

# EVMS Training Snippet Library: Applied Predictive Analysis

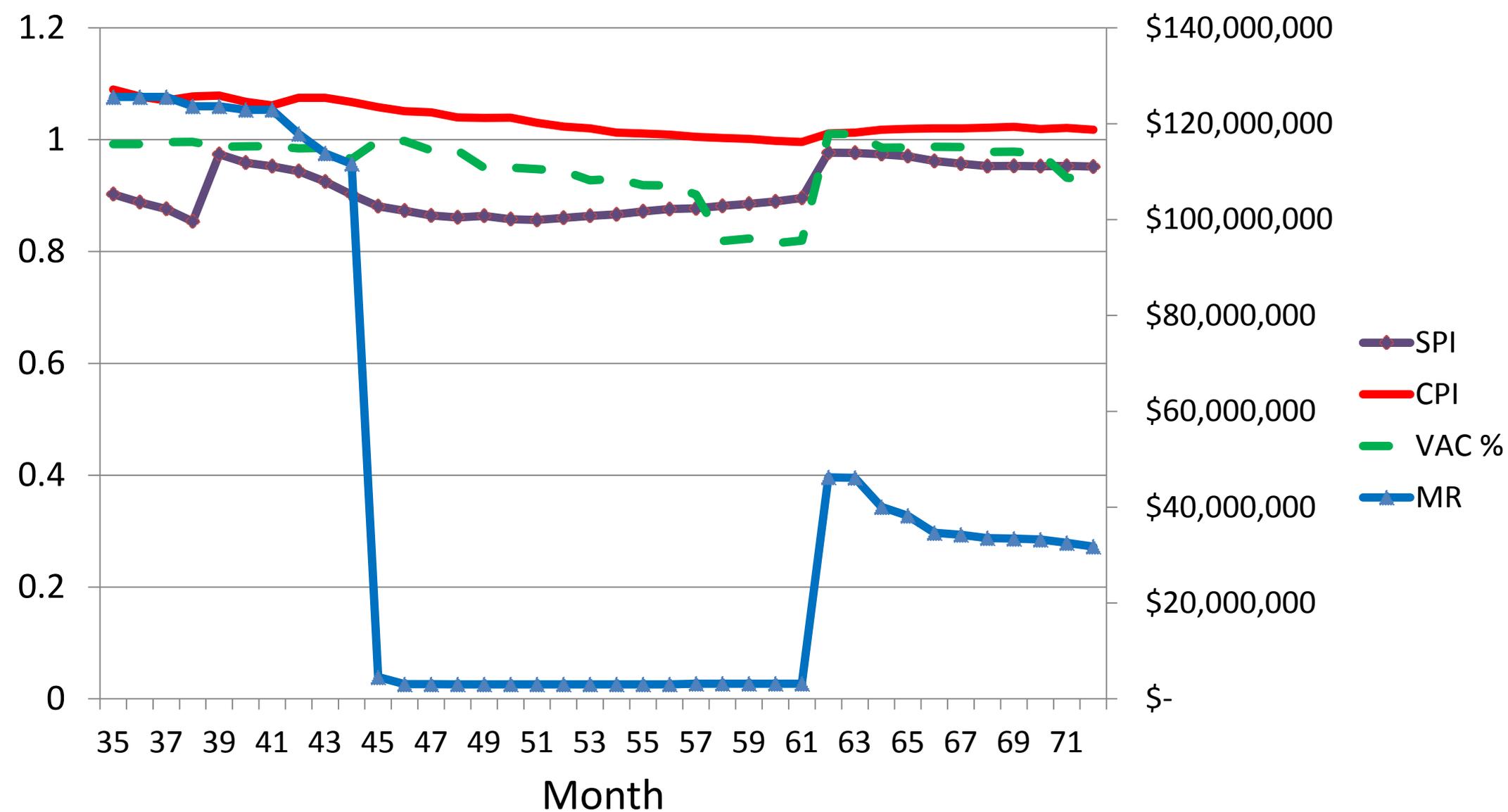


Office of Acquisition and Project Management (APM) MA-60  
U. S. Department of Energy  
July 2014



- **Multi-year Cost Plus Incentive Fee Construction Project**
- **Analysis Timeframe:**
  - Approximately 50% to 90% Complete
  - Months 37 through 72
- **Original PMB: \$1.050B**
- **Current PMB: \$1.073B**
- **Current EAC: \$1.151B**

# Historical SPI, CPI, VAC %, and MR Curves



# Analysis Reports – Project Analysis SOP



PARS II KGA

**OVERSIGHT & ASSESSMENT**

**PROJECT PERFORMANCE**

**ALL REPORTS**

 **SSS Reports**

**SSS Reports** All monetary values are

 Add |  Paste

 **Shared Reports**

-  Analysis Reports
  -  Data Validity Check
  -  Schedule Health Assessment
  -  Variance Analysis
  -  Trend Analysis
  -  EAC Reasonableness
  -  Predictive Analysis
-  APM DepSec Monthly Reports

# Analysis Reports – Project Analysis SOP



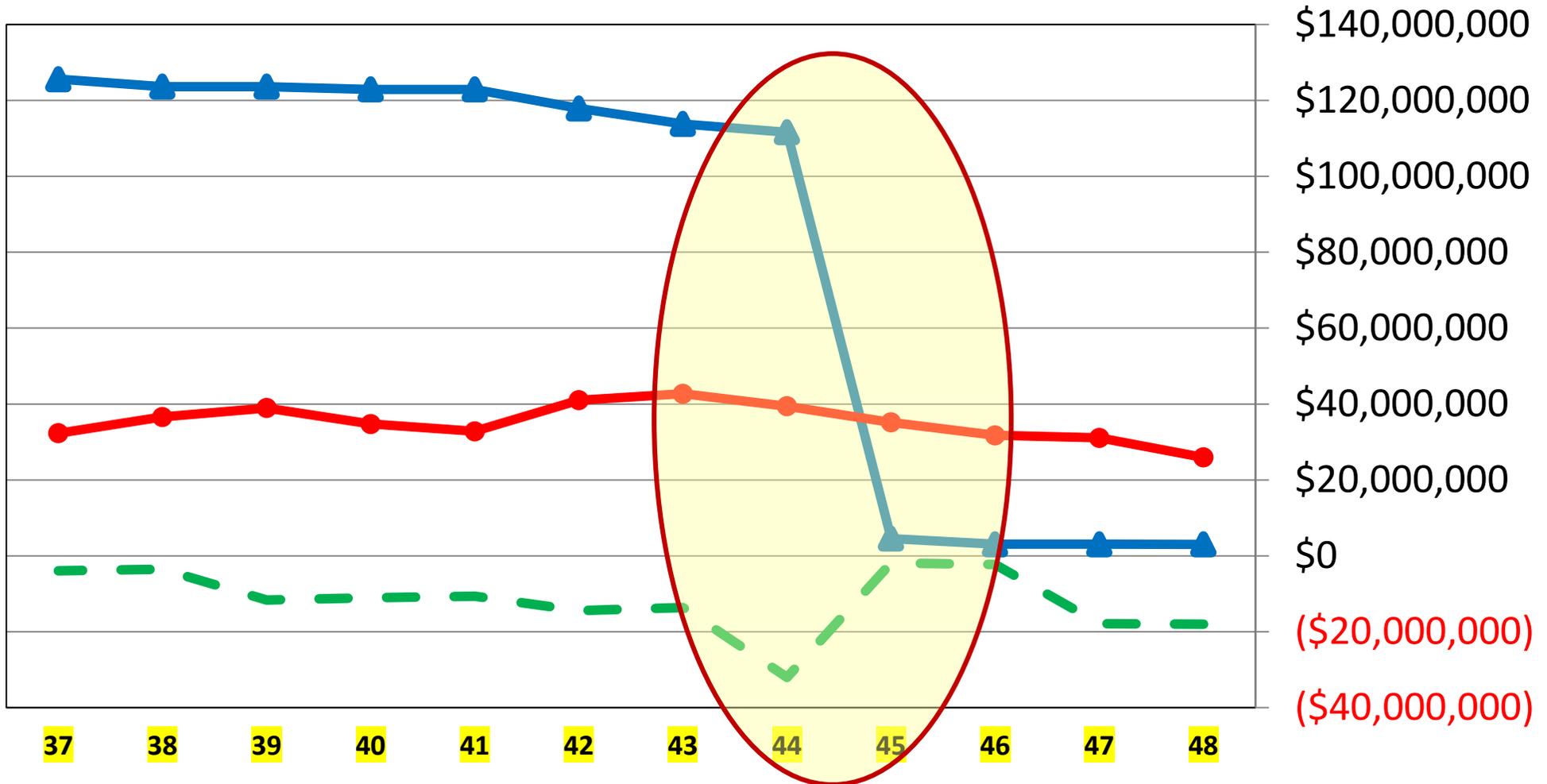
- **Data Validity Check**
  - EV Data Validity (WBS Level)
  - Retroactive Change indicator (6-Mo, PMB Level)
- **Schedule Health Assessment**
  - Schedule Missing Logic (Activity Level)
  - Relationship Leads and Lags Report
  - Schedule Relationship Types (Activity Level)
  - Schedule Hard Constraints (Activity Level)
  - Schedule Total Float Analysis (Activity Level)
  - Schedule Duration Analysis (Activity Level)
  - Invalid Forecasts and Actual Dates (Activity Level)
  - Schedule Hit or Miss Report
- **Variance Analysis**
  - EV Project Summary (6-Mo, PMB Level)
  - Performance Analysis (WBS Level)
  - Variance Analysis Cumulative (WBS Level)
- **Trend Analysis**
  - Baseline Volatility – Past and Near-Term (PMB Level)
  - EV Project Summary (6-Mo, PMB Level)
  - MR Balance v. CV, VAC, & EAC Trends
  - Management Reserve (MR) Log
  - Performance Index trends (WBS Level)
  - Variance Analysis Cumulative (WBS Level)
- **EAC Reasonableness**
  - CPI vs. TCPI (PMB Level)
  - EV Data Validity (WBS Level)
  - Performance Index Trends (WBS Level)
- **Predictive Analysis**
  - Funding Status (Monthly at Project Level)
  - IEAC Analysis (WBS Level)

# PARS II MR Balance v. CV, VAC, EAC

## MR vs. Cum CV & VAC Graph

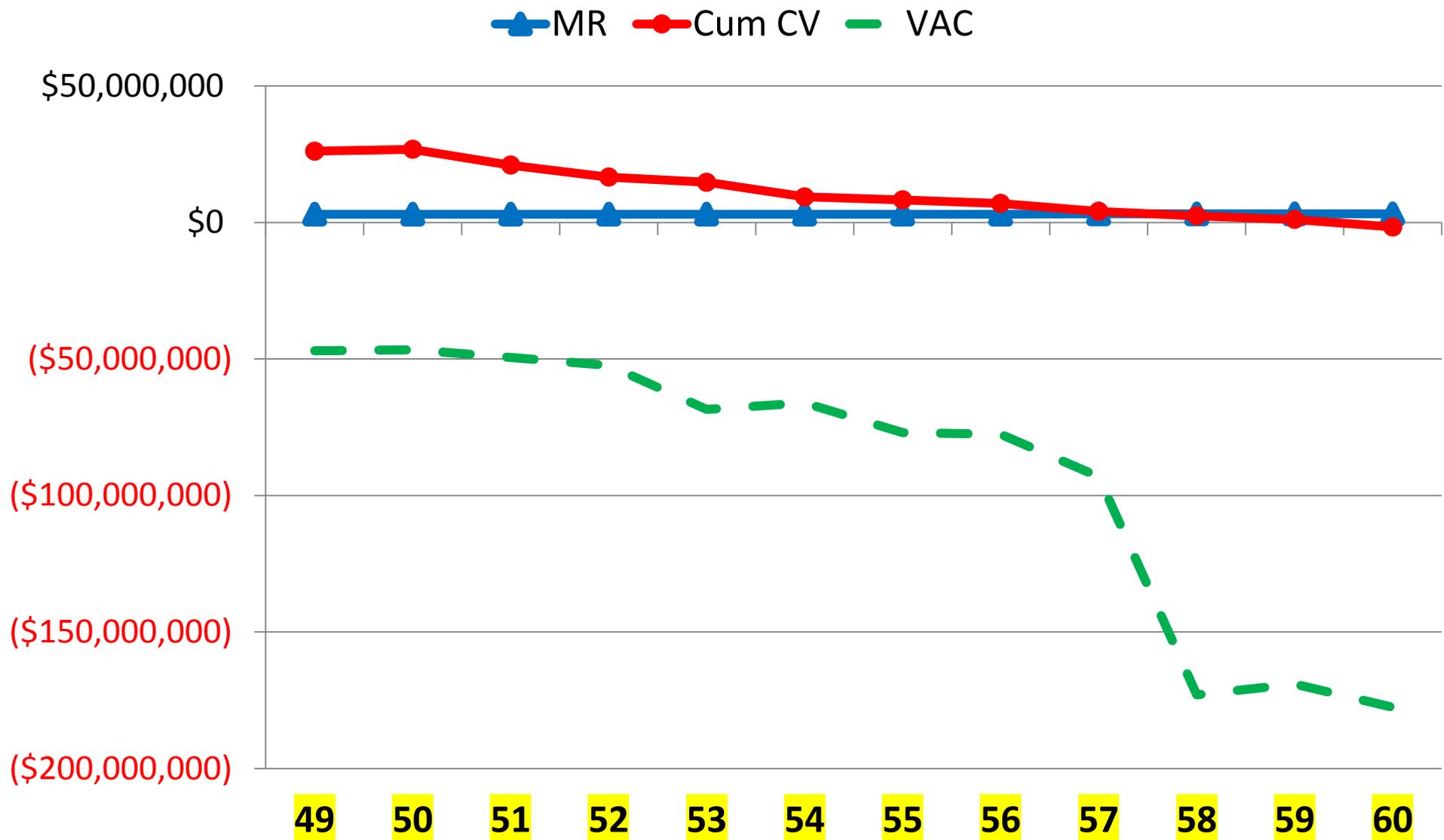


MR Cum CV VAC



# PARS II MR Balance v. CV, VAC, EAC

## MR vs. Cum CV & VAC Graph

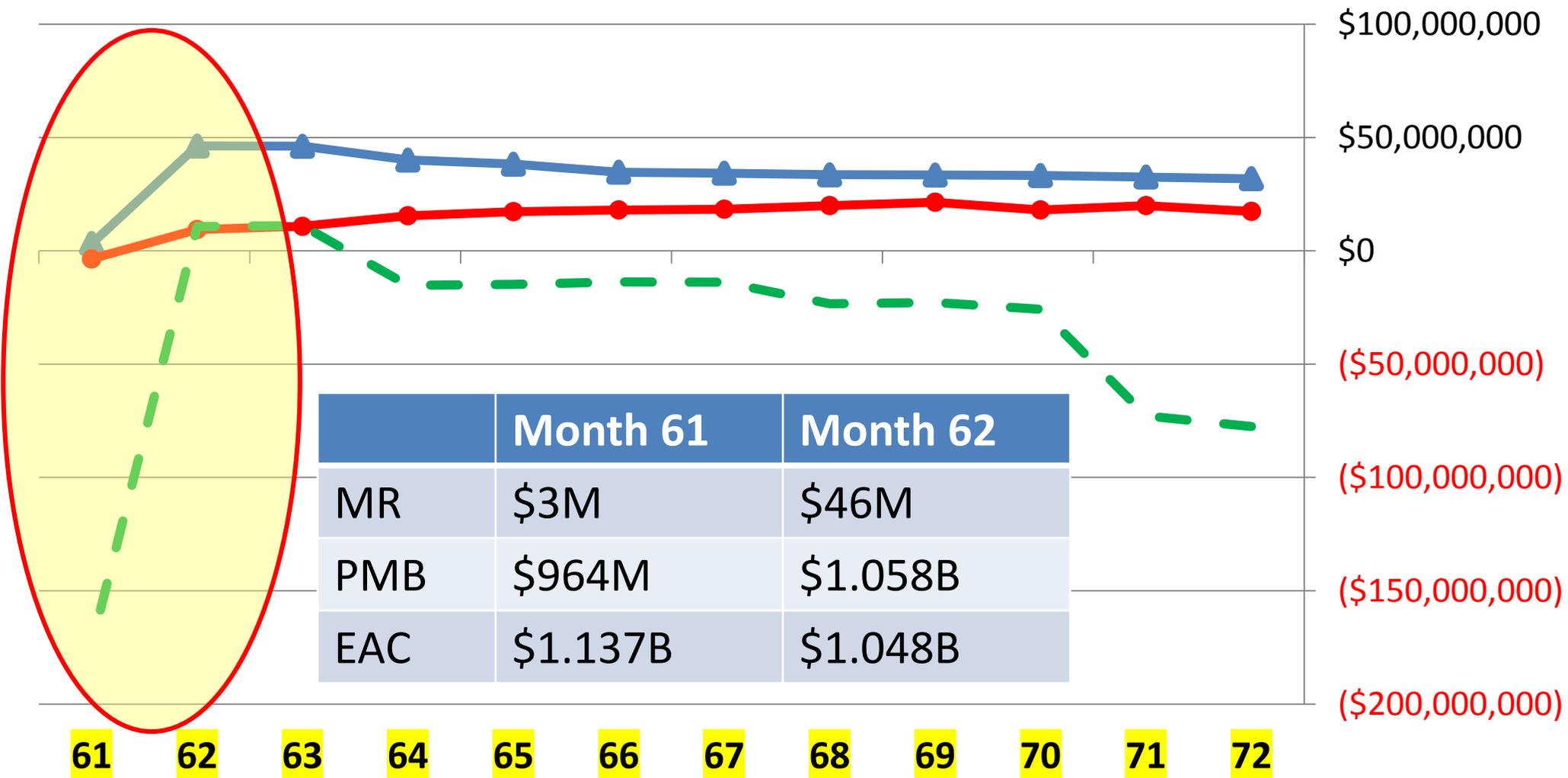


# PARS II MR Balance v. CV, VAC, EAC

## MR vs. Cum CV & VAC Graph



MR      Cum CV      VAC



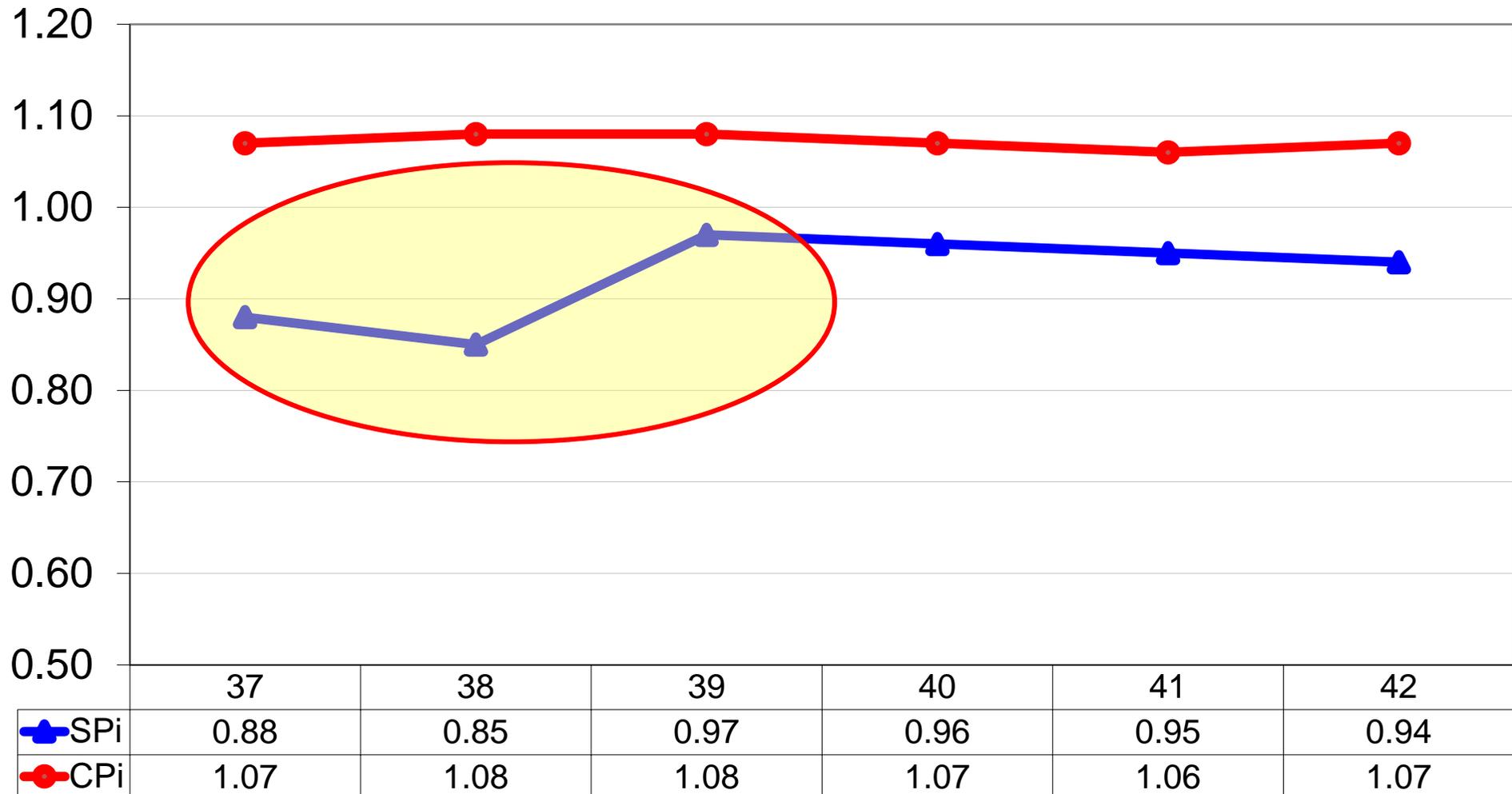
	Month 61	Month 62
MR	\$3M	\$46M
PMB	\$964M	\$1.058B
EAC	\$1.137B	\$1.048B

# PARS II Performance Index Trends

## SPI CPI Trend Chart



### SPI/CPI Trends



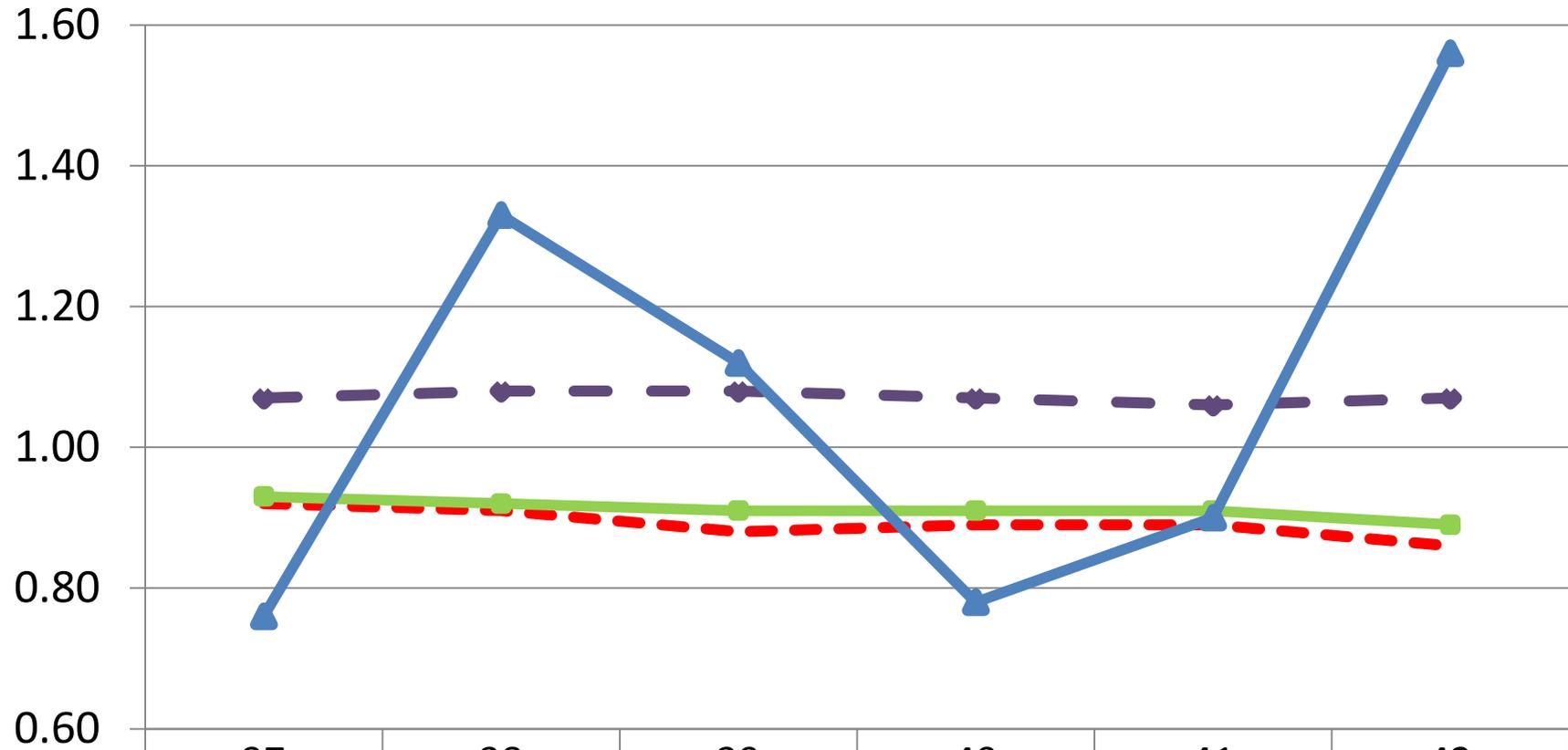
# PARS II EV Project Summary (6-Mo; PMB Level)



## Current Period

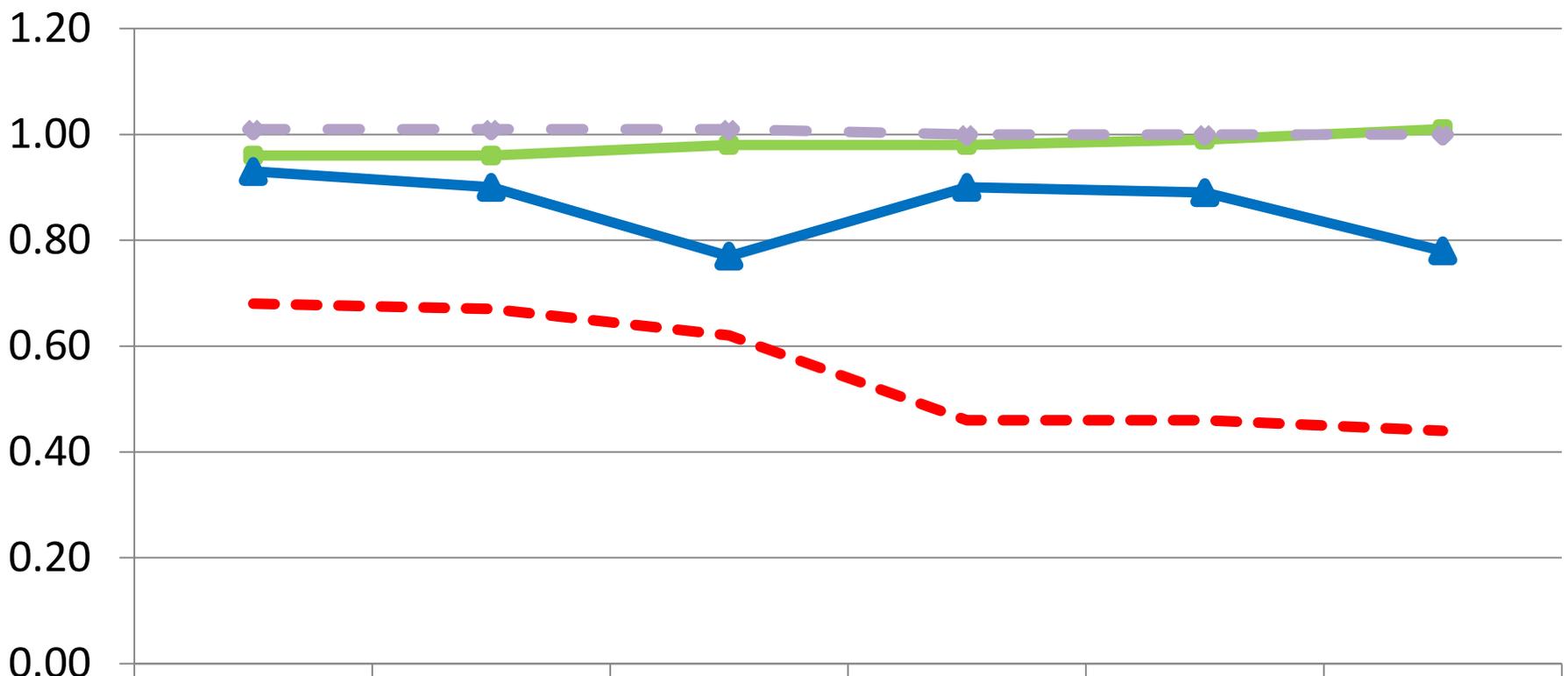
	37	38	39	40	41	42\
<b>BCWS</b>	\$16,672,881.87	\$35,011,538.35	(\$50,732,354.67)	\$24,372,152.98	\$22,471,989.74	\$29,721,499.31
<b>BCWP</b>	\$8,128,979.93	\$17,277,337.68	\$22,463,529.82	\$15,067,551.19	\$17,663,784.89	\$22,936,483.56
<b>ACWP</b>	\$10,656,339.89	\$12,998,827.70	\$20,086,746.73	\$19,289,230.79	\$19,606,216.65	\$14,719,804.51
<b>SV</b>	(\$8,543,901.94)	(\$17,734,200.68)	\$73,195,884.49	(\$9,304,601.80)	(\$4,808,204.85)	(\$6,785,015.73)
<b>SV%</b>	-51.24%	-50.65%	-144.28%	-38.18%	-21.40%	-22.83%
<b>SPI</b>	0.488	0.493	-0.443	0.618	0.786	0.772
<b>CV</b>	(\$2,527,359.97)	\$4,288,509.98	\$2,376,783.09	(\$4,221,679.60)	(\$1,942,431.76)	\$8,216.679.06
<b>CV%</b>	-31.09%	24.82%	10.58%	-28.02%	-11.00%	35.82%
<b>CPI</b>	.763	1.330	1.118	0.781	0.901	1.558

# PARS II CPI vs. TCPI (PMB Level)



	37	38	39	40	41	42
TCPI to EAC	0.92	0.91	0.88	0.89	0.89	0.86
TCPI to BAC	0.93	0.92	0.91	0.91	0.91	0.89
CPI Cum	1.07	1.08	1.08	1.07	1.06	1.07
CPI Current	0.76	1.33	1.12	0.78	0.90	1.56

# PARS II CPI vs TCPI (PMB Level)



	55	56	57	58	59	60
<span style="color: red;">- -</span> TCPI to EAC	0.68	0.67	0.62	0.46	0.46	0.44
<span style="color: green;">-●-</span> TCPI to BAC	0.96	0.96	0.98	0.98	0.99	1.01
<span style="color: purple;">-◆-</span> CPI Cum	1.01	1.01	1.01	1.00	1.00	1.00
<span style="color: blue;">-▲-</span> CPI Current	0.93	0.90	0.77	0.90	0.89	0.78

- **PARS II reports are extremely helpful in identifying trends**
- **When the data seems suspect, investigate**
  - There is a ‘cause’ for the ‘effect’
  - When the curves have a dip or spike, there is a reason
- **By checking a few PARS II reports, it becomes easy to see what actions set off red flags and corrupts the performance indices**
- **Actions like replenishing MR, using MR to offset variances, retroactive changes to the plan all have immediate but short lasting impacts – they are not fixes for effectively and efficiently managing project performance**



Home » Operational Management » Project Management » Earned Value Management

## EARNED VALUE MANAGEMENT

- Aviation Management
- Executive Correspondence
- Energy Reduction at HQ
- Facilities and Infrastructure
- Freedom of Information Act
- Financial Assistance
- Information Systems
- Procurement and Acquisition
- Project Management
  - Earned Value**
  - Lessons Learned
  - Reviews and Validations
  - Documents and Publications
  - RCA and CAP

Earned Value Management (EVM) is a systematic approach to the integration and measurement of cost, schedule, and technical (scope) accomplishments on a project or task. It provides both the government and contractors the ability to examine detailed schedule information, critical program and technical milestones, and cost data.

- [EVMS Surveillance Standard Operating Procedure \(ESSOP\) - 26 Sep 2011 \(pdf\)](#)
  - [EV Guideline Assessment Templates - \(MS Word\)](#)
  - [DOE EVMS Cross Reference Checklist - \(pdf\)](#)
  - [DOE EVMS Risk Assessment Matrix - \(MS Word\)](#)
- [Formulas and Terminology "Gold Card" - Sep 2011 \(pdf\)](#)
- [Slides from the OECM Road Show: Earned Value \(EV\) Analysis and Project Assessment & Reporting System \(PARS II\) - May 2012 \(pdf\)](#)
- [DOE EVM Guidance](#)

### EVM TUTORIALS

[Module 1 - Introduction to Earned Value](#) (pdf 446.86 kb) July 17, 2003

This module is the introduction to a series of online tutorials designed to enhance your understanding of Earned Value Management. This module's objective is to introduce you to Earned Value and outline the blueprint for the succeeding modules. This module defines Earned Value management. It looks at the differences between Traditional management and Earned Value management, examines how Earned Value management fits into a program and project environment, and defines the framework necessary for proper Earned Value management implementation.

<http://energy.gov/management/office-management/operational-management/project-management/earned-value-management>

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