

NNSA POLICY

NAP 413.9

Approved: 01-30-2026
Certification Due: 01-30-2031

COST ANALYSIS REQUIREMENTS DESCRIPTION



NATIONAL NUCLEAR SECURITY ADMINISTRATION
Office of Cost Estimating and Program Evaluation

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Office of Cost Estimating and Program Evaluation

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COST ANALYSIS REQUIREMENTS DESCRIPTION

1. **PURPOSE.** To establish policy, requirements, responsibilities, and expectations related to developing the Cost Analysis Requirements Description (CARD) for an Independent Cost Estimate (ICE) and Independent Cost Review (ICR) required for programs and projects being executed by the National Nuclear Security Administration (NNSA).
2. **AUTHORITY.** This NNSA Policy (NAP) is written under the Administrator's authority to set policy established pursuant to 50 United States Code (U.S.C.) 2402(d) and 2411(c).
3. **CANCELLATION.** Business Operating Procedure (BOP) 413.9, *Cost Analysis Requirements Description*, dated 01-22-18.
4. **APPLICABILITY.**
 - a. **Federal.** Applies to all NNSA elements.
 - b. **Contractors.** Does not apply to laboratories, plants, and sites (LPS) contractors; however, the principles defined herein should be used in work authorizations to streamline reconciliation of estimates.
 - c. **Equivalencies/Exemptions.**
 - (1) **Equivalency.** In accordance with the responsibilities and authorities assigned by Executive Order 12344, codified at 50 U.S.C. sections 2406 and 2511, and to ensure consistency throughout the joint Navy/Department of Energy (DOE) Naval Nuclear Propulsion Program, the Deputy Administrator for Naval Reactors (Director) will implement and oversee requirements and practices pertaining to this Directive for activities under the Director's cognizance, as deemed appropriate.
 - (2) **Exemption.** Estimates performed for direct use in contract actions under DOE Acquisition Regulations (DEAR) and Federal Acquisition Regulations (FAR).
5. **SUMMARY OF CHANGES.** Redesignates BOP 413.9, *Cost Analysis Requirements Description*, dated 01-22-18 to NAP 413.9, *Cost Analysis and Requirements Description*.
6. **BACKGROUND.** A CARD is a description of the relevant features of the acquisition program or project and of the system itself. It is the common description of the technical and programmatic features of the program or project that is used by the teams when preparing the ICE/ICR or program office cost estimates. It is intended to define the program or project to a sufficient level of detail such that no confusion exists between the many parties who may be concerned with estimating the program or project's cost.

The Government Accountability Office's (GAO) *Cost Estimating and Assessment Guide* affirms that:

Key to developing a credible estimate is having an adequate understanding of the acquisition program—the acquisition strategy, technical definition, characteristics, system design features, and technologies to be included in its design. The cost estimator can use this information to identify the technical and program parameters that will bound the cost estimate. The amount of information contained in the technical baseline directly affects the overall quality and flexibility of the estimate.

7. **REQUIREMENTS.** This policy applies to programs and projects that require an ICE and ICR to be conducted by the Office of Cost Estimating and Program Evaluation (CEPE) as defined in NAP 413.3A, *Responsibilities for Independent Cost Estimates*, to include programs during the Phase X process, specifically Phase 2a to 6; programs during the 6.X process, specifically Phase 6.2a to 6.6; and for projects during Critical Decision (CD)-1 to CD-4.
 - a. The CARD must be submitted by the Federal Program Manager (FPM) or the Federal Project Director (FPD) when one is assigned. The draft CARD must be prepared and delivered to the Director of CEPE for review and feedback. The final CARD for a program or a project must be approved by the FPM or FPD and the Director of CEPE and signed by the FPM.
 - (1) For ongoing programs and projects that have an existing CARD, updates must be made prior to milestones in support of ICEs and ICRs (see Appendix A). The updated CARD should reflect substantial changes to the program or project.
 - (2) The timeline for the draft and final completion of the CARD must be consistent with NAP 413.3A, *Responsibilities for Independent Cost Estimates*. Depending on the size and complexity of a project, the CARD completion dates are subject to negotiation between the FPM or FPD and CEPE ICE/ICR lead. For a program, the need for a CARD and CARD due dates are subject to negotiation between the FPM and CEPE ICE/ICR lead.
 - b. The FPM or FPD must submit the CARD with the appropriate security classification reflective of the consolidated program or project data. If the consolidated information for the other sections raises the CARD above unclassified, a complete CARD at the appropriate security level should be submitted to the Director of CEPE for retention and historical data.

c. Level of Detail:

- (1) The CARD must be composed of a workbook template, data sources, and supporting material. The CARD workbook template contains explanatory notes for both individual data elements and tailoring methods to accommodate the uniqueness of each project and program. Submissions must be tailored based on the level of detail available at the time of the CARD submission.
- (2) The level of detail provided in the CARD depends on the maturity of the program/project. The CARD workbook template for a program or project early in the life-cycle process may contain numerous gaps in comparison to a program or project further along in the program/project life cycle. These gaps and any uncertainties in the program or project must be acknowledged and quantified to the maximum extent possible. Tailoring of CARDS in support of ICEs and ICRs must be approved by the Director of CEPE.
- (3) For uncertainties in program or project concepts, nominal assumptions must be specified for cost-estimating purposes. For example, if there is a technical requirement or schedule that is not yet determined, the CARD must provide nominal, but specific, assumptions (including reasoning) about the requirements or schedule.

8. RESPONSIBILITIES.

a. Director, Office of Cost Estimating and Program Evaluation.

- (1) Establishes CARD instructions, guidance, and template.
- (2) Maintains this policy and reviews and updates it as appropriate.
- (3) Approves the CARD with the FPM or FPD.

b. Federal Program Manager (FPM) or Federal Project Director (FPD).

- (1) Provides data and documentation in support of ICEs and ICRs.
- (2) Develops and submits the CARD to the Director of CEPE.
- (3) Approves the CARD with the Director of CEPE (or designated Program Office representative approves with the Director of CEPE).

c. Office of Cost Estimating and Program Evaluation (CEPE).

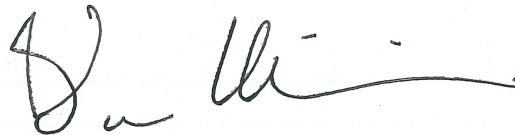
- (1) Provides training and guidance on CARD templates and expectations, as requested.

9. DEFINITIONS. See Appendix C.10. REFERENCES.

- a. 50 U.S.C. 2411, Director for Cost Estimating and Program Evaluation.
- b. 50 U.S.C. 2537, Selected Acquisition Reports and independent cost estimates and reviews certain programs and facilities.
- c. 50 U.S.C. 2753, Notification of cost overruns for certain Department of Energy projects.
- d. DOE Order 413.3B Chg. 7, *Program and Project Management for the Acquisition of Capital Assets*, current version.
- e. GAO-20-195G, *GAO Cost Estimating and Assessment Guide*, March 2020.
- f. NNSA SD 452.3-2A, *Phase X/Phase 6.X Processes*, current version.
- g. NAP-413.3A, *Responsibilities for Independent Cost Estimates*, current version.
- h. Procedural Guideline for the Phase 6.X Process, dated 04-19-2000.

11. CONTACT. Office of Cost Estimating and Program Evaluation, NA-1.3, 202-586-6762.

BY ORDER OF THE ADMINISTRATOR:

Brandon M. Williams
Administrator

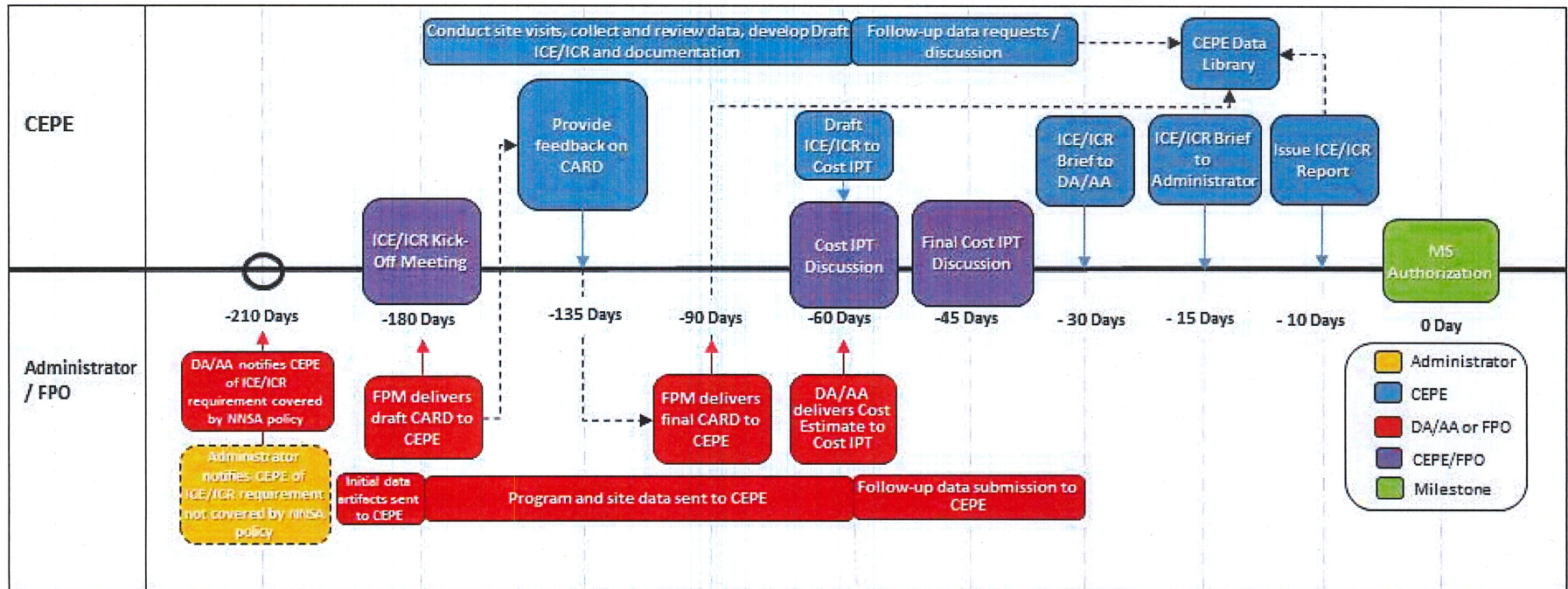
Appendices:

- A. Cost Analysis Requirements Description Process
- B. Cost Analysis Requirements Description Content
- C. Definitions

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APPENDIX A: COST ANALYSIS REQUIREMENT DESCRIPTION PROCESS

Figure 1: Notional Timeline for the Preparation of the National Nuclear Security Administration Independent Cost Estimate (ICE)/Independent Cost Review (ICR)



Source: NAP 413.3A, *Responsibilities for Independent Cost Estimates*

COST ANALYSIS REQUIREMENTS DESCRIPTION (CARD) PROCESS

1. The Federal Program Manager (FPM) or the Federal Project Director (FPD) prepares and delivers the draft CARD to the Office of Cost Estimating and Program Evaluation (CEPE) no later than 180 days before the program or project milestone for which a CEPE ICE and ICR is required.
2. No later than 45 days after receipt of the draft CARD (usually 135 days before the program milestone), CEPE provides

feedback informing the FPM that the CARD is sufficiently or insufficiently developed to continue with preparation of the cost estimates.

3. A final copy of the CARD must be provided to CEPE by the FPM or FPD at least 90 days before the scheduled program or project milestone and placed into the electronic CEPE Data Library. The Director of CEPE and the FPM or FPD must approve the final CARD.
4. CEPE uses the information submitted to the CEPE Data Library when preparing its annual report to Congress. The annual report summarizes the cost estimation and analysis activities of NNSA during the previous year and assesses the progress of NNSA in improving the accuracy of its cost estimates and analyses

APPENDIX B: COST ANALYSIS REQUIREMENT DESCRIPTION CONTENT

Cost Analysis Requirements Description (CARD) content covers key technical, programmatic, and operational characteristics for a program or project. Section 1 below covers all common CARD elements for weapon programs and projects. Section 2 below covers unique CARD contents of programs. Refer to the suggested CARD program and project templates provided by the Office of Cost Estimating and Program Evaluation (CEPE) on the National Nuclear Security Administration (NNSA) directives site.

1. Common CARD elements for program and projects requiring Independent Cost Estimates (ICE)/Independent Cost Reviews (ICR).
 - a. Overview. This section provides concise background information about the system or project, including a system/project description, an explanation of the missions that the system/project performs, and a summary of the program/project history and predecessor systems/projects (if applicable). It should include a discussion of any internal research and development activities performed by the contractor(s) and the associated cost(s) of the effort(s) for NNSA and non-NNSA responsible areas. A set of diagrams or pictures of the system/project should be provided.
 - b. Infrastructure. This section describes site facilities and equipment required to support the program by each laboratory, plant, and site (LPS) contractor that are unique to the program or project that are being paid for by the program or project as a first user. This includes new facility construction, facility retrofit, and major equipment purchases. Facilities and equipment being funded through campaigns; research, development, test, and evaluation (RDT&E); infrastructure and operations; or similar, should be included and described in the Other Project Money (OPM) section. For projects that have subprojects, separate CARDS submission may be negotiated between FPM and CEPE depending on the size of the subprojects.
 - c. Interfaces. This section describes the relationships between the system/project and other systems/projects within and outside NNSA, including the nature and number of any interfaces, detail of joint development efforts, and leveraging of other programs/projects that will be required. It should also describe any associated modifications to the program/project, hardware, or software of the other systems. It must clearly identify the interface boundaries to other systems, programs/projects, and sub-programs/sub-projects.
 - d. Performance Parameters. This section provides a summary of the approved key performance parameters (e.g., weight, dimensions, dispersion, stockpile life, and yield for a program). For a project, gross square feet, throughput, production rates, or similar should be included.

- e. Schedule. This section provides a summary of program milestone or project acquisition schedule or an integrated master schedule, including a figure or diagram that displays when major work efforts will support tasks and events for each phase over the program or project life cycle. This section should include the baseline schedule from the most recent milestone phase as well as the most recent schedule. Use of a standard program or project briefing chart is encouraged. In addition, this section should provide a discussion that explains the critical paths for the program or project schedule.
- f. Product or Project Team. This section provides a summary of the team organizational structure that outlines the hierarchical structure and team member's responsibilities in the design and production of the product or project. This section also lists specific responsibilities within the product or project team based on program/project requirements. A product/project team organizational chart or equivalent table should be provided with the outlined responsibilities.
- g. Work Breakdown Structure (WBS). This section provides a WBS used by the Program Office to manage the program or project. The WBS should highlight the important program/project elements, such as areas of higher risk or those that warrant additional attention during execution.
- h. Risks and Strategies. This section provides full descriptions of all the risks associated with the program/project and provides documentation via the Active Risk Management (ARM) database or a similar type of database. If an ARM database or other similar database is used, an export of the entire risk management database for the program is required and should be machine-readable in a common electronic format as specified by CEPE. In addition, this section should summarize the program's or project's risk mitigation strategies and risk monitoring approaches.
- i. Staffing Requirements. This section includes actual and forecasted staffing requirements time-phased across the period of performance for the program/project. Staffing plans will be presented in terms of full-time equivalents (FTEs) or similar workload equivalent. Staffing data will include updated actual and forecasted FTEs by LPS contractors, control account (CA), labor category, and fiscal year based on data availability. If applicable, actual and forecasted FTEs will be provided before the establishment of a performance measurement baseline (PMB) for mature programs and projects that are creating the initial CARD later in the life-cycle process.
- j. Funding Profile. This section describes the program or project funding profile and financial resources across the program life cycle. This should include procurement, RDT&E, and OPM for a program and Total Estimated Cost, Other Program Cost, Total Program Cost, etc. for a project.

- k. Technologies. This section identifies new technologies that the system or project will depend on to meet key performance parameters or other design goals. This section must summarize the current and projected technology and manufacturing readiness levels of each critical and noncritical technology as presented in the technology readiness assessment. This section identifies any critical and noncritical technologies that will not be considered mature at the anticipated time of the approval and summarize the associated technology maturation plan.
 - l. Other Program Money (OPM). This section describes interfaces where leveraging is required or dependencies exist, which is collectively termed OPM projects or campaigns. A general description of the interface requirements, success criteria, milestone dates, assumptions, constraints, risks, and funding profile should be provided. A copy of any Interface Requirements Agreement or similar agreement documentation should be included.
 - m. Hardware/Major Equipment. This section provides any commercial-off-the-shelf (COTS) or government-off-the-shelf (GOTS) hardware, support items, spares, for the program. For a project, this section provides a list of the major equipment, description, quantities, and phasing of the major equipment acquisition.
 - n. Test and Evaluation. This section summarizes all systems-level and major local developmental and operational tests. The number, type, location, and expected duration of the tests should be identified, along with the organizations that will conduct the test programs. This section should describe any contingency or margin for test failures in the program test and evaluation plan in the notes section. A list of statements of capabilities and memoranda of understanding between the program and the test communities should be identified in the supporting material and documentation section. For projects, similar information related to test and evaluation must be provided.
 - o. Acronym Definition. This section provides listing of the acronyms shown on the CARD along with their definitions.
 - p. Track to Prior CARD. This section summarizes significant changes from the previous CARD. The discussion must include changes in system performance or design, program schedule, or other aspects. When updating the templates, highlight the cells which reflect a change from the previous CARD.
2. Unique CARD elements for programs requiring ICE/ICR per NAP 413.3A.
- a. Quantity Requirements. This section provides a time-phased weapons system and subsystems quantities across all life-cycle phases by major item of equipment identified for the program.

- b. Tooling. This section describes the special tooling equipment to acquire or make available to support the production, diagnosis, repair, rebuild, and re- acceptance of NNSA components and final assembly unique to the program.
- c. Software Description and Sizing Information Section. This section describes each computer software configuration item critical to the program that has the potential to drive or impact either cost or schedule or both. This can include system applications, support software, and firmware. Each configuration item should be described in enough detail to understand what functions will be accomplished by the COTS or GOTS software, and which functions will require separate software development (including interface to other software and legacy systems). For every software product, an explanation of what contractual terms and conditions (e.g., data rights, determination of user-base, software maintenance costs) the government will be required to produce to sustain the system through the life cycle.
- d. Manufacturer Description. This section provides parameters by major component, subassembly, subcomponent, by production and design agencies, and Work Breakdown Structure (WBS) number. Tabular presentation of data is encouraged.
- e. Major Component Design. This section summarizes the major components of the system and identifies the percentage of reuse, redesign, and remanufacture for each component.
- f. Testers. This section provides the top-level description of testers used for the program, including parameters by tester identification, component, and LPS contractor production and design agencies, and WBS number. Tabular presentation of data is encouraged.

APPENDIX C: DEFINITIONS

- a. Acquisition Program. A defined duration, funded effort from conceptualization, initiation, design, development, test, contracting, production, deployment, logistics support, modification, and disposal to provide a new, improved, or continuing weapons and weapons systems or other product to satisfy National Nuclear Security Administration (NNSA) mission requirements or capability gaps, intended for use in, or in support of, NNSA missions.
- b. Baseline. A quantitative definition of cost, schedule, and technical performance that serves as a base or standard for measurement and control during the performance of an effort; the established plan against which the status of resources and the effort of the overall program, field program(s), project(s), task(s), or subtask(s) are measured, assessed, and controlled. Once established, baselines are subject to change control discipline.
- c. Cost Estimating Uncertainty. The uncertainty reflects one's confidence in the point estimate. Cost estimating uncertainty arises from the inaccuracies inherent in the cost estimating methodologies.
- d. Cost Estimating and Schedule Risk. The risk reflects one's confidence in the input parameters used to develop a cost and schedule estimate. The cost-estimating and schedule risk arises from the inaccuracies inherent in the programmatic assumptions, schedule or technical data risks.
- e. Cost Analysis Requirements Description (CARD). A description of the relevant features of the acquisition program or project and of the system itself. It is the common description of the technical and programmatic features of the program or project that is used by the teams when preparing the Independent Cost Estimate (ICE)/Independent Cost Review (ICR) or program office cost estimates. It is intended to define the program or project to a sufficient level of detail such that no confusion exists between the many parties who may be concerned with estimating the program or project's cost.
- f. Federal Project Director (FPD). Responsible and accountable for directing a capital asset project in accordance with Department of Energy (DOE) Order 413.3B, *Program and Project Management for the Acquisition of Capital Assets*.
- g. Federal Program Manager (FPM). An individual in an organizational element responsible for managing a program and its assigned projects. The FPM ensures that all the projects are properly phased, funded over time, and that each project manager is meeting assigned key milestones. FPMs are the project manager's advocate, who ensure proper resourcing, facilitate the execution process, and predict programmatic risks. FPMs also put mitigation strategies in place so that projects are not affected by those risks.

- h. Independent Cost Estimate (ICE). A cost estimate prepared by an organization independent from the government line manager's authority, and the contractor organization responsible for the project or program, using the same detailed technical and procurement information to develop the program or project estimate in accordance with Government Accountability Office (GAO) best practices.
- i. Independent Cost Review (ICR). An evaluation of a program's or project's cost estimate that examines the reasonableness of the estimate quality, assumptions, and risks, also prepared by an organization independent from the government line manager's authority and the contractor organization responsible for the project or program.
- j. Phase X/6.X Process. The Phase X process provides a common framework to conduct and manage activities for new production and refurbishments of nuclear weapons. Stockpile refurbishment activities are divided into sub-elements of Phase 6, denoted by 6.X Process for non-routine nuclear weapon alterations, modifications at the system, subsystem, or component level, Life Extension Programs, and other warhead modernization activities.
- k. Program Office. The organization that is led by the Federal Program Manager (FPM) who is directly responsible for managing and executing all programmatic activities on a regular basis, including cost, schedule, risk, and requirements activities.
- l. Total Estimating Cost (TEC). All engineering design costs (after conceptual design), facility construction costs and other costs specifically related to those construction efforts. TEC will include, but is not limited to project, design and construction management; contract modifications (to include equitable adjustments) resulting in changes to these costs; design; construction; contingency; contractor support directly related to design and construction; and equipment rental and refurbishment.
- m. Total Program Cost (TPC). For programs following the 6.X Process, the TPC covers all costs from Phase 6.1 through Phase 6.6 or Phase 1 through Phase 6. For other acquisition programs, the TPC is the cost of conceptualization, initiation, design, development, test, contracting, and production prior to operation and disposal.
- n. Work Breakdown Structure (WBS). A numeric structure incorporating logic to capture scope, cost, and schedule of work. The WBS mentioned in this document will be standardized and common across the nuclear security enterprise and will include Work for Others and other Department of Energy programs to identify total site costs and scope. A program WBS provides a framework for program and technical planning, cost estimating, resource allocations, performance measurements, and status reporting. The WBS should define the total system to be developed or produced; display the total system as a product-oriented family tree composed of hardware, software, services, data, and facilities; and relate the elements of work to each other and to the end product.