

NOTICE OF CONFIDENTIALITY
ATTACHMENTS TO THIS TESTIMONY HAVE BEEN FILED UNDER SEAL.

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

* * * * *

RE: IN THE MATTER OF ADVICE)
LETTER NO. 1748-ELECTRIC FILED BY)
PUBLIC SERVICE COMPANY OF)
COLORADO TO REVISE ITS) PROCEEDING NO. 17AL-_____E
COLORADO PUC NO. 8-ELECTRIC)
TARIFF TO IMPLEMENT A GENERAL)
RATE SCHEDULE ADJUSTMENT AND)
OTHER RATE CHANGES EFFECTIVE)
ON THIRTY-DAYS' NOTICE.)

DIRECT TESTIMONY AND ATTACHMENTS OF
TIMOTHY R. BROSSART

ON

BEHALF OF

PUBLIC SERVICE COMPANY OF COLORADO

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ATTACHMENTS TO THIS TESTIMONY HAVE BEEN FILED UNDER SEAL

Confidential: Confidential Attachments TRB-2 through 4, 11 and 12

October 3, 2017

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SUMMARY OF THE DIRECT TESTIMONY OF TIMOTHY R. BROSSART

1 Mr. Timothy R. Brossart is Area Vice President, Enterprise Transformation Office.
2 In this position, Mr. Brossart is responsible for providing overall oversight and
3 governance for the Xcel Energy-wide Productivity Through Technology ("PTT") initiative,
4 which is the name Xcel Energy has given to its initiative to replace the outdated general
5 ledger and work and asset management systems with the new, integrated SAP General
6 Ledger ("GL") and Work and Asset Management ("WAM") solutions. His duties include
7 responsibilities in the areas of program management, business architecture, change
8 management and data governance.

9 In his Direct Testimony, Mr. Brossart supports the Company's assessment of its
10 existing systems, its decision-making process with respect to the new SAP platform,
11 and its implementation of the GL and WAM systems. In doing so, Mr. Brossart supports
12 the following total PTT capital additions that Company witness Ms. Lisa H. Perkett

utilizes to develop the beginning balance in the plant-related roll-forward for the 2018-2021 Multi-Year Plan ("MYP") period:

Table TRB-D-1
PTT Capital Additions – Public Service Electric Utility
(Dollars in Millions)

	2015 Actuals	2016 Actuals	2017 Forecast	Total
GL Capital	\$15.60	\$1.56	--	\$17.16
WAM Capital	--	\$8.89	\$88.56	\$97.45
Total	\$15.60	\$10.45	\$88.56	\$114.61

This roll-forward is in turn used by Company witness Ms. Deborah A. Blair to calculate the 13-month average plant in service balance for each year of the MYP. Mr. Brossart also supports the approximately \$3.9 million in 2016 PTT project implementation Operations & Maintenance ("O&M") expenses that are included in the MYP cost of service, as illustrated further by the Direct Testimony of Company witness Mr. David C. Harkness.

In support of these requests, Mr. Brossart describes the Company's detailed process for assessing its existing GL and WAM systems, the alternatives examined to address the identified risks associated with these systems, the Company's strategy for moving forward with integrated SAP GL and WAM systems, and the Company's implementation process. Mr. Brossart also provides support for the PTT capital additions, which are expected to be complete by the end of 2017, as well as the PTT O&M expenditures incurred during 2016.

Mr. Brossart presents the level of capital additions and O&M presented in his testimony as reasonable and necessary to support Public Service's ability to provide

- 1 safe and reliable electric service to its customers, and therefore are a reasonable basis
- 2 for the Company's cost of service.

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LIST OF ATTACHMENTS

Attachment TRB-1	Amy Stitt Rebuttal Testimony in Proceeding No. 15AL-0135G
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Confidential Attachment TRB-4	Risk and Health Assessment – Maximo Application
Attachment TRB-5	2012 Site Visit Benchmarking Summary
Attachment TRB-6	Preliminary Recommendations
Attachment TRB-7	High Level Cost Estimates
Attachment TRB-8	Passport Functions Linked to General Ledger
Attachment TRB-9	RFI Evaluation – System Selection Results
Attachment TRB-10	RFP Consolidated Scoring & Evaluation
Confidential Attachment TRB-11	Cost Comparison & Risk Assessment Results
Confidential Attachment TRB-12	Cost Benchmarking Data
Attachment TRB-13	Electric Plant Additions
Attachment TRB-14	GL & WAM To Date Capital Spend – By Budget Category
Attachment TRB-15	GL & WAM To Date Capital Spend – By Project Phase
Attachment TRB-16	O&M Benefits of PTT by Business Area
Attachment TRB-17	Cost Benefit Analysis

GLOSSARY OF ACRONYMS AND DEFINED TERMS

<u>Acronym/Defined Term</u>	<u>Meaning</u>
2014 Electric Phase I	Proceeding No. 14AL-0660E
2015 Gas Phase I	Proceeding No. 15AL-0135G
AACE	Association for the Advancement of Cost Engineering
Commission	Colorado Public Utilities Commission
ERP	Enterprise Resource Planning
ETO	Enterprise Transformation Office
FERC	Federal Energy Regulatory Commission
GAAP	Generally Accepted Accounting Principles
GL	General Ledger
ISOW	Individual Statements of Work
IT	Information Technology
IEEE	Institute of Electrical and Electronics Engineers
JDE	JD Edwards
Maximo	Maximo 5.2
MYP	Multi-Year Plan
NCE	New Century Energies
NSP	Northern States Power
O&M	Operations and Maintenance
PMO	Project Management Office
PTT	Productivity Through Technology

<u>Acronym/Defined Term</u>	<u>Meaning</u>
Public Service, or the Company	Public Service Company of Colorado
RFI	Request for Information
RFP	Request for Proposal
RICEFW	Reports, Interfaces, Conversions, Extensions, Forms and Workflows
SEC	Security Exchange Commission
XES	Xcel Energy Services Inc.
WAM	Work and Asset Management
Xcel Energy	Xcel Energy Inc.

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I. INTRODUCTION, QUALIFICATIONS, AND PURPOSE OF TESTIMONY

Q. PLEASE STATE YOUR NAME AND BUSINESS ADDRESS.

A. My name is Timothy R. Brossart. My business address is 1800 Larimer Street,
Denver, Colorado 80202.

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

A. I am employed by Xcel Energy Services Inc. ("XES") as Area Vice President,
Enterprise Transformation Office. XES is a wholly-owned subsidiary of Xcel
Energy Inc. ("Xcel Energy"), and provides an array of support services to Public
Service Company of Colorado ("Public Service" or the "Company") and other
utility operating company subsidiaries of Xcel Energy on a coordinated basis.

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

A. I am testifying on behalf of Public Service.

1 **Q. PLEASE SUMMARIZE YOUR RESPONSIBILITIES AND QUALIFICATIONS.**

2 A. As the Area Vice President of the Enterprise Transformation Office, I am
3 responsible for providing overall oversight and governance for the Xcel Energy-
4 wide Productivity Through Technology (“PTT”) initiative. My duties include
5 responsibilities in the areas of program management, business architecture,
6 change management and data governance. A description of my qualifications,
7 duties, and responsibilities is set forth after the conclusion of my Direct
8 Testimony in my Statement of Qualifications.

9 **Q. WHAT IS THE PURPOSE OF YOUR DIRECT TESTIMONY?**

10 A. The purpose of my testimony is to support the Company’s request for cost
11 recovery with respect to the Xcel Energy PTT initiative. In Part II, I begin by
12 describing the PTT initiative and the two primary components of the integrated
13 PTT initiative: the SAP General Ledger (“GL”) system replacement project and
14 the SAP Work and Asset Management (“WAM”) system replacement project.

15 In Part III, I provide an overview of previous Public Service testimony filed
16 in support of the PTT initiative.

17 In Part IV, I discuss the outdated general ledger and work and asset
18 management systems and why it was important and necessary to replace these
19 systems.

20 In Part V, I explain Xcel Energy’s process for selecting the particular
21 components of the PTT initiative. This includes a description of the initial risk
22 assessment identifying the need for the new GL and WAM systems. I also

1 describe how Xcel Energy utilized a competitive bid process to select
2 components that presented the best value for the business and our customers.

3 Next, in Part VI, I describe how the PTT initiative has been and continues
4 to be implemented.

5 Finally, in Part VII, I present Public Service's current share of costs for
6 PTT and discuss the anticipated benefits of the program.

7 **Q. ARE YOU SPONSORING ANY ATTACHMENTS AS PART OF YOUR DIRECT**
8 **TESTIMONY?**

9 A. Yes, I am sponsoring Attachments TRB-1 through TRB-17, which were prepared
10 by me or under my direct supervision.

1 **II. PRODUCTIVITY THROUGH TECHNOLOGY OVERVIEW**

2 **Q. WHAT IS PRODUCTIVITY THROUGH TECHNOLOGY?**

3 A. PTT is the name we have given the overall initiative to replace Xcel Energy's
4 outdated general ledger and work and asset management systems, which are
5 obsolete. Prior to the PTT initiative, Xcel Energy relied on outdated general
6 ledger and work and asset management technologies. Overall, PTT is a large,
7 integrated effort to replace a set of aging technologies that are central to our
8 business with an SAP Enterprise Resource Planning platform. Within this
9 platform, the GL replacement project was placed into service in December 2015.
10 The WAM replacement project is expected to be completely in-service by fourth
11 quarter of 2017.

12 **Q. IS THIS THE FIRST TIME THE COMPANY HAS PROVIDED TESTIMONY**
13 **REGARDING PTT?**

14 A. No. The Company provided testimony regarding components of PTT in both the
15 Company's 2014 Electric Rate Case, Proceeding No. 14AL-0660E ("2014
16 Electric Phase I"), and in the Company's 2015 Gas Rate Case, Proceeding No.
17 15AL-0135G ("2015 Gas Phase I"). I discuss the outcome of those proceedings
18 in more detail in Part III of my Direct Testimony.

1 **Q. PLEASE DESCRIBE THE GL REPLACEMENT PROJECT, INCLUDING ITS**
2 **PURPOSE AND BENEFITS.**

3 A. The project was a two-year effort to replace Xcel Energy's accounting
4 environment, which includes the GL as well as supporting functions related to the
5 sub-ledger, project tracking, and expenditure allocation.

6 **Q. WHY DID XCEL ENERGY BEGIN IMPLEMENTING A NEW GL AT THIS TIME?**

7 A. The existing JD Edwards ("JDE") GL system was reaching end-of-life and was no
8 longer going to be supported by the vendor. As I discuss in more detail later, Xcel
9 Energy investigated several options and determined that replacement was the
10 best option for the GL.

11 **Q. AT A HIGH LEVEL, WHAT ARE THE ANTICIPATED BENEFITS OF THE NEW**
12 **GL?**

13 A. The benefits of the new GL included a simplified chart of accounts structure,
14 better analysis capabilities between accounting results and supporting business
15 drivers, better traceability from operations and Generally Accepted Accounting
16 Principles ("GAAP") accounting to individual Federal Energy Regulatory
17 Commission ("FERC") accounts, and improved process and workflow
18 functionality to reduce accounting support requirements. The GL replacement
19 project went into service in 2015, with some post-implementation capital incurred
20 in 2016, and constitutes a total capital addition of \$17.16 million for Public
21 Service Electric.

Q. WHAT IS A WORK AND ASSET MANAGEMENT SYSTEM?

A. A WAM system or systems is the core technology for overseeing utility work planning and scheduling, designing jobs and collecting costs, outage management, vendor contract management, materials procurement and inventory management, and asset maintenance and support. Xcel Energy had three core WAM systems: Maximo 5.2 ("Maximo"), which is our Energy Supply WAM system; Corporate Passport, which is the WAM system for Supply Chain (procurement) and the other Business Areas; and Nuclear Passport, which is a separate WAM system used by Xcel Energy's nuclear plants. Through the WAM portion of the PTT initiative, Xcel Energy is replacing these three old systems with an integrated solution that provides current technology and will work in tandem with our new GL system. Xcel Energy expects to complete placing the WAM replacement project in service in the fourth quarter of 2017.

Q. WHY DID XCEL ENERGY BEGIN IMPLEMENTING A WAM SOLUTION AT THIS TIME?

A. Corporate Passport was placed in service in 2001; Nuclear Passport was placed in service in 2005; and Maximo was placed in service in 2004. These systems are very dated for software systems of the type, and therefore do not have the functionality needed for a modern utility. Further, given the age of these systems, the original software vendors are no longer providing full support or upgrades with robust protection against system failure or cyber-attacks. This not only created potential vulnerabilities, but made repairs more costly to our customers

1 with risk of delays that could jeopardize certain aspects of our day-to-day
2 operations. As such, Xcel Energy could no longer delay replacement of these
3 dated technologies.

4 **Q. WHY ARE THE GL AND WAM BOTH CONSIDERED PART OF A SINGLE PTT**
5 **INITIATIVE?**

6 A. Because the JDE, Corporate Passport, Nuclear Passport, and Maximo systems
7 were all facing the need for replacement at approximately the same time, Xcel
8 Energy investigated the options for replacing these systems at the same time. As
9 I describe in more detail later in my Direct Testimony, we ultimately identified an
10 integrated Enterprise Asset Management System by vendor SAP to replace each
11 of these current solutions.

12 **Q. CAN YOU PROVIDE MORE INFORMATION EXPLAINING WHAT UTILITY**
13 **NEEDS WAM SERVES?**

14 A. Yes. An asset management system provides tools to enable a utility to manage
15 its workforce and infrastructure effectively. WAM can be broadly defined as the
16 technology supporting asset management, work management, and materials
17 management.

18 Utilities are asset-intensive entities and are responsible for managing a
19 large number and variety of electric and gas transmission and distribution
20 systems and power generation facilities. The effectiveness with which utilities
21 manage these assets translates into safer, more reliable, and often quicker

1 service for customers through more efficient crew scheduling and material
2 delivery to service sites, as described in more detail below.

3 **Q. PLEASE PROVIDE AN OVERVIEW OF THE BENEFITS OF THE WAM**
4 **REPLACEMENT PROJECT.**

5 A. WAM systems are the technology used to manage essentially three categories of
6 fundamental utility needs: work crew scheduling and work assignment, work
7 execution and documentation, and procurement optimization. The WAM
8 replacement project is: (1) replacing the Passport and Maximo systems to bring
9 technology up to date and improve functionalities with respect to overseeing
10 utility work planning and scheduling, designing jobs and collecting costs, outage
11 management, vendor contract management, materials procurement and
12 inventory management, and asset maintenance and support; (2) automating
13 scheduling and work assignments; (3) optimizing procurement and improving
14 supply chain processes; and (4) improving service, safety, reliability, and overall
15 customer service response.

16 **Q. PLEASE DESCRIBE HOW THE NEW WAM SYSTEM WILL ENABLE**
17 **SCHEDULING AND WORK ASSIGNMENT.**

18 A. The new WAM system will become the basic foundation through which we
19 manage scheduling and work assignment.

20 Under the current system, we manage scheduling and work assignments
21 to field crews through a relatively manual process. We are not able to monitor
22 work progress on a real-time basis and therefore cannot readily fill gaps in work

1 through electronic dispatching. Crews have to call their supervisor or planner to
2 let them know they are finishing early and need additional work assignments. In
3 addition, a crew's work is scheduled for the day based on jobs clustered in a
4 specific community, which may or may not be the optimal route depending on a
5 variety of potential factors.

6 Therefore, the move from semi-manual to fully automated scheduling
7 through updated technology will enable better coordination of job site readiness
8 before crews are dispatched. Employees will have better planning tools to ensure
9 that material is available and properly staged; planning time to create and attach
10 permits to jobs will be reduced; and there will be better coordination of ancillary
11 resources to ensure all job pre-requisites have been completed before work
12 crews arrive at the job site. Supervisors will be able to spend more time in the
13 field, and coordination between work groups on outages will improve due to
14 better coordination of jobs through real time communication.

15 More specifically, with the improved WAM system, managers can be more
16 efficient in planning job timing. Using better technology to optimize scheduling,
17 we anticipate creating more "wrench time" in the field (which is the percentage of
18 a worker's day devoted to actual project-based work). Schedules can be
19 maintained in one common system based on the type of work, and can be
20 optimized to minimize drive time allowing for more jobs per day per crew. Mobility
21 devices will monitor work progress in real-time, allowing additional work to be
22 scheduled through electronic dispatching if crews finish early. Each of these

1 improvements in job management will improve the work of our crews, the use of
2 materials, and the efficiency of jobs for the benefit of our customers.

3 The Company will use the new WAM system to not only coordinate when
4 work is done, but in what manner it is done and how the work is documented.

5 **Q. PLEASE PROVIDE AN EXAMPLE OF THE CURRENT SEMI-MANUAL**
6 **PROCESS.**

7 A. For example, if a work crew is working on an outage in the field and identifies an
8 unexpected part needed, they have to contact someone back in the office, who
9 makes the changes to blueprints and work orders. The changes then have to be
10 sent back to the field crew. With the new technology and mobile devices, work
11 crews will have access to technical information at the work site and will be able to
12 electronically request changes as needed to the current work plan. Further,
13 integration with the Geographical Information System (the system for managing
14 spatial and geographical data) allows field access to electronic work packets,
15 annotations and redline drawings.

16 Another example is where a distribution crew's daily planned activities
17 change due to unforeseen circumstances. Today, coordinators and schedulers
18 cannot identify all available work in one system as a means to determine the
19 most efficient and effective work to send to the crew. In the WAM system, all
20 work resides in one system, thus enabling the coordinator to electronically
21 identify the highest priority work a crew is skilled to perform and reroute the
22 remaining work to minimize travel time.

1 **Q. PLEASE DESCRIBE HOW THE NEW WAM SYSTEM WILL SUPPORT**
2 **“PROCUREMENT OPTIMIZATION,” AND HOW THIS WILL BENEFIT**
3 **CUSTOMERS.**

4 A. With the WAM system, we will be able to manage how and when we procure
5 materials and inventory from vendors, allowing us to better manage inventory
6 and get materials to workers and job sites in an increasingly timely fashion.

7 Currently we manage the procurement process across three different
8 systems, making it more difficult to coordinate and aggregate purchases. With
9 the WAM system, these three systems will be replaced and we will be able to
10 conduct more purchase transactions electronically than are possible today,
11 streamlining the purchasing process.

12 Further, the new WAM system will help us optimize procurement efforts by
13 operating as an integrated solution across Business Areas that enables
14 automatic re-ordering of materials when inventory starts to run low, and enables
15 more accurate forecasting of total Xcel Energy resource needs in order to lock in
16 long-term contracts with more favorable pricing. In conjunction with
17 implementation of the new WAM system, we will also be able to improve supply
18 chain processes as follows:

- 19 • Pre-qualify suppliers for commonly used goods and services. The goods and
20 services can then be provided under long term contracts, benefiting the entire
21 Xcel Energy company since they will be centrally managed.

- 1 • Improve material order processes to obtain materials more efficiently and on
2 an enterprise-wide basis because the WAM system will know which suppliers
3 provide that good or service and route the order accordingly.
- 4 • Improve overall supplier invoice accuracy to ensure amounts negotiated are
5 invoiced by having the system verify pricing accuracy, reducing any manual
6 intervention that may be required today.
- 7 • Improve invoice processing efficiencies to better take advantage of prompt
8 payment discounts.

9 **Q. HOW DO THE ABOVE FACTORS BENEFIT THE COMPANY'S CUSTOMERS?**

10 A. By using WAM systems to more efficiently maintain Company assets and deploy
11 the Company's workforce, the Company will improve service, safety, reliability,
12 and overall customer service response.

III. PRIOR TESTIMONY

Q. PLEASE PROVIDE AN OVERVIEW OF THE COMPANY'S PRIOR TESTIMONY REGARDING PTT PROJECTS.

A. In the 2014 Electric Phase I, Company witness Mr. Harkness provided Direct Testimony in support of the Company's 2014 and 2015 Business Systems capital additions, which included the GL replacement project. (See, Harkness Direct at 20:17-21:6). However, the settlement in that proceeding was based on a historical test year, such that most of the GL costs were not included.

In the 2015 Gas Phase I, Company witnesses John J. Phibbs and Amy Stitt provided testimony in support of the capital additions and O&M expenses of the GL and WAM associated with providing safe and reliable service to Public Service's customers.

Q. WHAT WERE THE COMPANY'S FORECASTS FOR THE GL AND WAM CAPITAL ADDITIONS IN ITS PRIOR TESTIMONY?

A. In the 2014 Electric Phase I, the Company forecasted the GL replacement project as a capital addition of approximately \$20.6 million for Public Service as a whole. (Harkness Direct at 21:6). In the 2015 Gas Phase I, the Company initially forecasted approximately \$22 million for the GL replacement project capital addition and \$78.2 million for the WAM replacement project for Public Service as a whole. (Phibbs Direct at 19:4-12; Stitt Rebuttal at 24:4-9). See Attachment

1 TRB-1 of my Direct Testimony for a copy of the Stitt Rebuttal Testimony.¹ The
2 Public Service gas department was initially assigned \$5.9 million and \$21.5
3 million respectively. However, the original estimate did not include any
4 contingency. As such, the Company provided updated cost estimates in its
5 Rebuttal Testimony, identifying contingency amounts allocated to the Public
6 Service gas jurisdiction of \$8.2 million for the GL replacement project and \$37.1
7 million for the WAM replacement project to the Public Service gas department.
8 This equated to a total Xcel Energy combined cost of approximately \$430 million.
9 As I discuss later in my testimony, our current projects continue to be in line with
10 that overall estimate, including contingency.

11 **Q. WHY IS THE COMPANY PRESENTING THE GL AND WAM CAPITAL**
12 **ADDITIONS IN THIS RATE CASE?**

13 A. The Company's 2014 Electric Phase I settled without making a specific
14 determination as to the GL replacement project capital addition, because it was
15 based on a 2014 historical test year. (See Decision No. C15-0292, Decision: (1)
16 Granting Joint Motion to Approve Settlement Agreement; (2) Granting Application
17 to Decommission Plant; (3) Permanently [sic] Suspending Tariff Sheets; and (4)
18 Establishing Rates, Feb. 24, 2015). Since the GL was placed in service in 2015
19 and the WAM is being placed in service in 2016 and 2017, they have not yet
20 been included in Public Service's electric service rates. The Company therefore

¹ For the sake of simplicity and to avoid duplication with certain attachments to this testimony, Ms. Stitt's Rebuttal Testimony is supplied here without attachments. Ms. Stitt's original attachments were provided in Proceeding No. 15AL-0135G.

1 supports cost recovery of these projects in this proceeding. First, I provide a
2 detailed discussion of the reasons for pursuing the GL and WAM projects, how
3 we determined an appropriate path forward for these projects, and how we have
4 gone about implementing these projects. I also walk through the costs and
5 benefits of the projects. In sum, I explain why the overall costs are reasonable.

1 **IV. THE EXISTING SYSTEMS WERE ANTIQUATED AND HIGH RISK**

2 **Q. WHAT IS THE PURPOSE OF THIS SECTION OF YOUR TESTIMONY?**

3 A. In this section of my Direct Testimony, I explain that Xcel Energy investigated
4 changes to its existing general ledger and work and asset management systems
5 due to their age and risk factor. I explain how these systems were thoroughly
6 assessed prior to consideration of any material changes.

7 **Q. PLEASE PROVIDE AN OVERVIEW OF PUBLIC SERVICE'S SYSTEMS PRIOR**
8 **TO THE PTT INITIATIVE.**

9 A. Prior to the PTT initiative, Xcel Energy was using a JDE GL system, which was
10 reaching end-of-life and was no longer going to be supported by the vendor. Xcel
11 Energy also had three core WAM systems: Ventyx's Corporate Passport Version
12 10.0.5 to manage electric and gas distribution, transmission, and supply chain
13 functions; Ventyx Passport 10.0.6 to manage nuclear facilities due to security
14 considerations; and IBM's Maximo Version 5.2 to support work activities at
15 Energy Supply generation units.

16 **Q. CAN YOU DESCRIBE THE JDE GL SYSTEM FUNCTIONS IN MORE DETAIL?**

17 A. Yes. The Oracle JDE GL System was selected in August 2000 and supported
18 Xcel Energy's (including Public Service's) Finance and Controls functions, and
19 maintained the core chart of accounts and GL. JDE processed approximately 34
20 million transactions annually. However, full support for the JDE expired in
21 December 2013. This support included updates, fixes, security alerts, and the
22 upgrading of scripts. JDE, in particular, is highly connected at the center of core

1 work functions and requires several complex translation mechanisms to interface
2 with the existing WAM systems.

3 **Q. DOES XCEL ENERGY PERIODICALLY ASSESS THE RISKS OF ITS**
4 **EXISTING SYSTEMS?**

5 A. Yes. As part of ongoing system review and planning process, Business Systems
6 periodically prepares an application risk assessment and provides
7 recommendations for actions needed to maintain system capabilities. This
8 assessment includes a review of system statistics (i.e., number of transactions),
9 architecture, hardware and software, interfacing systems, storage and disaster
10 recovery. The systems that have or will be ultimately replaced by the new GL and
11 WAM were first assessed as part of Xcel Energy's effort to determine next steps
12 with respect to these systems.

13 **Q. WHAT RISKS DID THE JDE GL SYSTEM FACE AT THE TIME OF**
14 **ASSESSMENT?**

15 A. Confidential Attachment TRB-2 to my Direct Testimony, which is the risk and
16 health assessment for the JDE GL system, shows the overall system health as
17 "yellow" on a scale of "red," "yellow," "green," with red being the highest risk level.
18 Oracle has a "lifetime support" policy in place for this application, and will
19 indefinitely provide what they call "sustaining support," which includes support for
20 existing patches and issues, but does not include any new update or
21 certifications with any new software. The inability to update or certify our current

1 version of JDE with new software was a critical determinant in the decision to
2 replace JDE in a coordinated manner with the WAM systems.

3 **Q. CAN YOU DESCRIBE THE CORPORATE PASSPORT FUNCTIONS IN MORE**
4 **DETAIL?**

5 A. Yes. Passport supported approximately 3,200 users across multiple Xcel Energy
6 business areas and handled approximately 77 million transactions on an annual
7 basis across all operating companies. Corporate Passport has been a “mission
8 critical” application, as it managed daily work activity such as preventative
9 maintenance, new construction, and outage response among other critical
10 functions.

11 **Q. WHAT RISKS WAS THE CORPORATE PASSPORT SYSTEM FACING AT**
12 **THE TIME OF ASSESSMENT?**

13 A. Xcel Energy’s application risk assessment of this system indicated a need to
14 replace it in the short term. Confidential Attachment TRB-3 to my Direct
15 Testimony is the risk and health assessment for the Corporate Passport
16 application. While it shows the overall system health as “green,” the application’s
17 server hardware and software was in a “red” status. The software application
18 environment was on hardware that was discontinued in early 2009. The
19 operating system was an IBM Unix version that is no longer supported by the
20 vendor under standard agreements. The software code was written in COBOL
21 4.3, which has been out of standard use for over 10 years.

1 These considerations and the “red status” of the hardware and software
2 put the Company in a position where any major outage would require specialized
3 third-party support or sub-optimal hardware sourcing. A backup server onsite
4 was identified for potential use, but if this backup server failed during a
5 restoration it could result in very challenging hardware sourcing through resellers.
6 This created a heightened risk of an unacceptable extended outage.

7 **Q. CAN YOU DESCRIBE MAXIMO IN MORE DETAIL?**

8 A. Yes. Maximo version 5.2 was used to support work activities at our power
9 generation units. Maximo has similar functional capabilities as Passport, in that it
10 is a critical asset for Energy Supply and has 2,180 users.

11 **Q. WHAT RISKS DID THE MAXIMO SYSTEM FACE AT THE TIME OF**
12 **ASSESSMENT?**

13 A. Confidential Attachment TRB-4 of my Direct Testimony, which is the risk and
14 health assessment for the Maximo application, shows the overall system health
15 as risk level “red.” Maximo had multiple single points of failure and unsupported
16 components. IBM stopped providing full support for our current version (Version
17 5.2) in September of 2010.

18 Maximo also prevented a number of underlying technologies from
19 progressing in their capabilities. The underlying application servers, databases,
20 and operating systems were all restricted to their current versions due to
21 Maximo’s incompatibility with newer technology. If Maximo were to fail, the
22 interfaces with other systems such as Passport, JDE, and Time (our timekeeping

1 system) would no longer function. In addition, upgrades to a new internet
2 browser version were not supported by Maximo. Adobe Reader versions used by
3 Maximo users were also unsupported and created user challenges.

4 **Q. WHY DO SOFTWARE VENDORS DISCONTINUE FULL SUPPORT OF AN**
5 **APPLICATION VERSION?**

6 A. Most companies replace their core technology systems within 10 years of initial
7 implementation due to aging hardware and software, changing technologies,
8 cyber security risks, and similar issues like those we are facing with both
9 Corporate and Nuclear Passport and Maximo. Since most of a software vendor's
10 customers have upgraded or replaced a software version once it has passed the
11 10-year mark, it is no longer cost-effective for the vendor to continue to train
12 employees on outdated versions. As a result, it is common in the industry for a
13 software vendor to switch to a limited support status for older versions so that a
14 company continuing to use outdated systems, rather than the vendor, bears the
15 greatest risk and costs associated with system problems.

16 **Q. YOU HAVE MENTIONED THE VALUE OF AN INTEGRATED SYSTEM. WHY**
17 **DIDN'T XCEL ENERGY IMPLEMENT SUCH A TOOL 10-15 YEARS AGO,**
18 **INSTEAD OF UTILIZING SEPARATE PASSPORT, MAXIMO, AND GL**
19 **TOOLS?**

20 A. Xcel Energy did not previously encounter a time when the various WAM systems
21 that had served the current Xcel Energy and its predecessors all needed to be
22 replaced at once. With the merger of New Century Energies ("NCE") and

1 Northern States Power ("NSP") in 2000, the combined company initially had two
2 GL systems. The combined company analyzed viable solutions based on the
3 needs of the company at that time, and selected JDE in August of 2000.

4 With respect to WAM, at the time of the NCE/NSP merger, NCE had
5 recently implemented Passport (in 1998), so Xcel Energy made the general
6 decision to retire the NSP systems and migrate the users to Passport. However,
7 both the nuclear generating plants at Xcel Energy's Monticello and Prairie Island
8 in Minnesota had been using a functioning WAM system known as CHAMPS
9 since the mid-1990s. As such, it was not necessary to incur the costs of
10 migrating Nuclear to Passport.

11 By 2002, both NSP and NCE's generation/Energy Supply WAM systems
12 needed to be replaced to accommodate Energy Supply needs. Rather than
13 incurring the cost of replacing the entire Passport system, Maximo was selected
14 as the better fit for the Energy Supply function.

15 **Q. WHAT DID XCEL ENERGY CONCLUDE BASED ON THE RISK**
16 **ASSESSMENTS YOU DESCRIBED ABOVE?**

17 A. The combination of the system factors described above and the similar timing of
18 the various investment needs drove our thorough investigation of the options
19 available to bring these core systems to a current and supported state, which
20 leverages common practices and standards across business areas and provides
21 better and more effective linkages for mission-critical financial and operational
22 data.

**V. XCEL ENERGY DEVELOPED A REASONABLE STRATEGY TO
REPLACE AGING SYSTEMS**

Q. WHAT IS THE PURPOSE OF THIS SECTION OF YOUR TESTIMONY?

A. In this section of my testimony I explain our process in investigating solutions to the aging general ledger and work and asset management systems at Xcel Energy. I discuss our gathering of information, exploration of options, and selection processes in detail.

A. Initial Strategic Review

Q. DID XCEL ENERGY TAKE PRELIMINARY STEPS TO BETTER UNDERSTAND ITS OPTIONS WITH RESPECT TO A SOLUTION FOR THE AGING GL, PASSPORT, AND MAXIMO SYSTEMS?

A. Yes. We formed a team to evaluate current versions of our existing applications, as well as software vendors that had a product that could replace all three systems. The team obtained research from industry expert consultants, conducted benchmarking visits with peer utilities that went through a similar decision process in the last five years, and brought in internal functional experts for multiple planning sessions to assess these options.

Q. CAN YOU DESCRIBE THE PROCESS OF GATHERING DATA FROM INDUSTRY CONSULTANTS AND ASSESSING BENCHMARKING DATA?

A. Yes. To learn from industry experts, Xcel Energy participated in 20 technology briefings to determine whether a market leading, integrated Enterprise Solution, or a combination of an integrated Enterprise solution and a non-integrated WAM

1 solution or solutions, would meet the business needs of Xcel Energy. We also
2 gathered over 200 ideas from Xcel Energy employees for improving technology.

3 To further benchmark options, we established a cross functional team with
4 31 employee representatives from Operations, Supply Chain, Finance, Human
5 Resources and Customer Care, and industry experts from Trissential, Utiligent,
6 Accenture and IBM. The team conducted site visits with Con Edison (New York),
7 Mortenson Construction (Minneapolis), Portland Gas & Electric (Oregon), and
8 San Diego Gas & Electric for day long information gathering sessions to discuss
9 lessons learned from their similar projects. We also spent a day with Pacific Gas
10 & Electric in Minneapolis. Additionally, we discussed implementation with
11 representatives of Cargill, which was implementing a SAP solution with business
12 process improvements, to better understand the complexity and impacts of
13 making significant changes to process and software tools at the same time.

14 A summary of the information gathered from the 2012 site visits conducted
15 as part of this benchmarking is included as Attachment TRB-5 of my Direct
16 Testimony.

17 **Q. WHAT DID YOU LEARN FROM THE BENCHMARKING AND EXPERT**
18 **CONSULTATIONS?**

19 A. The utilities confirmed the likelihood that new technologies could help
20 standardize process, data, and analytics across Xcel Energy. We learned that a
21 centralized, integrated WAM system can simplify processes while improving crew
22 and design productivity. Further, system analytics can improve access to

1 information and support effective risk-informed maintenance decisions by
2 reducing the number of repeat trips, materials and service costs. Utilizing
3 geographic information systems as the centralized source for information and
4 expanding the use of mobile device terminals that provide better field information
5 drove field efficiencies for the utilities we benchmarked.

6 Key themes that emerged through these visits are as follows:

- 7 • Advanced Asset Monitoring Technologies: As these technologies become
8 increasingly economical, near real-time monitoring initiatives can result in
9 more proactive maintenance cycles.
- 10 • Employee Mobility Technologies: Wherever there is paper, a mobile
11 electronic device should be considered.
- 12 • Enterprise Asset and Work Management Tools: An upgrade or
13 replacement to Maximo and Passport could be expected to help realize
14 labor productivity through automation and simplification.
- 15 • System Integrations: There are significant and consistent work efforts
16 required due to the lack of system integration between financial and
17 operational systems; a focus on improving planning, scheduling, design
18 and standards can simplify these efforts.

19 In addition, strategically, a consolidated tool or tools are easier to implement,
20 replace, and upgrade. Each module has a similar look and feel, and uses data in
21 similar ways.

22 **Q. CAN YOU DESCRIBE THE INTERNAL PLANNING SESSIONS?**

23 A. Using information gained during the benchmarking team visits, the team
24 completed a series of six internal “immersion session” workshops to define how
25 we operate today, how we want to operate tomorrow, and how to bridge the gap.

1 We also used Accenture's tools to evaluate current capabilities as compared to
2 industry standards in each of our business areas.

3 **Q. WHAT DID THE TEAM RECOMMEND AT THE END OF THIS INITIAL**
4 **REVIEW?**

5 A. They recommended six options, including:

- 6 • Option 1: SAP only – covering the GL and all WAM needs.
- 7 • Option 2: Oracle only – covering the GL and all WAM needs.
- 8 • Option 3: IBM/Maximo (our current WAM system for Energy Supply)
9 paired with SAP.
- 10 • Option 4: IBM/Maximo paired with Oracle.
- 11 • Option 5: Ventyx/Passport (our current WAM system for all business areas
12 except Energy Supply) paired with SAP.
- 13 • Option 6: Ventyx (Passport) paired with Oracle.

14 The preliminary recommendations are set forth in Attachment TRB-6 of my Direct
15 Testimony.

16 **Q. WAS THE RECOMMENDATION TO MOVE FORWARD WITH THESE SIX**
17 **OPTIONS APPROVED?**

18 A. No. At the beginning of the recommendation phase, the team made the
19 assumption that “doing nothing” (continuing to use existing systems farther into
20 the future) was not feasible in light of the annual asset health assessments for
21 existing systems and that our software vendors were discontinuing full support in
22 the next couple of years. As a result, the above six options did not include a
23 solution that involved simply extending the life of the existing software. However,
24 to ensure all feasible options were considered, project leadership asked the team

1 to include options for extending the life of the current software and hardware
2 before they made a final decision.

3 **Q. WHAT REVISED OPTIONS DID THE TEAM PRESENT TO THE PROJECT'S**
4 **LEADERSHIP?**

5 A. The team presented six new scenarios, which included:

- 6 • Option 1: Maintain existing systems with minor enhancements.
- 7 • Option 2: Maintain WAM on current systems; standardize GL and redesign
8 chart of accounts on latest JDE version
- 9 • Option 3: Maintain GL on JDE; standardize WAM on Maximo
- 10 • Option 4: Standardize GL and redesign chart of accounts on latest JDE
11 version; standardize WAM on Maximo with Nuclear remaining on Ventyx
12 (Passport)
- 13 • Option 5: Same as #4, but Nuclear moves to Maximo.
- 14 • Option 6: Standardize all on SAP

15 As noted, these options ranged from maintaining the systems, consolidating from
16 three WAM systems to one or two, with and without Nuclear, upgrading JDE, and
17 implementing an SAP Enterprise Resource Planning ("ERP") solution. Each of
18 these options considered potential non-technology process improvements. These
19 six options and high level cost estimates are set forth in Attachment TRB-7 of my
20 Direct Testimony. The analysis of these options showed that implementing the
21 SAP-only ERP solution was the most comprehensive plan and the most
22 expensive assumption (Option 6).

23 In second place was Option 5, which involved consolidating the three
24 WAM systems down to one system, Maximo, and upgrading JDE. The lowest

1 cost option was Option 1, which was to maintain the current systems with limited
2 hardware upgrades.

3 **Q. WHAT WERE THE “LESSONS LEARNED” FROM RE-EXAMINING XCEL**
4 **ENERGY’S EXISTING SYSTEMS AS PART OF THIS PROCESS?**

5 A. We learned that achieving the main benefit of “doing nothing” – which is delaying
6 the effort and cost of implementing new systems – was not feasible given the
7 risks of relying on these aging systems software and hardware just to keep them
8 going. In particular, this approach would risk the reliability of the older systems
9 and services without ongoing vendor support. Although Xcel Energy actively
10 uses third-party vendors for system support and issue resolution when the
11 installed versions become unsupported by the original vendor (as with the most
12 recent versions of Passport and Maximo), leveraging third-party support and the
13 fundamental need to update underlying hardware increased the risk and the time
14 required to resolve issues. We could not risk losing access to its financial or work
15 management systems over the long term and could not predict all the costs and
16 delays that would be incurred if these core systems were to become increasingly
17 incompatible or fail.

18 Therefore, even if there are cost savings as compared to investing in new
19 systems in the short term, extending the life of the existing systems was not
20 sustainable in the long term.

1 **Q. WHAT WOULD HAPPEN IF THESE SYSTEMS FAILED?**

2 A. With respect to the GL, Xcel Energy's operating companies' state and federal
3 regulatory reporting, as well as financial reporting to the Securities and Exchange
4 Commission ("SEC") and other regulators, is dependent on proper functioning of
5 this system. An extended loss of access to financial data could prevent Xcel
6 Energy from meeting these requirements.

7 In addition, the WAM systems are critical to managing Company work
8 crews, inventory, and assets. A failure of the WAM systems would limit Public
9 Service's ability to perform routine daily operations and respond to emergency or
10 critical needs in the field. A system failure would also impact Public Service's
11 ability to respond quickly and safely to customer electrical outages, damages to
12 gas and electric property, and/or equipment failures at our power plants.
13 Required dispatching of field crews and required coordination with suppliers
14 would be more challenging. The failure of the system would ultimately impact
15 overall quality of service to Public Service (or other operating utility) customers,
16 as well as the regulatory accuracy of reporting overall customer outage response
17 times and associated costs.

18 **Q. CAN YOU PROVIDE A SPECIFIC EXAMPLE OF THE RISKS OF**
19 **INCOMPATIBILITY ENCOUNTERED BY THE OLD SYSTEMS?**

20 A. Yes. As Xcel Energy was upgrading to Windows 7, it was discovered that the
21 current version of Passport did not function with Windows 7. One of the services
22 lost when the vendor moved to a limited support status for Passport was the

1 software vendor certification that the existing version was (or was not) compatible
2 with new operating systems at the time of release. Without the certification, we
3 had to wait until the testing phase of the conversion to determine the extent to
4 which hardware and software was compatible with the new version.

5 Since it turned out that Windows 7 was not compatible with the current
6 version of Passport, Xcel Energy contacted third-party specialist Sheffield
7 Scientific to correct the problem. It took over two months to resolve what
8 amounted to a couple of days of actual coding work. This process delayed the
9 roll-out of the Windows 7 upgrade for the 3,200 Passport users for about two
10 months. Continuing to use the aging systems indefinitely would risk similar issues
11 in the future.

12 **Q. WHAT DID XCEL ENERGY CONCLUDE BASED ON THE ASSESSMENTS**
13 **YOU DESCRIBE ABOVE?**

14 A. Passport and Maximo – as well as our GL system – needed to be upgraded or
15 replaced due to their age. As noted above, staying with the current software and
16 hardware was not feasible. At the same time, each of these three systems
17 needed replacement in a common timeframe. As demonstrated in Attachment
18 TRB-8 of my Direct Testimony, Passport functions are integrally linked with the
19 GL and other WAM applications.

1 **Q. WHAT DID THE PROJECT’S LEADERSHIP ULTIMATELY APPROVE AS A**
2 **NEXT STEP?**

3 A. They agreed with the team’s assessment that doing nothing was not an option.
4 This left two feasible strategies: (1) Consider moving to an ERP system for a
5 single, integrated solution; or (2) Adopt separate applications for different needs,
6 while looking at opportunities to consolidate the existing WAM systems to reduce
7 the number of separate applications. We therefore went back to the original six
8 options, which were to explore both ERP and separate WAM tools that would
9 allow efficient implementation and operations going forward.

10 **B. Project Selection**

11 **Q. WHAT WERE THE NEXT STEPS IN THE PROCESS TO FURTHER ASSESS**
12 **AND SELECT A SOLUTION TO REPLACE THE EXISTING WAM**
13 **APPLICATIONS?**

14 A. Having ruled out the possibility of doing nothing based on benchmarking, industry
15 information, and assessment of Xcel Energy’s own systems, we began to
16 evaluate our remaining options. The system selection process, which took place
17 in 2013, consisted of the four distinct phases explained below:

- 18 • Phase I: A Request for Information (“RFI”) from various vendors, which
19 consisted of information sharing sessions, understanding the capabilities
20 of a new ERP tool or separate but new GL and WAM systems, and
21 establishing vendor contacts.
- 22 • Phase II: A Request for Proposals (“RFP”) from vendors, including a
23 demonstration of how their systems would handle various business case

1 scenarios within Xcel Energy, estimated costs to implement the software,
2 and options for rolling out the new software in phases.

- 3 • Phase III: An evaluation of the RFPs.
- 4 • Phase IV: Propose a solution based on the information gathered in the
- 5 benchmarking process and the project selection phases described above.

6 **Q. CAN YOU PROVIDE MORE DETAIL EXPLAINING WHAT YOU MEAN BY AN**
7 **“ENTERPRISE RESOURCE PLANNING TOOL”?**

8 A. An ERP tool is a suite of integrated applications that a company can use to
9 collect, store, manage and interpret data from many different business activities
10 in a consistent and integrated manner. An enterprise-level solution is designed to
11 standardize business processes, data and analytics across Xcel Energy. With
12 individual software packages, data fields and standards are determined by the
13 application design. For example, Maximo has a different chart of accounts built
14 into the application. When data is fed from Maximo to Passport or the JDE GL
15 system, a mapping tool is required to convert the chart of accounts data to the
16 corporate structure. Additional data fields are used to capture other information
17 needed to track project details. These data requirements vary by application and
18 by business area, creating potential inconsistency. The data governance
19 requirements in an ERP force the use of common and consistent data fields.

20 Another benefit of an ERP is that it has modules for many other functions,
21 such as a billing system and a payroll system. Adopting an ERP that is a viable
22 option for those replacements would lead to a further consolidation of
23 applications and the potential for a more streamlined implementation of future

1 systems – especially those, like the current billing system, that are also beginning
2 to age.

3 That said, because an ERP is the only option that fully addresses all three
4 of Xcel Energy's WAM systems and covers most of its key business functions,
5 costs may be higher in the implementation phase. Since an ERP acts as a single
6 system to which multiple remaining legacy systems must connect, implementing
7 an ERP is a larger single effort than implementing multiple individual systems
8 over time.

9 Given these pros and cons, we investigated both an ERP and upgrading
10 existing systems in our RFI and RFP processes.

11 **Q. PLEASE DESCRIBE THE PROCESS AND RESULTS OF PHASE I (RFI) IN**
12 **MORE DETAIL.**

13 A. Xcel Energy issued an RFI to learn more about the solutions that existed to
14 address our existing JDE, Maximo, and Passport system. The RFI included a
15 series of questions that were intended to confirm the applications' functionality by
16 demonstrating how their software would fit our business requirements. IBM
17 (Maximo), SAP, Oracle (JDE) and Ventyx (Passport) responded to our RFI. The
18 team reviewed the responses to the questions, and scheduled three weeks of
19 product demonstrations with the vendors to learn about the applications in more
20 detail. The system selection team evaluated the pros and cons of each software
21 application, and recommended moving forward by issuing an RFP to all four

1 vendors. The results of the RFI evaluation are attached as Attachment TRB-9 of
2 my Direct Testimony.

3 **Q. PLEASE DESCRIBE THE PROCESS OF PHASE II (RFP) IN MORE DETAIL.**

4 A. Xcel Energy issued an RFP in July 2013, seeking project proposals from the
5 vendors who responded to the RFI. Based on the results of our prior strategic
6 assessment and RFI results, the RFP sought proposals for the following
7 scenarios:

- 8 • Option 1: SAP only – covering the GL and all WAM needs.
- 9 • Option 2: Oracle only – covering the GL and all WAM needs.
- 10 • Option 3: IBM/Maximo (our current WAM system for Energy Supply)
11 paired with SAP.
- 12 • Option 4: IBM/Maximo paired with Oracle.
- 13 • Option 5: Ventyx/Passport (our current WAM system for all business areas
14 except Energy Supply) paired with SAP.
- 15 • Option 6: Ventyx (Passport) paired with Oracle.

16 The RFP asked the vendors to propose overall solutions and to demonstrate how
17 their application would handle certain business scenarios, which were provided
18 by Finance, Human Resources, Customer Care, Transmission, Distribution,
19 Nuclear, Energy Supply, Supply Chain, and Business Systems.

1 **Q. PLEASE DESCRIBE THE PROCESS AND RESULTS OF PHASE III (RFP**
2 **REVIEW) IN MORE DETAIL.**

3 A. We consolidated and weighted the results of the vendor self-scoring (10 percent),
4 the scoring responses to the RFP questions (25 percent) and demonstrations (65
5 percent). The results showed Option 1 (SAP) with the highest score, followed by
6 Option 3 (SAP/Maximo), and Option 4 (Oracle/Maximo).

7 An evaluation of the responses to our RFP, provided as Attachment TRB-
8 10 to my Direct Testimony, shows the consolidated scoring results of the three
9 options mentioned above. Each option was scored on a scale of one to three,
10 with three being the most favorable score.

11 **Q. WERE YOU ABLE TO NARROW DOWN THE OPTIONS?**

12 A. Yes. Ultimately, Option 2 (Oracle) was eliminated from further consideration
13 because there are no nuclear facilities in the United States using the Oracle
14 product, and it offers limited transmission and distribution functionality. Options 5
15 (SAP/Passport) and 6 (Oracle/Passport) were eliminated from consideration
16 because Ventyx was just starting a long term overhaul of its application and its
17 long term strategy was in flux, making these options highly risky.

18 **Q. CAN YOU ELABORATE ON THE BARRIERS TO SIMPLY UPGRADING THE**
19 **PASSPORT AND MAXIMO APPLICATIONS?**

20 A. Yes. With respect to Passport, we determined that no single out-of-life
21 component could be upgraded without a full replacement/upgrade of the suite of
22 hardware, software, and operating systems that make up "the system."

1 Concurrently, Ventyx, was in the process of re-platforming its code base to Java
2 and Microsoft.NET languages, which tactically means that an upgrade to the
3 current offered version of the software required installing a completely new
4 system. In addition, the risks of moving to the untested platform contributed to
5 our assessment that simply upgrading Passport was not a realistic or effective
6 solution.

7 With an upgrade of Maximo, we would still have to replace the underlying
8 hardware and operating systems that were creating a high level of risk. In
9 addition, there is no integrated financial system and Xcel Energy's Maximo use
10 was limited to Energy Supply. This option was less than optimal because
11 integrations between systems and business areas would still be required,
12 preventing real time access to integrated financial and operational data.

13 **Q. HOW DID COST COMPARISONS AND CONSIDERATIONS FACTOR INTO**
14 **THE RFP ASSESSMENT?**

15 A. Costs were estimated for each of the options and factored into the overall
16 analysis. In addition to cost, qualitative considerations were considered, including
17 the application fit/alignment in terms of business and technical complexity, future
18 state operating models, and technology strategic direction. In addition, we
19 evaluated the risks of implementation, sustainment, business operations, and
20 technology operations. The results of the cost comparison, application fit, and
21 risk assessment are included as Confidential Attachment TRB-11 of my Direct
22 Testimony.

1 **Q. PLEASE DESCRIBE THE PROCESS AND RESULTS FOR PHASE IV**
2 **(RECOMMENDATION) IN MORE DETAIL.**

3 A. As illustrated in Confidential Attachment TRB-12, although SAP was the most
4 expensive in the short term, it fully addressed long term technical and system
5 operational risk, reduced the potential need for future investment to consolidate
6 future application upgrades, introduces system controls to support process
7 changes, and enables mobility. Options 3 and 4 were less expensive in the short
8 term, but had risks of potentially complex integrations between Maximo and
9 Oracle to tie financial data to operational data, and would require 5,300 users to
10 migrate from Passport to Maximo. Having also ruled out Options 2, 5, and 6,
11 Option 1 (SAP only) was selected as the overall best solution.

12 **Q. WHY DID XCEL ENERGY FEEL THAT THE MOST EXPENSIVE SOLUTION**
13 **WAS STILL THE BEST SOLUTION?**

14 A. SAP was the only solution that could meet all of the business requirements for
15 the replacement of the GL and WAM. Any other solution would have required a
16 combination of two different vendors, requiring us to build and maintain
17 integrations between the two software packages for the reasons discussed
18 previously in my testimony. In addition, SAP has a broad spectrum of modules
19 that could support our other core business activities, such as payroll and
20 customer billing, which allows for further integration of systems as we move
21 towards replacing those in the future.

1 **VI. PROJECT IMPLEMENTATION**

2 **Q. PLEASE PROVIDE AN OVERVIEW OF IT CAPITAL PROJECT**
3 **IMPLEMENTATIONS.**

4 A. Generally, large and complex IT undertakings go through several phases of
5 implementation. These include the phases of (i) initial design and requirements
6 (scoping), (ii) blueprint, (iii) functional and technical design, (iv) build, (v) testing,
7 and (vi) deployment. The GL and WAM projects were no different, as they
8 consist of very complex, Xcel Energy-wide IT efforts.

9 **Q. PLEASE DESCRIBE WHAT HAPPENS IN EACH PHASE OF THE PROJECT**
10 **LIFECYCLE.**

11 A. The objective of the scoping phase is to define high level requirements and the
12 basic project structure, and to estimate the overall cost and schedule.

13 The blueprint phase defines business requirements and future business
14 processes, their impact on the organization and the required training for project
15 success.

16 The design phase completes the functional designs from the business
17 requirements developed in the blueprint phase.

18 The objective of the build phase is to build out the packaged software
19 configuration and to test and prepare deployment with cut-over tasks, and a
20 technical and data migration plan.

21 Also included in the design and build phases is the retrofit or remapping of
22 the "legacy applications," which are those Xcel Energy software applications that

1 will continue to exist apart from the GL and WAM implementations, and will either
2 receive from or send data to the GL and/or WAM system.

3 The testing phase validates that the solution meets business
4 requirements, and the deployment phase rolls out the application to users and
5 transitions maintenance of the system to the ongoing support staff.

6 **A. GL Implementation**

7 **Q. PLEASE DESCRIBE THE IMPLEMENTATION OF THE GL REPLACEMENT**
8 **PROJECT.**

9 A. The GL replacement project began with the initial design and requirements
10 phase in August 2013 and was placed in service in December 2015. The phases
11 of system design and implementation were as follows:

- 12 • *Initial Design and Requirements.* The future design of the initiative was
13 defined between August 2013 and February 2014, which meant defining
14 exactly how the new GL system would be configured and operate in
15 production. This included definition of how the new GL system would
16 integrate with remaining legacy systems, the flow of information between
17 the legacy systems and the new GL, as well as designing the new high
18 level business processes that would leverage the new GL system. The
19 outcome of this phase is executive approval of the investment, which in
20 the case of the GL replacement project, meant approval by the Board of
21 Directors.
- 22 • *Blueprint.* Between February 2014 and July 2014, we were designing the
23 integrated processes (end- and interim-state), designing data models such
24 as the chart of accounts, defining system modules, and designing the
25 system's interim integration with existing systems and its supporting
26 technical infrastructure.

- 1 • *Functional and Technical Design.* In the August 2014 to October 2014
2 time period, we were designing the final Finance processes, conducting
3 key user workshops, performing requirements analysis and system
4 configuration design, and preparing our training and communications plan.
- 5 • *Build.* From November 2014 to March 2015, we were configuring the
6 system, performing functional acceptance testing, building the testing
7 framework, and developing the user training and project communication
8 materials.
- 9 • *Testing.* From April 2015 through October 2015, we tested the new GL
10 system integrations with mock data, and executed the user acceptance
11 testing plan.
- 12 • *Deployment.* This phase began on November 1, 2015, and effectively
13 ended on December 31, 2015, when the new GL system replaced the JDE
14 system for new transactions for the new 2016 fiscal year. The JDE system
15 continued to be available as the transition occurred.

16 **Q. IF THE SYSTEM WAS OPERATIONALLY READY EARLIER, WHY DID XCEL**
17 **ENERGY WAIT UNTIL DECEMBER 31 TO CUT OVER TO THE NEW GL**
18 **SYSTEM?**

19 A. December 31, 2015 aligns with the close of our financial calendar year. Cutting
20 over to a new financial system at the financial calendar year-end reduced costs
21 and had operational benefits including:

- 22 • Minimizing the amount of historical data to be converted;
- 23 • Reducing the need for analysis across the JDE and SAP G/L systems
24 during the 2015 year; and
- 25 • Reducing the risk associated with the cutover by maximizing the amount
26 of time available between the cutover date and external reporting cycles
27 for both quarter-end and year-end reporting.

1 **Q. CAN YOU PROVIDE ADDITIONAL EXPLANATION WHY OPERATION OF**
2 **SAP GL AND JDE SYSTEMS IN PARALLEL FOR A PERIOD OF TIME WAS**
3 **NECESSARY TO THE BUSINESS?**

4 A. Yes. Without a period of parallel operation that precedes the cutover point, we
5 risked having to take the system out of operation to address issues that could
6 arise. At the time of cutover, the JDE system processed an average of more than
7 82,000 transactions per day and more than 2.4 million transactions per month.
8 Depending on the time when the financial system might be taken out of
9 operation, we could not risk being unable to prepare monthly, quarterly, or year-
10 end financial statements or to meet our SEC and other financial reporting
11 obligations.

12 As a general matter, it is a best practice in the information technology
13 ("IT") space to operate a brand new system in parallel with the old system for a
14 period of time. This practice helps to ensure reliability of the new system once
15 the old system is no longer in use. Parallel operation for a period of time is also a
16 best practice risk mitigation strategy, especially for a project of this size, as it
17 allows utilization of an active back-up system during the initial operational phase
18 of the new system.

1 **Q. WHAT IS THE CURRENT STATUS OF THE NEW GL SYSTEM?**

2 A. The new GL system has been in operation since December 31, 2015 as planned.
3 Company witness Mr. Gregory J. Robinson explains in his Direct Testimony how
4 the new GL has been utilized from a Finance perspective.

5 **B. WAM Implementation**

6 **Q. PLEASE DESCRIBE THE IMPLEMENTATION OF THE WAM REPLACEMENT**
7 **PROJECT.**

8 A. The WAM replacement project began with the initial design and requirements
9 phase in August 2013 and will be fully deployed by the fourth quarter of 2017.
10 The phases of system design and implementation are as follows:

- 11 • *Initial Design and Requirements.* The future design of the initiative was
12 defined between August 2013 and February 2014, which meant defining
13 exactly how the new WAM system would be configured and operate in
14 production. This included definition of how the new WAM system would
15 integrate with remaining legacy systems, the flow of information between
16 the legacy systems and the new WAM, as well as designing the new high
17 level business processes that would leverage the new WAM system. The
18 outcome of this phase is executive approval of the investment, which in
19 the case of the WAM replacement project, meant approval by the Board of
20 Directors.
- 21 • *Blueprint.* From January 2015 through June 2015, we were designing the
22 integrated processes (end- and interim-state), designing data models,
23 defining system modules, and designing the system's interim integration
24 with existing systems and its supporting technical infrastructure.
- 25 • *Functional and Technical Design.* Between July 2015 and January 2016,
26 we were designing the final WAM processes, conducting key user

workshops, performing requirements analysis and system configuration design, and preparing our training and communications plan.

- *Build.* From October 2015 through October 2016, we were configuring the system, performing functional acceptance testing, building the testing framework, and developing the user training and project communication materials.
- *Testing.* From April 2016 through April 2017, we tested the new WAM system integrations with mock data, and executed the user acceptance testing plan.
- *Deployment.* The WAM deployment began in November 2016 and is scheduled to complete in the fourth quarter of 2017.

Q. IS THERE ALSO WORK THAT APPLIES ACROSS MULTIPLE PHASES OF WAM IMPLEMENTATION?

A. Yes. The following work takes place across multiple phases of the project:

- *Ops Performance:* Work effort to plan for the integration, change management, and other employee support necessary to sustain and optimize utilization of PTT and the associated processes for the long term.
- *Common Blueprint:* Activities to define business requirements and processes related to the WAM integration with the GL.
- *WAM Data Conversion:* The process of extracting, transforming, loading and validating the necessary WAM data into the new SAP environment.
- *IT/Legacy Remediation:* Activities to establish the integration between existing legacy applications to the future SAP environments. This ensures the operability of the legacy systems with the SAP system.
- *Hardware/Software:* The suite of hardware, software, and operating systems that make up “the system.”
- *Enterprise Transformation Office (“ETO”) Allocation:* The ETO consists of Xcel Energy Services employees, some staff augmentation for temporary

1 roles, and Accenture business partners who will have overseen the project
2 from the initial scoping phase through the implementation and post go-live
3 support period.

- 4 • *Circuit Expansion:* The analysis of current network usage and changes to
5 capacity to handle the new data traffic expected as a result of the future
6 SAP system.

7 **Q. IS THE WAM BEING DEPLOYED ALL AT ONCE?**

8 A. No. The WAM project is being deployed across business areas in six stages,
9 which began with the Energy Supply and Supply Chain business areas in
10 November 2016 and will conclude with the Distribution, Gas and non-operations
11 business areas in the fourth quarter of 2017 (the deployment for the final areas is
12 scheduled to begin in late October).

13 **Q. WHAT IS THE CURRENT PHASE OF THE WAM REPLACEMENT PROJECT?**

14 A. We have completed three of the six planned deployments, have recently initiated
15 the fourth deployment on June 26th, and have signed vendor contracts for the
16 remainder of the project. The remaining deployments are on track to be
17 implemented in 2017.

1 **VII. COSTS AND BENEFITS OF PTT**

2 **Q. WHAT IS THE PURPOSE OF THIS SECTION OF YOUR DIRECT**
3 **TESTIMONY?**

4 A. In this section of my Direct Testimony, I walk through the benefits and costs of
5 implementing the GL and WAM. I start out by summarizing the capital costs of
6 implementing PTT,² and provide additional support for the reasonableness of
7 these costs.

8 I then discuss the benefits of the GL and WAM systems. In particular, the
9 replacement of the outdated general ledger and work and asset management
10 systems was driven by the age of the old systems and the need for replacement
11 in an efficient, secure manner. That said, we do anticipate benefits in the form of
12 efficiencies resulting from implementation of the WAM. GL efficiencies are limited
13 in their own right, because a general ledger tool is not, by itself, a cost-saving
14 solution. In contrast, the WAM is intended to provide a more efficient and
15 interoperable system than the prior systems, allowing Xcel Energy companies to
16 “do more with less” or offset other cost increases.

² Company witness Mr. David Harkness discusses the costs of maintaining PTT systems post-implementation, which are incurred by the Business Systems area.

A. PTT Costs

1. Capital Costs

Q. WHAT ARE THE EXPECTED CAPITAL COSTS FOR THE PTT INITIATIVE?

A. Table TRB-D-2 below identifies total GL and WAM implementation capital additions that would be included in beginning rate base for the Public Service electric utility:

Table TRB-D-2 Public Service PTT Capital Electric Utility

	2015 Actuals	2016 Actuals	2017 Forecast	Total
GL Capital	\$15.60	\$1.56	--	\$17.16
WAM Capital	--	\$8.89	\$88.56	\$97.45
Total	\$15.60	\$10.45	\$88.56	\$114.61

The GL was placed in service in 2015, with some post-implementation costs incurred in 2016. Both projects will be in service by the end of 2017, with no further capital additions expected during the 2018-2020 MYP. The 2017 through 2020 capital additions for Productivity Through Technology are attached to my Direct Testimony as Attachment TRB-13, stated at the Public Service Company Total Company level.

Although the GL and WAM are being implemented Xcel Energy-wide, these costs are specific to Public Service's electric operation. These costs include actuals for the GL (since it was already implemented) and actuals through the first deployment of the WAM, with forecasted totals for the remainder of the WAM project being deployed in 2017.

1 **Q. WHAT COSTS HAVE CHANGED SINCE THE COMPANY'S UPDATED COST**
2 **BUDGET WAS PRESENTED IN ITS 2015 GAS PHASE I?**

3 A. Overall, the Company's costs for PTT are anticipated to be in line with the
4 updated forecast provided in Company witness Ms. Amy Stitt's Rebuttal
5 Testimony in the 2015 Gas Phase I. Ms. Stitt anticipated total PTT costs of
6 \$45.30 million for Public Service gas, which translates to a total Xcel Energy
7 estimate of \$430 million. (\$80 million GL and \$350 million WAM) This total was
8 only slightly different in our 2017 Gas case, where costs were expected to be
9 \$45.13 million for Public Service gas. From an electric rate case standpoint, we
10 are still in line with total initial estimates, with total Xcel Energy costs still
11 projected to be \$430 million (\$114.6 million Public Service electric).

12 **Q. TO THE EXTENT THE WAM PROJECT IS NOT YET FULLY DEPLOYED,**
13 **PLEASE DESCRIBE HOW THE ESTIMATED FINAL COST OF THE WAM**
14 **PROJECT WAS DETERMINED.**

15 A. Xcel Energy hired an experienced SAP system integrator, Accenture, to help run
16 the project and estimate project costs. Initial scoping cost estimates for the
17 project were developed using Accenture's modeling tool, which allows the user to
18 input certain criteria to estimate the cost for each portion of the program. Criteria
19 include the SAP application modules in scope, technology architecture factors,
20 multi-location aspects, complexity factors by work stream and the number of
21 Reports, Interfaces, Conversions, Extensions, Forms and Workflows (RICEFW).
22 Xcel Energy subsequently added a contingency to the project and adjusted it as

1 we developed more insight into the costs of remediating legacy systems during
2 the phases of project development.

3 **Q. PLEASE DESCRIBE THE TYPES OF CAPITAL COSTS INCURRED FOR PTT**
4 **IMPLEMENTATION.**

5 A. As illustrated in Attachment TRB-14, capital costs for PTT include labor costs
6 (both internal and external labor), software costs, hardware costs, and employee
7 expenses. Attachment TRB-14 provides the capital expenditures to date (rather
8 than total budget or in-service amounts), which can be described as follows:

- 9 • Internal and Contract Labor: Internal and contract labor costs were incurred
10 across the various phases of the WAM project as described in Section VI
11 above, as well as the cross phase work in Attachment TRB-15, and include a
12 wide variety of roles and skill sets to perform the necessary functions of
13 design, build, test and deploy. This includes work by employees of Xcel
14 Energy, Accenture, IBM, and other vendors, including program leads; project
15 managers and leads; enterprise data, technical, functional and solution
16 architects; technical, functional and security designers; configurators;
17 developers; deployment, change management, finance and controls, PMO,
18 performance and business analysts; trainers.
- 19 • Hardware: Includes the infrastructure needed to implement PTT, including
20 primarily servers, network build-outs, and other computing equipment
21 including mobile devices to facilitate crew efforts.
- 22 • Software: Includes licensing costs for new software, primarily for SAP as well
23 as Click scheduling software.
- 24 • Employee expenses: Includes costs incurred by employees when working on
25 the PTT project, including travel and other expenses.
- 26 • Contingency: Fund to cover unexpected costs that may be incurred for the
27 project.

1 **Q. IS THERE ANOTHER WAY TO VIEW THESE COSTS?**

2 A. Yes. As noted earlier in my Direct Testimony, the GL and WAM projects are
3 implemented in phases, with additional work undertaken across each phase.
4 Attachment TRB-15 to my Direct Testimony shows the same costs described
5 above (but broken out by functional category) in terms of the phase of work
6 completed. The work completed as part of each core phase or cross-phase
7 endeavor is described earlier in this testimony. As with the prior Attachment,
8 Attachment TRB-15 includes capital expenditures to date rather than total budget
9 or in-service amounts.

10 **Q. CAN YOU PROVIDE MORE INFORMATION ABOUT THE CONTINGENCY IN**
11 **THE WAM BUDGET?**

12 A. Yes. The cost estimate for WAM includes a project contingency of \$70 million
13 (total Xcel Energy), which is approximately 20 percent of our total project budget,
14 based on the level of information available coming out of the blueprint phase of
15 the project, including the complexity, size, integrated nature, and legacy
16 remediation work that was identified for remaining systems.

17 **Q. ARE THERE ANY INDUSTRY GUIDELINES FOR ESTABLISHING**
18 **CONTINGENCY AMOUNTS FOR CAPITAL PROJECT ESTIMATES?**

19 A. Yes. Xcel Energy utilized Association for the Advancement of Cost Engineering
20 ("AACE") guidance to establish an appropriate contingency given this stage of
21 the project. Given the stage of the project, this level of contingency was
22 consistent with best practices according to AACE.

1 **Q. DOES XCEL ENERGY ANTICIPATE UTILIZING ITS FULL CONTINGENCY**
2 **FOR THE WAM?**

3 A. Given the current stage and status of the project, it is looking promising that we
4 will not need to utilize the full contingency. However, Xcel Energy has not yet
5 ruled out using the contingency given that project implementation is still in
6 process. By definition, a contingency is included to account for potentially
7 unforeseeable issues. Therefore, Public Service will provide an update on
8 anticipated final project costs as final deployment is further along.

9 **Q. WHAT STEPS HAS THE COMPANY TAKEN TO ENSURE PTT COSTS ARE**
10 **REASONABLE?**

11 A. We have taken several steps. First, the vendor contracts reflect substantial
12 negotiations with our vendors to obtain discounts where possible and ensure
13 appropriate pricing. Second, we worked to ensure proper project scope to tailor
14 the project to our needs, as described above. Third, the benchmarking and
15 industry data on cost described earlier in my testimony was utilized. The cost
16 estimates were obtained from six peer utilities with comparable revenues,
17 number of employees, capital expenditures and jurisdictions who had recently
18 implemented SAP. The cost benchmarking data is set forth in Confidential
19 Attachment TRB-12 of my Direct Testimony. As Attachment TRB-12 illustrates,
20 the total project budget is in line with *past* costs of combined GL and WAM
21 implementations, even without incorporating inflation.

1 Further, the total project budget is well below the one benchmarking
2 company outlier, which not only included the additional Human Resources and
3 Payroll modules but also encountered unforeseen circumstances.³ Based on the
4 information from comparable utilities implementing similar solutions, the total
5 costs for the GL and WAM are reasonable.

6 **Q. WHAT HAS THE COMPANY DONE TO MANAGE THE COSTS OF THIS**
7 **PROJECT DURING THE DEVELOPMENT PROCESS?**

8 A. Xcel Energy is using extensive governance practices consistent with a project
9 with this level of complexity and scope. The project has its own Project
10 Management Office ("PMO"), which is responsible for setting governance levels
11 and requirements. The next level of governance is handled through the
12 Integration Council, with membership from senior leaders across the functional
13 areas of the business, including operations, finance, human resources and
14 supply chain. The Integration Council reviews and approves scope and cost
15 changes to the project to be moved forward to the third and final level of
16 governance, the Project Sponsors. They also review and recommend approval to
17 the project sponsors of each Individual Statement of Work ("ISOW"). New ISOWs
18 are signed at the beginning of each new phase of the project.

³ For this one outlier, Hurricane Sandy struck in the middle of implementation, significantly impacting business readiness. Further, the project's Reports, Interfaces, Conversions, Extensions, Forms, and Workflow ("RICEFW") count doubled from the scoping to implementation phase, significantly increasing the overall cost.

1 **Q. WHAT LEVEL OF ASSURANCE CAN YOU PROVIDE THAT THE WAM**
2 **COSTS WILL BE WITHIN A REASONABLE RANGE OF CURRENT**
3 **ESTIMATES?**

4 A. Xcel Energy is very confident in our cost estimates for this project. The Company
5 has done a great deal of due diligence on this project, and proceeded through
6 several phases noted above – including three WAM deployments executed and a
7 third in process as of June 26, 2017. In addition, the Company has executed
8 contracts through the deployment phase, which ends in the fourth quarter of
9 2017. These contracts contain terms to incent vendor support to keep the project
10 aligned with Company goals.

11 The final test phase of the project was completed in June 2017. While the
12 Company cannot predict all issues that might be encountered during the
13 remaining deployments, the WAM project is nearing completion and is much
14 farther along than it was at the time of filing our last electric rate case. The
15 Company is therefore very confident in the overall cost and deployment schedule
16 given the status of the project, the work completed to date, and the remaining
17 contingency available for use if needed.

18 **2. O&M Costs**

19 **Q. WHAT IS THE PURPOSE OF THIS SECTION OF YOUR DIRECT**
20 **TESTIMONY?**

21 A. This section of my Direct Testimony provides support for actual 2016 PTT
22 implementation expenditures, which the Company proposes to utilize as a basis

1 for establishing O&M levels included in rates during the MYP period. While these
2 costs, along with post-implementation maintenance costs for the PTT platforms,
3 are included in Company witness Mr. Harkness' Direct Testimony supporting
4 total 2016 costs for IT, I provide support for the project implementation costs
5 incurred in 2016.

6 **Q. WHAT TYPES OF COSTS WERE INCURRED IN 2016 FOR PTT?**

7 A. As described above, the PTT program has a large scale and multi-year duration,
8 such that a separate PMO consisting of Xcel Energy employees and Accenture
9 staff is required to oversee project implementation. The Enterprise
10 Transformation Office ("ETO") is responsible for maintaining project
11 documentation, reviewing and approving key design decisions, ensuring the
12 project meets all milestones and deliverables, monitoring and mitigating program
13 risk, planning and monitoring internal and external staffing levels, and managing
14 internal communication and change management. The ETO consists of Xcel
15 Energy Services employees, some staff augmentation for temporary roles, and
16 Accenture business partners who will have overseen the project from the initial
17 scoping phase through the implementation and post go-live support period. In
18 addition, Xcel Energy periodically brings in other industry experts to review our
19 progress to date, and our plans for the remainder of the project to ensure we
20 have an independent review of the project and aren't missing any risks or issues.
21 These advisors also review major contracts for each phase of the project to

1 ensure that we are getting the best contract terms possible without sacrificing
2 quality of the final product.

3 In 2016, PTT implementation O&M related primarily to internal labor,
4 Accenture costs, and other consulting costs associated with WAM
5 implementation. Upon implementation, these systems are turned over to
6 Business Systems for operation and maintenance as part of Business Systems'
7 broader IT management. Company witness Mr. Harkness describes actual 2016
8 O&M costs for PTT post-implementation O&M in his Direct Testimony.

9 **Q. WHAT WERE THE ACTUAL 2016 PTT O&M COSTS?**

10 A. The PTT O&M costs in Table TRB-D-3 below consist of Xcel Energy labor
11 expenses, Accenture consulting costs, and costs for other third party vendors
12 and consultants that Xcel Energy engages to provide assistance throughout the
13 program. Because Accenture resources represent the majority of the consulting
14 costs, we have listed their estimated portion separately.

**Table TRB-D-3 2016 ACTUAL PTT O&M by Cost Category
(Dollars in Millions)**

Cost Category	GL	WAM	Total O&M
Internal Labor	\$0.0	\$0.5	\$0.6
Consulting - Accenture	0.1	2.0	2.1
Consulting - Other	0.1	0.8	0.9
Other Non-Labor	<u>0.0</u>	<u>0.3</u>	<u>0.3</u>
PSCo Electric Total⁴	\$0.3M	\$3.7M	\$3.9M

Q. ARE THE \$3.9 MILLION IN 2016 O&M COSTS FOR PTT IMPLEMENTATION REFLECTED IN THE COST OF SERVICE PRESENTED BY MS. BLAIR?

A. Yes. As discussed by Company witness Ms. Alice K. Jackson, Public Service is proposing to set rates based on our historical 2016 O&M costs, with limited adjustments for known and anticipated changes occurring after 2016.

Q. WHY IS ACTUAL 2016 PTT O&M OTHERWISE A REASONABLE BASIS ON WHICH TO ESTABLISH O&M COSTS FOR THE MYP PERIOD?

A. Company witness Ms. Jackson discusses how the Company's overall O&M proposal establishes a reasonable level of O&M costs for Public Service. From a PTT perspective, 2016 O&M costs are critical to the success of the program, which was confirmed in the discussions with peer companies and industry experts who have implemented a program of this scale. In addition, Xcel Energy's advisors review each contract for each phase of the project to ensure

⁴ Differences due to rounding.

1 the best contract terms possible without sacrificing quality of the final product.
2 For the major contract with Accenture, the contracts are based on achieving
3 milestones and deliverables, rather than on a time-and-materials basis. As a
4 result, vendors are limited to what additional costs they can collect if they exceed
5 the contract value.

6 Further, 2016 O&M reflects a portion of GL post-implementation
7 maintenance costs that will be incurred while the GL is in service. When the
8 WAM is fully in service, O&M costs will result from operation, maintenance, and
9 licensing of the systems rather than implementation. Overall, 2016 costs are a
10 fair representation of O&M associated with PTT for the future.

11 **B. PTT Benefits and Comparison to Costs**

12 **Q. WHAT TYPES OF BENEFITS DOES PUBLIC SERVICE ANTICIPATE FROM**
13 **THE PTT INITIATIVE?**

14 A. Public Service anticipates benefits in the areas of work planning, mobile
15 efficiencies, crew efficiencies and procurement. The SAP processes require rigor
16 in work planning to ensure the work dependencies are all planned before a work
17 order can be released. The process also supports greater work visibility to allow
18 work to be bundled by work types, as well as geographically, to reduce travel
19 times and improve crew productivity. The scheduling capabilities will provide
20 coordinators with a view of future weeks of work, enabling optimum crew routing
21 and material sequencing. The improved planning will also help drive integrated

1 procurement processes by providing longer range material forecasting, which will
2 enable leveraging of purchasing contracts.

3 **Q. WHAT ARE THE AREAS OF OPERATIONAL EFFICIENCIES THAT WILL**
4 **HELP CONTAIN LONG TERM BUDGETARY GROWTH?**

5 A. Some examples of these operational efficiencies include:

- 6 • Condition based maintenance, which uses equipment performance
7 history, and analysis of previous maintenance performed to predict when
8 future maintenance will be required. For example, a pump can be
9 monitored for performance and indication of wear such as vibration,
10 allowing maintenance to be scheduled when threshold conditions are met.
11 This applies as well to motors, valves, turbines, generators, and many
12 other types of equipment.
- 13 • Optimized investment in assets from having all equipment in one
14 integrated solution allows the sharing of knowledge and experience
15 systematically throughout the Company. For example, many types of
16 circuit breakers used in our electric distribution function are used in fossil
17 and nuclear generation as well. Problems or issues with various types of
18 circuit breakers can be accessed across the company, and this
19 information allows for better decisions in asset purchases and
20 maintenance requirements. We have found benefits in utilizing this
21 knowledge starting with Energy Supply's implementation of its operations
22 playbook, and our WAM program can help to further these efforts.

23 **Q. HAS THE COMPANY ESTIMATED THE BENEFITS THAT MIGHT BE**
24 **ACHIEVED IN ASSOCIATION WITH PTT?**

25 A. Yes. In an effort to illustrate the quantifiable O&M benefits of the PTT initiative,
26 Attachment TRB-16 to my Direct Testimony estimates the O&M benefits of PTT

1 by Business Area, stated at the Xcel Energy level since the GL and WAM are
2 implemented as Xcel Energy-wide projects. This summary of O&M benefits
3 focuses on GL and WAM benefits in isolation from any other events,
4 investments, redeployments of resources, or changes that may affect or offset
5 the level of savings or cost avoidance achieved across the Company. The
6 business and our broader resource needs are, of course, evolving and being
7 impacted by outside events all the time. The use of these new systems facilitate
8 a number of business process changes designed to drive efficiency and improve
9 operational productivity. While some benefits are expected to be realized with
10 each implementation, it will take some time to gain the experience and refine the
11 business processes to achieve the full level of anticipated benefits. We have
12 developed post-WAM performance metrics to manage the work and measure the
13 actual achieved improved productivity.

14 **Q. HAS THE COMPANY LIKEWISE ATTEMPTED TO COMPARE COSTS AND**
15 **BENEFITS IN A COST-BENEFIT ANALYSIS?**

16 A. Yes. In our Public Service Company 2015 Gas Phase I rate case, it was noted
17 that the anticipated costs of the GL and WAM increased significantly between
18 Direct and Rebuttal Testimony due to the addition of contingencies to the project.
19 In addition, certain parties requested additional support for the PTT program. As
20 discussed earlier in my Direct Testimony, the Colorado Public Utilities
21 Commission deferred GL and WAM cost recovery and requested that the
22 Company provide more support for these investments in its next rate case. In

1 light of those specific circumstances, I provide a comparison of the quantifiable
2 O&M benefits Xcel Energy expects to achieve (identified in Attachment TRB-16)
3 with the associated total Xcel Energy costs of the GL and WAM, stated on a net
4 present value of revenue requirements basis over the life of the projects. This
5 comparison is attached as Attachment TRB-17 to my Direct Testimony, and
6 illustrates that the O&M benefits of the GL and WAM are expected to exceed
7 total Xcel Energy present cost estimates (including the contingency).

8 **Q. WHAT WEIGHT DOES THE COMPANY BELIEVE SHOULD BE GIVEN TO**
9 **THESE ANALYSES IN DETERMINING WHETHER THE INVESTMENTS IN**
10 **THE GL AND WAM WERE APPROPRIATE?**

11 A. The analysis of O&M benefits and the cost-benefit analysis provide some
12 financial insight related to these investments and carry through to the Company's
13 proposed MYP as discussed by Company witness Ms. Jackson, but they were
14 only one element of the Company's assessment of these projects. Throughout
15 this Direct Testimony, I have explained that the primary driver of the PTT
16 initiative was the age of existing systems, and discussed how Xcel Energy
17 attempted to address these aging technology issues in a thoughtful way based
18 on assessment of risks, examination of options, and careful implementation.
19 When technology systems become as aged as ours were, plans to address these
20 needs are not centered around a cost-benefit analysis because it is not possible
21 to accurately and fully quantify all risks associated with the potential to lose IT

1 systems that are fundamental and critical to the utility business. As such, the full
2 benefits of avoiding those risks cannot be fully quantified.

3 I also noted earlier in this testimony that there is a contingency associated
4 with implementation of the WAM system, which will be re-evaluated throughout
5 2017 as the remaining deployments are completed. While I currently believe the
6 Company is unlikely to utilize all or most of its contingency, which would help
7 reduce total project costs, it would still be premature to remove the contingency
8 before the WAM is fully implemented. Consequently, the final costs of the PTT
9 initiative will not be determined until late 2017 or possibly early 2018.

10 Finally, the attached assessment of future benefits is based on the best
11 information we have at this time. While we have a better handle on actual costs
12 as we near final implementation of the WAM, the benefits will be more fully
13 realized in the future. Therefore, we are still estimating benefits on the basis of
14 what we believe will occur once the GL and WAM are both fully in service and
15 working in tandem, and before our employees have fully engaged with these new
16 systems.

17 In sum, we believe this analysis presents a reasonable picture we are
18 presenting as a result of reactions to our testimony on GL and WAM in our last
19 rate case. However, it remains a forward-looking analysis that is only one piece
20 of the larger picture.

1 **Q. IS IT POSSIBLE TO TRACK ALL ACTUAL COST SAVINGS OR COST**
2 **AVOIDANCE THAT WILL RESULT FROM PRODUCTIVITY THROUGH**
3 **TECHNOLOGY?**

4 A. No. Although the Company anticipates efficiencies as described above, it is
5 generally not possible to isolate efficiency savings for purposes of tracking them
6 to specific budget impacts. There are some instances where we can track
7 operational efficiency improvements, but the overall impact is likely not to reduce
8 budgetary spending from what it is today, but rather to help keep the Company's
9 Business Area budgets more flat or with smaller increases than they otherwise
10 might experience.

11 **Q. WHY IS THE COMPANY'S ABILITY TO ISOLATE BUDGETARY SAVINGS**
12 **SPECIFIC TO PRODUCTIVITY THROUGH TECHNOLOGY LIMITED?**

13 A. There are several reasons why this is the case. First, the business is evolving
14 and business needs are changing all the time. If, for example, the Company has
15 a larger-than-anticipated number of service calls in a given year, then the fact
16 that crew deployment capabilities are more efficient as a result of the WAM
17 system will not necessarily equate to lower overall service call costs.

18 Second, one major benefit of increasing work efficiencies is the ability to
19 redeploy resources to accomplish other tasks. Some examples of this kind of
20 efficiency are described earlier in my Direct Testimony, including completing
21 more crew work in a day due to more efficient scheduling. The result is not

1 necessarily lower costs, but rather more or different work accomplished with the
2 same or fewer resources.

3 Third, in many instances efficiencies only help contain costs that are rising
4 for reasons unrelated to efficiency improvements – such as inflation or increased
5 maintenance needs for aging facilities. Also, the electric and gas industry is
6 continually experiencing new requirements in areas such as regulatory
7 compliance and cyber security which drive increased work activities. As Public
8 Service’s utility systems age, increased inspection and maintenance work will be
9 required to maintain system risk. This means that more efficient work helps limit
10 the amount these costs may rise, but do not result in savings compared to prior
11 years.

12 Fourth, it is difficult to quantify many types of benefits – such as the dollar
13 value of more consistent, detailed financial outputs, of greater employee
14 engagement and interactivity, or of more tailored maintenance efforts due to
15 better, more accessible information about what is happening with an asset at a
16 given time. Nor can we predict all the costs we might have incurred by continuing
17 with aging systems that did not contain the same level of security, upgrades, or
18 vendor support. Each scenario depends on assumptions about how much time or
19 cost would have been incurred under individual factual circumstances that can
20 vary greatly.

21 Finally, the implementation of these new systems requires time and many
22 assumptions about when and how they will be fully utilized by all the affected

1 areas of the Company. It is difficult to quantify specific cost reductions from the
2 implementation of new technology and process, as there is a learning curve with
3 both and some benefits are in the form of increased productivity or cost growth
4 containment rather than specific cost savings.

5 **Q. HAS THE COMPANY NONETHELESS ATTEMPTED TO REFLECT PTT**
6 **SAVINGS IN THE TEST YEARS OF THE MYP?**

7 A. Yes. Company witness Ms. Jackson discusses the Company's efforts to develop
8 a broader means of reasonably reflecting or even exceeding efficiencies it
9 expects to achieve during the MYP years.

10 **Q. HAS THE COMPANY ALSO IDENTIFIED AREAS WHERE IT CAN**
11 **SPECIFICALLY MEASURE THE BENEFITS OF WAM IMPLEMENTATION?**

12 A. Yes. We have identified a series of performance metrics that we will be
13 monitoring once we go live to identify where there are ways to improve
14 performance and the quality of service whether it is across the system, in a
15 specific geographical location, or in a specific business area. Some examples of
16 these performance metrics are listed below:

- 17 • Average time taken by a system designer to contact the customer for the
18 first time after a service request has been assigned to him/her;
- 19 • Average elapsed time from work order approval to work order acceptance
20 by the Construction group;
- 21 • The number of work order designs that are approved based on the first
22 review, as compared to total number of approved designs; and
- 23 • The percentage of time a work order construction packet is approved the
24 first time as compared to total approved work order packets.

1 While these metrics are meaningful to customer service, we continue to believe
2 the greatest benefits of this project come in the form of reduced risk and
3 increased productivity.

4 **Q. WHAT DO YOU CONCLUDE WITH RESPECT TO THE COMPANY'S**
5 **PROJECTED COSTS AND BENEFITS OF THE GL AND WAM?**

6 A. The Company undertook a thorough process for assessing the GL and WAM
7 options prior to and during implementation. The GL has been implemented, and
8 WAM deployment will be completed in this calendar year. We anticipate the
9 WAM deployment will come in at or under budget. Overall, I conclude that the
10 Company used robust and reasonable business judgment to plan for and
11 implement replacement of aging systems with the integrated GL and WAM
12 solution.

13 **Q. DOES THIS CONCLUDE YOUR DIRECT TESTIMONY?**

14 A. Yes, it does.

Statement of Qualifications

Timothy R. Brossart

As the Area Vice President, Enterprise Transformation Office, I am responsible for providing overall oversight and governance for the PTT initiative. My duties include responsibilities in the areas of program management, business architecture, change management and data governance.

I earned a Bachelor of Science in Electrical Engineering from North Dakota State University in 1990 and am a Registered Professional Engineer in the State of Minnesota. I have been employed in the utility industry for twenty seven years in a broad range of positions with Xcel Energy and its predecessor, Northern States Power Company ("NSP"). I started as an Electric Engineer in NSP's Distribution Planning and Engineering department in 1990. In 1995, I was promoted to the position of Project Manager, Operational Information & Control, in NSP's Delivery business unit and, in 1997, to Control Center Leader. In January 1999, I accepted the position of Manager, Delivery System Construction, in NSP's Delivery business unit. Upon the merger of Northern States Power Company and New Century Energies, Inc. in 2000, I was promoted to Director, Metro West Construction Operations & Maintenance in Xcel Energy's Delivery Business Unit. In September 2001, I became Director, Field Operations Denver Metro South and, in January 2004, Director, Distribution Engineering & Emergency Response South within the Xcel Energy Delivery business unit. In March 2006, I was promoted to Vice President, Control Center. In October 2007, I was

promoted to Vice President, Construction, Operations and Maintenance. In November 2013, I accepted my current position as the Area Vice President of the Enterprise Transformation Office. I have been in management positions for the last twenty years, which have included the responsibility for developing and managing O&M and capital budgets. I am currently a board member of Junior Achievement Rocky Mountain Inc., and of the RMEL board. I have served on the boards since February 2008 and September 2009, respectively. I have previously served as an electric steering committee member for the Midwest Energy Association and am a former member of Institute of Electrical and Electronics Engineers ("IEEE"). I am a licensed Master Electrician in the State of North Dakota. I have provided rebuttal testimony in Proceeding No. 05A-288E in February 2006, as part of the 2007-2008 Public Service Company of Colorado Electric Quality of Service Plan proceeding, and have submitted direct testimony in Proceeding No. 08S- 520E, in Proceeding No. 09AL-299E, and in Proceeding No. 11AL-947E.

BEFORE PUBLIC UTILITIES COMMISSION
OF THE STATE OF COLORADO

* * * *

RE: IN THE MATTER OF ADVICE LETTER)
NO. 1748-ELECTRIC FILED BY PUBLIC)
SERVICE COMPANY OF COLORADO TO)
REVISE ITS COLORADO PUC NO. 8-) PROCEEDING NO. 17AL-XXXXX
ELECTRIC TARIFF TO IMPLEMENT A)
GENERAL RATE SCHEDULE)
ADJUSTMENT AND OTHER RATE)
CHANGES EFFECTIVE ON 30-DAYS)
NOTICE.)

AFFIDAVIT OF TIMOTHY R. BROSSART
ON BEHALF OF
PUBLIC SERVICE COMPANY OF COLORADO

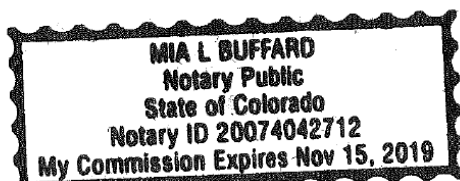
I, Timothy R. Brossart, being duly sworn, state that the Direct Testimony and attachments were prepared by me or under my supervision, control, and direction; that the Testimony and attachments are true and correct to the best of my information, knowledge and belief; and that I would give the same testimony orally and would present the same attachments if asked under oath.

Dated at Denver, Colorado, this 20 day of September, 2017.



Timothy R. Brossart
Area Vice President, Enterprise Transformation Office

Subscribed and sworn to before me this 20th day of September, 2017.


Notary Public

My Commission expires November 15, 2019