Management System: Project Management

Subject Area: Project Delivery

Managing the Project Definition Phase

Subject Matter Expert: John Wood
Management System Owner: Lorie Howard

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1.0 Applicability

This procedure applies to Office of Environmental Management (EM) Federal Project Directors (FPDs), Integrated Project Team (IPT) Members, and Program Managers responsible for the execution of all projects subject to the mandatory project management requirements in DOE Order 413.3B, *Program and Project Management for the Acquisition of Capital Assets*.

2.0 Required Procedure

This Procedure describes how projects advance from CD-0 Approval of Mission Need through CD-1 Approve Alternative Selection and Cost Range. Order 413.3B lists prerequisites for CD-1 in Appendix A Requirements, Table 2.1 CD-1 Requirements, included herein as Attachment 1.

The following steps are not necessarily performed sequentially.

Step	Procedure
Step 1	Upon approval of CD-0, the Program Manager or FPD, with support from the IPT, initiates Project Assessment and Reporting System II (PARS II) Status Reporting.
Step 2	The FPD or Program Manager, acting as the FDP, establishes the initial IPT. NOTE: An IPT Charter should be developed to identify and formalize the roles and responsibilities of IPT members. For EM projects, the IPT includes key members of the contractor's project management team. In many cases, at the beginning the project, an IPT may be led by the Program Manager until a FPD is assigned to the project. Teams should strive to employ the features of an effective IPT, which include:

	a. All IPT Members should establish a strong partnership based on shared vision of project goals and objectives. b. The FPD should provide strong leadership, but allow the IPT members to readily surface and address dissenting views on issues. The composition of the IPT may need to be updated over time to ensure it includes the experience, knowledge, and skills required to produce and manage the products required during this phase of the project. Any changes in the composition of the IPT should be reflected in the IPT Charter to identify and formally state the roles and responsibilities of IPT members. See DOE G 413.3-18A and O 413.3B Appendix C, topic #7 for further information.
Step 3	The FPD, with support from the IPT, develops a Preliminary Project Execution Plan (PEP). **NOTE:** The PEP describes the structured management systems and approaches to be employed by the FPD and the IPT to deliver the stated technical objectives of the project within the stated cost and schedule range. Critical elements to be addressed by the PEP include the following: • Provides an easily understood project description/characterization in terms of the technical baseline/project scope and key performance parameters. • Provides a clear description of the management organization from the Acquisition Executive down to key contractor personnel, with clearly stated roles and responsibilities. • Provides a clear definition of the performance baseline elements. • Provides clear definition of baseline change control thresholds and the person responsible for final disposition at each level. • Provides clear definition of project completion criteria to achieve Critical Decision (CD)-4. • The Tailoring Strategy should be included or referenced. For further information, see DOE G 413.3-15, Project Execution Plans and O 413.3B Appendix C, Topic #14.
Step 4	The FPD, with support from the IPT, ensures the development of the Project Risk Management Plan. **NOTE:** The Risk Management Plan identifies and quantifies project risks identified by the IPT, and provides the general management approach to be applied by the IPT in addressing those risks. Key components of the Risk Management Plan include the following:

	• Overall approach that is tailored to the size and complexity of the project. • Providing a systematic, comprehensive, and well documented approach for managing risk. • Provides a comprehensive risk identification and assessment process that applies government and industry recognized techniques. • Provides for the realistic quantification of risks associated with the technical, cost and schedule goals of the project. • Provides a clearly stated process for monitoring and timely, proactive mitigation of identified risks. • Provides a "living" risk registry that is formally update on a cycle commensurate with the size and technical complexity of the project. For further information, see DOE G 413.3-7A, *Risk Management Guide* and O 413.3B Appendix C, Topic #19.
Step 5	The FPD, with the support of the IPT, ensures the development of the Acquisition Strategy. **NOTE:** The Acquisition Strategy describes the high-level business and technical management approach designed to achieve project objectives within specified resource constraints. Key elements to be considered in the development of the Acquisition Strategy include the following: • An Alternatives Analysis with a clear, unambiguous statement of alternatives available to meet the technical goals of the project, including life-cycle cost analysis. • The Overall Business and Acquisition Approach to project activities. • Management Structure and Approach. For further information, see DOE G 413.3-13, *Acquisition Strategy Guide* and O 413.3B Appendix C, Topic #2 for further information.
Step 6	The FPD, with the support of the IPT, ensures the development of the Conceptual Design Report (CDR). This is typically prepared by professional engineering staff, including cost estimators. The preferred alternative will be fully evaluated. The other alternatives will evaluated commensurate with their plausibility. **NOTE:** The following critical elements should be addressed in the CDR: • Clearly stated requirements definition tied to Mission Need. • Clearly stated, achievable performance parameters tied to Mission Need. • Clearly stated technical approach/design criteria for meeting Mission Need. • Clearly stated description of the technical risks, specifically as they relate to the maturity of technology addressed by the project. • Clearly stated bounding cost and schedule assumptions.

	• ***For nuclear facilities,*** begin defining the Code of Record. Guidance on Conceptual Design development, including Systems Engineering considerations, and development of the preliminary cost and schedule range can be found in: O 413.3B Appendix C, topic #4, DOE G 413.3-1, Managing Design and Construction Using Systems Engineering, and Tailoring D&D Engineering and Design to 413.3A
Step 7	The FPD, with support from the IPT, ensures that High Performance Sustainable Building considerations, also referred to as "sustainable environmental stewardship" per DOE O 436.1, *Departmental Sustainability*, are documented in the Conceptual Design Report and Acquisition Strategy as appropriate. For further information, see also DOE G 413.3-6A, *High Performance Sustainable Building*.
Step 8	The FPD, with support from the IPT, ensures the performance of a Conceptual Design Review with reviewers external to the project. **NOTE:** A review of the CDR must be performed to ensure the proposed technical approach will meet the key technical and functional requirements identified in the Mission Need Statement and confirm that there is a high likelihood that the completed project will perform as designed. The depth of detail of the review and the functional expertise applied to the review should be commensurate with the technical complexity of the project.
Step 9	The FPD, with the support of the IPT, initiates the preparation of the Environmental and Permitting Documentation, typically performed by the site contractor or a subcontractor. **NOTE:** At this early project stage, the IPT must determine the National Environmental Policy Act (NEPA) and environmental (e.g., RCRA, CERCLA, any State) permitting documentation that is required to execute the project. As with safety documentation, the process for development of required NEPA and permitting documentation must begin early in the project since the external review process can be lengthy.
Step 10	The FPD, with support from the IPT, verifies that a Quality Assurance (QA) Program fully addressing all applicable QA Criteria as defined in 10 CFR 830, Subpart A, *[Nuclear Safety Management] Quality Assurance Requirements*, or DOE O 414.1D, *Quality Assurance*, is in place. Further guidance on QA Programs can be found in the DOE G 413.3-2 Quality Assurance Guide and O 413.3B Appendix C, topic #17.
Step 11	Identify general Safeguards and Security requirements for the recommended alternative. (Refer to O 413.3B Appendix C, topic #20 and DOE G 413.3-3.) DOE O 470.4, *Safeguards and Security Program* describes DOE policies for

	building security into design. The expired M 470.4-1 described specific Security Vulnerability Assessments to be performed during design and construction.
Step 12	The FPD, with support from the IPT, submits a Funding Request based on projections of funding required to execute the follow-on project phases and to ensure that the required funding is realistically within the Sponsoring Program Office's projected out-year budget. **NOTE:** Two budget support documents should be prepared as soon as practicable during this phase; the Project Data Sheet (PDS) and the Office of Management and Budget (OMB) Exhibit 300. The FPD must coordinate with the Program Office in preparation of these documents, which the Program Office will submit at the appropriate time in the budget cycle. The Project Data Sheet is required for CD-1. The DOE Office of Budget annually issues guidance on preparing PDS and Exhibit 300s as part of the field budget call. The following are recent guidance for preparing the PDS and the OMB Exhibit 300 forms and supporting documents: • *Project Data Sheet Template* • *Project Data Sheet Template for Project Engineering and Design Funding* • *Template for Project Cost Profile* • *Template for OMB Exhibit 300* • *Instructions for OMB Template 300* Given that the format and content of budget submission documentation changes regularly, it is advisable to closely coordinate the preparation of such documentation with the cognizant Supporting Budget Staff to ensure the latest budget submission forms are being used.
Step 14	Inventory the anticipated radioactive and chemical inventor of a proposed facility. *For Hazard Category 1, 2, and 3 nuclear facilities (as defined in 10 CFR Part 830),* the FPD will ensure the following: (Refer to DOE-STD-1189-2008 for all actions.) Prepare a Safety Design Strategy (SDS). Initiate setting the Code of Record during the Conceptual Design. Conduct an Independent Project Review (IPR) to ensure early integration of safety into the design process. (Refer to DOE G 413.3-9) The contractor will prepare a Conceptual Safety Design Report (CSDR), including preliminary hazard analysis. For a project involving a major modification of an existing facility, the SDS must address the need for a CSDR, as well as the required PDSA. Federal Staff will review the CSDR and prepare a Conceptual Safety Validation Report (CSVR) of their findings, with concurrence from the FPD. Refer to O 413.3B, Appendix C, Topic #6.

Step 13	For facilities whose planned radiological inventory is below the nuclear Hazard Category 3 threshold: Refer to O 413.3B, Appendix C, Topic #6b. Perform a preliminary hazards analysis report (PHAR) to set the preliminary set of safety controls, unless an assessment of the inventory indicates that worker safety programs will sufficiently protect the public and the environment. Document the assessment in the Tailoring Strategy. **NOTE:** Safety concerns should be considered early in the project when evaluating Technical Approach Alternatives during Conceptual Design and should be integrated into all aspects of the project. The specific documents required will depend on the nature of the project (e.g., Preliminary Facility Safety Analysis Document or Preliminary Hazard Analysis Report, Radiation Safety Analysis, Construction Safety Plan, and Fire Protection/Life Safety Analyses). In particular, the concepts of Integrated Safety Management (ISM) need to be considered and incorporated into all management and technical documentation for all project activities.
	After CD-1 approval, the FPD will ensure that copies of all CD-1 documents are sent to OECM.
Step 15	After CD-1, the FPD, with support from the IPT, ensures preparation of an Acquisition Plan per FAR Subpart 7.1, if DOE will let a commercial contract. The FPD will ensure a prime contractor prepares an Acquisition Plan for its subcontractors, if needed, consistent with the requirements of the Contractor Requirements Document (CRD) of DOE O 413.3B. NOTE: The FPD should consult with the cognizant Contracting Officer regarding the content and format of the Acquisition Plan.

3.0 References

- 10 CFR 830, *Nuclear Safety Management*
- DOE O 413.3B, *Program and Project Management for the Acquisition of Capital Assets*
- DOE G 413.3-1, *Managing Design and Construction Using Systems Engineering*
- DOE G 413.3-2, *Quality Assurance Guide for Project Management*
- DOE G 413.3-3, Safeguards and Security for Program and Project Management.
- DOE G 413.3-6A, *High Performance Sustainable Building*
- DOE G 413.3-7A, *Risk Management Guide*
- DOE G 413.3-13, *U.S. Department of Energy Acquisition Strategy Guide for Capital Assets Projects*

- DOE G 413.3-15, *Department of Energy Guide for Project Execution Plans*
- DOE G 413.3-18A, *Integrated Project Team Guide for Formation and Implementation*
- DOE O 414.1D, *Quality Assurance*
- DOE O 436.1, Departmental Sustainability
- DOE O 470.4B, *Safeguards and Security Program*
- DOE-STD-1027-92, *Hazard Categorization and Accident Analysis Techniques for compliance with DOE Order 5480.23, Nuclear Safety Analysis Reports*, CN No. 1
- DOE-STD-1189-2008, *Integration of Safety into the Design Process*
- Project Data Sheet Template
- Project Data Sheet Template for Project Engineering and Design Funding
- Template for Project Cost Profile
- Template for OMB Exhibit 300
- Instructions for OMB Template 300
- Tailoring D&D Engineering and Design to 413.3A
- Approved PEP Example (Cañon de Valle, VL-LANL-0030, SEP11)

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Attachment 1

Excerpt from Order 413.3B, *Program and Project Management for the Acquisition of Capital Assets,*
Appendix A Requirements, Table 2.1 CD-1 Requirements:

Prior to CD-1	**Approval Authority**
Approve an Acquisition Strategy with endorsement from OECM for Major System Projects. (Refer to DOE G 413.3-13.)	PSO
Approve a preliminary Project Execution Plan (PEP). The Tailoring Strategy, if required, can be included in the PEP or placed in a separate document. (Refer to DOE G 413.3-15.)	SAE or AE
• Approve appointment of the Federal Project Director considering the requirements in DOE O 361.1B and the PMCDP CEG. • Establish and charter an Integrated Project Team to include a responsibility assignment matrix. The Charter may be included in the PEP. (Refer to DOE G 413.3-18.) • Develop a Risk Management Plan (RMP) and complete an initial risk assessment of a recommended alternative. This may be included in the PEP. For evaluating the Safety-in-Design Strategy, prepare Risk and Opportunity Assessments for input to	SAE or AE PSO ≥ $750M FPD < $750M ---

the RMP. (Refer to DOE G 413.3-7 and DOE-STD-1189-2008.)	
For projects with a TPC ≥ $100M, OECM will develop an Independent Cost Estimate and/or conduct an Independent Cost Review, as they deem appropriate.	
Comply with the One-for-One Replacement legislation (excess space/offset requirement) as mandated in House Report 109-86. (Refer to DOE O 430.1B and FIMS Excess Facilities Elimination policies.)	N/A to D&D
Complete a Conceptual Design. Document High Performance and Sustainable Building provisions per EO 13423, Section 2(f), EO 13514, Section 2, and Sustainable Environmental Stewardship considerations per DOE O 450.1A, as amended, in the Conceptual Design Report, Acquisition Strategy, and/or PEP, as appropriate. (Refer to DOE G 413.3-6A and DOE O 436.1.) Conduct a Design Review of the conceptual design with reviewers external to the project. ***For nuclear facilities,*** a Code of Record shall be initiated during the conceptual design. Complete a Conceptual Design Report. Refer to O 413.3B Appendix C, topic #4.	
Prepare a Preliminary Hazard Analysis Report (PHAR) for facilities that are below the Hazard Category 3 nuclear facility threshold as defined in 10 CFR Part 830, Subpart B.	Field Organization
Develop and implement an Integrated Safety Management Plan into management and work process planning at all levels per DOE M 450.4-1.	
Establish a Quality Assurance Program (QAP). (Refer to 10 CFR Part 830, Subpart A, DOE O 414.1C, and DOE G 413.3-2.) ***For nuclear facilities****, the applicable national consensus standard shall be NQA-1-2008 (Edition) and NQA-1a-2009 (Addenda).*	
Identify general Safeguards and Security requirements for the recommended alternative. (Refer to DOE M 470.4-1 and DOE G 413.3-3.)	
Complete a National Environmental Policy Act (NEPA) Strategy by issuing a determination (e.g., Environmental Assessment), as required by DOE O 451.1B. Prepare an Environmental Compliance Strategy, to include a schedule for timely acquisition of required permits and licenses.	
Update Project Data Sheet, or other funding documents for MIE and OE projects, and OMB 300s, if applicable. (Refer to OMB Budget Call for PDS and Exhibit 300 Template.)	
For Hazard Category 1, 2, and 3 nuclear facilities: (Refer to DOE-STD-1189-2008 for all steps.)	
Prepare a Safety Design Strategy (SDS), with the concurrence of the CNS, for projects subject to DOE-STD-1189-2008.	SBAA and FPD
A Code of Record shall be initiated during the Conceptual Design.	
Conduct an Independent Project Review (IPR) to ensure early integration of safety into the design process. (Refer to DOE G 413.3-9)	PSO
Prepare a Conceptual Safety Design Report (CSDR), including preliminary hazard analysis. For a project involving a major modification of an existing facility, the SDS must address the need for a CSDR, as well as the required PDSA.	SBAA via the CSVR
Prepare a Conceptual Safety Validation Report (CSVR), with concurrence from the FPD, on the DOE review of the CSDR.	SBAA

Post CD-1 Approval	**Approval Authority**
Submit all CD documents to OECM.	
Begin expenditure of PED, MIE, or OE funds for the project design.	
Develop an Acquisition Plan, if applicable.	
Continue monthly PARS II reporting (excluding earned value). FPD, Program Manager and OECM will provide monthly assessments, as appropriate.	
Continue QPRs with the AE of their designee.	
***For nuclear facilities**, develop a Checkout, Testing and Commissioning Plan in preparation for acceptance and turnover of the structures, systems and components at CD-4. (Refer to DOE-STD-1189-2008.)*	