Rebuttal Testimony and Schedule
Richard J. Sieracki

Before the Minnesota Public Utilities Commission
State of Minnesota

In the Matter of a Commission Investigation into Xcel Energy's Monticello Life Cycle Management/Extended Power Uprate Project and Request for Recovery of Cost Overruns

Docket No. E002/CI-13-754
Exhibit ___ (RJS-1)

Project Management Prudence

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I. BACKGROUND AND ASSIGNMENT

Q. PLEASE STATE YOUR NAME, OCCUPATION AND BUSINESS ADDRESS.

A. My name is Richard J. Sieracki. I am the Chief Executive Officer of The Kenrich Group LLC ("Kenrich"). Kenrich is a business, management and litigation consulting firm, with accounting, financial, and engineering professionals. Our personnel have experience and expertise in the analysis and evaluation of cost and schedule related issues including reasons for cost growth. Kenrich's professionals have substantial experience in nuclear power, construction, and regulated industry matters. My business address is 300 South Wacker Drive, Suite 1150, Chicago, IL 60606. My resume is attached as Exhibit ___ (RJS-1), Schedule 1.

Q. PLEASE DESCRIBE YOUR POST-SECONDARY SCHOOL EDUCATION.

A. I graduated from the University of Illinois in 1974 with a Bachelor of Science degree in Civil Engineering.

Q. PLEASE DESCRIBE YOUR PROFESSIONAL HISTORY.

A. I worked at Bechtel Power Corporation ("Bechtel") from 1974 to 1985. My primary responsibilities included preparation and implementation of all cost and schedule controls, including preparing and reviewing estimates and developing forecasts of costs and cash flows to be incurred on major design and construction projects. This includes nuclear power plants. I held various positions at Bechtel, progressing to cost/schedule supervisor.

From 1985 through 1994, I worked for Peterson Consulting Limited Partnership ("Peterson Consulting"). From 1994 to 2004, I was a Vice

President at Tucker Alan Inc. ("Tucker Alan"), a firm similar to Peterson Consulting. Since 2004, I have been the Chief Executive Officer of Kenrich. My work at Peterson Consulting, Tucker Alan, and now at Kenrich has been very similar, although with increasing responsibilities. I have provided consulting and engineering services on a variety of matters with my work generally focusing on the assessment of costs, damages calculations, and schedule delay analysis on nuclear and other power plants and various construction projects.

Q. PLEASE PROVIDE EXAMPLES OF THE TYPE OF INDUSTRIES WITH WHICH YOU HAVE EXPERIENCE NECESSARY TO PERFORM YOUR WORK IN THIS MATTER.

A. The types of industries in which I have experience include the electric power industry, the construction industry including projects that involved construction of power facilities and modifications similar to the uprate project at the Monticello Nuclear Generating Plant ("Monticello", "MNGP", or the "Plant"), and the manufacturing industry where I have been involved in projects involving fabrication and assembly of major equipment including nuclear power plant steam generators.

Q. PLEASE DESCRIBE YOUR EXPERIENCE IN THE NUCLEAR POWER INDUSTRY.

A. I have been involved in matters involving over fifty different nuclear power plants. I have prepared cost damages analyses on spent nuclear fuel cases for approximately thirty different nuclear power plants. I have also prepared analyses of damages and delay on approximately ten nuclear power projects, including analysis of design, construction and operations of nuclear power plants. This work has been associated with new plant construction, plant outages, power uprate projects, capital projects,

fabrication of major equipment, and decommissioning of a nuclear power plant. I worked on prudence reviews for approximately six different nuclear power plants, analyzing the root causes for cost growth associated with the projects. In many of these matters, including the prudence reviews, I have studied project management of the utilities and the decisions the utility made based on the information available to it at the time.

Q. HAVE YOU PERFORMED WORK FOR NORTHERN STATES POWER COMPANY, A MINNESOTA CORPORATION ("XCEL ENERGY") PREVIOUSLY?

A. Yes. There are four matters that I previously worked on for Xcel Energy. For the first matter, I was part of a team that documented the decisions Xcel Energy made regarding the emergency diesel generator installation at Prairie Island Nuclear Power Plant ("Prairie Island") in anticipation of a prudence investigation. The second matter involved Xcel Energy's steam generator litigation against Westinghouse, where our team was engaged to develop Xcel Energy's damages. The third involved a business planning analysis for Xcel Energy regarding the timing of when to replace the steam generators at Prairie Island. Finally, I provided damages analysis and testimony for Xcel Energy's spent nuclear fuel litigation against the United States Department of Energy.

Q. HAVE YOU EVER PROVIDED TESTIMONY ON MATTERS RELATING TO NUCLEAR POWER PLANTS?

A. Yes. I testified before the United States Court of Federal Claims in three spent nuclear fuel cases: Indiana Michigan Power Company, Xcel Energy, and Wisconsin Electric Power Company. I also testified in depositions on spent nuclear fuel matters for Southern Nuclear, Entergy Grand Gulf, and

South Carolina Electric & Gas. I have also been deposed in a matter involving the decommissioning of the Connecticut Yankee nuclear power plant.

Q. WHAT IS THE PURPOSE OF YOUR TESTIMONY IN THIS PROCEEDING?

A. Kenrich was retained to review the testimony of Department of Commerce, Division of Energy Resources' ("Department") witness Mr. Mark W. Crisp and provide a response to Mr. Crisp's conclusions about project management as appropriate. I was also asked to review the testimony of the other Department witnesses; Dr. William R. Jacobs, Ms. Nancy A. Campbell and Mr. Christopher J. Shaw to the extent they provided testimony related to the areas I was asked to analyze.

As part of that engagement Kenrich analyzed certain aspects of the Life-Cycle Management ("LCM") and Extended Power Uprate ("EPU") Program ("LCM/EPU Program", "Program", or "Project") at Monticello. I was asked to analyze the Monticello LCM/EPU Program's Project management, cost growth, and Program implementation. I use that analysis to support my responses to Mr. Crisp's testimony.

Q. WHAT PROCESS DID YOU FOLLOW IN ORDER TO DEVELOP YOUR CONCLUSIONS?

A. I reviewed and analyzed numerous documents such as contracts, proposals, cost estimates, change orders, progress monitoring reports, responses to various Information Requests, the initial filing, the Direct Testimony of various Company witnesses, and the July 2, 2014 testimony of Ms. Campbell, Mr. Crisp, Dr. Jacobs, and Mr. Shaw. I reviewed and analyzed

accounting records such as accounting transaction reports, invoices, and cost estimate tracking reports. I interviewed various current and former Xcel Energy personnel and other experts retained by Xcel Energy.

Q. PLEASE SUMMARIZE YOUR OPINIONS.

A. First, Mr. Crisp generally criticizes Xcel Energy's Project management of the LCM/EPU Program. Based on my review of all of the facts and circumstances, I conclude that the Project management utilized by Xcel Energy was generally appropriate under the circumstances. While I would not say that Xcel Energy's project management was perfect, my review shows that Xcel Energy proceeded appropriately under the circumstances and generally made sound decisions based upon the information available at the time the decisions were being made. In my experience a company's decisions and actions need to be reasonable, not perfect, to support a finding of prudence. In addition, my review also determined Xcel Energy's incorporation of "lessons learned" from projects and outages is a prudent practice in the nuclear industry as well as other industries. Lessons learned is a process where management examines a scope of work, such as a refueling outage, determines what went well, and what did not, and identifies areas for improvement.

Second, Mr. Crisp repeatedly points out that Xcel Energy did not provide accurate estimates of the cost of the LCM/EPU Program. I note that Mr. Crisp does not assert that Xcel Energy's actions were imprudent. Xcel Energy has acknowledged that its initial cost estimates for the LCM/EPU Program were not accurate. This was in large part because "controlling factors" could not be completely assessed until the design was complete,

the Plant could be walked down, and the existing conditions assessed. In my professional opinion, this is not an indication of imprudence but is rather a normal part of the design and implementation of a project that is being pursued on multiple tracks in order to capture the benefits of the project as quickly as reasonably possible.

Third, Mr. Crisp criticizes Xcel Energy's effort at developing the scope of the LCM/EPU Program. In my opinion, "better" Project management would not have anticipated the 13.8 kV Distribution System earlier than the approach Xcel Energy used to identify the need for the modification in 2007. Better Project management would also not have foreseen the challenges to the installation of the 13.8 kV Distribution System once it was fully designed.

Fourth, Mr. Crisp asserts that Xcel Energy was not prepared for the LCM/EPU Program. In my opinion, Xcel Energy's Project preparation and coordination was not lacking. While large, capital-intensive projects can suffer from coordination issues, my review suggests that this Project was not impacted by coordination issues that were out of the ordinary or beyond what I would expect. Mr. Crisp's testimony provides the impression that certain Company personnel were not working together appropriately. Relying almost exclusively on a single document by a single employee, Mr. Crisp implies that Xcel Energy failed to consider the views of this employee. In my experience, a broader review than that described by Mr. Crisp is necessary to determine if the effort was coordinated or not. That is the effort I undertook and my review did not suggest that Xcel

Energy's communication and coordination issues were different than what is normally seen in a major capital project.

Fifth, the LCM/EPU Program did not suffer from "starts and stops" by switching contractors as asserted by Mr. Crisp, and Xcel Energy made a prudent decision to change contractors when it did. In my experience, it is important for the owner to maintain the ability to direct external resources and remove a contractor if another contractor can do a better job or has more targeted expertise.

Sixth, Xcel Energy's treatment of tracking the EPU and LCM work together as a single Project was warranted under the circumstances. I would agree that Xcel Energy could have separated the one initial Work Order into the Child Work Orders ("CWOs") at the outset of the LCM/EPU Program. However, I disagree with Mr. Crisp's suggestion that proceeding initially with a single work order was unreasonable.

Seventh, Mr. Crisp challenges Xcel Energy 's use of contingencies but never suggests that use of higher contingency levels would have resulted in lower overall costs. In my opinion, Xcel Energy appropriately used contingencies for the LCM/EPU Program. Whether Xcel Energy used contingencies or not did not change the actual costs incurred on the LCM/EPU Program.

Finally, the cost growth on the LCM/EPU Program was not due to poor Project management. Rather, the cost growth was primarily attributable to the evolving scope of the job and the implementation challenges that were

encountered. I note that such cost growth can occur on projects where permitting, design and implementation are occurring concurrently.

II. PROJECT MANAGEMENT WAS NOT DEFICIENT

A. Project Management in General

Q. MR. CRISP TESTIFIED ABOUT PROBLEMS WITH XCEL ENERGY'S PROJECT MANAGEMENT OF THE LCM/EPU PROGRAM. HOW DO YOU RESPOND TO THOSE STATEMENTS?

A. I do not agree with Mr. Crisp's testimony that Xcel Energy's Project management of the LCM/EPU Program was problematic or the cause of the increased Project costs. Mr. Crisp states the purpose of his testimony was to "provide a technical review of Xcel's Project Management decisions and project management execution and how they impacted costs throughout the project timeline."[1]

It appears that Mr. Crisp is mainly critical of Xcel Energy's Project management design process, yet he does not criticize the designs selected. It seems that Mr. Crisp is trying to tie the complexities and changes of the design modifications to poor Project management by Xcel Energy. Based on my review, the design modifications and scope growth did not stem from deficient Project management as I will explain throughout my testimony.

Further, Mr. Crisp does not establish any causal link between what he concludes is deficient Project management and the cost overruns on the

[1] Crisp Direct at 3:16-18.

LCM/EPU Program. Further, in Mr. Crisp's response to Xcel Energy's Information Request No. 8 (in the Rebuttal Testimony of Company witness Mr. Timothy J. O'Connor at Exhibit ___ (TJO-2), Schedule 1), he states he did not determine that Xcel Energy's actions were imprudent. In addition, I note that while Mr. Crisp makes a number of broad criticisms, he does not quantify the impact of his criticisms on the cost growth incurred on the LCM/EPU Program.

Q. WHAT IS PROJECT MANAGEMENT AND WHAT DOES IT ENCOMPASS?

A. The Project Management Institute ("PMI"), an industry organization, defines project management as the application of knowledge, skills, tools, and techniques to project activities in order to meet or exceed stakeholder needs and expectations from a project.[2] The term project management is sometimes used to describe an organizational approach to the management of ongoing operations. AACE International, another industry organization, defines project management as the utilization of skills and knowledge in coordinating the organizing, planning, scheduling, directing, controlling, monitoring and evaluating of prescribed activities to ensure that the stated objectives of a project, manufactured product, or service are achieved.[3]

[2] *A Guide to the Project Management Body of Knowledge,* 1996 Edition. PMI Standards Committee.
[3] *Skills And Knowledge Of Cost Engineering*, 5th Edition Revised. A Product of the Education Board of AACE International.

Q. BASED ON THESE PROFESSIONAL SOURCE MATERIALS, YOUR INVESTIGATION OF THE LCM/EPU PROGRAM, AND YOUR EXPERIENCE, DO YOU AGREE WITH MR. CRISP THAT XCEL ENERGY DID NOT ENGAGE IN GOOD PROJECT MANAGEMENT?

A. No. My review of the LCM/EPU Program leads me to conclude that Xcel Energy did a reasonable job of managing a major capital initiative under challenging circumstances. While Xcel Energy's Project management was not perfect, I think it worked about as well as could have reasonably been expected under the circumstances encountered. Also, Xcel Energy did a good job of adapting its management processes as the complexity of the job evolved over time. Far from a sign of poor management (as implied by Mr. Crisp) the evolving practices were a sign of adaptable management techniques, which is vital in a Project of this magnitude.

Q. MR. CRISP TESTIFIED THAT "GOOD PROJECT MANAGEMENT WORKS TO AVOID CHANGE IN PROGRAM DESIGN AND SCOPE BY CAREFUL EXAMINATION OF THE PROJECT…CONSIDERS THE COMPLEXITY OF MODIFICATION INSTALLATION EARLY IN THE PROCESS….THESE FACTORS HAD A SIGNIFICANT EFFECT ON THE COST OVERRUNS…".[4] WHAT IS YOUR RESPONSE TO THIS TESTIMONY?

A. Mr. Crisp's testimony apparently ignores the need for Xcel Energy to approach the LCM/EPU Program on multiple, simultaneous tracks based on the need for additional generating capacity. As I discuss in further detail below, Mr. Crisp's criticism would be more appropriate if the LCM/EPU Program were a traditional design/bid/build project, in which a more detailed design is completed prior to the start of construction. When

[4] Crisp Direct at 9:7-11.

comparing the timing of Xcel Energy's need for additional generating capacity with the timing of completing the overall LCM/EPU Program, it was a reasonable decision for Xcel Energy to not take that other approach. Under the circumstances, it was appropriate for Xcel Energy to decide to move forward on multiple tracks to increase the chances of successful and timely completion.

B. Implementation Approach was Reasonable

Q. CAN YOU EXPAND FURTHER ON XCEL ENERGY'S APPROACH TO IMPLEMENTING THE LCM/EPU PROGRAM?

A. Xcel Energy decided that the LCM/EPU Program needed to be implemented on an expedited basis based on a combination of factors, including (i) direction from the Minnesota Public Utilities Commission ("Commission") to submit a plan for additional baseload resources including nuclear power uprates, (ii) forecasted baseload need at the time, (iii) high natural gas prices, and (iv) the need to upgrade certain Monticello systems to support the Plant's continued operations over the next 20 years. As a result of these significant, time-sensitive factors, Xcel Energy decided it was necessary to seek regulatory approvals, design the LCM/EPU Program, and proceed to implement the necessary modifications all on parallel paths.

Q. WHY WAS IT REASONABLE FOR XCEL ENERGY TO PROCEED IN THIS FASHION?

A. Based on a review of the documents, interviews with key Xcel Energy personnel, and the testimony of other Company witnesses, it is clear that the original design of the Monticello LCM/EPU Program was not fully

developed at the time the initial $320-346 million cost estimate was established. The estimate subsequently changed as more detailed engineering design was performed, and the resultant procurement and implementation costs were better known. The development of a complete design for a program of this magnitude would have taken years and cost many millions of dollars, and if Xcel Energy had waited for the design to be complete, the LCM/EPU Program would not have met Xcel Energy's needs according to the forecasted demand in its resource plan. Mr. O'Connor's Rebuttal Testimony provides an analysis of the cost and timing impact that could be expected if Xcel Energy had chosen to fully complete the design work prior to commencing implementation. This path would have led to a multi-year delay.

Q. WOULDN'T IT HAVE BEEN BETTER IF XCEL ENERGY HAD COMPLETED MORE DESIGN WORK PRIOR TO COMMENCING IMPLEMENTATION?

A. Not if Xcel Energy wanted Monticello's increased generation to be part of the resource mix to meet projected customer requirements at the time. I note that in Xcel Energy's 2004 Resource Plan submitted to the Commission, Xcel Energy showed the need for several hundred additional megawatts of capacity in the 2011 to 2015 timeframe, which was at that time sufficiently near to cause concern over whether the additionally needed capacity could be added to the system that quickly. In its July 2006 order approving Xcel Energy's 2004 Resource Plan, the Commission stated:

> Baseload development requires extremely long planning horizons, and the certificate-of-need-like process for selecting new baseload acquisition adopted earlier in this case will be time- and labor-intensive. Since the need to keep the lights on ultimately trumps other interests, delays along the way favor unilateral action by Xcel, who, as the provider of last resort, must step in and build,

buy, or otherwise secure the generating capacity required to fulfill its duty to serve. (Emphasis added.)

Significantly, all of this took place during a volatile natural gas price environment. For example, in early 2005, gas prices were under $6[5] per MMBTU. In September 2005, Hurricanes Katrina and Rita helped to cause a spike in gas prices to an average high near $10[6] per MMBTU. After stabilizing near $8[7] per MMBTU in late 2006 and 2007, the 2008 hurricane season helped to cause another spike in prices to an average of nearly $12[8] per MMBTU. The sooner the benefits of the LCM/EPU Program could be delivered the better off customers would be. The horizontal drilling and fracking revolution that materially lowered natural gas prices was not known when Xcel Energy was making decisions and should not be considered as part of the prudence analysis. As a result, in my professional opinion, it was reasonable and prudent for Xcel Energy to proceed with the LCM/EPU Program based on preliminary estimates and prior to the creation of a complete design, and to proceed on parallel paths to meet the need date for baseload capacity.

In addition, it has been my experience that major capital projects in the nuclear power industry often proceed to implementation with only preliminary designs completed. In light of the evolving Nuclear Regulatory Commission ("NRC") regulations and the complexities of working inside an operating nuclear plant, it is very difficult to complete reliable, detailed designs ahead of time. Thus, the concurrent permitting, design, and

[5] Average NYMEDX 12 Month Strip Prices for Natural Gas.
[6] Ibid.
[7] Ibid.
[8] Ibid.

implementation (i.e., construction) planning approach Xcel Energy took was consistent with many other utilities' experience. In my experience, design for nuclear plant modifications follows very prescriptive processes and often occurs very close in time to when the work is to be performed.

1. Concurrent Activities

Q. CAN YOU DESCRIBE THIS PROCESS OF CONCURRENT PERMITTING, DESIGN, AND CONSTRUCTION PLANNING?

A. In construction, this approach is a process in which permitting, design, procurement, and construction activities are performed simultaneously, instead of in series, in order to achieve completion of the entire project in the least amount of time. Follow-on activities typically begin before the predecessor activity is finished. For example, on a project using this approach, an owner outlines the general criteria for the project to the designer. The designer then prepares, to varying levels of completeness, basic design documents and drawings. These incomplete design documents are then used by contractors to estimate the construction costs and are used in the development of a bid. The owner enters into a contract with the contractor to build the project based on the incomplete design. The contractor then starts construction of certain activities as soon as possible, despite not necessarily having a complete design for the entire project.

Q. IS THE CONCURRENT DESIGN AND CONSTRUCTION PATH COMMON FOR TIME-SENSITIVE PROJECTS?

A. Yes, and particularly in the nuclear power industry. Xcel Energy undertook a concurrent permitting, design and construction planning process that is not uncommon in construction, especially nuclear and other power

projects. The concurrent permitting, design and construction planning process allows a time-sensitive project to move forward promptly while final details are developed. This process has the advantage of allowing projects to move forward on parallel tracks. However, this process also injects an element of cost-uncertainty since the final design and estimated costs, based on the final design, have not been fully established at the outset. In order to meet the needs of Xcel Energy's forecasted demand in the required timeframe, the concurrent design and construction planning approach was a reasonable choice.

2. Risks

Q. DOES THIS CONCURRENT IMPLEMENTATION PROCESS CREATE COST RISK FOR THE OWNER?

A. Yes. There are at least two elements of cost risk that this approach creates.

First, under this approach, early spending is generally seen to entail more risk in the sense that proceeding prior to obtaining permits and detailed designs presents the possibility that that the project could fail and some amount of the costs could be stranded. In my experience, owners will make the choice of investing capital with more risk in circumstances (like the present case) where the owner has a reasonable expectation that the project will be successful, and the projected benefits of the project are sufficient to justify investing capital.

In this instance, Xcel Energy's choice in 2006 to 2008 to spend capital was reasonable and consistent with Xcel Energy's stated goal of delivering capacity to meet the needs of its customers, as required by the Commission.

I acknowledge that it is certainly possible that Xcel Energy could have taken a more conservative approach and chosen not to spend significant money prior to obtaining required regulatory permits. It appears that Mr. Crisp is of the view that Xcel Energy should have done so in this instance.

A more conservative although counterproductive approach would have been possible, but it would not have resulted in meeting the goal of matching new generation with the need that had been identified at the time. Mr. O'Connor's Rebuttal Testimony also outlines how this path would have looked and, again, it would have resulted in a multi-year delay.

In addition, utilities tend to be conservative organizations that do not prefer to spend money without reasonable assurances that the money will be recoverable through their rate structure. By proceeding with LCM/EPU Program development prior to receiving all necessary regulatory permits, there was some risk of being second-guessed if Xcel Energy had expended significant capital only to have its major permits denied. Therefore between 2006 and 2008, Xcel Energy certainly could have justified deciding not to proceed without first obtaining all of the permits. However, that would not have resulted in the LCM/EPU Program succeeding in the timeframes at issue at the time.

Q. WHAT IS THE SECOND ELEMENT OF COST UNCERTAINTY YOU IDENTIFY?

A. When a project proceeds with concurrent permitting, design, and construction planning, the ability to develop a detailed accurate cost estimate often suffers, largely due to design not being fully developed. This was the case for the LCM/EPU Program. There is nothing inherently

wrong with design not being fully developed and the decision to proceed with preliminary and summary-level design work can be supported by a number of factors.

C. Starting Point Estimate

Q. WHILE ULTIMATELY INACCURATE, DO YOU BELIEVE THE ORIGINAL $320-346 MILLION ESTIMATE WAS REASONABLE AT THE TIME?

A. Yes. The original cost estimate for the Monticello LCM/EPU Program in 2008 was $320-346 million and was based on the preliminary scope of work that was known at the time. Further, Xcel Energy relied on the scope and cost estimate developed by General Electric ("GE"), Monticello's original designer, and an industry leader experienced in nuclear technology, licensing and uprate projects of this type. In my experience, it is reasonable and common for nuclear power operators to rely on experts like GE, which is especially true when the expert is the original designer. In my professional opinion, the $320-346 million original estimate was reasonable under the circumstances that existed at the time.

While Mr. Crisp offers some criticisms to the initial cost estimate, he does not offer an opinion on what the initial cost estimate should have been. Also, Mr. Crisp does not state that a different estimate in 2008 would have resulted in lower actual costs for the Project.

Q. IN YOUR OPINION, SHOULD XCEL ENERGY HAVE COME UP WITH A HIGHER STARTING POINT ESTIMATE THAN THE $320-346 MILLION RANGE UNDER THE CIRCUMSTANCES?

A. It would be difficult for me to comment on a specific higher number, although I do think it is fair to observe that Xcel Energy had access to information that, with the benefit of hindsight, could have supported a somewhat higher starting point estimate. However, determination of the prudence of a utility's decisions cannot be based on a hindsight approach.

Q. WHAT DO YOU MEAN?

A. I reviewed the 2011 EPU Cost History ("2011 Cost History") document that Mr. Crisp describes in his testimony. That document suggests that one Xcel Energy employee in 2006 thought the LCM/EPU Program would cost up to $362.5 million. That estimate exceeded the approved Company estimate at the time, but was also substantially lower than the actual costs incurred. Notably, Mr. Crisp does not suggest that had this slightly higher estimate been used at the beginning of the LCM/EPU Program, the final costs would have been lower. Mr. Crisp appears to recognize that the 2011 Cost History document did not accurately estimate the initial cost of the LCM/EPU Program.[9] In addition, it is my opinion that a higher estimate in the 2006 to 2008 time frame would not have impacted the final costs for the LCM/EPU Program.

[9] Crisp Direct at 24:23.

Q. DO YOU HAVE ANY OPINIONS REGARDING THE QUALITY OF THE ESTIMATED COSTS OF THE MONTICELLO LCM/EPU PROGRAM AS A RESULT OF THE RELICENSING AND UPGRADE HISTORY?

A. Yes. Given the tight time frame needed to deploy additional baseload generation, Xcel Energy did not have sufficient time to have GE fully design the then-identified modifications, develop a detailed scope of all the required modifications, and completely understand the complexity of the potential modifications to an operating nuclear plant. In essence, the timeframes involved required Xcel Energy to design and build the proposed LCM/EPU Program concurrently.

GE performed the feasibility study and then developed an initial estimate for the Monticello EPU Project as part of its May 2006 Cost Scoping Assessment. Both the feasibility study and the May 2006 Cost Scoping Assessment were budgetary-level estimates, as opposed to detailed estimates, based on information generic to the uprate process. The level of detail of the GE estimate was partially necessitated by the tight time-frame required to submit the Certificate of Need. The plan in the May 2006 Cost Scoping Assessment and carried into the Certificate of Need was that the installation phase of the LCM/EPU Program would be performed sequentially in two planned refueling outages, with the first outage occurring during the spring of 2009 and the second in the spring of 2011.

As discussed in Xcel Energy's response to the Department's Information Request Nos. 51 and 53 (in the Rebuttal Testimony of Mr. O'Connor at Exhibit __ (TJO-2), Schedule 17), the $320-346 million estimate was a high-level and good-faith estimate of the overall cost to complete the complex

LCM/EPU Program. Detailed engineering was subsequently completed through an iterative process as the modifications were developed and implemented throughout the six-year plus duration. It is both common and necessary to implement projects of this type through such an iterative process, and as a result it is not unusual for actual costs to vary substantially from initial estimates as the engineering is completed and the magnitude of the task becomes clearer.

Finally, earlier completed EPUs at other plants cost substantially less than the $320-346 million initial cost estimate for the Monticello LCM/EPU Program. Table 3 of Mr. O'Connor's Rebuttal Testimony provides data on the prior EPU projects that Xcel Energy used to benchmark the Monticello LCM/EPU Program. These benchmarked comparables are consistent with my experience in the nuclear industry and provided a reasonable basis for Xcel Energy to believe that the estimates it was receiving from GE were reasonable and reflective of prior projects.

In light of this information where prior initiatives at other plants were in the $50-150 million range, Xcel Energy's $320-346 million initial cost estimate appeared reasonable compared to the higher internal estimates at that time.

In other words, industry data at the time supported the reasonableness of the initial cost estimate. It should be noted that Xcel Energy included the LCM portion in the original cost estimate, which increased the overall costs when compared to other EPU-only projects. The initial cost estimate developed by Xcel Energy was reasonable.

Q. MR. CRISP TESTIFIED THAT "IT APPEARS AS EARLY AS 2006, EVEN BEFORE XCEL SUBMITTED THE CN WITH THE COMMISSION, THERE WERE SEVERE SIGNS OF SCHEDULE AND BUDGET IMPACTS. AT THAT TIME, THE SITE PROJECT GROUP RECOMMENDED $89.5 MILLION MORE FOR THE COST FOR THE PROJECT".[10] WHAT IS YOUR RESPONSE TO THAT TESTIMONY?

A. I disagree with Mr. Crisp's assessment. As discussed in Xcel Energy's response to the Department's Information Request No. 78(a) (in the Rebuttal Testimony of Mr. O'Connor at Exhibit ___ (TJO-2), Schedule 24), no one reduced the budget recommended by the Site Projects Group. Rather, the initial Nuclear Project Authorization ("NPA") set an initial high-level estimate of $274 million (2006$) for the subset of the LCM/EPU Program that was addressed in that initial authorization.

The $362.5 million figure cited by Mr. Crisp was the high-end of a range that was developed by an employee. Project leadership at the time brought forward the request for the $274 million based on the review of the entire situation, including the best cost data it had under the circumstance - the proposal it had received from GE. This cost estimate had been developed jointly by Xcel Energy and GE employees and was based upon their collective judgment of the extent of work that would be needed. In light of the benchmarked comparables described above, this was reasonable.

D. Implementation Schedule

Q. MR. CRISP TESTIFIED THAT XCEL ENERGY DESIRED "THE INSTALLATION TO OCCUR IN 2011, TWO YEARS EARLIER THAN RECOMMENDED BY THE

[10] Crisp Direct at 23:9-12.

MONTICELLO SITE PROJECTS GROUP, THUS REQUIRING A 'FAST TRACK APPROACH'".[11] WHAT IS YOUR RESPONSE TO THAT TESTIMONY?

A. I disagree with Mr. Crisp's testimony. There is nothing inherently wrong with the approach Xcel Energy took to develop the LCM/EPU Program given the need and timing requirements. Mr. Crisp is referencing a document prepared in 2011, five years after Xcel Energy reviewed the various designs and implementation options, and made a decision. In order to properly understand the decision process, and consistent with a prudence review, one would have to consider the time and environment in which the decision was actually being made, without employing the benefit of hindsight.

For example, Xcel Energy would have considered not only the cost and timing options, but the energy demand projection, natural gas cost projections, and capacity needs among others. Mr. Crisp ignores these important factors in making his criticisms. The 2011 Cost History simply suggested a different approach. Given the circumstances, it is my opinion that moving promptly to implement the LCM/EPU Program was a prudent decision to make under those circumstances.

Q. PLEASE DESCRIBE THE CIRCUMSTANCES THAT JUSTIFIED SELECTING THE 2009/11 IMPLEMENTATION SCHEDULE.

A. GE developed the first schedules for the Monticello LCM/EPU Program. GE was experienced with EPU projects for other utilities. GE's familiarity with the scope, timing and licensing requirements for other EPU projects put GE in a unique position with specific industry knowledge regarding

[11] Crisp Direct at 24:19.

how long the modifications would take. In addition, the NRC's approval time for EPU license amendment requests was averaging 15 months at that time and none had taken longer than 30 months when Xcel Energy submitted its EPU license amendment request.

Thus, Xcel Energy made the choice to move forward with implementation outages in 2009 and 2011 in order to satisfy the goal to meet the anticipated customer need. As the scope of the LCM/EPU Program was conceived in 2006, Xcel Energy reasonably believed that the work could be completed in two outages. Xcel Energy recognized at the time that implementation was time-sensitive.

Q. GIVEN THE UNIQUE REQUIREMENTS OF NUCLEAR CONSTRUCTION, WAS THE PLANNED LCM/EPU PROGRAM TIME FRAME REASONABLE?

A. Yes, although it may have also been reasonable to have gone with the longer schedule. Xcel Energy provides discussion of its decision-making process between the selected 2009/11 and the longer 2011/13 implementation schedules in its response to the Department's Information Request No. 41 (in the Rebuttal Testimony of Mr. O'Connor at Exhibit ___ (TJO-2), Schedule 20). Given that implementation extended into 2013, it is debatable whether in hindsight the longer schedule would have been preferable. However, it is not debatable that Xcel Energy's choice was reasonable at the time it was made and was explainable based on a reasonable assessment of the surrounding circumstances.

E. Pre-Approval Expenditures Assisted In Achieving Schedule

Q. WAS XCEL ENERGY'S APPROACH TO THE EARLY STAGES OF THE LCM/EPU PROGRAM UNUSUAL?

A. In some respects, particularly related to state approvals, yes. Xcel Energy chose to multi-track the LCM/EPU Program, and proceeded with the initial licensing, design, engineering and implementation phases prior to obtaining required State permits in order to meet the projected demand, achieve the full value of the projected energy savings, and optimize the life extension investments. Xcel Energy expended about $97 million prior to receipt of the Commission's Certificate of Need permit in early 2009.

Q. WHY IS IT UNUSUAL FOR A UTILITY TO UNDERTAKE SIGNIFICANT CAPITAL EXPENDITURES PRIOR TO OBTAINING REQUIRED STATE REGULATORY PERMITS?

A. As discussed earlier, proceeding in this fashion involves accepting some risk by balancing the likelihood of success against the potential that the permits are not received. Many utilities would refuse to take any risk in this regard and some would even allow a good capital opportunity to be lost rather than spend money without previously obtaining the permits.

While involving some risk, Xcel Energy's approach in this instance was reasonable and necessary under the circumstances. Expending these funds put Xcel Energy in the position of moving promptly to implementation, almost immediately upon receipt of the Commission's Certificate of Need. As Mr. O'Connor's Rebuttal Testimony mentions, this up-front capital expenditure allowed Xcel Energy to order long-lead-time components such as the new high-pressure turbine, as well as to design the initial set of

modifications for the 2009 outage. Failing to spend the money would have meant that the LCM/EPU Program would have been materially delayed and may have not proceeded at all.

F. Project Management Structure

Q. MR. CRISP TESTIFIED THAT THE FIRST STEP IN DEVELOPING THE SCOPE OF ANY PROJECT IS TO DEFINE THE FINAL OUTCOME. DO YOU AGREE WITH MR. CRISP'S TESTIMONY?

A. Yes, I agree that the definition of the final outcome is the first step in developing the scope of a project. However, I do not agree with Mr. Crisp's inference that this did not happen on the LCM/EPU Program.

Q. WAS THE PROJECT TEAM PUT IN PLACE IN A TIMELY FASHION?

A. Yes. The Project team was in place and the goals and desired outcome were defined at the outset. As described further in Xcel Energy's response to the Department's Information Request No. 48 (in the Rebuttal Testimony of Mr. O'Connor at Exhibit ___ (TJO-2), Schedule 26), the management of the LCM/EPU Program evolved over the course of the Project as it progressed through the study, design and implementation phases and as the complexity of the job increased. As I describe below, Xcel Energy adapted its practices to address those evolving circumstances.

1. Use of NMC

Q. PLEASE DESCRIBE THE INITIAL PROJECT MANAGEMENT STRUCTURE THAT WAS USED.

A. Xcel Energy began the necessary tasks of staffing a dedicated Project management team in 2006 and early 2007, while the LCM/EPU Program

was under the contract management of the Nuclear Management Company ("NMC"). NMC made the decision to rely on GE and other contractors for certain aspects of the LCM/EPU Program to maximize GE's EPU industry experience. In late 2007, an organizational chart for the LCM/EPU Program showed NMC having an overall Project Manager with support from an Engineering Liaison Manager, NMC Management and Fleet Support, Contract Support, Operations Liaison Manager, EPU Analyses and License Amendment Request Project Manager, and EPU Modification Project Manager, as examples. NMC dissolved in 2008 and the management functions were absorbed back into Xcel Energy. This change resulted in Xcel Energy creating a position of Vice President in charge of the LCM/EPU Program as well as the Chief Nuclear Officer position. This management structure is consistent with my experience at other utilities.

Q. IS IT YOUR OPINION THAT XCEL ENERGY HAD THE APPROPRIATE LEVEL OF PROJECT MANAGEMENT IN PLACE FROM THE BEGINNING OF THE LCM/EPU PROGRAM?

A. Yes. As outlined in Xcel Energy's response to Department Information Request No. 20 (in the Testimony of Ms. Campbell at Exhibit ___ (NAC), Schedule 4), the initial Project management structure was reasonable and in line with industry norms at the beginning of the LCM/EPU Program based on the plan for GE to design and manage a majority of the LCM/EPU Program.

Q. MR. CRISP OBSERVES THAT THE 2011 COST HISTORY RAISES CONCERNS ABOUT NOT USING PLANT PERSONNEL TO RUN THE LCM/EPU PROGRAM.[12] WHAT ARE YOUR OBSERVATIONS ABOUT THAT TESTIMONY?

A. It would be highly unusual for the owner of a sophisticated facility to redirect its day-to-day operational employees to spearhead a major rebuild of the facility. Those employees already have full-time responsibilities and an owner would typically not want to deal with the disruption caused by redirecting dedicated operational employees in the way suggested in the 2011 Cost History. It would be more typical for the owner to proceed in the way Xcel Energy did by picking a Project team, made up of specialists, who could focus on the Project and not be distracted by day-to-day operational issues.

NMC, the contract operator, was tasked with developing the Project team for this effort. When the LCM/EPU Program was conceived in 2006, NMC was the operator of eight nuclear units across five utilities. NMC had been engaged in license renewals and uprates on a number of the units under its operational control. As a result, Xcel Energy was entirely justified in relying upon NMC's expertise in this area in conjunction with GE. By using NMC project specialists, Xcel Energy was able to tap into NMC's much broader and deeper experience in the area of licensing and uprates. Drawing upon NMC's much broader experience and using it to Xcel Energy's best advantage was a much better approach under the circumstances than relying upon the Plant's operations personnel.

[12] Crisp Direct at 27.

2. Evolving Management Practices

Q. MR. CRISP CRITICIZES XCEL ENERGY FOR CHANGING ITS MANAGEMENT PRACTICES ALONG THE WAY. HOW DO YOU RESPOND?

A. I have mentioned previously that I believe evolving management practices to meet the particular circumstances encountered are a sign of strong management oversight, not weak management. My review of the circumstances of this situation confirms that Xcel Energy retained an appropriate level of management control and that it adapted its processes appropriately when the need arose.

Q. PLEASE PROVIDE A HIGH-LEVEL DISCUSSION OF THAT EVOLUTION AND WHY YOU THINK IT WAS REASONABLE IN LIGHT OF MR. CRISP'S CRITICISMS.

A. Xcel Energy began the LCM/EPU Program by overseeing the efforts of NMC, its chief design engineer, GE, and its chief installation contractor, Day Zimmerman. During the initial phases of design and through the first implementation outage in 2009, Xcel Energy managed the LCM/EPU Program as planned.

As the complexity of the modifications grew, additional Xcel Energy resources and additional personnel were added to the Project management team. The Xcel Energy project management team noted issues within its outside design vendor GE and GE's subcontractor Stone & Webster and hired additional outside engineering vendors as needed. These are all normal and reasonable reactions to an increasingly complex project.

Based on the progress related to the 2009 outage and experience with Day Zimmerman, Xcel Energy retained the same (albeit larger) management

structure for the 2011 refueling outage. While the outage was ultimately successful in that a number of important systems were implemented, the complexity of the design and installation, and various issues with Company vendors in early 2011 created significant Project management challenges. At the conclusion of the 2011 refueling outage, Xcel Energy executive management appropriately examined the outage implementation to assess what went well, as well as areas for improvement.

This type of assessment, frequently referred to as "lessons learned," is very much a part of the culture of nuclear organizations that continually review performance and try to improve on the results achieved. At the end of the 2011 outage, Xcel Energy recognized that the third implementation outage would be even more complex and difficult. As a result, Xcel Energy determined, again following prudent practices, that it was appropriate to reassess the Project management structure and the types of Project controls that were in place. This change in Project management structure is another example of prudent management at Xcel Energy of the LCM/EPU Program.

Q. EVEN IF XCEL ENERGY WAS NOT IMPRUDENT, IS IT FAIR TO SAY YOU BELIEVE THAT SOME OF THESE CHANGES CONTRIBUTED TO COST INCREASES?

A. Yes. To some degree, even if you had perfect performance by contractors, there may be a need for changes to address unforeseen complications or even to bring in a specialist to address a new issue. And when performance is less than desirable, changing contractors is a means to improve performance.

I am familiar with very few construction projects of a magnitude like this one, where contractor performance was perfect. There is a normal level of disruptive events that occur on most projects of this magnitude and certainly areas offering the potential for improvement. Such occurrences are hardly evidence of imprudence. I did not identify any disruptive events on the LCM/EPU Program that were of a different order of magnitude than one would expect in other comparable large and complex projects.

Q. MR. CRISP TESTIFIED THAT IF XCEL ENERGY HAD FOLLOWED THE POLICY OUTLINED IN THE "CONFIGURATION MANAGEMENT" DOCUMENT IT COULD HAVE PREVENTED OR MINIMIZED MANY OF THE PROJECT MANAGEMENT ISSUES THAT PLAGUED THE LCM/EPU PROGRAM.[13] WHAT IS YOUR RESPONSE TO THAT TESTIMONY?

A. Mr. Crisp does not state that following the policy outlined in the "configuration management" document would have lessened costs. This is significant in that Mr. Crisp's criticisms merely point out that alternative mechanisms can be used to deploy a major project.

I disagree with Mr. Crisp's assertion that Xcel Energy did not follow the policy as outlined in the "configuration management" document. The LCM/EPU Program was not plagued by Project management issues. The costs incurred on the LCM/EPU Program were not avoidable and were primarily due to increases in scope of work associated with the modifications, the tight footprint of Monticello and other issues affecting the LCM/EPU Program and the nuclear industry. While project management can assist in managing scope growth and difficult installations,

[13] Crisp Direct at 30:15-19.

it does not prevent them from occurring. In the end, project management can assist in understanding and managing the costs being incurred, but, particularly in a Project like this, will generally not materially lessen the costs incurred.

Q. DO YOU HAVE ANY SUPPORT FOR THIS ASSERTION?

A. Yes. Based on Mr. Crisp's testimony, I understood him to think that the events and project management around the 2011 outage were particularly challenging. He appears to acknowledge that Project management performance improved for the final 2013 outage. One way to analyze whether the Project management improved from the 2011 outage to the 2013 outage would be to look at each outage's budgeted costs in comparison to the actual costs incurred. I understand such an analysis was undertaken in Mr. O'Connor's Rebuttal Testimony.

Q. WHAT IS YOUR CONCLUSION REGARDING THE PROJECT MANAGEMENT XCEL ENERGY UTILIZED?

A. The Project management utilized by Xcel Energy was appropriate. In my opinion, the LCM/EPU Program was not perfectly planned and executed, but Xcel Energy's decisions were hardly imprudent. In addition, the implementation of the lessons learned from different outages is a prudent practice in the nuclear industry as well as other industries.

III. EARLY ESTIMATE ISSUES

Q. BEYOND HIS GENERAL CRITICISMS COVERED EARLIER IN YOUR TESTIMONY, MR. CRISP RAISES A NUMBER OF SPECIFIC ISSUES THAT HE SAYS COULD HAVE PROVIDED FOR BETTER DESIGNS EARLIER IN THE PROCESS. WHAT ISSUES DO YOU COVER IN THIS SECTION OF YOUR TESTIMONY?

A. I cover the following topics in this section.

- The use and availability of as-built drawings to support the design effort;
- Recognition of "controlling factors" that affected implementation;
- Installation cost increases; and
- The foreseeability and cost of the 13.8 kV Distribution System.

A. As-Built Drawings

Q. MR. CRISP TESTIFIED THAT XCEL ENERGY SHOULD HAVE USED AS-BUILTS FROM THE 1998 UPRATE AS THE STARTING POINT TO SCOPE THE LCM/EPU PROGRAM AND CREATE ACCURATE COST ESTIMATES.[14] WHAT IS YOUR RESPONSE TO THAT TESTIMONY?

A. Mr. O'Connor's Rebuttal Testimony discusses how the 1996/8 Rerate was an analytical exercise and required only modest changes to Plant components. As a result, there was no need for Monticello's existing as-built drawings to be updated during that effort.

Mr. O'Connor's Rebuttal Testimony also states that there were no as-builts available to use for the majority of the systems associated with the LCM/EPU Program. In fact, some of the drawings available to Xcel

[14] Crisp Direct at 5:20-28.

Energy for the balance of plant work associated with the LCM/EPU Program were not updated to reflect current as-built conditions. Monticello is a 1970's vintage plant. Nuclear plants built in that era were not designed with major future construction projects planned, such as a project to extend the licensed life in mind. The non-nuclear side of the plant was thought to last 40 years and then be shut down. Thus it was not thought necessary to develop detailed as-built drawings of all of those systems.

I understand that Xcel Energy now has initiatives ongoing to update drawings as new projects are completed. However, this initiative would not have provided any new information from the 1996/8 Rerate since there was virtually no construction at that time and thus little need to update drawings.

B. Controlling Factors

Q. MR. CRISP TESTIFIED THAT COMPANY PROJECT MANAGEMENT FAILED IN THAT IT DID NOT RECOGNIZE "CONTROLLING FACTORS" EARLIER.[15] WHAT IS YOUR RESPONSE TO THAT TESTIMONY?

A. Design changes and actual field conditions did in fact cause increased costs for Xcel Energy. Because Monticello is an operating nuclear facility, many existing conditions, including interferences of other equipment and piping, as well as the condition of existing equipment, piping and wiring, could not be fully determined until the Plant was shut down and various systems inspected through a series of walk downs. As Mr. O'Connor's Rebuttal Testimony noted, and consistent with my experience, nuclear power plants only produce electricity when operating, so utility companies like Xcel

[15] Crisp Direct at 17:7-11.

Energy, generally try to perform maintenance and capital additions during periodic refueling outages, which occur approximately every 18 to 24 months at Monticello.

Therefore, there was limited opportunity to walk down and inspect every system and field condition at the outset of the LCM/EPU Program. The costs associated with the increased scope, additional system modifications, and replacement of existing, degraded systems, as-found conditions, confined work spaces, and equipment all contributed to the final costs. My review of the documents and interviews of Company personnel did not reveal any costs that could have been avoided based on the real-time decisions that were made by Xcel Energy. In addition, Xcel Energy took steps and had processes in place to complete the periodic refueling outages in a reasonable time along with the LCM/EPU Program work.

Mr. Crisp mentions interferences could have been investigated earlier so as to create more accurate cost estimates, however, that presumes design had advanced to a level sufficient to assess interferences. Because design was not completed when the LCM/EPU Program estimates were developed, interferences could not be determined. The "controlling factors" Mr. Crisp references were addressed in the 30/60/90/100 percent design review process. For instance, 30 percent design completion on the Feedwater Heaters modification occurred during June 2009 and continued to develop from that point.

In my opinion it is not feasible to discover all of the "controlling factors" earlier in time because design needs to progress to a sufficiently detailed

stage from which the team compares the design to existing plant conditions and, then make assessments about interferences. The 30/60/90/100 percent design review process, which is used throughout the industry for a project of this type, was the overall design and engineering process for modifications at Monticello or Prairie Island as discussed in the Rebuttal Testimony of Mr. O'Connor at Exhibit ___ (TJO-2), Schedule 22. Using this previously successful process was appropriate given the parallel and expedient nature of the LCM/EPU Program.

C. Installation Costs

Q. MR. CRISP CRITICIZES XCEL ENERGY FOR THE COST INCREASES FOR INSTALLATION.[16] HOW DO YOU RESPOND TO THAT TESTIMONY?

A. It is not appropriate to compare the installation estimate of $27.5 million to the nearly $290 million incurred on installation. Mr. Crisp refers to Mr. O'Connor's Direct Testimony but failed to include pertinent facts regarding the initial estimate. The $27.5 million estimate was only a partial scope as some of the implementation costs were built into Xcel Energy's LCM and EPU costs. Also, the $27.5 million estimate was just a budgetary estimate provided by GE. It was not intended to cover the final, installed scope for the LCM/EPU Program. For example, the proposal did not anticipate the 13.8 kV Distribution System.

Q. IS THERE ANOTHER REASON FOR THE COST INCREASES INCURRED ON INSTALLATION COSTS?

A. Yes. Another factor that contributed to the increased installation costs was the field changes that were experienced on the LCM/EPU Program. As

[16] Crisp Direct at 16:2-3.

discussed in Mr. O'Connor's Rebuttal Testimony, Xcel Energy estimates the total costs associated with the field changes on the Program to be in the range of $25 million to $30 million.[17]

D. 13.8 kV Distribution System Issues

Q. WHAT IS YOUR UNDERSTANDING OF THE POSITION MR. CRISP TOOK REGARDING XCEL ENERGY'S PLAN TO INSTALL THE 13.8 KV DISTRIBUTION SYSTEM?

A. I understand that Mr. Crisp stated that different Project management by Xcel Energy would have anticipated the need to install a 13.8 kV Distribution System during the planning phase of the Program.[18]

Q. DO YOU KNOW HOW MR. CRISP CAME TO HIS CONCLUSION THAT DIFFERENT PROJECT MANAGEMENT WOULD HAVE ANTICIPATED THE NEED TO INSTALL THE 13.8 KV DISTRIBUTION SYSTEM EARLIER?

A. I do not. He did not elaborate in any detail on the basis for his conclusion.

Q. WHAT ARE YOUR THOUGHTS?

A. It is clear that Xcel Energy did anticipate the need for the 13.8 kv Distribution System. Documents I reviewed show that at least by 2001, Xcel Energy had identified the need for additional breakers on the internal electrical distribution system. Xcel Energy's internal presentations pertaining to seeking a renewed operating license from the NRC similarly identify this need. While the 13.8 kV configuration was not finally decided upon until 2007, Xcel Energy clearly had identified the electrical

[17] *See also* Xcel Energy's response to the Department's Information Request No. 28 (in the Rebuttal Testimony of Mr. O'Connor at Exhibit __ (TJO-2), Schedule 27).
[18] Crisp Direct at 11:1-6.

distribution system as an important plant component that needed to be addressed for the long-term viability of the Plant. Finally, when Xcel Energy made its EPU filing with the NRC in 2008, Xcel Energy specifically identified the 13.8 kV Distribution System as a component that was needed primarily for LCM purposes.

I see no basis for Mr. Crisp to assume that different Project management structures would have altered this design choice and the evolution of the issue over the years. I would add that assessing the need for an upgraded electrical distribution system and determining the best way to meet that need is a function of engineering and design, overseen by project management. As best I can understand Mr. Crisp's testimony, he does not challenge the need for the 13.8 kV Distribution System or its design and to the extent he does, he provides no basis for explaining what alternative would have been preferable.

Q. DO YOU AGREE WITH MR. CRISP'S POSITION THAT DIFFERENT PROJECT MANAGEMENT WOULD HAVE ANTICIPATED THE NEED TO INSTALL THE 13.8 KV DISTRIBUTION SYSTEM EARLIER?[19]

A. No. I analyzed the development and cost growth of the 13.8 kV Distribution System and found its cost growth was not attributable to alleged poor Project management. In contrast to Mr. Crisp's assertion, my review indicated that Xcel Energy appropriately assessed the need for the upgraded electrical distribution system, and only upon realization of the scope of the additional equipment's electrical requirements that would

[19] Crisp Direct at 11.:1-6

ultimately be required for the LCM/EPU Program, made the decision to upgrade to the 13.8 kV Distribution System.

Q. PLEASE ELABORATE.

A. GE contemplated replacing the existing 4 kV Electrical Breakers in the 2006 Final Monticello Nuclear Generating Plant ("MNGP") Extended Power Uprate Cost Scoping Assessment. However, GE did not anticipate upgrading the existing 4 kV Distribution System in some aspects.

The originally-installed Monticello electrical distribution system was a 4 kV distribution system, which included six 4 kV buses. As the LCM/EPU Program design was developed, upgraded electrical equipment such as larger Feedwater and Condensate motors were added to the systems. My understanding is that the upgraded equipment, including the larger motors, required more power than the existing 4 kV Distribution System could provide. As discussed in Xcel Energy's response to Department Information Request No. 83 (in the Rebuttal Testimony of Mr. O'Connor at Exhibit ___ (TJO-2), Schedule 35), the 4 kV Distribution System was no longer adequate to support operations and created risk of trips.

After the GE contract was signed at the end of 2006 and a more detailed analysis of the requirements for the Monticello LCM/EPU Program was being developed, two "Electrical Summit" meetings were held in 2007 and 2008 to define the scope of the electrical distribution system and determine what modifications to the existing 4 kV Distribution System were required. Per Mr. O'Connor's Direct Testimony, Xcel Energy performed a cost/benefit analysis that concluded that an upgrade of the existing 4 kV

Distribution System was approximately the same cost as installation of a new 13.8 kV Distribution System. Based on this analysis, the decision to install a new 13.8 kV Distribution System was reasonable. Ultimately, a 13.8 kV Distribution System was installed to replace two of the existing six 4 kV buses.

After the initial Program planning was performed, the 13.8 kV Distribution System NPA cost estimate was updated in 2009, and estimated the total cost for the modification to be $33.1 million. The increase from the original cost estimate incorporated the then-anticipated costs to complete the full modification including required hardware purchases, additional GE costs, phase 3 design work, installation and testing of the new system, accounting for required Recirculation System Motor-Generator upgrades and refurbishments to allow for continued Plant operation, and contingency costs. In 2009, the scope of the 13.8 kV Distribution System consisted of six Engineering Changes ("ECs"). As the design and engineering progressed, the EC packages were further refined in 2011 as two ECs were removed and additional ECs were added.

By July 2011, the cost of the 13.8 kV Distribution System modification had increased to $82.0 million. As identified in contemporaneous Xcel Energy documents, the main reasons for the additional cost increases were design conflicts related to the size of the switchgear and the available space for installation and the impact of design finalization of various components, which required additional modifications to the original 4 kV Distribution System in order to support the 13.8 kV Distribution System and increased safety margin.

On December 14, 2012, Bechtel, who Xcel Energy retained to be the 2013 contractor for all design, planning and implementation of its nuclear fleet, submitted a revised proposal to complete the 13.8 kV Distribution System installation. Based on a detailed walk down of the Plant by Bechtel's subcontractors, including Collins Electric, the cost to perform the installation increased significantly ($25.7 million) due to an increase in the estimated craft hours needed to install the complex equipment.

Q. WHAT IS YOUR CONCLUSION REGARDING THE 13.8 KV DISTRIBUTION SYSTEM?

A. A different Project management process would not have anticipated the 13.8 kV Distribution System earlier than the approach Xcel Energy used. If Xcel Energy had perhaps delayed the creation of the initial cost estimate, it is possible that the ultimate need for, as well as a more accurate cost estimate of the 13.8 kV Distribution System, could have been created but again, that does not mean the actual cost incurred for this modification would have been any lower.

IV. PROJECT IMPLEMENTATION

Q. MR. CRISP GOES THROUGH A SERIES OF CONCERNS GENERALLY RELATING TO XCEL ENERGY'S IMPLEMENTATION OF THE LCM/EPU PROGRAM. PLEASE IDENTIFY WHICH ISSUES ARE COVERED IN THIS SECTION OF YOUR REBUTTAL TESTIMONY.

A. In this section of my testimony, I cover the following:

- Project Coordination;
- Impact of "Starts and Stops";

- Single Integrated Project;
- Use of Budget Contingencies; and
- Overall Impact of Project Management on Costs

A. Project Coordination Was Not Lacking

Q. WHAT IS YOUR UNDERSTANDING OF MR. CRISP'S POSITION ON XCEL ENERGY'S PROJECT COORDINATION?

A. Mr. Crisp implies that the Project coordination of Xcel Energy for the LCM/EPU Program was lacking. While his testimony is generally non-specific and does not draw particular conclusions about any of Xcel Energy's actions or decisions, his criticisms appear to assume that Xcel Energy did not follow the types of practices he endorses. I disagree with Mr. Crisp's approach and reliance on non-specific generalities. I further disagree with him to the extent that he intends to suggest that Xcel Energy's practices were, in fact, deficient.

Specifically, Mr. Crisp stated, "It is also essential in a well-managed and executed Project Management Plan that the initial design and the construction functions have a solid connection between the two functions…the level of communications between the design sub-Team and the construction sub-Team is much more important in a retrofit project, such as the Monticello uprate…"[20]

Q. WHAT IS YOUR RESPONSE TO MR. CRISP'S STATEMENTS?

A. I agree with Mr. Crisp's general theory. However, to the extent that he is implying that this approach was not followed by Xcel Energy, I disagree

[20] Crisp Direct at 16-17.

with him. The connection between design and construction at the appropriate time is evidenced by meeting minutes between design and implementation teams and further confirmed through my discussions with Company personnel.

Q. DOES MR. CRISP POINT TO SPECIFIC EXAMPLES WHERE DESIGN AND CONSTRUCTION WERE NOT CONNECTED?

A. No. Mr. Crisp did not provide any examples where design and construction were not connected. Further, in the response to Xcel Energy's Information Request No. 7 (in the Rebuttal Testimony of Mr. O'Connor at Exhibit ___ (TJO-2), Schedule 15), Mr. Crisp stated that he did not reference any specific LCM/EPU Program designs that were "fully functional" on paper but that could not be "physically built."

Q. WHAT IS YOUR CONCLUSION REGARDING XCEL ENERGY'S PROJECT COORDINATION?

A. Xcel Energy's Project coordination for the LCM/EPU Program was reasonable under the circumstances, and suffered from problems to no greater degree than I would have expected with a project of this size and complexity. The 2011 Cost History suggests some tension between the site and project teams, but I view this as part of the iterative design process that tried to balance needs of the operators and designers. Monticello site staff have to keep the Plant running but can be greatly impacted by LCM/EPU Program level decisions. My overall assessment is that the site and the LCM/EPU Program teams stood firm on several key decisions and while these may have contributed to cost increases, that was appropriate under the circumstances. Examples of these issues include:

- The final Reactor Feed Pumps and Motors modification greatly benefited plant operators by avoiding complex procedure changes necessitated by the third supplemental feed pump;
- Automating the Condensate Demineralizer improved operator function and reduced operator interface by automating the system; and
- New digital controls greatly assisted the plant and increased efficiency and reliability in operations.

B. Impact of "Stops and Starts"

1. General Concerns

Q. MR. CRISP STATED THAT DELAYS CAUSED BY CONTRACTOR CHANGES COST CONSIDERABLE DOLLARS AND COULD HAVE BEEN MITIGATED WITH PROPER COMPANY OVERSIGHT AND PROJECT MANAGEMENT CONTROLS.[21] HOW DO YOU RESPOND TO THAT TESTIMONY?

A. This is another generality that Mr. Crisp does not support. First, I am not certain about what delays caused by contractor changes Mr. Crisp is referencing.

Second, it is true that Xcel Energy did not hire GE to be its installation contractor. As described above, Xcel Energy retained GE as its designer, not the installation contractor. When it came time to select a contractor to install the initial modifications for the 2009 outage, Xcel Energy conducted a Request For Proposals ("RFP") process. GE and Day Zimmerman participated in that process, and Xcel Energy selected Day Zimmerman based on the criteria of the RFP. I note that Bechtel did not bid in the

[21] Crisp Direct at 22:8-11.

initial installation vendor selection process, even though a bid was solicited from them. Thus, Xcel Energy had no opportunity to hire Bechtel for the LCM/EPU Program at that time.

Third, Mr. Crisp's characterization of the timing of contractor changes is incorrect and misleading. GE was never replaced by Day Zimmerman as Day Zimmerman was an installation contractor and GE was the lead designer. GE remained involved in the LCM/EPU Program until its completion. During 2010, the only changes made to any contractors were the hiring of additional designers to assist with increased scope or incomplete design, which were necessary to support the 2011 outage. GE would have been paid additional amounts to complete the increased scope work had the other designers not been hired. Xcel Energy actually saved costs by hiring these additional design firms directly, rather than through GE. Further, Day Zimmerman completed its scope of work during the 2011 outage. Bechtel was not hired as the LCM/EPU Program manager until after the 2011 outage. Bechtel was hired to prepare for an outage two years in the future. None of these changes in contractors created any "starts and stops" to the LCM/EPU Program. All of these decisions were made for valid reasons that existed at the time and are indications of Xcel Energy's proactive management of the situation.

2. Specific Decisions

Q. LOOKING MORE SPECIFICALLY AT PROGRAM DECISIONS, PLEASE PROVIDE A HISTORY OR OVERVIEW OF THE MAIN CONTRACTORS ON THE LCM/EPU PROGRAM.

A. From 2004 through 2006, Xcel Energy worked with GE to develop its contracts and the initial conceptual scope of the LCM/EPU Program. The GE contract did not include any commitment by GE to act as installation contractor, and Xcel Energy always contemplated awarding the installation contract through a competitive RFP process.

Once formal design contracts were in place in late 2006, as is common in the industry, GE was responsible for completing its defined scope of work in a quality manner to support the implementation of the LCM/EPU Program. GE was also the original designer of Monticello and holds propriety rights to aspects of the design basis at the Plant, and it was most efficient to use their prior knowledge and experience for this work. It was reasonable and prudent to choose GE for engineering and design work.

Q. DID XCEL ENERGY'S DECISION TO HIRE DAY ZIMMERMAN AS INITIAL LEAD INSTALLATION CONTRACTOR CAUSE A "START AND STOP" AS IMPLIED BY MR. CRISP?[22]

A. No. Xcel Energy had previous experience with Day Zimmerman and they submitted the successful bid for the 2009 installation work. In mid-2007, Xcel Energy issued an RFP for the installation portion of the LCM/EPU Program. Two proposals were received. Xcel Energy performed a qualitative and quantitative analysis of the proposals, which resulted in the

[22] Crisp Direct at 20:7-21.

award of the contract to Day Zimmerman. Xcel Energy's use of the RFP process and subsequent analysis of the responses is an example of a good Project management process.

Q. DID XCEL ENERGY MAKE "STARTS AND STOPS" IN 2010 AS SUGGESTED BY MR. CRISP?[23]

A. No. The 2009 outage went mostly according to plan and Day Zimmermann was selected to continue its role for the 2011 refueling outage. GE and its design subcontractor did have some design work issues, and I understand Xcel Energy stepped in appropriately to address those. Mr. O'Connor's Rebuttal Testimony covers this issue in greater detail.

From my perspective, it is sufficient to observe that it is sound and proactive project management for the owner to step in and replace contractors whose performance is ultimately determined to be less than what was anticipated. While this could create a "start and stop" situation, the approach implemented by Xcel Energy ensured it did not.

As discussed in Xcel Energy's response to Department Information Request No. 80 (in the Rebuttal Testimony of Mr. O'Connor at Exhibit ___ (TJO-2), Schedule 24), the issues faced by the various contractors would not have been avoided by selecting other contractors as many of the vendors in the nuclear industry had been experiencing similar challenges.

[23] Crisp Direct at 20:7-21.

Q. DO YOU BELIEVE THE CHANGE FROM DAY ZIMMERMAN TO BECHTEL AS LEAD INSTALLATION CONTRACTOR FOR THE 2013 OUTAGE INCREASED COST?

A. Based on my review and observation, I do not believe that bringing Bechtel in raised costs. Mr. Crisp generally testified that the switch between contractors "cost considerable dollars"[24] but did not quantify that amount or point to any quantifiable cost attributable to this switch. Nor does Mr. Crisp attempt to address Xcel Energy's position that replacing contractors is often more efficient, and that it is prudent project management practice to assess which contractor will provide the best overall value, especially as significant aspects of a project change. I would agree that there are some initial up-front costs to transfer the project. However, Mr. Crisp simply ignores that changing contractors or vendors may actually save money in the long run by redirecting resources to targeted contractors or vendors who may perform better. Most significantly, Mr. Crisp did not testify that Xcel Energy should not have changed contractors, nor did he allege that the contractor change under the specific circumstances actually encountered on the LCM/EPU Program was somehow unreasonable or imprudent.

Q. WAS IT A REASONABLE CHOICE TO PICK BECHTEL TO COMPLETE THE 2013 INSTALLATIONS?

A. Yes. It was reasonable and prudent for Xcel Energy to hire Bechtel due to the size and sophistication of Bechtel and its vast nuclear experience. In the May 16, 2011 edition of ENR magazine, Bechtel was named as the number one contractor in the power industry. Per Bechtel's website, Bechtel has designed and/or built more than half of the nuclear power

[24] Crisp Direct at 22:10.

plants in the United States, and provided operating services to many of those plants.

I would also note, however, that despite Bechtel's significant nuclear experience, Florida Power & Light, which used Bechtel on the St. Lucie and Turkey Point uprate projects, experienced significant cost growth on those uprates. My review indicated that the Florida Public Utility Commission determined all the costs associated with the uprate projects were prudent.

Q. COULD XCEL ENERGY HAVE AVOIDED INCURRING COST INCREASES IN THE 2013 OUTAGE?

A. Yes, but only by not doing the work, which would have required that Xcel Energy not complete the LCM/EPU Program. However, there is no support from Mr. Crisp or Dr. Jacobs that the work was not needed for another 20 years of Monticello operation.

Q. MR. CRISP CONCLUDED THAT HIRING ANOTHER CONTRACTOR REQUIRED "CONSIDERABLE TIME TO REASSESS AND ANALYZE THE POSITION IT FACES AS IT TAKES OVER FROM THE PREVIOUS CONTRACTOR".[25] DO YOU HAVE AN OPINION ABOUT THIS STATEMENT?

A. Yes. Mr. Crisp is silent on the fact that Day Zimmerman remained on the job as the primary subcontractor to Bechtel for the mechanical-related work for the 2013 outage. Keeping Day Zimmerman on the job was a very logical and reasonable management choice to retain the benefit of Day Zimmerman's background and knowledge with Monticello while simultaneously capturing the benefit of Bechtel's extensive capabilities.

[25] Crisp Direct at 22:3-4.

Mr. Crisp also does not mention that Collins, Bechtel's electrical subcontractor, had been the electrical subcontractor for Day Zimmerman during the 2011 outage. Therefore, Mr. Crisp's conclusion about the amount of work Bechtel needed to reassess is not supported by the facts.

Q. PLEASE DESCRIBE WHY YOU CONCLUDE BRINGING BECHTEL IN DID NOT COST EXTRA MONEY IN THE FORM OF TRANSITION COSTS AS MR. CRISP ASSERTS.

A. As the difficult 2011 outage played out, Xcel Energy decided to approach Bechtel about broadening the scope of its retention to become the installation contractor for the next scheduled refueling outage in 2013. Hiring Bechtel did not cause any work to be pushed from the 2013 outage into the 2015 outage. Nor does it appear to have increased the cost of the 2013 outage from what it otherwise would have been. While it is correct that some up-front money was paid to Bechtel to become familiar with the LCM/EPU Program, this expenditure was anticipated to be recovered through avoiding certain cost increases related to the 2013 outage. For example, Xcel Energy felt that the continued use of Day Zimmerman would significantly increase the installation costs in the 2013 outage.

Q. DID XCEL ENERGY TAKE STEPS TO MITIGATE TRANSITION COSTS?

A. Yes. To ensure continuity and to capture the benefits of Day Zimmerman's experience, Xcel Energy instructed Bechtel to use Day Zimmerman as the lead mechanical subcontractor. Thus, Day Zimmerman stayed on the Project and continued to play one of the important roles it already played. Far from a "start and stop", this change merely put Bechtel in the role of

Project manager to coordinate all of the activity, a role that Bechtel is particularly well suited for.

Q. DOES MR. CRISP QUANTIFY THE ALLEGED IMPACT OF BECHTEL'S HIRING TO COMPLETE THE LCM/EPU PROGRAM?

A. No. Mr. Crisp did not quantify the alleged cost impact of Bechtel's hiring. And as best I can determine from Mr. Crisp's testimony, he does not allege that hiring Bechtel was imprudent.

C. Single Integrated Project

Q. MR. CRISP PROVIDES TESTIMONY REGARDING XCEL ENERGY'S TRACKING OF LCM/EPU PROGRAM COSTS UNDER ONE PROJECT AS OPPOSED TO A SEPARATE PROJECT FOR EPU AND ANOTHER FOR LCM. WHAT IS YOUR OPINION ON THE MATTER?

A. Xcel Energy reasonably treated the Monticello LCM/EPU Program as a single integrated Project. The best way to determine this is to review contemporaneous communications and assess how the LCM/EPU Program was described. I note that in the initial August 2006 authorization for the Project, Xcel Energy and its Board were clear that this was intended to be a combined LCM/EPU Program. Further the 2007 NPA provided initial funding for the LCM/EPU Program, and made it clear that the LCM and EPU activities were being treated on an integrated basis.

In the "Enclosure 8" document described in Dr. Jacobs' testimony, Xcel Energy advised the NRC that the effort included significant work that was needed for LCM purposes, in addition to the uprate for which an NRC license amendment was being sought. Xcel Energy's May 2008 Monticello

Extended Power Uprate Program Management Plan stated, "The EPU Program is part of the overall Life Cycle Management (LCM) initiative. LCM projects will also be installed as part of this project."

Many of the systems modified during the LCM/EPU Program were modified for both LCM and EPU reasons. Therefore, the ability to separate the design and implementation specifically to LCM or EPU would have been virtually impossible and, especially given the overlapping nature of the required modifications and implementations, treating them as separate programs may well have been significantly more costly, not less.

Subsequently, the cost estimate and accounting was segregated into numerous Work Orders, referred to in the Xcel Energy system as CWOs. Xcel Energy used CWOs to track the actual costs for the various activities that comprise the LCM/EPU Program.[26] However, certain costs are considered common, or expended to benefit the entire LCM/EPU Program. As described further in Xcel Energy's response to Department Information Request No. 38 (in the Rebuttal Testimony of Mr. O'Connor at Exhibit ___ (TJO-2), Schedule 7), the common costs include certain design and engineering work, consulting work, and other activities, such as radioactive protection, staffing and scaffolding that were undertaken to support the various modifications. These common costs are charged to the original common Work Order and subsequently allocated to specific CWOs.

[26] Xcel Energy's Response to South Dakota Public Utilities Commission Data Request No. 5-2 dated January 6, 2012 [Docket No. EL11-019], page 2.

Approximately 15.7 percent of the total costs for the LCM/EPU Program were common costs. These common costs were necessary for the overall Project, regardless of whether they were directly charged to a subproject or allocated to all subprojects as a common cost. In my experience, this method of tracking common costs is reasonable and used frequently. In my experience, common costs at the 15 percent level are not unusual or unreasonable when considering the magnitude and scope of the various modifications that were required for this job.

Q. DO YOU HAVE ANY FURTHER OPINIONS REGARDING THIS ISSUE?

A. Yes. I believe it would have been more expensive and less efficient for Xcel Energy to have implemented the LCM and EPU modifications separately. It would not make sense to have two separate projects, which would potentially mean that Xcel Energy would have to work on the components of the Plant two or more times. This is a very important consideration that shows Xcel Energy's approach to have been reasonable. If a component needed to be addressed to support the long-term operations of the Plant (for example the Reactor Feed Pumps and Motors, the Feedwater Heaters, or the electric distribution system), it certainly made sense to design that component to also support operations at uprated capacity. Failure to do so would have created an unacceptable risk of needing to redo components if Xcel Energy had proceeded sequentially.

Another example is that both the Reactor Feed Pumps and Motors system would have been modified in both the LCM and EPU scenarios. This was an older component that had been identified for replacement to support the long-term operation of the Plant. Adding capacity to the pumps was also

an EPU requirement to ensure sufficient flow to accommodate the added capacity. Since the components of this system are interrelated, it would not have made sense to address the replacements separately.

As another example, the Feedwater Heaters would have been modified in both the LCM and EPU scenarios. Mr. Crisp does not dispute that the Feedwater Heaters needed to be replaced because they were near the end of their useful life. Xcel Energy also recognized that the replacement heat exchangers had to be designed somewhat larger to accommodate increased flows associated with the higher capacity under EPU conditions.

A third example is the decision to add internal electrical distribution capacity and to utilize 13.8 kV as the voltage for that new capacity. By 2001, the need to add additional electrical distribution capacity had already been identified. As the idea of an uprate began to emerge, Xcel Energy recognized that new electrical distribution capacity would also be needed to power the larger pumps and motors associated with the uprate. It obviously made sense for Xcel Energy to try to coordinate the efforts to provide upgrades that would meet both needs at the same time.

These examples highlight the reasonableness of Xcel Energy's approach. Once the decision was made to extend the life of Monticello, Xcel Energy investigated the potential to uprate Monticello because of the efficiencies inherent in modifying a system once rather than twice. Therefore, those two components of the Program, LCM and EPU, should not have been and were not performed in isolation of each other.

Q. WHAT IS YOUR CONCLUSION REGARDING THE TREATMENT OF THE EPU AND LCM WORK AS ONE PROJECT?

A. Xcel Energy's treatment of tracking the EPU and LCM work together as one Project was warranted and prudent. While I believe that tracking the EPU and LCM as one Project was appropriate, I note that Xcel Energy created CWOs as the LCM/EPU Program progressed and allocated funds from a single work order to the CWOs. While creation of the CWOs could have been done earlier in time and may have created an additionally useful management tool, I also understand the reasonableness of the decision to manage the Program as a single Project. I have seen this approach used before for the same reason and do not believe it led to cost increases.

D. Budget Contingencies

Q. MR. CRISP TESTIFIED THAT XCEL ENERGY APPARENTLY CHOSE NOT TO USE CONTINGENCIES.[27] DO YOU AGREE WITH THIS TESTIMONY?

A. No. I believe that Mr. Crisp is simply incorrect on this issue.

Q. CAN YOU PROVIDE DETAILS THAT PROVE XCEL ENERGY DID, IN FACT, USE CONTINGENCIES ON THE LCM/EPU PROGRAM?

A. Yes. Xcel Energy's 2007 NPA for the LCM/EPU Program contained $7.7 million in contingency costs. Further, the NPA for the 13.8 kV Distribution System, similar to other NPAs, contained contingency funds of $2.5 million, which was adjusted upward as the scope and cost increased over time.

[27] Crisp Direct at 30:9.

As discussed in Xcel Energy's response to Department of Commerce Information Requests Nos. 52 and 68 (in the Rebuttal Testimony of Mr. O'Connor at Exhibit ___ (TJO-2), Schedule 13), Xcel Energy used contingencies on the LCM/EPU Program in the initial NPA and continued to use contingencies through to the January 2013 estimate.

Q. DOES MR. CRISP REACH ANY CONCLUSIONS REGARDING THE COST IMPACT OF HIS CLAIMED LACK OF CONTINGENCIES?

A. Not at all. Mr. Crisp did not identify or quantify any cost impact related to the alleged lack of use of contingencies.

Q. WHAT ARE YOUR CONCLUSIONS REGARDING THE USE OF CONTINGENCIES ON THE LCM/EPU PROGRAM?

A. With a hindsight view, Xcel Energy underestimated the LCM/EPU Program, but neither the initial estimate, nor the amount of contingency used for various components, raised the overall cost of the LCM/EPU Program.

E. Project Management Impact on Costs

Q. MR. CRISP TESTIFIED THAT "THE EXPEDITED APPROACH CAUSED DELAYS AND BUDGET INCREASES THAT COULD HAVE BEEN AVOIDED WITH PROPER PRE-PLANNING, PROJECT MANAGEMENT AND PROPER DESIGN SEQUENCING."[28] DO YOU AGREE WITH MR. CRISP'S TESTIMONY?

A. No, as previously discussed in my testimony. In addition, Mr. Crisp did not quantify what portion of the increased cost he attributes to poor Project management, nor does he specify what costs could have been avoided.

[28] Crisp Direct at 29:14-16.

While the EPU/LCM Program took approximately six years to complete, the work was still installed during three tightly scheduled periodic refueling outages, along with normal plant maintenance and refueling activities. This makes the time sequencing of work very critical to the opportunity to make the upgrades. In addition, it distinguishes this and other nuclear uprates and license extension-related work from other more typical construction projects where scheduling constraints and timing may not be as critical.

Q. DOES MR. CRISP DISCUSS THE COMPLEX MODIFICATIONS PERFORMED DURING THE LCM/EPU PROGRAM?

A. No, Mr. Crisp does not discuss in detail any of the complex modifications performed during the LCM/EPU Program. I do not understand how Mr. Crisp can perform what he called a "technical review of Xcel's project management decisions and project management execution and how they impacted costs"[29] without addressing any details of complex modifications.

I believe that in order to understand the complex issues of why cost increases occurred, you need to analyze the modifications in detail. It does not appear that Mr. Crisp performed this analysis. I see no discussion related to the specific modifications performed on the LCM/EPU Program mentioned his testimony.

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

A. Mr. Crisp does not address any specific causes of cost increases in his testimony. I undertook an analysis to test whether cost increases were caused by alleged poor Project management, and I concluded they were not.

[29] Crisp Direct at 3:16-18.

In addition, Mr. Crisp's allegations do not support, nor does he state that they support, a finding of imprudence. In addition, as I have stated previously, the mere fact that costs increased is not evidence of imprudence.

Q. WHAT TYPES OF INFORMATION DID YOU REVIEW IN ORDER TO ANALYZE THE COST AND COST GROWTH CAUSATION ISSUES?

A. In its normal course of business, Xcel Energy creates, and I reviewed, numerous documents related to engineering, cost estimating, incurred costs, and scheduling issues. I also received transactional data from Xcel Energy's general ledger accounting system. Xcel Energy uses a general ledger accounting system called JD Edwards. Additionally, Xcel Energy uses other systems, which either directly or indirectly collect data and input the information into the JD Edwards general ledger accounting system.

I interviewed various Xcel Energy personnel familiar with the Monticello LCM/EPU Program. Details on reasons for scope growth for the major modifications are generally supported by Mr. O'Connor's Direct and Rebuttal Testimony. I reviewed Mr. O'Connor's Direct Testimony and found that the documents I reviewed and also analyzed supported his analysis and conclusions.

Q. IN ADDITION TO ANALYZING THE REASONS FOR THE COST GROWTH, DID YOU REVIEW THE ACTUAL COSTS INCURRED BY XCEL ENERGY FOR THESE MONTICELLO LCM/EPU PROGRAM MAJOR MODIFICATIONS?

A. Yes. I reviewed the contracts, purchase orders, and invoices for the key vendors to ensure that the work performed and invoiced related to the

major modifications. Kenrich also reviewed the various Xcel Energy payroll and employee expenses by Business Unit department to understand what types of work Xcel Energy personnel performed and charged to the relevant CWOs. In addition, Xcel Energy appropriately allocated and recorded overhead costs against each CWO, which are the costs that cover necessary and typically allocated corporate functions such as accounting, human resources, and costs to operate corporate offices. The actual costs discussed in my testimony are costs incurred through March 31, 2014.

Q. WHAT WERE THE MAJOR MODIFICATIONS OF THE MONTICELLO LCM/EPU PROGRAM THAT YOU ANALYZED?

A. I reviewed the following major modifications:

1) 13.8 kV Distribution System;
2) Condensate Demineralizer;
3) Feedwater Heaters; and
4) Reactor Feed Pumps and Motors

I analyzed each modification in a fashion similar to what I discussed in Part III.D with respect to the 13.8 kV Distribution System with specific attention to cost growth.

Q. WHAT WERE THE COSTS INCURRED FOR EACH OF THOSE MODIFICATIONS?

A. The total recorded costs were $118,810,007 for the 13.8 kV Distribution System, $79,774,573 for the Condensate Demineralizer, $115,288,332 for the Feedwater Heaters, and $93,022,667 for the Reactor Feed Pumps and Motors modifications.

Q. WHAT CONCLUSIONS ON THE REASONABLENESS OF THE COSTS INCURRED FOR THOSE FOUR MODIFICATIONS WERE YOU ABLE TO DRAW?

A. My review of the documents and interviews of Company personnel did not reveal any significant costs that could have been avoided based on the contemporaneous decisions made on the LCM/EPU Program. I found no issues that suggested project management, as implemented by Xcel Energy, led to increased costs. In addition, Xcel Energy took steps and had processes in place to complete those outages during which the LCM/EPU Program work was performed in a reasonable time. Mr. O'Connor described these processes in his Direct Testimony. Based on my analysis of these four modifications, I concluded the costs were incurred, and based on the interviews I conducted, the documents I reviewed, the analysis I performed, and the testimony of Company witnesses, that the costs were reasonably incurred.

Q. HOW MUCH OF THE TOTAL COST GROWTH ON THE LCM/EPU PROGRAM IS RELATED TO THE FOUR MODIFICATIONS YOU REVIEWED?

A. The 13.8 kV Distribution System, the Condensate Demineralizer, the Feedwater Heaters, and the Reactor Feed Pumps and Motors modifications were responsible for approximately 87 percent of the total cost growth.

Q. WHAT ARE YOUR CONCLUSIONS ON THE COST GROWTH OF THE LCM/EPU PROGRAM RELATIVE TO MR. CRISP'S TESTIMONY?

A. My analysis contradicts Mr. Crisp's unsupported assertions. I did not find evidence that Project management practices contributed in any meaningful way to the cost growth experienced in the four major modifications that I reviewed.

Rather, the cost growth on the LCM/EPU Program is attributable to additional work with the modifications, which happens on projects where design and implementation are occurring concurrently. The cost growth is not due to poor management. As previously discussed, Xcel Energy management decisions that affected cost were reasonable and prudent.

V. CONCLUSION

Q. DOES THIS CONCLUDE YOUR TESTIMONY?

A. Yes, it does.

Richard J. Sieracki
Chief Executive Officer

Richard Sieracki is the co-founder and Chief Executive Officer of The Kenrich Group LLC, a national business and litigation consulting firm. He has consulted for Fortune 500 companies and others including electric utilities, construction contractors, architects, engineers and project owners, manufacturers, insurance companies, and various government entities, including state agencies.

Following over 10 years of work in the design and construction of various projects, Rich entered the consulting field. Rich's extensive experience on both damages and delay analysis has primarily been focused in the construction, electric utility and government contract industries. Rich's experience includes work on numerous power plant projects, highways, transit projects, shopping centers, casinos, hotels and condominium projects and other facilities, including stadiums and wastewater treatment plants. The work performed by Rich includes critical path schedule analysis intended to determine extended activity durations and responsibility for events delaying those activities, determination of damages, analysis of project cost growth issues, productivity studies and other analyses related to issues including schedule acceleration and disruption.

Rich has testified as an expert witness in various state and federal courts, in arbitration, and has presented damages and schedule delay analysis in formal mediation and other alternate dispute resolution proceedings. He has also consulted to companies on techniques to avoid disputes and to minimize the impact of existing disputes.

Client And Industry Experience

Electric utilities; construction contractors; architects, engineers and project owners; manufacturers; insurance companies; and various government entities, including state agencies.

The Kenrich Group LLC
300 South Wacker Drive
Suite 1150
Chicago, IL 60606
Tel: (312) 521-7437
Fax: (312) 521-7458
E: rsieracki@kenrichgroup.com

Professional History

- Tucker Alan Inc.
  Vice President (1994-2004)
- Peterson Consulting
  Vice President (1985-1994)
- Bechtel Power Corporation
  Cost/Schedule Supervisor (1974-1985)

Education

- Northwestern University J.L. Kellogg Graduate School of Management
  Disputes System Design, Executive Program
- University of Illinois
  B.S. in Civil Engineering

Professional Associations

- American Bar Association
  Associate Member
  - » Public Utility, Communications & Transportation Law and Litigation Sections
  - » Forum on Construction Industry
- The Association for the Advancement of Cost Engineering (AACE International)
  Member
- Project Management Institute
  Member

Richard J. Sieracki

Selected Experience

Construction Matters

Extensive experience in analyzing design and construction costs including assessing the causes of cost growth and budget overruns and determining the impact that individual events or changes have had on construction costs.

Performed critical path schedule analysis to determine events and activities that delayed project completion or resulted in need to accelerate to attempt to recover delay. Analyzed project documents and other data to assist in assigning responsibility for delaying events.

Performed review of or assisted in preparation of claims including damages and critical path schedule analysis for various types of projects including bridges, highways, transit systems, industrial plants, airports, shopping centers, steel facilities, hotels, security facilities, apartment complexes, condominiums, schools, casinos and others.

Performed labor productivity studies and analysis for construction of various types of projects including sports arenas, refinery retrofits, prison facilities and others. Determined reasons for deterioration in labor productivity and quantified damages utilizing cause and effect approaches.

Evaluated added costs incurred by construction companies and project owners due to delayed project completion. Costs assessed include both direct project costs including extended general condition costs and other items such as lost profits, impacts on business operations and others.

Provided consulting assistance to design and construction companies in developing and implementing procedures to define and quantify cost and schedule impacts on a contemporaneous basis.

Experience at Bechtel included scheduling, monitoring, evaluating and reporting project progress, as well as evaluating the cost implications of design related changes. Developed schedule control and monitoring programs to ensure design and material were available to construction to meet schedule requirements.

Supervised all cost and schedule project controls, including daily, weekly and longer term schedule development and coordination; implemented schedule critical item monthly reporting systems; prepared total project cost forecast estimates, monitored craft labor productivity and other resources; evaluated, estimated and negotiated change orders and claims.

Utility and Power Plant Matters

Supervised team performing damages analysis related to nuclear spent fuel disposal and storage. Prepared damages and critical path schedule analysis for various power plant projects including gas-fired plants, nuclear plants, coal and lignite plants and others. Determined responsibility and duration of project delay on several of these projects.

Managed team performing delay analysis and review of a claim submitted by an EPC contractor on behalf of a utility. Project is a new coal fired power plant.

Performed delay analysis on behalf of owner's program manager on a diesel fired power plant in Afghanistan.

Supervised team performing damages and critical path schedule delay analysis on several disputes involving defective power plant equipment.

Performed management review of company's plan to implement schedule and cost control systems on a major capital improvement project. Also reviewed document control procedures.

Performed critical path schedule analysis to determine root cause reasons for extended plant refueling outage including analysis of near-critical path activities during the outage. Quantified costs associated with work activities performed during the outage.

Assisted utilities in various prudence reviews conducted by the state commerce commission related to construction and operation issues for nuclear power. Work performed primarily was focused on reasons for cost and schedule growth from the original budget.

Assisted in negotiating final payment and determining actual completion status for a terminated mechanical contractor.

Cost and schedule supervisor for Bechtel on the design and construction of two 660 MW coal fired power plants. Responsibilities included management of all the cost and schedule aspects of the projects, as well as the evaluation and negotiation of numerous change orders and construction claims associated with the project.

Assisted in calculation of lost profits for an energy trading company involved in the production of syn-fuel.

Performed various strategic consulting assignments related to economics of power plant operations and selected plant equipment. Assessed replacement power costs associated with loss of use at power plants due to issues such as extended outages and regulatory government related actions.

Supervised team performing delay and damages analysis associated with decommissioning of power plants and uranium processing facilities.

Government Contracting

Performed critical path schedule analysis associated with a renovation of a government post office facility. The schedule analysis was intended to determine the excusable days of delay the general contractor was entitled to based on design and other government responsible changes.

Supervised critical path schedule analysis intended to determine delay and responsibility for delay on multi-service missile program terminated by the government. The analysis focused on the disruptive impacts of government actions and failure to act, including excessive direct changes,

interference, production schedule changes and partial terminations. The analysis covered a number of program functions including system engineering, air vehicle design, hardware integration, flight tests and mission planning software, among others.

Performed critical path schedule analysis to determine impact of various government-initiated changes during manufacturing/testing program for F-111 aircraft testing equipment. Work involved analysis of impact of software changes on test station integration.

Assisted in preparation of a claim for reimbursement of costs for a terminated government suppler of electronic monitoring equipment.

Performed schedule analysis to determine causes of multiple year delay in the manufacturing process of a naval weapons program.

Assisted Bechtel in developing and implementing a cost and schedule control system intended to meet all government requirements for the design and construction of a Department of Energy test facility. Work included evaluating existing Bechtel schedule and cost systems and designing interface capabilities to report earned value progress and variances against budgets.

Environmental

Analyzed damages and other issues associated with termination of a cleanup contractor on a former lead smelter facility site.

Assessed lost profits claim asserted by a remediation contractor involved in a clean up of certain government Air Force basis.

Assisted companies and counsel in monitoring cleanup of a Superfund site. Provided overview of project status, cash flows and provided independent review of project performance.

Assisted counsel in analysis of costs expended during the multi-year clean up of a municipal landfill.

Richard J. Sieracki

Testimony And Alternative Dispute Resolution And Arbitration

Testified as an expert witness in both jury and bench trials and in arbitration on damages and schedule issues.

Presented damage and schedule delay analysis in mediation and other alternate dispute resolution proceedings.

Selected Lectures And Seminars

Extensive lecturing experience on critical path schedule and damage issues to various organizations, including the American, Chicago and Detroit Bar Associations, the American Power Conference, the American Association of Cost Engineers, Western Council of Construction Consumers, National Association of Women in Construction, the Illinois Construction Land Symposium and others.

Selected Publications

Coauthor of various publications including: “Proving & Pricing Damages,” “Outage Reviews: Project Management Issues,” “Cost Implications of Management Audits,” “Potential Costs to Utilities for Hazardous Waste Site Remediation.”