

Now How Much is the Doggy in the Window (Project Going to Cost)? — Calculating EAC

Brian Huizenga

Let's begin by clarifying the definition of estimate-at-completion (EAC). EAC is typically calculated at the contractor's performance measurement baseline (PMB) level to establish the estimated cost of the contractor's effort (as represented by the PMB) at project completion. EAC equals the actual cost of work performed at a point in time, plus the estimated costs to completion. The EAC may be developed by the contractor based on a "bottom-up" estimate to complete (ETC), or by any one of several widely used formulas based on contractor historical earned value (EV) performance. The EAC should be as accurate as possible, consider potential risks, and be reported without regard to the contract ceiling cost.

During the life-cycle of a project, contractors routinely determine the cost to complete the job to evaluate profit or loss when the job is done. If done frequently and accurately, the contractor can use this info to identify performance problems and take mitigating actions early, reducing potential losses down the road.

According to the ANSI/EIA 748 Standard, as part of their analysis and management reports, project teams will "develop revised estimates of cost at completion based on performance to date, commitment values for material, and estimates of future conditions. Compare this information with the PMB to identify variances at completion important to company management and any applicable customer reporting requirements including statements of funding requirements." Typically this means control account managers review the status of expended effort, the achievability of the forecast, and any significant changes on a monthly basis to develop an EAC for each control account. The project manager should roll these individual analyses up to a PMB level EAC.

In its simplest form, the EAC can be determined at any point in time by adding the actual cost of work performed to date, to the estimated cost to complete. EAC formulas hopefully start with a "given," which is the actual cost of worked performed to date in comparison to the actual progress to date (budgeted cost of work performed to date). Next, by comparing the budgeted cost of work scheduled, less the budgeted cost of work

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performed, the project team can focus on the budgeted cost of work remaining to determine what the realistic projected costs are for the work remaining based on performance to date and remaining risk.

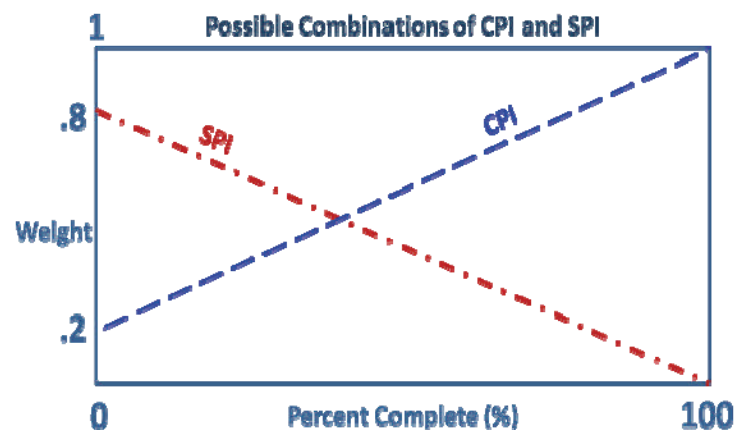
To determine EAC, start with the basic formula:

- $EAC = AC + ETC$ (or in words: actual costs to date + estimated cost to complete remaining work).

If a “bottom-up” estimate was performed to determine ETC, calculation of EAC is completed by straightforward addition. However, if a formulaic method is used, one must choose the best calculation that represents ETC based on performance to date:

- If variances at the current project stage are not expected to occur in the future, one could use $EAC = AC + (BAC - EV)$ where BAC (budget at completion) is the total amount of the time-phased work scheduled in terms of the original budget.
- When current variances are expected to be present in the future, one can use $EAC = AC + (BAC / \text{performance factor})$ where the performance factor is typically a performance index; CPI; SPI; $CPI \times SPI$; or a weighted factor of these indices $w_1(CPI) + w_2(SPI)$, where $w_1 + w_2 = 1$.
 - * When using the weighted factor approach, some use a set $0.8(CPI) + 0.2(SPI)$. However, others prefer to use a “sliding scale” dependent on the projects percent complete as shown in the figure below.
 - * There is also the “importance” approach: Is cost or schedule more “important” to project success? If cost is three times more important than completing on time, one could use a 75/25 weighted split or $0.75(CPI) + 0.25(SPI)$ for the performance factor.

Figure 1.
Weighted Factor Approach



Which is the best EAC formula to use? Unfortunately, there is no one “BEST” formula. That is why it is important to understand project performance, and then calculate EACs using a variety of formulas/methods to establish a most likely range of potential EACs. Once various EACs are calculated, the project team can get a feel if current funding levels are sufficient to complete the project and use the information to identify efficiencies to improve performance and get back on track.

All too often, the tendency is to avoid reporting EACs most likely to be accurate and instead report EACs most likely to be tolerated by senior management until the painful truth is clearly evident. This is the “rotten peach” approach that serves no one well in the end (see Thomas Bruder’s article in the March 2012 newsletter). Transparency is the best policy.

2012 DOE Project Management Workshop: *Communicating Progress—Celebrating Successes!*

Brian Huizenga

A banner year for project management deserves to be celebrated, hence the theme of the Project Management Workshop—*Communicating Progress—Celebrating Successes*. With the support of the Program offices, the latest revision of DOE Order 413.3B was fully implemented and deployment of the Project Assessment and Reporting System (PARS II) was completed this past year. Building on the Project Management Policy memorandum issued by the Deputy Secretary in 2010, the updated Order articulated front-end planning and technology maturity objectives; clarified project size and structure (program versus project management); and reinforced the importance of the acquisition executives' and program offices' commitment to stabilized funding. PARS II provides federal project directors (FPDs) with an improved communication tool for updating program offices and acquisition executives on project performance and serves as the central repository for key project documentation, which is crucial for ensuring transparency and of particular interest to the Department's external stakeholders.

Thanks to the hard work of our FPDs, integrated project teams and Program offices, these initiatives are already bearing fruit as evidenced by the Department's project success rates on post RCA-CAP implementation (see chart below).

Capital Asset	FY11 Target	FY11 Actual	FY11 Post RCA-CAP Actual
Construction	90%	84%	100%
Clean-up	80%	94%	97%
Combined		89%	98%
SC	90%	100%	100%
EM (Clean-up)	80%	94%	97%
NNSA	90%	76%	100%
Other	90%	83%	100%

Across the Department, Programs are making significant progress in successfully executing capital asset projects. Many thanks for all of your hard work and dedication. We hope you enjoy the 2012 Project Management Workshop and take time to celebrate YOUR project success!

PMCDP Course Schedule

Course Available Online	PMCDP Info	Course Code
Contracting Officer Representative Training	Level I Core	CLC222
To register through the Federal Acquisition Institute's Training Application System (FAITAS): Ctrl + Click Here		
For a Tutorial on using FAITAS: Ctrl + Click Here		

Start	End	Course	CEUs	Location	PMCDP Info	CHRIS Code/ Session	Registration Restrictions
April 2012							
4/10/12	4/12/12	Value Management	21*	Lexington, KY	Level 2 Elective	001037/0011	None
4/10/12	4/12/12	Executive Communications	21	Oak Ridge, TN	Level 3 Core	001031/0024	None
4/17/12	4/19/12	Earned Value Management Systems	21*	Idaho Falls, ID	Level 1 Core	001026/0075	None
4/17/12	4/19/12	Project Execution & Readiness Reviews	21*	Albuquerque, NM	Level 3 Elective	001039/0008	None
4/23/12	4/26/12	Planning for Safety in Project Management	25*	Albuquerque, NM	Level 1 Core	001035/0003	None
4/23/12	4/27/12	Cost & Schedule Estimation & Analysis	35*	Lexington, KY	Level 2 Core	001044/0014	None
4/24/12	4/26/12	Earned Value Management Systems	21*	Aiken, SC	Level 1 Core	001026/0079	Priority given to SRS employees
May 2012							
5/7/12	5/11/12	Cost & Schedule Estimation & Analysis	35*	Aiken, SC	Level 2 Core	001044/0018	Priority given to SRS employees
5/8/12	5/10/12	Strategic Planning	21	Richland, WA	Level 3 Elective	001043/0009	None
5/8/12	5/11/12	Managing Contract Changes	*28	Oak Ridge, TN	Level 1 Core	002102/0021	None
5/14/12	5/18/12	Program Management & Portfolio Analysis	35*	Los Alamos, NM	Level 3 Core	001025/0023	None
5/15/12	6/26/12	Advanced Concepts in Project Management	50*	Albuquerque, NM	Level 2 Core	001023/0031	None
Onsite: 6/19-6/21							
5/22/12	5/23/12	Effective Program & Project Communication	14*	Argonne, IL	Level 2 Core	001940/0011	None
5/29/12	5/31/12	Environmental Laws & Regulations	21	Richland, WA	Level 2 Elective	001046	Not in CHRIS: Contact Semi Bird
6/4/12	6/8/12	Planning for Safety in Project Management	25*	Aiken, SC	Level 1 Core	001035/0052	Priority given to SRS employees
6/4/12	6/8/12	Acquisition Management for Technical Personnel	32*	Oak Ridge, TN	Level 1 Core	000145/0030	None

Start	End	Course	CEUs	Location	PMCDP Info	CHRIS Code/ Session	Registration Restrictions
June 2012							
6/5/12	6/7/12	Negotiation Strategies & Techniques	21	Aiken, SC	Level 3 Elective	001047/0009	None
6/11/12	6/15/12	Project Management Simulation	35*	Amarillo, TX	Level 2 Core	001029/0027	None
6/11/12	6/14/11	Managing Contract Changes	28*	Idaho Falls, ID	Level 1 Core	002102/0013	None
6/12/12	6/14/12	Real Property Asset Management	21*	Fermi, IL	Level 2 Elective	001183/0021	None
6/25/12	6/28/12	Managing Contract Changes	28*	Washington, DC	Level 1 Core	002102/0020	None
6/26/12	6/28/12	LEED for New Construction & Existing Buildings	18*	Oak Ridge, TN	Level 1 Elective	001936/0016	None

Note: Asterisked courses are PMI approved.

For a step-by-step guide to register for PMCDP courses in CHRIS/ESS, please visit the PMCDP website:

<http://energy.gov/management/downloads/pmcdp-course-registration-process>

Full PMCDP Course Schedule

For the full listing of FY2012 classes, visit the PMCDP website:

<http://energy.gov/management/downloads/pmcdp-course-schedule>



Questions or Comments?

Please email general questions and comments to PMCDP.Administration@hq.doe.gov, or visit our website:

<http://energy.gov/management/office-management/operational-management/project-management-career-development-program>

For specific information, please contact one of the following individuals:

- Linda Ott, PMP, MA Adult Ed - PMCDP Team Lead, Linda.Ott@hq.doe.gov
- Victoria C. Barth, MA ISD - Course Schedule, Certification Review Board information, Certification and Equivalency Guidelines, Newsletter, Victoria.Barth@hq.doe.gov

Questions of the Month

Victoria C. Barth, MA ISD

Q1: Does the PMCDP award continuing education (CE) credits for attending the Office of Engineering and Construction Management's (OECM) Project Management Workshop?

A1: Yes, the PMCDP allows a maximum of seven CE hours per day for attending educational portions of technical meetings, conferences, workshops and seminars. Since the OECM Project Management Workshop is a two-day event, those who attend the entire workshop will earn 14 CE hours. You will need to submit a "request for CE hours" form confirming your attendance at the workshop; this will be provided to you. You may do this by either returning the form to the workshop registration desk on April 4th or by scanning and emailing it to DOEPMWorkshop@hq.doe.gov with "PM Workshop CEU" in the subject line. Once OECM receives your form, you will be issued a CE certificate via email. Please submit your CE hour request in the Employee Self Service (ESS) system once you receive your certificate. Submitting CE hour requests in a timely manner allows your first-line manager and the OECM approver adequate time to review your requests. Some requests require additional clarification; waiting until the end of your two-year cycle to input hours may cause a delay in the process.

For more information about the types of activities the PMCDP accepts for CE credit, please view the Continuing Education Credit Assignment Table available on PMCDP's website: <http://energy.gov/management/downloads/continuing-education-credit-assignment-table>.

Q2: Can I obtain FPD certification if I do not manage a capital asset project?

A2: The primary mandate of PMCDP is to certify FPDs who are responsible for managing line-item, capital asset projects in accordance with DOE O 413.3B, *Program and Project Management for the Acquisition of Capital Assets*. However, PMCDP does allow DOE employees who meet the other Level I requirements to use non-capital asset experience to apply for certification. Certification for Levels II-IV requires capital asset project management experience to qualify. Since PMCDP offers a range of training that helps participants stay abreast of current practices in managerial, professional and technical areas, PMCDP allows DOE employees to take all courses regardless of whether they are pursuing certification (FPDs and certification candidates receive priority registration). You may also take higher level PMCDP classes to meet your biennial 80-hour continuing education requirement to maintain certification.

For more information about certification requirements, please refer to the Certification and Equivalency Guidelines. This document provides the competency requirements for each level of certification and is available on our website: <http://energy.gov/management/downloads/certification-and-equivalency-guidelines>.