EcoSys™

EVM for the Rest of Us

Webinar presented by:

Javier Sloninsky

CEO & Managing Director

June 2012 @ SCEA/ISPA Annual Conference

Agenda

- EcoSys Introduction

- EVM For the Rest of Us
  - Principles, Building Blocks, and What to Strive for

- Earned Value Case Studies

- Q & A

EcoSys Company Background

Founded in 2000

Enterprise Project Controls Software Experts

Designers & Developers of original Primavera P6 and EcoSys EPC

Professional Services

Enterprise Consulting Expertise: Project Portfolio & Cost Management Best Practices

Systems Implementation and Integration Leader

Partnerships with Oracle, SAP, Microsoft, IBM

250 Customers in Global 1000 and Public Sector

EcoSys ▱™ Global Technology Partners

EcoSys EPC Certified to run seamlessly with SAP and Oracle:

SAP® Certified
Integration with SAP Applications

ORACLE®
Validated Integration
Primavera

Professional Partnerships with Global Tech Leaders:

SAP Partner

ORACLE®
PARTNERNETWORK

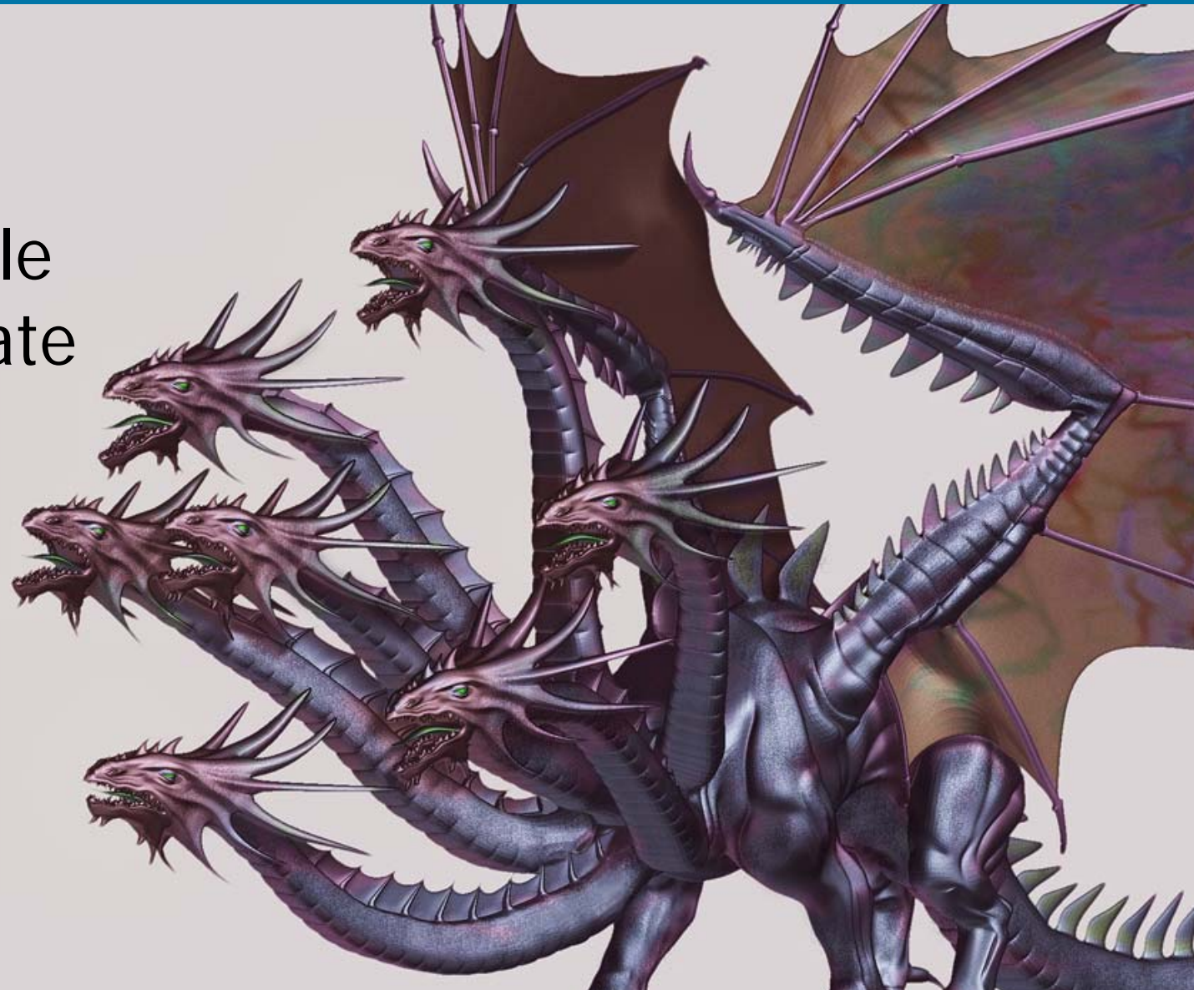**Microsoft® CERTIFIED**
Partner

IBM® Business Partner

Representative Customers

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Is EVM Really This Scary?

Overhead
Difficult
Unintelligible
Inappropriate
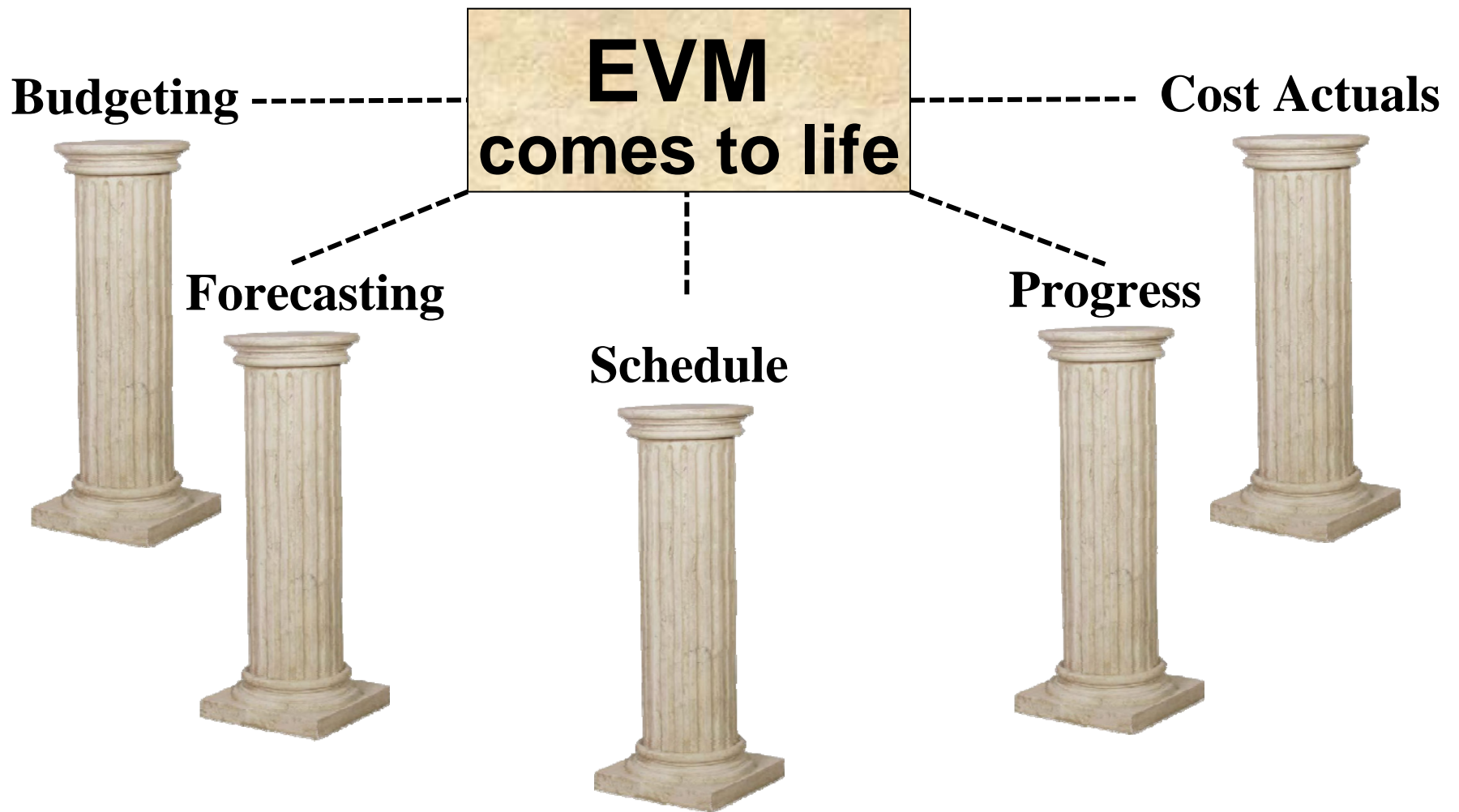Mine field
Incorrect
Headaches

6

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What is EVM for the Rest of Us?

Measure ▸ Forecast ▸ Improve

- Earned Value is a measure of project performance comparing work completed against work planned, as of a given date.

- Earned Value Management is using Earned Value to measure, forecast, and improve project performance.

- Principles of EVM are positive predictors of project success.

- EVMFRU: Focus on those principles and remove anything extraneous.
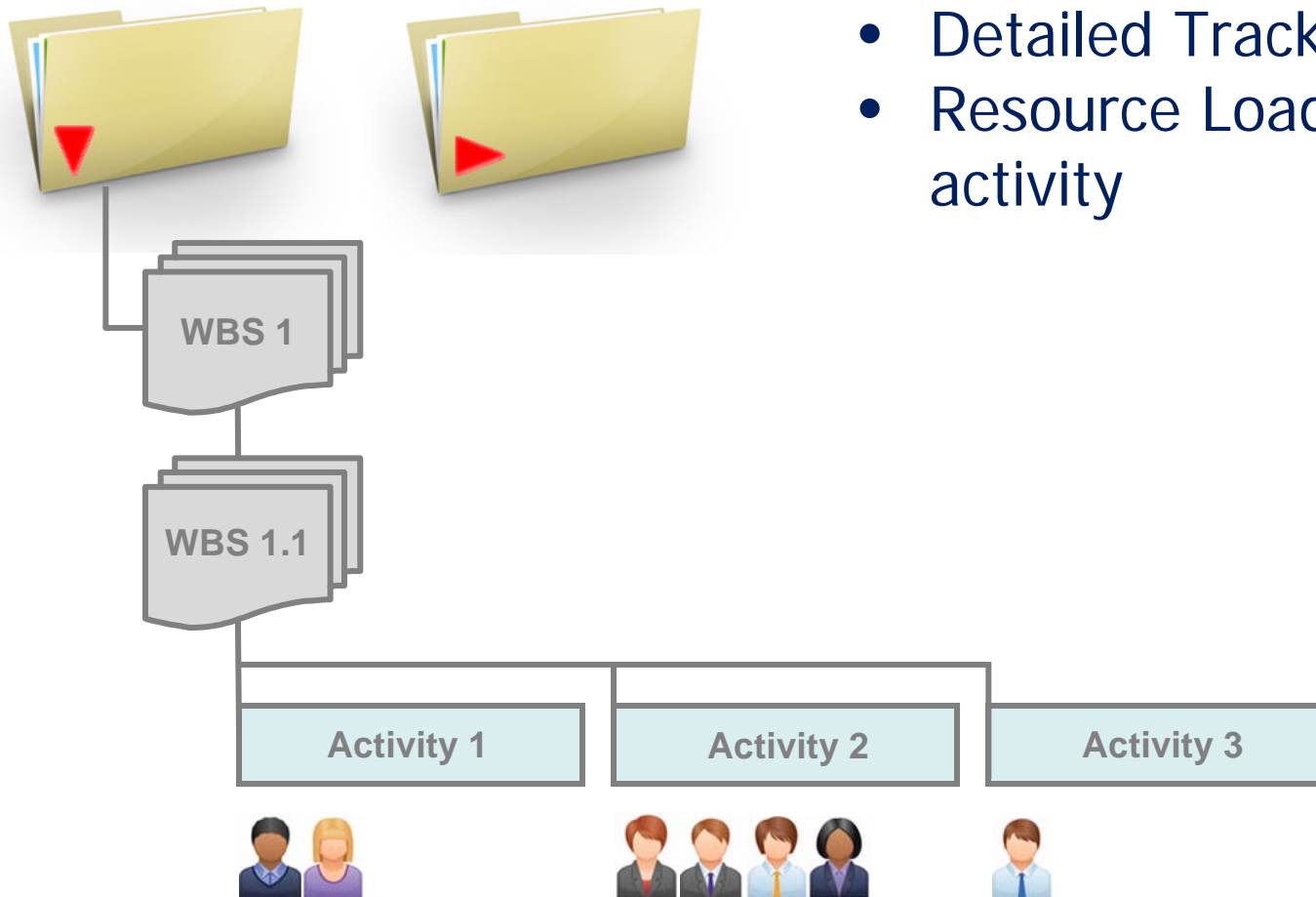
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EVMFRU

- EVM is not separate from the overall project management lifecycle. Builds upon a solid project controls framework:

  - Process standards

  - Performance metrics

- EVM principles lead to better scope definition

- EVM should be accessible by being well integrated to project controls lifecycle and user-friendly

The Pillars that Support EVM

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Budgeting - - - - - - - - - - **EVM comes to life** - - - - - - - - - - **Cost Actuals**

Forecasting

Schedule

Progress

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Controls Platform

Traditional Corporate Financial Planning

ORACLE | SAP | G/L

EcoSys EPC

Fiscal Year Budgeting | Budgets, Forecasts, Commitments | Actuals & Performance Reporting | Change Management | Closeouts, Adjustments & Audits

Project/Resource Management

Primavera | MS Project

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EV Tracking

Projects:

- Detailed Tracking
- Resource Loading for every activity

WBS 1

WBS 1.1

| Activity 1 | Activity 2 | Activity 3 |

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EV Tracking

Projects:

- Milestone Driven Progress
- Simpler Execution

15%	Design
20%	Construction Documents
50%	Demolition
75%	Construction A
100%	Construction B

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EV Tracking
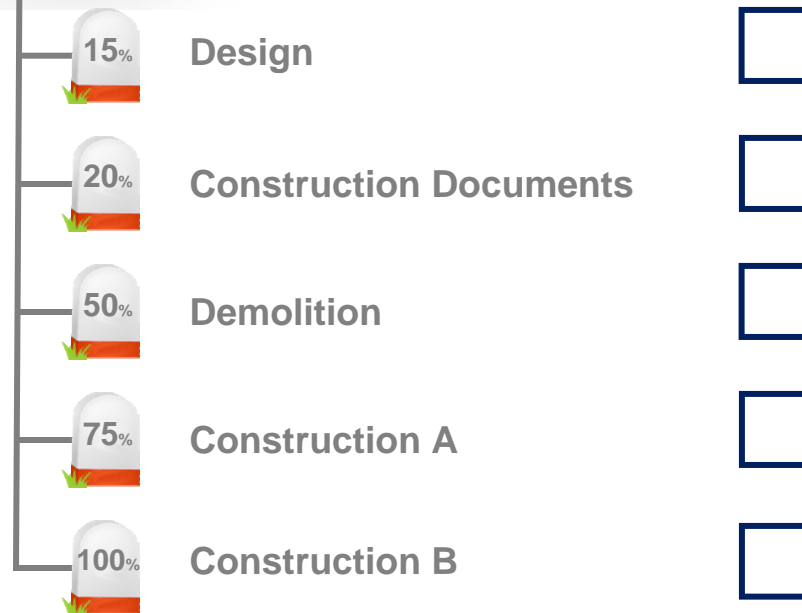
Projects:

- Portfolio Visibility

- EV Metrics for Each Project

- Rolled-up for aggregate performance analysis

EcoSys — EVM: A Tool for Business Decisions

- Actionable information that's appropriate for executives

- Summary, graphical, drilldown views
  - Find ways to roll up EVM across projects: portfolio, divisions, etc.

- Streamline terminology/descriptive information
  - Encourages decision makers to WANT to dig into info further

- With Executive buy in, EVM can succeed
  - Without it, EVM often becomes relegated to project controls back office.
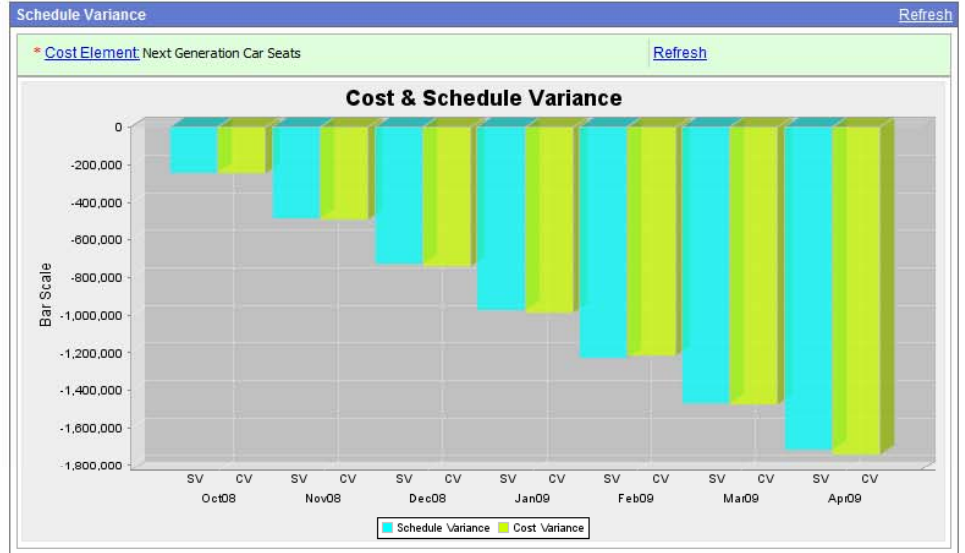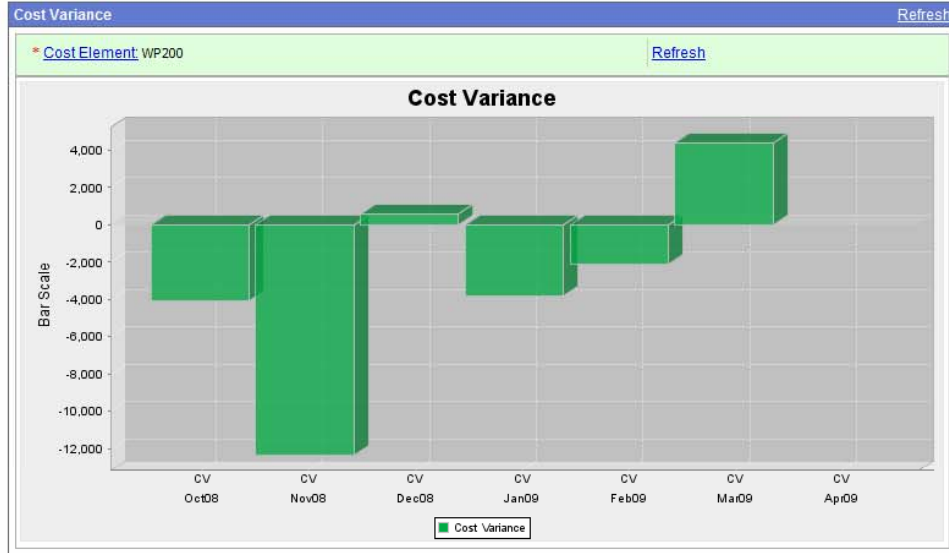 - Don't sell EVM, sell performance.

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EVM Dashboards

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EVM Building Blocks

1. Budgeting & Forecasting at the Right Level
   - Intelligent Work Breakdown Structure (WBS)
   - Fine enough to identify trends
   - Not so granular as to add burden without adding value

2. Accurate and Timely Progress Measurement

3. Integrated source of Actual Costs

4. Change Management integrated into EVM

What to Strive For

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- Forecast EAC/ETC

- Ability to perform Scenario Impact Analysis
  - If... [scope/design] changes
  - Then... performance will be impacted [to what degree]

- Ability to compare performance against performance baselines
  - Original budget, current budget, current forecast, etc.

- Tracking Trends over time / over different times
  - Look at performance to date, but also more recent, appropriate trends

- Change behavior

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Example Independent EACs

Project: 10-016 - Bluefire Fulton Construction Schedule   Refresh | Save

eet ▼   Edit ▼   Display ▼   Rows ▼   ⊖⊕

WBS	WBS Name	WBS Type	PMT	% Complete Rollup	BCWP Calculated	ACWP	BAC	ETC	EAC	IEAC1	IEAC2	IEAC3	IEAC4	CPI	SPI	Cost Variance	Schedule Variance
					$82,350	$67,552	$1,773,785	$1,668,185	$1,735,737	$1,455,042	$1,801,915	$0	$0				
10-016	Bluefire Fulton Cons	Projects		4.64	$82,350	$67,552	$1,773,785	$1,668,185	$1,735,737	$1,455,042	$1,801,915	$0	$0	1.22	0.00	$14,798	$82,350
SUBP	SUB PROJECT	Sub Projects		4.64	$82,350	$67,552	$1,773,785	$1,668,185	$1,735,737	$1,455,042	$1,801,915	$0	$0	1.22	0.00	$14,798	$82,350
CON	CONSTRUCTION	WBS		4.64	$82,350	$67,552	$1,773,785	$1,668,185	$1,735,73	$1,455,042	$1,801,915	$0	$0	1.22	0.00	$14,798	$82,350
A	Administrative Bldg	Control Account		0.00	$0	$0	$0	$0	$0	$0	$0	$0	$0	0.00	0.00	$0	$0
B	Warehouse Bldg	Control Account		0.00	$0	$0	$0	$0	$0	$0	$0	$0	$0	0.00	0.00	$0	$0
C	Water Treatment	Control Account		0.00	$0	$0	$0	$0	$0	$0	$0	$0	$0	0.00	0.00	$0	$0
D	Acid Neutralizaiton/L	Control Account		4.64	$82,350	$67,552	$1,773,785	$1,668,185	$1,735,737	$1,455,042	$1,801,915	$0	$0	1.22	0.00	$14,798	$82,350
014500	Scaffold	Discipline		0.00	$0	$0	$0	$0	$0	$0	$0	$0	$0	0.00	0.00	$0	$0
020000	Civil	Discipline		0.00	$0	$0	$59,420	$59,420	$59,420	$0	$0	$0	$0	0.00	0.00	$0	$0
2300-D	Pile Driving	Work Package	50/50	0.00	$0	$0	$26,520	$26,520	$26,520	$0	$0	$0	$0	0.00	0.00	$0	$0
2500-D	Excavate/Backfill	Work Package	50/50	0.00	$0	$0	$32,900	$32,900	$32,900	$0	$0	$0	$0	0.00	0.00	$0	$0
030000	Concrete	Discipline		46.02	$82,350	$67,552	$178,950	$73,350	$140,902	$146,793	$166,604	$0	$0	1.22	0.00	$14,798	$82,350
3250-D	Anchor bolts/Groutin	Work Package	25/75	0.00	$0	$0	$0	$0	$0	$0	$0	$0	$0	0.00	0.00	$0	$0
3311-D	Pile Caps	Work Package	25/75	100.00	$45,000	$53,252	$45,000	$45,000	$98,252	$53,252	$53,252	$53,252	$0	0.85	0.00	($8,252)	$45,000
3312-D	Footings/Foundation	Work Package	50/50	100.00	$30,600	$14,300	$30,600	$26,100	$40,400	$14,300	$14,300	$14,300	$0	2.14	0.00	$16,300	$30,600
3313-D	Mat Foundations	Work Package	Level	0.00	$0	$0	$76,350	$0	$0	$0	$0	$0	$0	0.00	0.00	$0	$0
3315-D	Building Slab & Con	Work Package	25/75	25.00	$6,750	$0	$27,000	$2,250	$2,250	$0	$0	$0	$0	0.00	0.00	$6,750	$6,750
3300-D	Wet cure / Coatings	Work Package	[none]	0.00	$0	$0	$0	$0	$0	$0	$0	$0	$0	0.00	0.00	$0	$0

- IEAC1, assumes future cost performance will be same as past performance

- IEAC2, assumes future cost performance will be influenced by 80% past cost and 20% past schedule performance

- IEAC3, assumes future cost performance will be influenced by the last 3 months cost performance

- IEAC4, assumes future cost performance will be influenced by past cost and schedule performance

$$IEAC_1 = AC + \frac{(BAC - EV)}{CPI} = \frac{BAC}{CPI}$$

$$IEAC_2 = AC + \frac{(BAC - EV)}{0.8 \times CPI + 0.2 \times SPI}$$

$$IEAC_3 = AC + \frac{(BAC - EV)}{(CPI_1 + CPI_2 + CPI_3)/3}$$

$$IEAC_4 = AC + \frac{(BAC - EV)}{CPI \times SPI}$$

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Reporting

From Summary to Variance Analysis
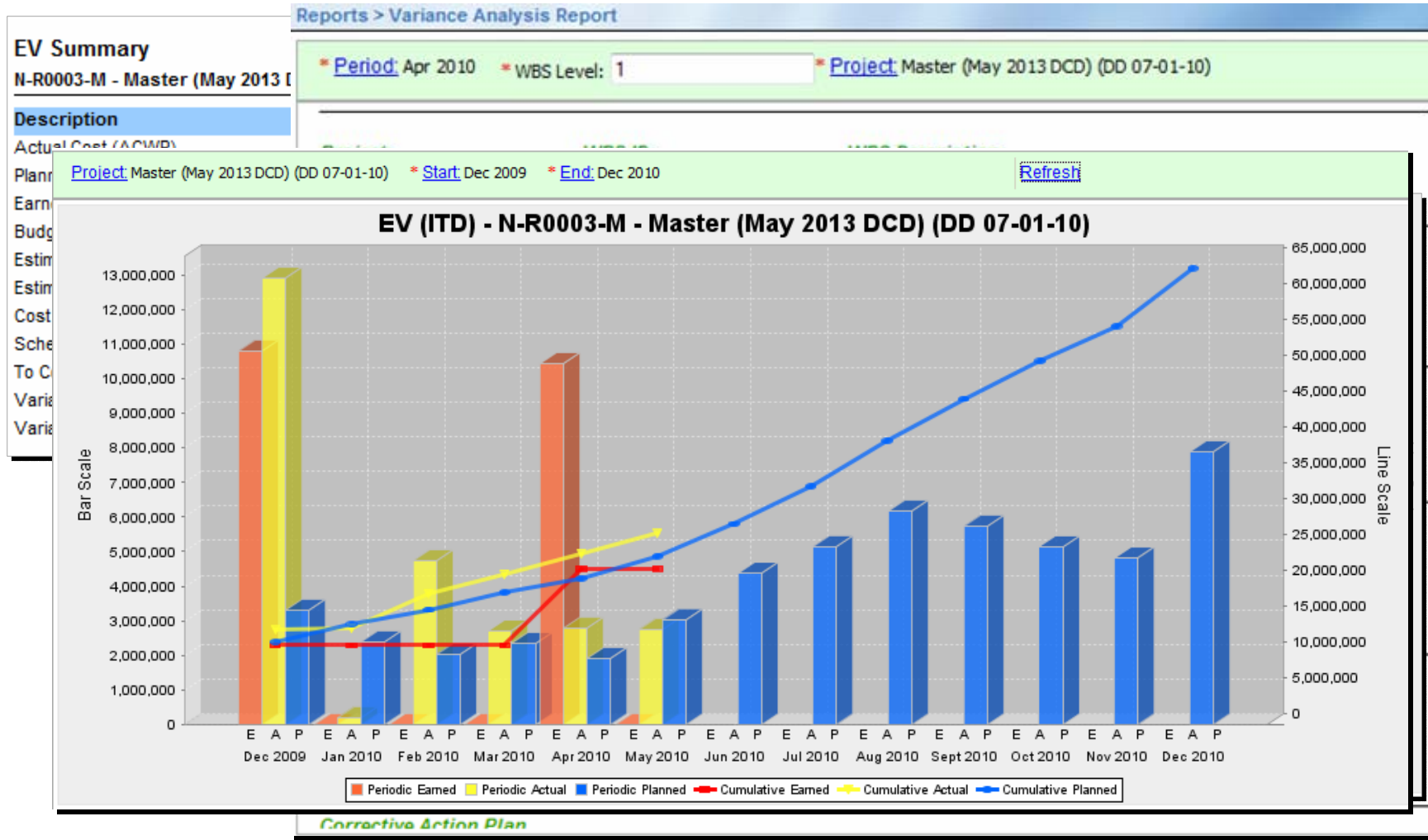
How to Deploy the "Right Amount" of EVM

- Build a solid platform for budgeting, forecasting, and change management

- Use templates for WBS and progress measurement rules

- Standard reports and views for periodic and cumulative trends

- Match terminology to organization culture
  - CPI can be "Earned/Burned," "Productivity," etc.
  - Skip the burden of using ANSI standards when organization has already developed own know how and processes

EcoSys — How to Deploy the "Right Amount" of EVM

- Monitor non-EV KPIs in conjunction with EV metrics
  - Develop a full project performance picture

- Provide ability to provide EVM on costs, hours, or quantities
  - Be able to roll up EVM accordingly

- Document variance analysis and justification
  - Beyond only reporting on trends and variances

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Variance Analysis Tools

* Project: 10-016 - Bluefire Fulton Construction Schedule

Sheet ▼   Edit ▼   Display ▼   Rows ▼

Control Account	Name	Internal Threshold - Cost	Internal Threshold - Schedule	Customer Threshold - Cost	Customer Threshold - Schedule	Threshold Minimum Dollars
A	Administrative Bldg	5%	5%	10%	10%	$30,000
B	Warehouse Bldg	5%	5%	10%	10%	$75,000
C	Water Treatment	5%	5%	10%	10%	$50,000
D	Acid Neutralizaiton/Lime Slaking	40%	80%	25%	95%	$15,000
E	Ethanol Storage/Loadout	5%	5%	10%	10%	$5,000
F	Distillation & Dehydration	5%	5%	10%	10%	$40,000
G	General Area	5%	5%	10%	10%	$32,000
H	Acid Recovery	5%	5%	10%	10%	$3,000
I1	Construction Equipment	5%	5%	10%	10%	$25,000

Control Account	CAM (Name)	Cost Variance	Schedule Variance	ACWP	BCWP	ETC	BAC	CPI	SPI	CPR5 Explanation	CPR5 Impact	CPR5 Corrective Action	CPR5 Monthly Summary	Cost Thresholds Captions - Internal	Schedule Thresholds Captions - Internal
		$14,798	$82,350	$67,552	$82,350	$1,668,185	$1,773,785		0.00						
⊟ 🗁 10-016		$14,798	$82,350	$67,552	$82,350	$1,668,185	$1,773,785	1.22	0.00	---	---	---	---		
⊟ ◈ SUBP		$14,798	$82,350	$67,552	$82,350	$1,668,185	$1,773,785	1.22	0.00	---	---	---	---		
⊟ 🔧 CON		$14,798	$82,350	$67,552	$82,350	$1,668,185	$1,773,785	1.22	0.00	---	---	---	---		
⊞ A	Dan Cox	$0	$0	$0	$0	$0	$0	0.00	0.00	[none]	[none]	[none]	[none]		
⊞ B	Frank Moreno	$0	$0	$0	$0	$0	$0	0.00	0.00	[none]	[none]	[none]	[none]		
⊞ C	Jeff Aune	$0	$0	$0	$0	$0	$0	0.00	0.00	[none]	[none]	[none]	[none]		
⊞ D	Josh Johnson	$14,798	$82,350	$67,552	$82,350	$1,668,185	$1,773,785	1.22	0.00	START CPR 5	START CPR	START CPR5	START CPR		Over Internal Schedule Threshold
⊞ E	Matthew Smith	$0	$0	$0	$0	$0	$0	0.00	0.00	[none]	[none]	[none]	[none]		
⊞ F	Matthew Smith	$0	$0	$0	$0	$0	$0	0.00	0.00	[none]	[none]	[none]	[none]		
⊞ G	Dan Cox	$0	$0	$0	$0	$0	$0	0.00	0.00	[none]	[none]	[none]	[none]		

Earned Value Case Studies

- Engineering & Construction / Utilities

- Federal Agency / Transportation

Case Study:
Nuclear Utility Joint Venture

- Nuclear Power Generation & Operations company with major R&D, Construction, and Services projects in Canada & US

- Standardized on SAP and Primavera P6

- Requirement for centralized platform went beyond need for integration

- Deployed EcoSys for integrated EVM/ performance management, reporting, and controls

Integration Approach

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Timesheets

SAP

Actual Costs
Timesheets
Commitments
Revenue

WBS & WBS Status
Budgets, Forecasts

EcoSys EPC

Integrated Earned Value Mgmt
Budgets & Forecasts
Commitments
Actual Costs, Revenue
Change Orders
Project Cost Reporting
Historical Snapshots
Transaction/Audit Repository

ORACLE PRIMAVERA

Projects, WBS
Dates
Labor plans
Percent Complete

EcoSys™   Highlights of Approach

- EV Technique Varies by Work Package

- Full Time-Phased History of Earned Value by Month

- EV Measures based on both Hours and Costs

- Performance analysis by Month, Year, and Project Life

- Change & Trend Management integrated into Current Budget & Current Forecast

- EV Reports can be run by toggling Baseline Budget =Cur Budget or Cur FC

- Ability to analyze performance & ETC by Alternate Breakdown Structures:

  - Discipline

  - OBS

  - Cost Type (Labor, Material, ODCs, etc)

Planning Process: WBS and ABS
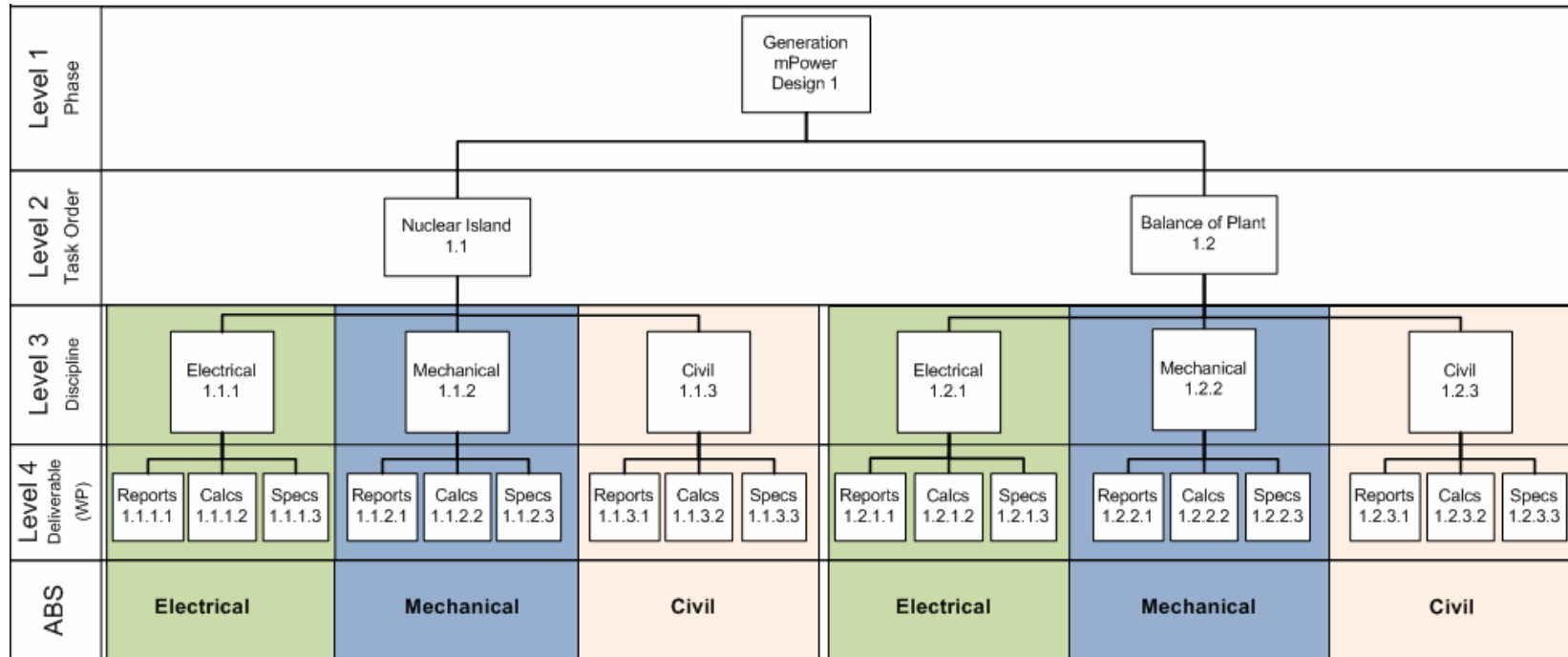
WBS	Planned Value A	Earned Value B	Actual Cost C	CPI D=B/C	Cost Var E=B-C	SPI F=B/A	Sch Var G=B-A	TCPI H
1.1.1.1 Reports								
1.1.1.2 Calcs								
1.1.1.3 Specs								
1.2.1.1 Reports								
1.2.1.2 Calcs								

ABS	Planned Value A	Earned Value B	Actual Cost C	CPI D=B/C	Cost Var E=B-C	SPI F=B/A	Sch Var G=B-A	TCPI H
Electrical								
Mechanical								
Civil								

EcoSys — Standardized Performance Reporting

## Cumulative & Periodic Performance

ER01 - Project Earned Value Report - Summary
EV on Budget - Dollars in Thousands

	Original Budget A	Scope Changes B	Current Budget C = (A+B)	Other Trends D	Current Forecast E = (C+D)	Cumulative Performance								Periodic Performance						
						Sched Cost G	Earned Cost H	Actual Cost I	SPI J = (H/G)	CPI K = (H/I)	TCPI L	Sched % Comp M = (G/C)	Earn % Comp N = (H/C)	Sched Value O	Earned Value P	Actual Cost Q	SPI R = (P/O)	CPI S = (P/Q)	Sched % Comp T = (O/C)	Earn % Comp U = (P/C)
Nuclear Island	16,808		16,808		16,808	1,100	1,163	1,145	1.06	1.02	1.00	6.5%	6.9%	184	246	228	1.34	1.08	1.1%	1.5%
Turbine Island	2,017	350	2,367		2,367	264	281	272	1.07	1.03	1.00		11.9%	40	57	48	1.43	1.19	1.7%	2.4%
Balance of Plant	11,389		11,389	2,500	13,889	676	762	660	1.13	1.16	0.99	5.9%	6.7%	145	231	128	1.59	1.80	1.3%	2.0%
Support Services	13,931		13,931		13,931	1,630	1,621	1,629	0.99			11.7%	11.6%	206	197	205	0.96	0.96	1.5%	1.4%
Core Team	6,954	120	7,074		7,074	856	856	846	1.00		1.00	12.1%	12.1%	110	110	100	1.00	1.10	1.6%	1.6%
Nuclear Steam Supply System	8,337		8,337	1,100	9,437	301	115	119	0.38	0.97	1.00	3.6%	1.4%	301	115	119	0.38	0.97	3.6%	1.4%
Component Design	9,456	1,100	10,556		10,556	388	206	135	0.53	1.53	0.99	3.7%	2.0%	388	206	135	0.53	1.53	3.7%	2.0%
Component Testing	2,189		2,189		2,189	37	5	1	0.12	8.01	1.00	1.7%	0.2%	37	5	1	0.12	8.01	1.7%	0.2%
ECCS Condensor	1,065		1,065		1,065						1.00				0					
Fuel	2,443		2,443		2,443	172		86	1.36	2.73	0.94	7.0%	9.6%	172	234	86	1.36	2.73	7.0%	9.6%
IST	5,071		5,071		5,071	2,548	2,380	2,367	0.93	1.01	1.00	50.2%	46.9%	730	564	551	0.77	1.02	14.4%	11.1%
CHF	835		835		835	5	10	1	2.13	9.64	0.99	0.6%	1.2%	5	10	1	2.13	9.64	0.6%	1.2%
Misc - NRC Fees etc	8,313		8,313		8,313	42	1	1	0.02	1.00	1.00	0.5%	0.0%	42	1	1	0.02	1.00	0.5%	0.0%
Support Services	4,444		4,444		4,444	3,317	3,317	3,290	1.00	1.01	0.98	74.6%	74.6%	98	98	71	1.00	1.38	2.2%	2.2%
Total:	**302,648**	**1,570**	**304,218**	**3,600**	**307,818**	**11,334**	**10,950**	**10,551**	**0.97**	**1.04**	**1.00**	**3.7%**	**3.6%**	**2,458**	**2,074**	**1,675**	**0.84**	**1.24**	**0.8%**	**0.7%**

SAMPLE DATA

Flexible Earned Value Analysis

By Project, Category Code, and EV Method
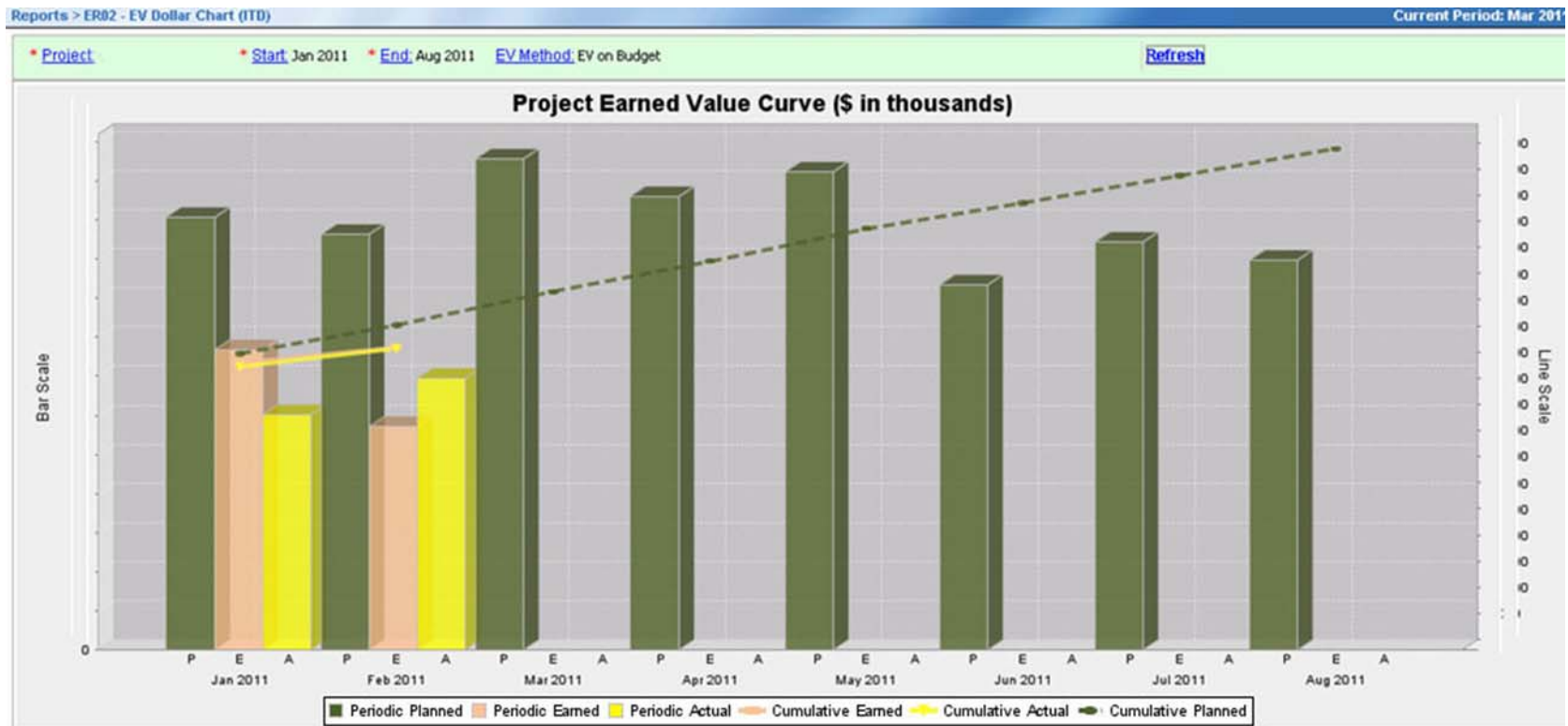
![EcoSys logo] **EVM Dashboards**

Comparisons By Alliance Partner

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Case Study

FAA TAMR Program

Overview:

- Terminal Automation Modernization and Replacement (TAMR) Program within Air Traffic Control – Terminal (ATO-T) Organization
- Modernize Air Traffic Control Systems at Nation's Major Airports
- High Visibility Capital Program

Capital Program Management Innovations:

- Standardize Contractor Submissions with Oracle Primavera P6 Templates
  - EVM Reporting performed based upon FAA's structures
  - Resource loaded schedules drive budgets, forecasts and EVM in EcoSys
- EcoSys Database Consolidates Funding Allocations, Budgets, Estimates, Forecasts, Obligations, Commitments, Expenditures, Performance/EVM
- ATO-T Maintains Vendors and Own Cost and Schedule Forecasts as Separate Versions
- G/L Actuals Are Reconciled against Vendor Submissions

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FAA's P6 and EcoSys Solution

- Project activities reported in Primavera based on standard EVM techniques such as
  - Physical % complete – based on weighted Steps
  - Level of Effort - % duration
  - Milestone % complete

- Integrated with EcoSys to import Units, % complete and dates
  - Primavera planned, Actual and Remaining units used to calculate forecast, Actual and Remaining costs by project
  - Schedule and Performance % complete info that is calculated based on duration or Steps used for EVM metrics
  - Dates imported used for reporting purposes

Performance Measurement

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Layout: Classic Schedule Layout				Filter: All Activities					2011				
Activity ID	Primavera Activity Code	FAA WBS	Activity Step Count	Activity Name	Remaining Duration	Start	Finish			Q1	Q2	Q3	Q4	Q1
Site Survey and Design			34		291	03-Jan-11	29-Feb-12						
Dependencies			1		2	03-Jan-11	04-Jan-11						
Overhead			0		291	03-Jan-11	29-Feb-12						
Project Planning			19		52	03-Jan-11	17-Mar-11						
411100	40115	1.1	0	Project Authorization (PA) for Advance Engineering	0	03-Jan-11							
411120	40113	1.1	15	Develop Project Plan	50	05-Jan-11	17-Mar-11						
411130	40117	1.1	0	Project Transfer and Assignment	5	20-Jan-11	26-Jan-11						
411140	40118	1.1	4	Initial Site Survey and Report	20	10-Feb-11	10-Mar-11						
411150	40217	1.1	0	Project Scope Agreement Complete (PJSA)	0		17-Mar-11						

General | Status | Resources | Codes | Relationships | Notebook | Steps | Feedback | WPs & Docs | Expenses | Summary

Activity 411140 | Initial Site Survey and Report | Project AUS

Step Name	Completed	Step Weight	S
Facility Equipment Profile List	☐	1.0	
Site Survey	☐	3.0	
Exit Briefing	☐	0.5	
Report	☐	1.0	

Layout: Classic Schedule Layout				Filter: All Activities
Activity ID	Primavera Activity Code	FAA WBS	Activity Step Count	Activity Name
3035N00010	3035N	5	13	HW Procurement

General | Status | Resources | Codes | Relationships | Notebook | Steps | Feedback | WPs & Docs | Expenses | Summary

Activity 3035N00010 | HW Procurement

Step Name	Completed	Step Weight	Step Weight Percent		Custor
Customer Review and Approval od ISADSR	☐	6.1	6.1		A
Disassenbly and Pack for Shipping to Site	☐	1.9	1.9		
Drop 1 Adaptation check-out on String	☐	8.2	8.2		
Drop 1 for System Preparation	☐	28.3	28.3		
Drop 2 for FAT Dry Run	☐	19.1	19.1		
Equipment Delivered to System Preparation Facility	☐	11.5	11.5		
Factory Acceptance and Test - Dry Run	☐	0.6	0.6		
Formal Factory Acceptance and Test	☐	0.6	0.6		
Install Equipment at Site	☐	4.5	4.5		
Kick-off Preperation - Initial Adaptation	☐	6.5	6.5		
PCA	☐	1.3	1.3		
Start-Up and Check-Out	☐	1.3	1.3		
Start-Up and Check-Out - Final	☐	10.2	10.2		

Most Activities updated using weighted Steps

Questions?

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Thank you!

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