1,334,799.34)	
10636080	SER-CHM-Instrument CO Lab	10/30/2015		(139,000.08)	
10643719	COM1C 1-7 FEEDWATER HEATER RE	6/30/2014	(3,070,161.69)		
10798250	HAS1C -Replace Economizer	6/18/2015		(3,006,915.17)	
10798254	HAS2C -New Cooling Tower Compo	10/1/2014	(163,617.51)		
10909637	SSH0C -Rplc Trash Raking Syste	9/15/2014	(400,686.00)		
10910934	TAH0C -Station Batteries Rplc	4/1/2014	(26,347.95)		
10924160	PAW0C - Grove Crane Replacemen	9/11/2015		(480,320.01)	
10924165	PAW0C - Replace Wet Pipe Fire	3/31/2014	(5,084,325.19)		
10924937	TAH0C- Rplc Animas Rvr RetainW	10/31/2014	(474,572.45)		
10925108	AMH0C -Rplc Howards Fork Surge	11/30/2014	(78,739.07)		
10925572	AMH0C -Ferc Lic Compliance PM	12/30/2013	(1,052.12)		
10929487	TAH0C -FERC Lic Compliance PME	12/30/2013	205.93		
10929986	AMH0C - Rplc Trout Lk Valve Ho	11/15/2014	(3,868,314.43)		
10935164	FSV2C 15 Gas Heater	10/8/2015		(50,837.72)	
10940458	COM1C WATER WALL REPLACEMENT	8/31/2014	(8,167,720.40)		
11078155	HAS2C-Replace CEMS	6/19/2014	(159,208.89)		
11078157	HAS2C-Replace COM	6/19/2014	(106,381.31)		
11078158	HASCC-Replace Station paging s	11/30/2013	4,823.77		
11078758	PAW1C - U1 Digital Control Sys	5/15/2014	(4,485,326.06)		
11080731	TAH0C -Stagecoach Spillway Dam	5/30/2014	(250,033.44)		
11209647	VAL5C-Coal Mill Overhauls	11/15/2014	(338,791.82)		
11219386	FSV3C - U3 Hydrogen Panel Repl	11/15/2013	(109.71)		
11219388	HASCC-Ash Pit Reclamation	7/30/2018	(139,149.41)	(174,339.84)	
11219398	FSV2C - U2 CT Row 0 Blade Repl	10/8/2015		(254,180.00)	
11224292	COMNC ASH DISPOSAL CELL2 PHAS	7/29/2014	(212,537.10)		
11224302	COM1C SERVICE WATR RETURN PUMP	4/30/2014	(196,511.34)		
11225571	CHR4C - Coal Mill Overhl (Inst	11/28/2014	(412,658.14)		
11226237	VAL6C -Rplc CT 6 Exhaust Diffu	12/1/2015		(780,982.82)	
11226244	VAL6C - 6CT Rplc Exhaust Stac	12/1/2015		(1,988,182.80)	
11228119	SER-0-C CHM0114 Instrumen CO L	3/18/2014	(127,250.00)		
11228121	SEC-0-C0114 PMO Emission Test	10/31/2014	(112,000.00)		
11233207	HAS1C - Turbine Overhaul Compo	5/15/2015		(223,185.89)	
11338427	PWF0C- Rplc 6 Gear Boxes 2015	8/3/2015		(364,392.02)	
11345622	VAL0C-Leggett Dam Rip Rap	9/30/2015		(193,077.52)	
11345775	COM2C REP 2ABFP RECIRC CONTRL	12/31/2014	(98,697.88)		
11346041	COM2C REP 2B BFP RECIRC CONTRL	12/31/2014	(55,139.52)		
11346111	COM1C REP 1A&B BFP RECIRC CONT	6/29/2014	(218,002.49)		
11346342	COM1C REP U1 MERCURY MONITOR	3/25/2015		(295,830.71)	
11346357	COM2C REP U2 MERCURY MONITOR	7/31/2015		(297,371.30)	
11346787	FSV2C - U2 CEMS Analyzer Replace	11/30/2015		(108,281.02)	
11349171	SER0C -MPB0113 Tool Rplc & Up	12/30/2013	(1,209.74)		
11349175	SER0C -MPB0114 Tool Rplc & Up	4/15/2014	(32,200.00)		

Work Order Number	Description	Est ISD	2014	2015	CACJA
11349179	SER-MPB-Misc Tools & Equipment	4/12/2015		(32,200.00)	
11349297	HAS2C-DCS I/O replacement	10/14/2014	(1,197,633.43)		
11349298	HAS2C-2C Coal mill cap overhaul	4/25/2014	(155,713.73)		
11349722	PAW1C - U1 Generator Protectiv	5/15/2014	(785,477.20)		
11350148	AMH0C -Rplc HopeLk Dam Outlet	9/30/2015		(204,904.80)	
11350477	CCH0C -Rplc Scada/EMS Controls	12/14/2015		(448,173.53)	
11352436	ES0C - ES Capital Tools - 2013	12/31/2021	(112,783.76)	(1.37)	
11352438	ES0C - ES Capital Tools - 2014	12/30/2014	(289,529.41)		
11352439	ES0C - ES Capital Tools - 2015	12/30/2015		(280,000.00)	
11352579	SER-PMO-Emission Test Equipment	1/15/2015		(112,000.00)	
11418666	CHR0C 2X1 Combined Cycle COD 2	12/31/2015		(243,440,833.88)	Yes
11418684	CHR0C Solid Waste Reg Surfc Im	12/30/2015		(1,168,378.96)	
11418696	HAS1C-Selective Catalytic Redu	9/30/2015		(57,865,420.47)	Yes
11418711	PAW1C - Pawnee SCR and Scrubbe	12/30/2014	(296,828,684.08)		Yes
11418714	PAW0C Solid Waste Reg Surfac I	9/30/2014	(472,323.62)		
11418882	FSV0C - U0 CO Solid Waste Reg	9/24/2015		(616,718.82)	
11418887	VAL0C CO Solid Waste Reg Surf	12/29/2014	(121,613.32)		
11418890	ZUN0C CO Solid Waste Reg Surfa	12/30/2014	(82,990.64)		
11467384	CRG0C - Yampa Capital 2013	12/15/2013	67,949.01		
11467387	CRG0C - Yampa Capital 2014	12/15/2014	(2,052,987.13)		
11467389	CRG0C - Yampa Capital 2015	12/16/2015		(1,564,149.41)	
11474117	CHR1C U1 Retire Decommission	7/31/2013	1,950.73		
11474120	CHR5C 2X1 Combined Cycle CTG	12/31/2015		(126,674,708.41)	Yes
11474122	CHR6C 2X1 Combined Cycle CTG	12/31/2015		(126,108,782.02)	Yes
11474125	CHR7C 2X1 Combined Cycle STG	12/31/2015		(102,658,057.54)	Yes
11486863	FSV1C - U1 Res Aux Transf Repl	11/13/2014	(501,025.62)		
11486865	FSV1C - U1 Auxiliary Transform	11/15/2015		(567,035.83)	
11486872	FSV2C - U2 Exciter Controller	6/18/2015		(367,384.51)	
11486876	FSV1C - U1 Exciter Controller	6/25/2015		(382,516.59)	
11488621	PAW1C - U1 Mill Wear Liner Rep	12/30/2013	(773.92)		
11488626	PAW1C - U1 Mill Wear Liner Rep	5/21/2015		(193,186.40)	
11488628	PAW1C - U1 Mill Wear Liner Rep 14	11/26/2014	(192,518.92)		
11488663	PAW1C - U1 Finishing Superheat	6/20/2014	(8,710,985.88)		
11489728	HAS1C-U1 Cooling tower VFD s	11/15/2015		(185,360.05)	
11491420	CCH0C -Rplc Freon Transformers	9/15/2014	(270,143.55)		
11492506	COM3C SCR CATALYST - REP 2ND L	5/15/2015		(2,819,053.55)	
11492545	CHR4C 13 StartUp Trasnfrmr Pro	11/17/2014	(62,328.59)		
11492562	CHR4C 14 Hagan Drives	12/30/2014	(413,440.22)		
11492610	COMOC REP HOUSING OVER 7&8 CON	12/31/2013	10,387.78		
11492617	RKM1C 14 SCR Catalyst Rplc	10/22/2015		(622,486.42)	
11492624	RKM2C 13 CEMs Upgrade	9/30/2014	(295,829.12)		
11492631	RKM0C 14 Surface Impndmnt Lini	10/15/2015		(2,452,805.00)	
11492632	RKM1C 14 CEMs Upgrade	10/21/2014	(296,297.04)		
11492633	RKM1C 14 Vibration Monitoring	7/29/2014	(326,458.08)		
11492659	BLS2C 13 CEMs Monitor Syst	1/29/2014	(5,805.28)		
11492661	BLS1C 14 CT Parts	10/16/2014	(4,767,216.60)		
11496597	COMECC SEC 9 LINERS	12/30/2013	(627.31)		
11618352	PAW1C - U1 Submerged Flyte Conv U	5/31/2014	(1,729,920.84)		
11618390	PAW0C - U0 Water Treatment Add	9/30/2013	6,580.50		
11618401	PAW1C - U1 CWT Wetdown Pump Re	10/16/2013	(110,008.27)		
11618404	PAW0C - U0 Transfer Tower Mods	6/13/2013	(1,105.43)		

Work Order Number	Description	Est ISD	2014	2015	CACJA
11618424	PAW1C - U1 Generator Breaker 5	6/1/2014	(251,675.02)		
11618486	FSV3C - U3 Bypass Stk Silencer	11/29/2013	(1,363.37)		
11618501	FSV4C - U4 Comb Turb Autotune	3/17/2015		(301,607.98)	
11618504	FSV4C - U4 Major Capital Pts L	2/27/2014	781.89		
11618513	FSV3C - U3 Duct Burner Igniter	11/18/2013	(352.51)		
11618515	FSV0C - U0 Gas to Gas Heater R	9/6/2013	(567.19)		
11618517	FSV2C - U2 Bypass Stk Silencer	3/20/2014	(576,865.67)		
11618519	FSV3C - U3 HGP Capital Labor	11/25/2013	(25,717.05)		
11618530	FSV2C - U2 Duct Burner Igniter	1/15/2015		(156,088.15)	
11618534	FSV2C - U2 Combustion Turbine	4/30/2014	(1,019,033.51)		
11618535	FSV2C - U2 Exciter Breaker/Swi	10/31/2014	(98,107.55)		
11618544	FSV2C - U2 Drum Sparging Syste	1/15/2015		(262,788.16)	
11618548	FSV0C - U0 Main Building Walls	12/30/2015		(2,689,411.77)	
11619735	FSV3C - U3 Exciter Breaker/Swi	6/30/2015		(98,884.92)	
11619739	FSV5C - U5 Comb Turb Autotune	9/28/2015		(301,080.14)	
11619744	FSV1C - U1 Dump and Drag Vlv R	4/26/2015		(96,624.38)	
11619745	FSV3C - U3 BFP SW Cooling Loop	3/15/2015		(315,345.80)	
11619762	FSV0C - U0 Fire Protection	1/30/2015		(400,439.10)	
11619765	FSV0C - U0 Visitors Center Roo	1/30/2015		(142,656.43)	
11619768	FSV0C - U0 Motorized Rotor Sta	10/13/2015		(66,089.16)	
11619778	FSV2C - U2 HRSG Bellows Repl	11/6/2014	(446,804.93)		
11619789	FSV2C - U2 Purchase CT Parts	10/30/2015		(4,308,698.51)	
11620519	VAL5C-Coal Mill Major Rebuild	10/30/2015		(653,402.15)	
11628348	ACT0C -Rplc Mech.Relays	10/30/2014	(370,194.90)		
11628564	SAH2C -Rplc Penstock 2013 to 2	7/7/2015		(1,832,831.10)	
11631036	FLP2C - U2 Generator Relays	10/22/2014	(339,396.50)		
11631051	FLP1C - U1 Generator Relays	10/31/2014	(339,593.52)		
11633697	HAS1C-Feedwater Heater Level C	5/31/2015		(277,174.53)	
11633777	COMNCLIME SYSTM FOR CLARI	4/15/2014	(2,807,392.09)		
11633784	COM1C REP 4160V DISCONNECT SWI	5/16/2014	(101,492.67)		
11633786	COM2C REP U2 NERC RELAYS	11/15/2015		(511,798.09)	
11633793	COM1C REP U1 GENERATOR BREAKER	6/30/2014	(403,031.50)		
11633796	COM2C REP ALL FFDC BAGS U2	12/15/2015		(1,921,438.95)	
11633814	COM3C REP ALL FFDC BAGS 2014-2015	6/30/2015		(2,506,906.57)	
11644483	RKM2C 13 Turbine Part	12/30/2013	(15,580.73)		
11644488	RKM2C 13 HGP Outage Support	11/30/2013	230,021.44		
11644496	RKM1C 15 LTE	4/15/2015		(1,531,679.56)	
11660170	HASCC - Surface Impoundments	2/27/2014	(3,223.59)		
11662983	PAW0C - Emergent work	12/31/2021	(212,174.03)	(186,683.71)	
11662986	COMOC Emergent work	12/31/2021	(370,956.86)	(665,719.11)	
11662988	CHR0C Emergent Work	12/31/2021	(636,521.89)	(570,177.24)	
11710530	COM3C U3-SSC DRIVE CAP SPARE P	11/30/2013	18,428.65		
11718101	FSV0C Emergent work	12/31/2021	(318,260.95)	(280,026.07)	
11718217	HASCC - Emergent work	12/31/2021	(212,174.03)	(190,059.13)	
11733138	GTH0C Cl Lk Metro Denver Water	11/15/2015		(9,510,450.67)	
11765517	BLS0C 13 CT Parts purchase	10/15/2013	1,097.13		
11769348	RKM2C 13 HRSG Elevator	11/29/2013	(29,770.99)		
11770771	ES0C ES Cap 13 - 18 Transportation	12/31/2018	(56,906.90)		
11774539	PAW1C - U1 13 Boiler Improve I	9/3/2014	(4,281,149.80)		
11783843	HAS1C-Replace Condensate Pump	4/15/2015		(70,352.15)	
11783846	HAS2C-Coal Mill Motor Replace	6/15/2015		(19,020.86)	

Work Order Number	Description	Est ISD	2014	2015	CACJA
11783858	HAS1C-Boiler Furnace Camera	4/30/2015		(105,758.02)	
11794831	VAL6C -V6 Gen Flex Probe	11/14/2015		(115,376.25)	
11797454	FSV4C 14 U4 89SS Switch	11/10/2014	(154,703.33)		
11797510	FSV2C U2 Evap Cooler Drain Sys	11/9/2015		(80,958.30)	
11797525	FSV4C U4 Boiler Feed Pump OH	12/31/2014	(252,005.52)	(1.00)	
11797528	FSV2C U2 HRSG Expansion Joint	10/8/2014	(245,406.63)		
11798082	BLS2C 14 U2 Turning Gear Repl	10/9/2014	(196,617.65)		
11798100	BLS1C 14 U1 Blade Replacements	10/22/2014	(315,992.17)		
11798207	RKM1C 15 U1 Major CT Parts Exc	10/8/2015		(5,766,174.23)	
11798211	RKM2C 15 U2 CT Parts Exchange	4/1/2015		-	
11798274	RKM0C 16 U0 Server Refresh	10/9/2015		-	
11798312	RKM1C 14 U1 Pump Overhaul	9/6/2014	(190,112.45)		
11798318	RKM1C 15 U1 Pump Overhaul	11/14/2015		(190,850.48)	
11798347	RKM0C 15 U0 Compressor Replace	8/31/2015		(340,667.72)	
11798714	CHR4C 14 U4 Upgrade Hot Air Ga	10/9/2014	(124,587.80)		
11798776	COM2C 2-3 EXTRACTION VALVE OPE	8/30/2013	(234.70)		
11799383	COMNCC COAL PILE WIND FENCE MO	12/31/2013	(464.08)		
11799784	BLS2C 13 U2 HMI Controls	12/31/2013	(99.53)		
11799796	CHR4C 14 U4 BFP Element Replac	11/17/2014	(386,787.01)		
11801617	PAW1C - 13 Sootblowing Air Con	2/27/2014	(73,343.58)		
11802517	VAL6C - Rplc Evap Cooler	11/16/2015		(225,844.00)	
11804533	FLP1C 14 U1 Hot Gas Path - Capital	10/8/2014	(2,154,463.64)		
11804634	FSV5C - U5 Overhaul Combustor	10/29/2015		(1,202,821.95)	
11804635	FSV6C - U6 Overhaul Combustor	10/29/2015		(1,202,821.95)	
11806665	FSV0C U0 Air Compressor New Un	10/8/2015		(129,128.07)	
11806669	FSV3C 15 ITH Joint Tensioning	4/24/2015		(161,422.98)	
11806842	FSV3C 15 Boiler Feed Pump Upgr	11/2/2015		(25,512.30)	
11806847	FSV5C U5 Evap Cooler Drain Sys	11/9/2015		(25,457.00)	
11806978	CHR4C 14 U4 Coal Mill Overhaul	10/11/2014	(420,930.77)		
11806981	TAH3C Rebuild Unit 3 at Tacoma	11/8/2015		-	
11806984	CHR4C 14 U4 Water Tower Rebuild	11/18/2014	(287,010.87)		
11806993	CHR0C 15 New Auxiliary Boiler	10/8/2015		(780,740.27)	
11807010	CHR4C 15 U4 BFP Element Replacement	10/24/2015		(353,181.58)	
11807014	CHR4C 15 Condensate Pump Upgrade	11/20/2015		(56,062.60)	
11807018	CHR0C 14 Control Room HVAC Upgrade	10/13/2014	(73,849.88)		
11807051	CHR2C 14 Sync Condenser DC Oil	11/19/2014	(420,733.49)		
11807054	CHR4C 15 New fill in 2 cooling cell	11/19/2015		(559,437.94)	
11807067	CHR4C 15 Condensate Pump Upgrade	10/8/2015		(70,156.14)	
11807079	CHR0C 15 New Mobile Crane	10/9/2015		(264,356.50)	
11807083	CHR4C 15 Upsize U4 Heat Exch	10/14/2015		(305,026.72)	
11807085	CHR4C 15 Cir Water Pump Vib Mon	10/22/2015		(12,323.06)	
11807169	TAH1C Replace Unit 1 GSU Transfor	11/1/2015		(407,971.65)	
11807174	TAH2C Replace U2 Transformer	11/5/2015		(407,971.65)	
11807194	SSH0C-Emergency Generator Inst	7/31/2014	(70,277.36)		
11807249	PAW1C 13 Air Heater Basket Replace	4/7/2014	(4,467,278.44)		
11807286	PAW1C Sonic Sootblowing System	10/9/2015		(1,169,269.01)	
11807302	PAW0C Neutralization Tank Line	5/9/2014	(96,938.56)		
11807354	PAW1C Air Register Actuators	4/28/2014	(316,977.52)		
11807359	ES0C Cap2014 Small Project Routines	12/30/2014	(687,500.00)		
11807361	ES0C Cap2015 Small Project Routines	12/30/2015		(500,000.04)	
11807385	PAW1C Primary AH Gas Inlet Dmp	5/14/2014	(86,152.24)		

Work Order Number	Description	Est ISD	2014	2015	CACJA
11807386	PAW1C Pri Air Fan Inlet Dmpr A	5/14/2014	(86,248.04)		
11807392	PAW1C Boiler Comb Monitoring Sys	6/3/2014	(806,749.51)		
11807634	PAW1C Boiler Neural Network Op	6/3/2014	(813,486.19)		
11807704	PAW1C - U1 Condenser Waterbox	10/13/2014	(112,589.27)		
11807708	PAW0C 14 Clarifier Coating	10/9/2014	(477,161.27)		
11807715	PAW0C 15 CEDI Modules	10/9/2015		(202,977.93)	
11807721	PAW0C 15 RO Module Replacement	10/9/2015		(126,855.50)	
11807725	PAW1C 15 Coal Mill Gearbox	10/19/2015		(803,029.09)	
11808274	CCH0C Incre Upper Reservoir St	12/28/2015		(819,682.85)	
11808355	COM1C REP U1 COAL PIPING	6/30/2014	(1,815,863.72)		
11808892	FSV2C U2 Station DC Batteries	8/31/2013	(35,867.60)		
11808902	FSV2C U2 CT HVAC Cooling Unit	9/30/2013	(12,458.01)		
11809210	CHR0C 13 Scrubber Sump Pump Re	2/27/2014	(86,903.32)		
11810395	COM3C - REP 1ST LAYER SCR CAT	12/31/2014	(2,342,654.69)		
11810424	COM3C WATER CANNON #5 ADDITION	10/9/2015		(508,377.89)	
11810430	COM1C UPGRADE U1 CIRC WATER TO	6/29/2014	(1,598,300.43)		
11810436	COM1C INSTALL U1 GEN. FLUX PROBE	5/15/2014	(30,044.04)		
11810445	COM1C U1 1C GEARBOX REBUILD	5/31/2014	(995,278.01)		
11810446	COM3C ECNMZR ASH SYSTM FLT CON	9/29/2014	(819,380.84)		
11810448	COMEC BC 5 A B CONVEYOR COVER	12/15/2015		(512,301.78)	
11810449	COM1C REP U1 NERC RELAY	8/1/2014	(559,298.43)		
11810450	COM1C REP TURBINE HP IP BLADES	6/30/2014	(3,350,031.15)		
11810716	COM1C CWT ACID SUPPLY	10/31/2014	(250,312.37)		
11810752	COM3C ACOUSTIC LEAK DETECT SYS	12/15/2015		(284,156.30)	
11810761	COM3C REP AIR REGISTR & BURNER TIPS	12/15/2015		(1,135,602.92)	
11810764	COM1C REP TURBINE LUBE OIL COO	5/30/2014	(641,477.46)		
11810775	COM2C -REP 2B GEARBOX	12/15/2015		(546,062.46)	
11810781	COM1C REP 1B1 REVERSE AIR FAN	5/31/2014	(333,524.37)		
11810792	COM3C TURBINE BENTLY NEVADA SYSTEM	12/15/2015		(102,235.13)	
11810828	COMECC INSTALL TRACK SWITCH TURNOUT	12/15/2015		(100,815.83)	
11810838	COM1C REP PLANT LIGHTING LEVEL 4-6	12/15/2015		(146,006.02)	
11810843	COM1C REP PLANT LIGHTING LEVEL 1-3	12/15/2015		(145,684.95)	
11813042	HAS1C - Small Project Routine	12/29/2013	(20,820.09)		
11813047	HAS2C - Small Project Routine	12/29/2013	(47,484.55)		
11813048	HASCC - Small Project Routine	12/29/2013	(17,450.52)		
11827420	COM3C REP ACC FAN BLADES	3/30/2014	(759,457.41)		
11829095	COM0C RECONSTRUCTION BC2 CONVE	5/31/2014	(1,983,077.29)		
11832563	PAW0C HVAC 7200 Volt Rm	7/31/2013	(17,835.62)		
11837938	ACT0C U1 Shaft DrivenAtom Air	3/31/2014	(119,015.20)		
11844460	COM2C REP2A COND PUMP SUCTION	6/1/2014	(11,952.64)		
11844784	HAS1C - Battery Room HVAC	2/27/2014	(30,499.28)		
11846434	CHR0C Arc Flash Detection Rela	10/31/2013	(212,589.53)		
11847416	ES0C ES Cap2014 Transportation	12/31/2014	(183,333.37)		
11847417	ES0C ES Cap2015 Transportation	12/31/2015		(399,999.96)	
11849594	CHR4C 13 480V Breaker Door Mod	10/31/2013	(5,612.09)		
11856529	PAW1C 13 A Main Transformer Bushing	10/6/2013	(154,824.81)		
11858971	COM3C U3 M&D CENTER IMPLEMENTATION	12/31/2013	(11,758.20)		
11858989	COM0C U1&2 M&D CENTER IMPLEMENTATIO	12/30/2013	(24,183.07)		
11862018	SER-PMO-M&D Central Server	3/15/2014	(66,131.83)		
11862349	COM2C ECONOMIZR SYSTEM AIR SEP TANK	2/27/2014	(143,542.65)		
11862752	FSV3C 13 U3 BFP 31A Overhaul	12/31/2013	(60.22)		

Work Order Number	Description	Est ISD	2014	2015	CACJA
11865347	RKM2C 13 Combustion Autotune S	2/27/2014	(1.00)		
11865507	FSV3C - U3 HRSG Drain Modific	10/23/2013	(83,774.25)		
11866583	CHR3C 13 Circ Water Pump OH	2/27/2014	(1.00)		
11868813	COM3C REP U3 MAIN STEAM SAFETY	11/30/2014	(70,296.35)		
11869665	COMNCC CARRY DECK CRANE	11/30/2013	(48.40)		
11871029	FSV3C - U3 HRSG MCC HVAC	12/20/2013	(5,316.10)		
11872323	CHR4C 13 Gas Ignitor Valve Rep	2/28/2014	(26,404.71)		
11872343	CHR4C 13 Burner Assembly Replace	11/17/2014	(597,271.31)		
11872915	PAW1C 13 VSD Batteries	9/30/2013	(9,107.73)		
11876857	CHR0C 13 Fuel Gas Regulating Skid	10/31/2014	(1,030,617.03)		
11878789	HAS1C -Cooling Tower Transform	2/27/2014	(28,302.01)		
11884341	RKM1C 13 U1 Battery Charger	1/30/2014	(69,289.76)		
11884741	PAW1C 13 SBAC Upgrades	2/27/2014	(1,441,782.32)		
11884744	PAW1C 13 E Mill Motor	3/1/2014	(19,951.65)		
11887746	RKM3C 13 Spring Bar Bolted Cle	1/30/2014	(17,175.62)		
11889092	COM0C REP RECYCLE ASH RECIRC VALVE	2/15/2014	(7,982.55)		
11890393	PAW1C 13 SFC Recirc Valves	11/30/2013	(2,073.95)		
11890395	PAW0C 13 Ebasco Warehouse HVAC	12/16/2013	(4,360.41)		
11891315	CCH0C Replace Sump Pumps	12/30/2013	(33,132.54)		
11894743	FSV3C 13 Compressor Motor Rewind	12/31/2013	(6,932.83)		
11894747	PAW1C 13 Mill Guillotine Dampers	6/20/2014	(628,630.81)		
11901798	BLS2C 13 Station Battery Repla	2/27/2014	(4,933.56)		
11903242	CCH0C Unit A SF6 Breaker Replacemen	12/30/2013	(169,945.30)		
11904078	PAW0C 13 VSD UPS	12/23/2013	(64,452.99)		
11904892	FSV0C Plant Site Fencing	3/31/2014	(20,381.44)		
11907440	FSV0C 13 Chem Lab Roof	2/27/2014	(11,146.63)		
11907884	COMNCC BALANCING TOOLS	2/27/2014	(8,496.91)		
11912228	FSV3C 13 CT Stage 3 Buckets/Nozzles	12/31/2013	(109.47)		
11913586	PAW0C 13 834 Dozer Rebuild	11/30/2013	(120,927.50)		
11915333	PAW1C 13 Cooling Tower Fan Mot	2/27/2014	(13,471.82)		
11915338	PAW1C 13 Aux Steam Check Valve	12/31/2013	(3,512.99)		
11917918	PAW1C 13 Drive Assy/Shroud CWT L	12/31/2013	6,119.25		
11939140	CCH0C 2014 Routine Small Proj Cap	12/15/2014	(32,183.74)		
11939865	COMNCC FALL PROTECT HOOK OFF PT.	4/30/2014	(5,400.00)		
11939892	COM1C INSTALL OVATION SECURITY CEN	5/29/2014	(70,429.83)		
Grand Total			**(401,745,413.10)**	**(728,616,368.21)**	

Xcel Energy

Clean Air Clean Jobs Program - Cherokee Station
2x1 Combined Cycle Project - Summary Cost Estimate

CONTRACT Code	Description	Baseline Budget 17-Apr-12	Current Estimate 31-May-14	Budget Delta	Spent to-date 31-May-14
ENGINEERING CONTRACTS					
SIA	Site Infrastructure Assessment	1,400,000	1,400,000	0	1,385,042
PMS	Program Management Contractor	2,200,000	1,340,000	860,000	1,334,555
SAC	Staff Augmentation Contractor	3,000,000	1,425,000	1,575,000	1,207,155
ENG	Engineering Contracts	5,500,000	350,000	5,150,000	236,701
OWNER FURNISHED EQUIPMENT					
OFE	STG, CTG, HRSG, GSU	216,500,000	164,820,000	51,680,000	147,543,428
CONSTRUCTION CONTRACTS					
CCC	Construction Contractors	244,000,000	319,860,000	-75,860,000	199,204,524
SPECIALTY CONTRACTS					
LEG	Legal Counsel	700,000	700,000	0	279,904
PMT	Permits	1,000,000	800,000	200,000	766,913
TIS	Testing, Studies, Surveys	1,390,000	1,500,000	-110,000	395,075
MISCELLANEOUS PURCHASE ORDERS					
MPO	Miscellaneous Purchase Orders	1,700,000	1,700,000	0	361,388
INDIRECT COSTS					
EXP	Expenses	363,000	450,000	-87,000	326,795
OVH	Overhead & Insurance	6,500,000	6,700,000	-200,000	4,434,285
STC	Startup Consumables / Services	7,555,000	8,900,000	-1,345,000	198,596
XLL	Company Labor	9,000,000	10,700,000	-1,700,000	5,932,603
XLS	Contract Labor	10,155,000	8,350,000	1,805,000	4,887,181
CONTINGENCY					
RSK	Escalation & Contingency	18,032,000	0	18,032,000	0
SUB-TOTAL ENERGY SUPPLY		**$528,995,000**	**$528,995,000**	**$0**	**$368,494,146**
TRANSMISSION ASSET UPGRADES					
TLS	Switchyard Interconnect	2,530,000	2,530,000	0	1,100,000
TOTAL PROJECT		**$531,525,000**	**$531,525,000**	**$0**	**$369,594,146**

Xcel Energy
Clean Air Clean Jobs Program
Cherokee 2x2x1 Combined Cycle Project
Project Capital Cost Estimate
-CONFIDENTIAL-

Project Description/Scope Definition:	Equipment/Material			Labor		Other			
Description	Equipment Cost	Freight & Handling	Sales/Use Tax 4.85%	Install Cost	Sub-Contracts	Contingency	Escalation	Baseline Cost	Current Estimate
[redacted]									
TOTAL PROJECT COSTS	[redacted]							$531,525,000	$531,525,000

Highly Confidential Attachment No. MRF-2A

(Cherokee 2X1 Combined Cycle Project Capital Cost Estimate)

Filed Under Seal

Xcel Energy

Hayden SCR Unit 1 Summary Cost Estimate

CONTRACT	Description	Baseline Estimate 01-Sep-11	Estimate 31-May-13	Budget Delta	Spent to-date $	Spent to-date %
Direct Contracts						
AE	Engineering & Service Contracts	4,277,000	3,823,949	$ 453,051	2,963,937	77.5%
CC	Construction Contracts	21,728,000	31,787,897	$ (10,059,897)	7,053,987	22.2%
CE	Controls Equipment	0	489,639	$ (489,639)	383,336	78.3%
EE	Electrical Equipment	1,559,000	60,000	$ 1,499,000	0	0.0%
ME	Mechancial Equipment	20,843,000	20,616,516	$ 226,484	14,204,742	68.9%
	Totals	**$48,407,000**	**$56,778,001**	**$ (8,371,001)**	**$24,606,001**	**43%**
Indirects						
ZA	Misc Site P.O.s	445,000	609,066	$ (164,066)	221,985	36.4%
ZH	Xcel Energy Costs	1,838,000	958,650	$ 879,350	347,151	36.2%
ZL	Xcel Energy Labor	3,018,000	2,520,000	$ 498,000	909,186	36.1%
ZS	Staff Augmentation Contracts	9,761,000	3,037,815	$ 6,723,185	945,037	31.1%
ZZ	Contingency	11,368,000	10,007,468	$ 1,360,532	0	0.0%
	Totals	**$26,430,000**	**$17,132,999**	**$ 9,297,001**	**$2,423,359**	**14.1%**
	PROJECT TOTAL	**$74,837,000**	**$73,911,000**	**$ 926,000**	**$27,029,360**	**36.6%**
	Energy Supply Total for PSCO Share (75.5%)	**$56,501,935**	**$55,802,805**	**$ 699,130**	**$20,407,167**	**36.6%**

Xcel Energy

Hayden SCR Unit 2 Summary Cost Estimate

CONTRACT	Description	Baseline Estimate 01-Sep-11	Current Estimate 31-May-14	Budget Delta	Spent to-date $	Spent to-date %
Direct Contracts						
AE	Engineering & Service Contracts	5,219,000	4,108,791	$ 1,110,210	2,708,306	65.9%
CC	Construction Contracts	26,711,000	35,294,531	$(8,583,531)	1,277,807	3.6%
CE	Controls Equipment	0	244,819	$ (244,819)	191,350	78.2%
EE	Electrical Equipment	2,078,000	60,000	$ 2,018,000	0	0.0%
ME	Mechancial Equipment	24,098,000	25,021,590	$ (923,590)	11,484,315	45.9%
	Totals	**$58,106,000**	**$64,729,731**	**$ (6,623,731)**	**$15,661,778**	**24%**
Indirects						
ZA	Misc Site P.O.s	529,000	716,751	$ (187,751)	199,008	27.8%
ZH	Xcel Energy Costs	2,287,000	1,238,650	$ 1,048,350	279,787	22.6%
ZL	Xcel Energy Labor	3,081,000	3,698,000	$ (617,000)	509,950	13.8%
ZS	Staff Augmentation Contracts	10,298,000	4,346,646	$ 5,951,354	448,210	10.3%
ZZ	Escalation & Contingency	16,219,000	16,350,223	$ (131,223)	0	0.0%
	Totals	**$32,414,000**	**$26,350,270**	**$ 6,063,731**	**$1,436,954**	**5.5%**
	PROJECT TOTAL	**$90,520,000**	**$91,080,000**	**$ (560,000)**	**$17,098,732**	**18.8%**
	Energy Supply Total for PSCO Share (37.4%)	**$33,854,480**	**$34,063,920**	**$ (209,440)**	**$6,394,926**	**18.8%**

Xcel Energy

Xcel Energy
Clean Air Clean Jobs Program
Hayden 1 SCR Project (COD June 1, 2015)
Project Capital Cost Estimate
-CONFIDENTIAL-

Project Description/Scope Definition:	Equipment/Material Section			Labor Section	Labor	Equipment/Material				
Description	Key Quantity	Unit Cost	Total Equipment Material Cost	Total Install Cost	Sub-Contracts	Freight & Handling	Sales/Use Tax 3.9%	Contingency	Escalation	Total Cost
[redacted]										
TOTAL PROJECT COSTS			[redacted]							$73,911,000
TOTAL PSCO Share (75.5%)			[redacted]							$55,802,805

As Of May 31, 2014			
Projected Equipment Material Cost	ProjectedTotal Install Cost	Projected Sub-Contracts	Projected Total Cost
[redacted]			
[redacted]			$73,911,000
[redacted]			$55,802,805

Note: Costs included w/inlet duct

Xcel Energy

Xcel Energy
Clean Air Clean Jobs Program
Hayden 2 SCR Project (COD June 1, 2016)
Project Capital Cost Estimate
-CONFIDENTIAL-

Project Description/Scope Definition:	Equipment/Material Section			Labor Section	Labor	Equipment/Material				
Description	Key Quantity	Unit Cost	Total Equipment Material Cost	Total Install Cost	Sub-Contracts	Freight & Handling	Sales/Use Tax 3.9%	Contingency	Escalation	Total Cost
[redacted]										
TOTAL PROJECT COSTS			[redacted]							$91,017,000
Total PSCO Share (37.4%)			[redacted]							$34,040,358

As Of May 31, 2014			
Projected Equipment Material Cost	ProjectedTotal Install Cost	Projected Sub-Contracts	Projected Total Cost
[redacted]			
[redacted]			$91,080,000
[redacted]			$34,063,920

Note: Costs included w/inlet duct

Highly Confidential Attachment No. MRF-3A
(Hayden SCR Project Capital Cost Estimate)

Filed Under Seal

Xcel Energy

Pawnee CACJA Summary Cost Estimate

CONTRACT		Baseline Estimate	Current Estimate	Budget Delta	Spent to-date	
	Description	01-Jun-10	31-May-14		$	%
Direct Contracts						
AE	Engineering & Service Contracts	12,934,711	15,195,471	-2,260,760	14,975,100	98.5%
CC	Construction Contracts	74,269,921	147,519,669	-73,249,748	140,710,179	95.4%
CE	Controls Equipment	528,217	1,669,026	-1,140,809	1,658,996	99.4%
EE	Electrical Equipment	2,291,000	4,535,551	-2,244,551	4,498,430	99.2%
ME	Mechancial Equipment	113,826,721	89,882,283	23,944,438	85,473,597	95.1%
	Totals	**$203,850,570**	**$258,802,000**	**-$54,951,430**	**$247,316,302**	**96%**
Indirects						
ZA	Misc Site P.O.s	2,166,697	776,450	1,390,247	529,087	68.1%
ZH	Xcel Energy Costs	5,653,513	1,831,303	3,822,210	1,552,121	84.8%
ZL	Xcel Energy Labor	4,584,220	4,421,368	162,852	4,050,615	91.6%
ZS	Staff Augmentation Contracts	4,250,000	6,506,879	-2,256,879	5,089,138	78.2%
ZZ	Contingency and Escalation	31,539,542	0	31,539,542	0	0.0%
	Totals	**$48,193,972**	**$13,536,000**	**$34,657,972**	**$11,220,961**	**82.9%**
	ENERGY SUPPLY TOTAL	**$252,044,542**	**$272,338,000**	**-$20,293,458**	**$258,537,262**	**94.9%**

Xcel Energy
Clean Air Clean Jobs Program
Pawnee SCR & Scrubber Installation Project
Project Capital Cost Estimate
-CONFIDENTIAL-

Project Description/Scope Definition:	Equipment/Material Section			Labor Section	Labor	Equipment/Material				As Of May 31, 2014			
Description	Key Quantity	Unit Cost	Total Equipment Material Cost	Total Install Cost	Sub-Contracts	Freight & Handling	Sales/Use Tax 2.9%	Contingency	Total Cost	Projected Equipment Material Cost	ProjectedTotal Install Cost	Projected Sub-Contracts	Projected Total Cost
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Xcel Energy
Clean Air Clean Jobs Program
Pawnee SCR & Scrubber Installation Project
Project Capital Cost Estimate
-CONFIDENTIAL-

Project Description/Scope Definition:	Equipment/Material Section			Labor Section	Labor	Equipment/Material				As Of May 31, 2014			
Description	Key Quantity	Unit Cost	Total Equipment Material Cost	Total Install Cost	Sub-Contracts	Freight & Handling	Sales/Use Tax 2.9%	Contingency	Total Cost	Projected Equipment Material Cost	ProjectedTotal Install Cost	Projected Sub-Contracts	Projected Total Cost
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ESCALATED TOTAL PROJECT COST									**$252,044,542**				**$272,338,000**

Note 1 Costs included in Reactor Housing - SCR
Note 2 Costs included in Inlet Duct -SCR
Note 3 Costs included in SO2 Removal System - Scrubber
Note 4 Costs included in Boiler and Duct stiffening and Fabric Filter Dust Collector Upgrades

Highly Confidential Attachment No. MRF-4A

(Pawnee SCR and Scrubber Project Capital Cost Estimate)

Filed Under Seal

Type of Cost	Operating & Maintenance
CC25	(All)
Business Unit	(All)
FERC Account	(All)
FERC Description	(All)
Sub-Business Area	(All)

Sum of Total PSCo Electric		
Business Area	Object Account	Total
Energy Supply	711142 Productive Labor	$45,615,981
	711143 Reg Labor Loading-NonProductiv	$9,279,608
	711150 Premium Time	$1,624,128
	711190 Overtime	$8,437,727
	711270 Other Compensation	$133,149
	711275 Other Comp- Welfare Fund	-$176
	712110 Contract Labor	$21,336,178
	713000 Consulting/Prof Svcs-Other	$3,082,287
	713050 Contract LT Outside Vendor	$21,489,755
	713055 Outside Srvcs-Cust Care	$1,344
	714000 Materials	$26,810,556
	714070 Chemicals - Other Chemicals	$4,053,897
	714075 Chemicals - Lime	$7,444,603
	714077 Chemicals - Trona	$597,079
	714080 Chemicals - Mercury Sorbent	$982,523
	714082 Chemicals - Ammonia	$707,838
	714084 Chemicals - Sulfuric Acid	$717,181
	714100 Print/Copy-Other	$26,624
	714500 Equipment Maintenance	-$1,161
	715600 Personal Communication Devices	$257,689
	715710 Network Voice	$16,735
	715720 Network Data	$14,409
	715810 Distributed Systems Services	$37,366
	715820 App Dev & Maint	$22,248
	721005 EE Exp Airfare	$160,635
	721010 EE Exp Car Rental	$118,245
	721015 EE Exp Taxi/Bus	$5,982
	721020 EE Exp Mileage	$178,995
	721025 EE Exp Conf/Semnrs/Trng	$266,321
	721030 EE Exp Hotel	$424,536
	721035 EE Exp Meals/EE's	$360,591
	721040 EE Exp Meals/Incl.Non-EE's	$12,331
	721045 EE Exp Parking	$25,812
	721050 EE Exp Per Diem	$10,588
	721055 EE Exp Safety Equip	$146,453
	721060 EE Exp Other	$146,569
	721500 Office Supplies	$177,670
	721700 Workforce Admin Expense	$354
	721800 Safety Recognition	$220,151
	721810 Life Events	$2,145
	722000 Transportation Fleet Cost	$940,398
	723015 Water for Hydro Pwr Use	$203,472
	723021 Routine Janitorial	$226,968

Business Area	Object Account	Total
	723027 General Interior/Exterior Main	$3,556
	723031 Electric Use Costs	$361,213
	723032 Gas Use Costs	$263,076
	723033 Lawn Care Maint Costs	$56,392
	723034 Sewer Maint Costs	$110,823
	723035 Snow Removal Costs	$23,803
	723036 Trash Removal Costs	$3,401
	723037 Water Use Costs	$8,802,212
	723040 Moves/Adds/Changes	$16,598
	723110 Space	-$1,274
	723130 Equipment Rental	$785,970
	723131 Steam Gen Rents	$0
	723300 Lease Costs	-$1
	723400 Postage	$55,989
	723480 Injuries & Damages	$525,000
	723720 Advertising - General	$83
	723810 Professional Association Dues	$24,468
	723820 Utility Association Dues	$220,213
	723821 Electric Util Assoc Dues	$129,585
	723833 Charitable Contributions	$10,413
	723834 Community Sponsorships	$13,005
	723835 Civic & Political	$102
	723854 Deductions-Corp Tickets	$17,511
	723855 Other Deductions	$3,160
	723860 Bank Charges	$5,194
	723860.1000 Bank Charges -Jt Vtr Oper Acct	$2,404
	723890 Environmental Permits & Fees	$710,410
	723895 License Fees & Permits	$721,427
	723897 Penalties	-$636,490
	724100 Misc O&M Credits	-$5,834,635
	725000 Other	$2,354,609
	725005 Online Information Services	$64,615
	725100 Operating Co. Overheads	$1,403,215
	725100.1000 Op Co OH - A&G	$0
	725110 Craig Partnership O&M	$6,633,349
Energy Supply Total		$173,165,174
Grand Total		$173,165,174

Type of Cost	Operating & Maintenance
Object Account	(All)
CC25	(All)
Sub-Business Area	(All)
Business Unit	(All)

Sum of Total PSCo Electric			
Business Area	FERC Account	FERC Description	Total
Energy Supply	417.1	Exp from Non-Utility	$0
	426.1	Donations	$23,418
	426.3	Penalties	-$636,490
	426.4	Expenditures for Civic,	$102
	426.5	Other Deductions	$20,671
	500	Stm Prod Op & Supr	$4,158,191
	501	Stm Gen Fuel	-$128,572
	502	Steam Expenses Major	$34,071,167
	505	Stm Gen Elec Exp. Major	$7,458,131
	506	Misc Steam Pwr Exp	$13,822,550
	507	Stm Pow Gen Rents	$2,428
	510	Stm Maint Super&Eng	$3,324,851
	511	Stm Maint of Structures	$8,906,739
	512	Stm Maint of Boiler Plt	$34,491,153
	513	Stm Maint of Elec Plant	$10,137,836
	514	Stm Maint of Misc Stm Plt	$16,820,552
	535	Hyd Oper Super & Eng	$416,142
	536	Hyd Oper Water for Pwr	$203,520
	537	Hydro Oper Hydraulic Exp	$1,063,782
	538	Hyd Oper Electric Exp	$62,518
	539	Hydro Oper Misc Gen Exp	$1,306,901
	541	Hydro Mtc Super& Eng	$1,362
	542	Hyd Maint of Structures	$793,334
	543	Hydro Mtc Resv, Dams	$871,491
	544	Hyd Maint of Elec Plant	$706,527
	545	Hyd Mt Misc Hyd Plnt Mjr	$243,027
	546	Oth Oper Super&Eng	$1,489,409
	547	Oth Oper Fuel	$3,857
	548	Oth Oper Gen Exp	$2,879,552
	549	Oth Oper Misc Gen Exp	$6,171,553
	550	Oth Oper Rents	$46,844
	551	Oth Maint Super & Eng	$301,819
	552	Oth Maint of Structures	$3,481,494
	553	Oth Mtc of Gen & Ele Plant	$14,813,203
	554	Oth Mtc Misc Gen Plt Mjr	$3,106,742
	556	Load Dispatch	$12,288
	560	Trans Oper Super & Eng	$180,331
	562	Trans Oper Station Exp	$81,723
	563	Trans Oper OH Lines	$2,900
	566	Trans Oper Misc Exp	$4,328
	568	Trans Mtce Super & Eng	$1,192
	570	Tran Mnt of Station Equip	$81,061
	571	Trans Mt of Overhead Line	$6,368
	580	Dist Oper Sup & Eng	$5

Business Area	FERC Account	FERC Description	Total
	588	Dist Oper Misc Exp	$183
	590	Dist Mtc Super & Eng	$435,171
	598	Dist Maint of Dist Plant	$0
	859	Trans - Other Equip	$0
	863	Trans Mtce Mains	$0
	874	Dist Exp-Mains & Serv	$0
	902	Cust Acct Meter Read	$0
	903	Cust Acct Recrds &Coll	$5,194
	905	Cust Acct Misc	$0
	908	Customer Asst Expense	$31
	920	A&G Salaries	$1,873,641
	921	A&G Office & Supplies	$584,666
	922	A&G Admn Transfer Crdt	-$5,834,635
	923	A&G Outside Services	$285,948
	925	A&G Injuries & Damages	$525,000
	930.1	A&G General Advertising	$83
	930.2	A&G Misc General Exp	$4,476,684
	932	A&G Maint of Structures	$0
	935	A&G Maint of Gen PLT	$7,209
Energy Supply Total			$173,165,174
Grand Total			$173,165,174