ENERGY NORTHWEST

PROJECT REVIEW COMMITTEE MEETING
Project 628801 - PRNM and ARTS/MELLLA

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Statement of Action/ Decision Requested from PRC

- Obtain funding for the following:
  - Additional NRC review costs ($35K)
  - Complete General Electric Hitachi (GEH) FY12 scope for RPV Overpressurization analysis ($30K)
  - Obtain a Vendor to prepare PRNM to PPC interface software documentation ($176.8K)
  - Decrease ENL software documentation budget (-$56K)
  - Use a vendor to complete preparation of the PRNM to PPC software code ($27K)
  - Obtain field support and training for C3-ilex computer pre-assembly installation ($11K)

Problem Statement/ Description of the Issue

- Problem Statement
  - The existing neutron monitoring system is obsolete. Replacement parts are costly and becoming difficult to obtain. Significant station resources are expended in corrective maintenance and surveillance costs. Also, the existing system is vulnerable to surveillance-induced half scrams and spiking of the Local Power Range Monitors (LPRM). Installation of a new safety related digital Power Range Neutron Monitoring (PRNM) system corrects these problems. PRNM is needed to be able to implement ARTS/MELLLA which will expand our current operating domain. This will provide additional operational flexibility when operating at rated power, leading to fewer downpowers to manipulate control rods, especially during the last part of the operating cycle, and would eliminate nuisance alarms caused by our current system. Cost benefit is that seven fewer fuel bundles will be needed each cycle and net electrical generation will increase due to running RRC pumps at slower speed. Surveillance costs will also be reduced. Estimated savings are $7M per year plus a one time cost savings for not having to clean jet pump nozzles.
- Operating Experience
  - CGS is the last US BWR to implement ARTS/MELLLA
  - 29 BWRs have implemented PRNM
  - Excellent operating history since PRNM was installed at Hatch in 1996
- **Driver:** The primary driver is obsolescence of the existing neutron monitoring system and the need to implement PRNM to allow ARTS/MELLLA to be installed

Current Status

- PRNM factory acceptance testing was completed in 2010
- R-20 Work
  - Standby Liquid Control tank boron-10 was enriched
  - Fiber optic cables were pulled in the main control room
- Pre-assembly will be done in Deschutes computer lab starting in September 2012
- Status/Impact to the Project's Milestones/Critical Path
  - Design is currently expired. PDC will be updated in FY14.
  - Work orders are being reviewed and updated
  - PRNM to PPC interface software (power to flow map, reactor display, containment status, etc.) documentation needs to be completed prior to the PDC being updated
  - Procedure revisions are essentially complete
    - Need power ascension test procedure
    - A few Operations procedures need to be finalized

Current Status (continued)

- Pre-outage work needed
  - Pre-assembly of components in Deschutes computer lab to verify equipment is functioning, conduct training and to verify communications with PPC
  - Simulator modification
- Buy-in from Support organizations has been established
- Installation is scheduled for R22
- NRC is reviewing the License Amendment Request
  - Approval anticipated in FY13

Options

- Do Nothing
  - No change in budget
- Recommended Option 1 – Approve budget change
  - Allows project work to continue on schedule
- Option 2 – ENL prepare software documentation
  - Continue to use ENL employees to prepare software documentation
- Option 3 – Eliminate C3-ilex support
  - Eliminate C3-ilex personnel support for connecting the DASie computer to PRNM and the PPC and provide on-site training

Options – Technical Pros/Cons

- **Technical Pros/Cons**

Options	Pros	Cons
Do Nothing	Budget is not impacted	The required work wouldn't get done. The budget would be overrun to pay anticipated NRC costs.
Recommended Option 1 – Approve Budget Increase	Keeps project on schedule and transfers knowledge to ENL employees	Increases total cost of project
Option 2	Cost would be lower	Not enough computer personnel to do the software documentation in a timely manner. Software documentation might not get done in time to support PDC upgrade.
Option 3	Reduces cost by $11K	Installation may take longer plus there would not be an opportunity for the new personnel to get trained. Turnover of ENL personnel has resulted in lost knowledge.

Options – Budget/Schedule

- **Budget Impacts – Impact is only FY13**

Options	FY13			FY09-15 Approved Budgets		
	ENL	NENL	Total	ENL	NENL	Total
Do Nothing	$197K	$402K	$599K	$1,838.4	$22,128.1	$23,966.5
Option 1	$141K	$682K	$823K			
Option 2	$197K	$505K	$702K			
Option 3	$141K	$671K	$812K			

- **Schedule Impacts/Recommended Schedule for LRP**

Options	Schedule Impacts
Do Nothing	Likely would not have software documentation done in time to support PDC upgrade in FY14. That could lead to a missed R22 outage milestone.
Option 1 - Recommended	Would ensure success path in completing software code and documentation for the PRNM to PPC interface. This would also allow approved cost to more closely match anticipated costs associated with the NRC review and provide C3-ilex assistance during pre-assembly.
Option 2	EN computer personnel have not had adequate time to keep plant equipment operating and work on PRNM software documentation at a pace that would allow completion in time to support the PDC upgrade. R22 Outage milestone to have PDCs ready could be challenged if EN personnel do all the software documentation work.
Option 3	Would not have C3-ilex available to provide assistance and conduct training during pre-assembly

Recommendation

- **Cost Flow and Timing for recommended option**

Requested Budget ($K) Cost Flow Based on Most Current Estimate	**FY 12** Approved/Actual	**FY 13** Approved/Requested	**FY 14**	**FY 15**	**Grand Total (FY09 – FY15)**
Phase:	**3**	**3**	**3**	**3**	
ENL	$148.2/$97.2	$197.0/$141.0	$106.9	$370.1	$1,838.4
NENL	$2301.5/$2289.5	$402.6/$695.7	$22.0	$1730.8	$22,128.1
Grand Totals	$2,449.7/$2,386.7	$599.6/$836.7	$128.9	$2,100.9	$23,966.5

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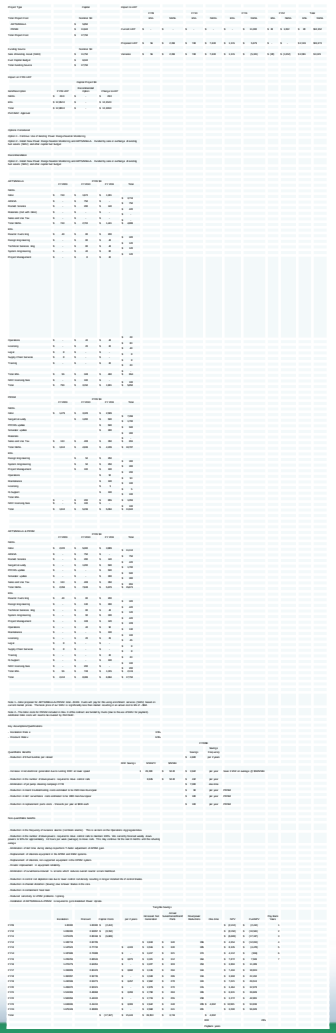
Risk Statement and Bridging Strategy

- Risk during implementation
  - Lack of experienced personnel
  - Components could be damaged
  - Moisture carryover higher than expected
  - Communication problems between PRNM and PPC
  - Implementation could take longer than expected
- Risk if not approved
  - Obsolete neutron monitoring equipment could fail
  - No cost savings realized from new power to flow map using MELLLA boundaries
  - Continued rod blocks would be received

Business Case

Payback in 7 years



Questions?

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