

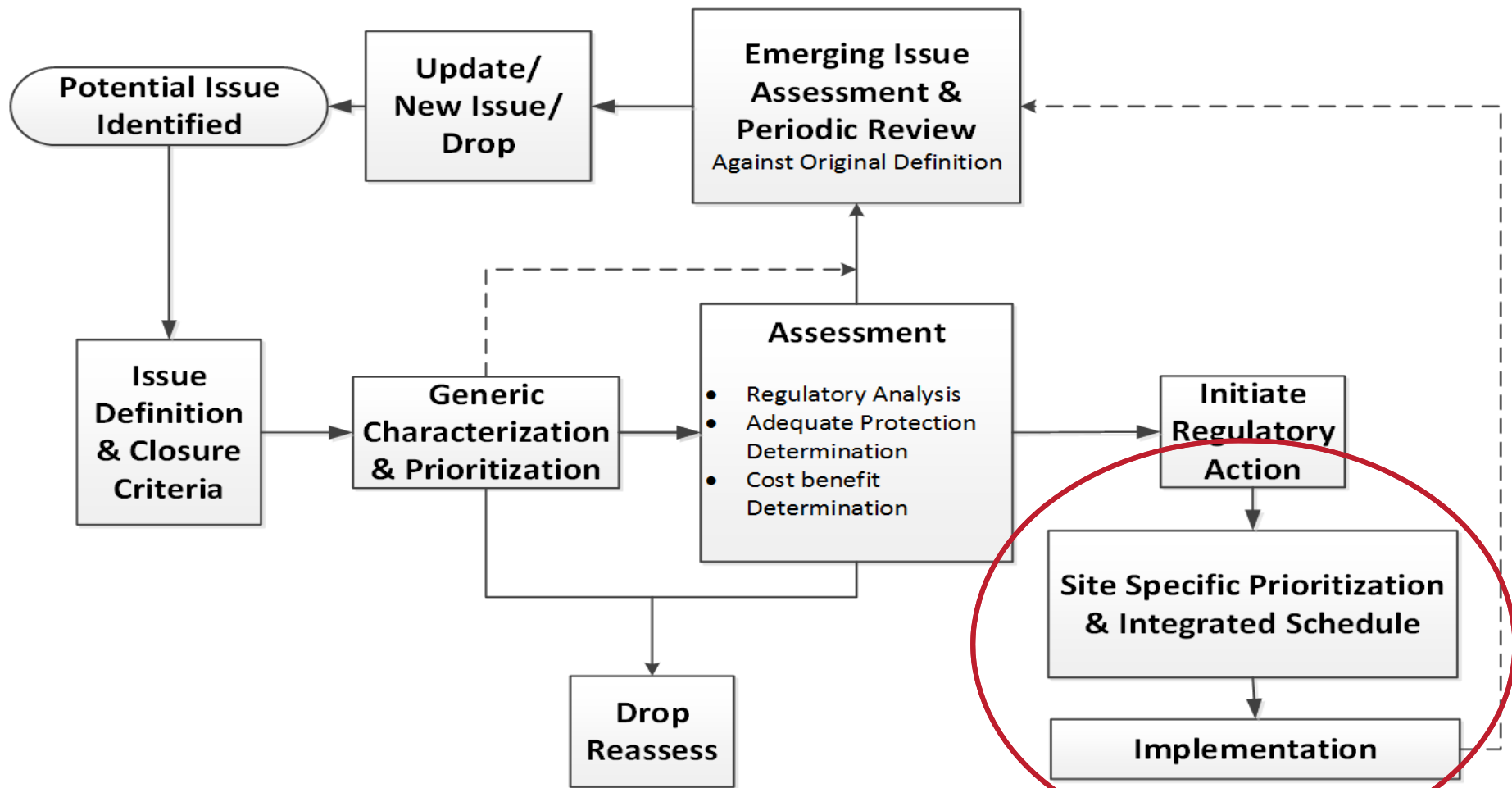
Overview of Industry Prioritization and Scheduling Pilot Results



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Process for Managing Cumulative Impact of Regulatory Actions



Conduct of Prioritization Pilot

- The prioritization and scheduling process was piloted at six sites
 - Davis-Besse, operated by FirstEnergy
 - Hatch, operated by Southern Nuclear
 - Palisades, operated by Entergy
 - Prairie Island, operated by Xcel Energy
 - Robinson, operated by Duke
 - V.C. Summer, operated by SCANA

Conduct of Prioritization Pilot

- Each pilot followed the prioritization and scheduling process outlined in April draft of NEI 14-10
- This process involves:
 - Identification of issues to be examined in the pilot
 - Identification of Integrated Decision-making Panel (IDP) members
 - Training of personnel on the prioritization and scheduling process
 - Development of plant-specific assessments for each issue
 - Evaluation of each issue by the IDP
 - Aggregation of IDP results and assessment of potential schedule changes

Issues Addressed by Pilots

- Pilots addressed 107 issues
 - 61 plant improvement activities
 - 46 activities driven by a regulatory requirement or plant commitment
- Attempts were made to select issues that would exercise all aspects of guidance
 - Small actions – large projects
 - Security, EP, RP

Conduct of Prioritization Pilot

- Pilot activities were conducted during the Spring and Summer months
- Initial training conducted at NEI offices; subsequent training conducted at plant sites
- Integrated Decision-making Panel members selected in accordance with guidance
- Meetings of the Integrated Decision-making Panels were observed by industry and NRC staff

Ancillary Process Activities

- Pilots were preceded by tabletops
 - Generic tabletops (Nov – Dec 2013)
 - Plant-specific tabletops (Feb – Mar 2014)
- Generic Assessment Expert Team assessments were conducted to support pilots and provide additional experience (May)
- Tabletop exercises for Security, EP, RP issues were conducted to provide additional experience (Sept.)

Pilot Results

- Prioritization guidance worked well
 - No major guidance process changes were identified
 - Pilots identified “clarification” changes that have been incorporated
- Value seen in viewing varied projects through common risk-informed lens
- Pilots identified recommended changes to schedule/scope for both regulatory and plant-initiated activities

Robinson	Hatch	Davis-Besse
<ul style="list-style-type: none"> • Open Phase Initiative (Schedule Delay) • Gas Accumulation Tech Spec (Scope Change) • GSI-191 (Potential Scope/Schedule Change) • Battery Upgrade (Termination) 	<ul style="list-style-type: none"> • Open Phase Initiative (Schedule Delay) • Degraded Grid Transformers (Schedule Delay) 	<ul style="list-style-type: none"> • SFP Level Instrumentation (No change, too far advanced)

Key Insights: All issues are not created equal

- Current plant scheduling processes typically place a high priority on regulatory driven issues
 - Independent of its importance at site relative to other activities
- Tabletops and pilots demonstrated the strength and value of a straightforward and robust process that prioritizes plant safety
 - Identified issues of low relative importance receiving high priority on plant schedule (and vice versa)
- Examples:
 - Spent Fuel Pool Instrumentation
 - Palisades Incipient Detection
 - Robinson Battery Enhancement

Key Insights: Plant Design Affects Issue Importance

- A “generic” resolution schedule is often applied to generic issues without consideration of plant-specific design features that affect issue importance
- Example:
 - Open Phase Vulnerability

Key Insights: Reliability Attribute Provides Forward Look on Safety

- Reliability attribute provides nexus to safety for key systems, structures and components required by Tech Specs and monitored under ROP
- Allows prioritization of plant improvements driven by parts obsolescence and/or plant reliability
- Examples:
 - Hatch HPCI/RCIC control
 - Davis-Besse Control Rod Replacement EOL

Key Insights: Value Seen in Multi-disciplinary Panel

- Use of a highly experienced multi-disciplinary panel, guided by a structured process, is seen to be critical to process success
 - Process focusses discussion on key importance attributes
 - Risk insights (both positive and negative)
- Pilot Examples

Key Insights: Process is Robust and Repeatable

- Multiple instances of similar issues across pilots allowed evaluation of process stability
- Results showed process to be robust and repeatable
- Examples:
 - NFPA 805 modifications
 - Spent Fuel Pool Level Instrumentation

NPFA 805 Modifications

Importance and Priority Determinations

Desig.	Safety	Security	EP	RP	Reliability	Priority
PAL02	M	N	N	N	N	2
PAL03	M	N	N	N	N	2
ROB02	M	N	N	N	N	2
ROB03	M	N	N	N	N	2
ROB04	M	N	N	N	N	2
PI02	M	N	N	N	N	2
PI03	M	N	N	N	N	2
HAT01	_*	-	-	-	-	-

Desig.	Title
PAL02	Incipient Detection for Cable Spreading, electrical equipment room
PAL03	Electrical Coordination Modifications
ROB02	NFPA 805 - Incipient Detection
ROB03	NFPA 805 - Suppression and detection modification
ROB04	NFPA 805 - Electrical Coordination
PI02	NFPA 805 – Hot Shutdown Panel
PI03	NFPA 805 - Incipient Fire Detection
HAT01	NFPA 805 – All changes

M – Medium, N – None * - Issue too broadly defined for assessment

Spent Fuel Pool Level Instrumentation

Importance and Priority Determinations

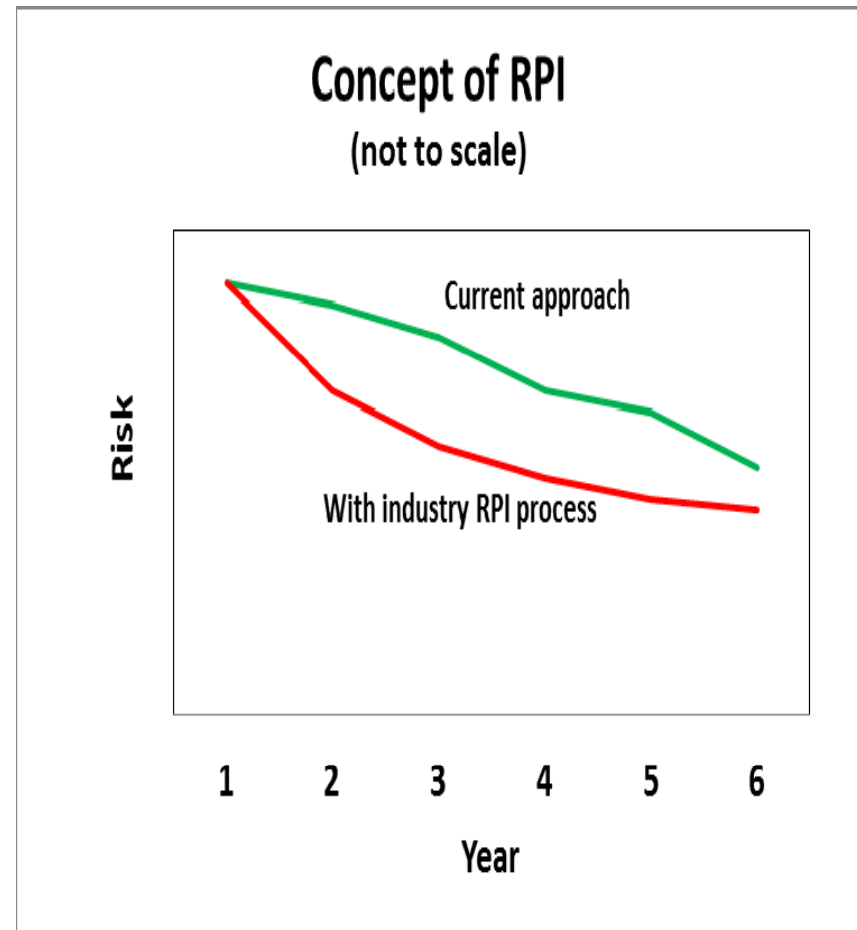
Desig.	Safety	Security	EP	RP	Reliability	Priority
PAL12	VL	N	N	N	N	4
SUM06	VL	N	N	N	N	4
DB17	VL	N	N	N	N	4
HAT11	VL	N	N	M	N	3

Desig.	Title
PAL12	Reliable Spent Fuel Pool Instrumentation Installation
SUM06	SFP Level Indication
DB17	Flex Spent Fuel Pool Level Modification
HAT11	Reliable Spent Fuel Pool Instrumentation

M – Medium, VL – Very Low, N – None

Value Proposition of Prioritization

- Prioritization and associated scheduling actions allows plants to implement sooner some key plant improvements that have languished due to competing regulatory priorities
- Results in faster safety improvements
- A **WIN – WIN** Proposition



Next Steps

- Formal issuance of NEI 14-10, *Guidelines for Prioritization and Scheduling Implementation*
- Final report on Pilot Lessons Learned
- Inclusion in March 2015 SECY paper:
 - “Endorsement” of NEI 14-10 as acceptable supporting basis for schedule changes based on importance at plant site.
 - Incorporation of safety focused prioritization in discussion and planning for new emerging issues
 - Use of safety focused prioritization in planning and scheduling of rulemakings

Backup Slides



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Palisades Aggregation Results

Desig.	Title	Cat.	Importance Ranking					NEI Priority	Plant Relative Priority
			Safety	Security	EP	RP	Reliability		
PAL01	Additional High Head Diesel Driven Aux Feedwater Pump	Reg.	M	VL	N	N	N	2	1
PAL02	Incipient Detection for Cable Spreading, electrical equipment room	Reg.	M	N	N	N	N	2	2
PAL03	Electrical Coordination Modifications	Reg.	M	N	N	N	N	2	3
PAL04	Cooling Tower E-30B Replacement due to Aging	Plant	VL	N	N	N	H	2	4
PAL05	Fukushima Mechanical	Reg.	L	N	N	N	N	3	5
PAL06	Seismic Evaluations required by Fukushima	Reg.	L	N	N	N	N	3	6
PAL07	Combine EOPs and SAMGs into one Procedure	Reg.	L	N	VL	N	N	3	7
PAL08	Replace Refueling Machine Control Consoles due to Aging	Plant	N	N	N	N	N	4	8
PAL09	Primary Coolant Pump Seal Replacement Aging	Plant	VL	N	N	N	L	4	9
PAL10	Safety Related MCC 1,2,7 & 8 Breaker Upgrade / Replacement due to aging	Plant	VL	L	N	N	VL	4	10
PAL11	Permanent Personnel Fall Protection Install at Rx Cavity Tilt Pit	Plant	N	N	N	M	N	4	11
PAL12	Reliable Spent Fuel Pool Instrumentation Installation	Reg.	VL	N	N	N	N	4	12
PAL13	ISI ASME Code Case N-770-1 Alloy 82/182/600 inspections	Reg.	VL	N	N	N	N	4	13
PAL14	Feedwater Controller Replacement Single Point Vulnerability and Aging	Plant	VL	N	N	N	L	4	14
PAL15	DEH, Gov Vlv Position, Turbine Trip device Upgrades to add redundancy and Obsolescence	Plant	VL	N	N	N	VL	4	15
PAL16	Remove OP-Comp Meas from PCP DC oil lift pumps and Public Address System due to potential cable shorting and breaker coordination	Plant	VL	N	N	N	L	4	16
PAL17	Add Turbine building buried piping cathodic protection as recommended by Buried Piping Program	Plant	VL	N	N	N	L	4	17
PAL18	Develop and install an electrical open phase detection and isolation	Reg.	VL	N	N	N	N	4	18
PAL19	Replace pressurizer heater breakers due to Accelerated Aging from Elevated Ambient Temperatures	Plant	N	N	N	N	N	5	19
PAL20	Cyber Security SIEM Monitoring	Reg.	N	VL	N	N	N	5	20

Robinson Aggregation Results

Desig.	Title	Cat.	Importance Ranking					NEI Priority	Plant Relative Priority
			Safety	Security	EP	RP	Reliability		
ROB01	Loss of RCP Seal Cooling	Plant	M	N	N	N	L	2	1
ROB02	NFPA 805 Incipient Detection	Reg.	M	N	N	N	N	2	2
ROB03	NFPA 805 Suppression and detection modification	Reg.	M	N	N	N	N	2	3
ROB04	NFPA 805 Electrical Coordination	Reg.	M	N	N	N	N	2	4
ROB05	Fukushima Electrical	Reg.	M	N	N	N	N	2	5
ROB06	Fukushima Mechanical	Reg.	L	N	N	N	N	3	6
ROB07	Implementation of Cyber security	Reg.	L	N	N	N	N	3	7
ROB08	LCV-1417A fail open to fail closed	Plant	VL	N	N	N	N	4	8
ROB09	Local Operator Action to Reset Breaker to IAC	Plant	VL	N	N	N	N	4	9
ROB10	Operator Burden- Inhibiting Fire Suppression	Plant	VL	N	N	N	N	4	10
ROB11	Open Phase Byron event	Reg.	VL	N	N	N	N	4	11
ROB12	Replace existing vacuum switches	Plant	N	N	N	N	L	4	12
ROB13	Replace System 6175 Cable Vault CO2 system	Plant	N	N	N	N	L	4	13
ROB14	Install Repeater in Containment	Plant	N	N	N	N	N	5	14
ROB15	MRP-227A Holddown Spring	Reg.	N	N	N	L	N	5	15
ROB16	Implement TSTF 523 - Generic Letter 08-01 Periodic Testing	Reg.	N	N	N	N	N	5	16
ROB17	GSI 191 insulation	Reg.	N	N	N	N	N	5	17
ROB18	Diaphragm Valve replacement	Plant	N	N	N	N	L	5	18
ROB19	Dam/Reservoir lake Level Indication	Reg.	N	N	N	N	VL	5	19
ROB20	Loose Parts Monitoring Upgrade	Plant	N	N	N	N	VL	5	20
ROB21	Isolation valve in RWST Supply to charging pumps pipe 4-SI-82	Plant	N	N	N	N	VL	5	21
ROB22	Replace B-Battery with Larger Battery	Plant	N	N	N	N	L	5	22

Summer Aggregation Results

Desig.	Title	Cat.	Importance Ranking					NEI Priority	Plant Relative Priority
			Safety	Security	EP	RP	Reliability		
SUM01	7KV Reroute	Plant	M	N	N	N	N	2	1
SUM02	ISFSI	Plant	N	N	N	N	H	2	2
SUM03	RCP Seal Replacement	Plant	L	N	N	N	M	3	3
SUM04	EP Project (PAR Update)	Reg.	VL	N	M	N	N	3	4
SUM05	Fatigue Rule	Reg.	VL	VL	N	N	N	4	6
SUM06	SFP Level Indication	Reg.	VL	N	N	N	N	4	7
SUM07	Cyber Security Project (SIEM installation)	Reg.	VL	L	N	N	N	4	5
SUM08	Physical Security Project (perimeter detection power upgrade)	-	-	-	-	-	-	-	-

Prairie Island Aggregation Results

Desig.	Title	Cat.	Importance Ranking					NEI Priority	Plant Relative Priority
			Safety	Security	EP	RP	Reliability		
PI01	Fukushima FLEX Implementation	Reg.	VL	VL	VL	N	N	1	1
PI02	NFPA 805 – Hot Shutdown Panel	Reg.	M	N	N	N	N	2	2
PI03	NFPA 805 Incipient Fire Detection	Reg.	M	N	N	N	N	2	3
PI04	Foxboro RCS Phase 3	Plant	VL	N	N	N	H	2	4
PI05	Unit 1 Vent Valve Platforms GL 08-01	Plant	N	N	N	H	VL	2	5
PI06	RCP Seal Replacement	Plant	M	N	N	N	L	2	6
PI07	ISFISI Security Mods- Proposed Rulemaking	Reg.	N	M	N	N	N	3	7
PI08	Fan Coil Unit Motor Rewinds	Plant	VL	N	N	N	M	3	8
PI09	IR Transformer Replacement	Plant	VL	N	N	N	M	3	9
PI10	Cooling Water Header Replacement	Plant	VL	N	N	N	M	3	10
PI11	10CFR Part 26 Fitness for Duty	Reg.	VL	VL	N	N	N	4	11
PI12	Cyber Security 08-09 Program	Reg.	VL	VL	N	N	N	4	12
PI13	Tornado Missile RIS	Reg.	VL	N	N	N	N	4	13
PI14	Cooling Tower Refurbishments	Plant	N	N	N	N	L	4	14
PI15	Replace Traveling Screens	Plant	N	N	N	N	VL	5	15
PI16	Westinghouse Radiation Monitor Replacement	Plant	N	N	VL	N	VL	5	16
PI17	OBN AFW Pump Room Cooling	Reg.							17

Davis-Besse Aggregation Results

Desig.	Title	Cat.	Importance Ranking					NEI Priority	Plant Relative Priority
			Safety	Security	EP	RP	Reliability		
DB01	EFW and RCS Modifications	Reg.	H	N	N	N	N	1	1
DB02	End of life Control Rod Replacement	Plant	VL	N	N	N	H	2	2
DB03	Reactor Coolant Pump 2-1 and 2-2 Replacements	Plant	L	N	N	N	M	3	3
DB04	Control Rod Drive System Replacement	Plant	VL	N	N	N	M	3	4
DB05	Cyber Security Rule Implementation	Reg.	VL	L	VL	N	M	3	5
DB06	Replace the Integrated Control System	Plant	VL	N	N	N	M	3	6
DB07	Station Air Compressors Replacement	Plant	VL	N	N	N	L	4	7
DB08	Dry Fuel Storage	Plant	VL	N	N	N	M	3	8
DB09	Replace the Seismic Monitoring System	Plant	N	N	H	N	M	2	9
DB10	Alloy 600 Mitigation	Reg.	VL	N	N	N	L	4	10
DB11	Replace Normal Ventilation Control Room Ventilation Chiller Units 1 and 2	Plant	VL	N	N	N	L	4	11
DB12	Install New Non-Essential Batteries and Chargers (DC System Margin)	Plant	VL	N	N	N	N	4	12
DB13	Replace Vibration and Loose Parts Monitoring System	Plant	VL	N	N	N	L	4	13
DB14	Byron Station Open Phase Failure	Reg.	VL	N	N	N	VL	4	14
DB15	Electrical Power System Modification	Plant	VL	N	N	N	VL	4	15
DB16	Non-Safety Related Heater Installation in Battery Rooms	Plant	VL	N	N	N	VL	4	16
DB17	Flex Spent Fuel Pool Level Modification	Reg.	VL	N	N	N	N	4	17
DB18	Physical Security Modifications	Reg.	VL	N	N	N	VL	4	18

Hatch Aggregation Results

Desig.	Title	Cat.	Importance Ranking					NEI Priority	Plant Relative Priority
			Safety	Security	EP	RP	Reliability		
HAT01	NFPA-805	Reg.	-	-	-	-	-	-	0
HAT02	License Renewal	Reg.	-	-	-	-	-	-	0
HAT03	Weld Overlay	Reg.	VL	N	N	N	H	2	1
HAT04	Safety Relief Valve Upgrades	Plant	L	N	N	N	L	3	2
HAT05	Cyber Security	Reg.	VL	M	VL	N	M	2	3
HAT06	Emergency Diesel Generator Excitation Panel Upgrade	Plant	VL	N	N	N	M	3	4
HAT07	Emergency Diesel Generator Improvements	Plant	VL	N	N	N	M	3	5
HAT08	HPCI Controls Replacement	Plant	VL	N	N	N	M	3	6
HAT09	RCIC Controls Replacement	Plant	VL	N	N	N	M	3	7
HAT10	Diagonal Room Cooler Replacement	Plant	VL	N	N	N	M	3	8
HAT11	Reliable Spent Fuel Pool Instrumentation	Reg.	VL	N	N	M	N	3	9
HAT12	Diesel Generator LOCA/LOSP Timer Card Replacement	Plant	VL	N	N	N	L	4	10
HAT13	MSIV Conversion	Plant	VL	N	N	N	L	4	11
HAT14	600V Breaker Replacement	Plant	VL	N	N	N	L	4	12
HAT15	Battery Charger Replacement	Plant	VL	N	N	N	L	4	13
HAT16	Motor Control Center Pan Assemblies	Plant	VL	N	N	N	L	4	14
HAT17	Degraded Grid Transformer	Reg.	VL	N	N	N	L	4	15
HAT18	Open Phase Protection	Reg.	VL	N	N	N	L	4	16
HAT19	Seismic Monitoring System Improvement	Plant	VL	N	N	N	L	4	17
HAT20	Reactor Building Roof Project	Plant	N	N	N	N	N/A	5	18