DOE PROJECT MANAGEMENT NEWS

Promoting Project Management Excellence

October 2023

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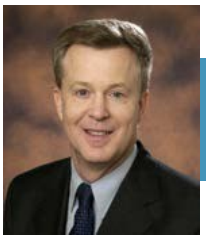


DIRECTOR'S CORNER

Leadership and staffing are essential components of project management. Effective leaders provide the vision, direction, motivation, and decision-making while proper staffing ensures the right people with the right skills are available to successfully deliver the project. DOE Guide 413.3-19, *Staffing Guide for Project Management*, provides a project management staffing model that the FPD can tailor with project-specific characteristics to generate a recommended range of project staff and a proposed distribution by functional area. See the article on page 2 for additional insight into the guide and how to ensure your project is properly staffed.

Since April 2022, we've had numerous articles on the *Integrated Project/Program Management (IP2M) Maturity and Environment Total Risk Rating (METRR) using EVMS* (IP2M METRR). The study and subsequent IP2M METRR tool, focus on the maturity of an EVMS and the environment in which it operates. Within the context of the operating environment, the research identified four categories—culture, people, practices, and resources—as the main drivers of a project's environment.

Some insight into a few of the key factors within these four categories that impact staffing can be found in the article on page 6.

Additional insight and background information on the EVMS environment can be gained, and continuous learning points earned, by viewing the snippet, ***IP2M METRR - What is EVMS Environment?*** See the Snippet of the Month on page 8 for more information.

Material purchase or subcontract? Understanding the difference between a material purchase and a subcontract is important when using an EVMS since it directly affects how costs are tracked, managed, and reported. This in turn impacts the ability to make informed decisions. See the article on page 7 for more information on the definitions and characteristics of material purchases and subcontracts.

In closing, I encourage you to mark your calendars for the 2024 Project Management Workshop that will be held on April 2 - 3, 2024, followed by a Project Controls Workshop and Program Office breakout sessions on April 4th. See page 8 for more information.

Keep Charging!

Paul Bosco

DOE Guide 413.3-19 — Staffing Guide for Project Management

Andy Buzbee, Office of Project Analysis (PM-20)

This article provides an approach and best practice for all capital asset project teams to determine the appropriate level and type of personnel to effectively plan, direct and oversee project execution. The basis for this discussion is referenced in Department of Energy (Staffing Guide) . As background information, one can reference historical performance of United States DOE capital asset projects prior to 2008 and the systemic challenges of planning and managing DOE projects (see 2008 Root Cause Analysis). This analysis identified in many instances that DOE did not have an adequate number of personnel with the appropriate skills to effectively manage project up-front planning and execution. This article provides methodologies and tools for federal project directors (FPD) and integrated project teams (IPT) to support project staffing requirements for any DOE capital asset project, major item of equipment (MIE), environmental remediation, or decontamination and decommissioning (D&D) project having a total project cost (TPC) of $50 million or greater. The Department's staffing model provides the following primary outputs:

1. A recommended range of project staffing based on project attributes.
2. A proposed distribution (allocation) of staffing by project functions based on project type and phase.

Project Attributes and Characteristics. The DOE project management staffing model utilizes project-specific characteristics as inputs which influence the resulting recommended staffing levels. The FPD should have a detailed understanding of its staffing needs and requirements when making project decisions based on these attributes. Project characteristics for consideration include: the annual value of work, a productivity factor for each full time equivalent (FTE) assigned to the project, the project type, project complexity, project execution strategy, phase of the project, the level of regulatory involvement, the degree of external influence, the uniqueness of the project, and the type and number of procurement contract(s) involved. Further definition of these characteristics is shown in Table 1.

There are three primary metrics used in the DOE staffing model: total project staffing, functional area percentages (FAP), and recommended project staffing. A summary of these metrics is included in Table 2. The recommended staffing utilizes FAPs and is also presented on a functional area basis.

When determining the initial total project staffing estimate, the FPD or IPT must utilize sound judgment and experience to assess the quality and experience of available staff, and may use bottom-up, analogous, and parametric estimating techniques to determine the requirement. Another sound tool for developing an initial project staffing estimate is to utilize a benchmark (analogous) from a previous project, preferably having very similar characteristics. This provides a historical data point as a reference as well as revealing potential staffing challenges during the project lifecycle. The staffing model algorithm is comprised of the following 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. The staffing model should be used as a starting point. The FPD has complete flexibility to apply a plus and minus range for the staffing needs, based on any unique characteristics of the project. The approach to using the model depends largely on having accurate information regarding the annual dollar value of work and benchmarked productivity factors based on previous projects (within a program, and/or DOE site location). Once these are provided, the remaining characteristics can be given associated factor values to calculate the adjusted staffing estimate. Many examples of these factors are provided in DOE G 413.3-19. Once all factors are determined, the FPD should consider other factors to determine the optimal range for project staffing. One of the most significant factors influencing the range of staffing values is project performance (i.e., well-performing projects can utilize a tighter range of staffing requirements, whereas poor performing projects require wider staffing ranges due to greater uncertainty) and should be given careful consideration by an FPD.

[1] Staffing Guide

Continued on Page 3.

Table 1. Project Characteristics Affecting 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 (critical decision (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.

Table 2. Staffing Model Metrics	
1. Total 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 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.

Continued on Page 4.

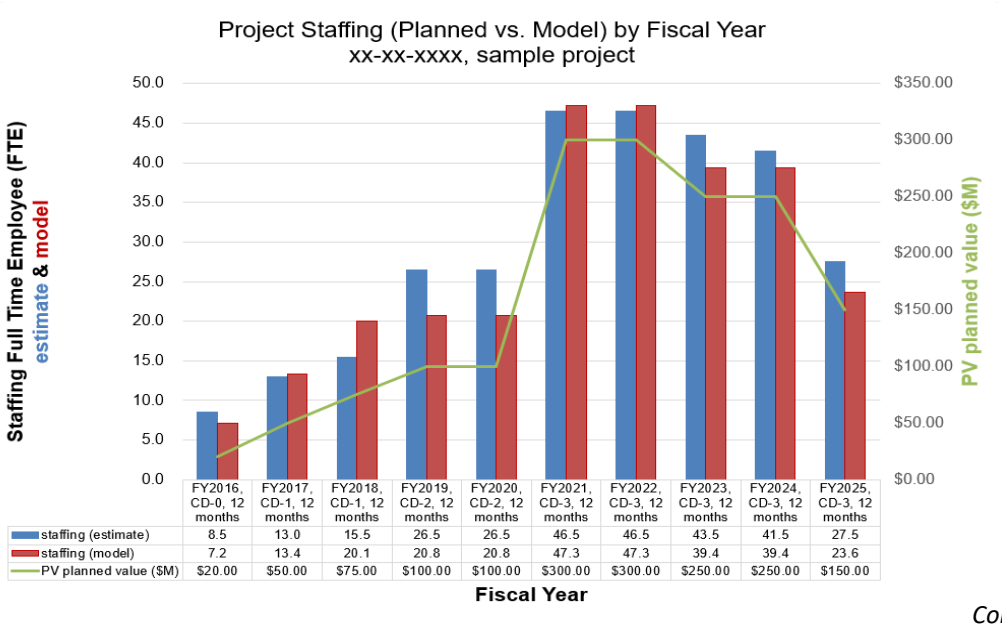
Project Functional Areas. The next phase of project staffing determination involves allocating the adjusted staffing estimate across numerous functional areas within the project. The staffing model identifies ten functional areas and associated activities as follows:

- *Acquisition, Contract and Subcontract Management:* acquisition planning, contract administration, subcontract management, personal property management, real property management, industrial relations, procurement counsel, and cost analysis.
- *Project Planning, Control and Management:* project planning, cost estimating, scheduling, risk management, performance measurement and earned value management, and 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, and nuclear engineering.
- *Construction Oversight and Management:* work inspection, field engineering management, and 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, and 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, and transportation.
- *Safeguards and Security:* physical security and material safeguards.
- *Operations Oversight:* commissioning, deactivation and decommissioning, and 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, and media interaction.

Specific staffing requirements within functional areas will change as the project matures through its initiation, definition, and execution phases ((CD-0 through CD-3). DOE G 413.3-19 again provides numerous examples of allocation percentages, by program, which can be used throughout these phases of project development. Finally the staffing model provides a recommended staffing level for each of the ten functional areas.

Staffing Model in Spreadsheet Form. The staffing model spreadsheet is easily accessed from a link embedded in DOE G 413.3-19. Once opened, a user should familiarize themselves with all sheets shown on bottom tabs. These include spreadsheet instructions, acronyms, associated factors for project characteristics, a comparison plot (Figure 1) of modeled verses estimated staffing requirements as a function of fiscal year, and the spreadsheet main worksheet.

Figure 1. Modeled versus Estimated Comparison



Continued on Page 5.

The user should note that only cells colored yellow are available for input and that model results are dependent on the project characteristics defined by the user. Once characteristic values are entered, the user enters the annual planned value and FTE productivity factors for each fiscal year in the project's duration.

These inputs (Figure 2) are all that is required for calculation of the modeled staffing requirements. The user should enter their own planned/estimated project staffing requirements as a third input (Figure 3); however, this does not affect the model results and is used for comparison purposes only.

Figure 2. Project Characteristic and Annual Planned Value Inputs

PROJECT CHARACTERISTICS										
FACTORS	PT	HC	TR	IR	PC	PE	RI	EI	PU	CT
project characteristics	MIE	HC1	Medium	PP	High	DOE M&O	Medium	Low	No	Incentive (cost-reimbursement)
factor values	0	High		Low	0.2	0.2	0.05	0	0	0.1
PROJECT INFORMATION BY FY										
FY	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025
PP	CD-0	CD-1	CD-1	CD-2	CD-2	CD-3	CD-3	CD-3	CD-3	CD-3
no. months PP for FY	12	12	12	12	12	12	12	12	12	12
PV planned value ($M)	$80.00	$50.00	$75.00	$100.00	$100.00	$300.00	$300.00	$250.00	$250.00	$150.00
PF productivity factor ($M/FTE/FY)	$10.00	$10.00	$10.00	$10.00	$10.00	$10.00	$10.00	$10.00	$10.00	$10.00
factor values, total	2.55	1.65	1.65	1.05	1.05	0.55	0.55	0.55	0.55	0.55

Figure 3. Planned Project Staffing by FY

PLANNED PROJECT STAFFING (FTE) BY FY										
FY	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025
PP	CD-0	CD-1	CD-1	CD-2	CD-2	CD-3	CD-3	CD-3	CD-3	CD-3
contracting, subcontracting, and property management	2.0	1.0	1.0	1.0	1.0	9.0	9.0	7.0	7.0	4.0
program and project planning, control and management	2.0	4.0	4.0	6.0	6.0	9.0	9.0	8.0	8.0	5.0
science, engineering, and design support	2.0	4.0	4.0	6.0	6.0	8.0	8.0	8.0	6.0	4.0
construction oversight and management				1.0	1.0	4.0	4.0	4.0	4.0	3.0
quality assurance			1.0	2.0	2.0	2.0	2.0	2.0	2.0	1.0
environment, safety, and health	1.0	2.0	3.0	5.0	5.0	6.0	6.0	6.0	6.0	4.0
finance and administration	0.5	0.5	1.0	2.0	2.0	3.0	3.0	3.0	3.0	2.0
safeguards and security	0.5	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
operations oversight				2.0	2.0	4.0	4.0	4.0	4.0	3.0
public affairs and stakeholder relations	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
total	**8.5**	**13.0**	**15.5**	**26.5**	**26.5**	**46.5**	**46.5**	**43.5**	**41.5**	**27.5**

Summary. The project management staffing model is a useful and relevant tool for FPDs when addressing both quantity and technical skill requirements for staffing an individual project. It should be noted there is no substitute for expert judgment, obtained after years of experience within a specific program, type of project, and/or geographic location, and that the model allows flexibility to develop a staffing value range using this expertise. The staffing model serves as a comparison tool for existing staffing plans and estimates, and most importantly can identify a fiscal year in which a staffing estimate is significantly over/under normal levels for similar projects. It should not be used as a definitive solution for a project's staffing, but it does provide the FPD with an informed benchmark to evaluate a project's staffing level.

If you have any questions about DOE G 413.3-19 and its project staffing model described above, please contact your PM-20 Project Analyst.

IP2M METRR Environment Impact on Staffing

Matthew Taliaferro, Office of Project Controls and Policy (PM-30)

Successful projects often incorporate an integrated project management methodology to plan, execute and control the multitude of activities that occur throughout a project's lifecycle. One such methodology, earned value management (EVM), is based on the premise that project teams make the best decisions when they have the best data and information. Accordingly, an EVM System (EVMS) is required for projects subject to Department of Energy (DOE) Order 413.3B, *Program and Project Management for the Acquisition of Capital* Assets.

The *Integrated Project/Program Management (IP2M) Maturity and Environment Total Risk Rating (METRR) using EVMS* (IP2M METRR), developed in a DOE-sponsored joint research study led by Arizona State University and representing 15+ government and industry organizations (https://ip2m.engineering.asu.edu/), is used to improve the effectiveness and reliability of an EVMS. The study's findings showed that the maturity of an EVMS (and a successful project outcome) correlates with the environment in which it operates. See the DOE Office of Project Management Compliance Assessment Governance (CAG) for detailed descriptions of the methods and techniques used for assessing an EVMS. This article will focus on an EVMS's operating environment in the context of staffing.

The IP2M METRR consists of four environmental categories: culture, people, practices, and resources. There are a total of 27 factors across the four categories that were found to be the drivers most associated with a project's environment, and, as such, influence organizations' activities, decisions, behaviors, and attitudes of the people responsible for implementing the EVMS. This article will explore a few key factors within the culture, people, and resource categories that impact staffing.

Two primary project stakeholders which typically have an outsized impact on a project's culture are the contractor organization and the DOE customer organization. The stakeholders within these organization's include corporate (contractor) and department-level (DOE customer) leadership, project leadership, oversight personnel, execution and operations personnel, and support staff. As it relates to the EVMS and staffing, it is important that the contractor and DOE customer organizations demonstrate their belief in the intrinsic value of the EVMS to position the project for success.

For the contractor this includes, among other things, proactively using the EVMS as the primary management tool for identifying and managing risks, committing resources – such as funding and personnel – to ensure that the effective implementation of the EVMS is a priority, and establishing and implementing company policies that incentivize and educate personnel to foster and support commitment to implementing the EVMS. The DOE customer demonstrates its commitment to EVMS by establishing topline expectations for the contractor of EVMS implementation, committing resources to ensure effective implementation is a priority, and actively managing the project with EVMS data to position the project for success.

The people category includes the individuals who represent the interests of their respective stakeholders – project manager, project control analyst, project schedule analyst, acquisition or subcontracts personnel, control account managers, integrated project team (IPT) or line/resource management, contracting officers, etc. – and are adept in implementing and using the EVMS to achieve favorable project outcomes. The contractor's leadership and project team should have the proper mixture of experienced personnel needed for successfully implementing the EVMS, and for training, educating, and mentoring those who are next in line to successfully implement and use the EVMS. Similarly, the DOE customer leadership and project teams should have experience using EVM to inform decision-making on projects of similar size and scope, the proper mixture of experienced personnel to ensure EVM is used effectively, and a structured method for mentoring and professional development for new and less experienced personnel.

Lastly, the resources category addresses the availability of key tools, data, funding, time, personnel, and technology to support the effective implementation of an EVMS. In terms of staffing, the implementation and execution of an EIA-748 compliant EVMS – even with a supportive culture and trained and experienced personnel – requires resources such as the commitment of sufficient funding to ensure the team that implements and executes the EVMS for the project is adequate in size and composition. This means that both the contractor and DOE customer organizations have committed time and resources to adequately staff the EVMS team (project personnel, corporate EVMS oversight, consultants, DOE customers, project controls, contracts, procurement, etc.), in quantity, expertise, and authority to efficiently and effectively use EVMS results to ensure timely and informed decision-making.

Material and Subcontract Clarifications

Robert Loop, Office of Project Controls and Policy (PM-30)

In the realm of earned value management systems (EVMS), it is important that there be a clear definition and understanding with respect to material purchases and subcontracts. This article will discuss both as well as items with mixed characteristics. Please refer to the Integrated Project / Program Management (IP2M) Maturity and Environment Total Risk Rating (METRR) and Office of Project Management (PM) EVMS Compliance Assessment Governance (CAG) for more in depth discussion on these topics.[1]

Material and subcontracts are typically defined in the cost accounting standard compliant disclosure statement that governs the contractor's accounting system. The Federal Acquisition Regulation (FAR) definitions for material and subcontracts are:

- *Material* means property that may be consumed or expended during the performance of a contract, component parts of a higher assembly, or items that lose their individual identity through incorporation into an end-item. Material does not include equipment, special tooling, special test equipment or real property.
- *Subcontract* means any contract as defined in subpart 2.1 entered into by a subcontractor to furnish supplies or services for performance of a prime contract or a subcontract. It includes but is not limited to purchase orders, and changes and modifications to purchase orders.

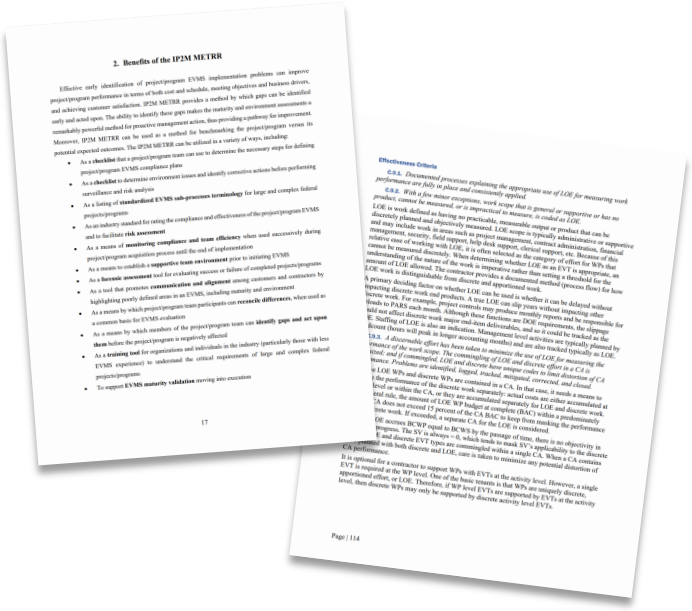
Material is almost always characterized as having purchase requests and single or homogenous deliveries over time. It is typically a component or subcomponent delivered as part of a total product. Material purchases are managed by a procurement specialist and are split into high dollar value (HDV) and low dollar value (LDV) material classes. HDV material is distinctly planned in the IMS. The actual cost for materials is recorded on the same basis in which budget for materials is planned and performance for materials is claimed.

While subcontracts may have a material content, they are typically based on a scope of performance, may contain non-homogenous multiple deliveries, and often affect multiple work breakdown structure (WBS) elements. Subcontracts are managed by a subcontract specialist, are either fixed price or cost plus, and usually carry a higher risk of constructive change.

The most common subcontracts in Department of Energy (DOE) are construction and vendor labor support. For EVMS application, labor support type subcontracts are treated as labor. If a subcontract is fixed price, progress payments will be based on a schedule of values (SOV). A limited number of zero budget activities may be used in these cases to correlate SOV progress payments with earned value performance.

There are items with mixed material and subcontract characteristics such as specialty equipment and gloveboxes and other homogenous items. While these items may exhibit certain subcontract characteristics including progress payments and multiple deliveries, these are typically considered HDV material within EVMS. In such cases, earned value performance may be tailored for the SOV progress payment aspect if warranted. For other situations that involve multiple site visits, contract with terms and conditions, or design, these are usually subcontracts.

Please review the CAG or contact a member of the PM-30 compliance team if you have any questions on material versus subcontract.



[1]Subprocess H is Material Management and Subprocess I is Subcontract Management.
[2]FAR part 45.101 Definitions FAC number 2023-04 dated 06/02/2023
[3]FAR part 44.101 Definitions FAC number 2023-04 dated 06/02/2023
[4]Refer to IP2M METRR Subprocess B Planning and Scheduling

IP2M METRR Training of the Month: IP2M METRR—What is EVMS Environment?

The Integrated Project/Program Management (IP2M) Maturity and Environment Total Risk Rating (METRR) using earned value management system (EVMS) is a novel assessment mechanism developed as part of a DOE-sponsored joint research study led by Arizona State University and representing more than fifteen government and industry organizations.

Click here to view IP2M METRR - What is EVMS Environment?

Summary: This session defines EVMS environment, as well as its 4 categories (culture, people, practices, and resources) and 27 factors. Each factor has an agreed-upon description and items to consider during an assessment. Factors are assessed on a scale of 5 levels (1=Not acceptable, Needs Improvement, Meets Some, Meets Most, and 5=High Performing).

Continuous Learning Points (CLPs): Reviewing one hour of snippets will equate to one CLP. To receive credit, Federal Project Directors can submit a CLP request under the Project Management Career Development Program (PMCDP) menu in their employee self-service (ESS) account. All others may send an email (indicating the snippets viewed) through their respective supervisor to DL-PM-40 to receive a certificate with the appropriate CLPs awarded.

You can find additional IP2M METRR Training at the following links:

https://www.energy.gov/projectmanagement/articles/ip2m-metrr-asu-evms-study
OR
https://community.max.gov/display/DOEExternal/PM+EVMS+IP2M+METRR+Training

IP2M METRR Publications can be found at https://ip2m.engineering.asu.edu/publications/.

2024 DOE Project Management Workshop

MARK YOUR CALENDARS!

April 2-3, 2024*

*Plus: Optional Project Controls Sessions - April 4, 2024

PMCDP FY2024 Training Schedule — Quarter 1

The training schedule is posted on PM-MAX. Save the direct link to the Project Management Career Development Program training schedule to your favorites: https://community.max.gov/x/BgZcQw

Course Title	LN Code	Dates	CLPs	Details
Scope Management Baseline Development	001036	October 10-13, 2023	24	10:30am-4:30pm ET Webinar Daily
Negotiation Strategies and Techniques	001047	October 16, 18, 23, 25, 2023	24	10:30am-4:30pm ET Webinar (Mon/Wed)
Monitoring and Controlling During Project Execution	000450	October 30-November 3, 2023	32	10:30am-4:30pm ET Webinar Daily
Acquisition Management for Technical Personnel	000145	October 31, November 2, November 7, November 9, 2023	16	12pm-4pm ET Webinar (Tue/Thurs)
Managing Contract Changes	002102	November 13-16, 2023	32	10:30am-4:30pm ET Webinar Daily
Project Management Systems and Practices	001024	December 4-8, 2023	40	10:30am-4:30pm ET Webinar Daily
Project Risk Analysis and Management	001033	December 11-15, 2023	28	10:30am-4:30pm ET Webinar Daily
Advanced Risk Management	001042	December 11-15, 2023	32	10:30am-4:30pm ET Webinar Daily

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CONTACT US!

The Office of Project Management welcomes your comments on the Department's policies related to DOE Order 413.3B. Please report errors, omissions, ambiguities, and contradictions to: PMpolicy@hq.doe.gov. Propose improvements to policies at: https://hq.ideascale.com.

If you have technical questions about PARS, such as how to reset your password, please contact the PARS Help Desk at: PARS_Support@Hq.Doe.Gov. And, as always, PARS documentation, Frequently Asked Questions (FAQs) and other helpful information can be found at Support : PARS Support (doe.gov). The current PARS reporting schedule is located on PM-MAX at the following link: https://community.max.gov/x/m4lIY.

Need information to apply for FPD certification? The Certification and Equivalency Guidelines (CEG) can be found here: https://community.max.gov/x/IQd1Qw.

Can't put your finger on a document or information you were told is available on PM-MAX? Looking for information on DOE Project Management? Submit your questions and queries to: PMWebmaster@doe.gov.

TO REACH THE PROFESSIONAL DEVELOPMENT DIVISION (PM-40) TEAM:

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If you would like to contribute an article to the Newsletter or want to provide feedback, contact the Editor at DL-PM-40.

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