IN THE MATTER OF
SOUTHWEST GAS CORPORATION
APPLICATION 19-04___

PREPARED DIRECT TESTIMONY
OF
ROBIN D. PIERCE

ON BEHALF OF
SOUTHWEST GAS CORPORATION

APRIL 26, 2019

Table of Contents
of
Prepared Direct Testimony
of
ROBIN D. PIERCE

Description | Page No.

I. INTRODUCTION 1

II. OVERVIEW OF THE CUSTOMER DATA MODERNIZATION INITIATIVE 2

III. DESCRIPTION OF THE SOUTHWEST GAS' LEGACY CSS AND WHY THE SYSTEM NEEDS TO BE MODERNIZED 3

IV. DESCRIPTION OF SOUTHWEST GAS' LEGACY GTS AND WHY THE SYSTEM NEEDS TO BE MODERNIZED 7

V. PROCESS FOR ASSESSMENT OF THE LEGACY SYSTEMS AND DETERMINATION TO IMPLEMENT THE CUSTOMER DATA MODERNIZATION INITIATIVE 9

VI. BENEFITS ASSOCIATED WITH THE CUSTOMER DATA MODERNIZATION INITIATIVE 11

VII. ESTIMATED COSTS AND ANTICIPATED TIMING FOR COMPLETION OF THE CUSTOMER DATA MODERNIZATION INITIATIVE 13

Appendix A – Summary of Qualifications of Robin D. Pierce

BEFORE THE PUBLIC UTILITIES COMMISSION OF NEVADA

Prepared Direct Testimony
of
ROBIN D. PIERCE

I. INTRODUCTION

Q. 1 Please state your name and business address.

A. 1 My name is Robin D. Pierce. My business address is 5241 Spring Mountain Road, Las Vegas, Nevada 89150.

Q. 2 By whom and in what capacity are you employed?

A. 2 I am employed by Southwest Gas Corporation (Southwest Gas or Company) in the Enterprise Project Management Office department. My title is Director/Enterprise Project Management Office.

Q. 3 Please summarize your educational background and relevant business experience.

A. 3 My educational background and relevant business experience are summarized in Appendix A to this testimony.

Q. 4 Have you previously testified before any regulatory commission?

A. 4 No.

Q. 5 What is the purpose of your prepared direct testimony in this proceeding?

A. 5 I sponsor from a project management perspective the replacement of the Company's legacy Customer Service System (CSS) and the Gas Transaction System (GTS), collectively referred to herein as the Customer Data Modernization Initiative (CDMI).

Q. 6 Please summarize your prepared direct testimony.

A. 6 My prepared direct testimony is summarized as follows:

- The Company's legacy CSS and GTS systems are outdated and need to be replaced through the CDMI;
- The Company describes the assessment of the legacy systems, its determination to implement the CDMI, and the CDMI's associated benefits; and
- The Company provides the estimated costs and anticipated timing for completion of the CDMI.

II. OVERVIEW OF THE CUSTOMER DATA MODERNIZATION INITIATIVE

Q. 7 Please provide an overview of the Customer Data Modernization Initiative.

A. 7 The CDMI contemplates the update and replacement of the Company's two critical customer information systems – CSS and GTS. Though these systems were adequate when installed decades ago, Southwest Gas' legacy CSS and GTS are based on antiquated technology that lack enhanced cybersecurity measures, have significant limitations and present challenges in keeping pace with market demands and the Company's evolving business. As such, Southwest Gas seeks to replace its legacy CSS with a new customer information platform to increase operational efficiencies for key business processes, enhance information security and better align with the Company's customer service objectives. In conjunction with the CSS replacement, Southwest Gas plans to modernize the GTS platform to improve business processes and workflows, increase system functionality, promote interoperability with supporting systems,

and improve reliability. The legacy CSS and GTS systems are discussed in more detail below.

III. DESCRIPTION OF SOUTHWEST GAS' LEGACY CSS AND WHY THE SYSTEM NEEDS TO BE MODERNIZED

Q. 8 Please describe the Company's existing CSS and associated subsystems.

A. 8 Southwest Gas' legacy CSS, originally implemented in 1990, is an integral part of the existing customer information system and the primary tool for customer-related functions – it is the Company's core meter to cash billing system.

CSS is a highly customized, character-based, system consisting of approximately 3,270 emulation screens and is composed of over 16 modules called subsystems which support numerous business processes, including:

- New customer, customer moves and changes
- Billing and Payment processing
- Tariff rate calculations and rate changes
- Natural gas distribution sales and demand fulfillment
- Collections
- Account finalization and write-off
- Meters – reading, route management, exchanges, testing and diversion
- Leaks and outages
- Service orders, scheduling, dispatch
- Construction, adding new premise, meter sets, landlord management
- Month end/quarter end balancing, reconciling and reporting
- Compliance reporting, i.e., Sarbanes-Oxley and other regulatory reporting.

CSS has approximately 1,000 users Companywide and integrates the above business processes across numerous Company functional areas as illustrated below.

Q. 9 Please describe the technology that CSS is based on.

A. 9 The Company's legacy CSS is comprised of an IBM z/Series mainframe based on the obsolete Common Business-Oriented Language (COBOL) revised in the mid-1970's. This antiquated system is built on IBM's Information Management System established in 1956, and the Customer Information Control System (CICS), the middleware that manages the transactions of the customer information through CSS and the mainframe. The user interface for CSS is a terminal-based green screen.

Q. 10 Why is it appropriate to update CSS?

A. 10 CSS is the hub of the meter to cash value chain and involves coordination of the Company's core business processes and is nearly 30 years old. As described further below, an assessment of CSS was performed which found that CSS was deficient in the following standard system capabilities:

- Customer-Centric Data Model – The customer information in CSS is based on a data model that is based off of a premise, or location. This location-based structure does not allow for the customer to be tracked throughout their tenure as a customer. Customer information and meter usage is only stored while the customer is at a single residential or commercial location. The location-based model is a typical model for customer service systems developed prior to 1990. An ideal data model can track a customer throughout their entire service history through multiple locations. Additionally, a modern model is capable of expanding to support potential customers and other residents within the service territory.
- User Interface – The user interface for CSS is a DOS-based green-screen that lacks the ability to use a mouse. The end users of the system is required to rely on memorizing screens and shortcuts to obtain customer information. Call Center representatives must traverse through multiple screens to provide customer assistance.
- Omni-channel communication – The rigid design of the CSS database does not allow adoption of new communication channels as they are made available to the market. Modern customer data systems provide capabilities

to support customer preferences which promotes the ability of customers to send and receive information in the manner that is most conducive to them.

- Data Availability – The current data model for CSS presents challenges when it comes to performing analytics and extracting reports in a timely manner. Modern customer data systems allow companies to improve response times for emergencies, efficiently address regulatory changes, and rapidly respond to customer inquiries.
- Communications Tracking – The current CSS has limited ability to track all communications made to customers, including inbound and outbound calls, incoming mail, outgoing mail, correspondent letters, bills, and bill messages. Modern customer data systems are capable of tracking and retaining all communications sent or received by a customer.
- Configuration versus customization – All changes within the current CSS are considered "customizations" which means that hard-coding by programming resources is required to add functionality, provide analytics, or to expand the system. In addition, to accommodate evolving business needs, customer demands and to meet various regulatory requirements, the Company has had to layer more customization onto the already highly customized CSS platform. The continued customization of the CSS over the last 30 years has resulted in a complex system in which making any changes is often costly, resource intensive, and requires lengthy implementation timeframes. Complicating the issue further, supporting the current system requires special knowledge of existing processes and skills specific to the Company's customized system. Many of the employees who support or operate CSS

have either retired or are eligible to retire by the end of 2020. Yet, "Commercial off-the-shelf" (COTS) systems available today are expandable and can provide analytics through configuration that can be performed without the use of programmers, which in turn empowers end users to leverage data in a way that provides rapid response to customer inquiries.

Further, the outdated programming language used during the implementation of the CSS system has posed challenges to the Company throughout the years. For example, the COBOL programming language are no longer taught in education institutions which in turn creates challenges in recruiting staffing talent as the subject technology is not considered innovative and cutting-edge. Also, maintaining the current use of the subject applications requires time consuming development and/or augmentation by in-house or contracted staff. And contracted resources come at a premium as the remaining pool of contractors who specialize in the subject programming languages is small.

As such, now is an opportune time to transition to a new customer information system.

IV. DESCRIPTION OF SOUTHWEST GAS' LEGACY GTS AND WHY THE SYSTEM NEEDS TO BE MODERNIZED

Q. 11 Please provide an overview of the Company's legacy GTS.

A. 11 The Company's legacy GTS is a software application developed in-house over twenty years ago to manage the nomination, confirmation, and scheduling of the Company's annual system throughput. Additionally, GTS provides settlement functions for gas commodity and transportation costs, transportation customer

billing, processes that support regulatory filings for gas cost recovery, internal and external financial accounting, and reporting functions.

Q. 12 Please describe the deficiencies of GTS and why an update is appropriate.

A. 12 The Company's legacy GTS is an Oracle Forms application, based on technology that is nearly obsolete, and has been developed, customized and maintained in-house. GTS has limited functionality that is not aligned with today's current business processes and the highly customized system lacks the ability to quickly adapt to changes in technology, the industry or the regulatory environment. The technology utilized for the system platform will no longer be supported in 2022, therefore, the Company will no longer receive maintenance patches to address potential vulnerabilities, including cybersecurity threats. Additionally, maintaining the current custom-build solution internally is not sustainable given that the technology is aging, available resources are scarce, and the skills required to customize and operate the system are difficult to acquire and maintain. Transitioning to a new, vendor-supported, system will maximize efficiencies and provide increased functionality designed with industry best practices and enhanced cybersecurity.

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V. PROCESS FOR ASSESSMENT OF THE LEGACY SYSTEMS AND DETERMINATION TO IMPLEMENT THE CUSTOMER DATA MODERNIZATION INITIATIVE

Q. 13 Provide a description of the process for the assessment of the legacy systems.

A. 13 *CSS*

In 2016, Southwest Gas enlisted TMG Consulting (TMG) to provide its assistance in evaluating the current CSS, especially in comparison to modernized utility customer data systems. The potential courses of action in addressing CSS functionality issues included a "do-nothing" plan, partial enhancement, platform migration, or replacement of the existing CSS application.

Based on the results of this analysis the Company determined to replace CSS with a Managed COTS Solution. Assessing the available customer information systems on the market, and what utilities of comparable size (2 Million Customers) are using in the United States, the decision to replace CSS was focused on the top two Tier 1 customer information system providers, SAP and Oracle.

GTS

In 2018, the Company commissioned Deloitte & Touche LLP's Commodity Transacting and Risk Management Advisory practice (Deloitte) to assess GTS. Deloitte concluded the following regarding GTS:

- The system requires many manual processes for data inputs / outputs;
- "Workarounds" have become daily processes;

- GTS is prone to errors and emergency fixes (onsite support staff is crucial);
- There are numerous reports customized in response to various regulatory reporting requirements; and
- Complex data architecture with numerous data dependencies between GTS Modules.

Upon evaluating the Company's needs for improved functionality, and in consultation with Deloitte, the Company selected the Fidelity National Information Services, Inc.'s (FIS) Energy Trade and Risk Management (ETRM) "Aligne" to replace GTS.

Q. 14 Describe the Company's Customer Information Platform Selection Process.

A. 14 The Company enlisted the services of TMG to facilitate the RFP process. TMG conducted substantial pre-work prior to releasing the RFP. To provide a thorough list of requirements and to optimize the quality of the RFP responses, TMG sent out a global list of over 8,000 requirements to the top two Tier 1 customer information platform providers, Oracle and SAP. The original assessment requirements of over 1600 were expanded to include over 2000 Company-specific requirements. The Company-specific requirements were embedded in the global requirements distributed to both vendors. The vendors provided documented responses for the functionality that is considered "out of the box" (without required customization) and functionality which requires customization.

To support the Company's RFP, TMG attached the responses that were received from the vendors and had them confirm that the conditions of the requirements were still applicable. Both vendors were given an opportunity to

review the RFP and present any questions they had. All responses for questions received were sent out to both bidders. Once the written responses were received and scored, each vendor was given equal time to prepare for on-site demos for the Company. The on-site demos were a series of functional and technical workshops which provided the vendors an opportunity to walk the team through the functionality that they said was readily available in their system. Each provider had a total of four days to address the items specified in the agenda.

The Company ranked the RFP responses and site demos based upon stringent scoring criteria agreed upon by the Company's Program Executive Sponsors and Governance Board. The criteria included strategic vision, functional fit, technical fit, presentation, and cost. Each criterion had multiple components with associated weighting. Based on the above process, the Company arrived at the recommendation to replace CSS with the SAP platform for on-premise and cloud services.

VI. BENEFITS ASSOCIATED WITH THE CUSTOMER DATA MODERNIZATION INITIATIVE

Q. 15 What are the anticipated benefits associated with the CDMI?

A. 15 The CDMI will implement new platforms with integrated and scalable features to replace the Company's outdated systems and technology. When Southwest Gas' CSS was developed almost thirty years ago, smart phones were nonexistent and personal computers were uncommon. Industry demands and customer expectations have evolved, requiring utility systems to provide increased functionality to allow for a more interactive customer relationship. Advancements in technology in recent decades have changed the paradigm for

customer service. While Southwest Gas prides itself on a reputation for exceptional customer service, the continued use of the antiquated CSS presents limitations in functionality and innovation. As such, there are numerous benefits that will be realized with the modernization of the Company's decades old CSS and GTS under the CDMI. Several of the key benefits include:

- A modernized customer information system architecture to replace aging systems and technology that are difficult to enhance and maintain.
- Enhanced cybersecurity to address potential threats apparent today through improved data security systems to reduce risk of security breaches and limit presence of sensitive customer data.
- Capability to align and streamline manual and automated business processes for more efficient business operations.
- One primary billing engine with an emphasis on a customer-centric rather than a location (premise) based system.
- Flexible and expandable systems that will support customer growth, and enhanced products, programs, and services.
- Modernized programming language that will allow for the recruitment and retention of technical personnel with knowledge of current system applications, eliminating the dependency on limited institutional knowledge of outdated programming language.

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VII. ESTIMATED COSTS AND ANTICIPATED TIMING FOR COMPLETION OF THE CUSTOMER DATA MODERNIZATION INITIATIVE

Q. 16 What is the total estimated cost of the CDMI?

A. 16 Southwest Gas currently estimates the total cost of the CDMI to be approximately $174M, comprised of approximately $150M[1] in capital expenditures and approximately $24M in operations and maintenance (O&M) expenses.

Q. 17 Please describe the estimated O&M and capital costs for the CDMI?

A. 17 The total estimated incremental capital costs of $150M include:

- Software and hardware costs.
- Solution integrator and other external consultant costs.
- Costs related to positions that will be backfilled during the course of this project. These costs may consist of internal labor and related loadings and contractor costs.
- Allowance for Funds Used During Construction (AFUDC).

The Company is projecting incremental O&M for CSS replacement only and does not anticipate incurring incremental O&M for the replacement GTS. Total projected incremental O&M costs of approximately $24M through 2022 include:

- Organizational change management
- Data conversion
- Training and support costs

[1] Capital expenditures of approximately $134M and $16M are estimated for the replacement of CSS and GTS, respectively.

- Incremental labor costs
- It is also expected that ongoing incremental CSS replacement O&M costs will be approximately $3.0M per year starting in 2023.

Company witness, Randi L. Cunningham, discusses the accounting and ratemaking treatment requested in the instant application.

Q. 18 What is Southwest Gas' anticipated timing for implementing the CDMI?

A. 18 The Company anticipates implementation of the CDMI over a three-year period with a "go-live" date during third quarter of 2021. The anticipated scheduling includes a 24-month implementation period with an estimated nine-month stabilization period after the "go-live" date.

Q. 19 Does this conclude your prepared direct testimony?

A. 19 Yes.

SUMMARY OF QUALIFICATIONS
ROBIN D. PIERCE

I graduated from the University of Nevada, Las Vegas (UNLV) with Bachelor of Science in Mechanical Engineering and a Master of Science in Mechanical Engineering. My areas of concentration were Fluids and Thermosciences. I am a member of the American Society of Mechanical Engineers and the Project Management Institute.

While completing my Masters' degree at UNLV, I accepted a full-time employment position at the Southwest Gas Corporation (Southwest Gas) in Southern Nevada Operations as an Engineer I in 2006. My responsibilities included design engineering, cost estimating and project management of pipeline distribution and transmission replacement projects for utility conflict resolution. One year later, I was promoted to an Engineer II. In 2008, I was promoted to a Distribution Engineer. My responsibilities included supervision of Engineers, Engineering Technicians and Interns in addition to engineering design and project management of new customer expansion projects. I co-sponsored the Safety Program for Southwest Gas' Southern Nevada Operations and managed Division service providers and associated contracts.

In 2010, I was promoted to Administrator of Operations Planning and transferred to Southwest Gas Corporate. My roles and responsibilities included planning and implementation of special projects across all three service territories in Nevada, California, and Arizona. I was the Company's primary contact for industry best practice committees with organizations including the American Gas Association, the Western Energy Institute, and the PSE&G Peer Panel.

In 2011, I was promoted to Manager of Technology Project Portfolio and led the centralization of the Company's Project Management Office. My responsibilities included

management of the Company's Project Management Professionals (PMPs), oversight of the enterprise project portfolio, and portfolio financial reporting. I transitioned back to Operations in 2014 after being promoted to Southern Nevada Engineering Manager. My areas of responsibility included Code Compliance, Transmission Engineering, Distribution Engineering, Integrity Management, Geographic Information Systems Mapping, Rights-of-Way, Infrastructure Replacements, and New Business.

In 2016, I transitioned back to Corporate when I was promoted to Program Manager for the Customer Data Modernization Initiative (CDMI) in which I led a team of subject matter experts in assessing the Southwest Gas legacy Customer Service System (CSS). Shortly after completing the CDMI assessment and roadmap, I was promoted to Director of the Enterprise Project Management Office. In my current role, I continue to be the Southwest Gas lead Director for the CDMI as well as all other enterprise projects, in addition to directing department resources include the Manager of the Enterprise Project Portfolio, Program Managers, and Business Analysts.