

Management System: Project Management

Subject Area: Project Delivery

Procedure: Managing the Project Definition Phase

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1.0 Applicability

This procedure applies to the U.S. Department of Energy (DOE), the Office of Environmental Management (EM), Federal Project Directors (FPD), Integrated Project Team (IPT) members and Program Managers who are responsible for the execution of all projects that are subject to the mandatory project management requirements in DOE Order 413.3B (Program and Project Management for the Acquisition of Capital Assets). This procedure describes the steps needed prior to presenting a Critical Decision-1 (CD-1, Approve Alternative Selection and Cost Range) package to the cognizant Acquisition Executive (AE) for approval.

This procedure describes how projects advance from CD-0 (Approve Mission Need) through CD-1. DOE O 413.3B lists prerequisites for CD-1 in Appendix A (Requirements), Section 4.b, Table 2.1 (CD-1 Requirements). A separate but related EM Consolidated Business Center (EMCBC) procedure, subordinate to the Subject Area Description (SAD) for Critical Decision and Change Control Management, has step-by-step instructions for preparing a CD-1 package and obtaining AE approval of CD-1. In comparison, the purpose of this procedure for the Project Definition Phase is to further organize project staff and prepare any necessary budget, acquisition and initial design, safety and environmental documents needed to prepare for approval of the alternative selection and cost range (i.e., CD-1).

The Definition Phase is when the Integrated Project Team (IPT) is organized, project plans are prepared, and the basic technical design is set. The major Project Definition products are the Preliminary Project Execution Plan (PPEP), the Acquisition Strategy (AS), and the Conceptual Design Report (CDR).

Because most EM projects are not traditional construction projects (for which DOE O 413.3B was crafted), some tailoring of Order requirements will be useful or necessary. For example, it may be useful to have the AE approve a stand-alone Tailoring Strategy early; at a later date, the Tailoring Strategy can be folded into the PPEP. The AE must approve the PPEP (and Tailoring strategy, if stand-alone); however, only the Assistant Secretary for Environmental Management

(EM-1) can approve the AS (further delegation of this authority is not allowed). The approved AS will be an important supporting document if an Environmental Assessment (EA) needs to be prepared (pursuant to requirements under the National Environmental Policy Act [NEPA]).

The Director of the EMCBC is the line manager for all Small Sites, and also serves as the AE for Small Site capital asset projects that have a total project cost (TPC) under \$100 million. The FPD for such capital asset projects, and any project support personnel (including project site or EMCBC staff), should review this procedure prior to developing a CD-1 package. This procedure may also be used by Site Directors and Operations Activity Managers (OAM) at the Small Sites, and any project site or EMCBC support staff, to identify potential early planning requirements for newly-approved operations activities. Such operations activities are subject to the requirements in the EM Policy & Protocol for Operations Activities, issued in March 2012.

This procedure is consistent with the EM Enterprise Requirements System (EMERS) Functional Area Description (FAD) for Project Management.

2.0 Required Procedure

The following steps are not necessarily performed sequentially. Also, see the aforementioned EMCBC procedure for Critical Decision-1.

Step 1	Upon approval of Critical Decision-0 (CD-0, Approve Mission Need), the Program Manager or FPD, with support from the IPT, initiates Project Assessment and Reporting System (PARS) status reporting.
Step 2	<p>The FPD (or Program Manager, acting as the FDP) establishes the initial IPT.</p> <p>NOTE: An IPT Charter should be developed to identify and formalize the roles and responsibilities of IPT members. The IPT may include members of the site contractor’s project management team. In many cases, at the beginning of the project an IPT may be led by the Program Manager until a FPD is formally assigned to the project. Teams should strive to employ the features of an effective IPT, which include:</p> <ul style="list-style-type: none"> • All IPT members should establish a strong partnership based on shared vision of project goals and objectives. • The FPD should provide strong leadership, but allow the IPT members to readily surface and address dissenting views on issues. <p>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 the Project Definition phase. Any changes in the composition of the IPT should be reflected in a revision to the IPT Charter, in order to identify and formally define the roles and responsibilities of IPT</p>

	<p>members.</p> <p>See DOE G 413.3-18A (Integrated Project Team Guide for Formation and Implementation) and DOE O 413.3B, Appendix C (Topical Areas), Topic 7 (Integrated Project Team) for further information.</p>
<p>Step 3</p>	<p>The FPD, with support from the IPT, develops a Preliminary Project Execution Plan (PPEP).</p> <p>NOTE: The PPEP 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 PPEP include:</p> <ul style="list-style-type: none"> • 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 (AE) down to key contractor personnel, with clearly stated roles and responsibilities. • Provides a clear definition of the key performance parameters (KPP) for the project. • Provides a clear definition of baseline change control thresholds and the designated individual (by title) who is responsible for the final disposition of changes at each level. • Provides a clear definition of project completion criteria required to achieve CD-4 (Approve Start of Operations or Project Completion). • Should include (or reference) the Tailoring Strategy. <p>For further information, see DOE G 413.3-15 (Guide for Project Execution Plans) and DOE O 413.3B, Appendix C, Topic 14 (Project Execution Plan).</p>
<p>Step 4</p>	<p>The FPD, with support from the IPT, directs development of the Risk Management Plan (RMP) for the Project.</p> <p>NOTE: The RMP identifies and quantifies project risks (and opportunities) identified by the IPT, and provides the general management approach to be applied by the IPT to address components of the RMP. The RMP should include the following:</p> <ul style="list-style-type: none"> • Defines an overall approach that is tailored to the size and complexity of the project. • Provides a systematic, comprehensive and well documented approach for managing risks. • 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

	<p>technical, cost and schedule goals of the project.</p> <ul style="list-style-type: none"> • Provides a clearly stated process for monitoring and the timely, proactive mitigation of identified risks. • Provides a “living” risk registry that will be formally updated on a cycle commensurate with the size and technical complexity of the project. <p>Since some risks are owned by DOE and others are owned by the Contractor, a single RMP or two separate RMPs may be developed for a single project. For further information on the development of an RMP, refer to DOE G 413.3-7A (Risk Management Guide) and DOE O 413.3B, Appendix C, Topic 19 (Risk Management).</p>
<p>Step 5</p>	<p>The FPD, with the support from the IPT, ensures the development of the Acquisition Strategy (AS).</p> <p>NOTE: The AS 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 AS include the following:</p> <ul style="list-style-type: none"> • An Alternatives Analysis with a clear, unambiguous statement of alternatives available to meet the technical goals of the project, including a life-cycle cost analysis. • The overall business and acquisition approach to project activities. • Management structure and approach. <p>For further information, see DOE G 413.3-13 (Acquisition Strategy Guide for Capital Asset Projects) and DOE O 413.3B, Appendix C, Topic 2 (Acquisition Strategy).</p>
<p>Step 6</p>	<p>The FPD, with the support from the IPT, ensures the development of the Conceptual Design Report (CDR). The CDR is typically prepared by a professional engineering staff, including cost estimators. The preferred alternative will be fully evaluated in the CDR; other alternatives will be evaluated commensurate with their plausibility.</p> <p>NOTE: The following critical elements should be addressed in the CDR:</p> <ul style="list-style-type: none"> • 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. • Begin defining the Code of Record (applies to Nuclear Facilities only). <p>Guidance on Conceptual Design development, including Systems Engineering</p>

	considerations and development of the preliminary cost and schedule range, can be found in DOE O 413.3B, Appendix C, Topic 4 (Design Maturity) and DOE G 413.3-1 (Managing Design and Construction Using Systems Engineering for Use with DOE O 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 CDR and the AS, as appropriate. For further information, see 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 utilizing review personnel who are external to the project. NOTE: The review team must complete a review of the Conceptual Design Report (CDR) in order 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 from the IPT, initiates the preparation of the Environmental and Permitting documentation (this work is 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., Resource Conservation and Recovery Act [RCRA]; Comprehensive Environmental Response, Compensation and Recovery Act [CERCLA]; municipal- or state-specific) permitting documentation required for execution of the project. As with safety documentation, the process for development of required NEPA and environmental permit documents must begin early in the project, since the external review process for such documents 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, (Nuclear Safety Management) Subpart A (Quality Assurance Requirements) and/or DOE O 414.1D (Quality Assurance) is in place. Further guidance on QA Programs can be found in DOE G 413.3-2 (Quality Assurance Guide for Project Management) and DOE O 413.3B, Appendix C, Topic 17 (Quality Assurance).
Step 11	The FPD, with support from the IPT (augmented, as necessary, by security specialists), identifies general Safeguards and Security requirements for the recommended alternative. For further information, refer to DOE O 413.3B, Appendix C, Topic 20 (Safeguards and Security). Also see DOE O 470.4B (Safeguards and Security Program), which describes DOE policies for building security into design. Even non-classified projects on a site with no classified work may have property protection issues. There must be a review of whether

	execution of the project will require changes to the site security plan.
Step 12	<p>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.</p> <p>NOTE: Two budget support documents should be prepared as soon as practicable during the Project Definition phase, the Project Data Sheet (PDS) and the Office of Management and Budget (OMB) Non-IT Business Case (also called the 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 Federal budget cycle. The PDS is required for CD-1. The DOE Office of Budget issues annual guidance on preparing the PDS and the Exhibit 300 as part of the field budget call.</p>
Step 13	<p>Inventory the anticipated radioactive and chemical inventory of a proposed facility. For Hazard Category 1, 2 and 3 nuclear facilities (as defined in 10 CFR Part 830), the FPD should ensure the following:</p> <ul style="list-style-type: none"> • 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, Project Review Guide for Capital Asset Projects). • The contractor will prepare a Conceptual Safety Design Report (CSDR), including a 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 Preliminary Documented Safety Analysis (PDSA). • Federal Staff will review the CSDR and prepare a Conceptual Safety Validation Report (CSVR) of their findings, with concurrence from the FPD. <p>For further information, refer to DOE O 413.3B, Appendix C, Topic 6 (Environmental, Safety and Health Documentation Development); DOE-STD-1189-2008 (Integration of Safety into the Design Process); and DOE-STD-1027-92 (Hazard Categorization and Accident Analysis Techniques for compliance with DOE Order 5480.23).</p>
Step 14	<p>For facilities where the planned radiological inventory will be below the Nuclear Hazard Category 3 threshold, prior to CD-1 a preliminary hazards analysis report (PHAR) must be prepared to identify a 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 results of the assessment in the Tailoring Strategy (as mentioned previously,</p>

	<p>the FPD may choose to include the Tailoring Strategy in the PPEP).</p> <p>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 safety documents that will be 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, 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.</p>
Step 15	<p>The FPD, with support from the IPT, prepares the CD-1 package and the draft CD-1 Approval Memo for review by the cognizant acquisition advisory board. For additional information, refer to EMCBC Procedures SAP-OCE&PMS-413.3B-A-02 (Critical Decision-1, Approve Alternative Selection and Cost Range) and SAP-OCE&PMS-413.3B-A-05 (Consolidated Business Center Acquisition Advisory Board).</p>
After AE approval of CD-1	
Step 16	<p>The FPD should ensure that copies of all CD-1 documents are sent to the Office of Acquisition and Project Management (OAPM).</p>
Step 17	<p>The FPD, with support from the IPT, should ensure preparation of an Acquisition Plan per the Federal Acquisition Regulations (FAR), Subpart 7.1 (Acquisition Plans), if DOE plans to utilize a commercial contract.</p> <p>The FPD should 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.</p> <p>NOTE: The FPD should consult with the cognizant Contracting Officer regarding the content and format of the Acquisition Plan.</p>

3.0 References – Forms/Attachments/Exhibits

3.1 References

- DOE O 413.3B (Program and Project Management for the Acquisition of Capital Assets)
- EMCBC Subject Area Description SAD-OCE&PMS-413.3B-A (Critical Decision and Change Control Management)
- Policy and Protocol for Office of Environmental Management Operations Activities (EM-2 memorandum dated March 15, 2012)

- EM Enterprise Requirements System (EMERS), Functional Area Description for Project Management
- DOE G 413.3-18A (Integrated Project Team Guide for Formation and Implementation)
- DOE G 413.3-15 (Guide for Project Execution Plans)
- DOE G 413.3-7A (Risk Management Guide)
- DOE G 413.3-13 (Acquisition Strategy Guide for Capital Asset Projects)
- DOE G 413.3-1 (Managing Design and Construction Using Systems Engineering)
- DOE O 436.1 (Departmental Sustainability)
- DOE G 413.3-6A (High Performance Sustainable Building)
- 10 CFR 830 (Nuclear Safety Management)
- DOE O 414.1D (Quality Assurance)
- DOE G 413.3-2 (Quality Assurance Guide for Project Management)
- DOE O 470.4B (Safeguards and Security Program)
- DOE G 413.3-9 (Project Review Guide for Capital Asset Projects)
- DOE-STD-1189-2008 (Integration of Safety into the Design Process)
- DOE-STD-1027-92 (Hazard Categorization and Accident Analysis Techniques for compliance with DOE Order 5480.23)
- EMCBC Procedure SAP-OCE&PMS-413.3B-A-02 (Critical Decision 1, Approve Alternative Selection and Cost Range)
- EMCBC Procedure SAP-OCE&PMS-413.3B-A-05 (Consolidated Business Center Acquisition Advisory Board)
- Federal Acquisition Regulation (FAR), Subpart 7.1 (Acquisition Plans)

4.0 Records Generated

Records generated through implementation of this procedure are identified as follows and are maintained by the Office of Cost Estimating and Project Management Support (OCE&PMS) in accordance with the EMCBC Organizational File Plan:

Records Category Code	Records Title	Responsible Organization	QA Classification (Lifetime, Non-Permanent or Not Applicable)
ADM 16-05	ADMINISTRATIVE MANAGEMENT RECORDS, Project Control Files Examples: FPD Appointment Memorandum IPT Charter Tailoring Strategy Risk Management Plan Acquisition Strategy Conceptual Design Report Quality Assurance (QA) documentation Safety documentation Acquisition Plan CD-1 package CD-1 Approval Memo PARS report (electronic) IPABS report (electronic)	Office of Cost Estimating and Project Management Support	Not Applicable
ENV 01-K-01	ENVIRONMENTAL RECORDS – ADMINISTRATION, Environmental Record Case Files, Environmental Program Support Files Example (Budget documents): Project Data Sheet OMB Exhibit 300	Office of Cost Estimating and Project Management Support	Not Applicable
ENV 01-K-03	ENVIRONMENTAL RECORDS – ADMINISTRATION, Environmental Record Case Files, Decontamination and Decommissioning Cleanup & Transitioning Case Files Example (Environmental documents): NEPA documents Environmental Permits	Office of Cost Estimating and Project Management Support	Not Applicable

5.0 EMCBC Record of Revision

EMCBC RECORD OF REVISION

DOCUMENT TITLE: Subject Area Procedure: Managing the Project Definition Phase

If there are changes to the controlled document, the revision number increases by one. Indicate changes by one of the following:

- 1 Placing a vertical black line in the margin adjacent to sentence or paragraph that was revised.
- 1 Placing the words GENERAL REVISION at the beginning of the text.

<u>Rev. No.</u>	<u>Description of Changes</u>	<u>Revision on Pages</u>	<u>Date</u>
0	Initial issue		10/4/11
1	GENERAL REVISION		8/1/12
2	GENERAL REVISION (to meet CBC MS format requirements)		2/26/15