PROJECT MANAGEMENT AND THE ACQUISITION OF MAJOR SYSTEMS

Guiding Principle:

✓ Sound planning and management of DOE's contracts for the acquisition of projects are essential to the success of the Department's missions.

Applicability:

This section is applicable to projects as defined by DOE Order 413.3 under the responsibility of elements of the Department of Energy. However, the principles, concepts and guidance may be applied to other "project-like" work scopes, as appropriate.

References:

- DOE Order 413.3, "Program and Project Management for the Acquisition of Capital Assets"
- DOE Manual 413.3-1, "Project Management for the Acquisition of Capital Assets"[1]
- DOE O 361.1 "Acquisition Career Development Program"
- OMB Circular A-11, Part 7 "Planning, Budgeting, Acquisition and Management of Capital Assets"
- DOE P 413.1 "Program and Project Management for the Planning, Programming, Budgeting and Acquisition of Capital Assets"
- DOE Acquisition Guide, Chapter 42.5, "Contract Management Planning"
- DOE Acquisition Guide, Chapter 70.7, "Reference Book for Contract Administrators," Chapter 1, "Project Management"
- Federal Acquisition Regulation Part 34, "Major System Acquisitions"

- DOE Acquisition Guide, Chapter 70.8, Appendix B, "DOE Performance-Based Contracting Guide"
- Office of Engineering and Construction Management Information Center Website: http://oecm.energy.gov

What Is the Purpose of this Section?

The purpose of this section is to set forth guidance for contracting professionals on the appropriate planning and management of DOE's contracts for the acquisition of major systems as they are implemented as projects under DOE Order 413.3 and DOE Manual 413.3-1. The chapter will cover, from the point of view of contracting professionals, the following areas:

- how project management requirements are incorporated into contracts,
- the contracting officers' responsibilities relating to managing contracts for the acquisition of projects,
- the importance of Contract Management Plans in managing contracts for projects,
- how the project management life-cycle relates to contracting professionals,
- what to consider when making contracts for the acquisition of projects performance-based,
- the importance of having reliable project performance data,
- how contracts which support projects relate to the budgeting process,
- the Earned Value Management System, and
- project management training requirements.

What is the Background Information You Need to Know?

The Department has applied the discipline of project management to its acquisition of major systems at DOE. The Department's missions are supported by major systems acquisitions ranging from projects for the construction of scientific research facilities to the building of vitrification plants for the processing of toxic waste. To complete these projects successfully, safely and within budget, the Department has significantly revised its project management policies and practices to increase accountability, require effective up-front planning, improve performance measurement, and manage risk within the Department's acquisition management system. DOE's projects are among the most challenging in the world because they are frequently one of a kind using complex systems and technologies in a first time application. Obviously, this requires rigorous planning at the inception of a project and skillful management throughout the life-cycle of the project.

On June 25, 1999, the Deputy Secretary directed a DOE-wide initiative to reform the way the Department manages projects by strengthening accountability for project performance, and thereby, improving project performance. The following summarizes the actions that the Department has taken since 1999 to strengthen its project management capabilities:

1. Established and strengthened the corporate project management organization in the Office of Management, Budget and Evaluation/ Chief Financial Officer to strengthen project management direction and oversight.

2. Established project management, tracking, and control systems.

3. Established the Chief Operations Officer's (COO's) Watch List for projects with significant issues or emerging problems.

4. Strengthened line management accountability for project management results.

5. Established greater contractor accountability for project management.

6. Revised the criteria and funding processes related to DOE projects.

7. Developed a longer term program for institutional capacity building including the training of project management and contracting professionals in aspects of project management (including the Earned Value Management System).

What is the Guidance Contained in this Section?

Although the basic principles for contracts for the acquisition of projects are similar to those of other contracts, there are some points which need to be stressed. Contracting professionals will find in the following pages guidance on key areas of which they should be familiar in planning and managing contracts for the acquisition of projects.

1. How are project management requirements incorporated into contracts?

In order to explain how project management requirements are incorporated into contracts, we must first make a distinction between the contracts which are required to employ the clauses in Part 970 of the Department of Energy Acquisition Regulation (DEAR) and those which are not. The Department's management and operating (M&O) contracts (as well as certain facility management contracts, when appropriate) use the clauses at DEAR 970. DEAR clause 970.5204-2, "Laws, Regulations, and DOE Directives," is used, in part, to incorporate the requirements of DOE directives into contracts. This list of specified DOE requirements must appear in the contract as "List B."

All M&O and other prime contracts containing requirements for projects at DOE facilities with a total project cost greater than $5M must contain DOE O 413.3 incorporated through List B of DEAR 970.5204-2. The requirements of the order which are applicable to contractors are contained in the Contract Requirements Document which is an attachment to DOE O 413.3.

The key elements of DOE O 413.3 to be required of contractors through the Contracts Requirements Document are:

1. Implementation of the industry standard for project control systems described in American National Standards Institute (ANSI) EIA-748, Earned Value Management Systems for a total project cost (TPC) greater than $20M.

2. Reporting to DOE of cost and schedule performance, milestone status, and financial status on a monthly basis using DOE-approved work breakdown structure elements and data elements for all projects with a TPC greater than or equal to $20M, except for time and- materials contracts, firm fixed-priced contracts, or level-of-effort support contracts, for control of project performance during the project execution phase.

3. Submission to the contracting officer for concurrence of a written Acquisition Plan that is appropriate for the requirement and dollar value of each subcontract for the acquisition of a project and consistent with the intent of the FAR for contracts that will be accomplished by M&O/M&I contractors,

4. Reporting to DOE of technical performance analyses and corrective action plans for variances to the project baseline objectives resulting from design reviews, component and system tests, and simulations.

5. Submission to DOE of a critical path schedule and a project master schedule.

6. Performance of cost estimating must be an integral part of cost baseline and life-cycle cost development and maintenance, budget request development, and estimates at completion.

7. Identification, quantification, and mitigation (as appropriate) of project technical, cost, and schedule risks. Risk mitigation strategies must be developed and implemented.

8. Development and maintenance of an integrated contractor technical, cost, and schedule baseline.

9. Establishment of a configuration management process.

10. Utilization of a value engineering process.

11. Development and implementation of a quality assurance program for the contract scope of work in compliance with DOE O 414.1A, "Quality Assurance"

12. Development and implementation of an Integrated Safety Management system.

13. Application of sustainable building design principles to the siting, design, and construction of new facilities.

Those contracts not subject to incorporation of DEAR 970 clauses, but which are for the acquisition of projects as defined in DOE O 413.3, must have the appropriate project management requirements, including EVMS, incorporated through a special contract requirements clause (i.e., a "section H" clause}.

2. What are my responsibilities, as the contracting officer (CO), relating to managing contracts for the acquisition of projects?

Prior to award, the CO, as part of the integrated project team discussed in DOE O 413.3, must ensure that, to the extent applicable, project management requirements (including the Earned Value Management System) are addressed during the acquisition planning phase. The CO is responsible for ensuring that all requirements for the acquisition of the project including DOE O 413.3 are incorporated into contracts and requests for proposals for the acquisition of projects. These requirements include, but are not necessarily limited to, the project statement of work, delivery requirements, reporting requirements, the Earned Value Management System (EVMS) and applicable quality and inspection requirements. The Contract Requirements Document attached to the order sets forth when the EVMS is applicable to the contract.

Contracting Officers must ensure that, when an offeror is required to submit an EVMS plan as part of its proposal, the plan is determined to be adequate pursuant to ANSI/EIA Standard 748. The contracting officer must provide the Plan to the Federal Project Director for evaluation.

After award, the CO is responsible for:

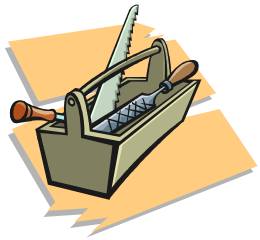
- ensuring compliance with the terms of the contract including the submission of the EVMS plan and reports,
- notifying the contractor, as appropriate, of the adequacy (or deficiency) of the EVMS plan,
- notifying the contractor, as appropriate, of the requirement to conduct an independent baseline review,
- safeguarding the interests of the contractual relationships,
- requesting and considering advice of specialists in audit, law, project management, engineering, and other fields, as appropriate,
- monitoring performance, and
- enforcing the Government's rights when necessary.

Ultimately, the CO is responsible for enforcing the terms of the contract and requesting corrective action as necessary. In fulfilling this responsibility it is extremely important that the CO maintains a solid relationship with the Federal Project Manager and stay abreast of project performance under the contract in order to address deficient or endangered performance when it occurs. In accomplishing all of this, the CO relies on subject matter experts for information on contract performance, technical and legal analysis, advice on the integrity of the project management system, etc.

Success depends on good contract management planning and execution, and an integrated and communicative management team! Effective administration of performance-based contracts relies heavily on the integration efforts of groups of people representing many functional areas, customers, and stakeholders. Past problems can sometimes be traced to lack of an integrated effort in managing contract performance.

Key tools for the management of such contracts are :

- The Quality Assurance Surveillance Plan,
- The Contract Management Plan, and
- Earned Value Management



You can find a more in-depth presentation of your roles as and responsibilities as a contract administrator related to contract management and project management in Chapter 1, "Project Management," of the Reference Book for Contract Administrators and on the DOE Procurement and Acquisition Homepage at: http://management.energy.gov/policy_guidance/procurement_acquisition.htm

You can also find two excellent video presentations on contract management planning and EVMS as it relates to contract administration on the DOE procurement and acquisition home page. When you get to the website, click on the hot-link entitled, "Oversight of Performance-based Contracts DVD," and it will take you to presentations on both "Effective Contract Management Planning for Performance-based Contracts" and "Using Earned Value Management for Better Contract Administration."

3. What should Contract Management Plans contain relating to projects?

Basically, work related to projects is treated the same as any other work under the contract when it comes to contract management planning. Projects should be thoroughly reviewed for all of the considerations delineated in DOE Acquisition Guide chapter 42.5, "Contract Management Planning," and those considerations should be scrupulously addressed in the Contract Management Plan including, but not limited to:

- the roles and responsibilities of all the key member of the Integrated Project Team including how they should interact to effectively manage the requirements,
- the project schedule,
- reporting requirements,
- quality and inspection requirements,
- configuration control
- the risk mitigation plan, and
- government furnished services, property and information.

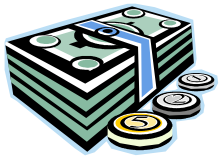
4. How does the project management cycle affect my job as the Contracting Officer?

It is imperative that the contracting officer understands how his or her responsibilities relate to the life-cycle of projects and ensures his or her participation on the Integrated Project Team from the very earliest stages of a project. The following paragraphs will demonstrate how the different phases in a project's life relate to the contracting officer's responsibilities.

Project, financial, budget and contract planning, implementation and management processes are all interrelated. They support and rely on each other during the acquisition process.

For example:

- We couldn't issue a solicitation prior to knowing the Federal (or DOE) required performance parameters for a project. Clear documentation of project requirements at CD-1 form the basis for the design and engineering project phase.
- How we determine the most appropriate type of contract for a solicitation is dependent on considering the project risks. An initial risk management plan is developed as part of CD-1.
- How we structure contract deliverables and options in a solicitation depends on our understanding of the mission need date, project milestones and budget process. Project cost and schedule milestones are baselined at CD-2. The project funding profile is submitted to Congress in the Project Data Sheet after CD-2 approval.



A word on funding: Since FY2003, DOE has used Project Engineering and Design (PED) funds. PED funds are used only for design purposes for the preliminary and final design. PED funds are not to be used for construction, long-lead procurement or major equipment items. The Department receives two appropriations which may be used for the acquisition of capital assets: Operating Expense and Capital Construction. Depending on the project and its state, the budget requests, along with the Capital Asset Plans and project Data Sheets will contain a request for one or both types of funds in a fiscal year.

Detailed explanations and formats for preparation of budgets and the direction regarding what funds are to be identified for specific types of efforts are found in the DOE's Budget Formulation Handbook. Additionally, the Field Budget Call is available to DOE Federal employees on the Office of Budget intranet website at:

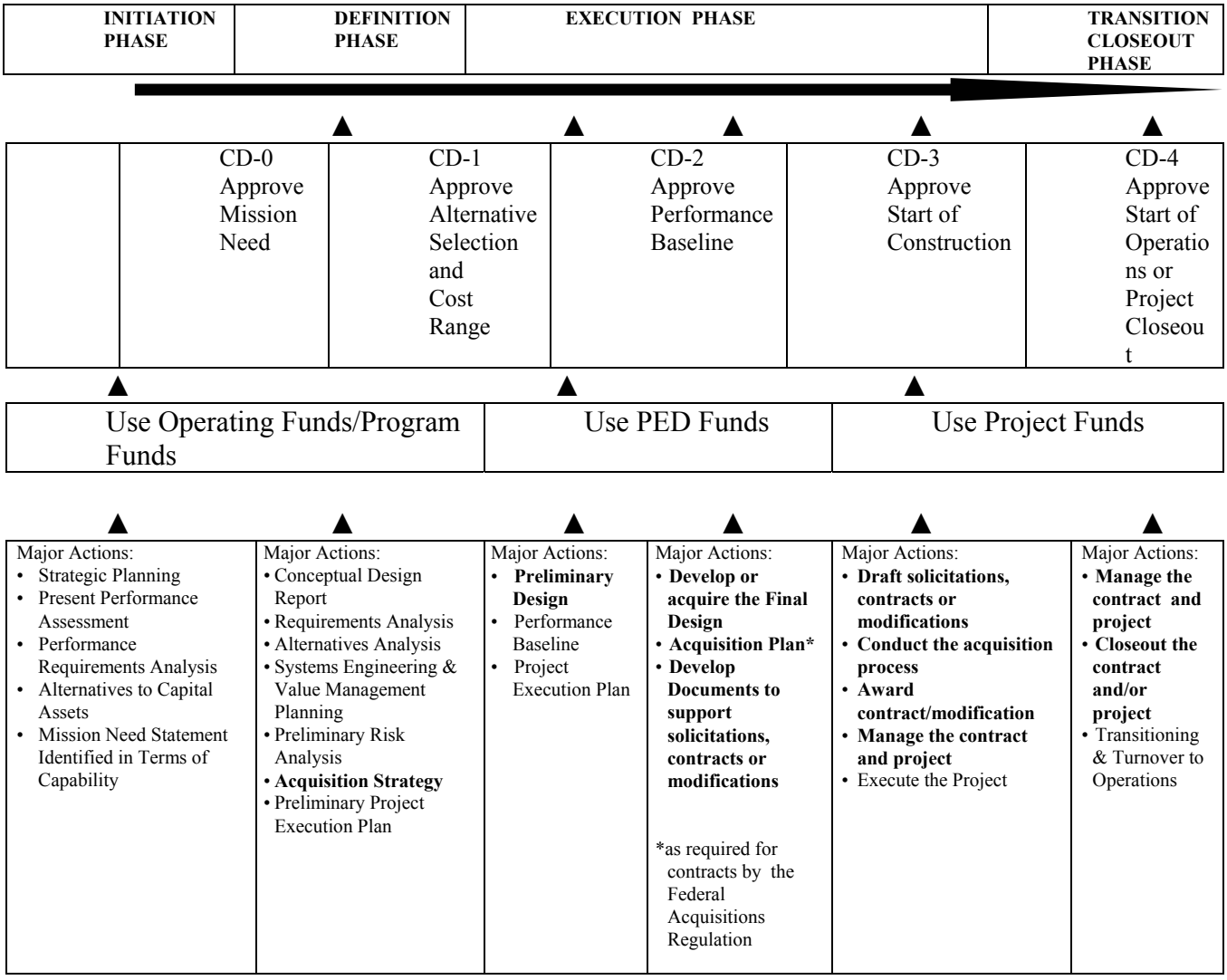
http://crinfo.doe.gov/officedocs/me30/

This guidance supplements guidance provided in the Field Budget Handbook.

There are a number of project related actions in which contracting officers must become involved in order to ensure that projects are executed properly and in a timely matter. Early involvement by the contracting officer **is required** and will help to ensure that the actions and documents needed to procure the project are produced in a timely manner. The following table shows the relationship among the different project phases, the critical decision points, project funding and the major actions which may be conducted under each phase.

The Contracting Officer and others on the IPT need to understand at least a few basic ties among contract, budget and project planning. The table on the following page shows the relationship among the different project phases, the critical decision points, project funding and the major actions which may be conducted under each phase.

PROJECT LIFE CYCLE



Note: Actions, in bold above, may require involvement of the contracting officer as part of the Integrated Project Team.

Depending upon how the project is developed, some or all of the above activities may be covered under a single contract or under multiple contracts. For example, the Government may perform the Preconceptual Planning but want a contractor for design (conceptual, preliminary and final) and a separate contractor for construction and yet another for operation. Alternatively, all of the activities may be covered under a single contract like a Management and Operating (M&O) contract, where the major site or facility management

contractor actually initiates the project planning, design, construction and operation, with some or all activities possibly subcontracted by the M&O contractor.

Following is a discussion of the various critical decision points in the project's life and the major responsibilities of the contracting officer relating to those critical decision points.

a. Critical Decision-0, "Approve Mission Need"

Critical Decision-0 (CD-0), "Approve Mission Need," formally establishes a project and initiates a requirement for project status reporting. The DOE Project Assessment and Reporting System (PARS) provides a web-based system to report project status. Starting at CD-0, project status is reported monthly utilizing the PARS, and the Acquisition Executive begins conducting quarterly progress reviews.

Develop an Acquisition Strategy (Following CD-0 Approval)

The acquisition strategy must be developed early during the Definition Phase prior to approval of Critical Decision (CD)-1, "Approve Alternative Selection and Cost Range." The approved Mission Need will have identified the range of acquisition alternatives. As the concept evolves and alternatives are investigated, an acquisition strategy must be developed that will provide the conceptual basis for the plan a project will follow during its execution. A carefully developed and consistently executed strategy is key to a successfully executed project. An important early step in acquisition planning is the identification of the Integrated Project Team (IPT).

An acquisition strategy is a high-level business and technical management approach designed to achieve project objectives within specified resource constraints. It is the framework for planning, organizing, staffing, controlling, and leading a project. It provides a master schedule for activities essential for project success and for formulating functional strategies and plans. The acquisition strategy must reflect the interrelationships and schedule of acquisition phases and events based on a logical sequence of demonstrated accomplishments, not on fiscal or calendar expediency.

It can't be stressed enough that adequate time must be allowed for the various phases of the project cycle and the acquisition actions which will arise from it. Artificially trying to expedite the timelines beyond what is prudent can have detrimental results for the acquisition and the project.

The acquisition strategy conveys the Integrated Project Team's (IPT) approach for the successful acquisition of the project, its intended outcomes, and rationale for that approach. The contracting officer must be a member of the IPT. The approach should address, in part, market conditions, effective use of competition, and performance based contracting opportunities. Chapter 5, "Definition Phase," of DOE M 413.3-1 discusses in-depth the types of information and analysis which will go into the acquisition strategy and also presents the format for the acquisition strategy.

b. CD-1, "Approve Alternative Selection and Cost Range"

Key activities that take place leading up to Critical Decision-1 include alternative and requirements analysis, conceptual design, development of an acquisition strategy, evaluation of project risks, hazards analysis, systems engineering, and value management.

At the conclusion of the concept exploration process, the alternative selected as best solution to a mission need is presented to the Acquisition Executive for approval (CD-1 approval). While a range of costs, schedule, and performance bound the solution/alternative, there is no committed or approved baseline until the design matures when estimates and schedules can be defined with an acceptable degree of certainty. The approval package must include a description of alternatives considered, risks, life-cycle costs, trade studies, development efforts, and testing requirements. Approval of the alternative selection and cost range (CD-1) authorizes the beginning of preliminary design work.

Complete Acquisition Planning (Following CD-1 Approval)

Acquisition planning is the process of identifying and describing requirements and determining the best method for meeting those requirements. On major acquisitions, participants include the Federal Project Director, Contracting Officer, technical experts, logisticians, financial and legal personnel. However, this team can be tailored to meet specific project needs, but **the CO must always be an active participant**. Acquisition planning focuses on the business and technical management approaches designed to achieve project objectives within specified resource constraints and the contracting strategies necessary for implementation.

A distinction needs to be made between the acquisition strategy as discussed in DOE M 413.3-1 and acquisition planning as discussed in the Federal Acquisition Regulation. DOE M 413.3-1 requires an appropriate acquisition strategy for projects. However, that does not mean that all projects will have acquisition planning and an acquisition plan as described by the FAR. Acquisition plans are prepared for contracts or classes of contracts. However, there are times when a project will be implemented by a contractor under a major site and facility management contract, and an acquisition plan will not be appropriate.

In such cases, when the prime contractor is responsible for executing subcontract acquisition planning, the Integrated Project Team should review the plans for significant procurements in collaboration with the prime contractor. On some contracts, the acquisition plans for significant subcontract procurements are required to be submitted to the government for review prior to announcement.

When an acquisition plan is required for a contract, it must be completed as early in the

acquisition cycle as possible. Federal Acquisition Regulation (FAR) 7.102(b) states that the purpose of acquisition planning is to ensure that the government meets its needs in the most effective, economical, and timely manner. Guidance on writing Acquisition Plans for contracts is contained in Chapter 7 of the DOE Acquisition Guide. Integrated Project Teams use acquisition planning as an opportunity to review and evaluate the entire procurement process, so that sound judgments and decision making will facilitate the success of the overall project. Specific contract acquisition planning should be appropriate and proportionate to the complexity and dollar value of the requirement. A plan for each contemplated contract or class of procurements should address the significant considerations of the procurement action. An acquisition plan may cover more than one contract. The contract acquisition plan represents the Integrated Project Team's agreement for conducting the procurement. The written acquisition plans are comprehensive and intended to facilitate attainment of the acquisition objectives by addressing milestones and other significant considerations that will control the acquisition. In preparing the Acquisition Plan, the information contained in the Project Acquisition Strategy and the Project Execution Plan must be considered and utilized. The Federal Project Director has overall responsibility for acquisition planning when the Department will directly contract for the acquisition. Understanding the major technical, cost, and schedule project risks to successful completion of the project is a significant factor for the Integrated Project Team decision makers.

Develop the documents needed to support procurement of the project requirements (between CD-1 approval and CD-3 approval)

During the Execution Phase (which encompasses CD-1, CD-2 and CD-3) shown in the previous table, actions are being taken and documents are being developed which will define the technical requirements which will eventually be incorporated into the procurement package for procuring the requirements for construction of the project. The contracting officer must be involved, to the extent necessary and practicable, to ensure that the documents which will support the eventual procurement of the project requirements are adequate and produced in a timely manner. The various phases of the project cycle are explained in more detail in DOE Manual 413.3-1.

Preliminary Design (following CD-1 Approval)

Evolving the conceptual design into the preliminary design provides the depth and detail to allow the project asset to take shape and form. Preliminary design initiates the process of converting concepts to a design appropriate for procurement or construction. This stage of the design is complete when it provides sufficient information to support development of the Performance Baseline. During this phase, PED funding may be used to procure the preliminary design of the project. The contracting officer should work with the IPT to ensure that all requirements for the preliminary design are adequately described to place under contract whether through adding the requirements to an existing contract such as a major site and facility management contract or through a competition.

c. CD-2, "Approve Performance Baseline"

When the design is at a level of maturity and the project is able to define the Performance Baseline with some certainty, the project is submitted to the Acquisition Executive for approval to formally establish the Performance Baseline (CD-2 Approval). The Performance Baseline is the original baseline for the project and is used to prepare and submit project budget requests and capital asset plans to Congress and Office of Management and Budget. The Performance Baseline defines the key parameters for the project, including the performance parameters, technical scope, schedule, and cost to clearly establish the capabilities being acquired along with the total cost and schedule.

Final Design (Following CD-2 Approval)

Final design is the last phase of development prior to contractual implementation of the project requirements. The purpose of the Final Design Phase is to prepare final drawings, technical specifications, and all the other components which will comprise the solicitation and/or contract documents required to obtain bids and quotes for procuring the requirements for construction. The final design should also include clear statements of testing requirements and acceptance criteria for the safety and functionality of all subsystems. The project scope should be frozen and changes should be permitted only for compelling reasons, (i.e., substantial economies achieved through value engineering, accommodation of changed conditions in construction, reduction in funds or changes in requirements). During this phase, Project Engineering and Design (PED) funding may be used to procure the final design of the project. The contracting officer should work with the IPT to ensure that all requirements for the final design are adequately described to place under contract whether through adding the requirements to an existing contract such as a major site and facility management contract or through a competition. If early construction funding is approved, long lead items may be procured prior to CD-3 to support projects if those long lead items were addressed in the approved acquisition stratetgy.

Documentation (statements of work, specifications, etc.) necessary to support the later preparation of the request for proposals, contract modification, etc., should be initiated during the final design phase so that shortly after approval of CD-3, "Approve Start of Construction," a procurement package is ready for award.

It is imperative that the Contracting Officer is a participating member of the Integrated Project Team and communicates to the other IPT members what is needed to timely produce the required contractual documents for procuring the project requirements on schedule.

d. CD-3, "Approve Start of Construction "

CD-3 approval provides authorization to complete all procurement and construction and/or

implementation activities and the planning, implementing, and completion of all acceptance and turnover activities. This authorizes the project to commit all the resources necessary, within the funds provided, to execute the project. Prior to approval of CD-3 no project construction funds may be used. However, once CD-3 is approved, a contract for the construction of a project may be awarded. Consequently, depending upon the need and schedule for the project, the IPT must be ready to issue solicitations, contracts or modifications shortly after CD-3 approval.

Once the contract is awarded or the requirements are placed under an existing contract, the contracting officer's responsibilities regarding contract administration and management come into play. It is especially important for the contracting officer to understand the mechanisms which are used to monitor performance under the project, i.e., the earned value management system (EVMS). As discussed earlier in this chapter, the EVMS is a tool for monitoring and measuring performance under the project and it performs as an early warning system alerting us to potential problems under the project.

5. In making contracts for the acquisition of projects performance-based, what strategy should I follow?

Basically, the strategy for making contracts for the acquisition of projects performance-based is similar to the strategy that you would use for any other contract:

- Form a team to analyze the requirement
- Analyze the requirement and identify the objective(s)/mission of the contract including how to measure success
- Examine how others have handled similar requirements
- Construct a performance-based statement of work
- Identify those critical objectives which require incentives
- Select the contract type which best fits the requirements
- Construct performance and schedule incentives in accordance with applicable guidance (see the FAR, DEAR and the DOE Acquisition Guide)
- Ensure that cost incentive(s) and/or cost constraint(s) exist that make prudent business sense and comply with the regulations and guidance – ensure that cost incentive(s) and cost constraint(s) work to constrain the incurrence of costs under performance and schedule incentives under the contract
- Document in writing your decision rationale regarding whether or not to construct performance and schedule incentives and cost incentives or cost constraints dedicated to individual projects under the contract

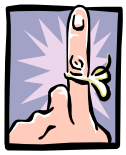
6. Should projects have individual performance or schedule incentives under the contract?

Maybe! It depends on the situation. When determining the incentive structure of the contract, evaluate how the project(s) relate to the overall objectives of the contract.

Projects may be incorporated into contracts in two different ways. First, a contract may represent as its sole mission the accomplishment of a single project. In such a case, the contract has been executed to achieve the project. An example of such a contract could be the construction of an individual building or facility. The question whether or not to structure incentives for the successful completion of the project in this case is easy. Since accomplishment of the project means accomplishing the objective of the contract, the answer is a resounding "YES!"

When a contract contains one or more projects but the contract's sole mission is not the accomplishment of the project or projects, the question becomes more complex. In such cases, each project must be examined and evaluated to determine if it merits the construction of an incentive. An example of such a scenario could be a site cleanup contract which contains a number of projects.

If the project(s) represent intermediate efforts or milestones leading to the overall achievement of the objective of the contract (i.e., closure of the site), then the objective of the contract (and not the individual projects) may be all that requires incentive(s). If, however, individual project(s) are of critical significance in comparison to other work under the contract, then assignment of incentives to those projects may indeed be advisable.



Remember! The "DOE Performance-Based Contracting Guide" states, "Fee is to be tied to those **critical few** performance measures or group of measures which are necessary to successful accomplishment of the performance objectives." Construct incentives only for those projects and other work where the analysis indicates that such incentives are absolutely required.

Chapter Five of the "DOE Performance-Based Contracting Guide" provides general factors to consider when making the decision whether or not to construct incentives. Please read Chapter Five for a more in-depth discussion of the following factors. Developing incentives will depend on a number of considerations of which the following list forms only a part:

- The inclusion of cost incentives if other incentives (e.g. performance, schedule, etc.) are to be included.
- The adequacy of the contractor's accounting system and the ability of that system to segregate and track costs.
- The degree to which the performance measures and/or metrics can be defined.
- The definitiveness of the baseline.
- Importance of the task to the achievement of the program.
- The degree of additional benefit obtained by the government if the baseline performance level is exceeded.

- The degree to which additional increases in the level of performance of a performance measure become harder to obtain and thus more costly.
- The degree to which the attainment of a level of performance of a performance measure is within the contractor's ability.
- The degree to which the DOE obtains benefit from the performance of a performance measure in an incremental versus a continuous fashion.
- The degree to which continued incentives are important.
- The degree to which offering incentives for some performance measures may be to the detriment of others.

The decision you make is basically the same type of decision which is made whenever the contract's scope of work is examined to determine what should be incentivized and what should not. However, the decision whether or not to assign incentives to individual projects must be made on a case by case basis for every major system project as defined in DOE O 413.3 as you would whenever considering incentivizing work under the contract. The decision whether or not to assign incentives to other projects (less than major system projects) should be made on a case by case basis as practicable.

7. If a performance incentive has been assigned to an individual project, does the contract need a cost incentive or cost constraint?

First, what do the regulations say? FAR 16.402-1(a) states, in part, that "No incentive contract may provide for other incentives without also providing a cost incentive (or constraint)." FAR 16.402-4(b) states that a properly structured multiple-incentive arrangement should: "Compel trade-off decisions among the incentive areas, consistent with the Government's overall objectives for the acquisition. Because of the interdependency of the Government's cost, the technical performance, and the delivery goals, a contract that emphasizes only one of the goals may jeopardize control over the others. Because outstanding results may not be attainable for each of the incentive areas, all multiple-incentive contracts must include a cost incentive (or constraint) that operates to preclude rewarding a contractor for superior technical performance or delivery results when the cost of those results outweighs their value to the Government."

In short, if a contract has a performance or schedule incentive then that contract (but not necessarily the project) **must have** a cost incentive or cost constraint **AND** that cost incentive or cost constraint must, at the very least, cover the work which bears the performance or schedule incentive.

8. OK, if we have a performance or schedule incentive on the project, do we need a cost incentive or cost constraint dedicated to that project?

The answer to this question is: The question of whether or not to include a dedicated cost incentive depends on the individual situation. The regulations require a cost incentive or constraint in the contract whenever a non-cost incentive is used. If the contract contains only a single cost incentive or constraint, then it must cover all of the work which has been assigned schedule or performance incentives. For example, if the contract has multiple performance or schedule incentives on projects and other work, if it is a cost-plus-incentive-fee contract (CPIF), and if the CPIF arrangement covers all work under the contract, then no other cost incentives or constraints would be required.

That's what the regulations say. Now you must ask yourself: "What makes good business sense?"

Although projects have measures under the Earned Value Management System to monitor and manage performance and cost progress, it may make prudent business sense to also construct a cost incentive or constraint specifically for the project(s) under the contract.

One situation where it would be prudent to establish a cost incentive or cost constraint for a project is when the incentive structure of the contract is not adequate to contain of the costs to be incurred under the project or where success in limiting costs is of such critical importance as to merit a separate cost incentive or constraint. An example of such a situation would be where a major new research facility was being constructed at a laboratory under the M&O contract for the facility. In this circumstance success under the project may be so distinct from success under the rest of the contract as to merit separate incentives including the application of a cost incentive or cost constraint.

Under non-DOE acquisitions, the sole purpose of a contract may often be the implementation of a single project, i.e., construction of a building. Under those circumstances, a cost incentive would be dedicated to the project. However, at DOE, a single site or facility management contract may contain the requirements for a number of projects. An example would be a contract for the closure of a site which contains requirements for several projects related to clean-up, waste disposal, and site closure. The requirement may be structured as cost-plus-incentive-fee (CPIF) contract with closure required by a date certain. Under this example, all of the projects would work in concert to close the site by the required date and the single cost incentive (the CPIF contract structure) would be sufficient to contain or incentivize costs under the contract including all of the projects.

9. How do we ensure that incentive fee awards are based on reliable performance data?

Whenever we award fee under the contract, we must have confidence that the initial cost estimates (target cost, etc.) and the incurred cost or performance data, on which we base our decisions or calculations, is accurate. The initial cost estimates or targets (the baselines from which we measure performance) for contracts are established in one of two ways. First, such cost estimates or targets may be established through the competitive process. Offerors propose such costs, those costs are subjected to a cost realism analysis, compared to a government estimate and the competitive process itself, if conducted properly, ensures the reasonability of the costs.

Secondly, such cost estimates or targets may be proposed by a contractor in a sole source situation without the market forces of competition honing the proposed costs. In such cases, the contracting officer must ensure that the proposed costs are analyzed, negotiated and determined to be reasonable before they can be the basis for measuring performance. Such analysis and validation of baseline costs can be conducted by outside organizations such as the Defense Contract Audit Agency, the DOE Office of the Inspector General, or in the case of External Independent Reviews arranged by OECM, they may be conducted by an outside contractor. Additionally, baseline costs may be validated by teams put together the program offices. For example, the Office of Environmental Management (EM) regularly reviews and validates site Integrated Life-Cycle Baselines and Contract Project Baselines. The criteria for the EM reviews include, but are not limited to, cost estimation, scope definition, project schedule, earned value management system, performance metrics, regulatory requirements, and government furnished services and items.

Establishment of valid baselines is only one aspect of ensuring that the performance data for contracts and projects is accurate and reliable. We must also ensure that the costs and performance data accumulated over the life of the contract or project is also accurate. Cost and labor hour data is accumulated under all contracts through contractors' accounting systems. So, first, the contracting officer must ensure that the contractor's accounting system is adequate for the type of contract under which it will perform. As FAR 16.104(h) states, before agreeing on a contract type other than firm-fixed-price, the contracting officer shall ensure that the contractor's accounting system will permit timely development of all necessary cost data in the form required by the proposed contract type. This is a matter of the contractor's responsibility which must be determined prior to awarding the contract. FAR 9.104-1 states that in order to be determined to be responsible, a prospective contractor must, among other things, have the necessary accounting controls or the ability to obtain them.

In order to help reduce any over-reliance on contractor data and baselines which haven't yet been analyzed and validated, contracting professionals should, to the extent practicable, participate as members on program office reviews of contractors' baselines and EVM systems. However, the External Independent Reviews of contractor baselines for which OECM contracts are, by definition, reviews which are conducted by independent entities outside of the Department and are not open to participation from the Department.

Remember! Earned Value Management Systems, which comply with American National Standards Institute (ANSI) EIA-748, are required on those projects with a total project cost greater than $20 million. The requirement is contained in the Contract Requirements Document attached to DOE O 413.3.

10. How are contracts supporting projects tied to the budgeting process?

There are several important contracting and project management areas closely tied to the budgeting process. A few of the major points are summarized below. More detailed annual budget guidance is posted in the Field and CRB-OMB Budget Guidance posted at:

http://crinfo.doe.gov/officedocs/me30 (DOE access only).

Integrated Project Team members should be aware of this guidance to help improve contract and project planning.

In March 2005, the Office of Budget (ME-30) issues guidance to prepare the FY 2007 Field Budget Call. This guidance reflects updates based on the latest policies and reporting requirements from appropriations language and other sources. This guidance may address such issues as how Decontamination and Decommissioning costs for facilities being replaced are treated as part of the project. Project data sheets are the primary documents used to defend funding for real property capital projects exceeding $5 million regardless of the funding source. A project data sheet is submitted for new project efforts and for ongoing projects that require Congressional appropriations. They are the primary documents used to defend funding for capital projects throughout the budget formulation process.

All projects requesting Project Engineering and Design (PED) funds must have an approved Critical Decision - 0. Approval of a project CD-0 allows budget submission for PED funds. However, PED funds may not be obligated on a contract until after approval of CD-1.

All projects with a Total Project Cost (TPC) greater than $20 million, must have performance baselines validated by OMBE/OECM.

To support the budget process, a project must be baselined at CD-2 by August 2005 to submit a Project Data Sheet for FY 2007. Under DOE O 413.3, the Performance Baseline is established at CD-2 following validation that includes an External Independent Review. In general, projects are not validated until completion of preliminary design. Project data sheets and conceptual design reports are required prior to project validation. Performance baselines for all projects greater than $20 million in TPC must be validated by OMBE/OECM in order to request construction funding. Some exceptions may be necessary to adequately address budget cycle impacts on the project. Coordinate exceptions with

OMBE/OECM. No construction funds may be obligated until CD-3 approval, unless an early authorization for long lead construction items has been approved.

For the FY 2007 budget cycle, ME-30 issued a combined CRB-OMB Budget Call the end of March 2005. ME-20, ME-90 and others provided updated planning guidance. This budget guidance may address such areas as General Plant Projects and Major Items of Equipment.

The Federal Acquisition Streamlining Act of 1994, Title V requires agencies to establish cost, schedule and measurable performance goals for all major acquisition programs and achieve on average 90 percent of those goals. This is implemented by:

- OMB Circular A-11, Part 7, Planning, Budgeting, Acquisition and Management of Capital Assets;

- DOE M 413.3-1 Project Management for the Acquisition of Capital Assets; and

- OECM's tracking of project cost and schedule performance through the Project Assessment and Reporting System throughout a project's life-cycle with monthly reporting to senior management.

Data from the project data sheets are used to develop the OMB Circular A-11 Project Status Report to meet performance reporting requirements of FASA and A-11.

11. Where did Earned Value Management come from?

The concept of using Earned Value Management to monitor performance of work has been around for over thirty years. The goal has been to monitor a project's progress and to attempt to project whether the project would be successful. Initially, Earned Value was used by industrial engineers on factory floors in the early 1900's to attempt to measure "cost-performance" efficiencies. This was done by comparing the *earned standards* (the physical factory output) against the *actual costs* incurred. Then they compared their earned standards to the original *planned standards* (the physical work they planned to accomplish) to assess the schedule results.

In the 1960's this basic concept was picked up by the Department of Defense (DOD). Initially, DOD developed a system referred to as Program Evaluation and Review Technique (PERT), which was then followed by a revised program entitled PERT/Cost. PERT/Cost was an important step towards today's EVMS as for the first time, it began to measure what was *physically accomplished* against what was *spent*. PERT/Cost was eventually abandoned and was replaced with the Cost/Schedule Control Systems Criteria (C/SCSC) concept. These various concepts were mandated for use by industry in DOD's contracts. However, in the mid-1990's, industry became involved in the design and requirements of the earned value program and the present day concept of EVMS was born. To establish a true 'standard' for use by industry and the Government, ANSI/EIA 748-98 EVMS was developed in 1998, adopted by DOD in 1999, and it is how we implement EVMS today for Government projects.

12. How does the contractor's Earned Value Management System (EVMS) relate to its accounting system?

In order to be able to use EVMS for effectively measuring the contractor's performance under a DOE project, the contractor must first have a cost accounting system which is capable of segregating the costs of a project from any other costs under the contract. Additionally, the accounting system must be able to break down and track those costs at a sufficiently detailed level (work breakdown structure) to adequately measure progress under the various tasks which comprise the project.

In order to award a contract, the contracting officer must determine in advance of award that the offeror's accounting system is adequate to record costs incurred under the contract. The contracting officer will use the Defense Contract Audit Agency and/or a pre-award survey to make this responsibility determination in the case of FAR-based contracts and will use the DOE Chief Financial Officer's organization and/or the Office of the Inspector General audit function in the case of an M&O contractor. The adequacy of the contractor's accounting system is a matter of contractor responsibility (as defined in the Federal Acquisition Regulation) which is determined before awarding the contract. However, the adequacy of the contractor's EVMS (as determined by certifying that the

EVMS complies with ANSI/EIA-748) is a matter of contract management - not a matter of contractor responsibility.

The EVMS is a little like a manufacturing plant. The accounting system accumulates the raw material (financial and labor hour cost data) and organizes it. The EVMS combines that raw material with data on project performance, manipulates it and repackages it into a number of different products which give us a snapshot in time regarding where the project currently is compared to where it was in the past and where it should be if on schedule and within cost. These products are extremely useful to project managers and contracting professionals in managing contracts for the acquisition of projects and in timely anticipating problem areas. In order for the EVMS to successfully manipulate the data to measure performance under the project, it must be compliant with the industry standard ANSI/EIA-748-98/

The contractor uses EVM to control cost and schedule performance as well as to report progress against the contract. DOE uses EVM to monitor and verify progress on contract (project) costs and schedule performance, monitor and validate contractor accomplishments on specific fee and PBI incentives, and as an early warning system to identify deficient progress.

13. If the EVMS is not yet approved, does this mean that cost targets negotiated for the contract will not be accurate?

Absolutely not! Cost targets, such as comprise the elements of cost-plus-incentive-fee or other types of incentive contracts, are usually negotiated prior to contract award using the data from the contractor's accounting system. The EVMS takes the data from the accounting system and manipulates that data in a meaningful way to produce information for measuring progress under projects. Whether or not the EVMS is approved at that time has no bearing on the accuracy of the accounting system data which is used for establishing those targets.

14. What about those contracts which use the EVMS to determine interim fee payments?

On some DOE contracts, the EVMS is used to determine interim (provisional) fee payments based on performance progress. Final fee payments are based on completion information not necessarily from the EVMS. However, under those contracts which do employ the EVMS for making interim fee payments, it is

important to ensure that the EVMS system is compliant with the industry standard ANSI/EIA-748-1998 to make sure that interim payments are made on an accurate basis.

To the extent practicable, contracting professionals should participate on the teams which will evaluate the contractors' EVM Systems for approval.

15. Under contracts with projects, which indirect work-related activities should be considered in awarding contractors' fees?

Recently, during a review of contracts with projects by the Government Accountability Office (GAO), the question came up if the Department should be more specific regarding which indirect work-related activities should be considered in awarding contractor's fees and which should not. What the GAO meant by "indirect work related activities" are those activities which support the work under the contract but which may not be directly related to accomplishing the mission of the project. Such indirect work-related activities might be the submitting of reports on time, maintenance of site infrastructure, the efficient conduct of business operations, etc.

The question regarding whether to consider such indirect work related activities when awarding fee will vary from contract to contract depending on various factors, including, but not limited to, the type of contract, the contract's mission, individual site conditions, other areas incentivized under the contract, etc. Contracts which have a single mission such as the closure of a cleanup site may focus fee entirely on achieving the cleanup and closure of the site and may exclude the consideration of indirect work-related activities when awarding fee. Indeed, some EM environmental cleanup contracts are focusing fee entirely on the cleanup operations.

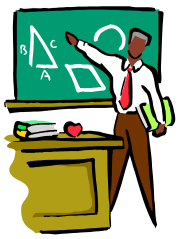
However, not all DOE contracts have such focused missions. Contracts for the general management and operation of a site or facility may also contain requirements for the execution of one or more projects. These contracts with a more diverse mission may consider the performance of such indirect work-related activities in the awarding of fee if those activities are considered to be of such a high priority, compared to other work at the site, as to merit such consideration. An example of such an activity might be the improvement of site infrastructure (buildings, roads, etc.) when the improvement of that infrastructure is of such relative importance as to merit focusing the contractor's efforts on it. However, such indirect work-related activities are normally considered through a subjective award fee structure.

Chapter Nine of the "DOE Performance-Based Contracting Guide" (PBCG), already specifically addresses this subject with regard to contracts for research and development:

> "In moving to performance based award fee contracts, the Department has emphasized the need to create objective performance measures for the performance of support functions (such as facilities management, property management, financial management, etc.), but has de-emphasized associating those measures with fee. The rational for this is that while it is important to have measures in place for the performance of support functions as a management tool, the major focus of the contractor should be on mission specific work, and it is with this [that] fee should be associated. Further, often in order to successfully perform mission work, the support work must be performed to at least a satisfactory level. This applies to all the Department's contractors including those managing and operating the Department's laboratories (in the case of the laboratories the mission work is science and technology). Therefore, unless there is a problem with a support area or a need to emphasize a critical support area, fee should only be associated with the performance of support functions in a general subjective award fee fashion." [emphasis added]

Chapter Five of the PBCG discusses in a broad manner constructing performance measures and incentives. The chapter recognizes that there is no single approach which can be applied to constructing measures and linking fee to work efforts (including indirect work-related activities). Instead of attempting to prescribe a particular method for constructing measures and incentives, it provides general factors to consider in making those decisions.

16. Where can I get training for contracting professionals on project management?



DOE Order 361.1 requires the course, "Project Management Overview," for all contracting professionals in order to attain a Level III certification.

As mentioned earlier in this chapter, you can find a more in-depth presentation of your roles as and responsibilities as a contracting professional related to contract management and project management on the DOE Procurement and Acquisition Homepage at:
http://management.energy.gov/policy_guidance/procurement_acquisition.htm

When you get to the website, click on the hot-link entitled, "Oversight of Performance-based Contracts DVD," and it will take you to excellent presentations on both "Effective Contract Management Planning for Performance-based Contracts" and "Using Earned Value Management for Better Contract Administration."

Any GS-1102 requiring certification to Level II who has responsibility for a project which requires an earned value management system must take a course in Earned Value Management in order to attain that certification. All GS-1102s are required to take a course in Project Management for certification to Level III. A list of individual courses and training providers which are satisfactory for meeting the level II and III training requirements is provided in Acquisition Letter 2005-07.

Additionally, for those who want more in-depth training on the various aspects of project management, there are a number of courses on the subject listed in the CHRIS catalog at: https://mis.doe.gov/ess/training_catalog.cfm?sort_by=reg&skey=none.

17. Conclusion:

This chapter brings together a number of different issues with regard to forming and administering contracts for the acquisition of projects. The decisions that you will make regarding constructing measures and incentives for projects are basically the same types of decisions which you would make when structuring any performance-based contract. More information on applying performance-based contracting approaches and techniques is found in the "DOE Performance-Based Contracting Guide." The Department's main sources of guidance on projects are DOE Order 413.3, "Program and Project Management for the Acquisition of Capital Assets" and DOE Manual 413.3-1, "Project Management for the Acquisition of Capital Assets." Other excellent sources of information may be found within the documents mentioned in the References section of this chapter.