



NRC-Industry MP4 ISG-06 R2 Tabletop

D.2.2 New System Architecture

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Industry MP4 Team



- When reviewing the DCPP LAR for architecture content, the following “gaps” were identified that would be expected to be available as part of the LAR
 - *Demonstrate how the design detects malfunctions:*
 - *How the application interfaces and uses the self-test and self-diagnostic features defined in the approved topical report and evaluated in the SE.*
 - The LAR does not explicitly describe how the application program utilizes the results of the self-diagnostics. They are only described in a general way with reference to the ATRs.

- *Treatment and detection of malfunctions in the system inputs including sensors and transmitters, in the system logic including internal voters within the safety system or voters external to the safety system, and malfunctions in the system outputs include discrete output switches, analog modulating outputs, and the actuated devices as well as feedback of actual position or condition where employed. This should include the expected failure state(s) of each input and the response of the system to each failure, and the expected failure state(s) of each output and the response of the plant to each failure. These should be based on the platform FMEA and considering the FMEA for the plant application.*
 - The level of detail on how the diagnostics affect the resulting bistable result is not discussed.

- The following items are indicated as ISG-06 Phase 2 items. These would be included in an AR LAR
 - *Separate I/O power supplies are provided and qualified by PG&E during detailed design for the Triconex and ALS subsystems.*
 - *Operating voltage will be selected during detailed design to power instrument loops without exceeding voltage limitations of instrument loop sensors (transmitters).*
 - *The system-level PPS replacement Failure Modes and Effects Analysis (FMEA) will be completed during Phase 2.*