Xcel Energy®

September 25, 2009

PUBLIC DOCUMENT
SECURITY AND TRADE SECRET DATA EXCISED

—VIA ELECTRONIC FILING—

Burl W. Haar
Executive Secretary
Minnesota Public Utilities Commission
121 7th Place East, Suite 350
St. Paul, Minnesota 55101

Re: EXTERNAL REVENUE CYCLE REVIEW REPORT
INACCURATE GAS METERS, RECALCULATION OF BILLS, AND RELATED ISSUES
DOCKET NO. G-002/CI-08-871

Dear Dr. Haar:

Northern States Power Company, a Minnesota corporation ("Xcel Energy" or the "Company") submits the Global Enterprise Managers, Inc. ("GEM") report on the external review of our Revenue Cycle processes as previously ordered by the Minnesota Public Utilities Commission (the "Commission") in the above referenced docket.

We note that we previously provided an earlier version of this report on an informal basis to Commission Staff, the Minnesota Office of Energy Security, and the Minnesota Office of the Attorney General – Residential Utilities Division. The primary change, making this report the final version, is the addition of the results of GEM's independent billing accuracy assessment. With the exception of formatting, we summarize below specific changes to Volume 1 from the earlier version:

Page	Change
2-1	Deletion of paragraph stating that GEM was conducting an independent test system
2-2	Addition of brief overview of the finds of the independent test system GEM conducted

5-2 to 5-3	Change from test being created to it being developed; Added findings through Account Setup, CRS Calculation Logic, City-Requested Facilities Surcharge Calculation Logic, & Rate Interpretation
D-1 to D9	Addition of Billing System Test Result Summary

Although we provide a complete set of Volumes 1 and 2 with this filing, we note that there were no changes to Volume 2 from the earlier version.

NON-PUBLIC DATA JUSTIFICATION

Portions of the GEM report contain information relating to the interconnection or function of our internal systems, which we believe constitutes "security data" as defined by Minn. Stat. § 13.37, subd. 1(a). The public disclosure or use of this information creates an unacceptable risk that those who want to compromise the security of these systems could obtain information that would assist them in that endeavor. For this reason, we maintain this information as non-public and have excised this data from the public version of the report.

Additionally, portions of our filing contain information related to contractual terms or other commercially valuable information that constitutes trade secret information as defined by Minn. Stat. § 13.37, subd. 1(b). This information derives an independent economic value from not being generally known or ascertainable by third parties who could obtain a benefit from its use. Based on its value, Xcel Energy maintains the information as non-public and has excised this data from the public version of the report.

We have served a copy on all parties on the attached service lists.

Please contact me at jody.l.londo@xcelenergy.com or (612) 330-5601 if you have questions or would like any additional information.

Sincerely,

/s/

JODY LONDO
MANAGER, REGULATORY ADMINISTRATION

Enclosure

c: Service List

Public Document

Trade Secret and Security Data Excised

Xcel Energy Services, Inc.

Revenue Cycle Process Review

Final Report

Volume 1

Sections 1 through 5 and Appendices A through E

Revision 2

September 16, 2009

Prepared by:

Global Enterprise Managers, Inc.
1018 Cypress Road
Jenkintown, PA 19046
USA
www.global-enterprise-mgrs.com

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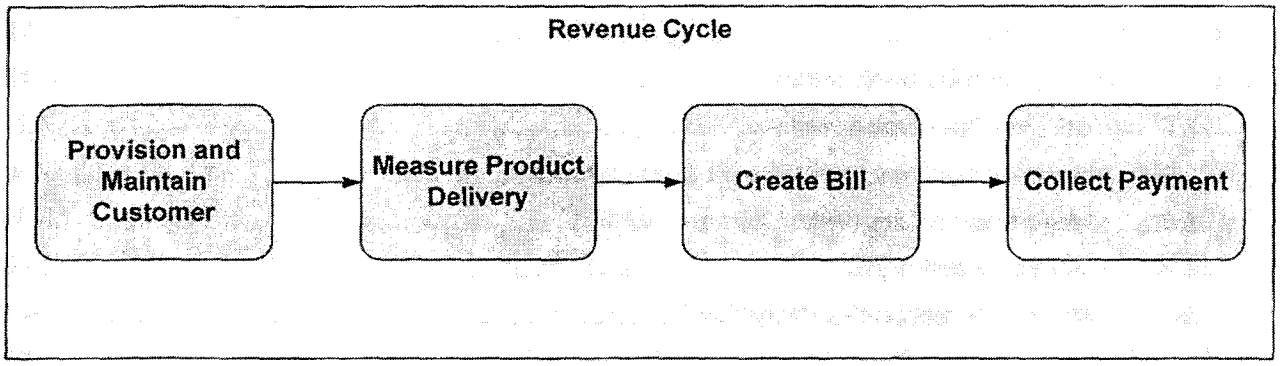
1. Executive Summary

In February 2009, Xcel Energy Services, Inc. (Xcel) engaged Global Enterprise Managers, Inc. (GEM) to undertake an independent Revenue Cycle Process Review. This was precipitated by circumstances where meters were not correctly read for extended periods of time and Xcel's processes and controls did not adequately ensure desired standards of metering and billing accuracy.

During Phase 1 (Detailed Scoping) of the review, GEM reviewed numerous documents related to the Revenue Cycle, conducted brief interviews with representatives of most organizations that participate in the Revenue Cycle, met with members and staff of the North Dakota Public Service Commission, and met with staff of the Minnesota Public Utilities Commission, Minnesota Office of Energy Security, and the Office of the Attorney General-Residential Utilities Division (OAG-RUD.) The scope of work, work plan, and tools that were to be used for this review were described in the Xcel Energy Services, Inc. Revenue Cycle Process Review Scoping Document, Revision 3, dated April 28, 2009.

For the purpose of the current review, an energy company revenue cycle process consists of the following four primary subprocesses.



The Provision and Maintain Customer subprocess includes receiving requests for new service, installing appropriate metering equipment, configuring all information systems to represent the customer's service, maintaining metering equipment, and updating metering equipment and information systems as customer changes occur. Construction of the actual electric or natural gas supply facilities was not in the scope of the current review.

The Measure Product Delivery subprocess includes obtaining measurements of energy usage and demand using manual meter reading, automated meter reading, or a combination of the two.

The Create Bill subprocess includes calculating and rendering the customer bill based on the appropriate tariffs.

The Collect Payment subprocess includes receiving, posting, and reconciling payments received from customers through a variety of payment channels. Although this subprocess also includes credit and collection activities, those were not examined within the scope of the current review because the emphasis was on timeliness and accuracy of metering and billing.

The revenue cycle process, its primary subprocesses, and supporting processes such as customer contact management, reporting, and training are highly cross-functional in virtually any energy company, meaning that multiple organizations, both internal and external to the company, must successfully provide

goods and services in a timely and accurate manner in order for the revenue cycle to be completed. The process model that was developed to document the Xcel revenue cycle (refer to Volume 2, Appendix F) includes an overall relationship map diagram. The relationship map illustrates the major internal and external organizations involved in the revenue cycle and the inputs and outputs they provide to each other as part of the process.

During the Revenue Cycle Process Review, GEM examined the business processes that make up the revenue cycle in detail to evaluate the strengths and weaknesses of the Xcel revenue cycle. Where differences in organizations, processes, or practices exist among Xcel's operating companies, the review focused on the NSPM operating company, covering Minnesota, North Dakota, and South Dakota. Specific technology and commercial factors that were believed to have contributed to metering and billing problems or that could represent risk areas for future problems were reviewed. GEM also developed a test of billing system accuracy, which consists of independent replication of billing calculations, and made other recommendations for measuring the factors that influence overall bill accuracy.

The principal findings of the Revenue Cycle Process Review are:

1) Using cancel/rebill counts or formal billing complaints as aggregate indicators of metering and billing performance, the overall level of timeliness and accuracy of Xcel customer billing appears reasonable. That, of course, is small consolation to the individual customers who are nonetheless affected by metering or billing errors each month, and it is therefore reasonable to seek ways to improve prevention, detection, and correction of the remaining billing problems through a justifiable investment in people, process, or technology.

2) Xcel has an overall initial process performance goal for the revenue cycle – 33 days from a request for service to rendering of a correct bill. But an overall process performance goal for the ongoing revenue cycle is not defined. In the absence of an overall process goal for the ongoing revenue cycle, existing subprocess and performer goals cannot readily be aligned with and support the revenue cycle process as a whole. GEM recommends an ongoing process performance goal based on improving bill accuracy. This report presents an organized approach to measuring and mitigating the factors that can lead to inaccurate bills and a baselining approach that will allow development of process improvement targets.

3) Xcel's natural gas and electric meter accuracy testing practices and standards meet or exceed industry standards. But prior to 2009, "safety nets" for the detection of metering problems had not been updated for an Automated Meter Reading (AMR) system that was subject to new failure modes. Although Xcel has put measures in place to address these, at least two new technologies are now being deployed that must also be incorporated in future monitoring and controls – two-way Automated Meter Reading modules (the components of the AMR system that automatically read and transmit the metered value) and all-electronic meter/module combinations whose long-term performance characteristics and potential failure patterns are still not completely known. Xcel must also continue to address the ongoing (though diminishing) mechanical failures associated with Cellnet modules on natural gas meters through a combination of detection and remediation and improvements to the AMR and metering technology.

4) Current staff levels, increasing rate case frequency, new product offerings, skilled workforce segments that are approaching retirement age, an emphasis on on-the-job training for advanced positions, and the general challenge of each process performer understanding the impact of his or her actions on the business process as a whole have made it difficult to respond effectively to unusual conditions and peak workloads in the electric and natural gas metering and billing areas. Unless addressed by an appropriate combination of staff development, process improvement, and investment in technology, this set of conditions will lead to deterioration of electric and natural

gas metering and billing service even under normal conditions.

5) Prior to and in parallel with the Revenue Cycle Process Review Xcel had already undertaken multiple substantive initiatives to address recent and longer-term metering and billing issues, improve communications, and enhance its quality assurance approaches.

Based on the results of the Revenue Cycle Process Review, GEM has formulated three recommendations, each with a set of actions that Xcel should undertake to address current process and technology opportunities for improvement and ensure future metering and billing accuracy. Action numbers in these three recommendations are references to the consolidated, numbered list of specific actions in Appendix A.

Recommendation 1 – Create a framework for continuous improvement of billing accuracy

Collect and report on the sources of billing inaccuracy described in Section 4 (Actions 1, 2, 3), align group and performer goals with these measurements to support continuous improvement of billing accuracy (Action 4), incorporate these measurements into a quality assurance program (Actions 5, 6, 7), and update QSP measures (Action 8.)

Recommendation 2 – Improve AMR performance through Cellnet and Xcel process changes

Seek mutually agreeable modifications to the Cellnet field support work agreement that define outcome-based maintenance goals (Action 9.) Improve internal meter and AMR module testing and failure analysis (Actions 10, 11, 12, 13) and refine metering failure detection and remediation (Actions 14, 15, 16, 17.)

Recommendation 3 – Ensure there is a sufficient pool of skilled revenue cycle process performers

Improve the training and progression approach for advanced positions, review and set appropriate staff levels to meet workload and demographic trends, and expand process knowledge retention activities (Actions 18, 19, 20, 21, 22, 23, 24.)

GEM believes that an ongoing commitment to the initiatives already undertaken by Xcel, combined with the actions necessary to implement these three recommendations, will contribute to an Xcel culture of quality and continuous process improvement that will meet or exceed reasonable expectations of metering and billing quality.

2. Key Results

This section presents an overview of the Revenue Cycle Process Review results, organized by the questions posed in the Scope of Work items. To align with the structure of the original Scope of Work, some results and actions supporting the three recommendations are repeated or restated in alternate forms appropriate to the Scope of Work items. References to other sections of the Final Report and numbering keyed to the consolidated Summary of Recommended Actions and Process Improvement Activities in Appendix A are also included.

Scope of Work Item	Key Results, Recommendations, and Cross References
Is Xcel's customer information system reasonably providing timely and accurate customer bills to its Minnesota and North Dakota customers?	NSPM issues over 1.2 million billing statements per month to its customers. An average of 10,000 of these per month – approximately 0.8% – must be cancelled and rebilled for reasons other than customers' failure to provide timely information and therefore reasonably under Xcel's control. Between 2007 and the first quarter of 2009, Xcel handled 339 customer complaints related to metering and billing issues from Minnesota customers and 148 from North Dakota customers. These were either formal complaints referred from a regulatory agency or external advocate group or were escalated internally. Using these two aggregate indicators of performance, the overall level of performance appears reasonable. That, of course, is small consolation to the individual customers who are affected each month, so it is reasonable to ask if there are ways to improve prevention, detection, and correction of the remaining billing problems through a justifiable investment in people, process, or technology. GEM does not know of an industry standard for measuring billing accuracy but believes that it is appropriate to set a revenue process-level goal of improving billing accuracy over time. GEM has reviewed and summarized the factors that influence timeliness and accuracy of bills at Xcel in Section 4 of this report, and our conclusion is that a set of metrics and controls needed to prioritize and implement improvements can and should be measured.

Scope of Work Item	Key Results, Recommendations, and Cross References
Is Xcel's customer information system reasonably providing timely and accurate customer bills to its Minnesota and North Dakota customers? (continued)	Several important billing accuracy factors presented in Section 4 relate specifically to the bill calculation process. As part of the Revenue Cycle Process Review, GEM developed an independent Bill Test system to verify bill calculations performed by Xcel's current billing system, the Customer Resource System (CRS.) GEM used the Bill Test system to model the Minnesota and North Dakota electric and natural gas rates under which 97.4% of NSPM Minnesota and North Dakota electric premises and 99.4% of NSPM Minnesota and North Dakota natural gas premises are billed. GEM then compared over 66,000 CRS invoices randomly selected from all billing days in August 2009 and selected days in April, May, and June 2009 with the bill total values calculated by the test system. This sampling revealed only a small number of account setup errors and CRS calculation defects and one ambiguity in the published rates and tariffs, allowing GEM to conclude that the CRS is reasonably providing accurate customer bill calculations for Xcel's Minnesota and North Dakota customers. Additional information about the Bill Test system and the test results can be found in Section 5 (Billing System Test) and Appendix D (Billing System Test Result Summary.)

Scope of Work Item	Key Results, Recommendations, and Cross References
Is Xcel's customer information system reasonably providing timely and accurate customer bills to its Minnesota and North Dakota customers? (continued)	Xcel is currently working to enhance the timeliness and accuracy of its customer bills through the following major initiatives and others that are described elsewhere in this report: ▪ Metering – Xcel has recently improved processes for detecting meters that are not reporting usage, with the intent of issuing more bills based on correct, actual usage and reducing the number of bills that are based on estimated usage. ▪ Estimation – Xcel recognizes that the automated natural gas usage estimation algorithms of the CRS do not perform well during seasons where there are large shifts in average temperature from month to month, for multiple consecutive months of estimation, or for cases where estimates and actual readings are interleaved. Xcel is investigating enhancements that will make better use of multiple preceding months' usage, historical usage information, and temperature data. ▪ Cancel/Rebill – Xcel is currently investigating enhancements to the CRS and work practices to make the cancel/rebill process more efficient and to improve tracking and reporting of cancel/rebill reasons. ▪ Bill Calculation Quality Assurance – Xcel is considering enhancements to its in-house bill calculation verification test to address certain billing calculations that are currently not validated on a daily basis, such as taxes and large commercial and industrial rates.

Scope of Work Item	Key Results, Recommendations, and Cross References
Is Xcel's customer information system reasonably providing timely and accurate customer bills to its Minnesota and North Dakota customers? (continued)	GEM recommends the following additional actions to improve the timeliness and accuracy of customer bills in all jurisdictions: ▪ Centralize information collection and reporting on all sources of billing inaccuracy described in Section 4, Billing Accuracy and Service Quality, to support continuous monitoring and improvement of billing accuracy. (Action 1) ▪ Either expand Xcel's current, in-house bill calculation verification test program or adopt the Bill Test system that GEM developed within the scope of this review to sample and analyze a larger number of actual rates, tariffs, riders, taxes, fees, and other billing components using production billing system data on a more systematic basis. (Action 1) Additional information can be found in Section 4 (Billing Accuracy and Service Quality) and Section 5 (Billing System Test.)
What are Xcel's Quality Assurance processes for the revenue cycle?	Xcel implements numerous business and financial controls throughout the revenue cycle. These can be considered to provide many elements of a Quality Assurance process. Xcel also currently uses a semi-automated mass market bill calculation verification test and a less automated test approach for C&I customers to provide independent validation of CRS billing calculations. Internal and external audits test some of these controls, with an emphasis on the financial (in particular, Sarbanes-Oxley, or SOX) controls. But the following gaps exist: ▪ The full body of non-SOX controls is not formalized in a single, overall documented set of validation processes. ▪ While Xcel has an internal audit function that periodically audits revenue cycle procedures to determine if internal controls are being followed, there is no other independent group at Xcel that ensures that the non-SOX internal controls are being followed on a regular basis. ▪ As of the start of the Revenue Cycle Process Review, post-work audits of field work and meter configuration were not included in the Quality Assurance processes.

Scope of Work Item	Key Results, Recommendations, and Cross References
What are Xcel's Quality Assurance processes for the revenue cycle? (continued)	Xcel is currently enhancing its Quality Assurance processes through the following initiatives, many of which had been undertaken before the current Revenue Cycle Process Review: ▪ Multiplier/Factor Audit – Xcel has begun a multi-year project to confirm, via field checks, the multipliers and correction factors set on advanced natural gas and electric meters due to the fact that incorrect values for these can cause major billing errors, and there was previously no post-installation audit process for these settings. Initially a sampling approach was used, but Xcel intends to continue the project to audit all meters with multipliers or correction factors. ▪ Meter Inventory Audit – This audit was initiated by a recommendation of Xcel's Internal Audit department and is principally intended to ensure that the location and status of every natural gas and electric meter is known at all times. ▪ Formation of a multi-disciplinary Meter to Mailbox Governance Team that is explicitly reviewing options for enhancing metering and billing quality and guiding specific process improvement and quality assurance projects. ▪ End-to-End Revenue Cycle Audits – Xcel's Internal Audit department is currently designing end-to-end revenue cycle audits. This differs from the current SOX audits in that it will also include non-SOX business controls. End-to-end revenue cycle audits were previously part of Xcel's audit practices from approximately 1992 through 2000. ▪ Independent Testing Assessment – Xcel engaged Accenture, a consulting firm, to assess Xcel's testing capability across various stakeholder organizations involved in the development, testing, and implementation of customer billing and related system functions. Xcel is currently considering a set of testing improvement initiatives resulting from this assessment. .

Scope of Work Item	Key Results, Recommendations, and Cross References
What are Xcel's Quality Assurance processes for the revenue cycle? (continued)	GEM recommends the following additional actions to improve Quality Assurance processes for the Revenue Cycle: ▪ Document the full set of revenue cycle controls in a comprehensive Quality Assurance plan. (Action 5) ▪ Ensure that all of the sources of billing inaccuracy listed in Exhibit 4-1 of this report are included in the set of revenue cycle controls. (Action 6) ▪ Ensure, either by the Internal Audit group or another independent Quality Assurance group, that the controls are being regularly tracked and promptly acted upon by the appropriate business group. (Action 7) Additional information can be found in the Controls and Quality Assurance subsections of Sections 3.1.1 through 3.1.5 and in Section 4 (Billing Accuracy and Service Quality.)

Scope of Work Item	Key Results, Recommendations, and Cross References
What are Xcel's revenue cycle control procedures, notifications, and processes for detecting potential problems, monitoring and reporting performance, and communicating across functional areas? NON-PUBLIC DATA IN BRACKETS	Xcel implements numerous business and financial controls throughout the revenue cycle. Most of the control procedures depend on an ongoing review of periodic or on-demand reports by managers, supervisors, or process performers. Few controls actually result in notifications to urge that action to be taken (or, better yet, recommend or initiate appropriate actions) if measurements are out of acceptable bounds. Xcel is currently enhancing or has recently enhanced its monitoring and control procedures and processes through the following major initiative and others described in this report: [▪] GEM recommends that Xcel consider the following additional Revenue Cycle monitoring and control process improvement: ▪ Define key billing accuracy measures (including those selected as key controls from the set of metrics in Section 4) to trigger employee notifications when they are violated, require positive confirmation that they have been addressed, and be subject to escalation if they are not resolved in a timely manner. If it is not possible to achieve this type of business process management with the current CRS workflow technology, evaluate business process management (BPM) tools that can be integrated with the CRS and other Xcel systems to provide advanced business process notification, workflow, routing, status tracking, and escalation capabilities. (Process Improvement 1) Additional information can be found in the Controls and Quality Assurance subsections of Sections 3.1.1 through 3.1.5.

Scope of Work Item	Key Results, Recommendations, and Cross References
What are the overall corporate culture and relationships between business units, as they affect the revenue cycle? NON-PUBLIC DATA IN BRACKETS	Like most large organizations that must manage a large and complex business process, Xcel has experienced some isolation between the organizations involved in the revenue cycle. It is a natural tendency for groups become focused on their organizations' performance goals without fully recognizing their influence on the overall success of the revenue cycle. GEM's observation is that the Xcel business units have generally worked well together and cooperated to resolve problems, although as in any organization examples can be found where culture or lack of interaction between groups affect the business process. Examples include: ▪ Meter replacements during the billing window trigger a stop bill rule for billing. This causes extra work for a biller. However the meter technician may knowingly perform the meter replacement because it is often difficult to get customer access to perform the work. Both groups recognize this causes problems, and only by the process owner establishing the overall impact of each action on the desired process goal and adjusting and communicating the subgoals can the most effective actions be encouraged. ▪ [redacted] ▪ Rates and Regulatory groups are organized by jurisdiction and work somewhat independently to develop rate changes. The resulting rates and tariffs in the CRS system are predictably diverse. Recognizing that there are valid differences between rate needs in different jurisdictions and state specific laws that affect rates, within these confines Xcel could propose more consistent rates and programs that are common across multiple jurisdictions, which if adopted would reduce billing system maintenance effort and the likelihood of rate implementation errors.

Scope of Work Item	Key Results, Recommendations, and Cross References
What are the overall corporate culture and relationships between business units, as they affect the revenue cycle? (continued) NON-PUBLIC DATA IN BRACKETS	By late 2008, Xcel was making a more explicit and visible commitment to both quality and interdisciplinary communication in key areas of metering and billing. Cross functional teams have been formed to resolve billing and metering problems and to enhance communication related to ongoing metering and billing operations, rate changes, and rate cases. The diverse set of participants brings differing viewpoints and experiences, and this has resulted in fast and effective solutions as new metering or billing issues have been detected and plans for a number of improvements. This quality focus and enhanced interactions between organizations has already led to positive improvements. It has also positioned Xcel to implement suitable business unit and subprocess goals that align with overall revenue cycle billing accuracy performance improvement goals as recommended by this review. GEM recommends the following changes to the relationships between business units: ▪ Align business unit and subprocess goals with an overall revenue process billing accuracy improvement objective by means of the individual billing accuracy factors summarized in Section 4. (Action 4) ▪ Implement more cross functional training on the revenue cycle processes so that participants better understand how they fit into the process and how other groups also fit in. (Action 22) ▪ Conduct discussions with Cellnet to seek mutually agreeable modifications to [redacted] Additional information can be found in Section 4 (Billing Accuracy and Service Quality) and in Section 3.3 (Cellnet Review.)

Scope of Work Item	Key Results, Recommendations, and Cross References
What are the work processes and information flows within and between the revenue cycle functional areas (i.e., metering, meter reading, and billing), including current levels of and opportunities for process automation?	The overall work processes and significant information flows within and between the revenue cycle functional areas are summarized in Appendix F, in Sections 3.1.1 through 3.1.5, and in Section 3.6. Many of the work processes and information flows in the revenue cycle are built around a CRS concept called a Process Tracking Job (PTJ.) CRS users, the CRS itself, or integrated systems can create a PTJ for a customer account to trigger a task, investigation, or other work activity to be performed by the user's work group or, more typically, other work groups. Progress on the work activity and its resolution become part of the customer/premise record. The PTJ concept is a good unifying approach but the PTJ tool and Xcel's usage of the tool have limitations. For example, the current configuration of the PTJ workflow requires Xcel staff to manually keep track of the jobs and search for the results in CRS to determine the status, rather than routing the PTJ back to the initiator or initiating group if so desired and escalating if the task is not completed in a timely manner. Major information flows also exist between the numerous business systems that represent customers and metering, measure product usage, create bills, and process payments. Most of these operate with a high degree of automation, but there are also opportunities for improvement. Many of the work processes in the Provision and Maintain Customer and Create Bill subprocess are centered on manually resolving data processing exceptions that the system interfaces generate. The support teams for these areas are generally effective in scheduling and performing this work, and they are making efforts to define and implement improvements to the business systems to reduce the amount of manual work.

Scope of Work Item	Key Results, Recommendations, and Cross References
What are the work processes and information flows within and between the revenue cycle functional areas (i.e., metering, meter reading, and billing), including current levels of and opportunities for process automation? (continued)	Xcel is currently enhancing its work processes and information flows through the following major initiatives and several others described elsewhere in this report: ▪ Enterprise Data Warehouse – Xcel is currently preparing a major data initiative, the Enterprise Data Warehouse, for rollout. Initial development is largely complete, and one of the first uses of this multi-year project has been to create a more consolidated view of key revenue cycle systems to allow the types of reporting that have been challenging up to this point. The project team is now expecting business units to begin defining analytical reporting requirements. This is an ideal time to begin or refine the collection and trending of the comprehensive set of billing accuracy metrics described in Section 4, which can be readily tracked and analyzed in this type of system. ▪ Daily Pending Work Review – This new process, which is expected to be fully operational by August 2009, depends on Xcel personnel manually screening and prioritizing orders to eliminate duplicates and identify repetitive orders for the same premise. Although this process will have a positive impact, [ ] differences in data updates between CRS and MDMS systems, and limitations in Mobile Data System reporting, and those root causes should ultimately be addressed as well. ▪ Network Verify PTJ – Xcel has defined a new type of PTJ to request investigation of AMR meters that are not reporting readings after field work has been performed on the meter. At this time these are created manually in the CRS, and the intent is to also be able to create them from the field using mobile data terminals. Xcel has also considered creating these automatically based on monitoring of the meter readings following work [ ]

Scope of Work Item	Key Results, Recommendations, and Cross References
What are the work processes and information flows within and between the revenue cycle functional areas (i.e., metering, meter reading, and billing), including current levels of and opportunities for process automation? (continued)	GEM recommends that Xcel consider the following additional Revenue Cycle work process and information flow improvements: ▪ Conduct a requirements analysis for the Mobile Dispatch System to identify the set of additional configuration, functional enhancements, integration, and training necessary to support the field installation and maintenance processes, which are critical to improving metering performance. (Process Improvement 3) ▪ Incorporate customer contact center information into the Enterprise Data Warehouse and combine this with enhanced call coding to provide trending and anomaly detection on call type, geographic location, customer class, measuring device type, or device lot. As the Xcel service areas have increased in size and diversity, it has become more important for informal correlation of call trends to be supplemented by additional analytics. (Process Improvement 4) ▪ Review the business utilization of the PTJ as a workflow tracking tool and determine if changes in the way PTJs are used will better suit the work needs. If the PTJ approach cannot meet Xcel's business needs, evaluate commercial business process management (BPM) tools that could potentially provide the benefits of the PTJ work tracking approach to both the revenue cycle and other Xcel business processes while providing the routing, escalation, and tracking needed for more efficient work processes and improved customer service. (Process Improvement 5) Additional information can be found in the revenue cycle process diagrams in Appendix F, the subprocess summaries in Sections 3.1.1 through 3.1.5, and the technology and data integration topics in Section 3.6.

Scope of Work Item	Key Results, Recommendations, and Cross References
What is the nature of management oversight of work processes between revenue cycle functional areas and the sufficiency of the data for regulatory reporting and Cellnet contract administration purposes?	Management oversight is based primarily on reports and organization level metrics, or scorecards. The scorecards are defined at various levels within most business units, and the measures at each level are generally defined so that the objectives at each level support the objectives at the next higher level in the organization. Data has been sufficient for monitoring the current Cellnet contract,[ ] Significant current Xcel initiatives include: ▪ Meter Maintenance brought a Project Director on-board in June 2008 to manage Cellnet contract administration duties, including coordinating monthly scorecard meetings between Cellnet and Xcel to monitor contractual commitments and weekly internal meetings to discuss management issues ▪ Business Operations (meter shops) was working with minimal measures in the performance scorecards, and that is being improved. In 2009, the group began developing a greatly expanded range of measures that will enable them to better manage their field work activities, meter inventory, and performance. GEM recommends the following actions to improve Revenue Cycle work management: ▪ Conduct discussions with Cellnet to seek mutually agreeable modifications to [ ](Action 9) ▪ Align organization, process, and process performer performance improvement goals with the overall revenue cycle billing accuracy improvement goals described in Section 4, Billing Accuracy and Service Quality. (Action 4) Additional information can be found in the subprocess summaries in Sections 3.1.1 through 3.1.5, Section 3.3 (Cellnet Review), and Section 4 (Billing Accuracy and Service Quality.) The expanded Business Operations scorecards are described in Section 3.1.1.1 (Process Goals and Design.)

Scope of Work Item	Key Results, Recommendations, and Cross References
What are the relevant business processes and policies associated with automated natural gas and electric meter acceptance, inventory, deployment, test, maintenance, performance, failure analysis, reading, and retirement, including but not limited to: - The systems that support these processes (including the Radio Frequency network). - Process administration, documentation, and performance metrics. - The data flows among these processes. - Current levels of and opportunities for process automation. - The use and adequacy of the read data or other end user information by billing, IT, regulatory, customer, or the customer advocate functions. - The field work order processes including those administered by Cellnet. - Management controls and oversight of these processes. - Meter accuracy and that all meters are being read?	The relevant business processes are summarized in Appendix F. Natural gas and electric meter accuracy testing practices and standards meet or exceed industry standards. But prior to 2009 Xcel had not adapted all of its testing and monitoring processes to the impact of AMR technology, although even if reasonable internal or third-party testing of new AMR modules had been Xcel's practice from the beginning of AMR deployment, it is not clear that this would have predicted or forestalled the types of Cellnet module failures that occurred beginning in late 2007 and 2008. Xcel has undertaken several testing, work process, and quality assurance initiatives in this area: ▪ Random and Periodic Testing Enhancements – Addition of AMR procedures and sample size modification to the current random and periodic testing processes. ▪ Meter Inventory Audit – This audit is principally intended to ensure that the location and status of every natural gas and electric meter is known at all times. ▪ [redacted] ▪ Internal RMA Process – Xcel testing and analysis of meter equipment returned from the field.

Scope of Work Item	Key Results, Recommendations, and Cross References
What are the relevant business processes and policies associated with automated natural gas and electric meter acceptance, inventory, deployment, test, maintenance, performance, failure analysis, reading, and retirement, including but not limited to: - The systems that support these processes (including the Radio Frequency network). - Process administration, documentation, and performance metrics. - The data flows among these processes. - Current levels of and opportunities for process automation. - The use and adequacy of the read data or other end user information by billing, IT, regulatory, customer, or the customer advocate functions. - The field work order processes including those administered by Cellnet. - Management controls and oversight of these processes. Meter accuracy and that all meters are being read? (continued)	GEM recommends the following additional meter-related improvements: ▪ Complete and formalize receipt sampling and test processes for the AMR modules that Xcel receives with most new meters. (Action 13) ▪ [ ] (Action 11) ▪ [ ] (Action 12) ▪ Ensure that the additional internal random and period testing and RMA testing and tracking on failed integrated electric meters and modules is designed to predict integrated meter/module trends, since the long-term performance and potential failure modes of these measuring devices are not yet well established. (Action 10)) ▪ Establish goals for investigating and determining root cause for meters on the Lost Meter report. The Lost Meter report lists meters that are providing automated readings but that are not known to Xcel's information systems. (Action 16)

Scope of Work Item	Key Results, Recommendations, and Cross References
What are the relevant business processes and policies associated with automated natural gas and electric meter acceptance, inventory, deployment, test, maintenance, performance, failure analysis, reading, and retirement, including but not limited to: - The systems that support these processes (including the Radio Frequency network). - Process administration, documentation, and performance metrics. - The data flows among these processes. - Current levels of and opportunities for process automation. - The use and adequacy of the read data or other end user information by billing, IT, regulatory, customer, or the customer advocate functions. - The field work order processes including those administered by Cellnet. - Management controls and oversight of these processes. Meter accuracy and that all meters are being read? (continued)	GEM recommends the following additional meter-related improvements (continued): ▪ Conduct discussions with Cellnet to seek mutually agreeable modifications to [ ] (Action 9) ▪ Implement an AMR Natural Gas Meter assessment program to find and repair meters that are under-reporting usage due to register/module interface slippage. (Action 17) ▪ Update Mobile Dispatch System capabilities for all field support groups, as the current implementation does not meet the needs of the meter support groups. (Process Improvement 3)

Scope of Work Item	Key Results, Recommendations, and Cross References
What are the relevant business processes and policies associated with automated natural gas and electric meter acceptance, inventory, deployment, test, maintenance, performance, failure analysis, reading, and retirement, including but not limited to: - The systems that support these processes (including the Radio Frequency network). - Process administration, documentation, and performance metrics. - The data flows among these processes. - Current levels of and opportunities for process automation. - The use and adequacy of the read data or other end user information by billing, IT, regulatory, customer, or the customer advocate functions. - The field work order processes including those administered by Cellnet. - Management controls and oversight of these processes. Meter accuracy and that all meters are being read? (continued)	GEM recommends the following additional meter-related improvements (continued): ▪ If natural gas meters continue to be damaged by Cellnet modules, adopt at least one of the following three paths: (Action 15) - Realizing that these failures will occur, continue to enhance processes to detect and fix the failures on an expedited basis and understand the root causes of the failures. - Work with both Cellnet and natural gas meter manufacturers to find a more appropriate match between the quality and robustness of the module mechanical components and the meter register and internal gear construction. - If significant mechanical issues persist with Cellnet AMR modules on natural gas meters, evaluate the possibility of utilizing a different module/register interface approach for natural gas meters that does not make the same mechanical interface tradeoffs between damaging the module and damaging the meter. Additional information can be found in Appendix F (Xcel Energy Revenue Cycle Process Model), Section 3.1.1 (Provision and Maintain Customer Subprocess), Section 3.2.1 (Electric and Natural Gas Meter Testing), and Section 3.3 (Cellnet Review.)

Scope of Work Item	Key Results, Recommendations, and Cross References
What are Xcel's internal procedures for estimating bills and Xcel's response for inaccurate estimates?	Under normal conditions of an unavailable meter reading, the CRS will estimate usage based on an internal algorithm that uses recent usage and, under some conditions, temperature correction. In the case of a failed electric or natural gas meter, a manual recalculation is performed by a billing analyst based on reviewing available load history and using a spreadsheet to calculate estimated usage. Prior bills for the period during which the meter had failed are then canceled and rebilled. It appears that Xcel has not, in general, proactively tracked the accuracy of automated estimates to determine if systemic estimation errors existed or to inform customers if estimates were substantially different from historical usage values. Xcel is currently enhancing its estimation and cancel/rebill processes through the following initiatives: ▪ Estimation – Xcel recognizes that the automated natural gas usage estimation algorithms of its current billing system, the CRS, do not perform well during seasons in which there are typically large shifts in average temperature from month to month, for multiple consecutive months of estimation, or for cases where estimates and actual readings are interleaved. Xcel is investigating enhancements that will make better use of multiple preceding months, historical usage information, and temperature data. ▪ Cancel/Rebill – Xcel is currently investigating enhancements to the CRS and work practices to make the cancel/rebill process more efficient and to improve tracking and reporting of cancel/rebill reasons. GEM recommends the following improvement related to estimated bills: ▪ Create reports of CRS estimation accuracy and bias based on comparing the estimated values with measured values for the same period in prior years in order to assess estimation performance. Additional information can be found in the process model (in particular, Exhibit F-36, which presents the manual estimation and cancel/rebill activity for a failed natural gas meter in detail) in Appendix F (Xcel Energy Revenue Cycle Process Model.)

Scope of Work Item	Key Results, Recommendations, and Cross References
What is Xcel's staffing philosophy, and does it reduce staff too quickly when it implements new technology?	Current staff levels, increasing rate case frequency, new product offerings, skilled workforce segments that are approaching retirement age, an emphasis on on-the-job training for advanced positions, and the general challenge of each process performer understanding the impact of his or her actions on the business process as a whole have made it difficult to respond effectively to unusual conditions and peak workloads in the metering and billing areas. It is difficult to attribute these factors directly to implementation of new technology, but unless they are addressed by an appropriate combination of staff development, process improvement, and investment in technology this set of conditions will lead to deterioration of metering and billing service even under normal conditions. Xcel has recently taken the following steps to address staff skill levels: ▪ Implementation of a Progression Training Program for the Customer Contact Center to aid in employee retention and increase Xcel's pool of experienced workers that can progress to positions of increasing responsibility. ▪ Creation of sustainment training courses for billers on particular topics such as power factor and consumption. ▪ Creation of a plan for developing a more comprehensive curriculum for mass market biller training courses.

Scope of Work Item	Key Results, Recommendations, and Cross References
What is Xcel's staffing philosophy, and does it reduce staff too quickly when it implements new technology? (continued)	GEM recommends the following initiatives to ensure that sufficient resources are available in key areas: ▪ Create revenue process training courses that clarify each process performer's role in the overall process, handoffs between roles and groups, and best practices for using the CRS, IEH, Mobile Dispatch System, and other shared technologies. (Action 22) ▪ Improve time tracking for the time that employees dedicate to special projects as compared to core job activities to support better workload trending. (Action 23) ▪ Ensure that the meter reading resource staffing level is sufficient to read all manual routes under normal conditions – which is Xcel's current policy – and also to account for potential de-automation – the reversion of selected AMR electric or natural gas meters for which reliable automated readings cannot be obtained back to manual reading. (Action 18) ▪ Create more comprehensive structured training courses for advanced mass market billing analysts, C&I billing analysts, and rate information specialists and use these training courses to upgrade current skill levels and introduce additional resources into these groups as needed. (Action 19) ▪ Plan for staffing increases in C&I Billing area to prepare for retirements and to accommodate the non-C&I tariff work that has been added to this group's responsibilities. (Action 20) ▪ Evaluate Business System staffing levels to ensure appropriate support levels are maintained for processes that are automated and for new technologies that are implemented to support the revenue cycle process. (Action 21) Additional information can be found in Section 3.5 (Staffing Trends.)

Scope of Work Item	Key Results, Recommendations, and Cross References
What are Xcel's testing processes for analyzing new technology and its impacts before implementation? NON-PUBLIC DATA IN BRACKETS	Xcel's System Performance department specifies and performs first article testing (sometimes referred to as acceptance testing) to ensure that new metering technologies or products meet the product specifications and will operate with Xcel's systems. Prior to 2009, Xcel did not, as a matter of course, test AMR modules as part of its meter tests. Nonetheless, even if reasonable internal or third-party testing of new AMR modules had been Xcel's practice from the beginning of AMR deployment, it is not clear that this would have predicted or forestalled the types of field failures that occurred. Xcel's Cellnet AMR initiative began with limited rollouts of electric meters in 1996, and full MN metro rollout began in 1999. The gas meter rollout began in late 1998. Given the evolutionary nature of the technology deployed since then, it would have been unusual to perform additional field pilot tests as new versions of the AMR technology were released in later phases of the AMR rollout. Xcel is currently enhancing its technology testing processes through the following initiatives: ▪ [ ] ▪ [ ] GEM recommends the following additional Revenue Cycle testing improvement: ▪ Continue to update the types of "safety nets" that are in place to identify and efficiently remediate metering and meter reading problems when they occur. The issues of repeated readings that began in late 2007 and 2008 were not caught quickly by the CRS billing stop bill checks, consecutive estimate checks, or zero usage checks. When every meter was actually observed by a meter reader, certain types of failures and field conditions could be detected and reported more quickly. With AMR, a problem consumption pattern must be identified in the data processing systems. (Action 14) Refer to the prior Scope of Work Item related specifically to meter processes for additional recommendations related to meter testing and new technology.

Scope of Work Item	Key Results, Recommendations, and Cross References
What are Xcel's training and knowledge retention practices for the revenue cycle?	Xcel maintains a comprehensive and centralized repository of job aids and reference material for billers. A dedicated group is responsible for maintaining this material as well as actively identifying process improvements and developing training. Much of the most advanced knowledge, however, is transferred by means of on-the-job training from senior team members. This approach leads to lengthy startup times for new people in key areas, such as C&I Billing, to become fully productive. It also does not address the risk posed by the fact that many of the senior team members will be eligible to retire within the next five years. Xcel has recently taken the following steps to address staff skill levels: ▪ Implementation of a Progression Training Program for the Customer Contact Center to aid in employee retention and increase Xcel's pool of experienced workers that can progress to positions of increasing responsibility. ▪ Creation of sustainment training courses for billers on particular topics such as power factor and consumption. ▪ Creation of a plan for developing a more comprehensive curriculum for mass market biller training courses. GEM recommends the following additional revenue cycle training and knowledge retention improvements: ▪ Capture additional business process knowledge from experienced workers by documenting the processes at a performer level across the revenue cycle, and make this information available to all revenue cycle participants. (Action 24) ▪ Establish more formal progression of advanced training for all billing analysts, but particularly C&I billing analysts, to shorten the time required to make a billing analyst fully productive. (Action 19) ▪ Develop and deliver formal revenue cycle process-wide familiarization training for most revenue cycle participants so the impacts of actions in one area on others are better understood by all process performers. (Action 22) Additional information can be found in the Training and Knowledge Retention subsections of Sections 3.1.1 through 3.1.5.

Scope of Work Item	Key Results, Recommendations, and Cross References
Is Xcel's meter data management repository able to support the revenue cycle goals?	In general industry terminology, meter data management refers to accumulation, aggregation, and storage of meter readings. Xcel actually splits this functionality among multiple systems.[ ]Although well integrated in terms of most data exchanges needed for normal process execution, this distribution of data and functionality has made it difficult to extract information needed to measure performance, support work management, and respond to internal and external ad hoc data requests. GEM recommends continuing development of the Enterprise Data Warehouse initiative, with the objective of supporting two types of reporting from a consistent, reliable, and accessible revenue cycle data repository: ▪ A standardized set of daily, weekly, and monthly reports for measuring organization, process, and performer goals against the overall revenue cycle objectives. These should include measurement of the sources of billing inaccuracy described in Section 4, Billing Accuracy and Service Quality. (Action 1) ▪ A flexible, ad hoc reporting facility allowing various business units involved in the revenue cycle to create new views of customer, metering, billing, and remittance data as needed. (Process Improvement 6) Additional information can be found in Section 3.6 (Technology and Data Integration) and Section 4 (Billing Accuracy and Service Quality.)

Scope of Work Item	Key Results, Recommendations, and Cross References
What are the Minnesota and North Dakota regulatory, advocate, and customer communications processes relating to the meter read data or billing information?	Xcel, regulatory agencies, and advocate groups all recognize that meter reading and billing issues, in particular the Cellnet AMR problems that became apparent in late 2007 and early 2008 were not communicated throughout Xcel or to regulatory, external advocate, and customer stakeholders in a timely or effective way. More recent metering problems have been quickly analyzed, quantified, and communicated, indicating that Xcel has become more open in its communication processes. Xcel recently began sharing internal performance scorecard measurements with regulatory agencies and external advocate groups to show its current internal measurements of key metering and billing performance metrics. Xcel also has initiatives underway to improve call center training and tools in order to better ensure that customer-reported problems and repeat customer calls are properly addressed. GEM recommends that a set of measurements related to potential sources of billing inaccuracy selected from those described in Section 4.2 be made available to regulatory agencies and external advocate groups on a regular basis in the form of new service quality metrics. (Action 8) GEM also recommends that Xcel continue to review and refine customer letter templates for explaining billing errors and rebilling. (Process Improvement 2) Additional information can be found in Section 3.4 (Communication) and Section 4 (Billing Accuracy and Service Quality.)

Scope of Work Item	Key Results, Recommendations, and Cross References
Do the current revenue cycle-related service quality measures appropriately address key performance areas?	Currently, Xcel's direct revenue cycle-related service quality measures are meter reading and service extension request response times, which are part of its Minnesota electric and natural gas tariff. Customer complaints are also reported as part of the Minnesota service quality measures, but although Xcel classifies them under metering, billing, and several other categories, these constitute only a very general indicator of metering and billing performance. While the current measures are useful, GEM recommends that Xcel and the relevant regulatory bodies consider the following approach to implementing additional service quality measures that more directly address metering and billing accuracy: ▪ Measure and report Xcel's performance for each of the sources of billing inaccuracy listed in Exhibit 4-1 of this report on a monthly basis for a baselining period of one year. (Action 2) ▪ In addition to using these measures as immediate indicators for process improvement, select the factors with the largest influence on billing accuracy as reference values from which to define annual improvement targets, and continue to measure the remaining factors internally to Xcel to reduce the chance that unexpected changes in performance will go undetected. (Action 3) Additional information can be found in Section 4 (Billing Accuracy and Service Quality.)

3. Process Review

The process review covered the four primary subprocesses (Provision and Maintain Customer, Measure Product Delivery, Create Bill, and Collect Payment) introduced in the Executive Summary. It also examined the Customer Contact support process, which interacts with and affects all of the primary subprocesses.

The process review methodology examined three levels of process performance, specifically,

- Organization
- Process
- Performer

and three performance needs at each level, specifically,

- Goals
- Design
- Management

This approach to process improvement uses widely accepted concepts developed by Rummler and Brache[1]. The general process improvement approach was augmented by special technical and business review topics that are specific to the Xcel Revenue Cycle or were specifically requested in the scope of work.

The objective of the process review was to identify and document the Revenue Cycle process so that GEM and Xcel have confidence that process performance areas that could have high negative impact or moderate negative impacts on customers have been identified. In each area that was reviewed, GEM also observed and documented other opportunities for process improvement. In many cases the process improvement suggestions came directly from the interview participants.

As noted in virtually every item of Section 2 (Key Results), Xcel has process and technological improvement initiatives underway in most of the revenue cycle subprocesses. Like any other organization, Xcel has limited resources and competing priorities, and it is seldom possible (or even advisable) to undertake every possible improvement. Nonetheless, the additional opportunities identified by the Xcel process review participants and GEM and summarized in the following sections should be periodically evaluated and considered for implementation as time and resources permit, particularly as Xcel seeks new ways to meet the objective of continuous improvement of billing accuracy recommended by this review.

3.1 Revenue Cycle Process

GEM interviewed approximately 80 revenue cycle process participants, as acknowledged in Appendix B. The NSPM operating company (Minnesota, North Dakota, and South Dakota) was the primary focus for the process analysis.

3.1.1 Provision and Maintain Customer Subprocess

The Provision and Maintain Customer subprocess supports the setup and maintenance of a customer for the revenue cycle. This includes the creation of a new customer or modification of the service provided an existing customer, installation of metering equipment, and the meter maintenance support activities that are required to support consumption, demand, and other measurements. The high level process interaction diagrams for this subprocess are in Exhibits F-2 and F-3.

The inputs to this subprocess are:

- Customer account initiation or change
- Meters
- Random and Periodic Meter testing requirements
- Employee or System Generated Process Tracking Job (PTJ)

The deliverables of this subprocess are:

- Natural gas and electric meters are tested and delivered to stores
- A customer account is created or updated in CRS
- The correct meter is installed or replaced at customer location
- The correct meter and customer relationship information is propagated to CRS, MRAS, and MDMS.
- An AMR meter is on the network and can be read
- The meters assets are properly recorded and inventoried

The primary participants in this subprocess are:

- Xcel Customer
- Customer Contact Center
- Builders Call Line
- Business Operations (Gas and Electric Metering shops, Field Metering groups)
- Construction
- System Performance
- Meter Reading
- Billing Services

- Managed Accounts
- Cellnet (Landis & Gyr)

3.1.1.1 Process Goals and Design

The process goals and design are broken down by organizational/functional areas and the goals reviewed are those reported in the Xcel scorecards. To understand the process design, each function that was identified in the high level process interaction diagrams was decomposed to understand the basic work activities. During the interviews GEM reviewed the scorecard goals and mapped them to the activities and reviewed the management activities. The process diagrams and goal mapping are in Appendix F, and specific diagrams will be referenced in the details below.

The scorecards for Xcel are defined by organization. Four organizational groups support the Provision and Maintain Customer subprocess. One of the organizational groups is Cellnet, an external contractor for the automated meter reading in NSPM.

Customer Contact Center - The performance goals are based on Post Call customer surveys and JD Power annual market surveys. The performance goals are to achieve at least [ ] positive response from customer survey, and being in the [ ] for JD Power Customer Services for residential and business categories.

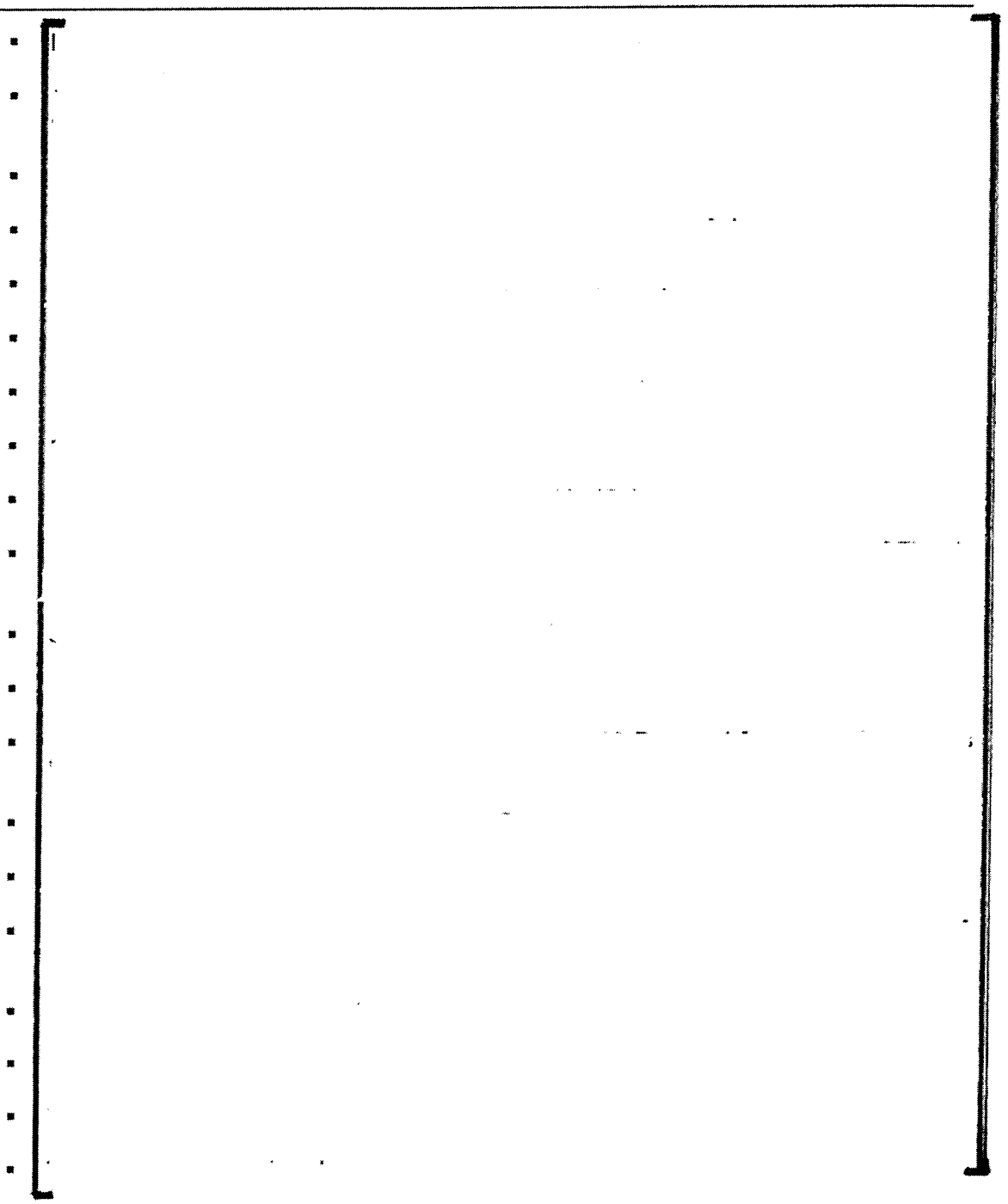
Customer Contact Center work activities cross multiple subprocesses within the Revenue Cycle process. The functions that the Customer Contact Center delivers to the Provision and Maintain Customers subprocess are decomposed in Exhibits F-43 and F-44 and in summary are:

- Call intake for new customers
- Handling inquiries about existing or new services
- Calls concerning billing and metering.

Builders Call Line – The primary measured performance goals are to achieve [ ] customer satisfaction rate and place [ ] of follow-up phone calls to customers within [ ] hours of an application issue being found.

The Builders Call Line groups are located in the construction organizations, and their primary function supports new account creation for new premises and construction accounts. The customers are primarily developers and contractors. The Builders Call Line sets up and processes applications for service and hands off to the construction organization once permits are cleared for service and meter installation.

NSPM Business Operations group (Meter Shops by jurisdictions) – The meter shops use a variety of business operations measures for planning and day to day activities and works to satisfy a large number of scorecard measures. In late 2008, the group underwent restructuring when the NSPM electric meter shops were moved from the Asset Management business area to NSPM Business Operations. In parallel the Business Operations scorecard was modified extensively to incorporate new goals. The new goals were set up in response to the addition of the electric meter shop group, and more importantly to respond to the metering issues experienced in 2008. As of the second quarter of 2009, the new scorecards were still under development, and the following key performance goals were being defined.



The NSPM Business Operations group supplies and supports all electric and natural gas meters in the Minnesota, North Dakota, and South Dakota service areas, including the AMR electric and natural gas meters. The functions that Business Operations delivers to Provision and Maintain Customers are decomposed in Exhibits F-5, F-6, and F-13 and in summary are:

- Order, Test and Manage Meter inventory

- Meter Field Work (Installation and Maintenance of non Cellnet meters)
- MDMS Exception handling

Cellnet (Landis & Gyr) has contracted with Xcel to deploy and maintain automated meter reading equipment and read the automated meters in the NSP service area. The key performance goals of Cellnet for this subprocess are:

[

]

Based on the discussions with Cellnet and Xcel the Cellnet functions were not broken down in detail, although through the interviews process improvements were identified and described below.

3.1.1.2 Process Improvement

Builders Call Line (BCL)

- BCL setup for new customers may be performed in compliance with the current business process and nonetheless the register setup in CRS may be incomplete because of interface issues, incorrect tariff or rate entry, or inaccurate usage estimate from the customer or contractor. If incomplete, then subsequent business process steps by either the meter support group or billing are required to complete the setup. If interface errors occur or incorrect tariffs or rates are entered, the customer setup requires rework by the meter support group to match tariff and registers. Xcel should track the number of occurrences of each of these types of problems, as these conditions also may require billing to make changes to prepare correct invoices, and this is difficult to catch with the existing stop bill rules. A new process to perform checks on new

accounts would help verify account setup prior to the initial billing cycle. A possible approach is described in Section 3.1.1.4.

Customer Contact Center (CCC)

- The CCC group recognizes that the Return to Owner process needs improvement to ensure that account changes keep up with the peaks in the move-in and move-out periods. This correlates to a similar problem in Meter Reading/Collections, which also recognizes that the account changeover process for tenants is cumbersome and delays correction of customer account information. Collections would like to participate in the customer account corrections.

Business Operations

- There are currently no accuracy goals on the Business Operations scorecard for new electric and natural gas service meter installation. The Xcel data systems and checks were designed to trap these problems downstream during the billing cycle. This also shows up when meters are replaced on an existing service. Goals for accurate setup of a new or replaced meter should be established and should include Cellnet installed meters.

- Until recently, programs for maintenance and inspection of AMR electric and natural gas meters were based on the practices followed for older and more reliable metering technologies. The new technology for communication of meter readings is more fragile and has a shorter lifespan. For example, natural gas modules are battery operated and the batteries eventually reach the end of their usable life, which requires a new maintenance process. Xcel should continue to evaluate the new meter and AMR issues and implement new maintenance processes that can address the new issues that arise from the use of the AMR technology.

- Many jobs are created that generate a field visit, but some are ultimately not a Business Operations issue. Today the work is sent directly to the Mobile Dispatch System as pending work for Business Operations, and the work has often not been well reviewed before it was dispatched. To address this, Xcel has developed a Daily Pending Work Review process, which is expected to be fully operational by August 2009 This process depends on personnel manually screening and prioritizing orders to eliminate duplicates and identify repetitive orders for the same premise. The new process should filter out the work before dispatchers see the jobs in the pending work queue.

- Meter Testing is adequate to assure accuracy of the consumption measurements at the meter, but until recently did not address the electric and natural gas meter module RF communications in the field or the module-to-meter interfacing for natural gas. The reliability and failure modes were not discovered until it was an issue in the last two years. New independent tests have examined the module interface with the meter registers under varying conditions.

Cellnet

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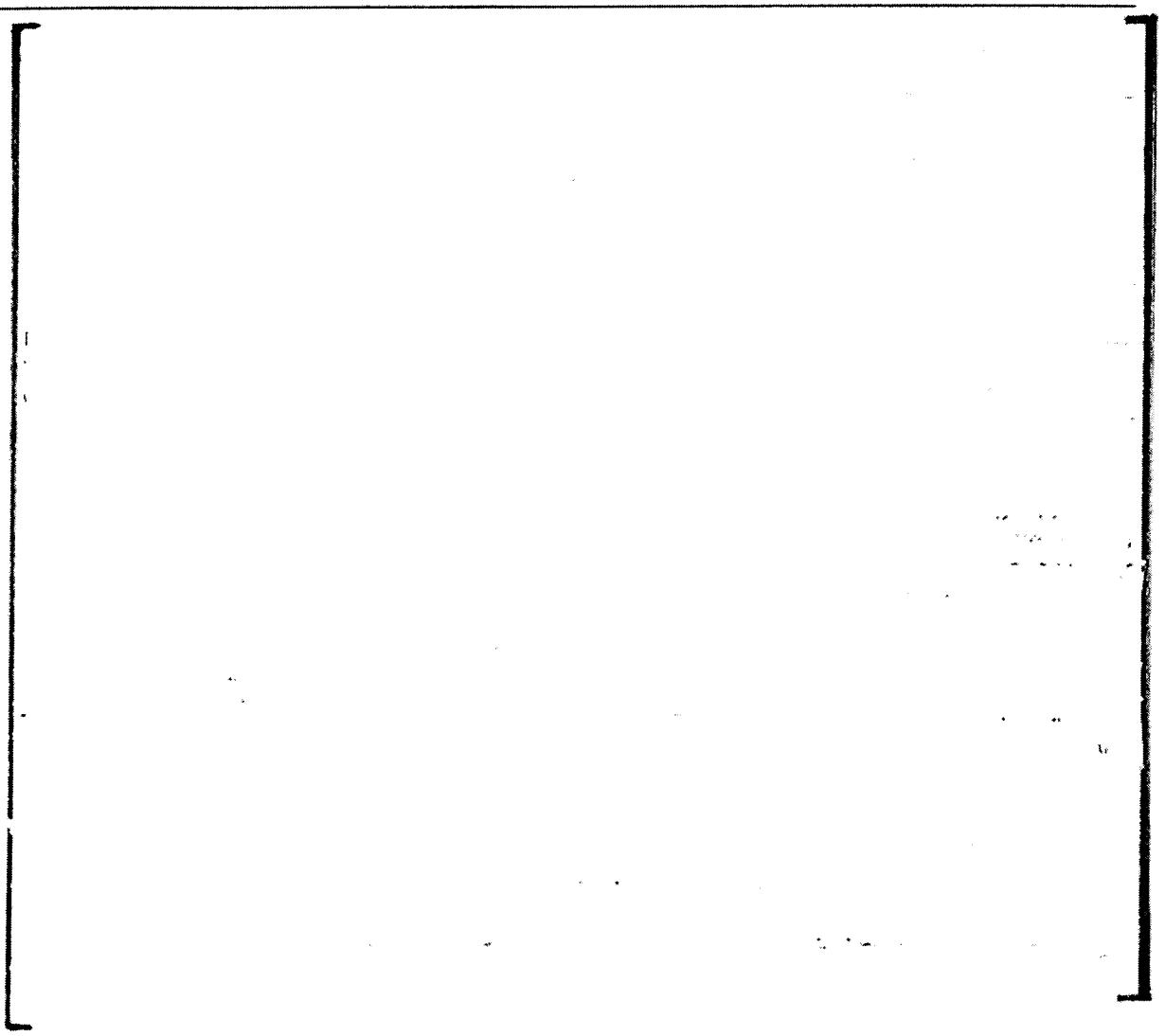


Mobile Dispatch System

The Mobile Dispatch System merits special attention in this review. It was regularly identified as a problem by the users across all areas of Xcel and by Cellnet. GEM investigated the scheduling and execution of Field work as a result of the concerns voiced by many Mobile Dispatch System users. These individual performer diagrams are in Exhibits F-7 through F-12 and reflect the use of the Mobile Dispatch System as it is implemented today.

The Mobile Dispatch System was primarily configured to support outage management work, which does not have the same planning and scheduling requirements as field maintenance work. Many users rely on external tools such as spreadsheets and custom reports from other systems to plan and schedule work.

Xcel field personnel use the Mobile Dispatch System and the mobile data terminals and use the system to a greater extent for scheduling but also still rely on external reports and spreadsheets because of limitations on reporting and sorting of work.

Field work orders cannot be referred to another group in the Mobile Dispatch System. This action has to be performed outside of the Mobile Dispatch System.

Although the integration between CRS and the Mobile Dispatch System propagates a cancelled job from CRS to the Mobile Dispatch System, cancelling a job in the Mobile Dispatch System is not propagated to CRS.

GEM's conclusion is that in the field maintenance area the Mobile Dispatch System is being underutilized by Xcel and Cellnet.

Rather than identifying and requesting enhancements to the Mobile Dispatch System incrementally over time, Xcel should undertake a detailed field work process analysis and requirements definition for the Mobile Dispatch System. This activity would include a comprehensive review of the processes for work scheduling, dispatch, order completion, and referral, with a goal of improving consistency of usage across all operating companies and regions. Where legitimate and irreconcilable work practice differences exist between operating companies or areas, the capability of configuring portions of the Mobile Dispatch System to support each should be investigated. Completion codes should also be reviewed, because, for example, the Mobile Dispatch System does not have a defined completion code for "No Meter Access." This analysis should investigate the functional capabilities of Mobile Dispatch System to support the work, opportunities to improve reporting, and further opportunities to improve integration (such as propagating a cancelled work order back to CRS.) It should also review which organizations have and use the system, and which still use paper, to establish where additional rollouts and process performer level change management and training would be helpful.

3.1.1.3 Training and Knowledge Retention

The Customer Contact Center has a formal training program for customer representatives. Recent implementation of Progression Training Program has had a positive impact on employee retention. Now, call representatives typically have more experience and can move to other positions within Xcel such as billing.

Business Operations (Gas and Electric Metering shops, Field Metering groups) relies largely on on-the-job training and training as needed for system changes. Initial training on the Mobile Dispatch System was brief and only training as needed for system changes has been delivered since then. GEM is not aware of any formal knowledge retention activities in this area.

Additional training for schedulers, service technicians, billers, and customer representatives is needed to help prevent discretionary meter exchanges during the billing window. There is a flag in the Mobile Dispatch System that indicates when exchanges should not be done, but the fact that these exchanges do occur during these periods, in addition to statements to GEM from actual schedulers and field personnel, are evidence that it is not always observed in the tradeoff between getting the job done and waiting to reduce impact on billing. If the meter is failed, then there is no value to waiting. But if a meter exchange has been requested for other reasons, e.g., a tariff change, it is worth waiting. This underlines the importance of training requesters to specify the reason for a meter change request and training the field personnel to understand the impact on billing. GEM characterizes this type of training as process level cross training because it requires that process performers at different points in the process understand the impact of their actions on other process performers and the overall process goals.

[ ]

3.1.1.4 Controls and Quality Assurance

Business Operations

Controls and Quality Assurance have traditionally depended on exception handling procedures for each area. Each area has reports that are used to resolve problems with data processing issues. These include several sets of reconciliation reports that are produced to ensure that the same sets of meters are known to Cellnet, MDMS, MRAS, and CRS.

The meter accuracy testing procedures used by Xcel are consistent with industry practices; meter accuracy for new meters is tested following defined testing processes that conform to ANSI standards. SOX controls are identified for the periodic and random testing of meters taken from the field to ensure consistent accuracy over time. Xcel also has processes defined to identify meters that have failed periodic testing. These procedures identify the lots of failed meters that will be replaced.

Additional information related to meter testing and quality assurance is contained in Section 3.2.1.

[ ]

A Meter Inventory Audit, which was initiated by a recommendation of Xcel's Internal Audit department, is currently under way. This is principally intended to ensure that the location and status of every electric and natural gas meter is known at all times.

Following an abnormal number of 5-dial natural gas meter failures that were discovered in February 2009, Xcel resolved to check other classes of meters to determine if abnormally high failure rates were occurring, whether or not attributable to AMR equipment. This activity is currently underway.

Meters for large customers often require setting of a factor or multiplier at the time of installation, which is used to convert the actual meter reading value to an engineering value representing consumption or demand. Beginning in 2009 Xcel began a program to audit these settings over a three-year period to ensure that the values are correctly set in the field and properly represented in the data systems (primarily MDMS, MRAS, and CRS) that keep a record of these settings or use them in calculations.

Xcel has also put in place work processes to confirm completion of field orders and enhanced inspection processes and quality assurance of Cellnet work.

Builders Call Line

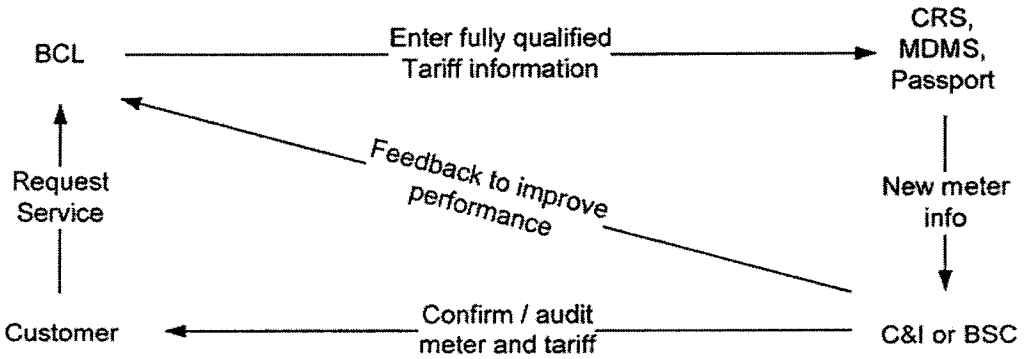
ServConn, the system used by Builders Call Line, has a SOX control to ensure that the customer's account information is defined and entered in the application in order to complete processing. Interface checks are performed to ensure that the data is passed on correctly to MDMS, CRS and Passport. Exceptions are flagged in a report for BCL agents to correct in ServConn; however there are no

independent quality checks or quality goals.

A significant amount of data in ServConn is optional, although there is a minimum set required to process an application, including an address, class, tariff, and bill-to user. With no quality assurance check performed prior to billing there is a potential for mismatch of service type to actual service consumption. In addition, automated setup of registers (CRS data locations for linking to metered values) is not performed for more complex rates.

The combined business process, data flow, and quality assurance for new meter installation presents an opportunity for improvement. Currently a request for new service is placed through the Builders Call Line and the staff selects a rate. But many Xcel rates have variations (such as demand, power factor, or service voltage level), and these variations are not always accounted for at the start of the process, with the result that automation of customer setup for more advanced rates is limited and manual completion of the customer meter setup after the fact is required. BCL only sets up the base rate/tariff on the initial meter set. So, if more than one register/tariff number is needed per rate, then the automated register setup completes additional registers, but is limited to completing registers one and two. Any registers beyond the first two required manual setup from the meter support group or billing. Anecdotal evidence (including a review of Xcel's customer complaint database) suggests that there can be delays of up to several months in completing setup, although Xcel's internal business control objective for this type of post-correction (triggered by the Interface Exception Handling system described in Section 3.6.5) is an annual average of three days, and the SOX control is 60 days. In some cases, the rate selection may be incorrect rather than incomplete, and the discrepancy is not found until the customer calls about it or it is flagged by the billing group using reports that look for inconsistent rate and consumption values.

If further analysis confirms that the delays for completing setup exceed the business control objective, an alternative approach that would increase the level of automation, reduce time lags, enhance quality assurance, and continuously improve performance is shown in the following diagram.



This approach would also improve overall understanding of the tariffs and rates across groups.

3.1.2 Measure Product Delivery Subprocess

This subprocess supports the reading of the meters for Xcel. This includes the meter reading for both manual and automated meters. The high level process interaction diagrams for the Measure Product Delivery subprocess are in Exhibit F-14.

The key inputs to this subprocess are:

- Meter read requests
- Special meter read Requests (PTJ)

The Key Business deliverable of this subprocess is:

- Accurate and timely meter readings

The key participants in this subprocess are:

- Billing Services
- Meter Reading
- Meter Reading Contractors (Cellnet, SmartSynch, SmartGrid)
- Customer Contact Center
- Business Operations (in some jurisdictions)

Meter readings are collected through a variety of systems that are used by the various jurisdictions and by Xcel employees and external contractors. The majority of the meter readings are obtained with some human interaction. However, in NSPM service areas meter reading automation is increasing, with NSPM having a goal of all meters being automated by the end of 2010.

- Manual reads using handheld devices (observation or probing)
- AMR meter read collected using vans (drive by interrogation)
- Natural gas interval reads via MV90 (manual probe and phone line)
- Electric interval reads via IEE (phone line and manual)
- AMR reads from Cellnet (radio frequency network)
- AMR reads via SmartSynch (cellular network)
- SmartGrid pilot (powerline carrier network)
- Customers phone or mail readings

Regardless of which collection method or system is used, the meter readings processed in each read cycle are loaded in the MRAS system, which serves as an intermediary to the CRS.

3.1.2.1 Process Goals and Design

The meter reading goals focus on getting a high percentage of the readings when required. The meter reading group works to meet the following scorecard goals:

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For the majority of the electric and natural gas meter readings collected, the daily read cycle is triggered by a read request from the MRAS system that contains the on cycle meters that need reading information for the current billing cycle. Each reading supplier (Cellnet, Xcel Meter Reading, MV90, SmartSynch, SmartGrid, and IEE) is expected to respond or supply data to fulfill the MRAS read request. Each of the collection systems can generate exceptions that must be resolved to complete the read upload.

The manual read processes have been utilized and refined for decades and are adequately designed to meet the performance goals set by the regulators and Xcel.

Supervisors and Managers manage using standard reports of daily results to loop back with readers for issues such as missed reads, which are added to the next day's route. Xcel has consistently exceeded the reading rate percentage required by the Quality Service Program.

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3.1.2.2 Process Improvement

The Meter Reading processes are working well for the most part, although pockets of both automated and manual meter reading have experienced problems in the past two years. The major metering and billing issues that triggered this process review are attributable more to other process and hardware problems. The issue of missing reads was not due to the procedures used in Meter Reading. The process improvement points described in this section are still valid, but will not have as significant an impact as the actual metering infrastructure, maintenance, and monitoring improvements described in Section 3.1.1.2.

- The CRS read window – the number of days from the time the CRS requests a meter reading until it will continue and create the bill with estimated usage if a reading is not received – was reduced from five to three days in early 2009. This change was intended to reduce the number of days that meter exchange work must be suppressed to prevent interfering with CRS billing, but if that was indeed the objective a better approach would be to suppress the meter exchange only until the actual reading is recorded, not throughout the entire read window. As a result of the change to the read window the time available for the meter readers to complete a route has been cut down to two days, and meter readers must return to the office early to upload the readings by 2:59 p.m. (Central time.) This reduces the ability to complete the current read cycle, so more reads are pushed off until the next day. It would benefit the effectiveness of the meter readers to have a complete day to complete the rounds.

- Improve field meter location selection and recording of locations – Meter readers report that the majority of new meters have poor information on location, which takes extra time to locate, or the

meter gets skipped.

- Special meter readings are repeatedly scheduled for a variety of problem meters, consuming extra time. A significant number of repeated meter/asset/premise problems appear on the meter reading routes, so it appears that the feedback loop for reporting on these meters is not effective.

- Collections cannot update tenant information through the Customer Contact Center from the field because the Customer Contact Center requires the customer to call in. The Collections group believes that they could expedite this process if authorized to initiate these changes from the field, rather than waiting until returning to the office and submitting paperwork to the Customer Contact Center or waiting for a call from the customer. This opportunity for improvement may be related to a Customer Contact Center issue on Return to Owner/rental property turnover problems.

- Meter change/replace activity is not synchronized with the reading cycle. This creates new problems with reading cycle and billing. This is within the control of Xcel meter shops.

- Meter reading has limited knowledge of the other activities involved with billing, and would like to know more about the overall process to understand what others are doing.

- Vacant property notification back to CRS is not understood. There are automated means to report this in the Field Collection System (FCS) handheld system, but many meter readers don't know about it or are not doing it. This can be corrected by additional training.

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3.1.2.3 Training and Knowledge Retention

Meter Reading relies largely on on-the-job training and training as needed for system changes. GEM is not aware of any formal knowledge retention activities.

3.1.2.4 Controls and Quality Assurance

Meter Reading manages by reports, which are produced each day indicating the successful read numbers. The supervisors and meter readers are clear in their understanding of the goals and work to achieve the read rates. In addition the meter reading supervisors use the consecutive estimates report to identify problems and either track down the problems or assign a special read to a route.

Meter reading management performs weekly reviews of meter reading results to ensure that Xcel meets the internal targets of [ ] read rates and 95% rates specified in the SOX controls.

Quality assurance and SOX controls applied to the meter readings are focused on the manual readings to prevent "curbing" or false meter reads, as well as ensuring that readers do not know prior readings to prevent fraudulent inputs. There have been no significant issues related to these kinds of behaviors.

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3.1.3 Create Bill Subprocess

This subprocess supports the Xcel Energy customer bill calculation and presentation. The subprocess includes the creation/update of the billing tariffs and rates, the bill processing and calculations, and bill printing. The high level process interaction diagrams for Create Bill subprocess are in Exhibits F-21 and F-26.

The primary inputs to this subprocess are:

- Rate changes due to regulation, legislation, new products, and business changes
- New or modified billing components
- Approved Rates
- Customer usage readings

The primary outputs of this subprocess are:

- Correct Tariff and Rates in the CRS system
- Accurate consumption and billing calculations
- Accurate and understandable billing statements

The primary participants in this process are:

- Government and Regulatory Affairs
- Rates and Revenue
- Business Systems
- Billing Services
- Meter Reading
- Business Operations (Meter Shop)
- Bill Print and Mailing service

3.1.3.1 Process Goals and Design

The Rates and Regulatory group is responsible for the development of tariff and rate changes for all Xcel jurisdictions. The group is the primary coordinator of the implementation of changes to rate and billing components in addition to being responsible for the regulatory filings. The primary goal of the group is meeting the requirements and timeline that the regulators place upon Xcel during the approval process.

GEM focused on the activities of the Rates and Regulatory group that affect the revenue cycle. The

activities related to the regulatory interactions and filings were not reviewed, and the focus was placed on the coordinating activities for implementing new rates. The Regulatory Administration group, within the Rates and Regulatory department, functions effectively as a project management organization for rate changes. The core function is coordinating the various Xcel groups to achieve implementation of new rates in the CRS. The group manages multiple rate changes and simpler modifications to rates and billing components where the projects last from two months to over a year.

Changes for taxes and franchise fees require an implementation process similar to the rate changes, but these are driven by different groups and generally do not include the regulatory approval steps.

The Rate Information Group (also referred to as the Data Coordination and Quality group) is responsible for determining how to represent rates in CRS and for actual rate entry. This is a critical process with high impact on billing accuracy, and the controls on this process are described in Section 3.2.2, Rate Entry Process Tests.

The Billing Services informal goals can be summarized as follows:

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Billing Services has a range of formal goals that are primarily measured based on performance in working exceptions to the billing process. The actual scorecard goals that are measured for Billing are:

Mass Markets Billing is responsible for the billing of residential and small commercial customers. The scorecard goals are:

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The vast majority of bills are processed automatically through to bill print, and the Mass Market Billing group resolves any exceptions that the Daily Processing generates when it is calculating the customer invoices. The Daily Processing uses a set of rules that are evaluated to determine if an invoice has a problem that would require manual intervention. Some invoices have multiple problems, but the invoice is flagged with an exception based on the first problem identified and then resubmitted to test against other rules after the first problem is resolved. The exception handling activities are extensive, and the

decomposition of these activities is shown in Exhibit F-34.

The daily activities are based on each biller being assigned a set of exceptions for resolution. The supervisors review each day's exceptions and allocate the work load to individual billers for resolution. The workload is intended to be cleared each day; however some of invoices can take more time and may not result in a bill being sent out in the expected cycle.

The exception handling activities were of particular interest, and two exception processes were examined in detail. The Dollar Value Exception process and the MM (Mass Market) High/Low Check process diagrams are in Exhibits F-35 and F-37, respectively. In these processes the Biller was required to research information from a variety of systems in order to resolve the problem. The task can be complex and require extensive training and knowledge to resolve.

Commercial and Industrial (C&I) Billing is responsible for the calculation of the bills for large customers and customer with complex billing contracts. The scorecard goals are:

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C&I Billing is responsible for large customers that have complex contracts, a small number of high value invoices that require manual actions to create the invoice, and some non-C&I accounts that require contracts. Some invoices for Time of Use, Demand Curtailment, and others must be manually calculated from external data, and the invoice information is entered into CRS. The majority of the C&I invoices are processed through CRS in the Daily Processing, and are subject to exceptions that the C&I group has to resolve. The exception handling processes are very similar to Mass Market Billing.

Products and Services is responsible for supporting the C&I and Mass Market billing groups but is also responsible for the scorecard goals, which are:

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3.1.3.2 Process Improvement

Rates and Regulatory and RIS

- Rate cases and other filings with regulators are increasing. There have been eight NSPM rate case filings since 2004. In the last seventeen years NSPM has filed twelve rate cases. A similar trend was reported for the other jurisdictions.

  In addition to core activities of interacting with regulatory bodies, Regulatory Administration functions as a project management organization for rate cases and other activities that lead to rate changes. The groups agree that there has been significant improvement in the process over the last one to two years, but some lack of clarity for roles and responsibilities remains. Xcel

should consider whether the project management tools and training for this group, and possibly the roles in the group itself, could be revised to more effectively accommodate both the core regulatory responsibilities and the important project management role.

- When Rate Changes are being processed, the Business Systems group sees the change as a new project and requests details of the required testing and validation. Rates and Regulatory believes that there is an opportunity to make this more standardized.

- The typical timeline for implementation of a rate change, implementation, and testing rushes the subject matter expert signoffs, and in some cases the implementation has proceeded without signoffs or complete testing. This can be a source of errors. The fixed deadline to implement drives the activity regardless of the support staff availability, so Xcel must continue to improve use of people, process, and technology to accomplish the implementation and testing within the fixed timeline.

Billing Services

- The C&I Billing group handles complex invoices and contracts that require some level of manual intervention or completely manual billing. A variety of contracts with differing terms are created for many of these customers, so the billing is difficult to automate, particularly in CRS. Xcel is moving some C&I accounts that were previously billed manually into an auxiliary billing system but is still in the process of determining how many can be billed using this system and how many will continue to be billed manually.

- The C&I Billing group would benefit from specific cross functional knowledge of the Rates and Regulatory and Managed Accounts processes to improve design and setup of contracts and consequently improve billing accuracy.

- C&I Billing is concerned about the new tariffs being developed. They are more complex, and C&I doesn't feel that the impact on billing is being accounted for. More manual actions are being required to calculate the bills. Some new tariffs and pricing are not well integrated with current billing and business services practices, so errors occur or bill calculations require extra time and manual intervention. In addition to this additional manual workload, new types of work that involve contracts but not necessarily large C&I customers have been added to the C&I Billing group's responsibilities.

- Overall design and understandability of the bill is a large part of the performance evaluation of billing, and a requested project for Bill Print Redesign has been waiting for approval for four years. It is estimated that it will make bill print creation more flexible so that the bill print production can be more responsive to changes.

- JD Power surveys on Billing are not easily correlated to the actions that the Billing group performs.

- Sending a meter read PTJ to Meter Reading does not return data in automated fashion. Billing is required to find the return PTJ and get the read values out of the message. If the bill window is closed and no cancel/rebill will be performed the reading stays as a note in the customer's account file in CRS. This also applies to CRS-initiated PTJs for consecutive estimated billing cycles

- Billing must evaluate the work management processes and staffing levels needed to meet business demands. Team members are spending more time on non-core activities, and the trend

is increasing. This includes high priority, unplanned activities and projects such as the Cellnet situation. For many of these activities and projects time is not tracked separately from ongoing work, so the extra workload is not visible. For example, Stand Down sessions where all hands are utilized in a reactive mode to resolve a problem affecting billing are not generally tracked. Xcel could learn more about the work loading and make the best decisions on staff re-allocation or staff size changes if unplanned activities were better tracked.

- Builders Call Line, Meter Reading, Meter Shop, and Billing all could benefit from process level cross training. It would demonstrate the cross functional activities that are critical for successful billing, as well as identify the contribution that each group makes to a successful bill.

3.1.3.3 Training and Knowledge Retention

In the last year Xcel recognized the need for additional sustainment in the billing area and has created sustainment training courses for billers on particular topics such as power factor and consumption. Xcel has also created a plan for developing a more comprehensive curriculum for mass market biller training courses.

The most complex C&I billing is partially or completely manual and very specialized, and replacing staff is a concern. This group expects a[ ]Using the current on-the-job training approaches there is a lengthy learning curve, so there is a need to execute the progression plan to develop skills and staff to handle greater variety of contracts. A structured C&I training program should be developed by documenting the C&I Billing processes at the process performer level, cataloging the skills needed at each step of the process, capturing associated business rules and references applicable to each type of contract and unique C&I customer, and documenting the use of technology at each work step. The C&I group would also benefit from such cross training within its own group in billing for different accounts to ensure that any biller can handle any C&I account.

Increased automation has been used to justify staff reductions overall but the trend in billing is greater complexity due to the new products and services being developed. Billing staff for both C&I and Mass Markets will require a greater diversification of knowledge. The level of staffing should be carefully considered in conjunction with the new products that are being designed by the Marketing or Rates and Regulatory groups.

3.1.3.4 Controls and Quality Assurance

The CRS performs a large set of validation and reasonability tests referred to as Stop Billing rules. If a bill fails one or more of these checks it is placed in a queue to be examined by a biller. Stop Billing rules have been part of CRS since its inception at Xcel. In 2009 Xcel initiated a review of both enabled and other available rules to refine the problem detection capability by enabling additional rules and adjusting settings. Xcel also added a High Bill rule on the entire statement to provide an additional way of detecting major billing errors and stopping them before they reach the customer.

Xcel currently uses a semi-automated mass market test suite (executed by Business Services) and a less automated test approach for C&I customers (performed by C&I Billing) as part of its ongoing Quality Assurance process. These tests rely on spreadsheet templates and, in the case of mass market testing, a program and database of billing factors. The spreadsheets and billing factors are used to calculate and compare many, but not all, billing line items with the values produced by CRS. Additional information about this testing can be found in Section 5 (Billing System Test.)

Within the past year Billing Services also added a visual bill print audit, which reviews the format of

sample printed bills.

Mass market billing performs quality assurance checks by sampling employee billing results to confirm accuracy and for training purposes. A supervisor reviews four samples of each mass market biller's work each month.

In the Billing subgroups (Mass Market, Commercial and Industrial, and Products and Services), the scorecard measures are incorporated into the daily work, so that the supervisors and management can drive activity to meet goals. The Billing Services group has implemented processes to manage and control the work within the organization as well as provide feedback to improve processes through automation or training.

In early 2009 Xcel engaged Accenture, a consulting firm, to perform an independent assessment of Xcel's testing capability across various stakeholder organizations involved in the development, testing, and implementation of customer billing and related system functions. Xcel is currently considering a set of testing improvement initiatives resulting from this assessment.

3.1.4 Collect Payment Subprocess

This subprocess provides the remittance and reconciliation activities for the collection of the moneys due Xcel for energy services provided to its customers. The high level process interaction diagram for the Collect Payment subprocess is in Exhibit F-38.

The inputs to this subprocess are:

- Payments (via mail, electronic fund transfer, cash)
- Returns
- Account Imbalances

The deliverables of this subprocess are:

- Timely processing of payments
- Balanced reconciliation
- Bank Deposits
- Payment investigations

The primary participants in this subprocess are:

- Customer
- Customer Contact Center
- Customer Receivables
- Remittance Processing

- External Remittance channels

3.1.4.1 Process Goals and Design

The goals for Collect Payments subprocess are in the scorecards for the Remittance Processing and Customer Receivables groups of Billing Services. The scorecard goals are:

Remittance Processing

Remittance Processing is responsible for processing payments received by mail, which still represent the majority of payments.

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Customer Receivables

Customer Receivables is responsible for processing payments received from all sources other than mail as well as reconciliation of the mail payments.

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The Collect Payments subprocess deals with large volumes of transactions that are largely automated, from envelope opening and check scanning, to generating payment files to update accounts in the CRS. The majority of the process is highly automated under the guidance of the Xcel personnel. The bulk of the activities of the groups are devoted to processing the mail, handling exceptions, and processing a small percentage of the payments manually.

3.1.4.2 Process Improvement

No process improvement opportunities were identified

3.1.4.3 Training and Knowledge Retention

The Remittance Processing and Customer Receivables have defined activities that support user training and individual coaching to sustain and develop personnel. In addition the group has defined activities for the design, documentation, and testing of the business processes and procedures

3.1.4.4 Controls and Quality Assurance

GEM reviewed the business process that Remittance Processing and Customer Receivables use to track their own activities and maintain quality performance levels. The Remittance Management function is decomposed in Exhibit F-38. The Business Reporting and Performance Management processes are used to report the results of payment processing and provide the inputs necessary to perform workload planning.

Each day Customer Receivables reconciles Remittance Processing deposits to the CRS application of

payments to ensure that all amounts that were deposited at the bank were posted to the system. General Accounting's Cash Processes Team reconciles to the bank statements on a weekly and monthly basis. This reconciliation helps to immediately identify any misposting or out-of-balance transactions. The primary control for Remittance Processing and Customer Receivables requires end of month cash reconciliation of bank deposits to the corresponding totals in CRS and JD Edwards systems.

3.1.5 Customer Contact Subprocess

The Customer Contact process is a support process, meaning that it does not directly fulfill one of the four primary subprocesses but provides information and services to all of them. The high level customer contact process is shown in Exhibit F-43. The Customer Contact Center also participates in the other revenue cycle processes as represented in the other high level process interaction diagrams in Appendix F.

The inputs to this subprocess are:

- Customer contact to Xcel (via telephone, fax, mail, email, or website)

The deliverables of this process that relate to the revenue cycle are

- Satisfy customer information needs
- Answer Customer billing questions

The primary participants in this subprocess are:

- Call Center infrastructure
- Customer Contact

3.1.5.1 Process Goals and Design

The goals for the Customer Contact subprocess are in the scorecards for the Remittance Processing and Customer Receivables groups of Billing Services. The scorecard goals are:

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The customer contact center handles a range of customer inquiries but the main types are billing questions, reporting service outages, starting or stopping service, and arranging for credit (payment plans.) Xcel has multiple call centers located in each Xcel jurisdiction and they are further divided into groups that focus on Business and Residential customers.

The Customer Contact group requires knowledge of Xcel operating practices and people handling skills. The initial and follow-up training and web-based Customer Care Quick Reference resource provide the

support for the call agents to perform their work.

3.1.5.2 Process Improvement

- Enhanced call coding (for example, "High Bill" ,"Low Bill", or "Can't Understand Bill" provides far more useful information than simply "Billing" as a classification) by the Customer Contact Center appears necessary to identify problems and trends earlier, because as the service areas have increased in size and diversity, informal correlation of call trends needs to be supplemented by additional analytics. Even allowing for the fact that call coding by customer representatives will vary in quality, this would allow customer contact history to better identify trends, perform anomaly detection, and allow post-analysis even among relatively small populations of customers. By adding this information to the new Enterprise Data Warehouse, which contains meter and customer tariff data, ongoing analyses and trending of call types across geographic location, customer class, measuring device type, or even device lots become feasible.

- The PTJ and follow-up processes are complex and require the use of multiple systems to track the actions. Users have to use Outlook or other ad hoc approaches to keep track of activity, and it requires manual information transfer between systems to manage the workflow. Special meter read requests are complicated to track and have too many handoffs. The current PTJ processes should be re-evaluated to determine how the workflow tracking functions could better support the individual performer's work needs.

3.1.5.3 Training and Knowledge Retention

Customer contact center training and retention are important to the revenue cycle because of the direct communication with customers and because the contact center employees, if developed and retained, are a valuable talent pool to grow into positions of increasing responsibility in the revenue cycle.

There is an extensive training program for contact center new hires. A seven week training course includes phone work one day per week taking calls that align with the skills that have been learned. Improved screening has significantly reduced the attrition rate of trainees.

The Residential Contact Center had very high turnover rate that diluted the value of the training and the average experience level of representatives. Xcel implemented a Progression Training Program in 2008 and it has improved the quality of the representatives and the retention of trained agents by providing a path to permanent employment and job progression within Xcel.

Xcel provides additional sustainment training for the contact center agents based on cyclical needs, for example, high bill sustainment training, disconnect moratorium, and marketing training. Some of these are done regularly at appropriate times of the year, such as the disconnect moratorium. This sustainment training proactively prepares call agents for expected surges in activity

There is no advanced training for the customer contact center specialist/team leader positions, but they take the same sustainment training as the representatives, in addition to corporate team leader and manager training.

3.1.5.4 Controls and Quality Assurance

Quality control for the customer contact center utilizes post-call surveys and an external survey service called Voice of the Customer.

3.2 Process Tests

GEM selected several key processes to test at the process performer level by observing the Xcel employees' activities or reviewing other audit documentation. The intent was to determine whether the documented processes were being followed.

3.2.1 Electric and Natural Gas Meter Testing

GEM reviewed the current Xcel internal and external testing processes for electric and natural gas meters to determine if they are consistently applied, look for remaining gaps in the processes, and provide recommendations on the completeness and robustness of the tests.

GEM finds that Xcel has been performing meter testing that has been typical in the industry for many years. The Xcel meter shops follow set procedures for establishing lot samples and testing the accuracy of new electric and natural gas meters that are consistent with industry practice, and there were no observed gaps or problems with the meter accuracy testing processes. However, in many cases the meter accuracy is not the real issue; Xcel's recent experiences are related to weaknesses with the new AMR technologies that manifest themselves as either:

- Failure to transfer the proper reading for transmittal (mechanical connection failures in natural gas meter module)
- Failure to record any consumption but transmit readings (natural gas meter damage)
- Failure to transmit the reading (RF communication problem for either natural gas or electric meter.)

These problems are relatively new and primarily due to manufacturing defects, incompatibility between modules and natural gas meters, or RF communication network weaknesses that are out of Xcel's direct control after the meters are purchased and installed. Xcel can and is demanding that Cellnet improve its equipment and technology; however this does not resolve the ongoing impact on customer billing of the existing field deployment and does not fully address the fact that there remains a design tradeoff between modules and natural gas meters that can cause mechanical failures in either component. The latest Cellnet module version for natural gas meters has reduced the number of failures caused by the module, but natural gas meters continue to be damaged by Cellnet modules. If these types of failures continue to occur, Xcel should be prepared to adopt at least one of the following three paths:

- Realizing that these failures will occur, continue to enhance processes to detect and replace the failed devices on an expedited basis and understand the root causes of the failures.
- Work with both Cellnet and natural gas meter manufacturers to find a more appropriate match between the quality and robustness of the module mechanical components and the meter register and internal gear construction.
- If significant mechanical issues persist with Cellnet AMR modules on natural gas meters, evaluate the possibility of utilizing a completely different module/register interface approach for natural gas meters that does not make the same mechanical interface tradeoffs between damaging the module and damaging the meter.

For both natural gas and electric metering AMR Xcel should:

- Continue to refine and improve analysis practices and tools to identify and replace the problem devices
- Conduct discussions with Cellnet to seek mutually agreeable modifications to[

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3.2.1.1 Xcel Testing

Xcel is enhancing its random and periodic testing of meters to include the AMR components and revise sample sizes, although firm guidelines on sampling for modules was not in place at the time GEM observed the testing processes and the equipment to test module RF communication was available only for electric meter testing.

3.2.1.2 Cellnet Environmental and Mechanical Characteristics

For natural gas meters,[

]The ANSI B109 specification for auxiliary devices for natural gas meters says, in part, that the cases shall be moisture-proof material suitable for outdoor service in ambient temperatures of -40° to 160° F.

After the failure of the Cellnet modules in 2007 and 2008, Xcel asked Cellnet if the natural gas module model being used by Xcel was designed to operate in the temperatures of Xcel's service area.[

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Xcel also engaged an external testing lab to perform material composition tests and bend/break tests on Cellnet natural gas meter module mechanical components. These confirmed that the material was as represented by Cellnet, although the first set of replacements for the original module design still did not completely meet first article test requirements.

3.2.1.3 Future Testing

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failures.

3.2.2 Rate Entry Process Tests

Correct and timely rate entry is a prerequisite to proper calculation of bills. The rate entry into CRS is subject to a SOX control, RD-4. The short description of RD-4 is "A check sheet, second person verification and SME [subject matter expert] sign-off are used to provide assurance that tariffs are correct."

A spreadsheet exists to assist a Rate Information Specialist in entering billing components to ensure all components have been completed. One Rate Information Specialist inputs billing component changes into the CRS Control environment and/or the CRS Production environment (depending primarily on the time available to implement the change.) Spreadsheets are maintained to track all CRS tariffs and unmetered charges. At least one other employee in the Revenue Analysis Department verifies entries for accuracy and completeness.

GEM was provided the results of a test of the RD-4 control performed by Internal Audit on August 15, 2008. Out of the sample of 25 rates tested, 24 passed for 96% effectiveness. This level of performance is only slightly higher than the level (95%) that would be rated a Deficiency for SOX purposes, and Xcel should make efforts to improve performance on this control.

3.2.3 Billing Process Tests

This area was subjected to testing to ensure correctness and process effectiveness. As part of the process review, supervisors and senior billing analysts worked with GEM to create the detailed performer-level process flow diagrams shown in Exhibit F-35 (Dollar Value Exception), Exhibit F-36 (Estimate Gas Usage – Dead Register), and Exhibit F-37 (Mass Market High Low Check.) GEM then observed two separate billers performing most steps of these processes to confirm Billing Specialists' understanding of the exception handling, estimation, and cancel/rebill processes.

Both billers performed the processes essentially according to the documented processes. In the case of the Dead Register estimation, the lowest of the customer's natural gas usage for the comparable period over the prior two years was used for the estimate.

3.3 Cellnet Contract Review

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3.4 Communication

Several categories of communication affect overall performance of the revenue cycle.

3.4.1 Customer Contact Communication

To aid in the review of customer communication, GEM reviewed Xcel's database of metering and billing complaints received by the Minnesota Public Utilities Commission, OAG-RUD, and the North Dakota Public Service Commission from 2007 through the first quarter of 2009. The customer contact center staff had a high turnover rate at the time of the 2007 – 2008 Cellnet problems, which may have contributed to instances of incomplete or incorrect information being provided to customers at the onset of the problem. Xcel later performed sustainment training and prepared information resources, talking points, and consistent templates for explaining these problems to customers. In addition, Xcel is continuing to take steps to increase retention of customer representatives, which provides a larger pool of more experienced representatives to handle customer inquiries.

3.4.2 Field Communication

When every meter was manually read and therefore actually observed monthly by an employee, certain

types of failures and field conditions could be detected and reported more quickly. With AMR, a problem consumption pattern must be identified in the data processing systems.

GEM's interviews with remaining meter readers and electric and natural gas meter technicians revealed that many feel that today their observations of field conditions do not reliably result in follow-up actions, and as a result they may be asked to perform the same action (for example, replace a meter or perform a reread for a zero consumption meter) repeatedly. Some stated that they must report field conditions directly to their supervisors in order for action to be taken, whereas many of these types of observations could be reported directly through the handheld reading devices or mobile data terminals and reasonably expected to result in some follow-up without involving the supervisor. Information from meter readers or meter technicians regarding vacant premises also do not appear to be taken into account when investigating possible DR (dead register, as inferred from repeated zero readings) conditions.

3.4.3 Intra-Process Communication

Xcel has instituted or broadened four types of cross-functional teams to enhance communication across the revenue cycle.

- Executive Committee – The NSPM/NSPW Metering/Billing/Reporting Executive Committee meets weekly and is comprised of senior management representing the relevant business, operations, technology, and regulatory functions. Its mission is to ensure that Xcel meets or exceeds customer and regulatory requirements for metering, billing and related regulatory reporting.

- Meter to Mailbox Governance Team – The NSPM Meter to Mailbox Governance Team is comprised of key stakeholders from customer solutions, technology, and regulatory functions. It ensures implementation of all tasks necessary to meet or exceed customer and regulatory requirements for metering, billing and related regulatory reporting.

- NSP and PSCo Cross-Functional Working Teams – These teams meet bi-weekly to share overall Daily Operations Updates from such areas as: Meter areas, Billing, Meter Reading, Call Center, Regulatory, and Business Systems. This forum provides an opportunity for the leaders of the respective areas to share recent findings and activities and to seek assistance, share solutions, or find answers related to current work.

- Rate Case Profile Teams – When a rate case or rate change is being developed, a formal team is assembled with representatives from all affected disciplines. Although this is not a new practice, over the last year Xcel has expanded the scope and formality of these teams. Exhibit F-21, the high level Rate Change process interaction diagram, summarizes the groups involved in the rate change process.

These cross-functional teams and explicit quality assurance initiatives have clearly led to more proactive implementation of system and process improvements that support accurate billing, accurate information, and the prompt resolution of problems and should be continued. Ultimately most of these groups' results should be formalized into process so that success is not based solely on continued face-to-face communication and its associated high overheads.

During the interviews for this review, process performers from numerous groups expressed interest in learning more about the remainder of the process. Most participants in the revenue cycle could benefit from process level cross training. It would demonstrate the cross functional activities that are critical for successful billing, as well as identify the contribution that each group makes to a timely and accurate bill. For example, meter readers would better understand the impact on billing of a meter read that is outside of the billing window, and a billing analyst or customer contact representative would better understand

why it is important that the field technician know why a meter exchange is being requested. Process documents such as SOX process diagrams or the process model developed during this review constitute a suitable starting point and resource for creating this type of cross-functional training. In this type of training the process documentation is the primary training tool, providing a framework for presenting the shared knowledge, common use of technologies, and communication handoff methods needed for a successful process.

3.4.4 Supervisory and Management Communication

During this review Xcel personnel at all levels of the organization were very aware of the Cellnet metering and billing issues and all seemed aware that more timely and complete communication and escalation of problems is always beneficial.

3.4.5 External Communication

External communication includes public statements to all or groups of customers, regulators, and advocates.

Xcel, regulatory agencies, and external advocate groups all recognize that meter reading and billing issues, in particular the Cellnet AMR problems that became apparent in late 2007 and early 2008 were not communicated throughout Xcel or to regulatory, advocate, and customer stakeholders in a timely or effective way. More recent metering problems have been quickly analyzed, quantified, and communicated, indicating that Xcel has become more open in its communication processes.

Xcel recently began sharing internal performance scorecard measurements with regulatory agencies and external advocate groups to show its current internal measurements of key metering and billing performance metrics.

3.5 Staffing Trends

GEM requested the following staffing counts for areas that directly affect metering and billing performance in order to explore the observations from several work groups that staff shortages had the potential to affect metering or billing performance and to establish, if possible, whether staff had been reduced too quickly following automation. Where a single organization primarily supports NSPM or the North region including NSPM and NSPW, that count is shown and so indicated. The remaining organizations are cross-jurisdictional, and the Xcel-wide count is shown.

Organization	Number of Filled Positions on January 1, 2006	Number of Filled Positions on January 1, 2007	Number of Filled Positions on January 1, 2008	Number of Filled Positions on January 1, 2009
Meter Services (Meter Shop and Meter Field Organizations) (NSPM)	[			]
Meter Reading (NSPM and NSPW)				
Billing Services				
Remittance Processing				
Billing Products and Services				
Customer Receivables				
C&I Billing	]			]

Organization	Number of Filled Positions on January 1, 2006	Number of Filled Positions on January 1, 2007	Number of Filled Positions on January 1, 2008	Number of Filled Positions on January 1, 2009
Mass Market Billing Operations	[			]
Customer Contact Center				
Regulatory Administration (NSPM)				
Data Coordination and Quality	]			

These counts are at a fairly high level, and they should be viewed as only indicative because they do not include contractors and in some cases reflect shifts of personnel between organizations or subgroups rather than an overall change in staffing levels. The primary conclusion that GEM reaches from this information, as it relates to the current revenue cycle process review, is that there was no widespread reduction in staffing in key groups during the 2007 – 2008 period when the Cellnet metering and associated billing problems were at their peak.

3.6 Technology and Data Integration

3.6.1 Customer Resource System (CRS)

CRS is Xcel's customer information and billing system for its entire service territory. It was put into service between 2004 and 2005.

From the revenue cycle viewpoint, the CRS has several weaknesses:

- Rate setup is complex.
- Some activities, including meter exchanges and cancel/rebill, require more work and extra steps to accomplish in CRS compared to Xcel's prior customer system.
- [
-]

While these limitations lead to suboptimal process performance in some cases, they do not represent material defects for the purpose of customer management or billing.

Many of the work processes and information flows in the revenue cycle are built around a CRS concept called a Process Tracking Job (PTJ.) CRS users, the CRS itself, or integrated systems can create a PTJ for a customer account to trigger a task, investigation, or other work activity to be performed by the user's work group or, more typically, other work groups. Progress on the work activity and its resolution become part of the customer/premise record. The PTJ concept is a good unifying approach but the PTJ tool and Xcel's implementation have limitations. For example, the current implementation of the PTJ workflow requires Xcel staff to manually keep track of the jobs and search for the results in CRS to determine the status, rather than routing the PTJ back to the initiator or initiating group if so desired and escalating if the task is not completed in a timely manner.

At the time of the Scoping Phase of the Revenue Cycle Process Review, [ ]

[ ]

3.6.2 Monitoring Device Management System (MDMS)

MDMS is the system of record for meter assets and plays a central role in provisioning customers with meters, defining register to tariff relationships, and tracking meter test history.

All indications are that MDMS is fulfilling its meter inventory and test management functions adequately to support the revenue cycle. However, reporting on meter related work management, which used to be highly useful when meter dispatching was centralized in MDMS, now requires highly specialized skills because of the distribution of work management functionality between CRS, the Mobile Dispatch System and MDMS.

3.6.3 Meter Reading Acquisition System (MRAS)

MRAS is the reading repository for all meters read monthly, daily, or on scheduled intervals. The repository holds all readings obtained through meter reading sources other than those manually entered into CRS. It also holds meter data and meter reading route information.

[ ]

At the time of the Revenue Cycle Process Review Scoping Phase, [

]

3.6.4 Mobile Dispatch System

The Mobile Dispatch System consists of a work order dispatching facility and mobile data terminals (MDTs) installed in many, but not all, field crew vehicles. It is integrated with the CRS and MDMS to allow it to create work orders from CRS PTJs and to communicate status of the work orders back to CRS and MDMS.

Section 3.1.1.2 describes opportunities to improve the use of the Mobile Dispatch System in the revenue cycle process.

3.6.5 Interface Exception Handling (IEH)

The IEH is a consolidated database of interface transactions and exceptions. Its principal role is to record meter-related (set, remove, and exchange) transactions between the Mobile Dispatch System, MRAS, and CRS. When the transactions are successful, users do not need to take any action. But when a transaction fails or when certain types of transactions that are not fully automated occur, users access

this system to investigate the transaction and determine necessary remedial actions.

3.6.6 Enterprise Data Warehouse

The Enterprise Data Warehouse is a data warehouse project initiated by Xcel in 2006 to consolidate multiple sources of information across Xcel. At this time it is in pilot use and contains important information extracts from three core revenue cycle systems – MDMS, MRAS, and CRS.

This is a timely and important initiative for the revenue cycle, because access to information has been more difficult since meter maintenance functionality was split between MDMS, CRS, and the Mobile Dispatch System beginning in 2004. Since the time of that split, reporting to manage and track work has required additional and specialized resources. Knowledge of multiple systems has been required to synthesize the reporting information.

To be most useful to the revenue cycle, Mobile Dispatch System data should be included in the Enterprise Data Warehouse on at least a daily basis, as well as customer contact information with enhanced call coding.

The Enterprise Data Warehouse provides an effective platform for simplifying the multiple reconciliation reports that are now used to compare meter installation information among Xcel systems and between Xcel and Cellnet. But similar to today the challenge remains ensuring that there is a single point of data/process ownership so that someone is explicitly responsible for consistency of the meter information from ordering through retirement and through all activities between.

4. Billing Accuracy and Service Quality

This section summarizes the business process factors, including supporting technology, that influence billing accuracy and describes candidate service quality measures related to billing accuracy.

For the purposes of this review, the definition of billing accuracy (which maps to the four revenue cycle subprocesses) is:

1) The customer is provisioned with suitable metering equipment and an appropriate rate assignment, and all data processing systems have a complete and accurate representation of the customer, location, metering equipment, and rate.

2) An accurate measurement of actual usage and any other required quantities is obtained on the periodicity required by the tariff.

3) The bill calculations are properly performed according to the applicable tariff, and a correct statement of usage and charges is provided to the customer.

4) The payment rendered to Xcel is applied to the customer's account.

Exhibit 4-1 presents a more detailed breakdown of the factors that can adversely affect billing accuracy in each of the four revenue cycle subprocesses. The meanings of the columns in the table of Exhibit 4-1 are:

- **Subprocess** – The Revenue Cycle subprocess where the source of billing inaccuracy is introduced.
- **Source of Inaccuracy** – The source of inaccuracy.
- **Systemic** – Does the source of inaccuracy tend to be long-term and hidden?
- **Influence of Process on Root Cause** – To what extent is the root cause caused by or influenced by the business process?
- **Detection Mechanisms** – How is the inaccuracy detected?
- **Influence of Process on Detection** – To what extent does or could the business process detect the source of inaccuracy?
- **Remediation** – How is the inaccuracy remediated?
- **Influence of Process on Remediation Performance** – To what extent does or could the business process remediate the inaccuracy?
- **Sampling** – Is the level of accuracy or inaccuracy only (or primarily) measurable through sampling?
- **Metrics** – How can performance of this factor be measured?

- **Notes** – Additional remarks.

Exhibit 4-1
Billing Accuracy

Subprocess	Source of Inaccuracy	Systemic	Influence of Process on Root Cause	Detection Mechanisms	Influence of Process on Detection	Remediation	Influence of Process on Remediation Performance	Sampling	Metrics	Notes
Provision and Maintain Customer										
	Incorrect rate assigned to a new customer	Yes	High	Internal rate reports or customer inquiry	High	Exception handling process (Billing)	High		Number of incorrect rate assignments	QA on initial assignment of tariff is needed (e.g., post-installation contact with customer to review the new service)
	Incomplete rate assigned to customer	No	High	Interface Exception Handling	High	Manual completion of rate, tariff, register setup	High		Number of incidents Customer-days in incomplete state, if an incorrect bill resulted	
	Meter bypassed in field (closed loops other than theft)	Yes	High	Query premises without meters	High	Field check premises without meters	High		Number of premises without meters Number of bypasses found Estimated total bypass days	These checks do not appear to be an ongoing activity
	Incorrect meter or module configuration (factor or multiplier)	Yes	High	Billing complaint	Low	Reprogram and update systems	High	Yes	Estimated usage error extrapolated from sampling	QA on install. Can some or all be programmed in the shop before field installation to allow better QA and cross check with MDMS? To Be (in process) - Periodic field audit of all large meters
	Deployed meter failure	Yes	Low	Cellnet Dead Register Daily Work Management (CNDR DWM)	High	Field Services	High	Yes	Number of failed meters, extrapolated if replaced meters are only subjected to sampling test to confirm failure	The CNDR DWM process has made this less of a Systemic problem. High number of unnecessary replacements that do not resolve the problem continues.

Subprocess	Source of Inaccuracy	Systemic	Influence of Process on Root Cause	Detection Mechanisms	Influence of Process on Detection	Remediation	Influence of Process on Remediation Performance	Sampling	Metrics	Notes
	Meter inaccuracy	Yes	Low	Random and periodic testing	High	Replace (Field Services) Identify bad lots (System Performance)	High	Yes	Estimated total usage error extrapolated from sampling by area, company, or system	
	AMR module failure	Yes	Low	CNDR DWM	High	Field Services	High		Number of replacements Number of multiple field actions on same meter	The CNDR DWM process has made this less of a Systemic problem. High number of unnecessary replacements that do not resolve the problem continues.
	AMR RF communication problems	Yes	High - Cellnet install process	CNDR DWM Network PTJ and reporting	High	Field Services	High		Number of replacements Number of multiple field actions on same meter	The CNDR DWM process has made this less of a Systemic problem. High number of unnecessary replacements that do not resolve the problem continues.

Subprocess	Source of Inaccuracy	Systemic	Influence of Process on Root Cause	Detection Mechanisms	Influence of Process on Detection	Remediation	Influence of Process on Remediation Performance	Sampling	Metrics	Notes
	Incorrect automated readings	Yes	Low	Random and periodic testing CNDR DWM	High	Field Services Cellnet and Xcel RMA	High	Yes	Estimated total area or system usage error extrapolated from sampling	The primary example of this problem is slipping natural gas meter modules that cause intermittent or low consumption reporting. The process within the scope of the current Revenue Cycle Process Review has low influence on root cause. Design, engineering, and manufacturing processes have high influence on root cause. Periodic manual reads of automated natural gas meters on a time frame within the commission-mandated rebilling window would help identify slipping modules. Remediation is effective only if there is an appropriate replacement component that does not have design or manufacturing defects. Xcel is developing enhanced reporting processes that will identify some of these conditions.
	Delays in linking measuring equipment to data systems	No	High	Reporting Interface Exception Handling	High	Field service support group	High		Mean, median, and standard deviation of time from meter installation to complete configuration Customer-days in incomplete configuration state if bill is delayed.	Manual actions required through various interfaces.
	Errors in linking measuring equipment to data systems	Not generally	High	Reconciliation processes Lost meter report	High	Field service support group	High		Estimated mean, median, and standard deviation of time in incorrect configuration state Customer-days in incorrect configuration	

Subprocess	Source of Inaccuracy	Systemic	Influence of Process on Root Cause	Detection Mechanisms	Influence of Process on Detection	Remediation	Influence of Process on Remediation Performance	Sampling	Metrics	Notes
	Meter exchange within the billing window	No	High	N/A	N/A	Avoid discretionary exchanges within the billing window	High		Number of stop bills due to meter exchange	
	Switched meter	Yes	Low. External parties are generally responsible for the switch.	Customer	Low	Field support group Field Services	High		Number of switched meters found Response time on switched meters Switched meters attributable to Xcel data entry	Analysis of consumption within multi-dwelling units could proactively identify some switched meters for existing construction.
Measure Product Delivery										
	Unread meters	No	High	Reporting from MRAS and FCS	High	Resolve access issues Additional staff	High		Number of meters not read	
	Readings outside of read window	No	High	Reporting	High	Resolve access issues Revise reading scheduling or bill window Additional staff	High		Number of reads outside of read window	
	Incorrect manual readings	Yes	High	Field Collection System Checks Stop Bill rules	High	Correction in the field Exception handling process (Billing)	High		Number of usage stop bills due to manual readings	Some can be undetected if they are within reasonability limits.

Subprocess	Source of Inaccuracy	Systemic	Influence of Process on Root Cause	Detection Mechanisms	Influence of Process on Detection	Remediation	Influence of Process on Remediation Performance	Sampling	Metrics	Notes
	Estimation (frequency)	No	High	Consecutive Estimates Report	High	Manual reads: Resolve access issues Automated reads: Resolve equipment or RF communication issues	High		Number of bills based on estimates: 1 month 2 months 3 months Etc.	
	Meter read cycle	No	High	MRAS	High	Manual reads: Resolve access issues and read all routes Automated reads: Resolve equipment or RF communication issues	High		Mean, median, and standard deviation days between bills	
Create Bill										
	Estimation (performance)	Yes (automatic) No (manual)	Low High	Customer	Low	Improve algorithm Process performer training	Low High		Estimation accuracy and bias assessments based on comparing the estimated values with measured values for the same period in prior years	
	Incorrect preprocessing of metered quantities	Yes	Low	Testing	High	Correct system calculations	High	Yes	Number of errors found Number of customers affected Dollar value affected	
	Incorrect billing system rate setup	Yes	High	Pre-implementation test Mass market QA test process	High	Correct the rate setup (rate structure, taxes, fees)	High	Yes	Number of errors found Number of customers affected Dollar value affected	

Subprocess	Source of Inaccuracy	Systemic	Influence of Process on Root Cause	Detection Mechanisms	Influence of Process on Detection	Remediation	Influence of Process on Remediation Performance	Sampling	Metrics	Notes
	Incorrect billing system calculation	Yes	Low	Pre-implementation test Mass market QA test process C&I QA process	High	Correct system calculations	High	Yes	Number of errors found Number of customers affected Dollar value affected	Can be systemic if the testing spreadsheet is incorrect.
	Incorrect manual calculation	Yes	High	Customer C&I QA process	Low High	Recalculate	High	Yes	Number of errors found Number of customers affected Dollar value affected	QA process is a periodic validation by a different analyst. Also analysts rotate. Can be systemic if the testing spreadsheet is incorrect.
	Incorrect exception handling	No	High	Customer QA process	High	Reprocess bill	High	Yes	Actual and extrapolated number of errors	Billing group does random checks on bills
	Cancel/rebill lag	No	High	N/A	N/A	Complete cancel/rebill	High		Customer-days from exception creation to rebill or number of exceptions not resolved before the next bill cycle	
Collect Payment										
	Misposting of payments	No	Medium	Remittance Processing Reconciliation High $ bill check	Medium	Manual updates	High		Number of mispostings Dollar value of mispostings	Manual activity (call or email) to AR to correct, but seems satisfactory
Customer Contact										
	Various	Various	Various	Analysis of customer call types and patterns	High	Various	Various	Yes	Customer calls by detailed call type, geographic location, customer class, measuring device type, or device lots	Proposed as a means of identifying possible trends in billing inaccuracy or other problems, not a cause of inaccuracy.

4.1 Bill Accuracy Metrics

4.1.1 Indirect Indicators

Cancel/rebill counts are often used as an indicator of bill accuracy. Over 50% of cancel/rebill activities are related to tenant changes or similar conditions where timely information is not received from customers, over which Xcel has little or no control. The remaining types of cancel/rebills should be considered controllable by Xcel to some extent and fall into the following categories:

- DREG (dead register) – No reading available due to either a failed meter, AMR module, or RF communication problem
- Meter exchange not processed within the timeframe that allows reading in the billing window
- Misread
- Incorrect rate or tax
- Invoice reversed
- Peak control contract waiver
- Previous estimated bill
- Specialized meter correction
- Uncategorized ("Do Not Use" code)

The cancel/rebill reason is a drop-down selection from the CRS, and the selection is a subjective process.

If a cancel/rebill metric is used to measure billing accuracy, the cancel/rebill dollar deltas between the original bill and the rebill (after removing tenant changes and other cancel/rebill causes that Xcel cannot reasonably control) should also be included in the metric.

4.1.2 Accuracy Component Measures

Recognizing that each of the items in Exhibit 4-1 directly influences billing accuracy provides an effective way to link individual subprocess and business unit goals directly to the overall goal of bill accuracy as well as a path to defining meaningful service quality measures.

4.2 Service Quality

Xcel's current Minnesota electric and natural gas tariffs include one service quality measure (Meter Reading) that directly relates to billing accuracy. The Meter Reading service quality provision is intended to minimize the number of unread meters. The benchmark for the months of April through November is that 90% of all meters are read. The benchmark for the months of December through March is that 80% of all meters are read.

Customer complaints forwarded from the Consumer Affairs Office (CAO) of the Minnesota Public Utilities Commission and the Office of the Attorney General-Residential Utilities Division (OAG-RUD) are also

reported as part of the Minnesota service quality measures, but even though Xcel classifies them under metering, billing, and several other categories, they constitute only a very general indicator of metering and billing performance.

The Service Extension Request Response Times service quality measure, while related to the overall operation of the revenue cycle, is not directly related to billing accuracy.

Service quality measures such as electric distribution reliability indexes or call answering times are widely used across utilities. But billing accuracy is more difficult to measure and has seldom been used directly to measure utility performance for regulatory purposes. In the absence of an industry standard for either the measurement approach or the performance targets, GEM recommends that Xcel and the relevant regulatory bodies consider the following approach to implementing additional service quality measures that more directly address metering and billing accuracy:

- Measure and report Xcel's performance for each of the sources of billing inaccuracy listed in Exhibit 4-1 for a baselining period of one year. Xcel already measures many of these sources as part of its current controls or scorecards.

- In addition to using these measures as immediate indicators for process improvement, select the factors with the largest influence on billing accuracy as reference values from which to define annual improvement targets.

- Continue to measure and trend the remaining factors internally to Xcel to reduce the chance that unexpected changes in performance will go undetected.

5. Billing System Test

Xcel currently uses a semi-automated mass market test suite and a less automated test approach for C&I customers as part of its ongoing Quality Assurance process. These tests rely on spreadsheet templates and, in the case of mass market testing, a program and database of billing factors. The spreadsheets and billing factors are used to calculate and compare many, but not all, billing line items with the values produced by CRS.

During the Scoping Phase Xcel and GEM identified the following opportunities for improvement in the current billing calculation tests:

- Certain rates, riders, taxes, and fees are not included in the test suite.
- Because the bill calculation tests do not include all components and proration algorithms, systemic mismatches must regularly be investigated, which detracts from identification of actual issues.
- A fixed, limited set of accounts with simulated usage and demand readings is used for mass market testing.
- Rate combinations are not consistently included in the test suite, making it difficult to assess the level of test coverage that has been achieved.
- Different approaches are used in the mass market and C&I billing areas.
- The C&I billing tests are executed less frequently than the mass market tests because they require more manual interactions. (C&I Billing has an objective of testing each C&I rate at least once per year.) This exposes Xcel to the risk that a rate calculation could be incorrect for an extended period of time. Although a small number of customers might be affected by an error on a particular C&I rate, the impact to those customers could be significant.
- Spreadsheet templates have the potential to introduce and propagate errors because they are copied and modified to represent new rates, and calculations within spreadsheets are not always easily traceable.
- It is time consuming and requires specialized knowledge to configure the spreadsheet templates and billing factor database, particularly for rate cases where there are multiple new or changed rates.

A review of billing issues that affected multiple customers during 2008 shows that nearly one-fourth of the issues were caused by calculation or data errors that GEM believes could have been avoided or detected earlier if a more comprehensive billing accuracy test had been in place. A reasonable standard for correctness of automated billing calculations given correct input data is 100%, which is consistent with SOX standards for automated processes. That standard can be best assured by comprehensive testing of the CRS billing calculations. In the absence of a more robust bill calculation test process, GEM would not have been in a position to assert confidently that CRS is calculating accurate bills, based on what the Scoping Phase revealed about the limitations of current bill calculation testing.

Xcel, in response to findings from Internal Audit and the Meter to Mailbox Governance Team, is considering enhancements to its current billing calculation tests that address some, though not all, of the

opportunities for improvement listed above.

GEM developed a Bill Test system[2] to assess the core calculation accuracy requirement by providing independent, automated bill calculations that can be compared with the results of the CRS billing calculations. The Bill Test system consists of billing objects necessary to represent electric and natural gas rates and bill calculations in all Xcel jurisdictions and a set of web pages to configure test versions of actual rates, charges, factors, adders, taxes, fees, effective dates, and similar billing determinants. Within the scope of the current review, GEM used the current Xcel electric and natural gas rate books to create test versions of most Minnesota and North Dakota electric and natural gas rates and then compared samples of actual CRS bill calculations with the Bill Test system calculations for the entire August 2009 billing month and selected days spanning the winter and spring seasons. Mismatches greater than $0.03 (to allow for rounding effects) between the two systems were reviewed to establish whether they represented calculation, factor, or rate interpretation differences between the GEM Bill Test system and the CRS, and the small rounding mismatches were also examined and confirmed not to contain any significant bias that could affect billing accuracy in a systematic way. Although it is not feasible for the Bill Test system to model all of the calculation variations and exceptions supported by a large-scale, production customer billing system such as the CRS, after a period of refinement the test process became sufficiently sensitive to identify several CRS discrepancies in the following categories that are not attributable to modeling differences between the two systems or limitations in the Bill Test system:

- Account Setup
  - Three specific CRS accounts were identified as being improperly set up. The missing or incorrect setup was related to either special metering configurations or multiple services on the account. Although small in number, these account setup findings are consistent with GEM's recommendation (see Section 3.1.1.4) for additional automation, process improvements, and quality assurance in the BCL and post-BCL account setup process. They also suggest potential value of the Bill Test system as a tool to assist with ongoing account setup verification.
- CRS Calculation Logic
  - In a specialized situation involving multiple services on a single account and different meter reading periods for each service, CRS calculated the bill incorrectly.
  - CRS calculated the discount under the Residential Controlled Air Conditioning and Water Heating Rider based on the entire energy consumption of both services on an account, although only one of the services was eligible for the discount. This discrepancy appears to affect multiple accounts.
- City-Requested Facilities Surcharge Calculation Logic
  - When multiple City-Requested Facilities Surcharges were simultaneously in effect, a case was observed where CRS applied only one of two surcharges to multiple invoices for a single account.
  - When a City-Requested Facilities Surcharge expired during a billing period, CRS did not charge the correct prorated value to the tested customer accounts in the affected jurisdiction.
- Rate Interpretation
  - The Minnesota Interim Rate Surcharge Rider is subject to interpretation regarding the

calculation basis for the Low Income Energy Discount Rider, the Residential Controlled Air Conditioning and Water Heating Rider, and the Commercial and Industrial Controlled Air Conditioning Rider. The Interim Rate Surcharge Rider specifically excludes the Fuel Cost Rider, yet the CRS calculates credits for the Fuel Cost components of the Low Income Energy Discount Rider, the Residential Controlled Air Conditioning and Water Heating Rider, and the Commercial and Industrial Controlled Air Conditioning Rider. Xcel's explanation is that the Interim Rider also states specifically that the interim surcharge applies to Low Income and Saver's Switch discounts, which are in part based on monthly fuel costs, and that this does not result in applying the interim surcharge to monthly fuel costs; instead, monthly fuel costs in this case are used only as reference points for determining the amount of the discounts.

Determining whether or not revenue recovery is correct with respect to the actual filed tariff is outside the scope of the Revenue Cycle Process Review, and these calculations generally appear to be in the customers' favor. Nonetheless, calculation of the interim charges on these credits contradicts one reasonable interpretation of the rate book, and it would be desirable to clarify the published rate description.

These discrepancies were identified out of a total sample of over 66,000 tested accounts. Compared to the set of CRS accounts that the Bill Test process identified as being calculated properly, this number of discrepancies is small and has minimal impact on overall billing accuracy. GEM's conclusion is that the CRS is reasonably providing accurate customer bill calculations for Xcel's Minnesota and North Dakota customers.

Appendix A Summary of Recommended Actions and Process Improvement Opportunities

Summary of Recommended Actions and Process Improvement Opportunities

The following two tables summarize the recommended actions and process improvement opportunities identified during the Revenue Cycle Process Review and presented in Section 2 (Key Results) and Section 3 (Process Review) of this report. To accommodate the structure of the original Scope of Work, some of the recommended actions and process improvement opportunities were repeated or restated in Section 2 in alternate forms appropriate to the various Scope of Work items.

Recommended Actions

Action	Alternate/Related Action Description
1) Centralize information collection and reporting on all sources of billing inaccuracy described in Section 4, Billing Accuracy and Service Quality, to support continuous monitoring and improvement of billing accuracy.	[Use] the Enterprise Data Warehouse [to provide a] standardized set of daily, weekly, and monthly reports for measuring organization, process, and performer goals against the overall revenue cycle objectives. Create reports of CRS estimation accuracy and bias based on comparing the estimated values with measured values for the same period in prior years in order to assess estimation performance. Either expand Xcel's current, in-house bill calculation verification test program or adopt the Bill Test system that GEM developed within the scope of this review to sample and analyze a larger number of actual rates, tariffs, riders, taxes, fees, and other billing components using production billing system data on a more systematic basis.
2) Measure and report Xcel's performance for each of the sources of billing inaccuracy listed in Exhibit 4-1 of this report on a monthly basis for a baselining period of one year.	
3) In addition to using [the] measures [in Exhibit 4-1] as immediate indicators for process improvement, select the factors with the largest influence on billing accuracy as reference values from which to define annual improvement targets, and continue to measure the remaining factors internally to Xcel to reduce the chance that unexpected changes in performance will go undetected.	
4) Align business unit and subprocess goals with an overall revenue process billing accuracy improvement objective by means of the individual billing accuracy factors summarized in Section 4.	Align organization, process, and process performer performance improvement goals with the overall revenue cycle billing accuracy improvement goals described in Section 4, Billing Accuracy and Service Quality.
5) Document the full set of revenue cycle controls in a comprehensive Quality Assurance plan.	

Action	Alternate/Related Action Description
6) Ensure that all of the sources of billing inaccuracy listed in Exhibit 4-1 of this report are included in the set of revenue cycle controls.	
7) Ensure, either by the Internal Audit group or another independent Quality Assurance group, that the controls are being regularly tracked and promptly acted upon by the appropriate business group.	
8) [Make] a set of measurements related to potential sources of billing inaccuracy selected from those described in Section 4.2 [...] available to regulatory agencies and external advocate groups on a regular basis in the form of new service quality metrics.	
9) [	]
10) Ensure that the additional internal random and period testing and RMA testing and tracking on failed integrated electric meters and modules is designed to predict integrated meter/module trends, since the long-term performance and potential failure modes of these measuring devices are not yet well established.	
11) [	]

Action	Alternate/Related Action Description
12) [redacted]	
13) Complete and formalize receipt sampling and test processes for the AMR modules that Xcel receives with most new meters.	
14) Continue to update the types of "safety nets" that are in place to identify and efficiently remediate metering and meter reading problems when they occur. The issues of repeated readings that began in late 2007 and 2008 were not caught quickly by the CRS billing stop bill checks, consecutive estimate checks, or zero usage checks. When every meter was actually observed by a meter reader, certain types of failures and field conditions could be detected and reported more quickly. With AMR, a problem consumption pattern must be identified in the data processing systems.	

Action	Alternate/Related Action Description
15) If natural gas meters continue to be damaged by Cellnet modules, adopt at least one of the following three paths: ▪ Realizing that these failures will occur, continue to enhance processes to detect and fix the failures on an expedited basis and understand the root causes of the failures. ▪ Work with both Cellnet and natural gas meter manufacturers to find a more appropriate match between the quality and robustness of the module mechanical components and the meter register and internal gear construction. ▪ If significant mechanical issues persist with Cellnet AMR modules on natural gas meters, evaluate the possibility of utilizing a different module/register interface approach for natural gas meters that does not make the same mechanical interface tradeoffs between damaging the module and damaging the meter.	
16) Establish goals for investigating and determining root cause for meters on the Lost Meter report. The Lost Meter report lists meters that are providing automated readings but that are not known to Xcel's information systems.	
17) Implement an AMR Natural Gas Meter assessment program to find and repair meters that are under-reporting usage due to register/module interface slippage.	
18) Ensure that the meter reading resource staffing level is sufficient to read all manual routes under normal conditions – which is Xcel's current policy – and also to account for potential de-automation – the reversion of selected AMR electric or natural gas meters for which reliable automated readings cannot be obtained back to manual reading	

Action	Alternate/Related Action Description
19) Create more comprehensive structured training courses for advanced mass market billing analysts, C&I billing analysts, and rate information specialists and use these training courses to upgrade current skill levels and introduce additional resources into these groups as needed.	Establish more formal progression of advanced training for all billing analysts, but particularly C&I billing analysts, to shorten the time required to make a billing analyst fully productive.
20) Plan for staffing increases in C&I Billing area to prepare for retirements and to accommodate the non-C&I tariff work that has been added to this group's responsibilities.	
21) Evaluate Business System staffing levels to ensure appropriate support levels are maintained for processes that are automated and for new technologies that are implemented to support the revenue cycle process.	
22) Implement more cross functional training on the revenue cycle processes so that participants better understand how they fit into the process and how other groups also fit in.	Create revenue process training courses that clarify each process performer's role in the overall process, handoffs between roles and groups, and best practices for using the CRS, IEH, Mobile Dispatch System, and other shared technologies. Develop and deliver formal revenue cycle process-wide familiarization training for most revenue cycle participants so the impacts of actions in one area on others are better understood by all process performers.
23) Improve time tracking for the time that employees dedicate to special projects as compared to core job activities to support better workload trending.	
24) Capture additional business process knowledge from experienced workers by documenting the processes at a performer level across the revenue cycle, and make this information available to all revenue cycle participants.	

Additional Process Improvement Opportunities

The items in the following table represent opportunities for process improvement or business efficiencies.

Opportunity	Alternate Forms, Related Opportunity Description, or Report Cross Reference
1) Define key billing accuracy measures (including those selected as key controls from the set of metrics in Section 4.1) to trigger employee notifications when they are violated, require positive confirmation that they have been addressed, and be subject to escalation if they are not resolved in a timely manner. If it is not possible to achieve this type of business process management with the current CRS workflow technology, evaluate business process management (BPM) tools that can be integrated with the CRS and other Xcel systems to provide advanced business process notification, workflow, routing, status tracking, and escalation capabilities.	
2) [C]ontinue to review and refine customer letter templates for explaining billing errors and rebilling.	
3) Conduct a requirements analysis for the Mobile Dispatch System to identify the set of additional configuration, functional enhancements, integration, and training necessary to support the field installation and maintenance processes, which are critical to improving metering performance.	Update Mobile Dispatch System capabilities for all field support groups, as the current implementation does not meet the needs of the meter support groups.
4) Incorporate customer contact center information into the Enterprise Data Warehouse and combine this with enhanced call coding to provide trending and anomaly detection on call type, geographic location, customer class, measuring device type, or device lot. As the Xcel service areas have increased in size and diversity, it has become more important for informal correlation of call trends to be supplemented by additional analytics.	

Opportunity	Alternate Forms, Related Opportunity Description, or Report Cross Reference
5) Review the business utilization of the PTJ as a workflow tracking tool and determine if changes in the way PTJs are used will better suit the work needs. If the PTJ approach cannot meet Xcel's business needs, evaluate commercial business process management (BPM) tools that could potentially provide the benefits of the PTJ work tracking approach to both the revenue cycle and other Xcel business processes while providing the routing, escalation, and tracking needed for more efficient work processes and improved customer service.	
6) [Continue] development of the Enterprise Data Warehouse initiative, with the objective of supporting [a] flexible, ad hoc reporting facility allowing various business units involved in the revenue cycle to create new views of customer, metering, billing, and remittance data as needed.	
7) Revise the BCL new premise/account/rate setup process for increased automation and improved quality assurance.	Refer to Section 3.1.1.4
8) Restrict meter exchanges only until the actual reading is recorded, not throughout the entire read window.	Refer to Section 3.1.2.2
9) Review ways to reduce the impact of the reduced reading window on manual (handheld and van) meter readers.	Refer to Section 3.1.2.2
10) Improve field meter location selection and recording of locations	Refer to Section 3.1.2.2
11) Review the project management tools and training for the Regulatory Administration group, and possibly the roles in the group itself, to ensure that it can continue to effectively accommodate both the core regulatory responsibilities and the important project management role.	Refer to Section 3.1.3.2

Appendix B Revenue Cycle Process Review Interview List

Revenue Cycle Process Review Interview List

GEM interviewed the following employees and contractors during the Revenue Cycle Process Review. In some cases multiple employees with the same Xcel Energy job title or contract support role were interviewed.

Xcel Energy Job Title or Contract Support Role	Nature of Discussion
Analyst, Billing Support	Create Bill subprocess, detailed review of selected exception handling processes
Analyst, Business Integration Customer Care	Create Bill subprocess, Collect Payment subprocess, rebilling, estimation, process accuracy, detailed review of selected exception handling processes
Analyst, Solutions Support	BLR12, CRS mass market rate testing
Collections Field Representative (MN)	Collection work practices
Consultant, Solutions	MRAS, customer billing, CRS change management
Consultant, Strategy and Planning	Create Bill subprocess
Contractor, Sr Specialist Field Operations	Technology questions for BCL
Credit Specialist	Measure Product Delivery subprocess NSPM
Director OpCo Business Operations	Meter installation and maintenance processes, meter failure data from RMA process
Director, Billing Services	Create Bill subprocess, Collect Payment subprocess, rebilling, estimation, process accuracy, goals, business indicators, problems
Director, Customer Contact Center	Customer Contact Center structure, roles, training, and revenue cycle process support
Director, Customer Operations	Process improvement and quality assurance initiatives
Director, Gas/Electric Meter Shop & Field Operations	Meter inventory, meter accuracy
Director, Meter Reading	Cellnet, meter reading processes across the system, meter reading goals
Director, Revenue Analysis	Rate implementation business process and objectives
Electric Meter Shop Assistant	Electric meter testing
Electric Meter Technician	Electric meter testing
Executive, Business Technology, Customer Consumer	Billing and customer care systems, system development process, billing accuracy objectives
Field Operations Manager	Meter reading PSCO
Field Operations Supervisor	Meter reading PSCO
Field Technician - Gas Utilization	Review field work use of Mobile Dispatch System for natural gas meter work
Gas Meter Engineer	Natural gas meter testing and reliability
Gas Meter Technician	Natural gas meter testing
Lead - Gas Utilization	Review field work scheduling for natural gas
Manager Business Analytics	Enterprise Data Warehouse - current abilities
Manager Data Analytics	Enterprise Data Warehouse - current abilities

Xcel Energy Job Title or Contract Support Role	Nature of Discussion
Manager Gas/Electric Meters	Cellnet, meter reading processes across the system, meter installation and maintenance processes, goals, business indicators, problems
Manager Remittance Processing	Collect Payment subprocess, functional decomposition, goals, and metrics
Manager, Audit - Utilities Group and Finance	Review internal audit initiatives and overall revenue cycle quality assurance
Manager, Billing Products and Services	Create Bill subprocess
Manager, Business Solutions Center	Customer contact center participation in revenue cycle
Manager, C&I Billing	Create Bill subprocess, C&I rate testing, exception processing
Manager, Customer Care Performance	Revenue cycle process review, meter-to-mailbox project
Manager, Customer Care Talent and Training	Revenue cycle training, new employee and sustainment customer contact center training, and reactive training
Manager, Customer Contact Center	Customer Contact Center structure, roles, training, and revenue cycle process support
Manager, Customer Receivables	Collect Payment subprocess, functional decomposition, goals, and metrics
Manager, Gas Pricing & Planning	Rate and rate case development
Manager, Mass Market Billing	Create Bill subprocess, rebilling, estimation, process accuracy
Manager, Planning and Performance	Functional decomposition of meter installation and maintenance
Manager, Regulatory Administration	Objectives, ratemaking process, internal and external communications
Manager, Revenue Cycle	Measure Product Delivery subprocess NSPM
Manager, Revenue Cycle Field Ops	Measure Product Delivery subprocess NSPM
Manager, System Performance	Meter testing, meter accuracy, review meter failure data from RMA process
Managing Director, Customer Care	Objectives, current problem areas, Cellnet issues, customer care goals
Meter Engineering	Meter Testing and reliability, review meter failure data from RMA process
Meter Maintenance Manager	Landis & Gyr support for AMR technologies
Meter Reader	Drive-by automated meter reading (PSCO)
Meter Reader	Manual meter reading (PSCO)
Meter Reader (MN)	Meter reading NSPM
Meter Tech	Landis & Gyr support for AMR technologies
President & CEO, NSP Minnesota Jurisdiction	Review objectives, quality assurance, process sustainability, key business issues, goals, monitoring of review
Program Manager	Landis & Gyr support for AMR technologies
Project Director	Meter installation and maintenance processes (Cellnet deployment project)
Project Manager, Revenue Cycle	Responses to Phase 1 (Scoping) information request
Rate Information Specialist	Rate case entry and scheduled rate change processes

Xcel Energy Job Title or Contract Support Role	Nature of Discussion
Regional Vice President, MN, ND, SD	Reasonableness standards, organization for multi-jurisdictional company
Scheduler	Review Field work Scheduling
Scheduler, Electric Meter Dispatch	Electric meter testing
Senior Analyst, System Performance	Meter installation and maintenance processes, technology questions for MDMS, CRS, IEH, and Mobile Dispatch System
Senior Business Manager, Customer Billing	Billing and customer care systems, system development process, rebilling, estimation, Enterprise Data Warehouse
Senior Business Manager, Customer Care Center	Billing and customer care systems, system development process
Senior Instructor, CCC	Revenue cycle training, new employee and sustainment customer contact center training, and reactive training
Solutions Consultant	Enterprise Data Warehouse - current abilities
Specialist Electric Metering	Review field activity for electric meter work
Specialist, Billing	Review billing corrections
Supervisor Billing	Create Bill subprocess
Supervisor Electric Meters	Meter installation and maintenance processes
Supervisor Gas Meters	Meter installation and maintenance processes, field work scheduling
Supervisor Metro West Field	Meter installation and maintenance processes, field work scheduling
Supervisor, BCL	Technology questions for BCL
Supervisor, Billing Operations	Create Bill subprocess
Supervisor, C&I Billing (CO)	Create Bill subprocess (C&I)
Supervisor, C&I Billing (MN)	Create Bill subprocess (C&I)
Supervisor, Collections Metro	Measure Product Delivery subprocess NSPM
Supervisor, Field Operations	Measure Product Delivery subprocess NSPM
Supervisor, Network Performance	Cellnet, meter reading processes across the system
Supervisor, Remittance Processing	Collect Payment subprocess, functional decomposition, goals, and metrics
Team Lead	Meter installation and maintenance processes
Team Lead, Customer Contact Center	Customer Contact Center structure, roles, training, and revenue cycle process support
Vice President, Customer Solutions	Revenue cycle goals and objectives
Vice President, Government & Regulatory Affairs	Organizational structure for rate implementation, cost/benefit approaches, Cellnet contract, rates and regulatory interactions, audit approaches

Appendix C Document Inventory

Document Inventory

Xcel provided the documents listed in this appendix to GEM during the Revenue Cycle Process Review.

Document Issue Date	Document Name
2/2/2007	Meter Reading Acquisition System (MRAS)
4/24/2006	Circle of Life of a New Meter Set
Unknown	Energy Interfaces
2/12/2009	Xcel Billing Issues - External Review
2/13/2009	RE: Phase 1 Scoping Interview Guide
11/27/2006	List of most common tariffs/rates
1/28/2009	Retail Billing Issues Meeting
2/12/2009	Billing Projects / Project Tracking Report
8/21/2008	RESPONSE TO COMMISSION NOTICE AND REBILLING PLAN DOCKET NO. G-0002/CI-08-871
11/14/2008	IN THE MATTER OF AN INVESTIGATION INTO NORTHERN STATES POWER COMPANY, A MINNESOTA CORPORATION, INACCURATE GAS METERS, RECALCULATION OF BILLS, AND RELATED ISSUES DOCKET NO. G-002/CI-08-871"
11/25/2008	Docket No. G-002/CI-080871 Natural Gas True-Up Information
1/12/2009	UPDATE AND RESPONSE TO COMMISSION ORDER DOCKET NO. G-002/CI-08-871
3/17/2006	Stop Billing Rules
12/10/2008	Retail Revenue Listing of Controls as of 12/10/2008
5/6/2008	Meter Inventory Process Overview
5/6/2008	Meter Accuracy Process Overview
6/13/2009	Meter Reading Process Overview
5/15/2008	Customer Resource System (CRS) Billing Process Overview
3/31/2008	Remittance Processing Process Overview
2/25/2008	Builders Call Line Process Overview
3/31/2009	Unbilled Revenue Process Overview
7/8/2008	Process Overview for Rate Development
5/4/2008	Credit and Collections Process Overview
Unknown	PUC Table for Billing Corrections All States
2/12/2009	Payment Options
Unknown	Rate Implementation Process & Procedure
Unknown	Rate Case Analysis Spreadsheet Documentation Guidelines
Unknown	2008 ND_Electric.xls
Unknown	SPS TEXAS RATE CASE 2009PV.xls

Document Issue Date	Document Name
2/2/2007	Meter Reading Acquisition System (MRAS)
2/18/2009	TM Tariff Maintenance Screen Shot
2/18/2009	TM Unmetered Charge Maintenance
9/6/2007	2008-GCC-CHG1 100 Xcel Change.doc
Unknown	No Bill Dollars Comparison 2006 to Current
Unknown	Weekly Meter Exception Rate
Unknown	Remittance Processing Deposit Tracker
Unknown	Customer Receivables Total Exceptions Tracker
2/18/2009	Interface techniques overview
Unknown	Customer Care and Revenue Cycle - 2009 Strategic Plan and Goals
2/17/2009	Update on select NSP MN Meter-related issues
6/5/2008	IEH Exception Processing
Various	IEH Job Aids
Unknown	Billing IEH Stats 2/9/09 - 2/15/09
Unknown	Customer Care and Revenue Cycle Scorecard - January 2009
Unknown	Customer Care Communications Rate Case / Filing Question and Answer Request Form
Unknown	Communication Guidelines and Work Plan for Billing Issues
Unknown	No Bill Load Points Statistics
2/12/2009	Meter Reading Performance Weekly Status Report
Unknown	MDMS - Looking Up a Job
Unknown	CRS Premise Counts by Tariff Class 6-23-2005b.xls
Unknown	WI 3443 02-11-09_MM.xls
8/11/2008	Change Management Operational Process & Procedure for Xcel Energy Account
Unknown	Regression Test Tracking Template.xls
2/19/2009	Reversal Analysis Report for 2/19/2009 to 2/19/2009
Unknown	CR Listing
Unknown	Billing Metrics
6/28/2007	QA Process for BLR12
Unknown	PTJ Matrices
2/2/2009	IMC Report List
9/9/2009	Unbilled Services Summary Report
2/17/2009	C&I-Survey-TOU reads 2008.xls
Unknown	Overview of C&I Metering

Document Issue Date	Document Name
2/2/2007	Meter Reading Acquisition System (MRAS)
12/2008	Mass Market Billing
12/2008	C&I Billing Scorecard
12/2008	Billing Services and Operations (BSO) Scorecard
12/2008	Customer Receivables Scorecard
12/2008	Remittance Processing Scorecard
5/18/2004	Glossary of Terms
Unknown	CRS Basics
Unknown	Stop Billing Rules Index
7/2006	Stop Billing Rules Details
Unknown	RES_Billing_Glossary
11/27/2006	List of most common tariffs/rates
Various	Xcel Energy Company Information
2/12/2009	Xcel Energy Organization Charts
2/12/2009	Ordering Energy Services
2/12/2009	TruCheck PTJ
2/3/2009	Interval and Net Billing
8/27/2008	Tariffs
2/12/2009	Daily Processing Reports for 2009-02-12
Unknown	Billing Problem Summary
Unknown	Customer Metrics from the Billing Services Scorecards (Jan-09)
Unknown	CRS Estimating Overview
7/6/2007	CONSUMPTION ESTIMATING SYSTEM
Unknown	Degree Day Estimation laymans terms
6/26/2007	Gas estimation emails
Unknown	Bill Estimation Examples
6/18/2007	Sample Electric Estimated Bill
6/18/2007	Sample Gas Estimated Bill
Unknown	Gas Estimation Steps and Calculations Spreadsheet
Unknown	Gas and Electric Estimation Spreadsheet
Unknown	Feb 2005 thru Dec 2008 Cancel Rebills Analysis IMC Report Grouping
Unknown	Billing Component DEVELOPMENT Process
Unknown	New/Changed Billing Component Implementation Outline

Document Issue Date	Document Name
2/2/2007	Meter Reading Acquisition System (MRAS)
Unknown	Billing Component IMPLEMENTATION & QUALITY ASSURANCE
Unknown	Billing Process
Unknown	New/Changed Billing Component Work Plan
Unknown	IN THE MATTER OF NORTHERN STATES POWER COMPANY'S, A MINNESOTA CORPORATION OPERATING IN NORTH DAKOTA, NATURAL GAS METER AND BILLING SERVICE ISSUES Case No. PU-08-627 PROPOSAL FOR RESOLUTION
5/6/2008	2008 Meter Inventory Process Overview.doc
5/6/2008	Meter Inventory 2008.vsd
5/6/2009	2008 Meter Accuracy Process Overview.doc
3/1/2008	Meter Accuracy 2008.vsd
5/15/2008	CRS Billing Process Overview May 15 2008.Doc
5/13/2008	CRS Billing Visio Map 13 May 2008_UPDATED BLR58_05-22-08.vsd
1/16/2009	Builder's Call Line Process Overview 16 Jan 09.doc
1/16/2009	Builder's Call Line Process Map 16Feb09.vsd
2/27/2009	Meter Reading Process Overview 6 Mar 09.doc
3/6/2009	Meter Reading Process Map 19Apr08.vsd
7/8/2008	Rates Process Overview July 8, 2008.doc
6/16/2008	Rate Entry Process Map 16 Jun 2008.vsd
3/10/2009	2009 Remit Proc Process Overview.doc
3/10/2009	Remittance Processing_PROCES MAP 03-11-09.vsd
3/1/2009	CS Scorecard_mar09.Final4.xls
Unknown	2009 metering scorecards master.xls
5/5/2009	gas meter retires 1_1_07-4_30_09.xls
3/1/2009	PM202 5-5-09.xls
4/3/2009	NSPM Billing / Metering Projects 90-day Plan Overview
5/22/2009	BCL rate mismatch report stats
5/23/2009	Elec CellNet Fishbone_asof_052309.xls
5/23/2009	Gas CellNet Fishbone_asof_052309.xls
1/29/2007	MDT_meterwork_1 3.doc
7/23/2008	webex_Pilot_Training_materials July 23 2008
Unknown	FCS trouble codes actions.xls
6/11/2009	Skip Codes 2009-06-11.pdf
5/1/2009	2009 NBDScorecard.xls

Document Issue Date	Document Name
2/2/2007	Meter Reading Acquisition System (MRAS)
5/22/2009	Retail Billing Issues Status Update
8/15/2008	Testing for Control RD-4
6/1/2009	TRAINING 2009 MASS MARKET_06_01_09-1.doc
Various	Billing Notes (Training folder)
Various	CellNet Rebill (Training folder)
Various	Consumption (Training folder)
Various	Power Factor (Training folder)
Various	Sustainment 2009 (Training folder)
Unknown	CRS MN Gas Factors.xls
Unknown	MN Electric CRS Rate Structure_2007.3_cae.xls
Unknown	ND Gas CRS Rate Structure.xls
5/22/2009	Regulatory Calendary 5-22.xls
Unknown	Rate Register TI thru 5 26 09 (2).xls
Unknown	Streetlight Consumption Calculation Algorithm.doc
4/12/2008	2007-2009_0408 RevCycle - Billing Complaints.snp
4/12/2008	2007-2009_0408 RevCycle - DCM Complaints.snp
4/12/2008	2007-2009_0408 RevCycle - Meter Reading Complaints.snp
4/12/2008	2007-2009_0408 RevCycle - Metering Systems Complaints.snp
12/3/2008	08-069 Meter Inventory and Tracking Followup Audit
Dec 2008	Scorecard Business Operations Dec. 2008.xls
June 2009	2009 Metering Scorecards.xls
Unknown	WI-MI 2009 Read Performance (2).xls
Unknown	June ND Schedule 2009, xls
6/17/2009	051709 Cycle 12.xls
Unknown	RMA_Analysis_Rollup_Findings_052009.xls
3/18/2009	Dollar_Value_PTJ.doc

Appendix D Billing System Test Result Summary

Billing System Test Result Summary

Test Coverage

GEM constructed the Minnesota and North Dakota electric and natural gas rates and rate combinations listed in the first column of the Exhibit D-1 in the Bill Test system. These rates and rate combinations cover 97.4% of the Minnesota and North Dakota electric billed premises and 99.4% of the Minnesota and North Dakota natural gas billed premises.

Exhibit D-1
Bill Test Customer Rates

Rate Name
MN_E_A00
MN_E_A01_Overhead_ElectricSpaceHeating
MN_E_A01_Overhead_ElectricSpaceHeating_Windsource
MN_E_A01_Overhead_ElectricSpaceHeating_Windsource_A50
MN_E_A01_Overhead_Standard
MN_E_A01_Overhead_Standard_A50
MN_E_A01_Overhead_Standard_Windsource
MN_E_A01_Overhead_Standard_Windsource_A50
MN_E_A02_SpaceHeating
MN_E_A02_SpaceHeating_Prepaid
MN_E_A02_Standard
MN_E_A02_Standard_Prepaid
MN_E_A03_Underground_ElectricSpaceHeating
MN_E_A03_Underground_ElectricSpaceHeating_Windsource
MN_E_A03_Underground_Standard
MN_E_A03_Underground_Standard_A50
MN_E_A03_Underground_Standard_Windsource
MN_E_A03_Underground_Standard_Windsource_A50
MN_E_A04_SpaceHeating
MN_E_A04_SpaceHeating_Prepaid
MN_E_A04_Standard
MN_E_A04_Standard_Prepaid
MN_E_A04_Standard_WindSource
MN_E_A05_Commercial_Optional
MN_E_A05_Commercial_Standard
MN_E_A05_Residential_ElectricSpaceHeating
MN_E_A05_Residential_Optional
MN_E_A05_Residential_Standard

Rate Name
MN_E_A06_Commercial_PrimaryVoltage
MN_E_A06_Commercial_SecondaryVoltage_SinglePhase
MN_E_A06_Commercial_SecondaryVoltage_ThreePhase
MN_E_A06_Commercial_Transmission
MN_E_A06_Commercial_Transmission_Transformed
MN_E_A06_Residential
MN_E_A07_Commercial
MN_E_A07_Residential
MN_E_A09
MN_E_A10_CIPExempt
MN_E_A10_IDS
MN_E_A10_Standard
MN_E_A10_Standard_A50
MN_E_A10_Windsource
MN_E_A11
MN_E_A12
MN_E_A13
MN_E_A14_LargeCI_Primary
MN_E_A14_LargeCI_Secondary
MN_E_A14_LargeCI_Secondary_A50
MN_E_A14_LargeCI_Secondary_CIPExempt
MN_E_A14_LargeCI_Secondary_WindSource
MN_E_A14_SmallCI_Primary
MN_E_A14_SmallCI_Secondary
MN_E_A14_SmallCI_Secondary_A50
MN_E_A14_SmallCI_Secondary_CIPExempt
MN_E_A14_SmallCI_Secondary_WindSource
MN_E_A14_SmallCI_Transmission
MN_E_A14_SmallCI_Transmission_Transformed
MN_E_A15_LargeCI_Primary
MN_E_A15_LargeCI_Secondary
MN_E_A15_LargeCI_Secondary_CIPExempt
MN_E_A15_LargeCI_Transmission
MN_E_A15_LargeCI_Transmission_Transformed
MN_E_A15_SmallCI_Primary
MN_E_A15_SmallCI_Secondary
MN_E_A15_SmallCI_Secondary_WindSource

Rate Name
MN_E_A16
MN_E_A18
MN_E_A22
MN_E_A23_LargeCI_Primary_Tier1_LevelB
MN_E_A23_LargeCI_Primary_Tier1_LevelC
MN_E_A23_LargeCI_Primary_Tier2_LevelA
MN_E_A23_LargeCI_Primary_Tier2_LevelB
MN_E_A23_LargeCI_Primary_Tier2_LevelC
MN_E_A23_LargeCI_Secondary_Tier1_LevelB
MN_E_A23_LargeCI_Secondary_Tier1_LevelB_CIPExempt
MN_E_A23_LargeCI_Secondary_Tier1_LevelC
MN_E_A23_LargeCI_Secondary_Tier1_LevelC_CIPExempt
MN_E_A23_LargeCI_Secondary_Tier2_LevelA
MN_E_A23_LargeCI_Secondary_Tier2_LevelB
MN_E_A23_LargeCI_Secondary_Tier2_LevelC
MN_E_A23_LargeCI_Transmission_Tier1_LevelB
MN_E_A23_LargeCI_Transmission_Tier1_LevelC
MN_E_A23_LargeCI_Transmission_Tier2_LevelA
MN_E_A23_LargeCI_Transmission_Tier2_LevelB
MN_E_A23_LargeCI_Transmission_Tier2_LevelC
MN_E_A23_LargeCI_Transmission_Transformed_Tier1_LevelB
MN_E_A23_LargeCI_Transmission_Transformed_Tier1_LevelC
MN_E_A23_LargeCI_Transmission_Transformed_Tier2_LevelA
MN_E_A23_LargeCI_Transmission_Transformed_Tier2_LevelB
MN_E_A23_LargeCI_Transmission_Transformed_Tier2_LevelC
MN_E_A23_SmallCI_Primary_Tier1_LevelB
MN_E_A23_SmallCI_Primary_Tier1_LevelC
MN_E_A23_SmallCI_Primary_Tier2_LevelA
MN_E_A23_SmallCI_Primary_Tier2_LevelB
MN_E_A23_SmallCI_Primary_Tier2_LevelC
MN_E_A23_SmallCI_Secondary_Tier1_LevelB
MN_E_A23_SmallCI_Secondary_Tier1_LevelC
MN_E_A23_SmallCI_Secondary_Tier2_LevelA
MN_E_A23_SmallCI_Secondary_Tier2_LevelB
MN_E_A23_SmallCI_Secondary_Tier2_LevelC
MN_E_A24_LargeCI_Primary_Tier1_LevelB
MN_E_A24_LargeCI_Primary_Tier1_LevelC

Rate Name
MN_E_A24_LargeCI_Primary_Tier2_LevelA
MN_E_A24_LargeCI_Primary_Tier2_LevelC
MN_E_A24_LargeCI_Secondary_Tier1_LevelC
MN_E_A24_LargeCI_Secondary_Tier2_LevelA
MN_E_A24_LargeCI_Secondary_Tier2_LevelB
MN_E_A24_LargeCI_Secondary_Tier2_LevelC
MN_E_A24_SmallCI_Secondary_Tier2_LevelA
MN_E_A24_SmallCI_Secondary_Tier2_LevelB
MN_E_A24_SmallCI_Secondary_Tier2_LevelC
MN_E_A30
MN_E_A32
MN_E_A34
MN_E_A40_Small_Municipal_Pumping
MN_E_A41_Large_Primary
MN_E_A41_Large_Secondary
MN_E_A41_Small_Primary
MN_E_A41_Small_Secondary
MN_E_A42
MN_G_101
MN_G_101_CIPExempt
MN_G_101_ResidentialSpaceHeating
MN_G_102_CIPExempt
MN_G_102_IDS
MN_G_102_Standard
MN_G_103_CIPExempt
MN_G_103_Standard
MN_G_105
MN_G_106_CIPExempt
MN_G_106_Standard
MN_G_108_CIPExempt
MN_G_108_Standard
MN_G_111
MN_G_118_CIPExempt
MN_G_118_IDS
MN_G_118_Standard
MN_G_119
MN_G_120_CIPExempt

Rate Name
MN_G_120_Standard
MN_G_125_CIPExempt
MN_G_125_Standard
ND_E_D01_Overhead_ElectricSpaceHeating
ND_E_D01_Overhead_Standard
ND_E_D02_Overhead_ElectricSpaceHeating
ND_E_D02_Overhead_Standard
ND_E_D03_Underground_ElectricSpaceHeating
ND_E_D03_Underground_Standard
ND_E_D04_Underground_ElectricSpaceHeating
ND_E_D04_Underground_Standard
ND_E_D05_EnergyControlled_Commercial_Optional
ND_E_D05_EnergyControlled_Commercial_Standard
ND_E_D05_EnergyControlled_Residential_Optional
ND_E_D05_EnergyControlled_Residential_Standard
ND_E_D10_Commercial_Primary
ND_E_D10_Commercial_Secondary_SinglePhase
ND_E_D10_Commercial_Secondary_ThreePhase
ND_E_D10_Residential
ND_E_D11
ND_E_D12_Standard
ND_E_D14
ND_E_D15_Standard
ND_E_D16_Secondary
ND_E_D17_Secondary
ND_E_D18
ND_E_D19
ND_E_D20_LargeCI_Secondary_Tier1_LevelB
ND_E_D20_LargeCI_Secondary_Tier2_LevelA
ND_E_D30
ND_E_D33
ND_E_D40_Small_Municipal_Pumping
ND_E_D41_Primary
ND_E_D41_Secondary
ND_G_401
ND_G_403_Commercial
ND_G_403_Industrial

Rate Name
ND_G_404
ND_G_405
ND_G_410_Commercial
ND_G_410_Industrial

The actual accounts sampled during the testing process represent 663 distinct municipal jurisdictions out of the total of 1134 municipal jurisdictions in NSPM Minnesota and 51 distinct municipal jurisdictions out of the total of 112 municipal jurisdictions in NSPM North Dakota. Ongoing use of the Bill Test system would increase the jurisdiction coverage over time.

In addition to the customer rates listed in Exhibit D-1, GEM implemented 581 surcharge and tax rates representing all state, county, city, and transit taxes, franchise fees, and similar surcharges applicable to the NSPM Minnesota and North Dakota service territories. A separate surcharge or tax rate is generally required for each jurisdiction/rate class combination to which the surcharge or tax applies.

Test Analysis

Exhibit D-2 shows the results of the test runs performed to meet the requirements of the Revenue Cycle Process Review. All billing days in the month of August were run to ensure that all meter reading rounds were represented. Billing dates from early April (most of which include days from the winter month of March) to late June (which is considered summer for rate, surcharge, and monthly billing calculation purposes) were also selected to ensure that a seasonal transition from winter to summer was included.

The Bill Test system considers any differences between the CRS and Bill Test calculated total bill value less than or equal to $0.03 in absolute value to be a match for automated testing purposes. This tolerance accounts for rounding differences between the CRS and Bill Test systems. GEM calculated the algebraic sum of the small mismatches (less than or equal to $0.03 in absolute value) to determine if there is any identifiable bias in rounding errors in either the Bill Test or CRS. This value was -$274.08 over the full set of samples (or about 0.0009%), which represents only a slight difference in the overall handling of rounding between the Bill Test calculations and the CRS calculations. This small difference does not provide any clear indication of which system's rounding approach is more correct, and based on the negligible magnitude GEM does not believe there is any significant rounding bias in the CRS that affects billing accuracy

The Automated Match column of Exhibit D-2 is the number of invoices that were within the $0.03 tolerance, divided by the total number of invoices in the sample. The values in this column should not be interpreted to mean that the CRS calculation is only accurate to the degree indicated in that column. Rather, these values indicate the percentage of invoices that were validated in a fully automated manner, leaving some invoices from each run to be subjected to further analysis that could not necessarily be automated.

The sum of the absolute mismatches between the CRS billed amount and the Bill Test bill total for all tested invoices, as well as the largest difference within each set of sampled invoices, are additional metrics that GEM reviewed for each test run during development of the Bill Test system and during testing. Each of these metrics is useful for identifying modeling differences between the CRS and the Bill Test system as well as guiding the analyst in investigating whether the difference represents calculation, factor, or rate interpretation discrepancies in either the Bill Test system or the CRS.

With the exception of a significant impact on the 8/31/2009 Automated Match due to the City-Requested Facilities Surcharge expiration issue, the specific CRS issues identified in Section 5 are not the major sources of the mismatches in the daily runs listed in Exhibit D-2. GEM's analysis of the detailed results shows that most of the large mismatches represent remaining modeling differences between the CRS and Bill Test. Some of these can be addressed by creating additional rates to represent variations in customer metering. Other mismatches are related to the fact that the CRS has already imposed billing calculation rules on some quantities, which are then stored in the reading tables used by the Bill Test system as if they were raw metered values. (For example, the demand values stored in CRS are sometimes adjusted for power factor, instead of representing the actual measured value.) A mismatch results if a Bill Test rate definition operates on these quantities and re-applies the tariff billing calculations or rules. Where feasible this has been addressed by overriding or removing the duplicate Bill Test calculation, but it would be useful to enhance the Bill Test in the future to use raw values wherever feasible to further reduce mismatches and provide the most comprehensive test.

Exhibit D-2
Test Run Results

Bill Run Date	Sample Size	Automated Match	Total CRS Billed Amount	Sum Of Absolute Mismatches	Total Percent Difference	Largest Difference
4/13/2009	2,574	92.31%	$1,484,956.63	$6,671.32	0.45%	$1,918.98
4/28/2009	2,647	94.86%	$866,208.26	$16,367.06	1.89%	$4,281.38
5/5/2009	2,587	94.51%	$1,145,301.38	$6,124.36	0.54%	$4,122.74
5/21/2009	2,301	94.39%	$677,768.92	$37,913.67	5.59%	$15,999.10
6/2/2009	2,180	94.82%	$752,422.03	$2,494.69	0.33%	$777.07
6/22/2009	2,581	94.03%	$1,337,797.57	$9,199.35	0.69%	$1,879.49
8/3/2009	2,458	95.57%	$985,020.10	$5,889.09	0.60%	$3,617.35
8/4/2009	2,541	96.22%	$821,209.85	$2,429.07	0.30%	$916.20
8/5/2009	2,304	95.79%	$936,779.68	$2,966.35	0.32%	$1,069.12
8/6/2009	2,609	97.20%	$2,492,228.16	$14,192.29	0.57%	$6,819.30
8/7/2009	2,408	96.97%	$1,040,995.83	$9,980.88	0.96%	$5,635.69
8/10/2009	2,411	94.94%	$1,139,479.24	$7,348.96	0.65%	$4,130.75
8/11/2009	2,635	95.52%	$1,219,909.42	$5,800.32	0.48%	$2,837.66
8/12/2009	2,262	96.68%	$1,102,595.55	$5,500.40	0.50%	$3,087.77
8/13/2009	2,425	96.62%	$1,215,617.42	$3,528.06	0.29%	$1,963.58
8/14/2009	2,164	96.81%	$564,634.16	$7,737.95	1.37%	$4,470.77
8/17/2009	2,406	94.39%	$1,117,220.71	$4,939.70	0.44%	$3,281.62
8/18/2009	2,476	96.20%	$910,888.48	$13,828.09	1.52%	$11,440.90
8/19/2009	2,292	96.51%	$826,038.03	$11,201.97	1.36%	$4,412.11
8/20/2009	2,203	95.87%	$953,005.65	$15,992.46	1.68%	$3,953.70
8/21/2009	2,370	96.41%	$1,034,033.71	$2,725.49	0.26%	$829.47
8/24/2009	2,754	96.22%	$1,349,981.94	$8,942.52	0.66%	$2,700.00
8/25/2009	2,657	95.33%	$1,205,473.81	$15,373.62	1.28%	$5,925.87
8/26/2009	2,508	93.70%	$1,508,651.76	$25,521.11	1.69%	$10,399.15

Bill Run Date	Sample Size	Automated Match	Total CRS Billed Amount	Sum Of Absolute Mismatches	Total Percent Difference	Largest Difference
8/27/2009	2,526	97.23%	$1,099,938.54	$25,480.36	2.32%	$10,734.51
8/28/2009	2,472	97.33%	$717,955.64	$778.17	0.11%	$209.31
8/31/2009	2,539	91.14%	$876,369.54	$2,611.47	0.30%	$551.25

Exhibit D-3
Test Summary

Bill Run Date	Sample Size	Automated Match	Total CRS Billed Amount	Sum Of Absolute Mismatches	Total Percent Difference	Largest Difference
All Tests	66,290	95.45%	$29,382,482.01	$271,538.78	0.92%	$15,999.10

Appendix E References

References

1. Rummler, Geary A., and Alan P. Brache. Improving Performance. San Francisco: Jossey-Bass, 1995

2. Global Enterprise Managers, Inc., Xcel Energy Services, Inc. Bill Test System Software Specification, Revision 1, September 9, 2009

Public Document

Trade Secret and Security Data Excised

Xcel Energy Services, Inc.

Xcel Energy®

Revenue Cycle Process Review

Final Report

Volume 2

Appendix F

August 12, 2009

Prepared by:

Global Enterprise Managers, Inc.
1018 Cypress Road
Jenkintown, PA 19046
USA
www.global-enterprise-mgrs.com

[THE ATTACHED DOCUMENT HAS BEEN EXCISED FROM THE PUBLIC VERSION OF THIS DOCUMENT]

CERTIFICATE OF SERVICE

I, Josie Parkhurst, hereby certify that I have this day served copies of the foregoing document on the attached list of persons.

xx by depositing a true and correct copy thereof, properly enveloped with postage paid in the United States mail at Minneapolis, Minnesota

xx electronic filing

DOCKET NO. G-002/CI-08-871

Dated this 25th day of September 2009

/s/

_____

Josie Parkhurst

Service List Name	First Name	Last Name	Email	Company Name	Address	Delivery Method	View Trade Secret
OFF_SL_8-871_1	Aakash	Chandarana	achandarana@briggs.com	BRIGGS and MORGAN	2200 IDS Center 80 South 8th Street Minneapolis, MN 554022157	Paper Service	No
OFF_SL_8-871_1	Bill	Bullard		South Dakota Public Utilities Commiss	Capitol Building Pierre, SD 575015070	Paper Service	No
OFF_SL_8-871_1	Burl W.	Haar	burl.haar@state.mn.us	MN Public Utilities Commission	Suite 350 121 7th Place East St. Paul, MN 551012147	Electronic Service	No
OFF_SL_8-871_1	Christopher	Clark	christopher.b.clark@xcelenergy.com	Xcel Energy	5th Floor 414 Nicollet Mall Minneapolis, MN 554011993	Paper Service	No
OFF_SL_8-871_1	Darrell	Nitschke		North Dakota Public Service Commission	600 E. Boulevard Avenue Bismarck, ND 585050480	Paper Service	No
OFF_SL_8-871_1	James M.	Strommen	jstrommen@kennedy-graven.com	Kennedy & Graven, Chartered	470 U.S. Bank Plaza 200 South Sixth Street Minneapolis, MN 55402	Paper Service	No
OFF_SL_8-871_1	John	Lindell	agorud.ecf@state.mn.us	OAG-RUD	900 BRM Tower 445 Minnesota St St. Paul, MN 551012130	Electronic Service	No
OFF_SL_8-871_1	Julia	Anderson	Julia.Anderson@state.mn.us	MN Office Of The Attorney General	1400 BRM Tower 445 Minnesota St St. Paul, MN 551012131	Electronic Service	No
OFF_SL_8-871_1	Michael	Krikava	mkrikava@briggs.com	Briggs And Morgan, P.A.	2200 IDS Center80 South 8th Street Minneapolis, MN 55402	Electronic Service	No
OFF_SL_8-871_1	Pam	Marshall	pam@energycents.org	Energy CENTS Coalition	823 7th St E St. Paul, MN 55106	Paper Service	No
OFF_SL_8-871_1	SaGonna	Thompson	sagonna.thompson@xcelenergy.com	Xcel Energy	414 Nicollet Mall FL 7 Minneapolis, MN 554011993	Paper Service	No

Service List Name	First Name	Last Name	Email	Company Name	Address	Delivery Method	View Trade Secret
OFF_SL_8-871_1	Sharon	Ferguson	sharon.ferguson@state.mn.us	MN Department Of Commerce	85 7th Place E Ste 500 Saint Paul, MN 551012198	Electronic Service	No
OFF_SL_8-871_1	William	Stamets	bill.stamets@state.mn.us	Office of the Attorney General	Suite 900445 Minnesota Street St. Paul, MN 551012127	Electronic Service	No