SCOTTMADDEN
Management Consultants

# Nuclear New Build

## Functional Area Operational Readiness

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# Overview

- Much industry focus has been placed on what to this point has been the more tangible side of new nuclear development
  - Vendor selection
  - COLA preparation and submittal
  - Loan guarantees
  - Construction

- We believe an equal amount of focus should be placed on functional area operational readiness
  - No matter how well designed and constructed the next generation of nuclear is, the units simply will not run without a full complement of trained, qualified staff supported by well-developed operating procedures, systems, tools, etc.
  - Running a new unit is a 60+ year proposition; preparation for operations should reflect that understanding

- This document outlines ScottMadden's approach to functional area operations readiness for new nuclear development
  - It assumes new units will be added to an existing fleet; it can apply to, but would not be sufficient for, operators new to nuclear
  - Note: The scope of this document is functional area operational readiness, e.g., the policies, processes and procedures required to run the plant in areas like maintenance, outage management, work control, chemistry, etc. Outside this scope is technical operational readiness, site turnover from the developer, etc.

# Steps to Functional Area Operations Readiness

**There are four distinct steps to functional area operational readiness**

| | Develop Working Assumptions | Design and Plan | Develop and Integrate | Certify Final Readiness |
|---|---|---|---|---|
| **Owner** | ◆ Management team (operator, with developer input) | ◆ Corporate functional area manager | ◆ Corporate functional area manager and site functional area manager | ◆ Site functional area manager |
| **Description** | ◆ Common set of working assumptions for functional areas to use in their design | ◆ Design requirements/ specifications for each functional area's:<br>– Procedures<br>– Staffing<br>– Training<br>– Systems and tools<br>– Contracts/ vendors<br>– Equipment and supplies<br>◆ Implementation plan<br>◆ PMO<br>– Organization<br>– Tools and methods | ◆ Development and QA according to design specifications<br>◆ Testing for integration and linkage<br>◆ Corporate functional area manager certification of functional area readiness<br>◆ Ongoing oversight by PMO<br>◆ Ongoing governance by executive sponsors and senior leadership team | ◆ Development of site specific tools/systems<br>◆ Site functional area manager certification of site readiness |

# Working Assumptions

- A common set of working assumptions should be developed
  - This is necessary to provide guidance to functional areas as they develop their design requirements/specifications

- Example questions that need to be answered include:
  - How aligned will new unit's staffing be with the fleet standard?
  - How will the existing fleet units be overstaffed to support the new unit's staffing plan?
    - What is the staffing migration and recruiting plan?
  - What standard fleet procedures will the new units be subject to?
    - What site-specific procedures will the new units need?
  - Will the new units be supported by the corporate office in the same way as the rest of the fleet?
  - If there are multiple units, i.e., more than one new unit and/or located on the same site as existing operating units, are they organized as separate and distinct units, or share common functions?
    - What is the accountability model?
    - What services and functions are shared? Dedicated?
  - What is the master schedule and related timing requirements for staffing, procedures, etc.?
    - How does the functional readiness schedule align with the developer's schedule to make the physical equipment ready for commercial operations and perform turnover?

# Design and Plan

- The initial steps, including establishing a PMO, are necessary to keep the effort organized and on track
  - Define scope boundaries and linkages/interfaces to developer plans
  - Organize and staff PMO
  - Select tool set and methods
  - Train CFAMs and build functional area operational readiness plan modules
    - Outlines master cadence/requirements/constraints
    - Includes functional plan sections and a cross-cutting plan section

- Proper recurring governance and oversight must also be established
  - GOSP model to provide organizational clarity and alignment
  - Standing meetings, agendas, and attendees

- The corporate functional area manager should provide design requirements/specification for their respective functional area's facets, i.e., procedures, staffing, training, systems and tools, contracts/vendors, equipment and supplies
  - This is necessary to appropriately integrate the new units into the fleet, subject to the working assumptions provided by the executive management team
  - Steps for defining the design requirements/specification for each facet are on the pages that follow

# Design and Plan (Cont'd)

**Procedures**

- Fleet
  - Obtain the standard list of fleet procedures
  - Determine which fleet procedures can be implemented as-is vs. need revision
  - Determine additional fleet procedures that may be required
  - Establish schedule for fleet procedures

- Site
  - Gather all existing site procedures (all sites)
  - Compare each site's existing procedures to create a "template" of what will be required for the new site, with adjustment/adaptation based on technology and site-specific factors
  - Identify those procedures that the reactor vendor will provide vs. those that the operator will need to write for the site
    - Articulate the requirements for vendor-provided procedures (content, quality, format, layout, consistency) and QA/acceptance process
    - Identify interfaces between vendor-provided procedures and site procedures and requirements to "flange" and cross-reference
  - Ensure that the procedure set is comprehensive and mutually exclusive/collectively exhaustive
  - Establish schedule for site procedures

# Design and Plan (Cont'd)

**Staffing**

- Corporate
  - Determine addition of new units or incremental resource requirements needed
  - Develop workforce plan to fulfill resource requirements (how many, by when)
  - Develop pipeline plan (from where, including requirements for remainder of fleet to support – overstaffing/backfills)
    - Pipeline plan should consider lead times and personnel "yields," i.e., how many applicants are required by when to yield how many skilled employees by when
  - Develop hiring plan to execute workforce and pipeline plan

- Site
  - Use fleet standard staffing to develop site-specific staffing requirements
  - Develop staffing plan to fill site-specific staffing requirements; include requirements for remainder of fleet to support (i.e., overstaffing/back-fills)
  - Develop workforce plan to fulfill resource requirements (how many, by when)
  - Develop pipeline plan (from where, including requirements for remainder of fleet to support – overstaffing/backfills)
    - Pipeline plan should consider lead times and personnel "yields," i.e., how many applicants are required by when to yield how many skilled employees by when
  - Develop hiring plan to execute workforce and pipeline plan

# Design and Plan (Cont'd)

**Training**

- Identify overall and function-specific training requirements
- Develop training plan to support staffing needs identified previously; include training/simulation that takes the form of walking through procedures
  - Rehearse the procedures
  - Use cases
- Optimize master training schedule
  - Synergies across target audiences
  - Alignment with vendor training schedule and developer's equipment availability, testing, and turnover needs

# Design and Plan (Cont'd)

**Systems and Tools**

- Inventory functional areas' use of existing systems and tools
- Map/assign accountability for systems and tools
  - Vendor provided
  - Enterprise
  - Operating company
    - Common
    - Functional-area specific
- Determine applicability of existing systems and tools to the new units
- Identify additional systems and tools requirements, as well as any special interfaces or needs, given new unit equipment, technology, and site
- Develop plan to acquire/integrate/develop systems and tools

# Design and Plan (Cont'd)

**Contracts/Vendors**

- Inventory functional areas' existing use of contracts/vendors
- Map/assign accountability for contracts/vendors
  - Enterprise
  - Operating company
  - Functional
- Confirm continuing or new need for contracts/vendors based on reactor technology
- Determine requirements for contracts/vendors
- Develop schedule to ensure contracts/vendors are in place when required

# Design and Plan (Cont'd)

**Equipment and Supplies**

- Inventory functional areas' existing use of equipment and supplies
- Map/assign accountability for equipment and supplies
  - Common (site and unit-specific)
  - Functional
- Confirm continuing or new need for equipment and supplies based on reactor technology
- Determine requirements for equipment and supplies (what and when)
- Develop schedule for ordering equipment and supplies, along with plan for:
  - Intake/QA
  - Inventory
  - Staging

# Develop and Integrate

- Jointly, the corporate functional area manager and site functional area manager should execute the plan as developed in the "Design and Plan" step
  - This is necessary to ensure readiness for each functional area
- This step includes:
  - Development and QA according to design specifications
  - Testing for integration and linkage
- To close this step, the corporate functional area manager should formally certify the functional area's readiness

# Certify Final Readiness

- The site functional area manager should perform the final steps, specific to their function and the site
  - This is necessary to ensure final readiness
- This step includes development of site specific tools/systems
- To close this step, each of the site functional area managers should formally certify the site's readiness

# Contact Us

- For more information on how we can help your nuclear new build efforts, visit our web site at http://www.scottmadden.com or contact our Atlanta office:


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