The Secretary of Energy
Washington, DC 20585

June 8, 2015

MEMORANDUM FOR HEADS OF ALL DEPARTMENT ELEMENTS

FROM: ERNEST J. MONIZ

SUBJECT: Project Management Policies and Principles

As noted in my memo dated December 1, 2014, on *Improving the Department's Management of Projects*, I continue to place a priority on improving project management across the Department of Energy (DOE) and removing all Departmental organizations from the Government Accountability Office's (GAO) High-Risk List for contract and project management. This goal requires us to make fundamental changes to our project management approach and your personal leadership will be essential.

Attached is a document that enhances and clarifies departmental policy related to project management. The changes outlined in this document have either been noted as areas for improvement by the GAO in recent reports; identified by DOE project management experts; or recommended in the *Improving Project Management* Report issued by the Contract and Project Management Working Group in November 2014. Effective immediately, the provisions outlined within this attachment will be implemented as required project management procedures.

Effective today, I am making all requirements of DOE Order 413.3B, Program and Project Management for the Acquisition of Capital Assets, applicable to all DOE Elements (unless excepted or exempted as identified in Paragraph 3.c., Equivalencies/Exemptions) for all capital asset projects having a Total Project Cost greater than, or equal to, $10M. The $10M threshold replaces the current $50M threshold specified in DOE O 413.3B.

The Office of Acquisition and Project Management, in coordination with the Office of the Secretary, will work with your offices to facilitate the immediate implementation of these policies. The Office of Acquisition and Project Management will immediately initiate a limited update to DOE O 413.3B, to incorporate all recent Secretarial policy memorandums since the last update of the Order. In the interim, I expect you to incorporate this policy clarification and the attached policy statements into your processes for planning and executing our projects for all future critical decisions. Programs are not required to revisit previously achieved critical decisions.

Attachment

PROJECT MANAGEMENT POLICIES

OWNERSHIP, ACCOUNTABILITY AND RESPONSIBILITY

Clear roles, responsibilities and accountabilities among the project's owner, line management organizational elements, and support staff organizations shall be documented in the preliminary project execution plan at Critical Decision 1 (CD-1), *Approve Alternative Selection and Cost Range.*

Under Secretary will:

- Designate a project owner.

Owner will:

- Identify requirements and request the necessary budget to construct the approved scope at the desired schedule; and
- Visit the project site and review the progress against key milestones that were approved as part of the performance baseline.

Project Management Executive (PME) will:

- Ensure the Federal Project Director has a contracting, construction and design organization(s) that is prepared to execute the project as planned;
- Ensure the contractor has a competent manager supported by a qualified project team;
- Ensure there is adequate skilled staff for Federal oversight of the contractor;
- Visit the project site and review the progress against key milestones that were approved as part of the performance baseline; and
- Oversee project change control in accordance with the Project Execution Plan.

Federal Project Director will:

- Ensure early warning systems (triggered by thresholds) and communication channels are in place, so senior leadership is informed of potential project issues in time to make productive changes; and
- Exercise project change control in accordance with the Project Execution Plan.

ANALYSIS OF ALTERNATIVES

The responsible program office is required to conduct an analysis of alternatives (AoA) that is independent of the contractor organization responsible for managing the construction or constructing the capital asset project. The AoA will be conducted for projects with an estimated Total Estimated Cost (TEC) greater than the current General Plant Project (GPP) threshold prior to approval of Critical Decision 1 (CD-1), *Approve Alternative Selection and Cost*

Range, and may also be conducted when a performance baseline deviation occurs or if new technologies or solutions become available. This determination will be made by the Project Management Executive.

For projects with an estimated total project cost less than $50 million (i.e., representing the upper end of the cost range), the AoA shall be commensurate with the project cost and complexity. The Office of Acquisition and Project Management (OAPM) will develop an AoA process in a DOE 413.3 series guide consistent with published Government Accountability Office (GAO) best practices (see GAO report GAO-15-37, *DOE and NNSA Project Management: Analysis of Alternatives Could Be Improved by Incorporating Best Practices* dated December 11, 2014). In developing the AoA process, OAPM shall also address the need to "integrate NEPA into project planning to ensure planning and decisions reflect environmental considerations, avoid delays later in the process, and anticipate and attempt to resolve any potential issues rather than be an after the fact process that justifies a decision already made" in accordance with White House Council on Environmental Quality guidance (77 FR 14473; March 12, 2012) and DOE Secretarial Memo for heads of departmental elements (June 12, 2012). The AoA shall be conducted and documented in a manner consistent with the guide to be published.

DESIGN MANAGEMENT FOR HAZARD CATEGORY NUCLEAR FACILITIES

Nuclear Construction

Nuclear construction projects, DOE/NNSA projects that build facilities with technologies to manage, store, process, or handle nuclear materials, shall comply with DOE-STD-1189 design safety requirements and DOE Order 413.3B project management processes. Therefore, projects designated as Hazard Category 1, 2, and 3 nuclear facilities shall achieve at least 90 percent design completion before Critical Decision 2 (CD-2), *Approve Performance Baseline,* is recommended by the Energy Systems Acquisition Advisory Board and granted by the CE.

The objective is to ensure systems, structures, and components, the overall design are sufficiently mature to meet project requirements and outcomes and thus fulfilling the mission need. Design maturity at 90 percent completion will ensure that a performance baseline is based on a credible cost estimate and achievable schedule for project completion.

As a minimum, 90 percent design complete includes:

- Complete final drawings and specifications that may be released for bid and/or construction
- A current and detailed cost estimate
- A current construction schedule
- Clearly defined testing requirements and acceptance criteria for the safety and functionality of all subsystems

- Independent technical, construction, operation and environmental reviews of the final drawings and specifications
- A quality control review that evaluates both technical accuracy and discipline coordination
- A final design that meets all the requirements stipulated in the Code of Record
- A final design review that should be merely be a final validation of comment resolution from previous reviews and a review of any additional developments since the last review
- The checking and verification of any required waivers or exemptions.

The following design and safety basis documents would also need to be prepared prior to CD-2:

- Final design report
- Final design review report
- Preliminary documented safety analysis
- Safety evaluation report

Non-Nuclear Construction

Non-nuclear project designs shall be sufficiently mature to allow the PME to ensure achieving a complete, accurate project baseline with 80-90 percent confidence. At CD-1, a design plan shall establish anticipated levels of design maturity at each CD through final design. Independent project reviews should evaluate progress against the design plans established at CD-1.

In addition, for all capital asset projects greater than $100M, the Project Management Risk Committee (PMRC) will review all project design plans at CD-1 to ensure design maturity targets at critical milestones are reasonable based on numerous factors including technology readiness, complexity, total project cost, and any other relevant factor for the project. Ideally, at CD-2, the objective is to achieve a design maturity that would be used as a reliable indicator of a contractor's actual total costs at completion that would not exceed the original cost baseline.

DESIGN MANAGEMENT PLANS FOR MAJOR SYSTEM PROJECTS

To enhance fiscal insight and discipline for major system projects, an estimate of the required amount of funding to conduct project engineering and design (PED) efforts (hereinafter referred to as PED funds) to execute the planning and design portion of a project (period from CD-1, *Approve Alternative Selection and Cost Range,* to the completion of the project's design) shall be included in the CD-1, *Approve Alternative Selection and Cost Range,* documentation.

For projects with a TPC less than $100M, the use of PED funds shall be limited to a two-year duration, unless approved by the PME. The PMRC shall be notified of granted time extensions or waivers. The estimate will be subject to applicable independent reviews established in DOE O 413.3B.

As part of the development and approval process for CD-1, *Approve Alternative Selection and Cost Range,* for major system projects or design management plans shall be developed and included in the approval package. If at any time, through forecasting or actual costs, it becomes apparent the design cost target will be breached, then the PMRC shall be notified.

System-level requirements for technology development and design maturity for major system projects must be clearly defined. System-level requirements must be sufficient to describe what the overall system must do, what its performance must be, and what constraints an engineer should consider. The requirements must include any legal or regulatory constraints within which the system must perform. All external interfaces for the system must be included. Major internal interfaces may be included if they are important to system modularity, or future growth in capability.

TECHNOLOGY READINESS

Major System Projects (greater than $750M), or first-of-a-kind engineering endeavors, must be assessed prior to each CD using the Technology Readiness Assessment defined in DOE G 413.3-4A (or current version) and should achieve the following minimum Technology Readiness Level (TRL) scores for each critical technology item or system as determined by an independent review team outside of the project team before that CD can be approved. The higher the TRL at CD-2, the lower the risk to the project. The PME must provide justification to the Energy Systems Acquisition Advisory Board, if pursuing a TRL less than 7, at CD-2, which in turn will notify the Deputy Secretary.

- CD-1: TRL 4
- CD-2: TRL 7

ALIGN PRIORITIES TO PROGRAM APPROPRIATIONS

Each program office shall develop an integrated capital asset project priority list as a corporate tool to enable DOE leadership to optimize limited budget resources. The priority list shall be updated at least annually and should rank mission needs that are achieved by each capital asset project and identify project drivers, internal and external factors for ranking the projects. The prioritization should be reflected in the annual fiscal guidance.

PROJECT FUNDING DOCUMENTS

All projects, except for Major Items of Equipment, will provide to the Chief Financial Officer (CFO) and the Office of Acquisition and Project Management (OAPM) a project funding document (inclusive of the Project Data Sheet (PDS) for line item projects) that clearly delineates the budget year funding request, prior year budget requests and appropriations, and future planned budget requests. Consistent with current budget submission requirements, the PDS for line item projects will be included in the Department's Congressional budget submission.

However, the project funding document (similar to PDS) for operating expense projects (as defined in DOE O 413.3B) will be considered internal information for the Chief Financial Officer, the Office of Acquisition and Project Management (OAPM), and appropriate senior leaders during the budget preparation process to document that project funds are being requested consistent with the funding profile established when the Critical Decision 2 (CD-2), *Approve Performance Baseline,* or the latest Baseline Change Proposal that was approved.

CAPITAL ASSET PROJECT SCOPE

Capital asset project scope determinations shall adhere to Federal statutes, regulations, policy, and guidance. Specifically, determinations shall comply with the Office of Management and Budget's Circular A-11 and associated Capital Programming Guide. Capital asset project decisions shall be made based on clearly defined scope and the nature and type of work to be completed and shall include all the project-specific work scope needed to achieve a complete and useful asset and accomplish the defined mission need using proper project segmentation or project phasing. The cost of operational activities that occur solely to support accomplishment of the capital asset project between CD-0, *Approve Mission Need,* and CD-4, *Approve Start of Operations or Project Completion,* are to be included in the capital asset project's Total Project Cost.

COST ESTIMATING

Established methods and best practices will be used to develop, maintain, monitor, and communicate comprehensive, well-documented, accurate, credible, and defensible cost estimates. Cost estimates shall be developed, maintained, and documented in a manner consistent with methods and the best practices identified in GAO-09-3SP *GAO Cost Estimating and Assessment Guide* (current version), and, as applicable, with the Federal Acquisition Regulation (e.g., *FAR Subpart 15.4 – Contract Pricing; FAR Subpart 17.6 – Management and Operating Contracts*), Office of Management and Budget Circular A-11, *Preparation, Submission, and Execution of the Budget,* and Department of Energy Acquisition Regulation (DEAR) Subpart 915-4 – *Contract Pricing.*

OAPM will update specific cost estimating best practices in DOE O 413.3B and DOE G 413.3-21, Cost Estimating Guide, and the DEAR consistent with these published best practices.

PLANNING AND SCHEDULING

Projects shall develop and maintain an Integrated Master Schedule (IMS). The IMS shall be developed, maintained, and documented in a manner consistent with methods and the best practices identified in the *Planning and Scheduling Excellence Guide* (current version), published by the National Defense Industrial Association, and the GAO-12-120G *GAO Schedule Assessment Guide* (current version).

OAPM will update specific planning and scheduling best practices in DOE O 413.3B and associated guides consistent with these published best practices.

ENHANCEMENT OF PROJECT MANAGEMENT CONTROLS

The Department will adopt project management control best practices equivalent to those implemented by the Department of Defense (DoD). This includes a DOE version of the DoD Integrated Program Management Report (IPMR) on projects not associated with a firm fixed-price contract.

OAPM will enhance the Project Assessment and Reporting System (PARS II) to enable receipt of cost and schedule data in the format specified in the DOE version of the IPMR to ensure consistency across the federal government and deploy improved cost and schedule analysis tools. Contractors will upload in PARS II the required project performance data at the lowest element of cost level in the specified format.

OAPM will provide this direction in updates to DOE O 413.3B, DOE O 413.3-10A, Earned Value Management System (EVMS) Guide, and associated EVMS and PARS II processes, and the DOE version of the IPMR.

PERFORMANCE BASELINE BREACHES

When the integrated project team, Program Office or independent oversight offices determine the Performance Baseline scope, schedule, or cost thresholds will be breached, the Program Office is required to conduct an independent and objective root cause analysis to determine the underlying contributing causes of cost overruns, schedule delays, and performance shortcomings. The root cause analysis will be provided to the Project Management Executive (PME) as part of the rebaselining process to inform the PME's decision of whether to terminate or proceed with the project. Corrective actions shall be identified and presented to the Project Management Executive for action approval.

EXEMPTIONS

Programs may present cases to the Project Management Risk Committee (PMRC) for an exemption from a specific DOE O 413.3B (or latest version) provision or other mandatory project management guidance regarding capital asset projects. If the consensus of the

committee is to endorse the exemption request, approval of the exemption request will be made by the appropriate Under Secretary. However, if consensus cannot be attained, at the discretion of the Program, the exemption request may be forwarded to the Deputy Secretary as the Chief Executive for Project Management with formal review by the PMRC outlining the advantages and disadvantages of the proposed exemption. In this case, the exemption request will be entered into, and processed through, the Department's formal collaboration process.