

efficiency bulletin

Dec. 18, 2017

Efficiency Bulletin: 17-23

Transform the Maintaining the Plant Organization

Currently multiple handoffs are required between the development of a work plan and the maintenance craft team execution of work in the field. These handoffs create delays and impede the efficient execution of the work, resulting in lost productivity, increased maintenance cost incurred by the industry, and frustration by the craft team.

This efficiency bulletin transforms the maintaining of nuclear stations into a more autonomous entity that minimizes the number of handoffs and increases maintenance ownership of preventive maintenance activities. This transformation is dependent on maximizing the benefit from previous enabling efficiency bulletins.

Addressees: Chief nuclear officers, NEI APCs and INPO APCs

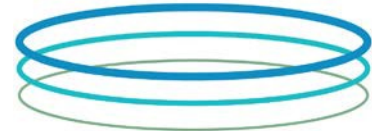
Issue: WM-E-00 Transform the Maintaining the Plant Organization

Summary of Efficiency Opportunity

- Desired end-state—Each nuclear station is maintained by an autonomous group of professionals that executes work in a highly efficient manner to improve plant productivity and equipment reliability at a reduced cost. This maintaining organization entails a self-directed professional workforce comprised of the following staff:
 - A highly proficient Maintaining workforce
 - Component/subject matter experts embedded within the Maintaining organization
 - Component/subject matter experts who own the preventive maintenance technical basis for non-critical components
 - Strategic Engineering (formally Systems Engineering) who own single point vulnerability mitigation and the preventive maintenance technical basis for critical components

Color Code: Green

DELIVERING THE
NUCLEAR PROMISE®



nuclear matters:
my work • my plant • my industry



NUCLEAR ENERGY INSTITUTE

The Nuclear Energy Institute is the nuclear energy industry's policy organization.

This bulletin and additional information about nuclear energy are available at nei.org.

1201 F Street, NW
Washington, DC 20004
NEI.org

- Predictive maintenance personnel
 - Full-time Operations, Radiation Protection, and Supply Chain personnel who support the FIN process
 - Work Management personnel who manage emergent work
 - An engineering rapid response team
- Value proposition (vision of excellence)—Initial savings will primarily be realized from efficiency gains in maintenance support functions (such as eliminating Foreign Material Exclusion rework and leak coordinator positions), work management process simplification, and reduced maintaining organization reliance on engineering. Additional efficiency gains will be achieved through the full implementation of enabling efficiency bulletins that reduce or eliminate low-value preventive maintenance. Implementing other enabling efficiency bulletins and INPO “Industry Cumulative Impact Short-Term Actions” guidance will also increase work efficiency gains.

These efficiency gains are achieved by the following:

- Improving the identification of core tasks and objective work load estimates by the affected organizations as identified in [NISP-EN-03](#), “Supporting Guidance for Optimizing Programs and Design Organizations”
 - Identifying and addressing the potential impact and risk of reorganizing
 - Identifying implementation enablers and risk mitigation strategies
 - Developing a comprehensive change management plan that contains appropriate measures and monitoring
 - Reducing the level of support from vendors and suppliers
- Why it is important?—Currently, plant work activities can require up to 20 individuals, 13 weeks and over six handoffs to complete a work activity. This process is inefficient and hampers the capabilities of our craft work force. Continued viability of our nuclear plants requires streamlined maintenance processes that do not diminish nuclear safety and equipment reliability. This efficiency bulletin meets these objectives by providing:
 - Increased efficiency through minimizing hand-offs and delays
 - Increased craft decision-making for equipment reliability
 - Improved, and more consistent response to site and fleet-wide issues, including the ability to redirect resources for emergent critical needs
 - Increased focus on the most important issues that impact plant equipment
 - Increased collaboration between Maintenance, Work Management, Strategic and Program Engineering core business functions and equipment reliability
 - Industry benchmarking values— Equipment reliability and overall station performance will remain at current high performing levels. Critical and non-critical maintenance backlogs will be reduced. Weekly schedule completion will improve, safety-system outage performance will be maintained or improved, and system and component availability to Operations will improve.

The measure of effectiveness:

- Equipment reliability index (ERI) and Maintenance and Work Management area indices will continue to meet or exceed current performance
- Maintenance human performance and technical fundamental errors will be reduced
- Critical skills and proficiency will be maintained
- Maintenance backlogs are maintained at low levels

Key to Color Codes:

Red: NSIAC initiative – full participation required for viability

Blue: Action expected at all sites, but is not needed for broad industry viability

Green: Utility discretion to implement, consistent with its business environment

- This efficiency bulletin is green because of industry variability in station performance, external oversight, financial stressors, plant life-cycle position, equipment age/upgrades, operational priorities, organizational maturity, worker proficiency, and labor agreements. Several plant design and organizational factors may also affect the level of efficiency that can be achieved by this bulletin. These factors may include:
 - Current staffing levels
 - Single or multi-unit stations, particularly if the technology(ies) of the multi-units are different
 - Single site or part of a fleet, and the amount of site work performed by the fleet
 - Experience level of the workforce
 - Level of regulatory oversight at the plant
 - Level of vendor or contractor reliance at the plant

Background

Other technical industries and international nuclear stations have a more autonomous or self-sufficient maintenance organization, requiring fewer handoffs or external support groups. In the U.S. nuclear industry, it takes numerous individuals from various organizations (Work Planning, Operations, Scheduling, Radiation Protection, System Engineering, Supply Chain, etc.) to support maintenance team fieldwork. Additionally, maintenance activities can take several work crews from various shops to perform both simple and complex tasks, resulting in multiple handoffs and delays. Several maintenance organizations in other technical industries leverage their workers’ expertise, promote self-reliance for all aspects of maintaining equipment, and are held accountable for the effective use of resources with the right skill set to achieve greater levels of work efficiency while maintaining high quality. In many of these industries maintenance does a majority of the troubleshooting, not engineering. Over the years, the U.S. nuclear industry has diluted worker responsibility for work performance through rigorous process controls that limit worker flexibility and the application of their knowledge and skills. In contrast, a few domestic nuclear plants with appropriate staffing levels exhibit high degrees of teamwork, collaboration and worker autonomy. These plants leverage the use of multi-skilled craft and engineers, and composite crews in maintenance activities and project management.

- This bulletin defines an autonomous site Maintaining organization aligned on an efficient maintenance process. Maximum benefit can only be obtained from this efficiency bulletin when the following enabling guidance documents are fully implemented:

Base Enablers (Use caution and evaluate implementing this efficiency bulletin (17-23) without these efficiency bulletins fully implemented):

INPO	Industry Cumulative Impact Short Term Actions, (November 2013)
EB 16-01	Eliminate Administrative Changes to Preventive Maintenance Work Orders
EB 16-02	Implement Graded Approach to Walkdowns
EB 16-10	Reduce Cumulative Impact from the Corrective Action Program
EB 16-13	Perform Self Briefs for Low Radiological Risk
EB 16-15a	Work Screening Process
EB 16-15b	Utilizing Minor Maintenance
EB 16-15c	FIN Team Efficiency
EB 16-16	High-Cost Non-Critical PM Reduction
EB 16-22	Implementing an Effective and Efficient Work Management T-Week Process
EB 16-25	Critical Component Reduction
EB 16-31	Pre-Approval Criteria for Work Execution
EB 17-03a	PMP 003: Value Based Maintenance
EB 17-03b	PMP-001: Embracing Cultural Shifts for Value Based Maintenance
EB 17-12	Reducing Burden through Empowering First-Line Supervisors
EB 17-13	OJT/TPE
EB 17-14	Improving the Effectiveness of Issue Resolution to Enhance Safety and Reliability

- EB 17-18 Optimizing Strategic Engineering, Engineering Response Team and Component Maintenance Support
- EB 17-19 Optimizing Program and Design Engineering Organizations

Increased Benefit Enablers (*These are not required to implement this efficiency bulletin (17-23), but add greater value*):

- EB 16-17 Optimizing FLEX Equipment PM Strategies
- EB 16-18 NLO/Maintenance and Technical Initial Training Content
- EB 16-33 System Health Reporting Efficiencies
- EB 16-34 Streamline Program Health Reporting
- EB 17-09 Industry wide Coordination of Licensing of 10CFR50.69 – Risk Informed Categorization and Treatment of SSCs
- EB 17-11 Maximize Implementation of the Surveillance Frequency Control Program
- EB 17-16 Industry Coordination of Categorization and Alternative Treatments for 10CFR 50.69
- EB 17-20 Further Streamline the Work Management Process

- Several additional improvement opportunities are being considered by the industry that could provide additional efficiencies. These include the following:
 - Advanced remote equipment monitoring
 - Maintenance rule changes
 - Reduction in maintenance programs
 - Emergency response requirements
 - Technology needs for the life of the plant: scoping for modifications and digitalization

Relevant Standards

- Performance Objectives and Criteria (INPO):
 - OR.1, Station and corporate managers are aligned on the required support and allocation of resources needed to achieve and sustain high levels of nuclear, radiological, industrial and environmental safety performance.
 - OR.2, Managers provide the staffing and resources for each department or functional area to support the accomplishment of their assigned responsibilities as well as to facilitate cross-functional responsibilities. They consider and mitigate the potential effects of organizational changes and staff reductions before these are initiated.
 - OR.3, Change management processes are implemented when applicable and the progress of changes is systematically monitored to verify the intent of each change is met and to identify possible unintended consequences.
 - NP.1, Nuclear professionals apply the essential knowledge, skills, behaviors, and practices needed to conduct their work safely and reliably.
 - LF.1, Leaders, by commitment and example, inspire, motivate and align the organization to achieve safe and reliable station operations, event-free outages, and effective emergency response. They establish and reinforce standards of excellence based on industry top performance to continually strive for improvement and intervene to correct performance at early signs of decline.
 - MA.1, Maintenance personnel apply the essential knowledge, skills, behaviors and practices to improve equipment performance, contributing to safe and reliable operation.
 - MA.2, Maintenance activities are conducted in a manner that promotes safe and reliable plant operation.
 - EN.1, Engineering personnel apply the essential knowledge, skills, behaviors, and practices needed to ensure equipment performs as required, the plant is maintained within design requirements, margins are controlled, and the plant is operated safely and reliably.

- EN.2, Engineering personnel recognize and accept their responsibility to address plant technical issues and act as the site technical conscience. They uphold the plant design and licensing bases and ensure a margin of safety is maintained.
- OF.1, Station personnel and programs are aligned to identify and prioritize the resolution of operational problems.
- OF.3, Organizational roles, responsibilities, processes, procedures and infrastructure are established such that unexpected operational conditions are managed promptly and safely.
- WM.1, Work activities are managed during both on-line and outage periods to support safe and reliable operation.
- ER.1, High levels of reliability is achieved for equipment that supports nuclear safety, plant reliability and emergency response capability.
- ER.2, Preventive and predictive maintenance and performance monitoring are used to prevent failures of equipment important to safety, reliability and emergency response.
- ER.3, Equipment is managed to maintain long-term equipment reliability.
- ER.4, Activities are implemented to preserve materials and components in a manner that supports long-term, reliable plant operation.
- INPO 10-005, Principles for Maintaining an Effective Technical Conscience.
- INPO 15-005, Leadership and Team Effectiveness Attributes.
- INPO 17-04, Principles for Excellence in Corporate Performance.

Relevant Regulatory Requirement

- 10 CFR 50.65, Requirements for Monitoring the Effectiveness of Maintenance at Nuclear Power Plants
- Regulatory Guide 1.160, Monitoring the Effectiveness of Maintenance at Nuclear Power Plants

Guidance

- INPO 05-004, *Guidelines for the Conduct of Maintenance at Nuclear Power Stations*
- INPO 15-003, *Conduct of Engineering Programs at Nuclear Power Stations*
- Division of Responsibilities section of NISP-EN-03, Supporting Guidance for Optimizing Programs and Design Organizations
- Attachment 1 provides transform maintaining the plant guiding principles
- Attachment 2 provides key enablers for the successful implementation of transforming the organization
- Attachment 3 provides a conceptual diagram of transforming the maintaining organization
- Attachment 4 provides a project plan

Recommended Industry Actions

Perform the following actions to implement a transformed Maintaining organization as shown in the conceptual diagram in Attachment 3:

- Evaluate that the efficiency bulletins listed as “Base Enablers” in the “Background” section above have been satisfactorily implemented. Effective implementation of the bulletins including change management plans is essential for a transformed organization.
- Redesign the Maintaining organization to include the following attributes:
 - The Maintaining organization becomes the “first responders” to address all operations concerns and address all equipment issues without engineering hand-offs. The new organization will perform the following:
 - Conduct simple and complex troubleshooting thereby eliminating the need to involve strategic engineering in issue resolution
 - Facilitate decision-making and quick response to emergent equipment issues, minimizing hand-offs between and within maintenance disciplines and engineering.
 - Transition maintenance to a more autonomous organization:
 - Work Management and Maintenance planners are embedded in the organization.

- Full-time Operations personnel are assigned to support the organization that report to Operations.
- Full-time Supply Chain personnel are assigned to support the organization to quickly respond to emergent parts issues and concerns.
- Full-time Radiation Protection personnel are assigned to the organization as appropriate based on plant type (PWR/BWR) and workload demands.
- Full-time Rapid Response Team with engineering expertise is assigned to support the organization.
- Full-time component/subject matter experts are assigned to support the organization.
- Ownership and accountability for equipment performance is within the Maintaining organization. The new organization:
 - Owns all non-critical PM bases and change processes.
 - Owns predictive maintenance program and resources.
 - Empowers maintenance first line supervisors to make real-time decisions in the field.
- A streamlined work management process is in place that simplifies planning, preparation and work execution:
 - The on-line schedule is fixed and set for a cycle based on known preventive maintenance and surveillances with required frequencies.
 - Emergent work is managed by the new organization.
 - The FIN process is used as the most efficient and effective process to prepare and execute the majority of work.
 - The T-week cycle process is streamlined and minimized to focus on PMs, surveillances, and long-term life cycle management.
 - Work management meetings are minimized and scheduling of work is simplified by implementing the simplified work management process of AP-928 Rev.5.
 - Maintenance materials are quickly identified and long-lead parts within a two-year or 18 month cycle plan are identified and ready.
- Review the following actions for station and labor agreement applicability to reduce work management handoffs and increase the Maintaining organization self-sufficiency:
 - Identify and train maintenance craft on a concise set of fundamental maintenance activities that can be performed by any technician. The goal of this enabler is an autonomous work crew with minimal supervisor oversight such that any maintenance technician could perform this set of maintenance tasks without requiring cross discipline maintenance support. Integrate work crew skill sets through the use of composite crews or groups for specific projects, modifications, or important emergent work.
 - Process automatization should be optimized, including electronic work packages, smart procedures, and automatic assembly of performance indicators and management meeting materials.
- Review site/utility specific prerequisite actions for transforming the Maintaining organization that could hinder or impact full implementation of this efficiency bulletin. These actions include resolution to labor agreements or emergency plan requirements, and inclusion and tracking of these actions in change management plans.
- Review planned site actions to fully transform the Maintaining organization for potential impact on required corporate resources. For example, if additional emergency preparedness resources are required at corporate headquarters to support reductions in site staffing levels, ensure these resources are available and trained to perform these functions.
- Review site-specific position descriptions, roles and responsibilities, and organization charts as appropriate. Details on modified or expanded roles will likely require updates to site-specific documents to allow maximum value to be achieved from the transformed organization. Failure to take full advantage could result in performance impacts, gaps in execution of transformed work process or restraint of potential resource optimization.

- Review hiring and training practices for new and existing employees to ensure the right knowledge and skills are properly accounted for to support the transformed organization. Consider using the guidance in EB-17-13 “OJT/TPE Process” and ACAD 91-006, Rev. 2, “Guidelines for On-The-Job Training and Evaluation” to use OJT/TPE preferentially versus using classroom training.

Change Management Considerations

Industry Activities

- An Industry webinar will be held to provide background for this initiative and provide an open forum to clarify expectations and ask questions. Webinar information can be found at <https://web.inpo.org/Pages/Nuclear-Promise-Issues.aspx>.
- This efficiency bulletin will be discussed at regional Operations, Maintenance, Work Control, Chemistry, Radiation Protection, Human Performance, Training and Engineering meetings and routine industry conference calls.

Company Actions

- Develop a detailed change management plan consistent with station/fleet procedures. The following should be included in the change management plan:
 - Partner with Human Resources, Regulatory Assurance, Legal, Labor Relations and Bargaining Units in transforming the organization
 - Identify and revise procedures where processes and responsibilities are being reassigned.
 - Ensure adequate staffing is maintained to support non-routine duties such as event response teams, security drills, and emergency preparedness support.
 - Align departments on refueling and emergent outage roles and responsibilities.
 - Evaluate the training, knowledge, skills, experience and currency of workers assigned new roles to maintain or establish proficiency. In particular, evaluate technician proficiency to perform identified fundamental maintenance activities. Ensure overall knowledge and application of maintenance technical fundamentals is increased through these proficiency evaluations.
 - Ensure knowledge transfer occurs for transferred roles and responsibilities.
 - Implement changes in roles and responsibilities prior to commencing resource reductions.
 - Include considerations from Attachment 2: Key Enablers and Assumptions in change management plans.
 - Ensure process changes that result in the elimination of formerly key positions, such as FME, rework and leak coordinators, are well communicated relative to purpose, benefit and mitigating actions to prevent performance issues.
- Develop an effective communication plan to ensure workers and bargaining units understand the drivers behind these changes and expected outcomes from the changes. The plan should communicate the intent, desired outcome and purpose of the initiative. This will help ensure those implementing and affected by these changes understand the intent and can provide feedback to station leadership if the intent is not being met.
- Perform a gap assessment of current process requirements against those described above and implement the necessary procedure and process changes to facilitate alignment with the Transform the Organization model. Establish milestones and periodically measure progress against implementation plans and baseline values, and take action if desired results are not achieved.
- Evaluate the cultural or behavioral changes required to implement these efficiencies. For a transformed organization, a collaborative culture must exist where individuals are focused on station economic viability, yet work together as a team. This will require management monitoring and mentoring, bargain unit involvement, and/or training to implement these changes.
- Consult supervisors, workers and bargaining units to identify what additional items can be streamlined or eliminated.
- Efficiency Bulletin 17-18, *Optimizing Strategic Engineering, Engineering Response Team and Component Maintenance Support*, transfers some engineering responsibilities to other individuals and station departments, both inside and outside of engineering. Departments outside of engineering must explicitly accept the revised responsibilities identified in Attachments 1 and 6B of EB 17-18.

- Ensure external and internal nuclear oversight and other groups that monitor station performance understand these process and organizational changes so that feedback to workers does not conflict with the intended actions and outcomes.
- Refer to NISP-EN-03, “Supporting Guidance for Optimizing Programs and Design Organizations”, and NISP-ER-01, “Strategic Engineering Effectiveness”, for details of engineering roles and responsibilities in the new organization.
- Technical conscience will be much more important as decision-making is moved out of Engineering and into other departments who may not realize they share in this responsibility. At a minimum, conduct periodic self-assessments to identify early signs of weakness in technical conscience consistent with station/fleet response to Recommendation 2 in IER L1-14-20, *Integrated Risk – Healthy Technical Conscience*

Guidrails

Implementations of this bulletin will likely result in changes to many traditional or historical station processes and practices that have been used in maintenance and other organizations. Station leadership should carefully consider the magnitude and timing of these changes relative to the size and configuration of the station, current station performance and other external factors that could affect change implementation. For example, transforming the Maintaining organization will result in many responsibilities that were previously assigned to Engineering to be reassigned to the Maintaining organization. Therefore, stations should ensure the following guiderails are in place to reduce the risk of unintended consequences in implementing this efficiency bulletin:

- Ensure senior leadership and CFAMs support the changes and hold responsible departments accountable to perform their revised roles. The Maintaining organization must explicitly accept the responsibilities identified in this bulletin.
- Engage bargaining unit personnel on proposed changes, including explanations of the purpose and desired outcomes. Ensure Memorandums of Understanding clearly identify revised roles, responsibilities, expectations of bargaining unit employees.
- Establish appropriate bridging strategies to maintain necessary levels of proficiency during worker reassignment of roles and responsibilities. This strategy should consider the need for knowledge transfer activities, training, increased levels of manager oversight and coaching.
 - Apply a systematic approach to training when preparing workers for new roles, responsibilities, and task qualifications.
- Ensure senior leadership understands the key enablers and assumptions (such as strong station performance and no increased regulatory oversight) that were made and are included in Attachment 2. In particular, each station should verify that the assumptions are applicable, enabling efficiency bulletins to be fully implemented, and legacy issues addressed prior to establishing optimum staffing levels.
- Ensure the organizational capacity is sufficient to support planned and emergent issues that have the potential to affect safe operations or pose enterprise risk. Challenges could include the size, scope, and length of outages, potential or actual increased regulatory inspection, and internal corporate initiatives.
- Trend the Equipment Reliability Index (ERI) and Maintenance and Work Management area indices to ensure unintended consequences are identified and corrected in a timely manner. Additional metrics to monitor include those for staffing changes, human performance issues, project implementation effectiveness, and work-week management effectiveness. Other metrics/indicators to consider for monitoring include:
 - Transition Metrics: overtime, safety culture, ERI, MA/WM indicators
 - Performance Metrics: Rework, FIN effectiveness, maintenance efficiency, maintenance consequential errors, on-line schedule completion

Report Your Site’s Results

Please report your company's implementation of this improvement opportunity, including the date of completion. Send this information along with your company point of contact to EfficiencyBulletin@NEI.org.

Industry Contacts

- Industry champion for this issue: John Boesch, 612-330-7526, john.boesch@xenuclear.com and Donald G. Goldsmith, 612-330-6519, donald.goldsmith@xenuclear.com
- EPRI Contact: Rick Pepin, 704-595-2889, rpepin@epri.com
- INPO Contact: Paul DiRito, 770-644-8472, diritopj@INPO.org
- NEI Contact: Steven Kraft, 202-739-8116, spk@nei.org
- On the web: www.nei.org/bulletin1723

Industry Approval:

Timothy J. O'Connor, Industry Lead



David P. Igyarto, Institute for Nuclear Power Operations



John W. Pitesa, Nuclear Energy Institute



Attachment 1: Transform Maintaining the Plant Guiding Principles

- Ensure station safety and reliability performance will not be impacted by these changes
- Use utility and site flexibility to determine desired end state. Not all plants will be able to drive to this proposed organization within the same time frame nor to the same staffing levels
- Refocus the function of maintaining plant components and systems to a standard and autonomous organization with a set of streamlined core functions that support plant safety and reliability using a graded approach
 - Includes standard organizational structures, optimized processes, qualification requirements, and staffing recommendations for both single and multi-unit sites
- Define and lay out an integrated team focused on effectively maintaining the plant with minimal hand-offs to external organizations
 - Requires the ability to plan, schedule, approve, implement, address emergent challenges to work plans, and monitor equipment performance within one organization
 - Requires the engineering support of the integrated maintenance team through the use of embedded resources where appropriate
- Reduce maintenance workload and improve work execution effectiveness through the implementation of the identified enabling DNP Efficiency Bulletins. This is a cornerstone for implementing this efficiency bulletin.

Attachment 2: Key Enablers and Assumptions

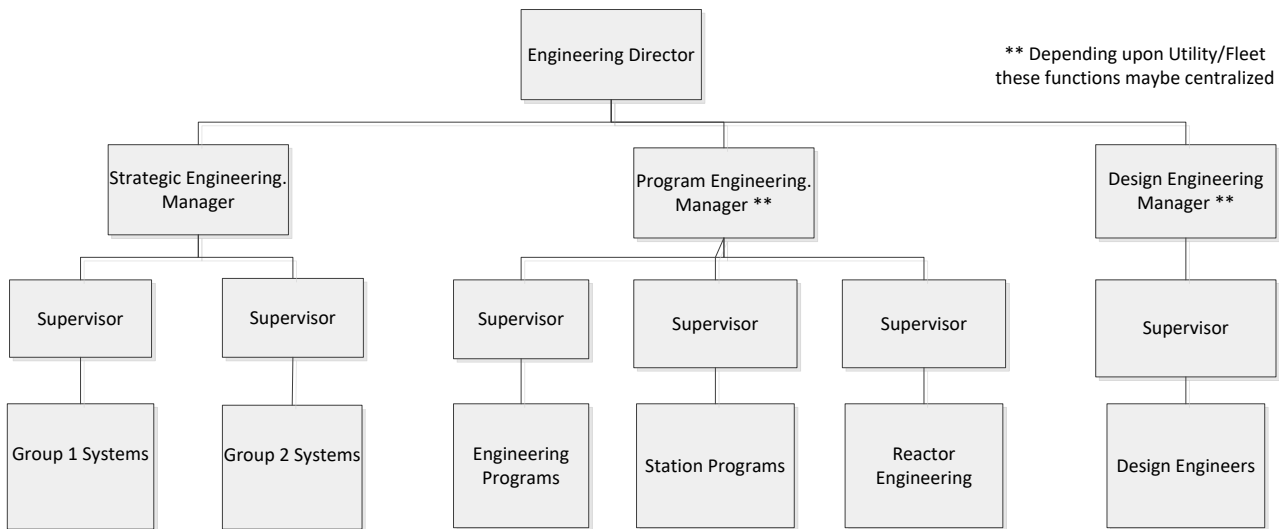
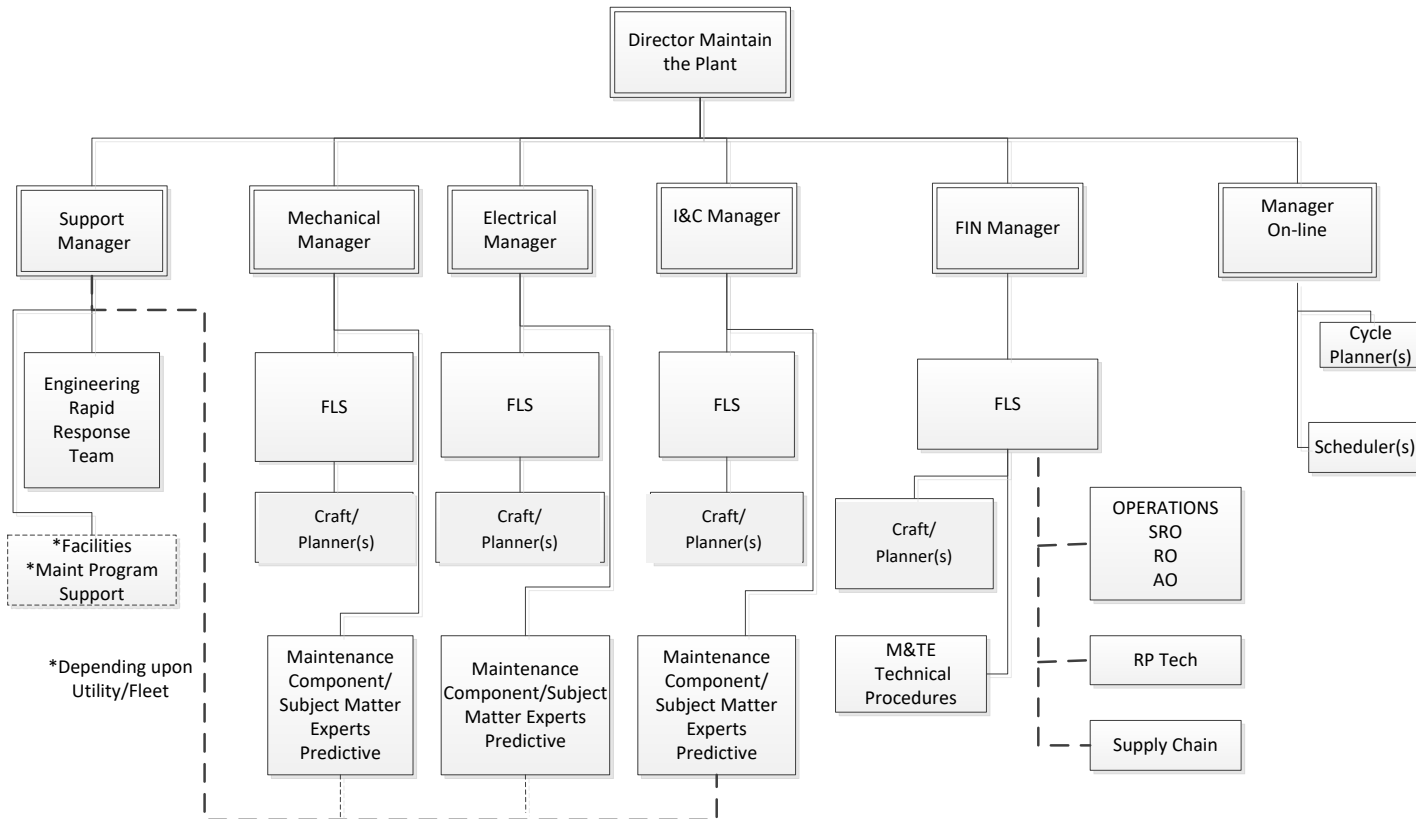
Key Enablers:

- **Plant Performance** - There must be a strong level of station performance to implement this initiative. Implementation should be cautiously evaluated for a site in Special Focus, having an INPO level 3 or worse evaluation rating, being in an overall INPO elevate or escalate status, categorized as NRC column 3 or 4 or a having a significant crosscutting issue. EB implementation should only be considered at stations with a plant reliability at 90 percent, ERI at 90 percent, PPI at >85 percent, PII in the mid-90s, no training probation, key processes functioning well such as CAP, WM, and Plant Health Committees.
- **Leadership Advocacy** - Successful transition requires leadership advocacy, reinforcing compliance and support for a shift in work practices and equipment ownership and accountability. Advocacy entails fostering a positive perspective and promoting the benefits of the change. Reinforcing compliance requires alignment of site and fleet roles and responsibilities.
- **Labor Engagement and Support** - Leadership must partner with and engage bargaining unit representation with their leadership
- **Burden Reduction** - Eliminate or significantly reduce low value tasks/products, and non-core duties for efficiency and effectiveness. This is aligned with the Delivering the Nuclear Promise initiative, Maintenance and Engineering programs re-categorization to PO&Cs. Maintenance and Engineering program simplification and reductions include:
 - Streamlined and Simplified Work Control Process being in place (EB 16-01, EB 16-15a, b, c, EB 16-22, EB 17-20)
 - First line supervisors being empowered and given the authority to make field decisions (EB 17-12)
 - Engineering completes projects to reduce low-value PMs. Unnecessary and low value PMs and surveillances have been eliminated or reduced (EB 16-16, EB 16-17, EB 16-25, EB 17-03a, b)
 - Maintenance and Engineering programs being simplified/reduced/eliminated based on risk and value added (EB 16-02, EB 16-31, EB 16-33, EB 16-34, EB 17-09, EB 17-11, EB 17-16, EB 17-18. EB 17-19, ENG-021 (MA Rule 2.0)
- **Maintenance and Technical Training simplification** - The intention is to increase the use of a simplified and effective OJT/TPE process for in-field qualifications with task or component based qualifications. This entails the development of a new qualification structure for maintenance (EB 16-18, EB 17-13).
- **DNP CAP Initiative institutionalization** - CAP Enhancements must be implemented to significantly reduce the number of causal analyses performed. Streamlined CAP process is expected to reduce the time required to complete an investigation to approximately 4 hour (EB 16-10, EB 17-14).
- **Maintenance Work Load is Reduced** - Value Based Maintenance software has been provided and effectively used and station personnel embrace Value Based Maintenance concepts. Resources are available to perform the analyses to reduce or eliminate low-value PM tasks.
- **Readiness for Implementation Review** - Prior to EB implementation the site and/or fleet should perform a final readiness for implementation review to confirm that plant performance supports moving forward with all the key enablers successfully implemented. Additionally, the Change Management plan is progressing as expected, all labor issues have been resolved or are planned for resolution, and that the implementation KPIs have been defined with monitoring in progress (such as maintenance backlogs, overtime, minor maintenance % performance, schedule completion, etc.).

Maintenance Assumptions:

- A tiered approach to qualifications and a qualification structure that supports task qualification is in place with an increased focus on maintenance technical fundamentals
- The work control organization becomes part of the maintaining organization, streamlining the management structure
- Assumes reduction/elimination of 25% of unnecessary work:
 - Critical Component Reduction (EB 16-25)
 - Value Based Maintenance reduces PM work load (EB 17-03a/b)
 - Fully utilize TS surveillance frequency extensions (EB 17-11)
 - Assumes Work Management EB fully implemented (EB 16-01, 2, 15a, 15b, 15c, 22, 31)
 - Assumes eliminate/streamline maintenance programs and processes, such as rework, leak management, and FME, resulting in fewer coordinator positions
- Most training is performed in the field as OJT
- EB 16-10 and EB 17-14 are fully implemented, requiring fewer CAP resources.
- Electronic work packages not required, but reduce supervisor administrative burdens, such as paperwork closeout, verifying procedure revisions, etc.
- Reduction in administrative burdens. Examples include:
 - Smaller work packages
 - Reduced number of level of procedure use classifications
 - Increased worker flexibility in performing fundamental maintenance tasks
 - Increased craft decision making in determining equipment reliability and preventive maintenance requirements
 - Other examples as recommended in the INPO Industry Cumulative Impact Actions, dated November 2013

Attachment 3: Conceptual Diagram



Attachment 4: Project Plan

