



DOE PROJECT MANAGEMENT NEWS

Promoting Project Management Excellence

FEBRUARY 2022



IN THIS ISSUE:

- Director's Corner.....1
- What Happens When Your Post CD-2 Project Won't Meet its Baseline?.....2
- Performance Project Performance Assessment: EVM Tools for the FPD.....3
- The EAC Relation to OTB and OTS..5
- PM Workshop Updated Date.....7
- FY22 Q2/Q3 Training Schedule.....8
- Earn CLPs with Your Feedback.....8
- Contact Us.....9



Director's Corner

When a deviation occurs, the Project Management Executive (PME) must make a specific determination whether to terminate the project or establish a new PB by requesting the FPD submit a baseline change proposal (BCP). You can learn about the BCP process on page 2.

The Project Assessment and Reporting System (PARS), the Department's central repository for key Departmental-level project information, provides the FPD and HQ Program Manager a wide range of tools to analyze current, cumulative to date, and at-completion schedule and cost data to help determine whether corrective actions are warranted. For example, the PARS dashboard has indicators of baseline volatility, management reserve (MR) usage, and efficiency of schedule accomplished as measured by the baseline execution index (BEI). Additional tools aid with variance and predictive analysis and earned value metrics analysis. More information on the project performance assessment tools in PARS can be found on page 3.

Finally, due to the ongoing COVID situation, the annual Project Management Workshop is once again being postponed. This was not an easy decision to make. It was made in the best interest of protecting our DOE PM community. We hope to see you in Spring 2023; hopefully, by then, with all COVID protocols lifted.

Stay safe, and keep charging!

Paul Bosco

Federal Project Directors (FPDs) use a variety of monitoring and controlling processes to translate project performance data from information into knowledge. A key component of monitoring and controlling is trending the estimate at completion (EAC) and developing various cost and schedule EACs based on different performance and risk assumptions going forward. Is the EAC at or below the budget at completion (BAC)? How is schedule performance versus the planned completion date? Is it time for a replan? Have corrective actions had the desired results? Is an over target baseline (OTB) and/or an over target schedule (OTS) in your future? You can gain more insight into the relationship between the EAC and OTB/OTS in the article on page 5.

As the ancient Greek philosopher Heraclitus of Ephesus reportedly said, *Panta Rhei* ("life is flux"). Heraclitus could have been a project manager! Whether you are in the planning, design or execution phase of a project, things change. A performance baseline (PB) deviation occurs when the approved total project cost (TPC), critical decision (CD)-4 completion date, or performance and scope parameters cannot be met. DOE O 413.3B requires the FPD to promptly notify management whenever project performance indicates the likelihood of a PB deviation.

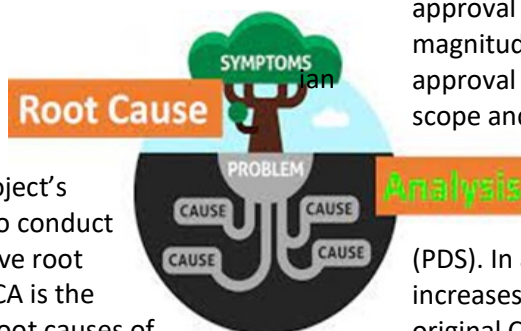
What Happens When Your Post CD-2 Project Won't Meet its Performance Baseline?

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

If you are a Federal Project Director (FPD) or a member of an integrated project team (IPT), you need to know what to do if your project is unlikely to meet its performance baseline (PB). This occurs when the approved total project cost (TPC), at critical decision (CD) -4, *Approve Start of Operations / Project Completion*, date, or scope or key performance parameters (KPP) approved by the Project Management Executive (PME) when the project was baselined at CD-2, *Approve Performance Baseline*, cannot be met. Scope changes include any disaggregation of scope, or efforts to establish smaller projects. The requirements on what to do are specified in DOE Order 413.3B, Change 6, *Program and Project Management for the Acquisition of Capital Assets*. The Order requires that the FPD promptly notify management, including the PME, by means of a formal PB deviation memorandum. It is important that FPDs do not procrastinate in sending this notification. As the saying goes, *bad news doesn't get better with age*. When a PB deviation occurs, the approving authority (the PME for projects with a TPC <\$750M and the Chief Executive for Project Management (CE) for projects ≥\$750M) must decide to either terminate the project or establish a new PB and direct the FPD to submit a baseline change proposal (BCP).

In addition to notifying management, all PB deviations must be reported to the CE and the Office of Project Management (PM). PM must validate the deviation for all projects with a TPC greater than or equal to \$100M. The Project Management Support Office (PMSO) must validate deviations for projects between \$50M and \$100M.

When the IPT, PMSO, or independent oversight office determines that a PB will be breached, the project's program office is required to conduct an independent and objective root cause analysis (RCA). The RCA is the process of discovering the root causes of problems to identify appropriate solutions. Completing an RCA should determine the underlying causal factors for the project not meeting its approved PB cost, schedule, or scope/KPP. The PME will be provided the results of the RCA and identified corrective actions. The PME will use the results of the RCA to determine whether to terminate the project or implement corrective actions and establish a new PB.



DOE projects funded under U.S. Code Title 50 – *War and National Defense*, that experience cost overruns that exceed 125% of the baseline cost established at CD-2 will require an RCA under [50 U.S.C. 2753 – Notification of Cost Overruns for Certain Department of Energy Projects](#). The RCA must be submitted to the Congressional defense committees along with revised cost and schedule baselines and other notifications. FPDs should discuss this requirement with their PMSO.

The value that an RCA provides is recognized by the Government Accountability Office (GAO). One DOE project recently went through a PB deviation and GAO thoroughly reviewed the results of the completed RCA report. Based on the review comments made by GAO, DOE is looking into DOE's RCA requirements and procedures, so expect new requirements (i.e., DOE O 413.3B policy memo) and guidance (i.e., update to DOE G 413.3-20, *Change Control Management Guide*) on PB deviation RCAs and corrective actions in the near future.

To revise a PB, a BCP request must be submitted for approval. A BCP is the formal request to change the project's approved PB. A change to the PB will require approval by the PME or the CE depending on the magnitude of the deviation or the TPC of the project. CE approval is required when any changes in the project's scope and/or performance affects the ability to satisfy the mission need or are not in conformance with the current project executive plan (PEP) or project data sheet (PDS). In addition, CE approval is required when the BCP increases the TPC by more than \$100M or 50% of the original CD-2 cost baseline. These approval authorities may not be delegated below the Program Secretarial Officer (PSO) level. In circumstances where a PB change is beneficial to the project, such as a lower TPC, earlier completion date, or significant scope enhancements, a validation of the PB deviation or approval by the PSO/PME is not required; however, a BCP must still be processed and approved by the PME/CE as applicable.

Continued on Page 3.

Before BCPs can be approved, the revised PB must be validated by an independent assessment. For projects between \$50M and \$100M, the PMSO will validate the revised PB by conducting an independent project review (IPR). For projects greater than or equal to \$100M, PM will conduct an external independent review (EIR) in conjunction with an independent cost estimate or review (ICE or ICR) and issue a PB validation memorandum to the PME that describes the revised cost, schedule, and scope for the project. Upon completion of the independent assessment, the Project Management Risk Committee (PMRC) will review and analyze the BCP request and independent assessment before providing its recommendation to the PME or CE, as appropriate. BCPs requiring CE approval will go to the ESAAB for review which will provide the final recommendation to the CE.



It is important that the documents signed by the CE or PME approving the BCP clearly specifies the project's revised PB which includes the TPC, CD-4 date (including month and year), scope (including minimum KPPs), and funding profile that supports the planned work to complete the project.

The new PB should also be clearly documented in the updated PEP and the Project Assessment and Reporting System (PARS).

If the project is terminated (cancelled), a formal notification must be issued to the PSO and the Office of Chief Financial Officer (CFO) via PM. The notification shall include the reasons for the cancellation, how the mission need will be impacted, and disclosure of all funds expended to date including the cost associated with the cancellation. The CE must also be similarly notified.

One last thing to keep in mind, it is important to understand that approval of a BCP by the PME or CE does not constitute approval of the contract change or modification. This can only be authorized by the project's contracting officer (CO). It is critical that all contract changes are identified, issued, and administered through the CO.

The PM-20 project analyst assigned to the project is a great resource, so if you have any questions, do not hesitate to contact them to get more detail and sound advice.

Project Performance Assessment: EVM Tools for the FPD

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

To ensure project success, the Federal Project Director (FPD) must practice continuous project performance assessment using earned value management systems (EVMS) data. The contractor's compliant EVMS provides the FPD and the federal integrated project team (IPT) the information needed to assess project performance, identify areas of concern, and take the appropriate corrective actions to achieve project success.

A core principle of integrated project management (IPM) using EVMS is to *Manage Risks, Make Decisions, Solve Problems, and Create Opportunities by Taking Action*. This involves risk management, data analysis, data validity, variance analysis, and predictive analysis in order to provide for continuous risk identification, assessment, planning, monitoring, and response. It is proactive in nature rather than reactive and implies control of possible future events. Project risks and opportunities and mitigation strategies are recorded and updated in a risk register during the development and update of the performance measurement baseline (PMB) which is based on risk-informed projections.

A critical first step in the analysis process is assessing the accuracy of EVMS performance data and information. Data integrity issues will undoubtedly weaken the value of using EVMS performance data for analysis and decision making. When validity concerns are identified and persist, notify DOE's EVMS certifying authority, PM, to assist with addressing the concerns.



The analysis of current, cumulative to date, and at-completion schedule and cost variances helps determine whether corrective actions are warranted. The Project Assessment and Reporting System (PARS) dashboard has indicators of baseline volatility, MR usage, and efficiency of schedule accomplished as measured by the baseline execution index (BEI). Baseline volatility may be an early indicator of issues with the project's time-phasing and budget control. Substantial and frequent changes in the baseline time-phasing may indicate an inadequate contractor plan or one that is being modified to match the cumulative actual cost or performance. These practices can disassociate work from its time-phased budget.

Continued on Page 4.

A key in performance analysis is authenticating the contractor's budget at completion (BAC), estimate at completion (EAC), and variance at completion (VAC); total funds and expenditures values; and the project's estimated completion date. Comprehensive performance analysis includes a data validity assessment, variance analysis, trend analysis, and future performance prediction (predictive analysis).

Variance analysis is the point where all the effort put into developing an approved baseline plan and determining the status against that plan serves its purpose. The project work breakdown structure (WBS) should be examined to identify performance variances at more than just the control account (CA) levels. By conducting analyses at the lower work package level, an issue can be identified early and mitigating corrective action taken.

If a variance, whether positive or negative, exceeds the reporting threshold, an analysis report should be written explaining the variance's nature and cause, its forecast impact, and any corrective actions to be taken. Do not assume that positive variances are good since an initial positive cost variance resulting from unavailable resources to accomplish level of effort (LOE) type work may lead to a future schedule impact, elimination of the positive cost variance, and a subsequent negative cost variance.

Predictive indicators can be developed by coupling different metrics, e.g. comparing CPI and the to-complete performance index (TCPI). Applying Monte Carlo simulations to the project schedule, also known as schedule risk assessment, can produce distributions of possible outcome values to determine confidence levels and provide sensitivity analysis. Predictive analysis involves more than the standard monthly review of cumulative EVMS data and metrics. Some EVMS measures such as the cost performance index (CPI), the schedule performance index (SPI), and baseline execution index (BEI) provide a good measure of historical efficiency, but they are not themselves predictive.

Earned value metrics analysis allows insight into the physical completion of work, and, when done in conjunction with a schedule analysis, it adds the perspective of schedule float and critical and near-critical path identification. By itself, the schedule variance (SV) metric does not reveal critical path information, so analyze it in conjunction with network-based schedule information. Combine and analyze project schedule total float (TF) values and SPI values for a comprehensive performance view of project status from an integrated schedule and cost perspective. Table 1 shows the impact of these relationships on the critical path and project performance.

Table 1. SPI and TF Relationship

SPI	TF	Scenario
> 1	> 0	Ahead of schedule
< 1	> 0	Critical activities ahead of schedule, but project progress is falling behind (this is a priority issue)
> 1	< 0	Critical activities behind schedule, but project progress is on track (this is a priority issue)
< 1	< 0	Behind schedule

Table 2. CPI and VAC Relationship

CPI	VAC	Scenario
> 1	> 0	Cost underrun
> 1	< 0	The current cost underrun does not reflect future work inefficiencies
< 1	> 0	The current cost overrun does not reflect future cost work efficiencies
< 1	< 0	Cost overrun

There are three types of cost variance (CV) that provide performance insights from different time perspectives: current period, cumulative, and VAC. The current period CV describes the variance during a single timeframe without consideration of previous or future variances. The cumulative CV describes the project's cumulative variance to date. The VAC specifically looks at the cumulative CV at the end of the project by comparing the BAC and the actual or estimate cost at completion (EAC). Variance appraisal should be based on the causes of the variance rather than whether it appears favorable or unfavorable. Table 2 shows the relationship between CPI and VAC.

For additional EVMS resources, including the DOE EVMS Gold Card with formulas and definitions, visit PM's EVMS Implementation Guidance webpage at: <https://www.energy.gov/projectmanagement/evms-implementation-guidance>

The EAC Relation to OTB and OTS

Brian Kong, Bob Loop, and Victoria Premaza,
Office of Project Controls (PM-30)

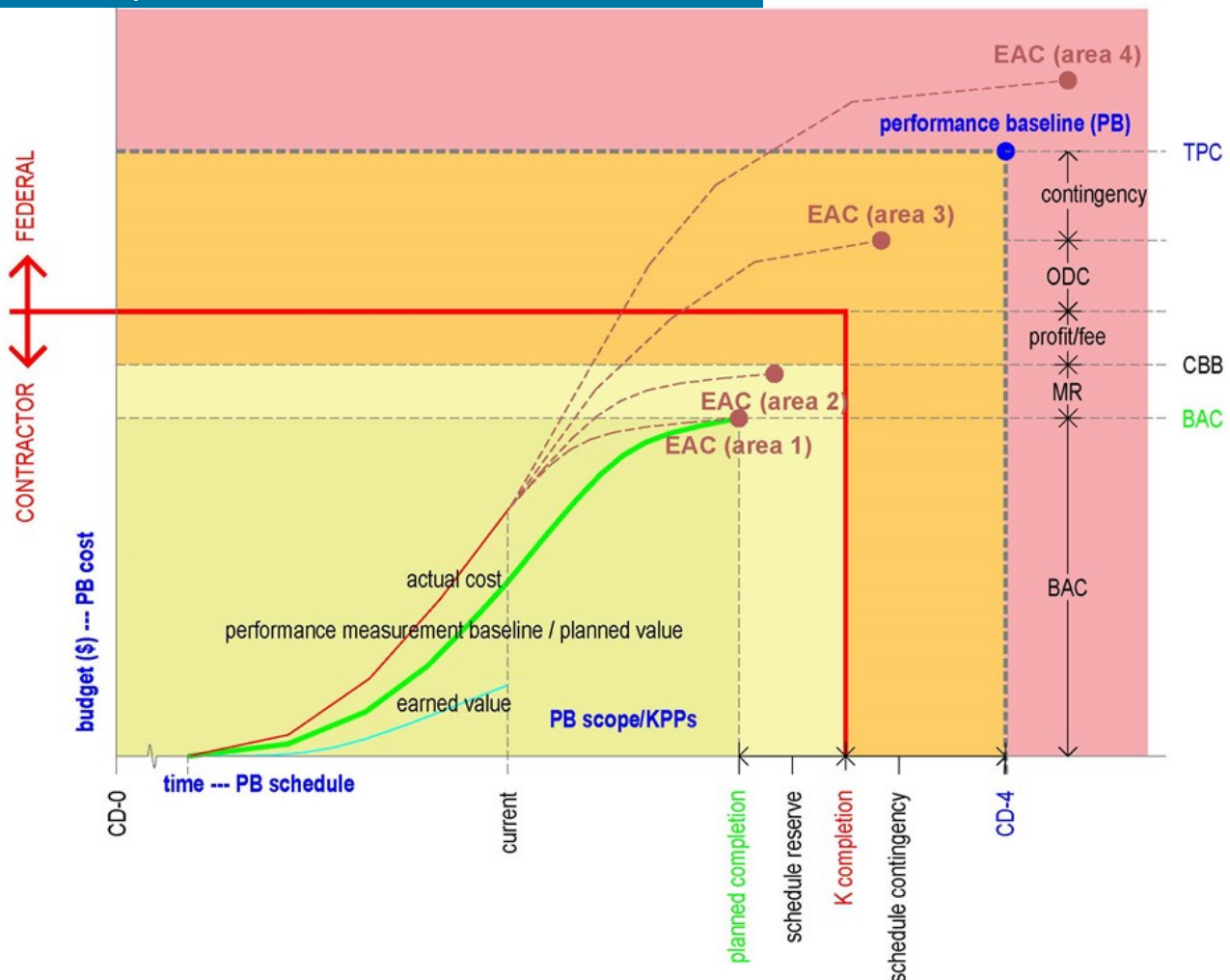
Monitoring and controlling the project's performance as the federal project director (FPD) is critical for successful project execution. This includes holistically trending estimate at completions (EAC) by factoring in the validity of the project plan, and developing various schedule and cost EACs for your post-critical decision (CD)-2 project. If the EAC is at or below the budget at completion (BAC) and before the planned completion date (PCD) as depicted by area 1 in Figure 1, your project is doing well. Keep up the good work!

If the EAC (depicted by area 2 in Figure 1) has unfavorable schedule and/or cost performance and is above BAC and beyond PCD but within the contract budget base (CBB)¹ and the contract (K) completion date, mitigation actions should be evaluated to get the project back on track.

Appropriate replanning may be implemented via a budget change request (BCR)-performance measurement baseline (PMB) (BCR-P)² and/or a BCR-management reserve (MR) (BCR-M). BCRs are internal adjustments within the CBB and do not change the performance baseline (PB) total project cost (TPC), the CD-4 date, or the project scope/key performance parameters (KPP) approved by the project management executive (PME). Regardless of type, any change to the plan must follow documented [change control management processes](#).

If the EAC (depicted by areas 3 and 4 in Figure 1) is higher than the CBB and/or beyond the contract completion date, the contractor will be challenged to complete the project within the contract requirements. Your involvement along with the integrated project team (IPT) including the contracting officer (CO) is needed to collaboratively implement a new path forward in compliance with the contract as well as [DOE O 413.3B, Program and Project Management for the Acquisition of Capital Assets](#), and the project execution plan (PEP).

Figure 1. PB-K Graph with Four EAC Scenarios



¹Depending on contract and project structure, this may also be referred to as project budget base (PBB)

²The terms BCR-P, BCR-M, BCR-C, and BCP as used in this article are defined in PM's Glossary of Terms Handbook located at <https://community.max.gov/x/bZloRQ>.

If the EAC (depicted by area 3) is within the TPC and CD-4, a BCR contingency ([BCR-C](#)) may be appropriately implemented. If the EAC (depicted by area 4) is higher than the TPC and/or beyond CD-4, a baseline change proposal ([BCP](#)) approved by the PME most likely will be required to complete the project, unless cost and schedule recovery efforts are successful.

When rebaselining due to Area 3 and 4 EACs, a contract modification should be executed in advance of breaching the CBB and the contract completion date. You and the CO should be prepared to provide guidance addressing scope, additional budget/schedule for the remaining work, and outstanding schedule/cost variances. The contract modification may result in a revised CBB and/or contract completion date, or implementation of an over-target baseline (OTB) and/or over-target schedule (OTS) which allow for additional budget (as depicted in Figure 2) and time but does not change the CBB or the contract completion date. The OTB and OTS allow for the planning, control, and performance measurement of authorized work to improve managerial control over the execution of the remaining project work.

Based on the cost and time to develop and implement an OTB and/or OTS, some general rules of thumb on whether to proceed with one are to do so no sooner than 20% project completion, when there will be at least 12 months of work remaining, and when the EAC to complete remaining work exceeds the budgeted cost for the remaining work by 15% or more.

Additional information on OTB and OTS is available at the following [EVMS Snippets](#):



[Why Implement an Over Target Baseline \(OTB\)/Over Target Schedule \(OTS\)](#)

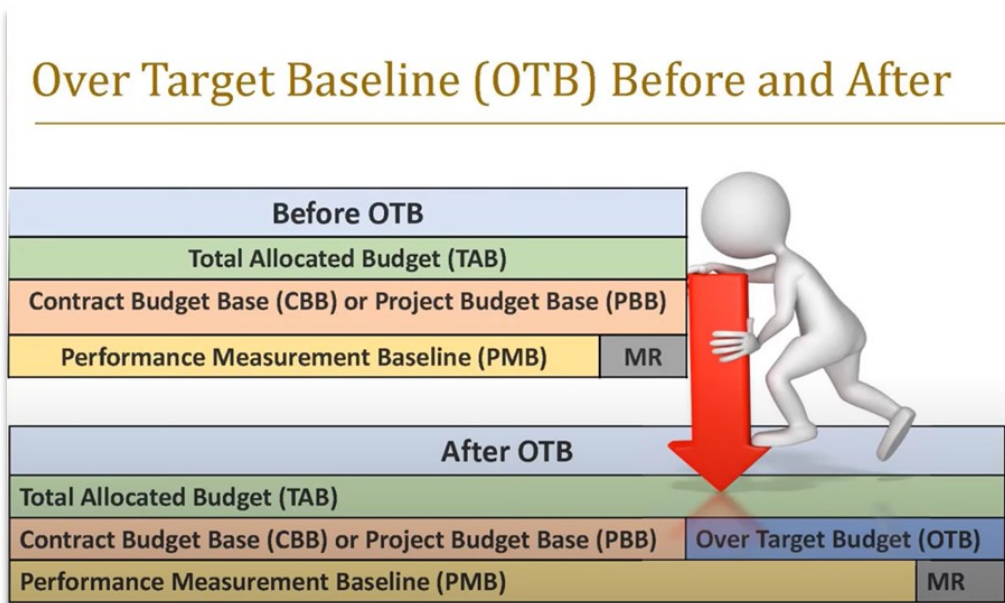
[How to Implement an Over Target Baseline \(OTB\)/Over Target Schedule \(OTS\)](#)

[DOE O 413.3B](#) contractor requirements document (CRD) and the [FAR 252.234-7002](#), *Earned Value Management System (EVMS)*, require the contractor to submit to the CO a request for an OTB for performance issues and significant deficiencies such as EAC above the CBB and an OTS for EAC beyond the contract completion date. The request should include the associated proposed integrated master schedule (IMS). You and the CO should acknowledge receipt of the OTB/OTS request in a timely manner (generally within 30 calendar days). The contractor should respond within 30 calendar days to a written initial determination from the CO that identifies significant deficiencies in the contractor’s EVMS.

The OTB process is comprised of 12 steps (see Figure 3) described in the DOE PM EVMS Training Snippets and a [DoD OTB/OTS Guide](#). Developing a realistic OTB/OTS is necessary to set a plan to complete the remaining work with adequate reserves to ensure project completion and to have a revised baseline tool for performance monitoring, management, and control. This ensures that

the cost and schedule variances are realistic assessments against the current plan. While the original MR allotted may have been exhausted before an OTB, a new risk-adjusted MR amount for remaining risk should be included post OTB. Performance reporting will need to reflect the reprogrammed OTB/OTS including the Department’s Project Assessment and Reporting System ([PARS](#)) contractor project performance ([CPP](#)) upload requirements and the DOE integrated program management report ([IMPR](#)) formats.

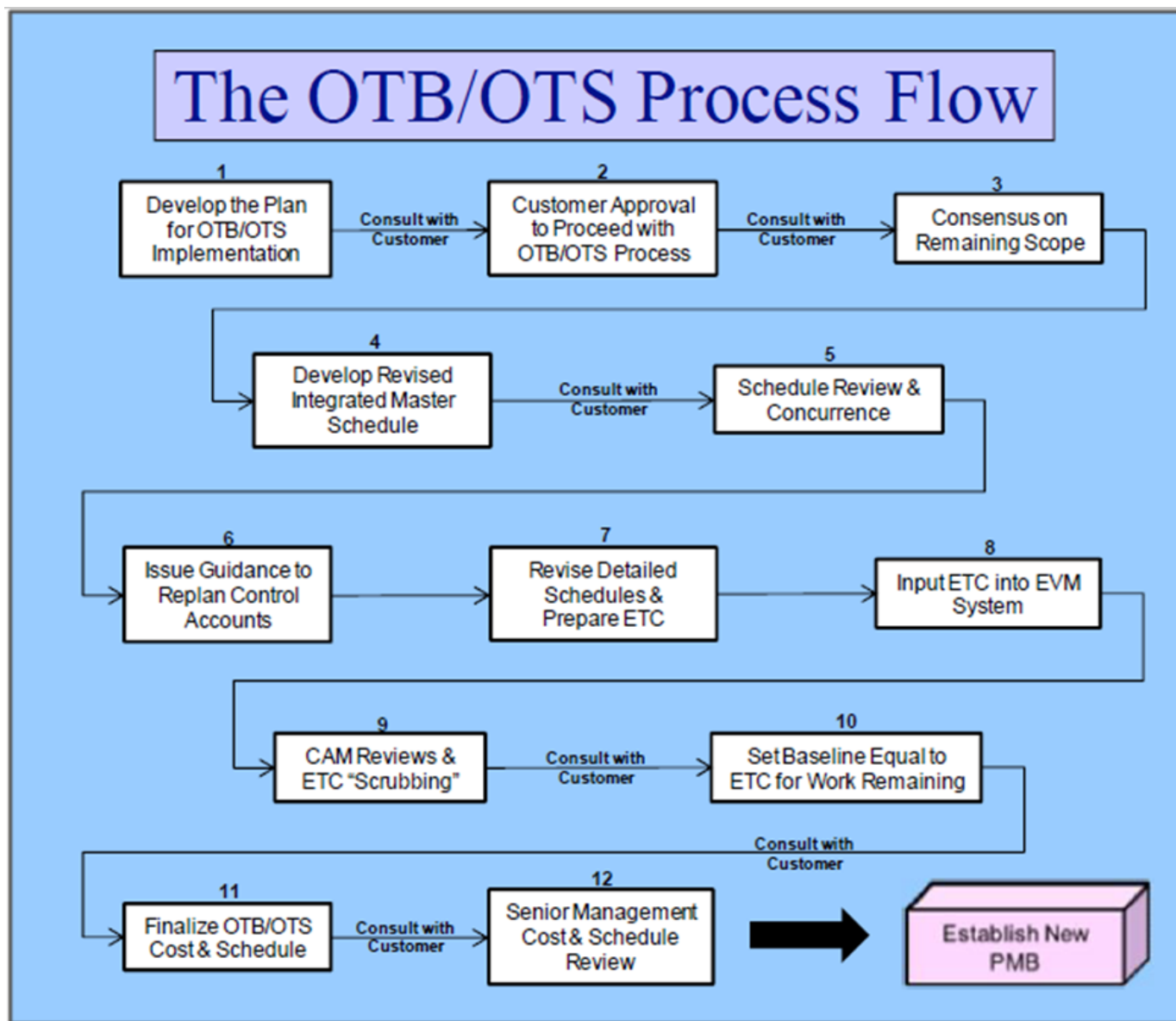
Figure 2. OTB Before and After



³In Figure 3, the term Customer mean the DOE FPD and CO.

⁴Available on PM-Max at <https://community.max.gov/x/ao5tQw>

Figure 3. OTB Process Flow



Please contact DOE PM-30 for assistance with or questions regarding determination or implementation of an OTB and/or OTS. DOE PM is in the process of updating [DOE G 413.3-20](#), Change Control Management Guide, to provide clear and consistent guidance on this topic.



Project Management Workshop: Updated Date!

Project Management professionals – out of concern for the health and safety of our community and team members, we have made the difficult decision to once again postpone the Project Management Workshop until the Spring of 2023. While PM had considered holding a workshop in 2022, the ongoing dynamics of the coronavirus pandemic and omicron variant continues to make scheduling large, in-person gatherings problematic. We are working arrangements with the Hilton Washington DC National Mall Hotel at L'Enfant Plaza for the 2023 dates. Watch for further announcements with hotel rates and the agenda in future newsletters. These workshops are an important forum for professional development, sharing professional knowledge, hearing from Departmental leadership, and interacting with your peers. We look forward to seeing you next year!



PMCDP FY22 Q2-Q3 Training Schedule

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

Course Title	LN Code	Dates	CLPs	Details
Project Risk Analysis	001033	February 7-11, 2022	28	10:30am-4:30pm EST Webinar Daily
Value Management	001037	February 8-11, 2022	24	10:30am-4:30pm EST Webinar Daily
Front-End Planning	003176	February 15-March 3, 2022	20	(Tue/Thurs) 1-3pm EST Webinar
Planning for Safety in PM	001035	February 16-March 9, 2022	28	(Wed) 1-3pm EST Webinar
Federal Budget Process in DOE	001034	February 22-25, 2022	32	10:30am-4:30pm EST Webinar Daily
Negotiation Strategies and Techniques	001047	February 28-March 9, 2022	24	(Mon/Wed) 12pm-4pm EST Webinar
Managing Contract Changes	002102	March 7-10, 2022	32	10:30am-4:30pm EST Webinar Daily
Project Management Simulation	001029	March 7-11, 2022	32	10:30am-4:30pm EST Webinar Daily
Managing Performance-Based Contracts	001951	March 22-24, 2022	24	10:30am-4:30pm EST Webinar Daily
Advanced Risk Management	001042	March 22-24, 2022	32	10:30am-4:30pm EST Webinar Daily
Monitoring and Controlling	00450	April 4-8, 2022	32	10:30am-4:30pm EST Webinar Daily
Capital Planning for DOE O 413.B	002152	April 12-26, 2022	16	(Tue/Thurs) 12-3pm EST Webinar
Project Management and Portfolio Analysis	001025	April 11-15, 2022	40	10:30am-4:30pm EST Webinar Daily
Leadership Through Effective Communication	002366	April 19-21, 2022	24	10:30am-4:30pm EST Webinar Daily
Advanced EVMS	002698	May 2-5, 2022	24	10:30am-4:30pm EST Webinar Daily
Cost and Schedule Estimation Analysis	001044	May 9-13, 2022	40	10:30am-4:30pm EST Webinar Daily
LEED for New Construction/Existing Buildings	001936	May 10-12, 2022	20	10:30am-4:30pm EST Webinar Daily
Strategic Planning	001043	May 17-19, 2022	24	10:30am-4:30pm EST Webinar Daily
PM Systems and Practices	001024	May 16-June 13, 2022	60	(Mon/Wed) 12-4pm EST Webinar
Scope Management Baseline Development	001036	May 23-26, 2022	24	10:30am-4:30pm EST Webinar Daily
Negotiation Strategies and Technique's	001047	May 24-June 2, 2022	24	(Tue/Thurs) 12-4pm EST Webinar
Planning for Safety in PM	001035	June 15-July 6, 2022	28	(Wed) 12-3pm EST Webinar
Acquisition Management for Technical Personnel	000145	June 21-30, 2022	24	(Tue/Thurs) 12-4pm EST Webinar

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All PMCDP Course Descriptions and Course Materials can be found in the Course Catalog on 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 <https://pars2oa.doe.gov/support/Shared%20Documents/Forms/AllItems.aspx>.

The current PARS reporting schedule is located in PM-MAX at the following link <https://community.max.gov/x/m4IIY>.

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 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.

