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Staffing Guide for Project Management

[This Guide describes suggested nonmandatory approaches for meeting requirements. Guides are not requirements documents and are not to be construed as requirements in any audit or appraisal for compliance with the parent Policy, Order, Notice, or Manual.]

U.S. Department of Energy
Office of Project Management
Oversight & Assessments

FOREWORD

This Department of Energy (DOE) Guide is for use by all Departmental elements. This Guide provides an approach to determine the appropriate level and type of personnel to effectively plan, direct, and oversee project execution. DOE Guides, which are part of the Department of Energy Directives System, provide supplemental information for fulfilling requirements contained in rules, regulatory standards, and DOE directives. Guides do not establish or invoke new requirements nor are they substitutes for requirements. Guides are not to be construed as requirements in any audit or appraisal for compliance with DOE Policies, Orders, Notices, or Manuals.

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1.0 INTRODUCTION

1.1 Background

In April 2008, the Department of Energy (DOE) published the *U.S. Department of Energy Contract and Project Management Root Cause Analysis* and subsequently published the *U.S. Department of Energy Contract and Project Management Root Cause Analysis Corrective Action Plan* in July 2008. The root cause analysis (RCA) identified the most significant challenges impeding the improvement of DOE contract and project management. One of the most significant issues identified was that, in many cases, DOE did not have an adequate number of personnel with the appropriate skills to plan, direct, and oversee project execution. The lack of adequate personnel with the requisite skills is directly associated with the Department's lack of effective management and oversight of its contracts and projects.

1.2 Purpose

The purpose of this Guide is to assist the Department of Energy's Federal Project Directors (FPDs) and the project teams with the knowledge, methodologies, and tools needed to support their projects. Projects that are effectively planned and executed with the adequate level of oversight will help to ensure project success. This Guide is not a Departmental requirement or a mandate but offers one simple methodology to establish or validate the appropriate project staff size. This Guide does not need to be utilized if another methodology is used. Other methodologies are noted below.

It is important to recognize that this Guide does not address the requisite skills including the quality and experience of personnel. It is up to management to develop qualified personnel through the recruiting and professional development process. The Department has recognized and made great strides with existing certification programs to assist and appropriately assign qualified personnel to project teams.

The Department's staffing model provides the following:

- a recommended range of project staffing based on specific project attributes and
- a proposed distribution of staffing by project functions based on the project type and project phase.

Staffing consists of federal personnel that may be augmented with support service contractors and/or other federal agency personnel. For projects executing under the management and operating (M&O) business model, staffing also includes the M&O project staff. The FPD should consult the M&O in determining the appropriate project staff size.

The Department should have a detailed understanding of its staffing needs and requirements when making project decisions based on the specific project attributes. This Guide and the associated staffing model assist the FPDs, their management, and the Department, with staffing information to make appropriate decisions while providing the FPD the discretion to adjust the staffing level based on justifiable supporting documentation.

This Guide addresses the quantity of staffing for the FPD. This Guide does not address the method for acquiring additional resources or the quality of the staffing. The quality and experience of the staff are critical components and should be addressed by management when filling vacant positions or providing the appropriate training for the staff. This guide provides maximum flexibility in recognizing quality. It provides a staffing range to accommodate the project and the quality and skill set of the proposed project team members.

As noted, this Guide identifies one methodology for the FPD to determine appropriate project staff size. Other methodologies are available. Whatever method is used, it should be documented, well founded on sound judgment and experience, and benchmarked against other projects that have been successfully executed with adequate staff. The FPD could use one or a combination of the following methodologies in assessing staffing needs:

1. Bottom up assessment: To the extent practical that the FPD is able to perform it, a preferred manner of assessing staffing needs is to do a bottom up assessment of the actual scope of work to be incurred by the team and then performing a bottom up estimate of the resources to meet those needs. This method requires that the FPD have a good understanding of his project, its scope of work, what are the roles, and how the functions are executed in the FPD's environment. This method is preferred because it is based on actual project knowledge, not on experience or predictions from other sites, other projects, or other execution schema. But, it is the most cumbersome primarily because of the resources and the time needed. The steps, in general, involve understanding the scope of work, estimating the total number of hours needed by discipline or functional area, and estimating the associated staffing by discipline or functional area needed for the duration of the project. This method can be used in combination with the other methodologies where part of the scope of work is well understood, which is suitable for a firm basis for direct estimation by the FPD, but other portions could be estimated parametrically (or heuristically), such as those below.

2. Analogical assessment: To the extent that the FPD is aware that all or portion of the scope of the project resembles the execution of a known but different project which was successfully executed at its original performance baseline; the other project can be used as a basis for the staffing baseline from which deltas can be attributed. The pluses and minuses from the other project staffing can be made based on understandings in the differences in the projects relative to contract

structure, siting, project technical factors, regulations that apply, and environments in which the FPDs operate, as examples. Like the bottom up assessment above, this methodology can be employed in part for those portions of a project scope for which analogy holds or for the project as a whole if the inter-project analogies apply across the whole scope of the project. As much as possible, the assessment should employ the bottom up approach. In principle, this methodology is less preferred to a bottom up assessment but more so than purely parametric approaches.

3. Parametric assessment: Absent reliable bottom up information or any analogies for an FPD to draw upon for all or part of his staffing model, the FPD would likely have to revert to parametric approaches. These techniques are empirical and accordingly result in estimates for staffing that may or may not relate closely to the FPD's specific project. The DOE model, which is described in detail in the rest of this document, relates staffing to expected annual costing, and many other factors, via linear regression techniques. This model has an intuitive appeal in that projects that incur higher spending rates generally would expect to correlate with higher staffing needs. The model is parametric and its ability to predict staffing levels is not exact; similar to most staffing models it should be used as a guidepost to approximate staffing needs.

4. Modified parametric assessment: The parametric approach described in the bulk of this document is purely empirical and has been crafted considering a whole range of DOE projects of different sizes, with different execution strategies, with different program management approaches, with different technical content, and with other differences, too. To the extent that the FPD has specific reasons to adjust the parametric assessment to reflect a specific project, he/she may choose to adjust the model to suit the project's attributes, provided that there is clear, documented rationale for doing so. Limited resources is not justification to modify staffing needs. Staffing adjustments are made thereafter in the context of resourcing realities. Ultimate staff sizes are typically workload driven, but resource constrained.

1.3 Goal

The goal of this Guide is to support DOE's initiatives to improve program, project, and contract management through the identification of potential staffing levels to effectively oversee projects and contracts.

1.4 Applicability

The Guide may be applicable to any DOE capital asset acquisition project, major item of equipment project, environmental remediation project, or decontamination and decommissioning project having a total project cost (TPC) of $20 million (M) or greater. The principles of this Guide may be applied for projects having a TPC less than $20M.

1.5 Reference

The DOE staffing model has been developed in a spreadsheet format (Appendix A) and can be downloaded from: http://energy.gov/management/downloads/staffing-model.

2.0 STAFFING MODEL IMPLEMENTATION

The model has been developed to provide staffing recommendations for current and planned projects. With very few exceptions, most of the data fields include drop down menus from which to select the appropriate project attribute associated with specific projects. As the model is implemented and lessons are learned, additional refinements will be made as part of a continuous improvement initiative. The following sections describe the model inputs and outputs.

2.1 Model Inputs

The DOE staffing model incorporates several project-specific characteristics as inputs. Collectively, these characteristics influence the recommended staffing levels for specific projects. These characteristics include:

- the project's annual dollar value of work to be executed,
- a productivity factor that relates to a reasonable dollar value managed per person,
- the type of project,
- the complexity of the project,
- the manner in which the project is being executed,
- the project phase,
- the level of regulatory involvement,
- the degree of external influence,
- the uniqueness of the project, and
- the type of contract used to procure the project's goods and services.

A summary of each of these project characteristics is included in Table 2.1, Project Characteristics Influencing Staffing Levels. The DOE staffing model incorporates each of these characteristics to account for the range of current and planned projects to be executed by the Department.

Table 2.1
Project Characteristics Influencing Staffing Levels

Project Characteristic	Description
1. Project Value (PV)	The value of the project in terms of the dollars to be executed by fiscal year influences the number of staff needed to plan, direct and oversee project execution.
2. Productivity Factor (PF)	Productivity factor in this context refers to the reasonable amount of project dollars that a single full time equivalent can effectively manage in a fiscal year.
3. Project Type (PT)	The type of project (capital asset line item construction, major item of equipment, decontamination and decommissioning, or environmental remediation) influences staffing.
4. Project Complexity (PC)	The project complexity, based on hazard categories (DOE-STD-1027-92), facility importance rating (DOE M 470.4-1), and the technology level and maturity affects staffing.
5. Project Execution (PE)	The method of project execution (DOE direct contracting, site M&O execution, site M&O (non-profit), or site M&O subcontractor execution) influences staffing.
6. Project Phase (PP)	The project phase (CD-0, CD-1, CD-2, or CD-3) impacts the level of staffing, particularly in early planning stages to improve front end planning.
7. Regulatory Involvement (RI)	The satisfactory compliance with various regulations influences the amount of staffing. The greater the project's regulatory involvement, the greater the staffing resources.
8. External Influence (EI)	The degree of external influence on a project influences staffing. The greater the external influence, the more staffing resources required to manage the project.
9. Project Uniqueness (PU)	The uniqueness of a project in terms of whether it is a first of a kind impacts staffing levels. Unique or first-of-a-kind projects typically require increased staffing.
10. Contract Type (CT)	The type of contract used to procure the project's goods and services (fixed price, cost reimbursement, or time and materials) influences staffing.

Each of these project characteristics has been organized into a workload-based staffing algorithm, which is depicted in Section 2.3, Staffing Model Algorithm. A more detailed description and explanation of each project characteristic is included in Section 2.4, Approach to Using DOE Staffing Model.

2.2 Model Outputs

The DOE staffing model produces two primary outputs: recommended project staffing and by functional area. A summary of these two outputs is included in Table 2.2, Staffing Model Outputs. In order to establish recommended staffing across functions, DOE uses pre-established functional area percentages based on project type and project phase. While technically these percentages are not a staffing model output, they have been included in the discussion due to their direct relationship to the recommended staffing across functions. The staffing model does not prescribe a minimum or a maximum limit.

Table 2.2
Staffing Model Outputs

Model Output	Description
1. Project Staffing (PS)	Project staffing is the recommended staffing level (unadjusted and adjusted) based on the project characteristics. Project staffing is adjusted by incorporating project characteristics into the staffing model.
2. Functional Area Percentages (FAP)	Functional area percentages are a distribution of staffing across functional areas based on the project type and the project phase. These percentages are pre-established by DOE and are multiplied by the project staffing to establish the recommended staffing across functions.
3. Recommended Staffing (RS)	Recommended staffing is by functional area based on the staffing model results and application of the functional area percentages.

A more detailed description and explanation of the staffing model output is included in Section 2.4, Approach to Using DOE Staffing Model.

2.3 Staffing Model Algorithm

Each of the project attributes identified above are incorporated into the DOE workload-based staffing algorithm. The algorithm is comprised of three phases: establish the project's unadjusted staffing, adjust project staffing based on the project's characteristics, and allocate the project's adjusted project staffing to contract and project management functions. These phases and the associated algorithm are depicted in Figure 2.3-1, DOE Workload-Based Staffing Algorithm and further explained in Section 2.4, Approach to Using DOE Staffing Model.

The staffing model should be a starting point as a point estimate with the full understanding that the FPD has complete flexibility to apply a plus and minus range for the staffing needs. There is no one exact correct staffing level. The right answer is the staffing that can complete the project successfully. FPDs who use the staffing model should not overly rely on it as the only methodology for project success. The staffing model offers a range of options based on a range of factors including quality and

experience of personnel that are to be assigned; these attributes are not accounted for in the staffing model. It merely provides a reasonable range of possible staffing levels.

Figure 2.3-1
DOE Workload-Based Staffing Algorithm

Step 1: Establish the Project's Unadjusted Staffing

$$\frac{PV}{PF} = PS_{(Unadjusted)}$$

Step 2: Adjust the Project's Staffing Based on Project Characteristics

$$PS_{(Unadjusted)} + PS_{(Unadjusted)}(PT + PC + PE + PP + RI + EI + PU + CT) = PS_{(Adjusted)}$$

Step 3: Allocate the Project's Adjusted Project Staffing to Contract and Project Management Functions

$$PS_{(Adjusted)} \times FAP = RS$$

Variable Acronyms
PV = Project Value
PF = Productivity Factor
PS = Project Staffing
PT = Project Type
PC = Project Complexity
PE = Project Execution
PP = Project Phase
RI = Regulatory Involvement
EI = External Influence
PU = Project Uniqueness
CT = Contract Type
FAP = Functional Area Percentages
RS = Recommended Staffing for Associated Functional Area

2.4 Approach to Using DOE Staffing Model

The following phases are to be followed to establish the recommended staffing levels for specific projects.

Phase 1 – Identify the Annual Dollar Value of Work to be Executed by the Project

The project's annual value of work to be executed within a given fiscal year is required in order to establish recommended staffing levels. Therefore, phase 1 is to identify the annual dollar value of work to be executed by the project and insert this value into the

staffing model. The project team should consider taking the average across two or three years to level load any annual spikes of project value.

Phase 2 – Establish a Productivity Factor to be Used

The productivity factor (PF) is defined as a reasonable amount of project dollars that a full time equivalent (FTE) can effectively manage in a given fiscal year, and is in terms of million dollars per FTE (M/FTE). Currently at DOE, the range in the PF is wide due to various issues including the program office's primary business model for project execution. Use of the appropriate PF will be left to the discretion of the FPD and the respective program office. The recommended values based on prevailing Departmental business models within the three largest program offices are provided in the table below for federal personnel to include support service contractors and/or other federal agency personnel:

Program Office	Business Model	Productivity Factor
Office of Science	Non-Profit M&O	$12.5 to $20.0M/FTE
National Nuclear Security Administration	M&O	$12.5M/FTE
Office of Environmental Management	Site Prime (including Management and Integrating or M&I)	$10.0M/FTE

The federal staffing, based on the table above, is a subset of the full staffing if the project execution is via the M&O business model. The Department values its partners, the M&O, for their experience and expertise. They too are a subset of the full staffing to ensure the Department effectively addresses past GAO differences on federal oversight of contracts. The FPD should consult the M&O in determining the appropriate project staff size. The recommended values for full staffing that include the M&O project staff are provided in the table below: (Over time, these productivity factors may be adjusted to reflect future project experience and performance.)

Program Office	Business Model	Productivity Factor
Office of Science	Non-Profit M&O	$5.0 to $10.0M/FTE
National Nuclear Security Administration	M&O	$5.0 to $10.0M/FTE
Office of Environmental Management	M&O or M&I	$5.0 to $10.0M/FTE

Phase 3 – Develop an Unadjusted Project Staffing Level

Using the staffing model and entering the annual project value and productivity factors in the appropriate data fields, the model calculates an unadjusted project staffing level. For

example, if a particular project is planned to execute $125M worth of work in Fiscal Year 2011, and a productivity factor of $12.5M/FTE is being used, the unadjusted project staffing level is 10 FTEs ($125/12.5 = 10). This is the preliminary recommended staffing level before incorporating the project's specific characteristics.

The first three phases comprise Step 1 as described and depicted in Section 2.3, Staffing Model Algorithm.

The next eight phases include adjusting the recommended project staffing based on the project's characteristics. The characteristics influence the level of involvement required to provide an adequate level of oversight and management. The factor values associated with a project's specific characteristics are incorporated into the DOE staffing model. These characteristics and respective factor values are discussed and defined in the following phases.

Phase 4 – Assign the Project Type and Associated Factor Value to the Project

For the purposes of the DOE staffing model, four project types have been identified. These types are: capital asset line item construction (construction) projects, major item of equipment (MIE) projects, decontamination and decommissioning (D&D) projects, and environmental remediation (ER) projects, including soil and groundwater remediation and nuclear material and waste stabilization and disposition activities. The project types and their associated factor values are shown in Table 2.4-1, Project Types and Associated Factor Values.

Table 2.4-1
Project Types and Associated Factor Values

Project Type	Factor Value
Environmental Remediation (ER)	0.075
Decontamination and Decommissioning (D&D)	0.050
Capital Asset Line Item Construction (construction)	0.025
Major Item of Equipment (MIE)	0.000

For each project, identify and enter the appropriate project type. The factor values have been built into the DOE staffing model and therefore will automatically adjust staffing levels. For example, a D&D project with a factor value of 0.050 will increase an unadjusted project staffing level of 10 FTEs by 5 percent, or 0.5 FTE.

Phase 5 – Assign a Project Complexity and Associated Factor Value to the Project

Each DOE project has a level of complexity associated with it. For the purposes of the DOE staffing model, project complexity has been defined by incorporating the hazard category, the facility importance rating, and the technology being implemented.

The nuclear hazard category is defined in accordance with DOE-STD-1027-92, Attachment 1, *Hazard Categorization of DOE Facilities*. This includes the following:

- **Hazard Category 1** – Hazard analysis shows the potential for significant off-site consequences. (Category A reactors greater than 20 megawatts and facilities designated by Program Secretarial Officer.)

- **Hazard Category 2** – Hazard analysis shows the potential for significant on-site consequences. (Facilities with potential for nuclear criticality events or sufficient quantities of hazardous material and energy, which would require on-site emergency planning activities.)

- **Hazard Category 3** – Hazard analysis shows the potential for significant but localized consequences. (Facilities with quantities of radioactive materials, which meet or exceed the DOE-STD-1027-92 Table A.1 values).

The facility importance rating, takes into account safeguards & security, is defined in accordance with DOE M 470.4-1, Chapter II, Importance Ratings. This includes the following:

- "A" Importance Rating – Facilities that meet any of the following criteria: engaged in administrative activities considered essential to the direction and continuity of the overall DOE nuclear weapons program; authorized to possess Top Secret or possess SAP matter or designated as Field Intelligence Elements; authorized or possess Category I quantities of Special Nuclear Material (SNM) (including facilities with credible roll-up quantities of SNM to a Category I quantity); or critical infrastructure programs determined to be essential by DOE line management.

- "B" Importance Rating – Facilities that meet any of the following criteria: engaged in activities other than those categorized as "A" and authorized to possess Secret (S)/Restricted Data (RD) and/or weapon data matter; authorized to possess Category II quantities of SNM; or authorized to possess certain categories of biological agents.

- "C" Importance Rating – Facilities that meet any of the following criteria: authorized to possess Categories III and IV quantities of SNM or other nuclear materials requiring safeguards controls or special accounting procedures; or authorized to possess classified information or matter other than the type categorized for "A" and "B" facilities.

- "D" Importance Rating – Facilities that provide common carrier, commercial carrier, or mail service and are not authorized to store classified information or matter, or nuclear material during nonworking hours.

- "PP" (Property Protection) Importance Rating – Facilities for which a special standard of protection must be applied.

- "NP" (Non-Possessing) Importance Rating – Facilities that have authorized access to classified information or matter, or SNM at other approved locations. Non-possessing facilities do not themselves possess any classified information or matter, or SNM.

The technology implemented is a relative measure of the technology maturity and complexity of the technology being deployed for the project. Technology maturity is measured using technology readiness levels. The following are examples of technology level complexity:

- **Low Technology** – Office buildings, laboratories and warehouses.

- **Medium Technology** – Process plants using mature technology and standard design methods; experimental and specialty facilities using mature technology; complicated facility but replicate of previously designed/contracted facility; decontamination and decommissioning and site environmental remediation of low radioactive or chemical contamination of sites and facilities.

- **High Technology** – Process plants using complex or experimental processes; nuclear reactors; nuclear critical experiments; experimental and specialty facilities using new, innovative, or not fully demonstrated methods; decontamination and decommissioning and site environmental remediation of highly radioactive sites and facilities.

The hazards and safeguards and security categories and technology implemented have been integrated to establish a project complexity factor. Table 2.4-2, Project Complexity, defines the technology, hazards and safeguards and security conditions to document a project as high, medium or low complexity.

Table 2.4-2
Project Complexity (PC)

Technology Implemented	Hazard Category (HC) and Facility Importance Rating (FIR)		
	1/2 (HC) or A/B (FIR)	3 (HC) or C (FIR)	None I(H) or D/PP/NP (FIR)
High	PC-H	PC-H	PC-M
Medium	PC-H	PC-M	PC-L
Low	PC-M	PC-L	PC-L

The combination of technology, hazards and facility importance rating associated with each project results in one of three complexity designations: high complexity (PC-H), medium complexity (PC-M), and low complexity (PC-L).

The factor values assigned to specific levels of project complexity are shown in Table 2.4-3, Project Complexity and Associated Factor Values.

Table 2.4-3
Project Complexity (PC) and Associated Factor Values

Project Complexity	Factor Value
High (PC-H)	0.2
Medium (PC-M)	0.1
Low (PC-L)	0.0

For each project, identify the appropriate level of project complexity. Projects with complexity of medium and high require an increase in staffing of 10% and 20%, respectively.

Phase 6 – Assign the Method of Project Execution and Associated Factor Value to the Project

DOE projects are executed in various manners and the need for additional staffing depends on how a project is being executed. Four project execution methods have been established and are identified, along with their associated factor values in Table 2.4-4, Project Execution and Associated Factor Values.

Table 2.4-4
Project Execution and Associated Factor Values

Project Execution	Factor Value
DOE – DOE contracts directly with non-M&O contractor	0.5
DOE/M&O – M&O self performs work	0.2
DOE/M&O (non-profit) – M&O non-profit self performs work	0.1
DOE/M&O (non-profit)/Sub – M&O (non-profit) contractor issues work to subcontractor	0.0
DOE/M&O/Sub – M&O contractor issues work to subcontractor	0.0

For each project, identify and enter the method of project execution. The factor values compensate for the layers of project management between DOE and the actual work. The closer the actual work is to DOE, the higher the staffing levels required to provide management and oversight. For example, for projects executed directly by DOE and without the benefit of an M&O contractor, an additional 50% (0.5 factor value) in staffing is recommended.

If estimating the full staffing that includes the M&O project staff, the project execution factor value is 0.

Phase 7 – Assign the Project Phase and Associated Factor Value to the Project

DOE projects are executed in phases as defined by critical decisions (CD). The following CDs are established for DOE projects.

- CD-0 – Approval of Mission Need
- CD-1 – Approval of Alternative Selection and Cost Range
- CD-2 – Approval of Performance Baseline
- CD-3 – Approval of Start of Construction
- CD-4 – Approval of Start of Operations or Project Closeout

As projects proceed through the CD process, it is recognized that the staffing level will vary. The project phase adjustments are identified in Table 2.4-5, Project Phase and Associated Factor Values. For the purposes of the DOE staffing model, CD-0 is referred to the project phase prior to CD-1 approval, CD-1 the phase prior to CD-2 approval, CD-2 the phase prior to CD-3 approval, and CD-3 the phase prior to CD-4 approval.

Table 2.4-5
Project Phase and Associated Factor Values

Project Phase	Factor Value
CD-0 – Prior to CD-1 Approval	2.0
CD-1 – Between CD-1 and CD-2	1.0
CD-2 – Between CD-2 and CD-3	0.5
CD-3 – Between CD-3 and CD-4	0.0

For each project, identify and enter the project phase. The factor values compensate for the indirect relationship between the annual project dollar value of work in early project phases and the staffing required for an adequate level of front end planning. It is imperative based on past history that there is an appropriate level of staffing for an adequate level of front end planning. While smaller dollars may be spent from CD-0 to CD-2, greater involvement may be warranted from CD-0 to CD-2, and the project phase and associated factor address this need.

Phase 8 – Assign the Level of Regulatory Involvement and Associated Factor Value to the Project

The degree of regulatory involvement impacts the level of staffing required to adequately provide project oversight. For the purposes of the staffing model, three levels of

regulatory involvement have been established: high, medium and low. Table 2.4-6, Regulatory Involvement and Associated Factor Values, identify the factor values associated with varying degrees of regulatory involvement.

Table 2.4-6
Regulatory Involvement and Associated Factor Values

Regulatory Involvement	Factor Value
High	0.10
Medium	0.05
Low	0.00

For each project, identify and enter the degree of regulatory involvement.

Phase 9 – Assign the Level of External Influence and Associated Factor Value to the Project

The degree of external influence on the project also impacts the level of staffing. Similar to regulatory involvement, three levels of external influence have been established: high, medium and low. Table 2.4-7, External Influence and Associated Factor Values, identifies the factor values associated with varying degrees of external influence.

Table 2.4-7
External Influence and Associated Factor Values

External Influence	Factor Value
High	0.10
Medium	0.05
Low	0.00

For each project, identify and enter the appropriate degree of external influence.

Phase 10 – Assign the Project Uniqueness and Associated Factor Value to the Project

Several DOE projects are unique in that they represent experimental and specialty facilities using new or innovative methods or are not fully demonstrated. Such projects should be considered unique or first-of-a-kind and warrant additional staffing to address the specialized project requirements.

Table 2.4-8
Project Uniqueness and Associated Factor Values

Project Uniqueness/First-of-a-Kind	Factor Value
Yes	0.1
No	0.0

For each project, identify whether the project is unique and a first-of-a-kind or not. First-of-a-kind/unique projects have a factor value of 0.1 and will be allocated an additional 10% staffing.

Phase 11 – Assign the Contract Type and Associated Factor Value for the Project

There are a number of contracts used by DOE to procure goods and services. Certain contract types require more involvement than others. DOE has identified seven contract types (based on the Federal Acquisition Regulation, Part 16) most commonly used to procure goods and services. Accordingly, Table 2.4-9, Contract Type and Associated Factor Values, establishes the factor values associated with the prime contract. In general, fixed price contracts do not require additional staffing and therefore have factor values of 0.0. In contrast, time and materials and indefinite delivery/indefinite quantity contracts have been assigned a factor value of 0.2 representing a 20% increase in recommended staffing to provide adequate management and oversight of these contract types.

Table 2.4-9
Contract Type and Associated Factor Values

Contract Type	Factor Value
Time and Materials (T&M)	0.2
Indefinite Delivery/Indefinite Quantity (ID/IQ)	0.2
Incentive (Cost Reimbursement)	0.1
Cost Reimbursement	0.1
Incentive (Fixed Price)	0.0
Fixed Price (Economic Price Adjustment, No Incentive)	0.0
Fixed Price (Firm, No Incentive)	0.0

For each project, identify and assign the appropriate contract type that represents how the majority of goods and services are being procured. At the completion of assigning the appropriate contract types to each project, all the project characteristics impacting staffing levels have been completed.

Phase 12 – Determine the Recommended Range of Project Staffing Based on Project Characteristics

Based upon the project data entered from Phases 1-11, the next phase is to determine the recommended staffing for projects. While the DOE staffing model automatically calculates the recommended staffing, there are other factors to consider as well. The model produces a single point estimate for recommended staffing. The approach to be taken is to consider the optimal staffing by employing a range of plus or minus 10 to 20 percent of the staffing model point estimate. In other words, if the model projects a staffing level of 20 FTEs for a particular project, the optimal range may be between 16 and 24 FTEs. The FPD is responsible for decisions regarding the most appropriate staffing levels, and the performance of the project may influence the level of staffing within this range. For example, projects that are rated green may have adequate staffing on the low end of the range where projects that are red or yellow trending towards red may warrant staffing levels on the higher end of the range.

Phases 4 through 12 constitute Step 2 and provide the FPD and DOE with a recommended range of staffing for specific projects.

Phase 13 – Distribute the Recommended Staffing Across Functional Areas

The third and last step is comprised of allocating the recommended staffing across contract and project management functions. This is done to establish the necessary skills required to support projects based upon the project type and project phase.

The staffing model section on functional area percentages identifies the recommended project staffing across a total of ten functions depending on the type of the project and the phase of the project. The ten functions and their associated activities are identified below.

- **Acquisition, Contract and Subcontract Management:** acquisition planning, contract administration, subcontract management, personal property management, real property management, industrial relations, procurement counsel, cost analysis.

- **Project Planning, Control and Management:** project planning, cost estimating, scheduling, risk management, performance measurement and earned value management, project direction.

- **Science, Engineering and Design Support:** physical sciences, civil/structural engineering, mechanical/electrical engineering, fire protection engineering, instrumentation and control, environmental engineering, chemical engineering, nuclear engineering.

- **Construction Oversight and Management:** work inspection, field engineering management, construction compliance.

- **Environment, Safety and Health:** environmental compliance, National Environmental Policy Act, criticality safety, industrial hygiene, nuclear safety, occupational safety (including construction safety), radiation protection, emergency management.
- **Quality Assurance:** quality surveillance, quality control and compliance.
- **Finance and Administration:** financial management (including annual funding and budgeting), human resources, legal, accounting, auditing, information technology, logistics, transportation.
- **Safeguards and Security:** physical security, material safeguards.
- **Operations Oversight:** commissioning, deactivation and decommissioning, environmental remediation (including soil and groundwater remediation, and waste and nuclear material stabilization and disposition).
- **Public Affairs and Stakeholder Relations:** congressional and stakeholder communications, regulatory negotiations, media interaction.

Tables 2.4-10 to 2.4-13 represent the recommended percentage staffing distribution by function depending on the project phase. Each project type has a unique distribution of staff by function as determined by input from DOE program offices.

Table 2.4-10
Construction Project Functional Area Percentages

Function	Construction			
	CD-0	**CD-1**	**CD-2**	**CD-3**
Contracting, Subcontracting, and Property Management	15%	5%	10%	20%
Program and Project Planning, Control and Management	25%	20%	20%	20%
Science, Engineering, and Design Support	25%	38%	20%	20%
Construction Oversight and Management	0%	2%	3%	5%
Quality Assurance	0%	0%	6%	5%
Environment, Safety, and Health	20%	20%	20%	10%
Finance and Administration	5%	5%	5%	5%
Safeguards and Security	5%	5%	5%	4%
Operations Oversight	0%	0%	10%	10%
Public Affairs and Stakeholder Relations	5%	5%	1%	1%
Total	**100%**	**100%**	**100%**	**100%**

Table 2.4-11
Major Item of Equipment Project Functional Area Percentages

Function	Major Item of Equipment			
	CD-0	CD-1	CD-2	CD-3
Contracting, Subcontracting, and Property Management	25%	15%	25%	8%
Program and Project Planning, Control and Management	30%	38%	35%	35%
Science, Engineering, and Design Support	15%	15%	15%	15%
Construction Oversight and Management	0%	0%	0%	5%
Quality Assurance	0%	0%	5%	5%
Environment, Safety, and Health	3%	5%	5%	15%
Finance and Administration	22%	20%	10%	10%
Safeguards and Security	0%	2%	3%	3%
Operations Oversight	0%	0%	2%	4%
Public Affairs and Stakeholder Relations	5%	5%	0%	0%
Total	**100%**	**100%**	**100%**	**100%**

Table 2.4-12
Environmental Remediation Project Functional Area Percentages

Function	Environmental Remediation			
	CD-0	CD-1	CD-2	CD-3
Contracting, Subcontracting, and Property Management	30%	15%	15%	20%
Program and Project Planning, Control and Management	15%	30%	30%	20%
Science, Engineering, and Design Support	20%	20%	12%	7%
Construction Oversight and Management	0%	2%	3%	5%
Quality Assurance	0%	0%	7%	5%
Environment, Safety, and Health	10%	15%	15%	20%
Finance and Administration	15%	10%	5%	8%
Safeguards and Security	5%	3%	3%	5%
Operations Oversight	0%	0%	5%	5%
Public Affairs and Stakeholder Relations	5%	5%	5%	5%
Total	**100%**	**100%**	**100%**	**100%**

Table 2.4-13
Decontamination and Decommissioning Project Functional Area Percentages

Function	Decontamination and Decommissioning			
	CD-0	CD-1	CD-2	CD-3
Contracting, Subcontracting, and Property Management	30%	15%	15%	20%
Program and Project Planning, Control and Management	15%	30%	30%	20%
Science, Engineering, and Design Support	20%	20%	12%	10%
Construction Oversight and Management	0%	2%	3%	5%
Quality Assurance	0%	0%	6%	5%
Environment, Safety, and Health	10%	15%	15%	20%
Finance and Administration	15%	10%	8%	8%
Safeguards and Security	5%	5%	5%	5%
Operations Oversight	0%	0%	5%	5%
Public Affairs and Stakeholder Relations	5%	3%	1%	2%
Total	**100%**	**100%**	**100%**	**100%**

Based on the project type and project phase, the DOE staffing model provides a recommended staffing by each of the ten functions. Again, the actual number of personnel assigned to each respective area is the decision of the FPD. The model is simply a tool to assist in determining staffing levels and allocating across contract and project management functions.

3.0 SUMMARY

The intent of this guide is to provide DOE Federal Project Directors with a resource to establish a basis for staffing projects and provide a reasonable staffing range. The result should be an adequate level of project staffing resulting in an improvement in the federal oversight and management of projects and in project cost and schedule performance.

APPENDIX A – SAMPLE OF STAFFING MODEL SPREADSHEET

INPUT (instructions - enter data only in yellow highlighted cells)

general information				project characteristics										comments
project no.	project name	project site	fiscal year (FY) for PV	PV annual project value ($M)	PF productivity factor (annual project spend $M/FTE)	PT project type	PC project complexity	PE project execution	PP project phase	RI regulatory involvement	EI external influence	PU project uniqueness/1st of a kind	CT contract type	
1. sample - lowest factors			2011	$100.00	$10.00	MIE	Low	DOE M&O/sub	CD-3	Low	Low	No	Fixed-price (firm, no incentive)	
2. sample - highest factors			2011	$100.00	$10.00	ER	High	DOE Direct	CD-0	High	High	Yes	T&M	
3.														
4.														
5.														
6.														
7.														
8.														
9.														
10.														

OUTPUT (steps 1 & 2)

general information				project characteristic factors									
project no.	project name	project site	FY	PV	PF	PT	PC	PE	PP	RI	EI	PU	CT
1. sample - lowest factors				$100.00	$10.00	0	0	0	0	0	0	0	0
2. sample - highest factors				$100.00	$10.00	0.075	0.2	0.5	2	0.1	0.1	0.1	0.2
3.													
4.													
5.													
6.													
7.													
8.													
9.													
10.													

general information				project staffing (FTE)									
project no.	project name	project site	FY	PV /	PF =	PS (unadjusted)	factor sub-total	factor sub-total + 1	*PS (adjusted) (-20%)*	*PS (adjusted) (-10%)*	PS (adjusted)	*PS (adjusted) (+10%)*	*PS (adjusted) (+20%)*
1. sample - lowest factors			2011	$100.00	$10.00	**10.0**	0	1	*8.0*	*9.0*	**10.0**	*11.0*	*12.0*
2. sample - highest factors			2011	$100.00	$10.00	**10.0**	3.275	4.275	*34.2*	*38.5*	**42.8**	*47.0*	*51.3*
3.													
4.													
5.													
6.													
7.													
8.													
9.													
10.													

OUTPUT (step 3)

general information				project factors		functional area percentages									
project no.	project name	project site	FY	PT	PP	contracting, subcontracting, and property management	program and project planning, control and management	science, engineering, and design support	construction oversight and management	quality assurance	environment, safety, and health	finance and administration	safeguards and security	operations oversight	public affairs and stakeholder relations
1. sample - lowest factors			2011	MIE	CD-3	8%	35%	15%	5%	5%	15%	10%	3%	4%	0%
2. sample - highest factors			2011	ER	CD-0	30%	15%	20%	0%	0%	10%	15%	5%	0%	5%
3.															
4.															
5.															
6.															
7.															
8.															
9.															
10.															

general information				project factors		project staffing (FTE) by functional area - based on PS (adjusted)									
project no.	project name	project site	FY	PT	PP	contracting, subcontracting, and property management	program and project planning, control and management	science, engineering, and design support	construction oversight and management	quality assurance	environment, safety, and health	finance and administration	safeguards and security	operations oversight	public affairs and stakeholder relations
1. sample - lowest factors			2011	MIE	CD-3	0.8	3.5	1.5	0.5	0.5	1.5	1.0	0.3	0.4	0.0
2. sample - highest factors			2011	ER	CD-0	12.8	6.4	8.6	0.0	0.0	4.3	6.4	2.1	0.0	2.1
3.															
4.															
5.															
6.															
7.															
8.															
9.															
10.															

general information				project factors		project staffing (FTE) by functional area - based on PS (adjusted) (+/- 20%)									
project no.	project name	project site	FY	PT	PP	contracting, subcontracting, and property management	program and project planning, control and management	science, engineering, and design support	construction oversight and management	quality assurance	environment, safety, and health	finance and administration	safeguards and security	operations oversight	public affairs and stakeholder relations
1. sample - lowest factors			2011	MIE	CD-3	*0.6 / 1*	*2.8 / 4.2*	*1.2 / 1.8*	*0.4 / 0.6*	*0.4 / 0.6*	*1.2 / 1.8*	*0.8 / 1.2*	*0.2 / 0.4*	*0.3 / 0.5*	*0.0*
2. sample - highest factors			2011	ER	CD-0	*10.3 / 15.4*	*5.1 / 7.7*	*6.8 / 10.3*	*0.0*	*0.0*	*3.4 / 5.1*	*5.1 / 7.7*	*1.7 / 2.6*	*0.0*	*1.7 / 2.6*
3.															
4.															
5.															
6.															
7.															
8.															
9.															
10.															

PROJECT CHARACTERISTIC FACTORS

PE	value
DOE Direct	0.5
DOE M&O	0.2
DOE M&O (non-profit)	0.1
DOE M&O (non-profit)/sub	0.0
DOE M&O/sub	0.0

PT	value
construction	0.025
D&D	0.050
ER	0.075
MIE	0.000

PP	value
CD-0	2.0
CD-1	1.0
CD-2	0.5
CD-3	0.0

EI	value
High	0.10
Low	0.00
Medium	0.05

PC	value
High	0.2
Low	0.0
Medium	0.1

RI	value
High	0.10
Low	0.00
Medium	0.05

PU	value
No	0.0
Yes	0.1

CT	value
Cost-reimbursement	0.1
Fixed-price (firm, no incentive)	0.0
Fixed-price (price adjustments, no incentive)	0.0
Incentive (cost-reimbursement)	0.1
Incentive (fixed-price)	0.0
Indefinite-delivery	0.2
T&M	0.2

INSTRUCTIONS

To change a project characteristic factor value, over write the value in existing cell, and document accordingly.

functional area percentages

PT	PP	contracting, subcontracting, and property management	program and project planning, control and management	science, engineering, and design support	construction oversight and management	quality assurance	environment, safety, and health	finance and administration	safeguards and security	operations oversight	public affairs and stakeholder relations
Construction	CD-0	15%	25%	25%	0%	0%	20%	5%	5%	0%	5%
D&D	CD-0	30%	15%	20%	0%	0%	10%	15%	5%	0%	5%
ER	CD-0	30%	15%	20%	0%	0%	10%	15%	5%	0%	5%
MIE	CD-0	25%	30%	15%	0%	0%	3%	22%	0%	0%	5%
Construction	CD-1	5%	20%	40%	0%	0%	20%	5%	5%	0%	5%
D&D	CD-1	15%	30%	20%	0%	0%	15%	12%	5%	0%	3%
ER	CD-1	15%	30%	20%	0%	0%	15%	12%	3%	0%	5%
MIE	CD-1	15%	38%	15%	0%	0%	5%	20%	2%	0%	5%
Construction	CD-2	5%	20%	25%	0%	9%	20%	5%	5%	10%	1%
D&D	CD-2	15%	30%	15%	0%	6%	15%	8%	5%	5%	1%
ER	CD-2	15%	30%	15%	0%	7%	15%	5%	3%	5%	5%
MIE	CD-2	25%	35%	17%	0%	5%	5%	10%	3%	0%	0%
Construction	CD-3	20%	20%	20%	5%	5%	10%	5%	4%	10%	1%
D&D	CD-3	20%	20%	10%	5%	5%	20%	8%	5%	5%	2%
ER	CD-3	20%	20%	7%	5%	5%	20%	8%	5%	5%	5%
MIE	CD-3	8%	35%	15%	5%	5%	15%	10%	3%	4%	0%

ADMINISTRATIVE CHANGE TO
DOE G 413.3-19, STAFFING GUIDE FOR PROJECT MANAGEMENT

LOCATION OF CHANGES:

Page	Paragraph	Changed	To
4	1.5	http://www.management.energy.gov/policy_guidance/project_management.htm	http://energy.gov/management/downloads/staffing-model