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. 912-GAS FILED BY	**)**	
PUBLIC SERVICE COMPANY OF	**)**	
COLORADO TO REVISE ITS	**)**	**PROCEEDING NO. 17AL-_____G**
COLORADO PUC NO. 6-GAS TARIFF	**)**	
TO IMPLEMENT A GENERAL RATE	**)**	
SCHEDULE ADJUSTMENT AND	**)**	
OTHER RATE CHANGES EFFECTIVE	**)**	
ON 30-DAYS NOTICE.	**)**	

DIRECT TESTIMONY AND ATTACHMENTS OF
TIMOTHY R. BROSSART

ON

BEHALF OF

PUBLIC SERVICE COMPANY OF COLORADO

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

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

June 2, 2017

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

*** * * * ***

RE: IN THE MATTER OF ADVICE LETTER NO. 912-GAS FILED BY PUBLIC SERVICE COMPANY OF COLORADO TO REVISE ITS COLORADO PUC NO. 6-GAS TARIFF TO IMPLEMENT A GENERAL RATE SCHEDULE ADJUSTMENT AND OTHER RATE CHANGES EFFECTIVE ON 30-DAYS NOTICE.	**)**	**PROCEEDING NO. 17AL-_____G**

SUMMARY OF THE DIRECT TESTIMONY OF TIMOTHY R. BROSSART

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Through Technology ("PTT") initiative, which is the name Xcel Energy has given to its initiative to replace the outdated general ledger and work and asset management systems with the new, integrated SAP General Ledger ("GL") and Work and Asset Management ("WAM") solutions.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

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

utilizes to develop the beginning balance in the plant-related roll-forward for the 2018-2020 Multi-Year Plan ("MYP") period:

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

	2015 Actuals	2016 Actuals	2017 Forecast	**Total**
GL Capital	$5.55	$0.60	--	**$6.15**
WAM Capital	--	$3.42	$35.53	**$38.96**
Total	**$5.55**	**$4.03**	**$35.53**	**$45.11**

This roll-forward is in turn used by Company Witness Mr. Steven Berman to calculate the 13-month average plant in service balance for each year of the MYP. Mr. Brossart also supports the approximately $1.1 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 recommends that the Colorado Public Utilities Commission ("Commission") approve the level of capital additions and O&M presented in his

testimony as reasonable and necessary to support Public Service's ability to provide safe and reliable gas service to its customers, and therefore are a reasonable basis for the Company's cost of service.

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

*** * * * ***

RE: IN THE MATTER OF ADVICE LETTER NO. 912-GAS FILED BY PUBLIC SERVICE COMPANY OF COLORADO TO REVISE ITS COLORADO PUC NO. 6-GAS TARIFF TO IMPLEMENT A GENERAL RATE SCHEDULE ADJUSTMENT AND OTHER RATE CHANGES EFFECTIVE ON 30-DAYS NOTICE.	**)**	**PROCEEDING NO. 17AL-_____G**

DIRECT TESTIMONY AND ATTACHMENTS OF TIMOTHY R. BROSSART

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GLOSSARY OF ACRONYMS AND DEFINED TERMS

Acronym/Defined Term	Meaning
2014 Electric Phase I	Proceeding No. 14AL-0660E
2015 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

Acronym/Defined Term	**Meaning**
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.

BEFORE THE PUBLIC UTILITIES COMMISSION
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DIRECT TESTIMONY AND ATTACHMENTS OF TIMOTHY R. BROSSART

I. INTRODUCTION, QUALIFICATIONS, PURPOSE OF TESTIMONY, AND RECOMMENDATIONS

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.

Q. PLEASE SUMMARIZE YOUR RESPONSIBILITIES AND QUALIFICATIONS.

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

Q. WHAT IS THE PURPOSE OF YOUR DIRECT TESTIMONY?

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

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

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

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

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

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

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

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

A. Yes, I am sponsoring Attachments TRB-1 through TRB-15, which were prepared by me or under my direct supervision.

Q. WHAT RECOMMENDATIONS ARE YOU MAKING IN YOUR DIRECT TESTIMONY?

A. I recommend that the Commission allow the costs of the GL and WAM projects to be reflected in our cost of service presented in this case.

II. PRODUCTIVITY THROUGH TECHNOLOGY OVERVIEW

Q. WHAT IS PRODUCTIVITY THROUGH TECHNOLOGY?

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

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

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

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

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

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

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

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

A. The benefits of the new GL included a simplified chart of accounts structure, better analysis capabilities between accounting results and supporting business drivers, better traceability from operations and Generally Accepted Accounting Principles ("GAAP") accounting to individual Federal Energy Regulatory Commission ("FERC") accounts, and improved process and workflow functionality to reduce accounting support requirements. The GL replacement project went into service in 2015, with some post-implementation capital incurred in 2016, and constitutes a total capital addition of $6.15 million for Public Service Gas.

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

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

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

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

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

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

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

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

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

A. WAM systems are the technology used to manage essentially three categories of fundamental utility needs: work crew scheduling and work assignment, work execution and documentation, and procurement optimization. The WAM replacement project is: (1) replacing the Passport and Maximo systems to bring technology up to date and improve functionalities with respect to 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; (2) automating scheduling and work assignments; (3) optimizing procurement and improving supply chain processes; and (4) improving service, safety, reliability, and overall customer service response.

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

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

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

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

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

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

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

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

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

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

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

Q. PLEASE DESCRIBE HOW THE NEW WAM SYSTEM WILL SUPPORT "PROCUREMENT OPTIMIZATION," AND HOW THIS WILL BENEFIT CUSTOMERS.

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

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

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

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

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

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

A. By using WAM systems to more efficiently maintain Company assets and deploy the Company's workforce, the Company will improve service, safety, reliability, 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 David 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 Phase I, Company witnesses John 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 natural gas 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 more recent 2015 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 TRB-1 of my Direct Testimony for a copy of the Stitt Rebuttal

Testimony.[1] The Public Service gas department was initially assigned $5.9 million and $21.5 million respectively. However, the original estimate did not include any contingency. As such, the Company provided updated cost estimates in its Rebuttal Testimony, identifying contingency amounts allocated to the Public Service gas jurisdiction of $8.2 million for the GL replacement project and $37.1 million for the WAM replacement project to the Public Service gas department.

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

A. The Company's 2014 Electric Phase I settled without making a specific determination as to the GL replacement project capital addition, because it was based on a historical test year. (See Decision No. C15-0292, Decision: (1) Granting Joint Motion to Approve Settlement Agreement; (2) Granting Application to Decommission Plant; (3) Permanently [sic] Suspending Tariff Sheets; and (4) Establishing Rates, Feb. 24, 2015). In the Company's 2015 Phase I, the Commission determined that:

> We agree with the ALJ that the software costs should be more thoroughly investigated, and we uphold the Recommended Decision's directive that Public Service establish a regulatory asset for these costs to be deferred to the next gas rate case. The regulatory asset may include total capital costs beginning in 2014, including the related depreciation expense, however, Public Service may not place the associated 2014 O&M expenses in that asset. The Commission will determine O&M expenditures to be recovered through base rates in the same future rate proceeding when the deferred capital costs are addressed. None of the software costs

[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.

incurred in 2014 will be included in the calculation of the revenue requirement that is based on the 2014 Test Year.

See Decision No. C16-0123 at ¶ 81.

Q. DO YOU PROVIDE UPDATED INFORMATION REGARDING GL AND WAM COSTS AND SUPPORT FOR THE COSTS IN YOUR DIRECT TESTIMONY IN THE PRESENT PROCEEDING?

A. Yes. I discuss earlier cost estimates and current costs in Section VII, later in my Direct Testimony. First, I provide a detailed discussion of the reasons for pursuing the GL and WAM projects, how we determined an appropriate path forward for these projects, and how we have gone about implementing these projects. In sum, I explain why the overall costs are reasonable.

IV. THE EXISTING SYSTEMS WERE ANTIQUATED AND HIGH RISK

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

Q. CAN YOU DESCRIBE MAXIMO IN MORE DETAIL?

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

Key themes that emerged through these visits are as follows:

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

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

Q. CAN YOU DESCRIBE THE INTERNAL PLANNING SESSIONS?

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

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

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

A. They recommended six options, including:

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

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

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

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

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

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

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

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

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

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

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

Q. WHAT WERE THE "LESSONS LEARNED" FROM RE-EXAMINING XCEL ENERGY'S EXISTING SYSTEMS AS PART OF THIS PROCESS?

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

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

Q. WHAT WOULD HAPPEN IF THESE SYSTEMS FAILED?

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

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

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

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

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

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

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

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

Q. WHAT DID THE PROJECT'S LEADERSHIP ULTIMATELY APPROVE AS A NEXT STEP?

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

B. <u>Project Selection</u>

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

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

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

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

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

Q. CAN YOU PROVIDE MORE DETAIL EXPLAINING WHAT YOU MEAN BY AN "ENTERPRISE RESOURCE PLANNING TOOL"?

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

Q. WERE YOU ABLE TO NARROW DOWN THE OPTIONS?

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

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

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

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

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

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

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

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

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

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

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

VI. PROJECT IMPLEMENTATION

Q. PLEASE PROVIDE AN OVERVIEW OF IT CAPITAL PROJECT IMPLEMENTATIONS.

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

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

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

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

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

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

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

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

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

A. <u>GL Implementation</u>

Q. PLEASE DESCRIBE THE IMPLEMENTATION OF THE GL REPLACEMENT PROJECT.

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

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

- *Functional and Technical Design.* In the August 2014 to October 2014 time period, we were designing the final Finance processes, conducting key user workshops, performing requirements analysis and system configuration design, and preparing our training and communications plan.
- *Build*. From November 2014 to March 2015, 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 2015 through October 2015, we tested the new GL system integrations with mock data, and executed the user acceptance testing plan.
- *Deployment*. This phase began on November 1, 2015, and effectively ended on December 31, 2015, when the new GL system replaced the JDE system for new transactions for the new 2016 fiscal year. The JDE system continued to be available as the transition occurred.

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

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

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

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

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

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

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

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

B. <u>WAM Implementation</u>

Q. PLEASE DESCRIBE THE IMPLEMENTATION OF THE WAM REPLACEMENT PROJECT.

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

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

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

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

Q. IS THE WAM BEING DEPLOYED ALL AT ONCE?

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

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

A. We have completed two of the six planned deployments, have recently initiated the third deployment on April 24th, and have signed vendor contracts for the remainder of the project. The remaining deployments are on track to be implemented in 2017.

VII. COSTS AND BENEFITS OF PTT

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

A. In this section of my Direct Testimony, I walk through the benefits and costs of implementing the GL and WAM. I start out by summarizing the capital costs of implementing PTT.[2] I explain that the Company's current estimate for PTT costs align with the estimates provided in Rebuttal Testimony in the Company's 2015 Phase I, and provide additional support for the reasonableness of these costs.

I then discuss the benefits of the GL and WAM systems. In particular, the replacement of the outdated general ledger and work and asset management systems was driven by the age of the old systems and the need for replacement in an efficient, secure manner. That said, we do anticipate benefits in the form of efficiencies resulting from implementation of the WAM. GL efficiencies are limited in their own right, because a general ledger tool is not, by itself, a cost-saving solution. In contrast, the WAM is intended to provide a more efficient and interoperable system than the prior systems, allowing Xcel Energy companies to "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 gas utility:

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

	2015 Actuals	2016 Actuals	2017 Forecast	**Total**
GL Capital	$5.55	$0.60	--	**$6.15**
WAM Capital	--	$3.42	$35.53	**$38.96**
Total	**$5.55**	**$4.03**	**$35.53**	**$45.11**

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 gas 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.

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

A. Overall, the Company's costs for PTT are anticipated to be in line with the updated forecast provided in Company witness Ms. Amy Stitt's Rebuttal Testimony in the 2015 Phase I. Ms. Stitt anticipated total PTT costs of $45.30 million for Public Service gas, whereas current costs are expected to be $45.13 million for Public Service gas. The change is due primarily to the updated allocation factors for Public Service described by Company witness Mr. Adam Dietenberger.

As discussed in more detail below, it is possible that final costs will come in lower than currently anticipated, as we have not yet utilized the contingency for PTT. The Company will provide an update on PTT costs in the course of this rate proceeding, as additional deployments are completed later in 2017.

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

A. Xcel Energy hired an experienced SAP system integrator, Accenture, to help run the project and estimate project costs. Initial scoping cost estimates for the project were developed using Accenture's modeling tool, which allows the user to input certain criteria to estimate the cost for each portion of the program. Criteria include the SAP application modules in scope, technology architecture factors, multi-location aspects, complexity factors by work stream and the number of

Reports, Interfaces, Conversions, Extensions, Forms and Workflows (RICEFW). Xcel Energy subsequently added a contingency to the project and adjusted it as we developed more insight into the costs of remediating legacy systems during the phases of project development.

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

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

- Internal and Contract Labor: Internal and contract labor costs were incurred across the various phases of the WAM project as described in Section VI above, as well as the cross phase work in Attachment TRB-15, and include a wide variety of roles and skill sets to perform the necessary functions of design, build, test and deploy. This includes work by employees of Xcel Energy, Accenture, IBM, and other vendors, including program leads; project managers and leads; enterprise data, technical, functional and solution architects; technical, functional and security designers; configurators; developers; deployment, change management, finance and controls, PMO, performance and business analysts; trainers.
- Hardware: Includes the infrastructure needed to implement PTT, including primarily servers, network build-outs, and other computing equipment including mobile devices to facilitate crew efforts.
- Software: Includes licensing costs for new software, primarily for SAP as well as Click scheduling software.

- Employee expenses: Includes costs incurred by employees when working on the PTT project, including travel and other expenses.
- Contingency: Fund to cover unexpected costs that may be incurred for the project.

Q. IS THERE ANOTHER WAY TO VIEW THESE COSTS?

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

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

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

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

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

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

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

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

A. We have taken several steps. First, the vendor contracts reflect substantial negotiations with our vendors to obtain discounts where possible and ensure appropriate pricing. Second, we worked to ensure proper project scope to tailor the project to our needs, as described above. Third, the benchmarking and industry data on cost described earlier in my testimony was utilized. The cost estimates were obtained from six peer utilities with comparable revenues,

number of employees, capital expenditures and jurisdictions who had recently implemented SAP. The cost benchmarking data is set forth in Confidential Attachment TRB-12 of my Direct Testimony. As Attachment TRB-12 illustrates, the total project budget is in line with *past* costs of combined GL and WAM implementations, even without incorporating inflation.

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

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

A. Xcel Energy is using extensive governance practices consistent with a project with this level of complexity and scope. The project has its own Project Management Office ("PMO"), which is responsible for setting governance levels and requirements. The next level of governance is handled through the Integration Council, with membership from senior leaders across the functional areas of the business, including operations, finance, human resources and supply chain. The Integration Council reviews and approves scope and cost changes to the project to be moved forward to the third and final level of

[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.

governance, the Project Sponsors. They also review and recommend approval to the project sponsors of each Individual Statement of Work ("ISOW"). New ISOWs are signed at the beginning of each new phase of the project.

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

A. Xcel Energy is very confident in our cost estimates for this project. The Company has done a great deal of due diligence on this project, and proceeded through several phases noted above – including two WAM deployments executed and a third in process as of April 24, 2017. In addition, the Company has executed contracts through the deployment phase, which ends in the fourth quarter of 2017. These contracts contain terms to incent vendor support to keep the project aligned with Company goals.

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

2. O&M Costs

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

A. This section of my Direct Testimony provides support for actual 2016 PTT implementation expenditures, which the Company proposes to utilize as a basis for establishing O&M levels included in rates during the MYP period. While these costs, along with post-implementation maintenance costs for the PTT platforms, are included in Company witness Mr. David Harkness's Direct Testimony supporting total 2016 costs for IT, I provide support for the project implementation costs incurred in 2016.

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

A. As described above, the PTT program has a large scale and multi-year duration, such that a separate PMO consisting of Xcel Energy employees and Accenture staff is required to oversee project implementation. The Enterprise Transformation Office ("ETO") is responsible for maintaining project documentation, reviewing and approving key design decisions, ensuring the project meets all milestones and deliverables, monitoring and mitigating program risk, planning and monitoring internal and external staffing levels, and managing internal communication and change management. The ETO consists of Xcel Energy Services employees, some staff augmentation for temporary roles, and Accenture business partners who will have overseen the project from the initial scoping phase through the implementation and post go-live support period. In

addition, Xcel Energy periodically brings in other industry experts to review our progress to date, and our plans for the remainder of the project to ensure we have an independent review of the project and aren't missing any risks or issues. These advisors also review major contracts for each phase of the project to ensure that we are getting the best contract terms possible without sacrificing quality of the final product.

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

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

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

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

Cost Category	GL	WAM	Total O&M
Internal Labor	$0.0	$0.2	$0.2
Consulting - Accenture	0.0	0.6	0.6
Consulting - Other	0.1	0.2	0.3
Other Non-Labor	0.0	0.1	0.1
PSCo Gas Total[4]	**$0.1M**	**$1.0M**	**$1.1M**

Q. ARE THE $1.1 MILLION IN 2016 O&M COSTS FOR PTT IMPLEMENTATION REFLECTED IN THE COST OF SERVICE PRESENTED BY MR. STEVEN BERMAN?

A. Yes. As discussed by Public Service witness Mr. Scott Brockett, 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 Mr. Brockett 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

[4] Differences due to rounding.

Energy's advisors review each contract for each phase of the project to ensure the best contract terms possible without sacrificing quality of the final product. For the major contract with Accenture, the contracts are based on achieving milestones and deliverables, rather than on a time-and-materials basis. As a result, vendors are limited to what additional costs they can collect if they exceed the contract value.

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

B. <u>PTT Benefits and Comparison to Costs</u>

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

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

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

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

A. Some examples of these operational efficiencies include:

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

A. Yes. Company witness Mr. Scott Brockett discusses the Company's efforts to develop a broader means of reasonably reflecting or even exceeding efficiencies it expects to achieve during the MYP years.

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

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

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

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

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

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

Q. DOES THIS CONCLUDE YOUR DIRECT TESTIMONY?

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 registered Professional Engineer in the State of Minnesota and 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 THE PUBLIC UTILITIES COMMISSION
OF THE STATE OF COLORADO

* * * *

RE: IN THE MATTER OF ADVICE LETTER NO. 912-GAS FILED BY PUBLIC SERVICE COMPANY OF COLORADO TO REVISE ITS COLORADO PUC NO. 6-GAS TARIFF TO IMPLEMENT A GENERAL RATE SCHEDULE ADJUSTMENT AND OTHER RATE CHANGES EFFECTIVE ON 30-DAYS NOTICE.	)))))))	**PROCEEDING NO. 17AL-____G**

AFFIDAVIT OF TIMOTHY R. BROSSART
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, twenty-fifth day of May 2017.

Timothy R. Brossart
Area Vice President, Enterprise Transformation Office

Subscribed and sworn to before me this 25th day of May, 2017.

SCHUNA D WRIGHT
Notary Public
State of Colorado
Notary ID # 19974007693
My Commission Expires 05-06-2021

Schuna D. Wright
Notary Public

My Commission expires May 6, 2021