

CE 4990 - Construction Scheduling

Integrating Cost and Schedule

March 16, 2012

Definitions

The goal is to develop integrated metrics for measuring cost and schedule performance. This note provides guidelines for integrating cost and schedule data as developed by the following US agencies in the 1960s.

- DOD: Cost and Schedule Control System Criteria (C/SCSC)
- DOE: Performance Measurement System (PMS)

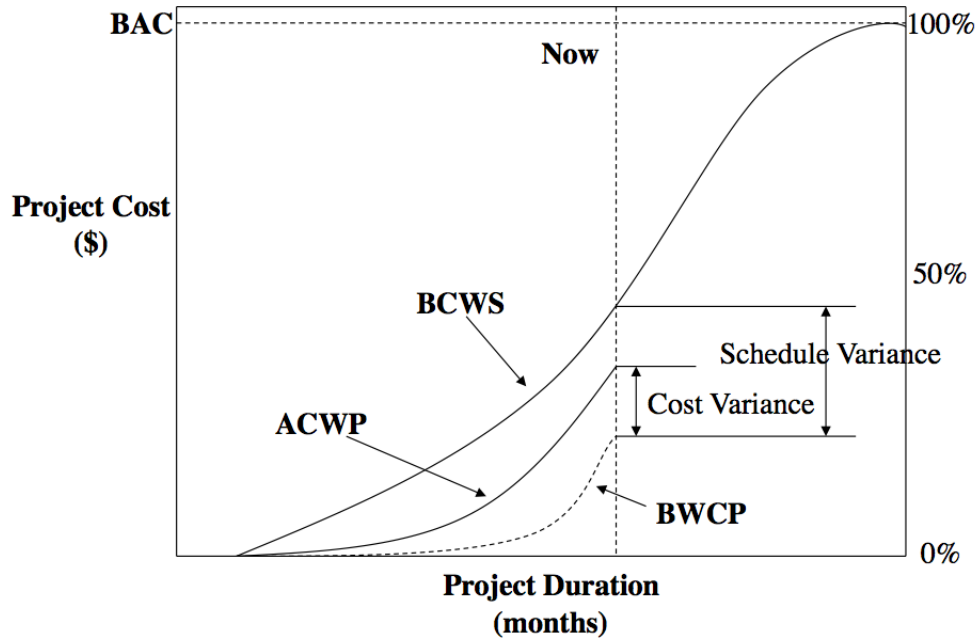
The terms are defined as follows:

- BCWS: Budgeted Cost of Work Scheduled
- BCWP: Budgeted Cost of Work Performed
- ~~ACWS: Actual Cost of Work Scheduled~~
- ACWP: Actual Cost of Work Performed
- BAC: Budgeted Cost at Completion (estimated cost before project starts)
- EAC: Estimated Cost at Completion (forecast cost as project continues).

Earned Value Metrics

- Schedule Variance (SV) = BCWP - BCWS
- Schedule Performance Index (SPI) = BCWP/BCWS
- Cost Variance (CV) = BCWP - ACWP
- Cost Performance Index (CPI) = BCWP/ACWP
- EAC = ACWP + (BAC - BCWP)
- Earned Value = % Completion x BAC

Consider the following problem (see diagram): BAC = \$257,000, After three and a half months, sitework, excavation, foundation, fencing, and rough electrical work are completed. Framing is half complete, rough plumbing is three-fourths complete and paving is half complete. The cost incurred so far are \$152,000. Estimate the status of the project?



Activity	Cost	Month	Month	Month	Month	Month	Month
		1	2	3	4	5	6
Sitework	\$ 22,000.00						
Fencing	\$ 10,000.00						
Paving	\$ 18,000.00						
Excavation	\$ 30,000.00						
Foundation	\$ 50,000.00						
Framing	\$ 40,000.00						
Rough electric	\$ 6,000.00						
Rough plumbing	\$ 16,000.00						
Drywall	\$ 13,000.00						
Suspend ceiling	\$ 4,000.00						
Interior finish	\$ 34,000.00						
Carpeting	\$ 14,000.00						