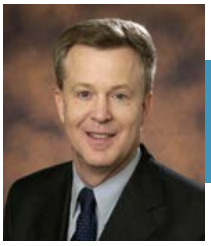
# DOE PROJECT MANAGEMENT NEWS

*Promoting Project Management Excellence*

**APRIL 2023**

## IN THIS ISSUE:





## DIRECTOR'S CORNER

With the arrival of Spring, two important events occur in Washington D.C. First, the National Cherry Blossom Festival kicked off on March 18th, with the National Park Service announcing that the cherry blossoms hit peak bloom on March 23rd. And second, after a three-year pause, the DOE Project Management Workshop returns on April 11th & 12th, followed by a half-day Project Controls session on the morning of April 13th and Program Office breakout sessions in the afternoon. Registration numbers have significantly exceeded previous years' totals, so seating adjustments have been made to accommodate as many attendees as possible. Click the button below for the latest Agenda so that you can maximize your Workshop experience. We hope to see you there!

**PM Workshop Agenda**

This month, we have the fourth and final article in our series focused on the four environment categories identified in the Integrated Project/Program Management (IP2M) Maturity and Environment Total Risk Rating (METRR) using earned value management systems (EVMS). Resources, as defined in most dictionaries, are a source or supply used to support an organization. You can learn more about how resources support an EVMS in the article on page 2.

In our seventh of ten articles examining the Government Accountability Office (GAO) Schedule Assessment Guide (GAO 16-89G) and its ten best practices (BP) for developing and maintaining a high-quality and reliable schedule, we look at BP #7, *Ensuring Reasonable Total Float*. Inaccurate or unreasonable float can result in an invalid critical path, impacting decision making and jeopardizing the successful delivery of the project. Learn more about float management and best practices on page 4.

Keep Charging!

*Paul Bosco*

## Understanding Environment Resources and their Impact on EVMS Implementation (Part 4 of 4)

*Kevin Carney, Office of Project Controls and Policy (PM-30)*

This is the fourth and final article in a series focused on the four environment categories identified in the Integrated Project/Program Management (IP2M) Maturity and Environment Total Risk Rating (METRR) using earned value management systems (EVMS). The purpose of these articles is to introduce and explore each of these categories and their respective factors. This month's article focuses on Resources; previous articles are as follows:

- Culture (PM Newsletter July 2022.pdf);
- People (PM Newsletter October 2022.pdf); and
- Practices (PM Newsletter January 2023.pdf).

The Office of Project Management (PM) is exclusively utilizing the IP2M METRR as the foundation for its compliance assessment process. It was developed from an Arizona State University (ASU) EVMS academic research study. In addition to the traditional EVMS compliance assessment process utilized by Federal agencies dating back to the late 1990s, the IP2M METRR methodology also considers the framework of the customer, contractor, and stakeholder beliefs and behaviors – some individually and some combined – to assess the environment of projects/programs implementing an EVMS.


The ASU study found that there is a strong positive and statistical correlation between the maturity (or effectiveness) of an EVMS and the environment of a project/program from which it operates with maturity being dependent on the environment. According to the ASU study, an EVMS environment assessment should examine the culture, people, practices, and resources of a project, as each was found to influence the implementation of an EVMS.

Resources, as defined in most dictionaries, are a source or supply used to support an organization. When used properly, they allow the organization to function effectively. So, what are the resources that support an EVMS? How can they be assessed to determine if they adequately support the EVMS?

Resources are demonstrated through the availability of personnel, time, funding, data, technology infrastructure, and material goods required to support the effective implementation of the EVMS. An environment assessment includes six (6) resources factors:

*4a. Adequate technology, software, and toolsets are integrated and used;*
*4b. Sufficient funding is committed and available for implementing the EVMS;*
*4c. The project team is adequate in size and composition;*
*4d. Sufficient calendar time and work hours are committed and available;*
*4e. Data are readily available to populate EVMS tools supporting decision-making; and*
*4f. The project utilizes an appropriate business cycle.*

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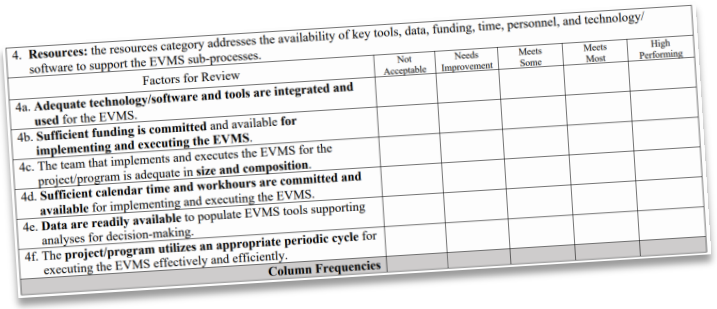

4. **Resources:** the resources category addresses the availability of key tools, data, funding, time, personnel, and technology/ software to support the EVMS sub-processes.

| Factors for Review | Not Acceptable | Needs Improvement | Meets Some | Meets Most | High Performing |
|---|---|---|---|---|---|
| 4a. **Adequate technology/software and tools are integrated and used** for the EVMS. | | | | | |
| 4b. **Sufficient funding is committed** and available **for implementing and executing the EVMS.** | | | | | |
| 4c. The team that implements and executes the EVMS for the project/program is adequate in **size and composition**. | | | | | |
| 4d. **Sufficient calendar time and workhours are committed and available** for implementing and executing the EVMS. | | | | | |
| 4e. **Data are readily available** to populate EVMS tools supporting analyses for decision-making. | | | | | |
| 4f. The **project/program utilizes an appropriate periodic cycle** for executing the EVMS effectively and efficiently. | | | | | |
| **Column Frequencies** | | | | | |

As the organization fulfills each of these resource factors, the more effective should be the EVMS, especially when joined with a supportive culture, skilled people, and documented practices. A closer examination shows a shared responsibility by both the contractor and government alike to ensure their effective implementation. Each of the factors is discussed below.

**4a. Adequate technology, software, and toolsets are integrated and used.** This factor is technology focused. Automated toolsets need to be available, accessible, current, and used appropriately as part of the EVMS. This requires the project to have invested appropriately in technology and infrastructure, including EVMS toolsets like P6, Cobra, MPM, and other possibly home-grown tools to aid in the implementation of the EVMS. Along with the investment, the necessary expertise (e.g., programmers, systems analysts) needs to be available to integrate the technology and processes and set up the interfaces between the various management systems.

The technology needs to be kept up to date and must be periodically assessed for adequacy. Bottom line, it should enable the project to completely integrate its EVMS subprocesses with other applicable digital infrastructure systems, creating a system of connected processes and tools that communicate with each other. Preferably, it should be automated - automated toolsets reduce errors that are often caused through manual entries. When properly integrated these management systems support the actual operation of work, making decisions and data-sharing more effective.

**4b. Sufficient funding is committed and available for implementing the EVMS.** While the first factor focuses on technology, this factor focuses on funding. Sufficient funding must be available (and appropriately allocated) to implement the EVMS from initiation through final project close-out. This is necessary for up-front organizational allocation; it also must provide supporting resources (e.g., internal and external surveillance, training, lessons learned, corrective action plans, and other needs). In addition, external resources (not specific to the project) can flexibly provide surge capacity for specialized knowledge on an as-needed basis; these should be known and available.

Pitfalls may include:

- Despite adequate overall project funding, insufficient EVMS funding throughout the project;
- Insufficient EVMS funding at initiation to meet the project baseline requirements; and
- Funding continuity concerns are often caused when funding is provided year to year.

**4c. The project team is adequate in size and composition.** In a word, this factor is about people. The team that implements the EVMS (both contractor and customer) must be of adequate size and composition to reflect the complexities of the project. A commitment to this ensures staffing qualifications (and, as a result, expertise), levels, and mix are adequate (and in place), making adjustments as necessary throughout the project lifecycle. In addition to the project team, the ability to obtain external support is important; this may include corporate EVMS subject matter expertise and oversight and consultants. When necessary to support surge needs (e.g., rolling wave planning), the project may need to reach out to qualified personnel for a limited duration.

**4d. Sufficient calendar time and work hours are committed and available.** While the previous factor addressed people, the focus here is on time - sufficient workdays and hours must be committed (and available) for those involved in implementing the EVMS. This means everyone, including the PM, CAMs, functional managers, and project controls personnel. Adequate time commitment requires that the magnitude of effort to perform the EVMS function is known, and resources to perform the effort are available when needed. The project organization must prioritize and commit resources to accomplish EVMS requirements, including sufficient notification to assign and make the resources available. Ultimately, the appropriate allocation of time and work hours enables adequate effort based on the size and complexity of the project.

**4e. Data are readily available to populate EVMS tools supporting decision-making.** With appropriate technology, funding, people, and time, the EVMS should provide readily accessible and reliable data to support analyses for decision-making at all levels. Technology and software solutions must support enhanced data access to EVMS data as a single source of truth; the information generated by the EVMS must be current, accurate, complete, repeatable, and auditable (i.e., compliant) to aid in managing the project.

*Continued on Page 4.*

The EVMS should enable data-driven decisions based on actual performance data, as opposed to intuition or a management directive that supports a narrative.

**4f. The project utilizes an appropriate business cycle.** The final Resources factor deals with the project/ program business cycle; it must be appropriate for the EVMS to operate effectively and efficiently. The cycle time includes the time spent collecting status, generating performance metrics and reports, developing forecasts, and controlling changes. While these are all necessary 'costs of doing business', the overall cycle time must be maintained at the appropriate level to ensure that the project has consistent and timely data and information readily accessible.

In summary, the implementation of an effective EVMS requires that there is an adequate quantity of qualified resources in place and that these are consistently used. According to the ASU study, this requires a joint commitment from both the contractor and the government throughout the project lifecycle. For more information on Resources factors and checkpoints please reference the ASU study results at IP2M METRR (ASU EVMS Study) | Department of Energy and the recently updated DOE PM Compliance Assessment Governance (CAG) 2.0 document.

## GAO Scheduling Best Practice #7: Ensuring Reasonable Total Float

*Mark Wiersma, Office of Project Analysis (PM-20)*

This is the seventh of ten articles in the ongoing series examining the Government Accountability Office (GAO) *Schedule Assessment Guide* (GAO 16-89G) and its ten best practices for developing and maintaining a high-quality and reliable schedule. Table 1 lists the ten best practices. In prior months, we addressed the first six best practices. This month, we focus on the seventh best practice, *Ensuring Reasonable Total Float*.

The Department of Energy (DOE) Order 413.3B, *Program and Project Management for the Acquisition of Capital Assets*, is the guiding document for project development and management within the Department. It provides two references for developing an integrated master schedule (IMS), the first being the National Defense Industrial Association's *Planning and Scheduling Excellence Guide* (PASEG). The second reference is the GAO 16-89G, *Schedule Assessment Guide*. GAO 16-89G lists four characteristics of a reliable schedule: comprehensive, well-constructed, credible, and controlled. Best Practice #7, *Ensuring Reasonable Total Float*, aligns with having a credible schedule that is well constructed with a total float that accurately reflects the schedule's flexibility.

**Introduction.** In general, schedule float should be as accurate as possible and should be evaluated relative to the project's finish date. Activities with the lowest total float values constitute the highest risk to completing the schedule or meeting interim milestones.

In simplest terms, if activities with no float are not finished on schedule, they will delay the project by the same length as their delayed finish. On the contrary, activities with unreasonable amount of float usually result from missing or incomplete logic. This article examines the approaches that a project team can employ for ensuring reasonable total float.

**Table 1. GAO Scheduling Best Practices**

| | |
|---|---|
| **Best Practice #1** | **Capturing all activities** |
| **Best Practice #2** | **Sequencing all activities** |
| **Best Practice #3** | **Assigning resources to all activities** |
| **Best Practice #4** | **Establishing the duration of all activities** |
| **Best Practice #5** | **Verifying that the schedule can be traced horizontally and vertically** |
| **Best Practice #6** | **Confirming that the critical path is valid** |
| **Best Practice #7** | **Ensuring reasonable total float** |
| **Best Practice #8** | **Conducting a schedule risk analysis** |
| **Best Practice #9** | **Updating the schedule using actual progress and logic** |
| **Best Practice #10** | **Maintaining a baseline schedule** |

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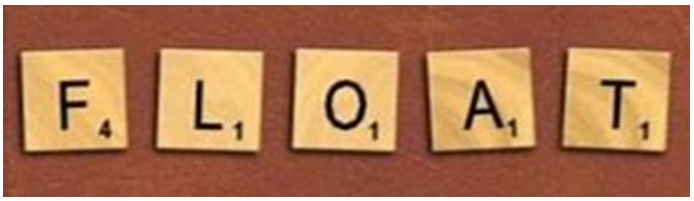


**Definitions.** There are two common types of float in a project schedule, total float, and free float. Total float is the amount of time an activity can be delayed before it affects the project's completion date. Total float can be positive, negative or zero. If positive, it indicates the amount of time an activity can be delayed without delaying the project's completion date. Negative float indicates the amount of time that must be recovered to avoid extending the completion date. This occurs when an activity's completion date is constrained (fixed) necessitating that the activity must finish before the date the activity would likely finish as calculated by the network logic. No or zero total float indicates that delay in completing the activity will delay the project's completion date by an equal amount, whereas free float is the amount of time an activity can be delayed without delaying the early start of any successor activity. Depending upon the schedule network, an activity with total float may or may not have free float.

Total float and free float are indicators of a project schedule's flexibility. Float indicates to the project team which activities can slip without affecting their immediate successors, and which activities can slip that may affect its successor but not the project's completion date. Knowing this allows the project team to reassign resources from activities that can slip to activities that cannot slip. Understanding the length of time an activity can be delayed is essential to successfully allocating resources and completing the project on time. It is important for the project team to know that float should not be treated as schedule contingency. Float is shared along a sequence of activities and is available for use by any activity along that sequence.

**Reasonableness.** One of the most common barriers to validating reasonable total float is the result of missing or incomplete logic. Unreasonable amounts of total float can make an activity appear as though it can slip when it cannot. Missing activities and convoluted logic often result in unreasonable amounts of total float. The logical sequencing of work is critical to identifying reasonable float and schedule flexibility since float is calculated from the activities early start and late completion dates. Therefore, any activities that appear to have surplus float should be examined for missing or incomplete logic.

In general, total float should be as accurate as possible and evaluated relative to the project's projected completion date. The remaining unfinished activities in the schedule should be sorted by total float and these values assessed for reasonableness. The project team should then determine whether any activity with relatively high float can slip that far without truly affecting the project's completion date. Total float values that appear to be excessive should be documented to show that the project team, having completed a reasonableness check, has agreed that the logic and float for that activity is consistent with the project's overall plan and milestones.

All activities with negative float should be questioned. Negative float results from constraining one or more activities or milestones. All constraints should be examined and justified. The project team should be aware of activities that are behind schedule and should develop a plan for recovering from the slip if the delay is significant.

**Float Management.** The logical sequence of activities in a project schedule determines the amount of available float, which in turn defines the criticality of an activity in meeting a key milestone, such as Critical Decision (CD)-4, *Approve Start of Operations or Project Completion,* date. Schedule logic, float, durations, and the critical path of activities are all interrelated. Therefore, the project team cannot monitor the critical path or health of a project without monitoring float. Inaccurate or unreasonable float can result in an invalid critical path and inaccurate assessment of the project's completion date. This, in turn, can lead to poor decisions that jeopardizes the success of the project.

To support the on-time completion of a project, it often becomes necessary for the project team to reallocate resources to activities on or near the critical path. It is therefore essential that the project management team understand the amount of time an activity can or cannot be delayed. Accurate float values are used to make these critical decisions. Since delaying an activity with available free float will not affect its successor activity or the project completion date, activities with free float are generally identified for resource reallocation first. Conversely, reallocating resources and delaying an activity with total float but no free float does not affect the project's completion date but does affect the start or finish of successor activities. This can disrupt resource availability for assignments along the entire path of successor activities.

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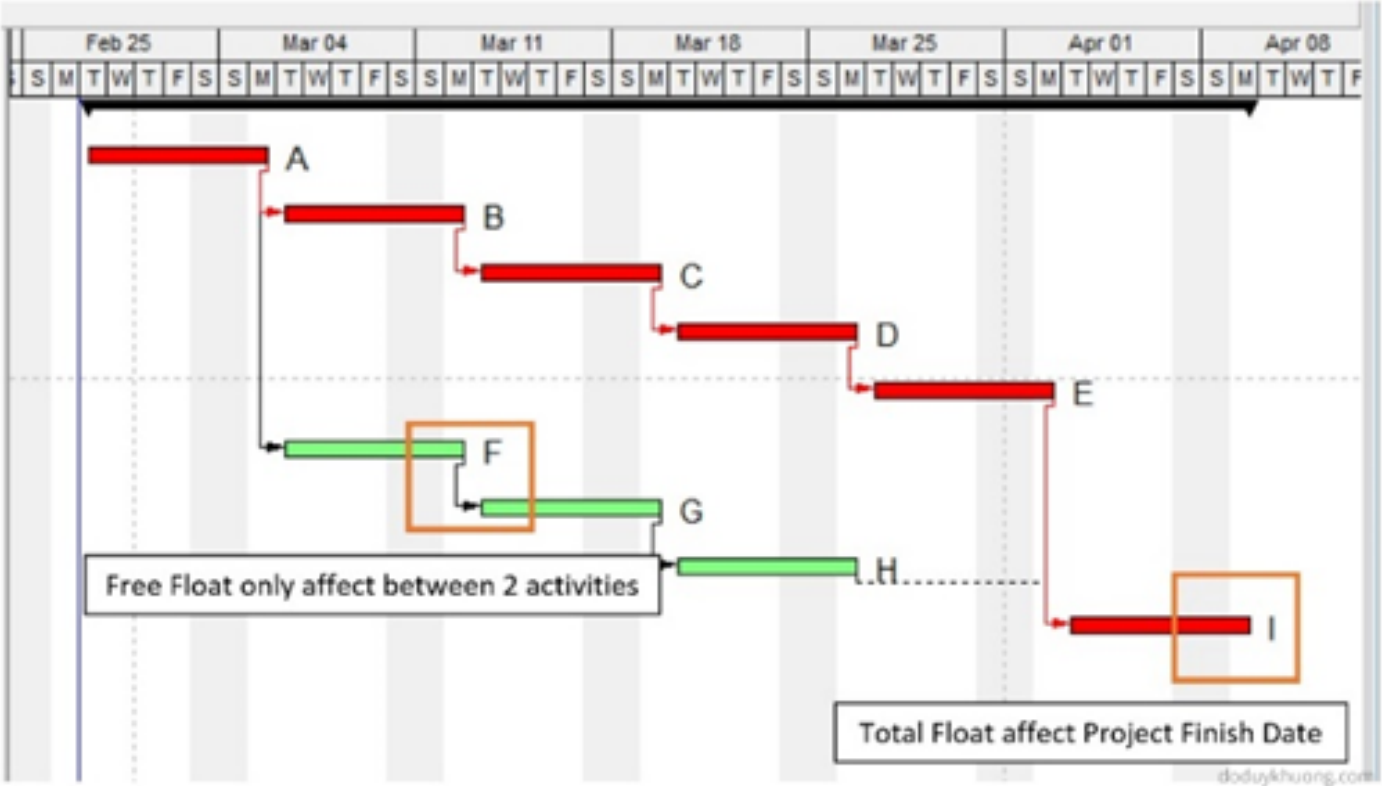
**Figure 1. Monitoring Float**

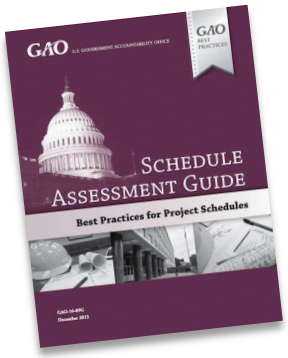


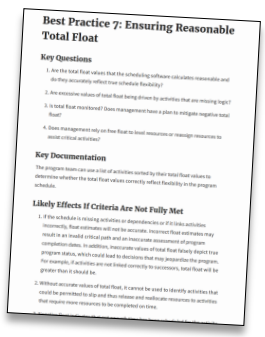

This makes free float important in leveling resources. In addition, allowing an activity to consume total float drains the schedule's flexibility and prevents successive activities from being able to slip. As a project becomes less flexible, the probability of negatively impacting near-critical path and critical path activities is increased, and hence possibly affecting the project's on time completion.

**Best Practice Checklist.** Below is the checklist developed by GAO for Best Practice #7, *Ensuring Reasonable Total Float*,

- The total float values calculated are reasonable and accurately reflect a schedule's flexibility.
- The project really has the amount of schedule flexibility indicated by the levels of float.
- Remaining activities in the schedule are sorted by total float and assessed for reasonableness. Any activities that appear to have a great deal of float are examined for missing or incomplete logic.
- Total float values that appear to be excessive are documented to show that the project team has performed an assessment and agreed that the logic and float are consistent with the plan.
- Total float is calculated to the main deliveries and milestones as well as to the project's completion.
- Total and free float inform management as to which activities can have resources reassigned in order to mitigate slips in other activities.
- Management balances the use of float with the fact that total float is shared along a path of activities.
- Periodic reports routinely show the amount of float consumed in a period and remaining on the critical and near-critical paths.
- Date constraints causing negative float have been justified. If delay is significant, plans to recover the implied schedule slip have been evaluated and implemented.

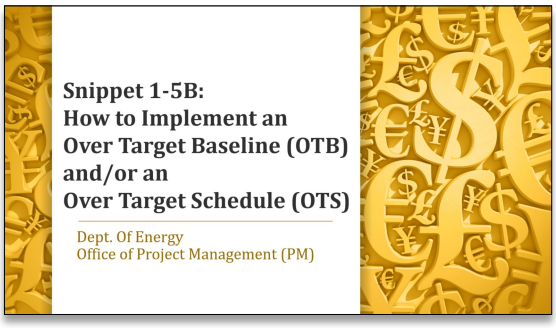
If you have any questions, please contact your assigned PM-20 project analyst or PM-30 project controls and earned value management specialist.



## EVMS Training Snippet of the Month

**EVMS Training Snippet 1-5B: How to Implement an Over Target Baseline (OTB) / Over Target Schedule (OTS)**




Click here to view EVMS Training Snippet 1-5B: How to Implement an Over Target Baseline (OTB) / Over Target Schedule (OTS) video.

Click here to view EVMS Training Snippet 1-5B: How to Implement an Over Target Baseline (OTB) / Over Target Schedule (OTS) PowerPoint Slide.

**Summary:** This Training Snippet, sponsored by the Department of Energy's Office of Project Management, discusses the process for implementation of an Over Target Baseline or OTB and or an Over Target Schedule or OTS. The purpose is to provide a common understanding within DOE and among DOE contractors, and to provide consistency when the baseline is no longer deemed executable. Snippet 1-5A provides information on why an OTB and or OTS may be implemented.

**Continuous Learning Points (CLPS):** Reviewing one hour of snippets will equate to one CLP. To receive credit, FPDs can submit a CLP request under the PMCDP menu in their 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 EVMS Training Snippets and PowerPoint slide downloads at the following links:

https://go.usa.gov/xubjT
OR
https://go.usa.gov/xubjm

## Congratulations To Our Newly Certified FPDs!


### Level I

**Deirdre Spaulding-Yeoman (NA)**

**Brian Stetter (EM)**

## PMCDP FY2023 Training Schedule

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 |
|---|---|---|---|---|
| LEED for New Construction/ Existing Buildings | 001936 | April 4-6, 2023 | 20 | 10:30am-4:30pm ET Webinar Daily |
| Scope Management Baseline Development | 001036 | April 18-21, 2023 | 24 | 10:30am-4:30pm ET Webinar Daily |
| Facilitating Conflict Resolution | 001558 | April 24-May 3, 2023 | 24 | 12-4pm ET Monday/Wednesday |
| Managing Contract Changes | 002102 | April 25-28, 2023 | 32 | 10:30am-4:30pm ET Webinar Daily |
| Quantitative Risk Analysis | 0062022 | May 8-11, 2023 | 24 | 10:30am-4:30pm ET Webinar Daily |
| Advanced Risk Management | 001042 | May 15-19, 2023 | 32 | 10:30am-4:30pm ET Webinar Daily |
| Program Management Portfolio Analysis | 001025 | May 22-26, 2023 | 40 | 10:30am-4:30pm ET Webinar Daily |
| Federal Budgeting Process in DOE | 001034 | May 22-25, 2023 | 32 | 10:30am-4:30pm ET Webinar Daily |
| Acquisition Management for Technical Personnel | 000145 | May 30-June 8, 2023 | 16 | 12-4pm ET Tuesday/Thursday |
| Cost and Schedule Estimation | 001044 | June 5-9, 2023 | 40 | 10:30am-4:30pm ET Webinar Daily |
| Project Management Systems and Practices | 001024 | June 12-16, 2023 | 60 | 10:30am-4:30pm ET Webinar Daily |
| Advanced Earned Value Management (EVMS) | 002689 | June 20-23, 2023 | 32 | 10:30am-4:30pm ET Webinar Daily |
| Systems Engineering | 001049 | June 27-30, 2023 | 24 | 10:30am-4:30pm ET Webinar Daily |

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**Click here!**

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All PMCDP Course Descriptions and Course Materials can be found in the Course Catalog on PM-MAX
Save the direct link to your favorites: **https://community.max.gov/x/UAT3Rw**

Or, download the Interactive Curriculum Map: **https://community.max.gov/x/sQd1Qw**

Have a question, found a bug or glitch in a PMCDP online course, or want to provide feedback? Submit your questions through: **PMCDPOnlineCourseSupport@hq.doe.gov**.

## 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/lQd1Qw.

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:

Linda Ott — Division Director for Professional Development, PMCDP Program Manager, FPD Certifications Manager, PM Newsletter Editor, Linda.Ott@hq.doe.gov, 240-474-7721

Sigmond Ceaser — PMCDP Certification and Equivalency Guidelines Lead, PMCDP Curriculum and Content Manager, PMCDP Delivery Platform Advisor, Sigmond.Ceaser@hq.doe.gov

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