

<b>Management System: Project Management</b>
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<b>Subject Area: Critical Decision and Change Control Management</b>
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<b>Procedure: Critical Decision 1, Approve Alternative Selection and Cost Range</b>
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<b>Issue Date and Revision Number:</b> 2/26/15, Rev. 2 (GENERAL REVISION)	<b>Lead Subject Matter Expert:</b> John Wood	<b>Management System Owner:</b> Terry Brennan
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## 1.0 Applicability

This procedure applies to all U.S. Department of Energy (DOE), Office of Environmental Management (EM), Consolidated Business Center (EMCBC) and EM “Small Sites” staff that must begin preliminary design work on a capital asset project with a Total Project Cost (TPC) greater than \$10 million. Requirements for Acquisition Executive (AE) approval of Critical Decision 1 (CD-1, Approve Alternative Selection and Cost Range) are defined in DOE O 413.3B, Program and Project Management for the Acquisition of Capital Assets, and vary depending upon the TPC.

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 TPC under \$100 million. Federal Project Directors (FPD) and project management support staff for such capital asset projects should review this procedure prior to pursuing AE approval of CD-1. The EMCBC procedure SAP-OCE&PMS-413.3B-B-02 (Managing the Project Definition Phase) complements this procedure for CD-1.

A separate EMCBC procedure, SAP-OCE&PMS-413.3B-A-05 (CBC Acquisition Advisory Board [CBCAAB]), describes the administrative process for obtaining EMCBC Director approval of all Critical Decisions (except CD-0 [Approve Mission Need], where approval authority cannot be delegated lower than the Assistant Secretary for Environmental Management (EM-1)). The CBCAAB can also provide review and oversight for the development of CD-1 deliverables for proposed projects at any Small Site (regardless of TPC), as a precursor to submission of such materials to the acquisition advisory board at EM Headquarters (the EMAAB, chaired by EM-1) or at DOE Headquarters (the Energy Systems Acquisition Advisory Board [ESAAB], chaired by the Secretarial Acquisition Executive [SAE], the Deputy Secretary of Energy).

This procedure is consistent with the EM Enterprise Requirements System (EMERS) Functional Area Description for Project Management, the associated Subject Area for Critical Decision Management, and subsidiary Procedure 2 (Obtaining CD-1, Approve Alternative Selection and Cost Range) and Procedure 6 (Processing Approvals for EMAAB and ESAAB).

## 2.0 Required Procedure

Upon EM-1 approval of the Mission Need Statement and AE or SAE approval of CD-0 (Approve Mission Need), the project enters the Definition Phase where alternative concepts based on user requirements, risks, costs and other constraints are analyzed to arrive at a recommended alternative. During this phase, more detailed planning is accomplished, which further defines the required capability and refines the Cost and Schedule range. At the conclusion of the Definition Phase, the alternative selected as the best solution to the mission need is presented to the AE (or SAE, if appropriate) for approval of CD-1. Approval of CD-1 provides the authorization to begin the Project Execution Phase and allows Project Engineering and Design (PED) funds to be used. For the majority of EM Small Site projects, once the preferred alternative is selected (often immediately after CD-0), the EMCBC Director (as the Field Office Program Official) and the FPD assume primary responsibility for execution of the project.

Major items to be approved in the process toward CD-1 approval include the Acquisition Strategy (AS), which must be approved by the Program Secretarial Office (PSO, i.e., EM-1); the Preliminary Project Execution Plan (PPEP), which will be approved by the AE; and a Conceptual Design (tailored as needed for the project).

General steps related to obtaining CD-1 are listed in DOE O 413.3B, Appendix A, Section 4.b, Table 2.1. The below table provides additional detail to accomplish all required steps.

<p><b>Step 1</b></p>	<p>Determine the Critical Decision-1 (CD-1) Approving Official and appoint the Federal Project Director (FPD).</p> <p>The EMCBC Director is the Acquisition Executive (AE) for Small Site projects with a total project cost (TPC) under \$100 million. For projects with a TPC of \$100 million or greater, the AE may be the Program Secretarial Officer (PSO, i.e., EM-1), the responsible Under Secretary or the Deputy Secretary of Energy.</p> <p>Prepare an FPD Appointment Memorandum for the AE’s signature. If the AE is higher than the EMCBC Director, the proposed FPD should coordinate with the responsible EM Mission Unit and the EM Office of Project Assessment (EM-53) to process the memorandum at the necessary level.</p>
<p><b>Step 2</b></p>	<p>Review the Acquisition Advisory Board (AAB) procedures up to the level needed:</p> <ul style="list-style-type: none"> <li>• See aforementioned EMCBC procedure for the CBCAAB process (for projects with a TPC under \$100 million);</li> <li>• See aforementioned EMERS procedure for Processing Approvals for EMAAB</li> </ul>

	<p>and ESAAB (for projects with a TPC of \$100 million or greater);</p> <ul style="list-style-type: none"> <li>• Also see OAPM Standard Operating Procedure (SOP) for ESAAB, dated July 2014.</li> </ul>
<b>Step 3</b>	<p>The FPD prepares a Tailoring Strategy for the project. The FPD should seek AE approval of the Tailoring Strategy early in the process, especially if the Preliminary Project Execution Plan (PPEP) has not already been approved. The Tailoring Strategy can later be folded into the final PPEP.</p> <p><b>NOTE:</b> The EMCBC maintains a Critical Decision Requirements Checklist (MS Word template) that can be used to document a project’s readiness for CD-1 (or any other Critical Decision). However, the checklist can also be used for development of a Tailoring Strategy, which serves as a forward-looking tool of planned DOE O 413.3B deliverables.</p>
<b>Step 4</b>	<p>The FPD, in cooperation with the Mission Unit, completes the prerequisites for obtaining CD-1 Approval (see DOE O 413.3B, Appendix A, Section 4.b, Table 2.1).</p> <p><b>NOTE:</b> For the EM Small Sites, the FPD (with support from the Site Director and the EMCBC Director) controls the preparation of most prerequisite documents, except:</p> <ul style="list-style-type: none"> <li>• EM-1 will approve all Acquisition Strategies (AS), after review of a recommendation from the DOE Office of Acquisition and Project Management (OAPM, MA-60) for projects with an estimated TPC of \$100 million or greater.</li> <li>• If the estimated TPC is \$100 million or greater, EM-1 (or higher) will also approve the PPEP, and the OAPM will perform an Independent Cost Review (ICR) or Independent Cost Estimate (ICE).</li> </ul>
<b>Step 5</b>	<p>Obtain Approval of the Acquisition Strategy.</p> <p>The FPD, in coordination with the Mission Unit Contact, develops the project’s Acquisition Strategy (AS). EM-1 will approve the AS; this authority cannot be delegated. Refer to DOE G 413.3-13 (Acquisition Strategy Guide for Capital Asset Projects) for a template for an AS, and to the Office of Management and Budget (OMB) Capital Programming Guide (CPG) for a description of general requirements for an AS.</p> <ol style="list-style-type: none"> <li>With Mission Unit cooperation, the FPD will submit the AS to the EMCBC Assistant Director for the Office of Cost Estimating and Project Management Support (OCE&amp;PMS) and request the EMCBC Director’s endorsement of the AS. The Assistant Director of OCE&amp;PMS, in his/her capacity as the CBCAAB Secretariat, will route the AS for review as needed.</li> </ol> <p>Allow three weeks for review, comment resolution, and approval of the AS.</p> <ol style="list-style-type: none"> <li>At least three weeks in advance of the desired EM-1 approval, the FPD and Mission Unit will submit the draft AS to EM-53 and request its approval. The</li> </ol>

	<p>EM-53 will request OAPM review of the AS for Major System Projects (i.e., projects with a TPC of \$750 million or greater, or which have been so designated).</p> <ul style="list-style-type: none"> <li>c. The Mission Unit Contact and FPD will work together to resolve any comments received from Headquarters reviewers of the AS, and will obtain all necessary concurrence signatures.</li> <li>d. The Mission Unit Director forwards the AS, via action memorandum, to EM-1 for approval. EM-1 will sign the AS, after reviewing OAPM’s recommendation memorandum, as appropriate.</li> </ul>
<p><b>Step 6</b></p>	<p>Obtain Approval of the Preliminary Project Execution Plan (PPEP).</p> <p>In addition to DOE O 413.3B requirements for a PPEP, see DOE G 413.3-15 (Guide for Project Execution Plans) for a PEP template. The PPEP typically includes a preliminary Risk Management Plan (for further information, see DOE G 413.3-7A [Risk Management Guide]). The FPD should also establish and charter an Integrated Project Team (IPT), and may include the IPT Charter in the PPEP. For further information, see DOE G 413.3-18A (Integrated Project Team Guide for Formation and Implementation).</p> <ul style="list-style-type: none"> <li>a. The FPD, with Mission Unit cooperation, will submit the PPEP to the CBCAAB Secretariat and request EMCBC Director approval or endorsement of the PPEP. The CBCAAB Secretariat will route the PPEP for review as needed. Allow three weeks for review, comment resolution, and approval of the PPEP.</li> <li>b. If approval of the PPEP above the EMCBC Director level is needed, then at least three weeks in advance of the desired EM-1 approval or endorsement, the FPD and Mission Unit should submit the draft PPEP to EM-53 and request its approval.</li> <li>c. The Mission Unit Contact and the FPD will work together to resolve any comments received from Headquarters reviewers of the PPEP, and will obtain all necessary concurrence signatures.</li> <li>d. The Mission Unit Director forwards the PPEP, via action memorandum, to EM-1 for approval. EM-1 will sign the PPEP, after reviewing OAPM’s recommendation memorandum, as appropriate.</li> <li>e. If necessary, EM-53 will submit the PPEP to the Under Secretary or to the Deputy Secretary (the Secretarial Acquisition Executive [SAE]) for approval.</li> </ul>

<p><b>Step 7</b></p>	<p><b>Complete a Conceptual Design.</b></p> <p>All capital work requires a conceptual design, although this will be executed (tailored) to fit the technology used and capital asset in play. Refer to DOE O 413.3B, Appendix A (Section 4.b, Table 2.1 [CD-1 Requirements]) and to Appendix C (Topical Area # 4 [Design Maturity]) for requirements pertaining to conceptual design. Also see guidance contained in DOE G 413.3-1 (Managing Design and Construction Using Systems Engineering for Use with DOE O 413.3A).</p> <p>Additional guidance, published by EM Headquarters, regarding development of tailored conceptual designs for demolition or decommissioning projects may be found in “Tailoring D&amp;D Engineering and Design Activities to the Requirements of DOE O 413.3A” (Revision1, issued in 2010). This document was published by the predecessor of EM-13 (Office of D&amp;D and Facility Engineering [formerly EM-44]).</p> <p>The conceptual design should be based on the alternative selected as the best solution to the mission need (i.e., the alternative described in the Acquisition Strategy, from Step 5 above). The conceptual design must be professionally prepared, as opposed to the experience-based parametric estimates that are typically used in the Alternatives Analysis and in Mission Need Statements.</p> <p>All projects under the EMCBC Director’s purview should have a conceptual design that includes, at a minimum, a professional cost estimate and review via an independent peer review. See DOE G 413.3-21 (Cost Estimating Guide), Section 4.2 for further details. The EMCBC Cost Estimating and Analysis Division is the preferred estimating source, but FPDs may choose otherwise.</p> <p>Projects requiring complex design work will have a formal Conceptual Design Report, and an independent Conceptual Design Review (CDR). The CDR should define the project enough to produce budget estimates for Project Data Sheets.</p> <p>The EM-53 or the responsible Mission Unit Office may also conduct an Independent Project Review (IPR); note that some CD-1 prerequisites may not be complete at this point. If an IPR is necessary, the Mission Unit will issue a Charge Memorandum to EM-53. Allow four months to schedule an EM-53 design review, resolve comments, and issue the final report.</p>
<p><b>Step 8</b></p>	<p><b>For Projects with an estimated Cost range of \$100 million or greater:</b></p> <p>The FPD, in coordination with the responsible Mission Unit, requests an Independent Cost Estimate (ICE) or an Independent Cost Review (ICR) from OAPM (MA-60), through EM-53, as appropriate.</p> <ol style="list-style-type: none"> <li>a. The OAPM/MA-60 will develop an ICE and/or conduct an ICR, as appropriate.</li> <li>b. The FPD in conjunction with the Mission Unit will resolve any findings in the ICR Report.</li> </ol>

	<p>c. The OAPM/MA-60 will issue a CD-1 Independent Cost Review Validation Memorandum.</p> <p><b>NOTE:</b> For information on EM-internal practices for conduct of an ICR, refer to Independent Cost Review Guide (Revision 0, December 2013), published by the EMCBC. This guide may be useful to FPDs and project support personnel (including cost estimators) during preparation for an ICR that will be led by MA-60.</p>
<p><b>Step 9</b></p>	<p>Other CD-1 Requirements: (see DOE O 413.3B, Appendix A, Section 4.b, Table 2.1, for a complete list of requirements) include:</p> <ul style="list-style-type: none"> <li>• High Performance and Sustainable Building (HPSB) features should be considered during planning of both construction and non-construction projects (e.g., remediation or decommissioning) in order to see if some activities can be performed in a sustainable manner.</li> <li>• Hazard Category 1, 2 and 3 nuclear facility safety documents include a Conceptual Safety Design Report (CSDR) with Conceptual Safety Validation Report (CSV). Additionally, there must be an independent review to ensure safety features have been integrated into the design process. The responsible Nuclear Safety Approval Authority must review and approve these safety documents.</li> <li>• A Preliminary Hazard Analysis Report (PHAR) is expected for work in other than Hazard Category 1, 2 and 3 nuclear facilities (e.g. “radiological” facilities,” or for projects involving chemical hazards). In lieu of a PHAR, projects involving facilities with primarily industrial hazards may justify use of a Hazardous Waste Operations and Emergency Response (HAZWOPER) compliant Health and Safety Plan (HASP) or other suitable controls.</li> <li>• Security reviews should include a summary of potential administrative and physical features, or the lack of any changes to the site security plan. A non-classified project must still comply with or amend the site security plan.</li> </ul>
<p><b>Step 10</b></p>	<p>Optional Independent Project Review.</p> <p>The EM-53 may conduct an Independent Project Review (IPR), if deemed necessary:</p> <ol style="list-style-type: none"> <li>a. The FPD and responsible Mission Unit establish a review date with EM-53, and a Charge Memorandum is issued.</li> <li>b. EM-53, in coordination with the Mission Unit and FPD, develops a review agenda and assembles a review committee.</li> <li>c. The review is conducted and the review team shares findings, comments and recommendations with the FPD, project team and Mission Unit at a closeout briefing.</li> <li>d. The FPD ensures all findings and recommendations resulting from the review are appropriately addressed and tracked to closure.</li> </ol>

	<p>e. The EM-53 review team leader issues a final review report.</p> <p>See DOE G 413.3-9 (Project Review Guide for Capital Asset Projects) for additional information on project review requirements at CD-1.</p>
<b>Step 11</b>	<p>Prepare the CD-1 Approval Package.</p> <p>When all CD-1 prerequisites are complete, the FPD and Mission Unit Contact will prepare a package to brief the AE. The package should include a checklist of how all DOE O 413.3B requirements have been met; a presentation (e.g., PowerPoint file) built around the Alternatives Analysis, conceptual design, and the selected alternative's cost and schedule; and a draft CD-1 Approval Memorandum. The FPD should provide EM-53 with an electronic copy of all CD-1 prerequisites for reference purposes.</p> <p>The CD-1 Approval Package should discuss, at a minimum:</p> <ul style="list-style-type: none"> <li>• Key performance parameters (KPP), project deliverables, and potential metrics,</li> <li>• Risk management, including enabling or bounding assumptions,</li> <li>• Alternatives considered and the selection process,</li> <li>• The selected alternative's estimated costs and time spans, and</li> <li>• Interfaces with third parties.</li> </ul> <p>In some cases (e.g., for less complex projects), the PPEP (or Alternatives Analysis) approval may have been deferred until the final CD-1 briefing for the AE. In this event, those documents will be included in the briefing package with appropriate supporting details.</p> <p>Review the high-end cost range and affirm who the AE will be for CD-1. Plan accordingly for which acquisition advisory board or boards (CBCAAB, EMAAB, ESAAB) will endorse the CD-1 and which office will approve CD-1 (EMCBC, EM-1, Under Secretary, Deputy Secretary).</p>
<b>Step 12</b>	<p>Obtain EMCBC Director's approval (or endorsement) of CD-1.</p> <p>After all prerequisites are complete (or ready for approval), the FPD will notify the CBCAAB Secretariat and request CBCAAB review of the CD-1 Approval Package. The CBCAAB Secretariat will route the package for review as needed. Refer to EMCBC Procedure SAP-OCE&amp;PMS-413.3B-A-05 (CBCAAB) for further details. Allow at least two weeks for the CBCAAB's review, comment resolution, and final action.</p> <p>After EMCBC Director approval (or endorsement) of CD-1, the FPD will submit copies of final documents to EM-53.</p>
<b>Step 13</b>	<p>Obtain EM Headquarters approval (or endorsement) of CD-1.</p> <p>If approval above the EMCBC Director is needed, the FPD and the Mission Unit Contact will request that EM-53, in its capacity as EMAAB Secretariat, schedule a</p>

	<p>review and briefing. Refer to EMERS Procedure 6 (Processing Approvals for EMAAB and ESAAB) for further details.</p> <p>Plan at least three weeks before the expected EMAAB briefing to allow for initial review, comment resolution, an EMAAB-pre-briefing, additional comment resolution, and final review.</p> <p>After EM-1 approval (or endorsement) of CD-1, EM-53 will submit copies of final documents to OAPM/MA-60.</p>
<b>Step 14</b>	<p>Obtain DOE Headquarters approval of CD-1 (if appropriate).</p> <p>If final approval of CD-1 is above EM-1’s AE authority (currently limited to projects with a TPC under \$400 million), then EM-53 will coordinate with the Under Secretary and/or OAPM/MA-60 to plan the review(s). For further information, refer to aforementioned EMERS Procedure 6. Also see OAPM Standard Operating Procedure (SOP) for ESAAB, dated July 2014.</p> <p>Plan at least six weeks for each review level. MA-60, like EM Headquarters, normally has a pre-briefing iteration. While the FPD will attend and shape all briefings, the Deputy Assistant Secretary (DAS) from the responsible Mission Unit or other DOE Headquarters staff may choose to make the presentation(s).</p> <p><b>NOTE:</b> The Program Office will receive the final CD-1 Approval Memorandum from the Under Secretary or the Deputy Secretary within approximately two weeks after the final meeting.</p>
<b>After AE (or SAE) approval of CD-1</b>	
<b>Step 15</b>	<p>The FPD, Program Manager and OAPM will continue to report project status (excluding earned value [EV] data) on a monthly basis in the DOE Project Assessment and Reporting System (PARS II) database. Refer to EMCBC procedure SAP-OCE&amp;PMS-413.3B-C-01 (APM Reporting) for further information.</p>
<b>Step 16</b>	<p>The AE will continue to conduct Quarterly Project Reviews (QPR), as required by DOE O 413.3B, Appendix B (Responsibilities), Section 6 (Acquisition Executive). Refer to EMCBC procedure SAP-OCE&amp;PMS-413.3B-C-02 (EM Reporting) for further information.</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 Procedure SAP-OCE&PMS-413.3B-B-02 (Managing the Project Definition Phase)
- EMCBC Procedure SAP-OCE&PMS-413.3B-A-05 (EM Consolidated Business Center [CBC] Acquisition Advisory Board [CBCAAB])
- EM Enterprise Requirements System (EMERS) Functional Area Description for Project Management, Subject Area for Critical Decision Management, Procedure 2 (Obtaining CD-1, Approve Alternative Selection and Cost Range) and Procedure 6 (Processing Approvals for EMAAB and ESAAB)
- DOE Office of Acquisition and Project Management (OAPM) Standard Operating Procedure (SOP) for Energy Systems Acquisition Advisory Board (ESAAB), dated July 2014
- Office of Management and Budget (OMB) Capital Programming Guide
- DOE G 413.3-13 (Acquisition Strategy Guide for Capital Asset Projects)
- DOE G 413.3-15 (Guide for Project Execution Plans)
- DOE G 413.3-7A (Risk Management Guide)
- DOE G 413.3-18A (Integrated Project Team Guide for Formation and Implementation)
- DOE G 413.3-1 (Managing Design and Construction Using Systems Engineering for use with DOE O 413.3A)
- Tailoring D&D Engineering and Design Activities to the Requirements of DOE O 413.3A (Revision 1, 2010, authored by EM Office of D&D and Facility Engineering [EM-13, formerly EM-44])
- DOE G 413.3-21 (Cost Estimating Guide) Independent Cost Review Guide (Revision 0, December 2013, authored by EMCBC)
- DOE G 413.3-9 (Project Review Guide for Capital Asset Projects)

- EMCBC Procedure SAP-OCE&PMS-413.3B-C-01 (DOE Office of Acquisition and Project Management [APM] Reporting)
- EMCBC Procedure SAP-OCE&PMS-413.3B-C-02 (Office of Environmental Management [EM] Reporting)

## 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	Quality Assurance (QA) Classification (Lifetime, Non-Permanent or Not Applicable)
ADM 16-01.4-A	ADMINISTRATIVE MANAGEMENT RECORDS, Baseline Management files  <b>Examples:</b> Minutes from CBCAAB, EMAAB or ESAAB meetings	Office of Cost Estimating and Project Management Support	Not Applicable
ADM 16-05	ADMINISTRATIVE MANAGEMENT RECORDS, Project Control files  <b>Examples:</b> Acquisition Strategy FPD Designation Memo Independent Cost Estimate (ICE) Independent Cost Review (ICR) Preliminary Project Execution Plan (PPEP) Tailoring Strategy Integrated Project Team (IPT) Charter Risk Management Plan Conceptual Design Report (CDR) Preliminary Hazard Analysis Report (PHAR) Integrated Safety Management Plan Quality Assurance Program Plan CD-1 Briefing Package CD-1 Approval Memo PARS II Monthly Report (electronic copy) Quarterly Project Review (QPR) package	Office of Cost Estimating and Project Management Support	Not Applicable
ENV 01-K-03	ENVIRONMENTAL RECORDS – ADMINISTRATION, Environmental Record Case Files, Environmental Program Support	Office of Cost Estimating	Not Applicable

	Files  <b>Examples (NEPA documents):</b> Environmental Assessment	and Project Management Support	
ENV 01-K-01	ENVIRONMENTAL RECORDS – ADMINISTRATION, Environmental Record Case Files, Decontamination and Decommissioning Cleanup & Transitioning Case Files  <b>Examples (funding documents):</b> Project Data Sheet (PDS) OMB Exhibit 300	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: Critical Decision 1, Approve Alternative Selection and Cost Range

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

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

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<b>Rev. No.</b>	<b>Description of Changes</b>	<b>Revision on Pages</b>	<b>Date</b>
Rev. 0	Initial issue		12/16/11
Rev. 1	GENERAL REVISION		8/1/12
Rev. 2	GENERAL REVISION (to meet CBC MS format requirements)		2/26/15