



DOE PROJECT MANAGEMENT NEWS

Promoting Project Management Excellence

October 2024



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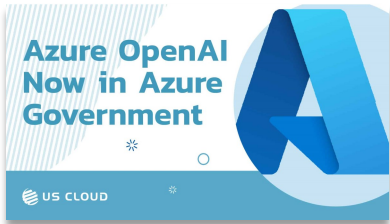
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DIRECTOR'S CORNER

Do you understand how to bin project costs? Understanding how to differentiate project costs is important. Our first article, *Other Direct Costs vs. Other Project Costs vs. Total Estimated Costs: Clarifying the Differences in DOE Projects* demystifies the differences. This article will guide you through the key distinctions that underpin our budgeting and performance measurement processes. It will help highlight proper financial management of capital asset projects. See the article on 2.

Our second article, *AI and its Use on the IP2M METRR Environment Assessment*, explores the transformative role of Artificial Intelligence in our Integrated Project/Program Management Maturity and Environment Total Risk Rating environment assessment.



With the establishment of an AI Governance Board and secure integration with Azure Government OpenAI, PM is leveraging AI to streamline complex analyses and enhance project oversight. Discover how AI tools like PARSGPT and advanced techniques such as sentiment and gap analysis are revolutionizing our approach to project management in the article on 4.

Finally, don't forget to check out the Snippet of the Month. This month's snippet introduces the *Capital Asset Project Management Lessons Learned (PMLL) Program*, and the framework in which it operates. Additional information and the link to the snippet can be found on page 6.

Keep Charging!

Paul Bosco

OTHER DIRECT COSTS VS. OTHER PROJECT COSTS VS. TOTAL ESTIMATED COSTS: CLARIFYING THE DIFFERENCES IN DOE PROJECTS

Perry Barker, Office of Project Analysis (PM-20) and Kevin Carney, Office of Project Controls and Policy (PM-30)

Other direct costs (ODCs), other project costs (OPCs), total Estimated costs (TEC), total project cost (TPC)... as a Department of Energy (DOE) project management professional, do you ever feel like establishing budgets for Congressional requests and determining internal DOE management needs requires a translator or a decoder ring to understand the different terminology? Like many of our routine tasks, we sometimes feel bombarded with acronyms that seem to complicate our daily activities. This article will try to help you understand a distinction in some important terms that are used in DOE's project management and guide you in the execution of our critical projects.

DOE Order 413.3B, *Program and Project Management for the Acquisition of Capital Assets*, defines varying project funding types and cost categories used in designing, constructing, and commissioning a DOE capital asset facility across the five critical decisions (CDs). Successful projects experience a variety of project costs to go from CD-0, *Approve Mission Need*, to CD-4, *Approve Start of Operations or Project Completion*. Understanding the types of costs associated with these projects and their intended use is key in capital asset construction. Two of the cost categories, OPCs and ODCs, are key elements in successful project funding and execution.

Let's start with a fundamental equation used to support budgeting requests:

$$\text{TPC} = \text{TEC} + \text{OPC}$$

Each DOE capital asset project has a TPC. In the early stages of a project (at CD-0 and CD-1, *Approve Alternative Selection and Cost Range*), budget requests are based on the high-end of the project cost estimate range (PCER). As project scope, schedule, and risk are developed across these initial CD phases, the project's official TPC is established as a point estimate at CD-2, *Approve Performance Baseline*. For Congressional budget requests, elements of the PCER or TPC are broken down into two elements: TEC and OPC.

Another fundamental project management equation is used to differentiate between which entity (the government or the contractor) controls key budget/cost elements (many of which are used for performance measurement):

$$\text{TPC} = \text{PMB} + \text{MR} + \text{Fee} + \text{ODC} + \text{Contingency}$$

Contractor-owned Government-owned

Critical elements of a project owned by the contractor include the performance measurement baseline (PMB) and management reserve (MR), both of which the contractor uses to execute the currently authorized work scope. Critical elements owned by the government include contingency, ODCs and fee; these costs enable the execution of the project scope.

While these equations summarize the project's total cost, they serve very different purposes; they use different definitions to categorize the different project costs that enable DOE to ensure that project funding is available, and project performance can be properly measured. Let's look at both in more detail.

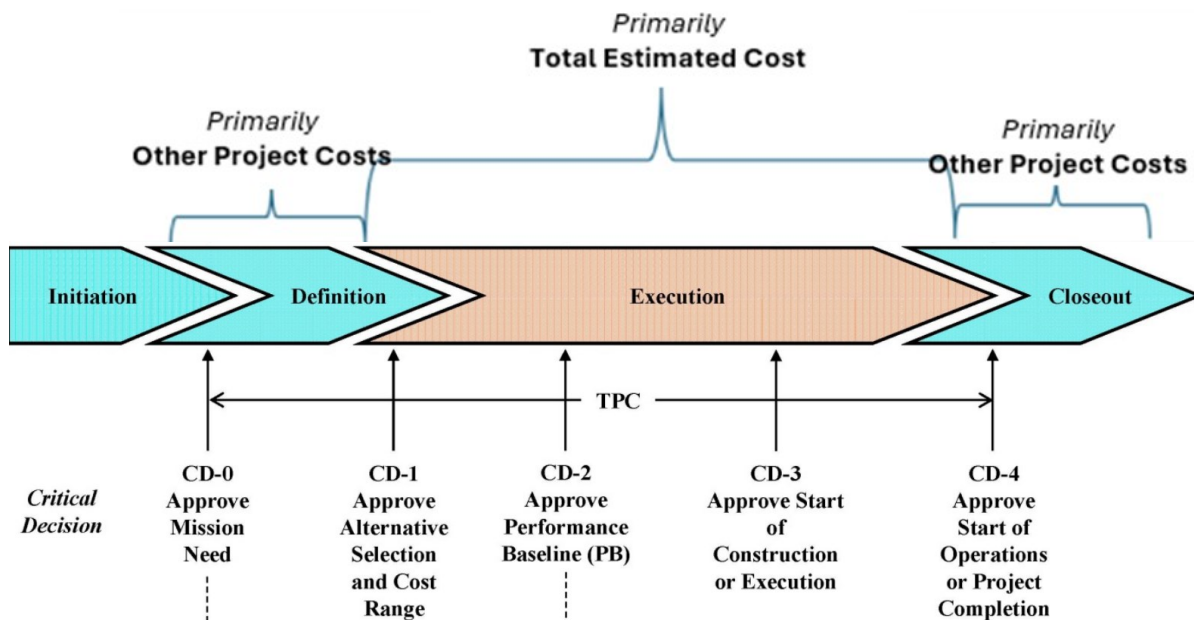
Total estimated cost and other project costs function to support funding requests

All DOE project funding requests must detail the TEC and OPCs, summarized in their project data sheets (PDS), to provide Congress with critical funding information. Section 3 of the PDS provides both the funding history and projected future funding requirements and costs. The category breakouts of TEC, which are generally those funds required for design and construction requirements, and OPCs, which are generally related to work such as conceptual planning, conceptual design, and commissioning, provide Congress with the detailed information of the project's funding requirements for its scope and schedule.

TEC includes all costs related to engineering design (post conceptual phase), facility construction, and related efforts. It encompasses project and construction management, contingency, economic escalation, and contractor support directly tied to design and construction. TEC is broken into engineering design and inspection, project management, construction management, and construction contracts and generally occur from CD-1 to CD-4 (see Figure 1). These activities include identification of long-lead procurement, schedule development, cost estimating, construction reviews, bid package preparation, engineering support, procurement coordination, construction coordination, and planning.

Continued on Page 3.

Figure 1. Typical DOE Acquisition Management System



OPCs are defined as all other costs related to a project that are not included in the TEC. OPCs provide funding for activities across the five CD phases, yet predominately fund “book end” activities associated with CD-0 and CD-4. At CD-0, these include site selection and engineering studies, conceptual design, cultural resource reviews, National Environmental Policy Act (NEPA) compliance, Environment, Safety & Health (ES&H) assessments, and project management plan (PMP) development. At CD-3, *Approve Start of Construction or Execution*, activities, while more limited, include spare parts inventory, certain decontamination and limited project support. At CD-4, OPC activities include systems acceptance testing, operator training, and safety and system integration. While pre-CD-0 costs are not typically included in the TPC they would be considered OPC. Chapter 6 of [DOE Guide 430.1-1, Cost Estimating](#), provides relevant information regarding activity costs that typically comprise both TEC and OPCs. Table 6-1 provides TPC and TEC guidance and clarification about inclusion of detailed activities in the TPC and/or the TEC.

In summary, OPCs cover a broader range of expenses related to the management and execution of a project. These may not always be directly traceable to specific project tasks and include both direct and indirect costs that support the project.

ACTIVITY	TPC				TEC	
	OPC	TEC	CM	CC	TEC	CC
A. PRE-CD-0 ACTIVITIES (Pre-CD-0 = Pre-CD-0 Activities)						
1. Environmental Data						
2. Alternative Assessment/Selection Studies						
3. Environmental Data						
4. Environmental Data						
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Additional OPC Examples

- **Administrative salaries:** Salaries for administrative staff who support, but do not work directly on, the project.
- **Office supplies:** General supplies used across multiple projects or departments.
- **Utility costs:** Portions of utility expenses (like electricity and water) allocated based on project usage.
- **Indirect costs:** Costs such as rent and facility maintenance not directly attributed to specific project activities.

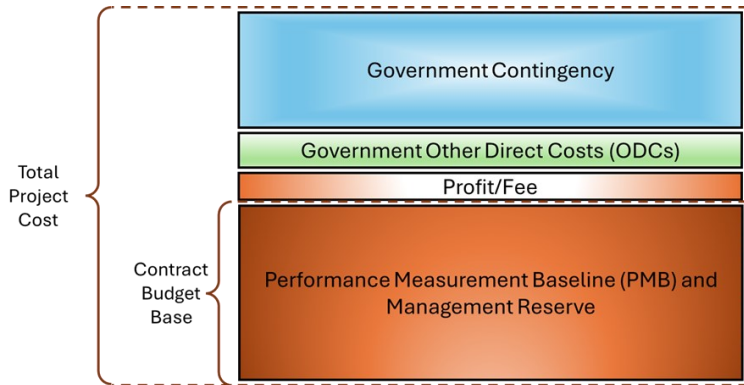
Other direct costs support the development of the project's performance baseline

Establishing a performance baseline (PB) is a central feature of the Department of Energy's project management system with the objective to deliver projects at the original PB on schedule and within budget. TPC and the CD-4 date are two key features in the development of the PB for a project. Figure 2 illustrates the component pieces of a project's TPC. The contractor has responsibility for the PMB and MR, and the government manages contingency, ODCs and profit/fee.

So, what makes up ODCs? ODCs are important for a project since these funds cover critical expenses such as project related travel (airfare, lodging and per diem), reviews such as annual project reviews (APR), and other external project reviews.

Continued on Page 4.

Figure 2. Performance Baseline Components for Capital Asset Projects



ODCs are expenses that can be directly attributed to a specific project but do not fall under the usual categories of direct labor, materials, or equipment. These costs are incurred solely for the project and can be traced back to it without needing allocation from general expenses.

Additional Examples

- **Travel expenses:** Costs for project-related travel, including airfare, lodging, and per diem for staff traveling to project sites.
- **Consultant fees:** Payments to experts or consultants who provide services that directly support the project.

- **Subcontractor support:** Costs for subcontractors whose work benefits the project directly. An example of this would be federal support contractors that support Federal Project Offices.
- **Specialized supplies:** Items to include government furnished equipment (GFE) needed specifically for the project but not part of regular inventory.

Conclusion

For DOE-funded projects, a clear understanding of DOE's budget process will benefit all project management professionals as you develop and submit your project's funding requirements. This includes the proper development/categorization of the project's costs to support your project getting the funds it needs for a successful project outcome and completion. Likewise, the proper development of the project's performance baseline will support proper performance measurement and promote project execution success. A clear understanding of key DOE terms, including other direct costs and other project costs is crucial for accurate budgeting, financial reporting, regulatory compliance, and performance measurement. If you have any questions about the DOE budget process, or project measurement, please contact your respective PM project analyst.

AI AND ITS USE ON THE IP2M METRR ENVIRONMENT ASSESSMENT

Amber Young, Office of Project Controls and Policy (PM-30)

Artificial intelligence (AI) is changing the way we work. The Office of Project Management (PM) has embraced this change and is learning to harness the growing power of AI by standing up an AI Governance Board to review the impact, safety, and viability of AI projects and aligning our AI projects with the current guidance from within the Department of Energy (DOE) and from the Office of Management and Budget (OMB).

PM uses AI within our work by establishing a secure and contained connection with an AI application programming interface (API). All data passed to AI is stored within PARS. PARS data is maintained on Azure FedRAMP Government Cloud Computing – high (GCCH) servers and access is limited to appropriate personnel involved in project oversight and earned value data processing.

The system operates under a DOE authorization to operate (ATO) as a moderate system. Currently, PM accesses [Azure Government OpenAI](#) via API call from applications within the Azure GCCH instance, allowing secure AI interactions appropriate to government contexts. As this technology continues to rapidly develop, PM and our AI Governance Board will continue to assess options to use the most advanced AI models securely available.

The Integrated Project/Program Management (IP2M) Maturity and Environment Total Risk Rating (METRR) environment assessment comments are fertile ground for use of a large language model (LLM) AI, significantly reducing analysis from weeks to mere hours. The use of AI in PM is continuously evolving, fueled by creativity and interest.

Continued on Page 5.

The interaction with LLM AI resembles a conversation where tasks are requested and responses are received, followed by iterative refinement of questions to achieve the desired collaborative result. This iterative process is central to effective prompt design. The Project Assessment and Reporting System (PARS) Generative Pre-trained Transformer (GPT) User Guide outlines these prompt guidelines:

GenAI Dos:

1. Be specific in prompts
2. Experiment with prompts
3. Be polite
4. Use AI for idea generation

GenAI Don'ts:

1. Avoid negative prompting
2. Don't trust the models blindly
3. Avoid using mathematical problems
4. Don't expect the model to understand internal processes or tools

Advanced Techniques:

1. Prompt switching
2. Context trimming and starting new chats
3. Self-consistency

Sources

- [Everything I'll forget about prompting LLMs - Hrish Olickel](#)
- [Freakonomics Episode 556: A.I. Is Changing Everything. Does That Include You?](#)

Four AI Use Cases: Walt and IP2M METRR Environment Assessment

Use Case 1: PARSGPT, Walt

One of our AI projects is a friendly user interface to the Azure OpenAI API called PARSGPT, currently available only to the PM team. PARSGPT has an AI Assistant who the PARS team created and tailored for PM. In the creation and development process, our developers asked this AI Assistant to give itself a name and an image. The AI Assistant named itself WBS Walt and chose its image displayed above. His image (green in the general shape of an atom) reflects his association with energy and science. Our team uses Walt to brainstorm ideas, perform simple AI analysis, and test prompts to be used on programmatic AI runs. Walt is bounded within PARS and all data used with Walt is secure.



For complex AI initiatives, the PM PARS team utilizes the Azure OpenAI API through code, usually R or python.

The process involves defining the AI project and crafting a detailed prompt with three key components: instructions (a detailed task description with background, tone, and references), input (data for processing, like environment comments for IP2M METRR analysis), and the desired output format (e.g., ordered paragraphs or a structured table). Typically, the instructions are a paragraph or two written in a conversational tone detailing the AI task. For IP2M METRR AI analysis, the input is often the environment comments.

Use Case 2: Sentiment Analysis

Sentiment analysis evaluates environment comments as positive, negative, or neutral. A prompt outlines the category definitions. Comments are processed through the LLM API to determine their sentiment, with results recorded in a table. Further analysis includes sentence-level sentiment and theme extraction for commonality across comments.

Use Case 3: Gap Analysis

Gap analysis of environment comments begins with a non-AI, quantitative analysis of the ratings to identify gaps between groups. Once the groups with gaps are identified, the data is formatted for these groupings and passed to the AI for gap analysis. Two additional AI runs are conducted on the gap analysis results: citation of substantiating quotes as well as sanitization of these quotes to protect anonymity.

One example of quantitative data used to identify gaps is Figure 1 below, a population density chart for the environment score for factor 3a on a project consisting of nine groups.

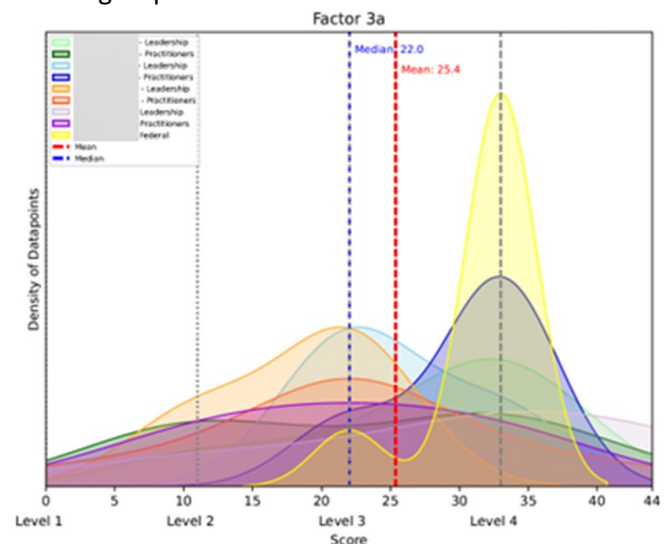


Figure 1. Example of Population Density Chart Used to Identify Groups with Significant Gaps

Continued on Page 6.

Use Case 4: SWOT Analysis

SWOT analysis is the most extensively used form of environment AI analysis by PM. AI can easily conduct SWOT due to abundant online resources and examples. SWOTs are typically generated for the top ten factors, each category, and overall. Following the environment assessment, in-person facilitated discussions are recommended to delve into the AI-generated SWOT results, with a facilitator guiding the project team through the findings. Engagement levels in these discussions are high among project teams.

Lessons Learned

Prompting LLM AI:

- Ensure the AI explains its reasoning to reduce hallucinations, improve consistency, and reduce errors.
- For repetitive outputs, like tables, have the AI justify its decisions for transparency.

LLM AI Programming:

- Use tables to organize data for easier analysis and comparison.
- Save API outputs incrementally to aid in troubleshooting and prevent data loss.
- LLM AI is adept at writing code due to its proficiency with structured, logical languages.
- Consider the context window size; earlier models had smaller windows which limited AI, but newer versions offer larger windows, reducing this constraint for many applications.

General Guidance:

- Must have a human in the loop to review AI outputs and guard against inaccuracies.
- Must have a disclaimer indicating AI's role in content creation.
- The IP2M METRR environment assessment provides a new, common lexicon and methodology to mature conversations around environment and the soft skills that drive project success.

Embrace the inevitability of change through AI; it is a turbo pack we can all put on to boost our performance. I encourage each of you to harness the power of AI and play.

Please note: This article was written in collaboration with a generative artificial intelligence (AI) tool but was reviewed and edited by humans.

PROJECT MANAGEMENT LESSONS LEARNED (PMLL) TRAINING OF THE MONTH

PMML Training Snippet 1: Introduction to Capital Asset Project Management Lessons Learned

The Department of Energy (DOE) utilizes project management lessons learned in the execution of DOE capital asset projects to improve current and future projects. Lessons learned can be a good work practice or innovative approach that is captured and shared to promote repeat application, or an adverse work practice or experience that is captured and shared to prevent recurrence. Project management lessons learned are collected and shared in the Office of Environment, Health, Safety and Security lessons learned database (DOE OPEXShare).

Click here to view Project Management Lessons Learned Training Snippet - [Introduction to Capital Asset Project Management Lessons Learned](#).

Summary: This snippet provides an introduction to the Capital Asset Project Management Lessons Learned Program and the framework in which it operates.

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 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 lessons learned training at the following link:

<https://community.connect.gov/display/DOEExternal/PM+Lessons+Learned>





PMCDP FY2025 TRAINING SCHEDULE

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

Course Title	LN Code	Dates	CLPs	Details
Negotiation Strategies and Techniques	001047	October 15-17, 2024	24	10:30am-4:30pm ET Webinar Daily
Project Management Systems and Practices	001024	October 21-25, 2024	40	10:30am-4:30pm ET Webinar Daily
Cost and Schedule Estimation and Analysis	001044	October 28-November 1, 2024	40	10:30am-4:30pm ET Webinar Daily

CONGRATULATIONS TO OUR NEWLY CERTIFIED FPDs!

Level I

Charles Demers (NA)

Latesha Hill (NA)

Wade Lai (EM)



Level II

Jamel Gray (NA)

Michael Vestal (EM)

Mark your calendar!

2025 DOE Project Management Workshop

Washington DC

April 22-23, 2025*

** Plus: Optional Project Controls Session April 24, 2024*

*A limited block of rooms (Book Early!) for the PM Workshop has been reserved at the venue:
Hilton Washington DC National Mall the Wharf, 480 L'Enfant Plaza SW, Washington DC.*

Ctrl+Click to follow the hotel link :

[2025 DOE Project Management Workshop - Booking Link Room Reservation](#)

If you would like to contribute an article to the Newsletter or want to provide feedback,
please contact the Editor at [DL-PM-40](#).



FIND UP-TO-DATE INFORMATION AND RESOURCES ANYTIME!

All PMCDP Course Descriptions and Course Materials can be found in the Course Catalog on



Save the direct link to your favorites: <https://community.connect.gov/x/UAT3Rw>



Or, download the Interactive Curriculum Map: <https://community.connect.gov/x/sQd1Qw>

Have a question, 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, *Program and Project Management for the Acquisition of Capital Assets*. Please report errors, omissions, ambiguities, and contradictions to: PMpolicy@hq.doe.gov.

If you have technical questions about Project Assessment and Reporting System (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-Connect at the following link: <https://community.connect.gov/x/m4IIY>

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

Can't put your finger on a document or information you were told is available on PM-Connect? 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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