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Xcel Energy

Docket No.: EL12-046

Response To: South Dakota Public
Utilities Commission

Data Request No.

Requestor:

2-7

Date Received: July 30, 2012

Question:

Referring to the Prairie Island Fire Model Tool adjustment:

- a) Please provide copies of work order authorizations.
- b) Provide a statement of status for the project, i.e., actual expenditures and projected expenditures by month, expected in-service date, etc.
- c) Please provide revised PF22 work papers to reflect actual costs incurred.
- d) Was this tool required by NFPA 805? If not, please explain.
- e) Please explain how Prairie Island's fire model tool differs from the tool developed for Monticello. Please explain why the same tool could not be used for both nuclear plants.
- f) Has the NRC reviewed the probabilistic risk assessment tool and determined the tool to be appropriate compliance with its regulations? Please explain.

Response:

- a) The Nuclear Project Authorization for this project is included as Attachment A to this response.
- b) The first phase of the Fire Modeling Tool Project will finish in 2012. The fire modeling tool has been developed and is being used to support the License Amendment Request to implement NFPA 805 at Prairie Island Nuclear Generating Plant. Actual costs and projected expenditures are included in the updated work paper PF22-11 included as Attachment B.
- c) Please see Attachment B to this response for updated work papers PF22-1 through PF22-11 which reflect actual project costs through June, 2012.
- d) Yes.

- e) The fire modeling tool utilizes plant-specific Probabilistic Risk Assessment models as the driver for the tool. These models incorporate plant-specific information such as location of components within each fire compartment, routing of electrical cables that might be damaged by a fire, and the potential for fire propagation to nearby components. It is highly dependent on the specific arrangement and geometry of the components and cables within the facility for which the tool is developed. The fire modeling tool developed for Prairie Island is unique and plant specific and could not be used for the Monticello Nuclear Generating Plant.

- f) No. The fire modeling tool will be reviewed by the NRC as part of their assessment of the License Amendment Request to adopt NFPA 805. That License Amendment Request is in preparation and is scheduled to be submitted to the NRC on 9/30/2012. The fire modeling tool was developed in accordance with methods and requirements expressed in NRC and nuclear industry guidance and standards documents. It has been assessed against the guidance and standards by a team of independent experts.

Preparer: Terry A. Pickens \ Thomas E. Kramer
Title: Director, Regulatory Policy \ Principal Rate Analyst
Department: Nuclear Policy & Planning \ Revenue Requirements – North
Telephone: 612-330-1906 \ 612-330-5866
Date: August 29, 2012

NUCLEAR PROJECT AUTHORIZATION (NPA)

The NPA is a request for O&M and Capital Study, Design, and Implementation Phase authorization. In addition, updated NPAs are required to request additional project authorizations due to project overruns, and/or changes in scope, schedule, and cost in accordance with FP-BUS-PRG-01, Project Review and Approval Process. The NPA records the historical project information after initial funding authorization. The NPA is signed by the Project Manager and Project Sponsor to document their agreement at each project phase and/or changes in scope, schedule, and cost. The Site VP signature and Sr. Director Projects, Policy and Nuclear Services signatures are required for Capital project authorization. The Site VP Signature is required for O&M project authorization. For additional instructions on how to fill out the NPA form reference FP-BUS-PRG-01.

Budget Year(s):	2012-2015	Plant:	Prairie Island	Log #:	2012- 47
Classification:	Capital: 100%	O&M:		Date:	3/16/12

Project Title: NFPA 805 Fire Model Tool

CAP: N/A

Project Prioritization
(Use FP-BUS-IPP-01 Integrated Planning Process)

Urgency:	2	Assess actual plant conditions including as-built design margins, performance capabilities, and design shortfalls
Risk:	2f	Falls to implement a significant improvement to a regulatory required program such as MR, FP, EP, or CAP

Phase:	Study	Design	Implementation	Close-out
New /Additional Funding Requested:	\$	\$	\$13,721,535	\$
Current Authorization:	\$	\$	\$20,345,385	\$
YTD Phase Actual (through 2011):	\$	\$	\$4,410,006	\$
Project to Date:	\$	\$	\$17,018,245	\$
Original Project Phase Cost:	\$	\$	\$1,912,209	\$
(Identify contingency separate)	\$	\$		\$
Revised Project Phase Cost:	\$	\$	\$34,066,920	\$

2012 Total Cost Estimate	\$5,162,263
2013 Total Cost Estimate	\$6,284,880
2014 Total Cost Estimate	\$4,838,505
2015 Total Cost Estimate	\$763,026
YTD Actual Cost:	\$1,486,134
Revised Total Project Cost:	\$34,066,920
Original Total Project Cost:	\$1,912,209 (2/2/07)

- Study Phase
- Design Phase
- Implementation Phase
- *Project Overrun
- *Scope Change
- *Cash Flow Change
- *Schedule Change

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NUCLEAR PROJECT AUTHORIZATION (NPA)

***Provide a clear explanation of why this funding or change is being requested:**

This project is requesting additional funding for the transition of the Fire Protection and Safe Shutdown Program from 10CFR50 Appendix R to NFPA 805. Funding is being requested for:

- 1) LAR Review – NRC Fees
- 2) LAR Audit
- 3) Request for Additional Information (RAI) responses
- 4) LAR documentation changes
- 5) Fire Model Application Implementation
- 6) 6 month site implementation and 4 month project closeout following the issuance of the Safety Evaluation from the NRC.

See Scope Change form that is attached to this NPA.

Financial Analysis (NPV): N/A – Regulatory Requirement

Project Manager: Mark McKeown **Project Sponsor:** Carl Lane

Concise Problem Statement: (Provide the problem description or the new requirement or function the project will meet).
Prairie Island needs an Fire PRA model to use as a tool to identify cost-effective ways to reduce plant risk, and to resolve long standing Fire Protection Issues.

Project Scope: (Provide what the project will and will not deliver, and what functionality is and is not included in the final product. Identify affected equipment, associated equipment, and similar equipment commodities that are included. If project includes O&M and Capital scope, separate scopes below in alignment with the calculated cash-flows documented toward the end of the NPA. See Financial Manager for assistance.)

The revised project scope includes all activities that are required to fully implement NFPA 805 as Prairie Island's Fire Protection and Safe Shutdown Program. The scope of this project does not include any plant modifications that were identified during LAR preparation and submittal. See the table below for a list of the required activities along with the time and cost estimates.

	2012	2013	2014	2015	TOTAL
Pre LAR Submittal	\$3,367,433	\$0	\$0	\$0	\$3,367,433
Post LAR Submittal	\$927,335	\$3,265,400	\$2,374,804	\$610,421	\$7,177,960
NRC Fees	\$388,000	\$1,972,000	\$1,296,000	\$0	\$3,656,000
Subtotal	\$4,682,768	\$5,237,400	\$3,870,804	\$610,421	\$14,401,393
Contingency (15% - 25%)	\$479,495	\$1,047,480	\$967,701	\$152,605	\$2,647,282
Total Project	\$5,162,263	\$6,284,880	\$4,838,505	\$763,026	\$17,048,675

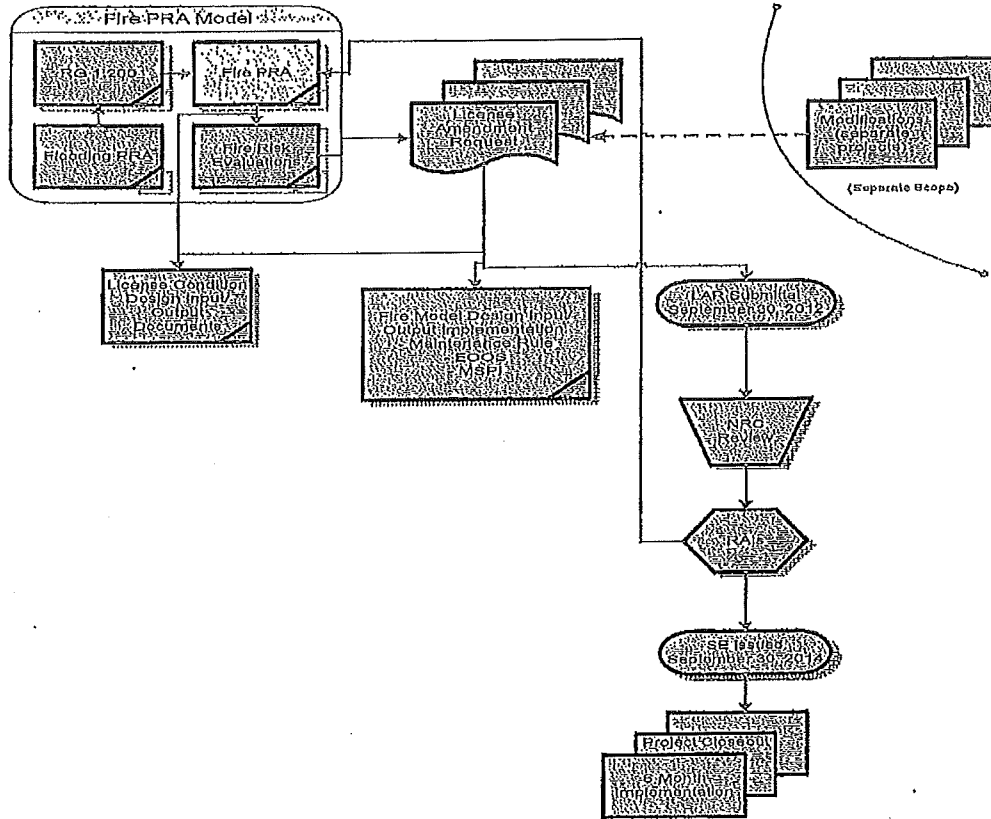
Total this request: \$17,048,675 - \$1,117,000⁽¹⁾ - \$2,210,140⁽²⁾ = \$13,721,535

Project Total: \$17,018,245⁽³⁾ + \$17,048,675 = \$34,066,920

- (1) 2012 authorized
- (2) Authorized from NPA Log # 2012-47
- (3) Committed from prior years

NUCLEAR PROJECT AUTHORIZATION (NPA)

NFPA-805 Implementation Plan:



Capital Scope:

Included in the revised capital scope are all of the activities required to create the new program's licensing documents. The activities include creating and revising procedures, changing commitments, performing training on all new and revised procedures for all affected work groups, and implementation of the fire model application.

Also included in the revised capital scope are the activities required to receive the Safety Evaluation Report. These activities include RAI responses, LAR documentation updates, NRC review fees and LAR Audit fees.

O&M Scope: None.

NUCLEAR PROJECT AUTHORIZATION (NPA)

Project Description: (For the recommended alternative being considered, provide the specific tasks that will be completed in sufficient detail to describe how the project will be implemented. Include any key assumptions use for the project). The project to transition will establish a new licensing basis for fire protection and safe shutdown capability for the site. The project includes the required circuit analysis, PRA analysis (Fire PRA & Internal events PRA analysis per Reg. Guide 1.200), transition analysis, License Amendment Request (LAR), and design requirements for cables, physical barriers, and fire protection systems needed to support the NRC requirements. This is a regulatory driven project due to recent NRC interpretations of 10CFR50 Appendix R requirement as outlined in RIS 2006-10 and other final and draft NRC generic communications related to cable separation and manual actions. This NPA reflects a schedule in line with current NOED commitment stating that the LAR is to be submitted by 09/30/12.

Prairie Island is required to maintain a fire protection program and safe shutdown program by federal regulation. This project will fully transition the program from Appendix R to NFPA 805. The first part of this project included all the scope of work that was required to submitted the LAR to the NRC. The second part of this project includes all activities that are required for the transition. Specifically, activities include responses to RAI's and performing design input/output License Document Changes. Also included in the second part of this project are the NRC fees associated with the LAR audit and the cost of design input/output of the Fire Model.

The second part of this project must be completed within six months after LAR acceptance in the form of a Safety Evaluation from the NRC. Based on Non-pilot LAR submittals, the NRC is taking two years to accept the License Amendment Request. This timeframe was taken into account when scheduling the project.

Justification / Benefits: (What is the justification for selecting the recommended alternative and what are the expected benefits).

Completing the transition to NFPA 805 fulfills an NRC commitment. NFPA 805 SHALL be fully impleted within six months after the LAR is accepted. This project also avoids expensive modifications. Prairie Island credits approximately 100 human actions to cope with fires in 30 fire areas. Recently, the NRC began disallowing credit for these actions in Appendix R fire protection programs. It is estimated that about 50 plant modifications would be needed to bring the plant into compliance with Appendix R as it is currently interpreted. NFPA 805 allows us to evaluate these potential modifications and select the ones most effective to achieve an acceptable level of plant risk due to fire initiators.

Prairie Island has a number of non-conformances with Appendix R that are covered under the enforcement discretion granted for NFPA 805 transition. Terminating the NFPA 805 project and returning to Appendix R as a fire protection standard would require Xcel Energy to immediately address these nonconformances through the significance determination process. These conditions could have safety significance and result in greater than green findings based on the new interpretation of multiple hot short effects.

It should also be noted that the RG 1.200 and Fire PRA portions of the NFPA 805 project (about 50% of the total cost) would be needed to pursue other regulatory initiatives and licensing amendments.

Model will be inserviced when the SE is received from the NRC and fully implemented during the 6 month Design input/output project document phase and closeout.

NUCLEAR PROJECT AUTHORIZATION (NPA)

Project Risk Assessment: (Provide the key assumptions and risks which could impact the success of the project).

The following risks have been evaluated for this project.

1. Uncertainty in the Regulatory requirements in the LAR. The NRC had a public meeting in November 2011 and discussed generic RAIs that they believe the industry should address. The scope change attached to this NPA outlines these new requirements. The NRC plans on having another meeting in May 2012 to discuss the status of the generic RAIs and other topics. This has the potential to result in additional scope. The NRC also requested a pre-LAR Submittal meeting with Prairie Island. Again, this could have the potential to result in additional scope.
2. Scarcity of PRA Expertise. The timing of this project coincides with the Fire PRA. While this provides some synergies, it also competes with this project for key site resources to support the flooding PRA. This risk is being managed by making use of outside vendor support to perform the work. The contractor personnel have unescorted access to PINGP and are qualified in PRA tasks under PINGP's INPO-accredited ESP training program. These are the same personnel who successfully created a Turbine Building Internal flooding PRA model as part of the Internal flooding SDP. Using these personnel to perform the work minimizes, but does not eliminate, the need for PINGP personnel to be involved in the project. An average of 0.6 FTE will still be needed to support this project during its execution.
3. NRC Acceptance Timeframe: Currently, it is taking the NRC two years to accept non-pilot NFPA 805 LAR submittals. However, the NRC review may extend beyond 2 years for the Prairie Island's LAR and that would push out the project schedule. This risk will be mitigated by prompt response to RAIs and keeping up with other industry peers who are also transitioning and reviewing the public RAIs as they are submitted.

Alternatives: (List and briefly describe other alternatives, including non-authorization, that were considered).

The following alternatives were considered.

- 1. Perform the project as proposed.** This is the best option for meeting current regulatory requirements, and fulfills a commitment Xcel energy made to the NRC to migrate PINGP to be an NFPA 805 plant.
- 2. Use less staff augmentation.** This option is very similar to the proposed option, but relies more heavily on Xcel Energy subject matter experts to perform the needed analysis. The expertise needed is largely in the areas of PRA and fire protection. The incumbents in these positions are unable to keep up with current assigned work. Having these people take on additional NFPA 805 work would merely push the need for staff augmentation into their routine O&M tasks. The current LAR commitment date of September 30, 2012 would not be achieved using this alternative.
- 3. Remain an Appendix R plant.** Prairie Island would have to perform about 100 modifications in 30 fire areas to replace its current dependence on human actions. Also, the enforcement discretion under which Prairie Island is operating might be revoked, resulting in non-conformances to Appendix R for both units and possible enforcement action by the NRC. Also, selecting this option will not eliminate much cost. It still requires the plant to complete the fire PRA to RG 1.200 rev. 2 standards.

If the second part of this project is not authorized, this would result in the potential to not answer the NRC questions timely. This would delay the approval process or stop the process. The NRC could put Prairie Island's LAR review behind other LAR's in the queue. If funding is cut for this project it will challenge the ability to answer RAIs timely and process the license document changes timely. This would challenge the timeline to

NUCLEAR PROJECT AUTHORIZATION (NPA)

receive the Safety Evaluation from the NRC. If an SE is not received a major portion of the project costs would likely journal to O&M.

Material Management: (Identify how this project may create obsolete parts, require additional parts, or require the disposition of removed items).

NO

Are there any spare parts or material (regular inventory or capitalized) that will no longer be usable as a result of implementing this project? Identify and determine the value of each.

NO

Are there any additional spare parts or material (regular inventory or capitalized) that will be needed as a result of implementing this project? Identify and determine the value of each.

NO

Are there any parts or material that will need to be retired or refurbished as a result of implementing this project? Identify and determine the value of each.

NO

Cash Flow

Capital

Year	Previous	2012	2013	2014	2015	Total
Phase	Years	Implementation	Implementation	Implementation	Implementation	Implementation
January		\$391,648	\$700,553	\$477,253	\$172,347	-
February		\$439,898	\$396,865	\$366,415	\$172,347	-
March		\$654,686	\$396,865	\$366,415	\$172,347	-
April		\$470,000	\$396,865	\$366,415	\$23,345	-
May		\$445,300	\$494,102	\$366,415	\$23,345	-
June		\$399,500	\$396,865	\$429,751	\$23,345	-
July		\$324,500	\$396,865	\$305,312	\$23,345	-
August		\$231,000	\$396,865	\$291,305	\$0	-
September		\$221,000	\$396,865	\$291,305	\$0	-
October		\$374,535	\$396,865	\$208,684	\$0	-
November		\$374,535	\$404,782	\$200,767	\$0	-
December		\$356,265	\$463,043	\$200,767	\$0	-
Contingency		\$479,495	\$1,047,480	\$967,701	\$152,605	\$2,647,282
Total	\$17,048,675	\$5,162,263	\$6,284,880	\$4,838,505	\$763,026	\$34,066,920

(The above table is an inserted Excel worksheet. Double click on table to enter data. Ensure when finished all data is shown before printing)

NUCLEAR PROJECT AUTHORIZATION (NPA)

For carryover projects, enter the cash flow in the previous years' months.

Outage Related: Yes No Year/Outage Number(s):

* = Includes Journal entry for O&M expenses transferred to capital project

Project Estimate and Project Milestones: (An estimate of Total Project cost and Project Milestones must be included for Design and Implementation phases).

NFPA 805 Implementation Activities	Target Date
Peer Review	6/7/2012
LAR Submittal	9/30/2012
LAR Audit	1/30/2013
RAI Responses	3 rounds
	May 2013 Jan. 2014 June 2014
LAR Review	9/30/2012-2014
SE Issued by NRC	9/30/2014
SE Implementation	+ 6 months

Project Milestones dates are dependent on NRC review process. The budget numbers support the schedule milestones shown above.

Rework

Does this request include funding for re-work or work previously completed by a vendor?

- Yes
 No

Explain:

Scope Change

Does this work include a change of scope from previous PRO approval?

- Yes
 No

Explain:

NUCLEAR PROJECT AUTHORIZATION (NPA)

Project Agreement

Project Manager: <i>Mark White</i>	Date: 4-12-12
Project Sponsor: <i>Carl Jare</i>	Date: 4/12/12

PRG Sub-Committee Disposition

<input type="checkbox"/> Accept	Date:
<input type="checkbox"/> Reject	
Recommendation: <i>NA</i>	
Validate Urgency: <input type="checkbox"/> 1 <input type="checkbox"/> 2 <input type="checkbox"/> 3 (Check one)	
Risk:	(Refer to FP-BUS-IPP-01)

PRG Disposition

<input checked="" type="checkbox"/> Approve	Date: <i>4/20/2012</i>
<input type="checkbox"/> Reject	
Recommendation: <i>approve \$5,162,263 for 2012. (contingency AFCA provided (attached))</i>	



Savings and Use Guidance (See FG-BUS-FIN-01)

Form QF-2134 Required (AFCA)?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
Budget Offset Recommendation:	<i>\$1,625,035 funding from AFW Pump Room Cooling + Battery Room Cooling</i>

NUCLEAR PROJECT AUTHORIZATION (NPA)

O&M and CAPITAL

CAPITAL

Site Vice President: Date: 	SR Director Project, Policy & Nuclear Services Vice President Nuclear Capital Projects Date: 4/13/12 
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(Note: If Form QF-2134 (AFCR) is required, Authorization for funding can not be finalized until approved Form QF-2134 is signed by CNO and attached to NPA)

Site Manager Budgeting and Reporting

Accounting Charge Number: Site Manager Budgeting and Reporting: Date:

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Xcel Energy

Docket No.: EL12-046

Response To: SDPUC

Data Request No.

Requestor: South Dakota Public
Utilities Commission

7-09

Date Received: August 31, 2012

Question:

Please refer to the Company's response to DR 2-7. Provide revised PF 22 work papers to reflect actual costs incurred, removing all projected expenditures, after the project has been placed in service. Provide the actual date the plant addition is placed in service.

Response:

As identified on updated work paper PF22-11 in Attachment B to DR 2-7, this project is scheduled to go in service in late September 2012. Actual cost information exclusive of projected expenditures will not be available until after the Company processes and closes the financial books for the month the project goes into service. We will submit the information required to update the work papers as requested in this response after the project is placed in service and the books for that month are closed.

Response By: Thomas E. Kramer
Title: Principal Rate Analyst
Department: Revenue Requirements – North
Telephone: 612-330-5866
Date: September 25, 2012