

Level of Effort (LOE) Replanning

This article discusses how to avoid Corrective Action Requests (CARs) that can result because of a lack of attention to level of effort (LOE) planned in support of discretely measured tasks. The symptom: repeatedly triggering the Defense Contract Management Agency (DCMA) or DOE Office of Project Management (PM-30) EVMS data quality test metric specifications for instances of “BCWP with no ACWP” or “ACWP with no BCWP.” Are there legitimate reasons for this to occur?

EVM System Implementation Issue?

With the closer scrutiny DCMA and DOE PM-30 are applying to the quality of schedule and cost data, industry needs to tighten up their internal Earned Value Management System (EVMS) self-surveillance or self-governance process. Many systems have fallen into varying degrees of neglect, even though the systems are approved or certified by DCMA or DOE PM-30. Companies are often issued CARs when DCMA or DOE PM-30 surveillance reviews and EVMS data quality test metric results identify potential issues with the contractor’s EVMS or how it has been implemented on a project. Some of these CARs are deserved, and companies need to fix their systems or at least how the EVMS has been implemented.

Does this sound familiar? You have been issued a CAR because you have had repeated instances where the EVMS data quality test metrics are frequently triggered for having “BCWP with no ACWP” or “ACWP with no BCWP” that have gone uncorrected. On the surface, according to all the EVMS rules, this appears to be a legitimate finding that, if continually uncorrected, should result in an EVMS CAR. Often the finding does not provide the entire story.

For discretely measured tasks, this would certainly be a valid finding. When work is performed, ACWP should be recorded at the same time. If discrete work slips, BCWP does not occur until the work is actually done, and then ACWP tags along for the ride.

For LOE work, the story can be different, because LOE earns value with the passage of time, not necessarily with the actual accomplishment of the work planned in that LOE task. For general support type tasks, such as program management, there is typically no issue. The LOE support stretches out over the entire period of performance, and there is generally some amount of support provided (ACWP) in each month to go along with the accomplishment (BCWP) reflected along that LOE plan for support. Even in this instance, however, this issue can arise. When program management support must go on for a longer period of time because the project completion has slipped out, work will be performed (ACWP) with no earned value (BCWP) being claimed because the LOE spread stopped at the planned end of the project.

The problem more often presents itself with LOE tasks that are planned to support specific discretely measured tasks – these are shorter term tasks than those program management type of LOE tasks. The LOE support is naturally planned in the same time frame as the discrete task. All is good when the discrete work takes place as planned – the work is performed and the support is provided, value is earned, and ACWP is incurred along with it. But what happens to the LOE support tasks when the discrete work does not take place as planned?

Impact of LOE Planning in Support of Short Discrete Tasks

Many control account managers (CAMs) love LOE because it is so easy: just plan your support, and when you enter LOE as the earned value technique, the system will then handle it for you. If CAMs are not careful, and do not pay appropriate attention to their LOE tasks, the system will both do it for them and do it to them. Should the discrete task start early or slip out to a later date (whether baseline planned or just a forecast slip), things can start to happen with the LOE support task, and the CAMs who are not paying attention will not even know what hit them.

For example:

1. The discretely measured work starts early:
 - a. The discrete task earns value early (ahead of schedule) and ACWP occurs for them as normal within the system.
 - b. The LOE support is provided early, and should the CAM fail to update the schedule as they did with the discrete task, ACWP occurs, also as normal within the system, but unlike the discretely measured work being supported, providing the support early does not result in earned value (BCWP). Note: the schedule may or may not include LOE tasks, either way, the schedule LOE tasks and/or the EVM cost tool LOE work packages must be actively maintained. The schedule and cost data must be in alignment.

Results:

- The EVMS test metrics are triggered for ACWP (in the earlier period) without BCWP.
- The EVMS test metrics are triggered for BCWS and BCWP (in the originally planned period) with no ACWP.
- Distortion: Support work is really ahead of schedule, but system does not show that fact.

2. The discretely measured work starts later than originally planned:
 - a. The discrete task earns value late (behind schedule) and ACWP occurs for them as normal within the system. Note: if the discretely measured task was actually replanned to the new date, they would not be behind schedule.
 - b. The LOE support is provided later in time (again should the CAM fail to update the schedule in the form of ACWP) when the discretely measured task actually happens, also as normal within the system, but unlike the discretely measured work being supported, doing the support work later does not show up there. By definition of LOE, BCWP will be earned where the work was originally planned.

Results:

- The EVMS test metrics are triggered for BCWS and BCWP (in the originally planned period) with no ACWP.
- The EVMS test metrics are triggered for ACWP (in the later period) without BCWP.
- Distortion: Support work is really behind schedule, but system shows no schedule variance (by definition).

Seems like a Catch 22 situation, doesn't it? It does not have to be. There are options for replanning the work within the structured framework of an EVMS. Accepted methods on how to handle LOE replanning are documented in DoD and DOE PM-30 guidance. This includes the DoD EVMS Interpretation Guide (EVMSIG) and the DOE PM-30 EVMS Compliance Review Standard Operating Procedure (ECRSOP) Appendix A Compliance Assessment Governance (CAG).

Content from the DoD EVMSIG (March 2019) is excerpted below for Guideline 29, Maintain Baseline and Reconcile Budgets.

“Work packages planned as LOE must be proactively maintained to ensure that the resulting overall progress assessment is accurate. Budgets for LOE effort must have a sound basis of estimate and be time-phased to properly reflect when the work will be accomplished. If budgets for LOE effort are in the current period (baseline start or finish) and the support work is not necessary to be performed in this period as well as future periods, then the work may be replanned as long as no actual costs for that effort have been previously incurred. If actuals have been incurred, the work may be replanned only in the future periods to reflect when the remaining work is expected to be performed.”

Content from the DOE CAG (June 2022) is excerpted below for Subprocess G Change Control, G.3 Baseline Changes Reconciliation attribute, specifically G.3.4 that states: “The PMB is controlled in the freeze period to prevent unnecessary adjustments, with few immaterial exceptions.” This section in the CAG states:

“LOE WPs may be replanned to align the budget with the expected start and completion dates for work to be executed. LOE WPs may even be replanned within the freeze period when few cumulative actuals have occurred, to ensure that BCWP will be recorded at the proper time to align with the time frame when actual costs are expected to occur. The interpretation of few is less than 10% actuals to date as compared with the cumulative budget. However, if significant actual costs have already been recorded, these baseline changes are prohibited except for controlled purposes. When LOE WPs are not replanned to align with expected actual costs, BCWP will be still be automatically recorded, resulting in a false cost variance.”

The objective is to ensure LOE tasks are actively maintained and avoid common DCMA or DOE PM-30 EVMS test metric triggers such as BCWP with no ACWP or ACWP with no BCWP. The test metrics are intended to be indicators an EVMS may be producing unreliable data that could cause DCMA or DOE PM-30 to do a deeper dive into how project personnel have implemented the EVMS.

Note: The EVMSIG and CAG both assume the contractor’s EVM System Description discusses the requirement to establish a performance measurement baseline (PMB) “freeze period” to ensure PMB stability and forward planning discipline. This freeze period is often defined as the current reporting period plus one additional month where any changes to the PMB are not permitted with a few exceptions such as LOE replanning in alignment with DoD and DOE PM-30 guidance. A typical change control freeze period is illustrated in Figure 1.

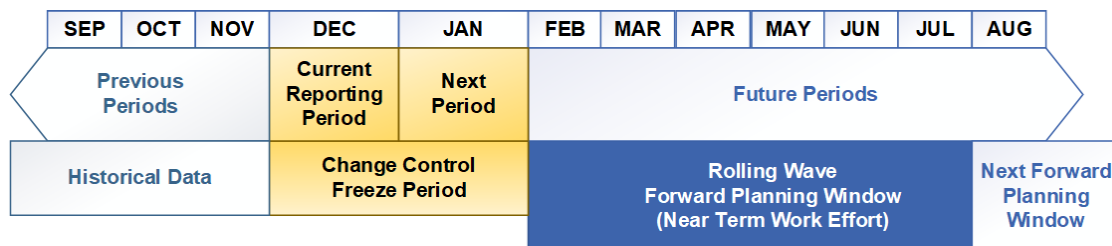


Figure 1: Illustration of Freeze Period with Six Month Rolling Wave Planning Window

Applying the Guidance

This guidance for internal replanning is useful. To highlight:

- Establish a freeze period to maintain a stable and valid PMB. This should be documented in the EVM System Description. Specific rules apply that limits what can be modified within the freeze period to maintain the integrity of the current work effort budget data.
- Replan *future* LOE to correlate to the changes in the work. When necessary, LOE may be adjusted within the current reporting period, without government approval, provided no actual costs (ACWP) have been charged to the LOE. Whenever possible, replan the future LOE work effort before it is within the change control freeze period.
- Ensure that when BCWS is claimed for the planned work effort (BCWS) in the current reporting period, it is in alignment with the ACWP for the work effort to prevent avoidable DCMA or DOE PM-30 EVMS test metric triggers.

Suggestions on how to improve LOE planning:

1. Separately identify LOE tasks from discrete effort to avoid distorting measurable work effort.
2. Separately substantiate LOE budgets and plan as direct labor, material, subcontract, or other direct costs. Time phase the LOE budget plan and estimate to complete (ETC) for control and reporting purposes.
3. Minimize the amount of LOE tasks. Objective measures of completed work are always preferred.
4. When the LOE earned value technique is legitimately used, *proactively* monitor these tasks. *CAMs need to pay attention to their LOE tasks and to what is happening with the discrete work packages the LOE supports.* A good technique is to use the rolling wave planning method so that when the near term future work effort discrete tasks are planned, the related LOE task is planned with it. This action prevents changing LOE data when the discrete work does not take place as planned – and eliminates findings for BCWP with no ACWP or ACWP with no BCWP.
5. Review your EVM System Description to ensure you have provided enough guidance to project personnel on how to properly plan, track, and monitor LOE tasks. Let LOE help you; don't let it do bad things to you.