DOE Update

Spring 2022 NDIA IPMD

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Office of Project Management
US Department of Energy
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Agenda

- DOE EIA-748 EVMS – Facts, Stats, and Trends
- ASU Study - Update
- PM Guides – Updates and New
- EVMS Compliance Material Updates
- PARS/Data Analytics
  - Updates
  - Benchmarking
  - Escalation
  - Analytics

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EIA-748 EVMS – Facts, Stats, and Trends

- Since 2019 with the initiation of the ***ASU Joint EVMS Research Study*** there have been five (***5***) EVMS compliance reviews spanning NNSA, EM, and FE projects
- Time to complete EVMS compliance review process …mostly driven by contractor ***corrective actions***
- On the average, ***16 of 32*** EIA-748 guidelines have been determined to be consistently non-compliant
- The EIA-748 guideline found to be non-compliant most is ***Guideline 6***: Schedule the authorized work in a manner which describes the sequence of work and identifies significant task interdependencies required to meet the requirements of the program
- ***95%*** of respondents to a 2021 PM-30 Survey felt that a ***project's culture*** was important for implementing an EVMS that is compliant with the EIA-748 guidelines
- ***52%*** of those same respondents felt that an ***obstacle for genuinely implementing*** the EVMS is the stigma that it is more of a regulatory burden where costs outweigh benefits rather than a necessity for managing work scopes
- ***66%*** of respondents felt the ***complexity of the testing*** is a primary driver to the stigma of why the EVMS is overly burdensome and costly to administer
- ***57%*** of respondents felt ***fewer tests*** can be used for determining EIA-748 compliance
- ***90%*** of respondents ***strongly favored or favored*** the methods and techniques coming from the ASU Joint EVMS Research Study for determining EIA-748 compliance…***IP2M METRR***

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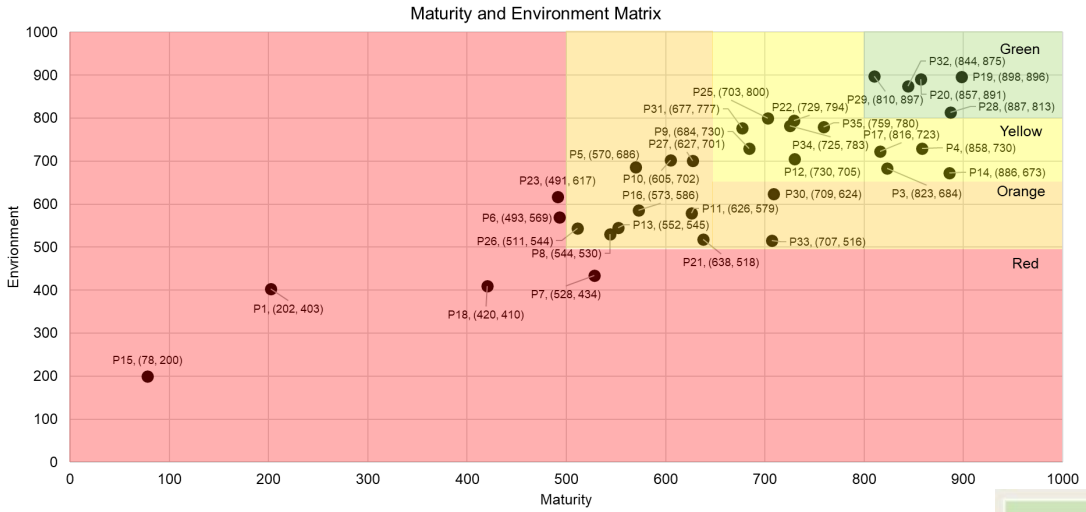
ASU EVMS Research Study - Results



	Coefficient *r*	
	Positive	**Negative**
Strong	1 to 0.8	-0.8 to -1
Moderate	0.8 to 0.5	-0.5 to -0.8
Weak	0.5 to 0.3	-0.3 to -0.5
No Correlation	0.3 to 0	0 to -0.3

GREEN (>800)	
N:	5
Mean Cost Growth:	-0.3%
Mean Schedule Growth:	-5.9%

YELLOW (700-799)	
N:	7
Mean Cost Growth:	+13.7%
Mean Schedule Growth:	+3.8%

ORANGE (500-699)	
N:	15
Mean Cost Growth:	+48.2%
Mean Schedule Growth:	+26.9%

RED (<500)	
N:	6
Mean Cost Growth:	+92.3%
Mean Schedule Growth:	+24.3%

Metric	Statistical Comparison	Test	Sig.
Cost Growth (in %)	green vs. yellow vs. orange vs. red	Kruskal-Wallis	0.007*
Schedule Growth (in %)	green vs. yellow vs. orange vs. red	Kruskal-Wallis	0.102

*Result is significant at 0.05 level

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BLUF: ASU Joint EVMS Research Study

In terms of Project Performance

Maturity is Important

…but Environment is what Matters

"Environment is the broth of the EVMS soup, making it taste either good or bad."

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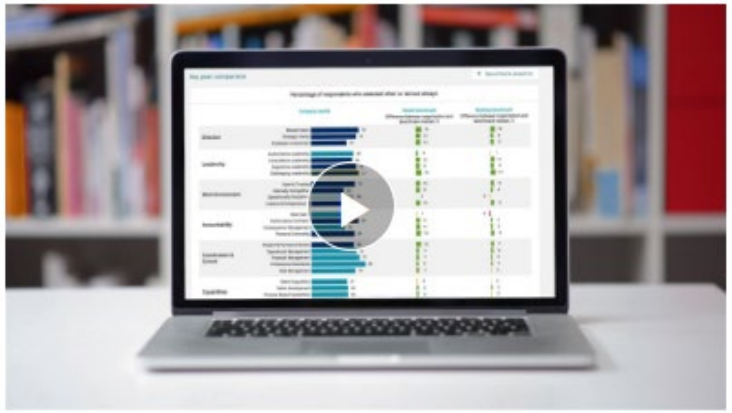
Environment – Others Also See Its Importance

[Organizational Health Index | McKinsey & Company]

https://www.mckinsey.com/solutions/orgsolutions/overview/organizational-health-index



Put real numbers and targeted actions on organizational health

An organization's health—its ability to align around and achieve strategic goals—is critical for long-term performance. However, many leaders overlook organizational health because they lack a clear way to measure and improve it. Organizational Health Index (OHI) applies analytical rigor to organizational health management. Our quantitative diagnostics and proven recipes for success empower senior leaders to measure and achieve the organizational health required to sustain long-term performance.

Contact Us

BENEFITS

Benchmark your health

The OHI benchmark provides leaders with a detailed picture of their organizations' health compared to peers. With over 1 billion data points across geographies and industries, it offers a global standard to measure and manage organizational health.

Align your organization

Sustained performance requires different functions, teams, geographies, and tenure levels to share a common set of goals and priorities. The OHI helps leaders find the disconnects and get everyone on the same page.

Drive organizational performance

The OHI survey and benchmarking data explain up to 50 percent of performance variations within companies. This helps leaders analyze the impact of company practices and culture on performance and create an implementation roadmap to improve it.

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ASU EVMS Research Study - Public Articles

Reports	Location
Report 1 Forward-looking State-of-the-Art Review on Earned Value Management Systems (EVMS): The Disconnect between Academia and Industry	IP2M METRR from ASU Engineering https://ip2m.engineering.asu.edu/
Report 1 Annex A - Full Literature Review Reference List	
Report 2 Earned Value Management System State of Practice: Identifying Critical Subprocesses, Challenges, and Environment Factors of a High-Performing EVMS	
Report 2 Annex A- Survey Analysis Result	
Report 3 EVMS Environment Journal Paper	
Report 3 Annex A - EVMS Environment Assessment Tool Development Process Research Report	
Report 4 EVMS Maturity Journal Paper	
Report 4 Annex A - EVMS Maturity Assessment Tool Development Process Research Report	
Report 5 EVMS Performance Journal Paper	
Report 5 Annex A - EVMS maturity and environment performance workshops / data analysis	
Report 6 - Guidebook	
Report 6 Annex A - Glossary	
Integrated Project/Program Management (IP2M) Maturity and Environment Total Risk Rating (METRR) using EVMS	Earned Value Management | Department of Energy https://www.energy.gov/projectmanagement/earned-value-management

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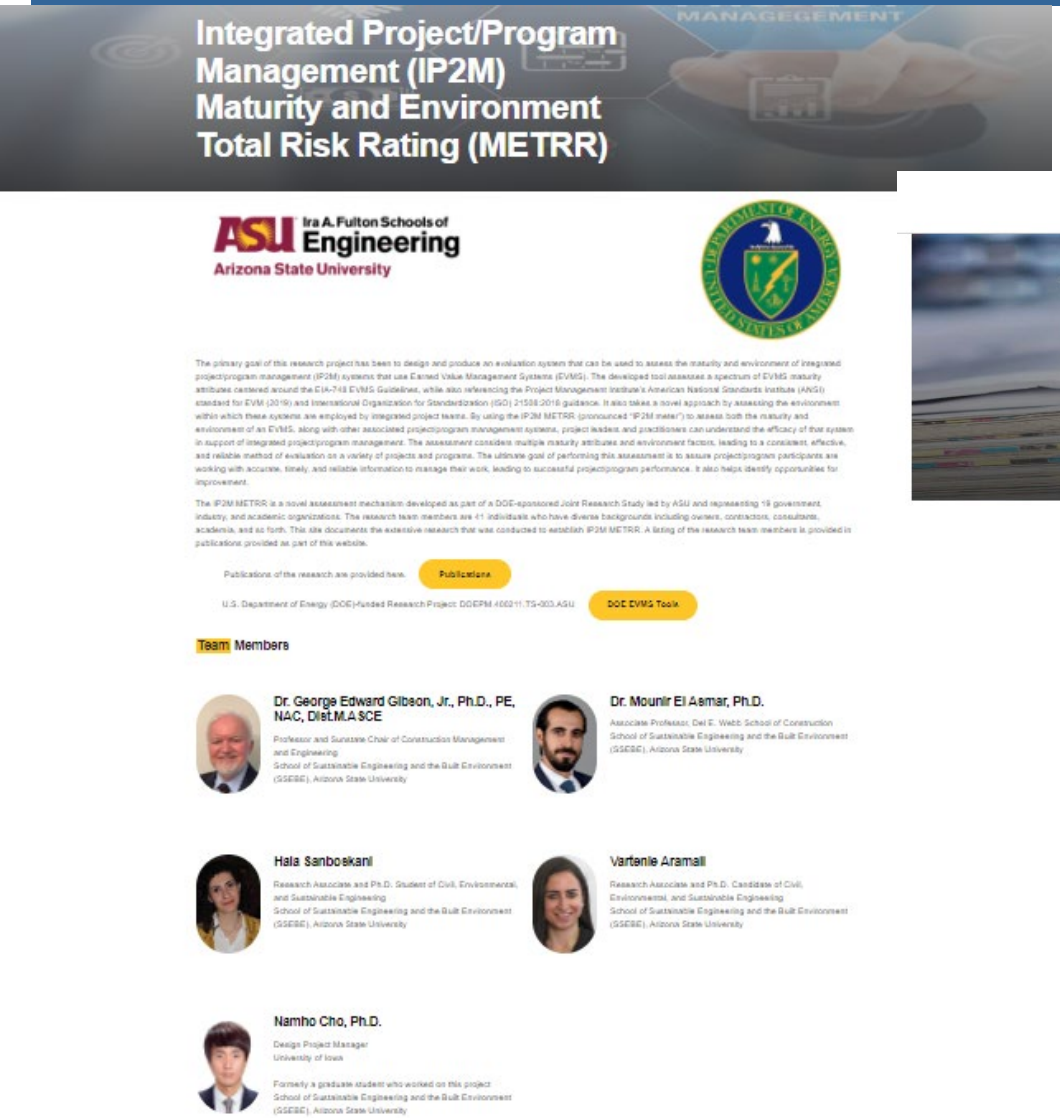
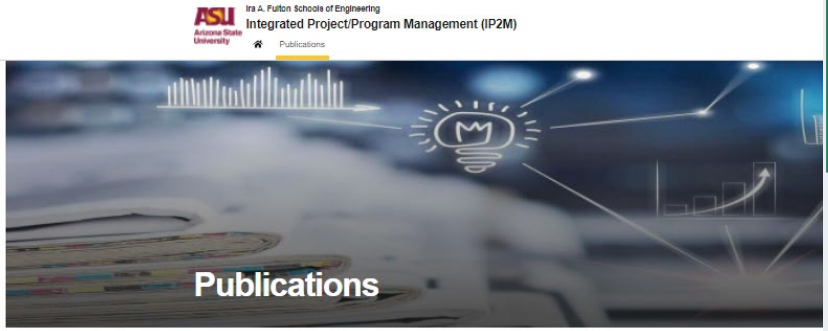
ASU EVMS Research Study - Public Articles

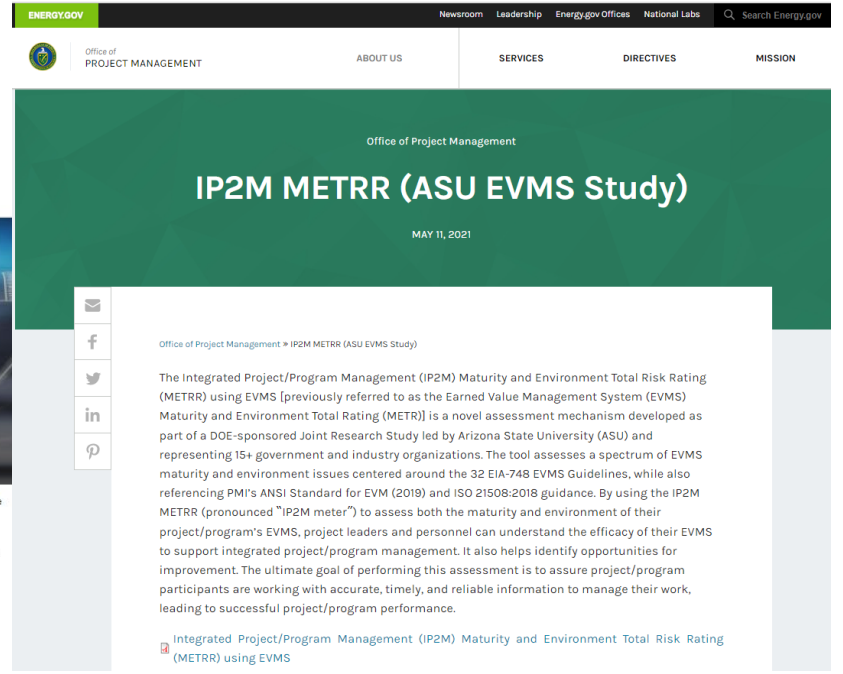




The literature review, methodology, results, and all relevant publications for the IP2M METRR project are provided on this page for the public's use.

Report 1 Forward-looking State-of-the-Art Review on Eraned Value Management Systems (EVMS): The Disconnect between Academia and Industry

Report 1 Annex A – Full Literature Review Reference List



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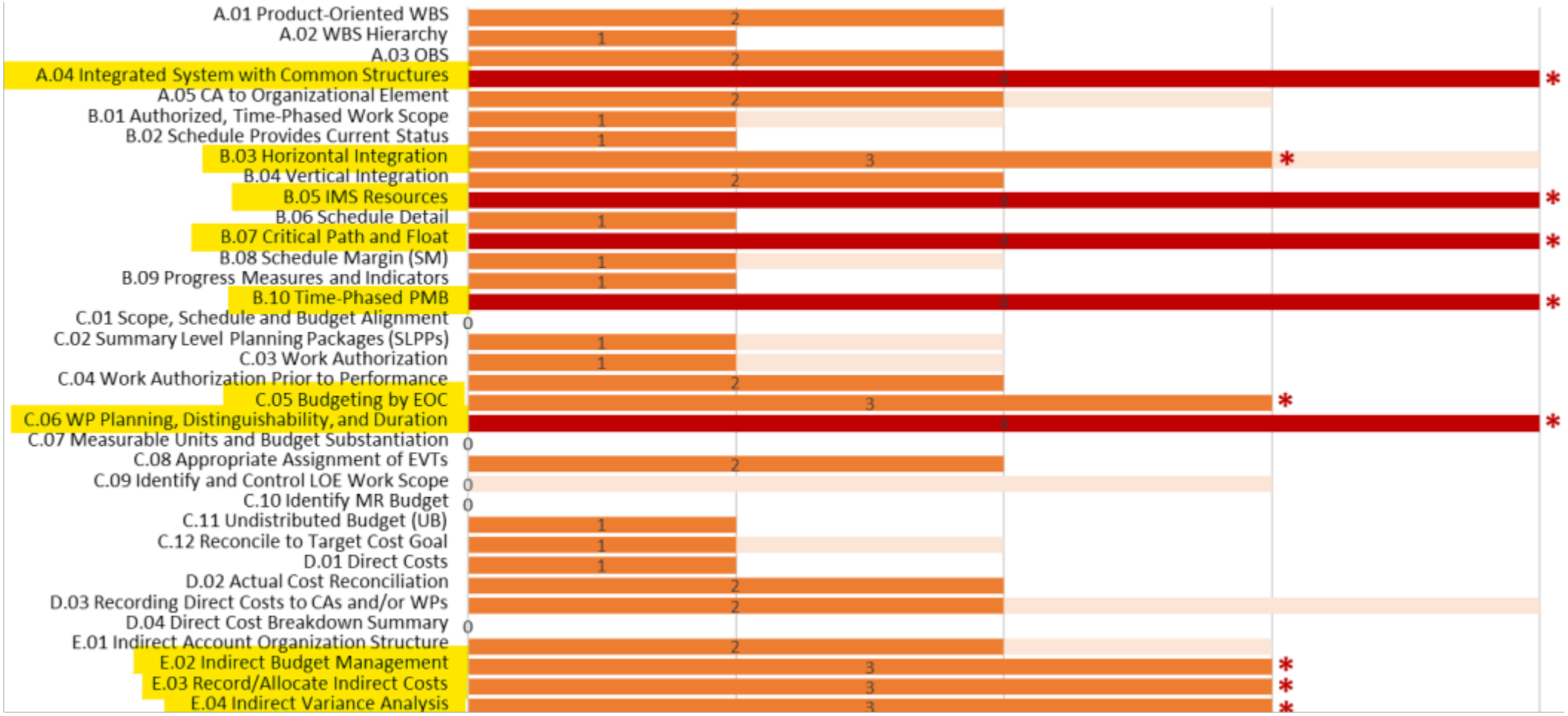
EIA-748 EVMS – IP2M METRR Maturity Trends



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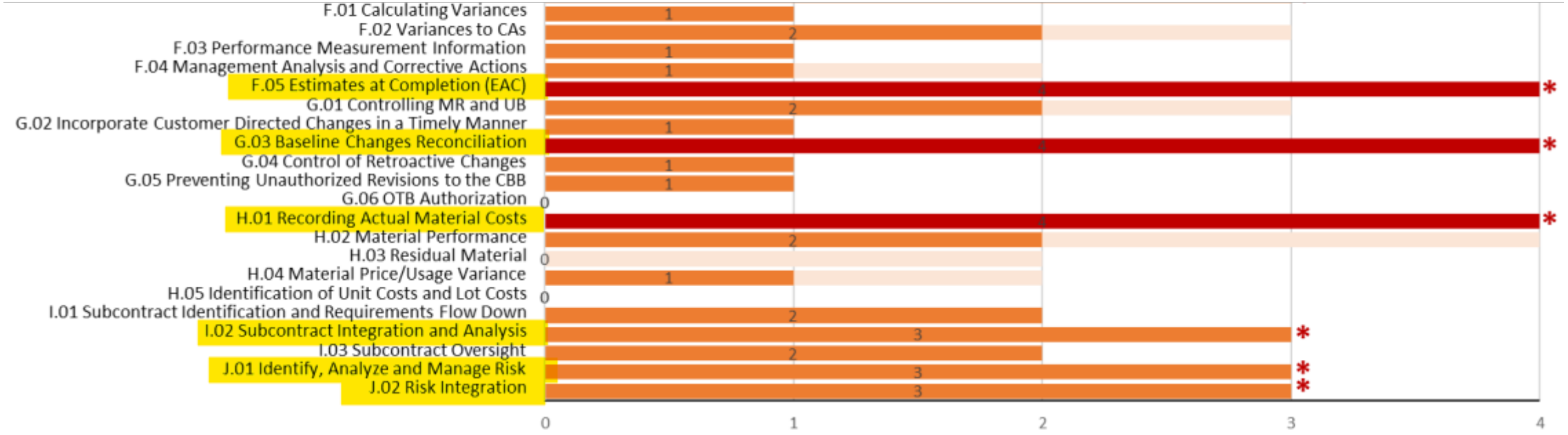
EIA-748 EVMS – IP2M METRR Maturity Trends



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EVMS Maturity - Things to Consider

- Key factors to consider for ***A. Organizing***:
  - ***A.1.*** A single product-oriented Work Breakdown Structure (WBS) encompasses all authorized work and decomposed to the appropriate levels for effective management and reporting
  - ***A.2.*** A hierarchical and incremental decomposition of the WBS (tree structure) which shows the subdivision of authorized work required to achieve project objectives
  - ***A.3.*** An Organizational Breakdown Structure (OBS) that encompasses all authorized work decomposed to the appropriate organizational levels
  - ***A.4.*** Integration of management control systems using a common coding structure
  - ***A.5.*** A natural management point (control account) is designated for planning and control of authorized work assigned to one responsible organizational element (or integrated product teams) for a single WBS element.
- ***Organizing Process Level 5 is weighted 96 of 1,000 (or 9.6%)*** possible points

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Top Ten Maturity Issues

- Lack of ***attention to budgetary (vs. funding) responsibilities***
- Not planning and managing work scope ***in an integrated way***
- ***Work authorization policies*** and procedures are not always followed
- Lack of ***integrated management systems***
- Baseline ***fluctuations and frequent replans***
- Current period and ***retroactive changes***
- Improper ***use of Management Reserve (MR)***
- Earned value ***techniques not reflecting actual accomplishment***
- Untimely and ***unrealistic Estimates at Completion (EACs)***
- Lack of critical ***subcontractor integration/oversight***
- Lack of ***predictive variance analysis*** (impact and time)

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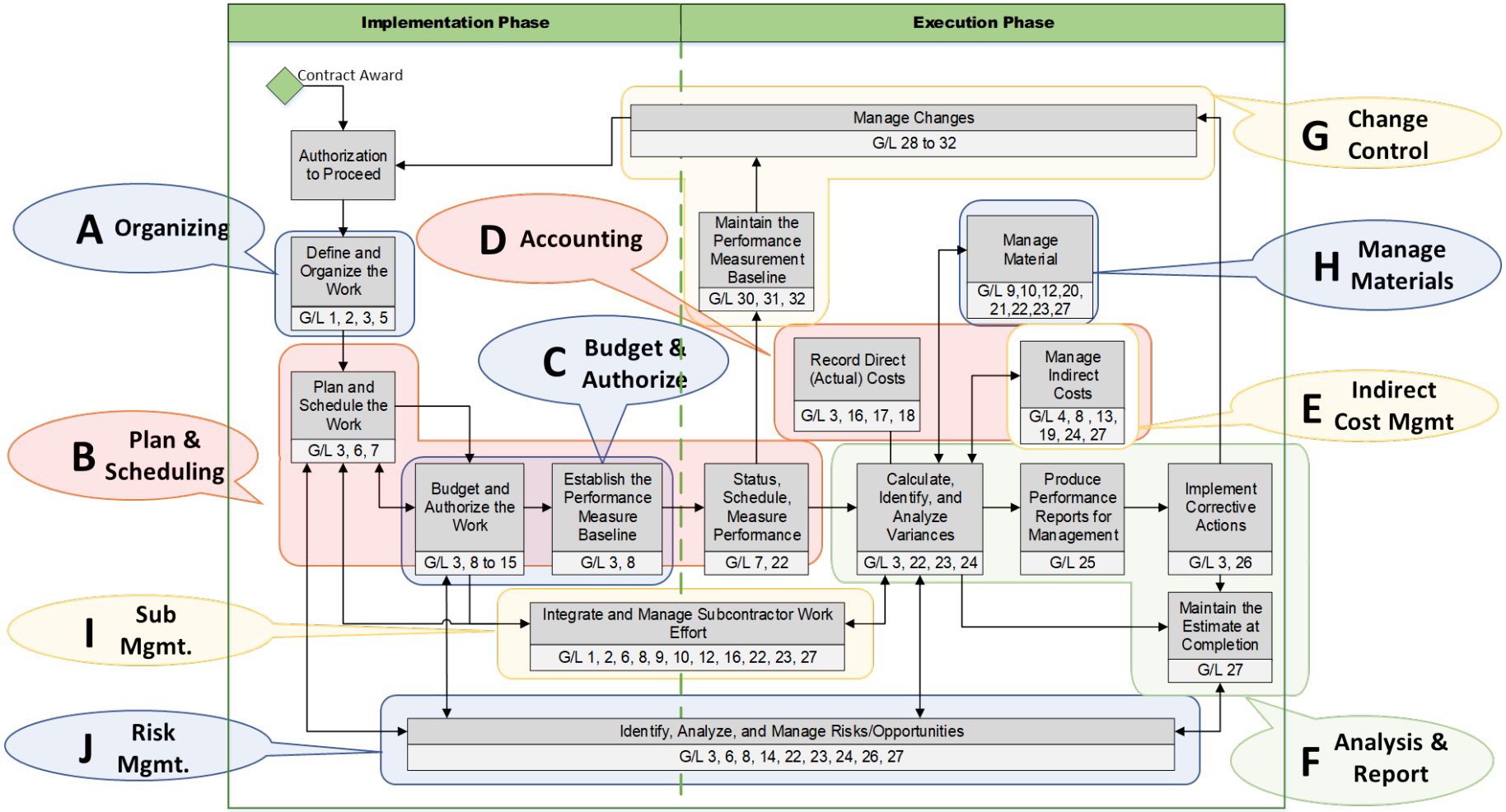
EVMS Processes x Project Phases



Source: NDIA Earned Value Management System Guideline Scalability Guide - Figure 2: EVMS Guidelines and Project Phases

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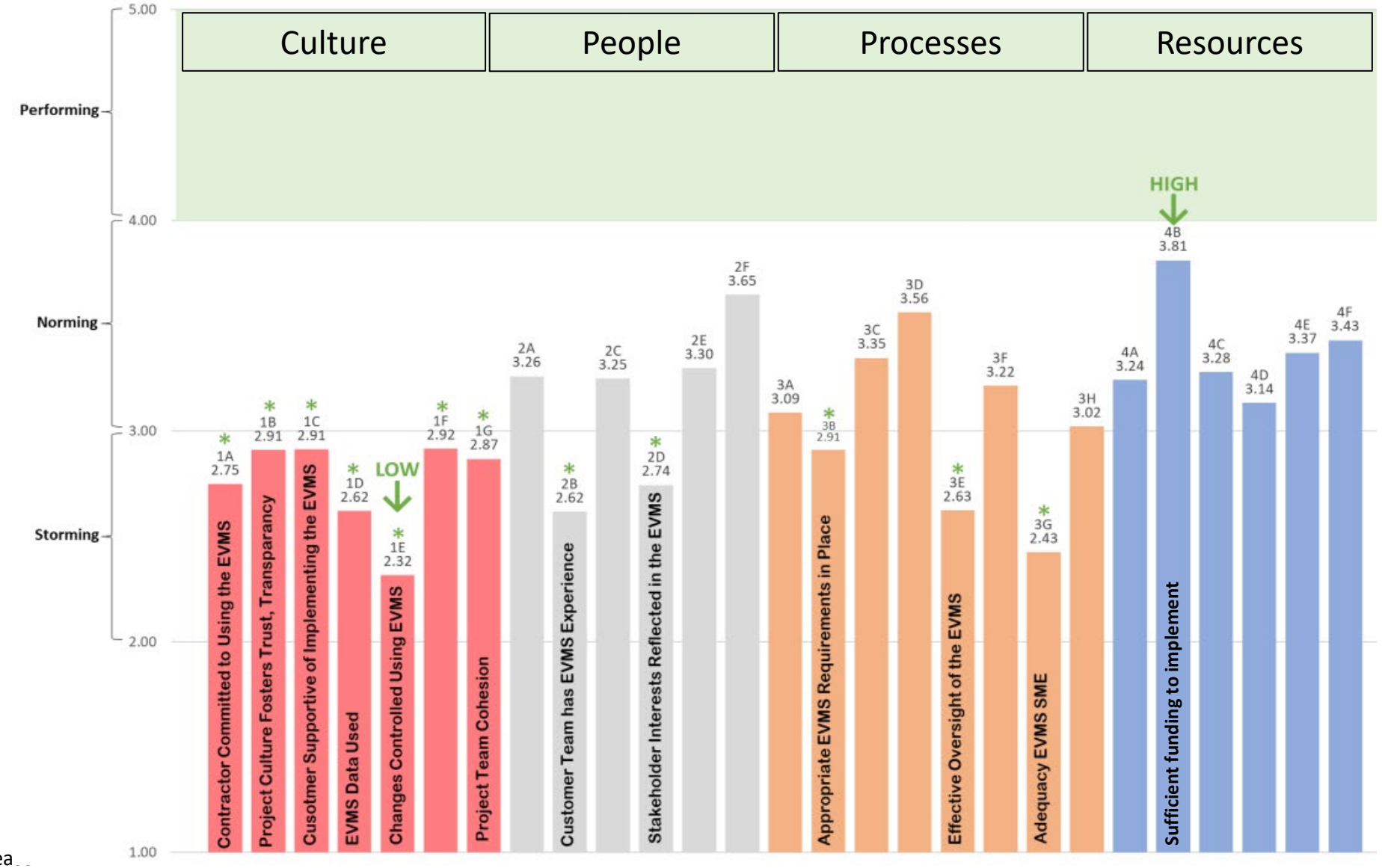
EIA-748 EVMS – IP2M METRR Environment Trends



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Top Ten Environment Issues

- ***Understanding and expertise of EVMS*** compliance is lacking
- ***A genuine commitment*** to the full implementation of the EVMS is needed
- The ***awareness and execution of an Integrated Baseline Review (IBR)*** to assess the realism and achievability of the PMB is lacking
- More times than not EVMS data are not ***a primary source used for decision making***
- Control account variance analysis and associated preventative/corrective actions ***lack follow-through***
- A culture of EVMS compliance as a ***priority/necessity for project success*** is missing
- Environment established by the ***project is often in the Storming Stage*** during its later stages
- ***Customers are overly dependent*** on contractor for inherently customer EVMS oversight and analysis functions
- ***Customers are uninterested in and/or not concerned*** with years-long documented EVMS deficiencies
- Importance and effectiveness of ***contractors EVMS Governance process*** in question

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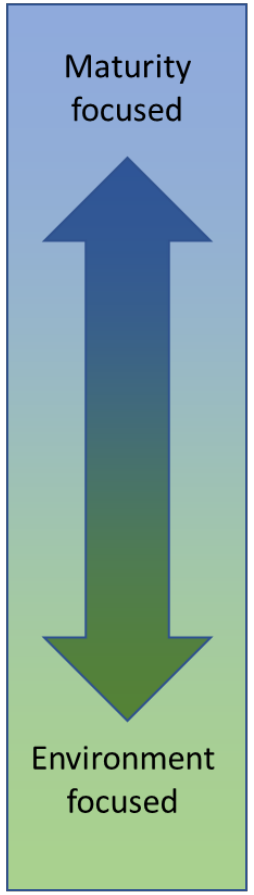
Relationship of Maturity and Environment in a typical 5 Whys Root Cause Analysis

5 WHYS	ISSUE	MATURITY ATTRIBUTE/ENVIRONMENTAL FACTOR
Define the Problem:	*"…current budgets not reconciled to prior budgets…"*	**G3 – CHANGE CONTROL** – Baseline Change Reconciliation
Why #1: Why do budget values not reconcile?	*"…the PMB is not maintained…"*	**G3 – CHANGE CONTROL** – Baseline Change Reconciliation
Why #2: Why is the PMB not maintained?	*"…issues occurred during transition to the new contract…"*	**3F – PRACTICES** – Contractual terms that impact EVMS are known/have been addressed
Why #3: Why did the transition affect implementation?	*"…team did not realize EVMS tools were not functioning…"*	**3A – PRACTICES** – Promote/follow standard practices
Why #4: Why was this allowed to continue?	*"…team did not troubleshoot with formal problem-solving …"*	**3A – PRACTICES** – Promote/follow standard practices
Why #5: Why is that?	*"…belief that troubleshooting was not required (too routine) …"*	**1E – CULTURE** – Leadership effectively manages and controls change



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PM Guides – Updates, Revisions, and New

1. **DOE O 413.3B Chg 6 -** update by 12/2022 – climate/sustainability, root cause/corrective action
2. **DOE G 413.3-10B Integrated Project Management Using EVMS –** released 4/2022
3. **DOE G 413.3-24 Planning and Scheduling –** released 4/2022
4. **DOE G 413.3-20 Change Control Management –** expect release 8/2022
5. **DOE G 413.3-12 Front-End Planning and Project Definition Rating Index** – expect release 9/2022
6. **DOE G 413.3-25 Project Scope Development and Management –** expect release 10/2022
7. **DOE G 413.3-4B Technology Readiness Assessment –** update expected 12/2022
8. **DOE G 413.3-26 Project Management Funding –** expect release 12/2022
9. **DOE G 413.3-7A Risk Management -** updated 11/2021 for JCL; comprehensive update 2023
10. **DOE G 413.3-21A Cost Estimating -** comprehensive update 2023
11. **DOE G 413.3-5A Performance Baseline -** comprehensive update 2023

Directives | Department of Energy or https://www.energy.gov/projectmanagement/directives

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PM EVMS Compliance Material Updates

1. **EVMS Compliance Review SOP (ECRSOP)** - expect release early 5/2022
2. **EVMS Compliance Assessment Governance (CAG)** - expect release early 5/2022
3. **EVMS Compliance Reference Crosswalk (CRC)** - expect release early 6/2022
4. **DOE Metrics Update** – V4 released 1/2022; V5 expect release 2023
5. **Independent Review Schedule Analysis SOP (IRSASOP)** – draft released 3/2022

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Summary: Key EVMS Compliance Review SOP (ECRSOP) revision changes

Current ECRSOP is dated November 2018; synopsis of key changes:

1. **Add content for EVMS maturity attributes and environmental issues**
2. **Simplify and add flexibility to DOE compliance process -** reduction of steps from **42 to 15**
   - Create charter for each review
3. **Incorporation of iterative, collaborative, less structured approach**
4. **Streamline document –** update supporting tools:
   - Eliminate 2 Appendices
   - Move definitions to common PM platform
   - Move attachments to PM ECRSOP Appendices - Dept of Energy-External - MAX Federal Community or https://www.energy.gov/projectmanagement/ecrsop-appendices-materials

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ECRSOP Changes – Streamlined Process

Need Determination

1. Identify/Track EVMS-Applicable Projects
2. Determine Type of Review Needed
3. Go/No Go Decision

Initial Visit

4. Determine Need for IV
5. Identify/Plan/Schedule Team Resources, Coordinate Dates
6. Issue Contractor Notification
7. Conduct IV
8. On-Site Certification Review Date Established
9. Document Visit

Data Analysis

10. Identify/Plan/Schedule Team Resources
11. Issue Contractor Notification w/ Data Call
12. Upon Receipt of Data, Assign Activities
13. Document Results; Identify Concerns

Readiness Assessment

14. Assess Contractor Readiness
15. Conduct Readiness Assist Visit (as needed)
16. Document Results
17. Go/No Go Decision

On-Site Preparation & Review

18. Identify, Plan, and Schedule Team Resources
19. KTR Notification Issued w/Request for Pre-Review
20. Compliance Review Team Assembled
21. Conduct Artifact Traces & Final EVM SD Review
22. Interview Selections Determined and IFFs Created
23. Pre-Visit Security Paperwork
24. Pre-Visit Review Team Preparation Meeting
25. Security In-processing
26. Opening PM-30 Brief
27. Contractor Brief
28. Conduct and Document Interviews
29. Daily Review Team Meetings
30. Daily Contractor Out-briefs
31. Draft CARs, DRs, and CIOs, and GL Summaries
32. Exit Brief to Contractor

Post Review and Closeout

33. Finalize CARs, DRs, CIOs, and GL Summaries
34. Draft EVMS Compliance Review Report
35. Conduct Factual Accuracy Review
36. Issue Report w/CARs, DRs, and CIOs
37. KTR Corrective Action Management Plan
38. CAMP Closeout (Remote or On Site)
39. Review Evidence Package
40. Close CARs/DRs as Verified
41. Issue Memo to CO
42. Post Documentation to Central Repository

CURRENT version: 6 Phases, 42 Steps

REVISED version: 4 Phases, 15 Steps

1 Identify EVMS-Applicable Projects and Review Requirements

2 Develop charter with contractor

3 Identify, Plan, and Schedule Additional Resources

4 Data acceptance (GO/NO GO)

5 Data delivery

6 Identify concerns: project environment, EVMS maturity

7 Document issues and concerns from review

8 Determine if issue(s)/concern(s) are deficiencies

9 Assess materiality and impact of deficiencies

10 Document findings as CIOs, DRs, CARs in Review Report

11 Contractor Corrective Action Management Plan (CAMP)

12 Validate contractor has corrected deficiencies

13 Communicate certification to stakeholders

14 Document review in Central Repository

15 Perform on-going surveillance

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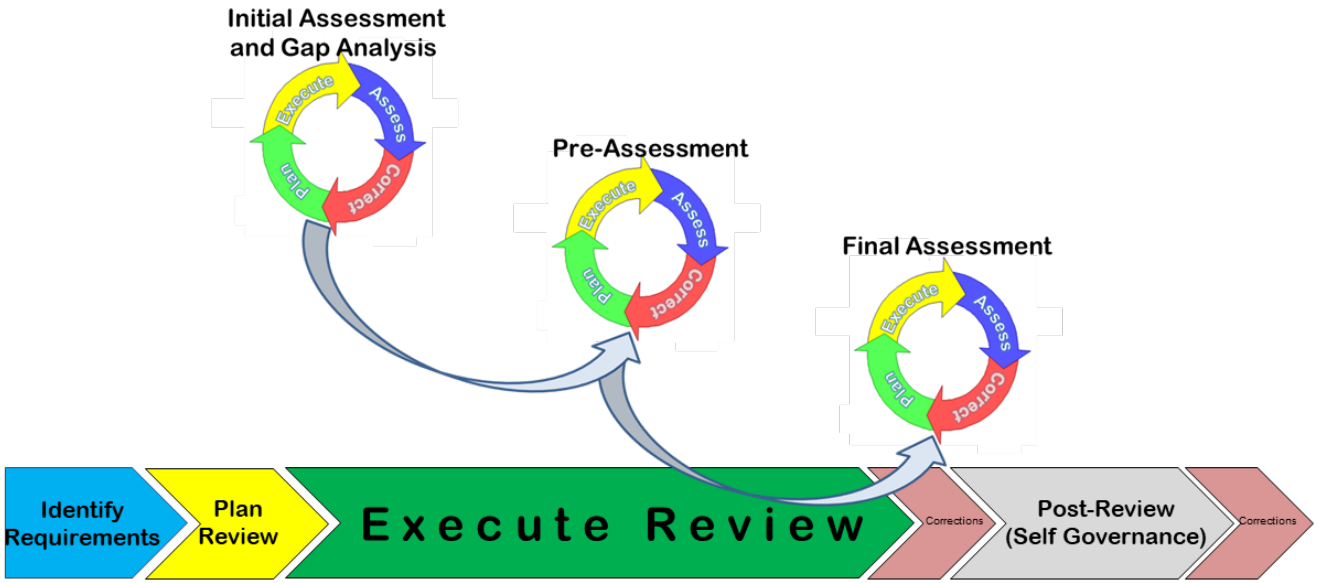
ECRSOP Changes – Flexibility for iterative approach

Based on the Charter, an iterative approach could include:

- Initial collaborative review for some portion (or all) of the contractor's data through automated metrics to identify gaps;
- A pre-assessment, to identify high and low-risk attributes/metrics; and
- A final assessment with any documented non-compliances.



Compliance Assessment Governance (CAG) Update

Current CAG is dated November 2018; synopsis of key changes:

- Fully alignment and traceability to to IP2M METRR and prior CAG
- Clarify IP2M METRR overlap (two areas with similar elements)
- Incorporation of newsletter or previous guidance in the intervening period – clarification of existing expectations

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Compliance Reference Crosswalk (CRC) Update

Current CRC is dated May 2021; under revision. Synopsis of upcoming changes:

- **Align requirements to IP2M METRR attributes and new DOE CAG (*soon to be published*)**
- **Tie Assessment to Maturity Levels -**
  - Intent Not Met, Silent -Not Addressed
  - Intent Not Met, Major Gaps
  - Intent Not Met, Minor Gaps
  - Intent Met
  - Intent Met/Exceeded

To be released within 60 days after CAG is published

Metrics 4.0

EVMS Compliance Metrics V4.0 was released 1/24/2022

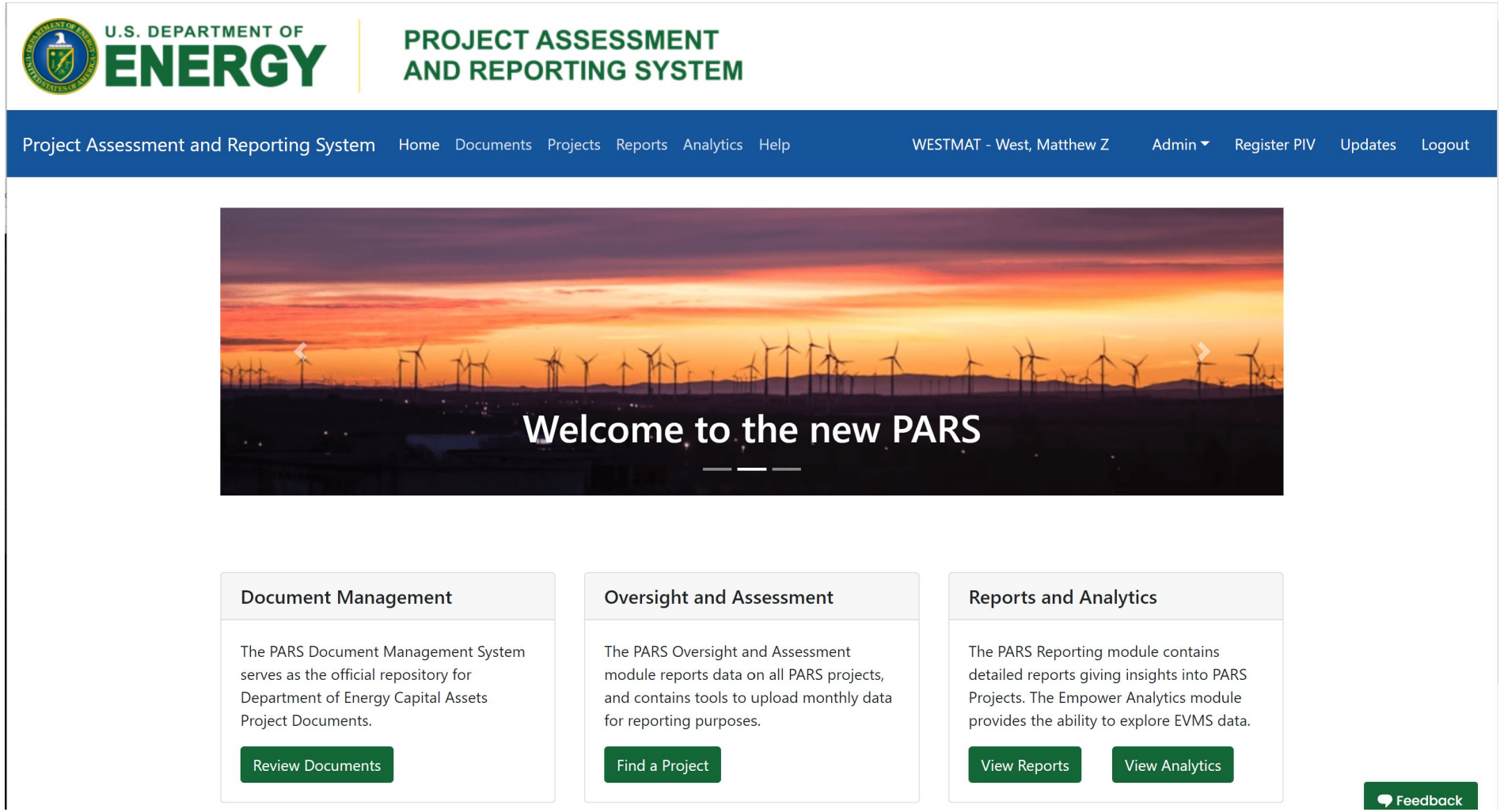
- V4.0 included the following:
  - Metric IDs updated to follow IP2M METRR (Subprocess area and attribute)
  - Updated Block 6 verbiage for metric descriptions
  - Updated Blocks 8 & 14 where necessary for clear calculations
  - Block 11 weights updated for alignment to IP2M METRR weighting model
  - Block 15 references were updated for better alignment
- Will be a V4.1 with very minor changes being released
  - Typos and minor changes that do not change intent of any metrics
- Released a full Metric List & Metric Specification Legend
- Released Zip file of all metric changes to V4.0 for reference
- All Metrics and supporting docs posted to Max: PM ECRSOP & Appendices or https://www.energy.gov/projectmanagement/ecrsop-appendices-materials

Metrics 5.0 & Forward

Currently working on Phase II of metrics review

1. Expected to complete late CY22/early CY23
2. Will result in V5.0
3. Reviewing submitted metrics and changes
4. Working to reduce redundancy and eliminate duplicates
    1. Also reviewing to ensure all metrics add value in assessing compliance
5. Organizing metrics into primary, secondary, and tertiary groups
    1. Will be used to review initial compliance
6. Establishing a CCB process for metric change submissions

Project Assessment and Reporting System (PARS) Updates



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PARS Updates

- Last Provided DOE Project Assessment and Report System (PARS) update to NDIA in 2019.
- PARS moved to new platform on Azure Government
  - Moved away from SharePoint to adopt React and Azure capabilities to speed up use of the system
- Moderate system at DOE for Controlled Unclassified Information and below. Not run on a classified network at this time .
- These changes allow for much more efficient use of resources in terms of operations, maintenance, and development.
- PM works with EFCOG , Federal Field and HQ teams to develop priorities for updates and enhancements

PARS Updates

Welcome to the PARS Oversight and Assessment Module

○ All ◉ Active ○ On Hold ○ Closed ○ Cancelled ○ Completed ○ Completed and Closed

Search

Information Technology ○ Yes ◉ No Increment ○ Yes ◉ No PM Oversight (No = Other) ◉ Yes ○ No Parent ○ Yes ◉ No

▲ PARS ID	Program	Project Name	DOE Project Number	Project Acronym	Site Code	Status	Information Technology	PM Oversight	Parent	Overview / Assessment	Analytics	Reports
390	EM	Waste Treatment and Immobilization Plant (WTP)	01-D-416	WTP	ORP	Active	No	Yes	No	OA Data	Analytics	Reports
465	EM	Calcine Disposition Project (CDP)	ID-0014B.C2	CDP	INL	Active	No	Yes	No	OA Data	Analytics	Reports
493	SC	Muon to Electron Conversion Experiment (Mu2e)	11-SC-41	Mu2e	FNAL	Active	No	Yes	No	OA Data	Analytics	Reports
505	SC	SNS Second Target Station	19-SC-14	STS	ORNL	Active	No	Yes	No	OA Data	Analytics	Reports
516	SC	Long Baseline Neutrino Facility/Deep Underground Neutrino Experiment (LBNF/DUNE)	11-SC-40	LBNF	FNAL	Active	No	Yes	No	OA Data	Analytics	Reports

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PARS Updates

1188 | SPR-LE2-Big Hill

- Home
- OA Overview
- FPD Toolbox
- CPP Upload

- Project Documents
- Empower
- Reports

Project Milestone

Project Overview

Current Assessment			**CE/PME**	Wilcox, Jennifer L.		**Current CD/BCP**	CD3	**TPC($M)**	**CD-4 Date**	**Days / $M**	**Remaining Balance**
G	**FPD**	SPR	**Project Owner**	Macintyre, Douglas						**Schedule**	$0
	Program	SPR-LE2-Big Hill	**FPD**	Nicholson, Lisa	FPD - Level 2	**Original Approved**		$457	6/23/2021	**Cost**	$13
	PM		**Contractor**	FFPO	EVMS - Not Certified	**Current Approved**		$457	2/28/2025	**Profit/Fee**	$12
Project Status	Active		**PM Analyst**	Bako, Peter		**PM Forecast**		$0		**ODCs**	$10

Critical Decisions						**DOE Performance Baseline Changes**						
	CD-0	**CD-1**	**CD-2**	**CD-3**	**CD-4**							
Approved			6/23/2021	6/23/2021		**Approved**						
TPC ($M)	$0 to $0	$0 to $0	$457	$457	$0	**TPC ($M)**						
CD-4			2/28/2025	2/28/2025		**CD-4**						
Next Planned/Forecasted CD Date		2/28/2025	2/28/2025	**Next CD**	CD4	**Scope**						

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Feedback

PARS and Data Analytics Updates

- To roll out in CY 22
  - Update to flat files for DOE uploads by contractors, working with as well
  - New DID for flat files, IPMR, CFSR
  - Improved data quality checks on monthly uploads
  - Update Empower in PARS to support ASU metrics (DOE Metrics V 4.0)
  - Improve Document Management to identify what is missing and help programs include correct documents in accordance with DOE DocCTN system
  - Add more benchmarking and other data analytics capabilities
  - Update PARS reports to automate Performance Baseline Charts and Tables
  - Add ASU IP2M METRR into PARS for use by Contractors, Federal and Review Teams
  - Migrate all SSRS reports to Power BI
  - Add Workflows for users to help at all levels
  - Update reports to add more user requested features
  - Look where AI/ML improve use

Documents in PARS (DocCTN)

- **In place – audit of documents underway for active projects**

Doc. Type No.	Doc. Category (Short)	Document Category	Document Type (Short)	Document Type	req'd to be in PARS DMS	2021-01-12 DOE O 413.3B Chg 6	2016-02-10 SOP; ICE & ICR v02	2016-05-26 SOP; EIR v3.5	2015-10-22 DOE G 413.3-10A Chg 1 EVMS	pre-CD-0	CD-0	CD-1	CD-3A	CD-2 / BCP	pre-BCP	pre-CD-3	CD-3	pre-CD-4	CD-4	project closeout	>$50M to <$100M	$100M to <$750M
1000	**GENERAL**	**GENERAL**	**GENERAL**	**GENERAL**																		
1001	GENERAL	GENERAL	general	general		R																
1002	GENERAL	GENERAL	maps	maps																		
2000	**PM**	**PROJECT MANAGEMENT**	**PROJECT MANAGEMENT**	**PROJECT MANAGEMENT**																		
2001	PM	PROJECT MANAGEMENT	AoA report	analysis of alternatives report	R	R	R	R			R										R	R
2002	PM	PROJECT MA												R (if necessary)							R	R
2003	PM	PROJECT MA												A								
2004	PM	PROJECT MA											R	R			R	A	R	A	R	R

Doc. Type No.	Doc. Category (Short)	Document Category	Document Type (Short)	Document Type
1000	**GENERAL**	**GENERAL**	**GENERAL**	**GENERAL**
1001	GENERAL	GENERAL	general	general
1002	GENERAL	GENERAL	maps	maps
2000	**PM**	**PROJECT MANAGEMENT**	**PROJECT MANAGEMENT**	**PROJECT MANAGEMENT**
2001	PM	PROJECT MANAGEMENT	AoA report	analysis of alternatives report
2002	PM	PROJECT MANAGEMENT	AS	acquisition strategy
2003	PM	PROJECT MANAGEMENT	AS endorsement (PM)	acquisition strategy endorsement (office of project management)
2004	PM	PROJECT MANAGEMENT	CD, BCP, or cancellation approval memo and SD	critical decision, baseline change proposal, or cancellation approval memo and supporting documentation

Documents in PARS (DocCTN)

User interface in final build now. Will identify what is required – present/missing and also allow user to upload. Also allows many to one – one document that has multiple requirements in it

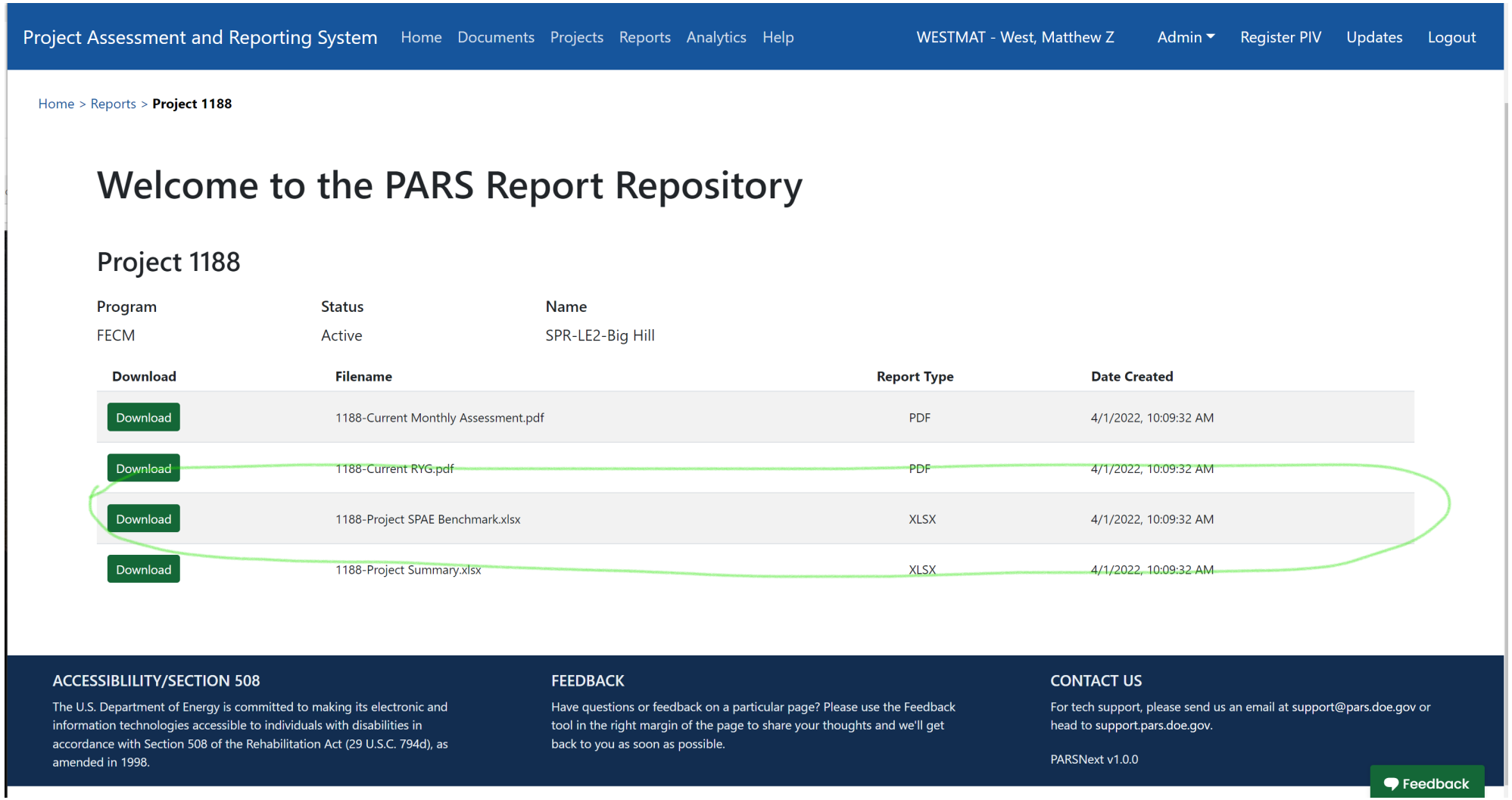
Energy Materials and Processing at Scale Research Capability (EMAPS) Project
21-EE-001
CD0
$165,000,000.00

Doc. Type	# of Documents in DMS	Required?	Meets Requirement?
Analysis Of Alternatives (AoA) Report			
Acquisition Strategy			
Acquisition Strategy Endorsement (DOE-PM)			
CD or BCP Approval Memo	1	X	Yes
Conceptual Design Report			
Code Of Record Documentation			
External Independent Review (EIR)			
FPD Appointment Memo with PM Career Development Program Certification	2		Not required
Independent Project Review with Recommendation Status			
Integrated Project Team (IPT) Charter			
Lessons Learned Report			
Mission Validation Independent Review			
Mission Need Statement (MNS)	1	X	Yes
Mission Need Statement Recommendation (MNS) (Office Of Project Management)	0	X	No
Monthly Status Report [Contractor]	0	X	No

PARS & Data Analytics: Benchmarking

- In August 2021 PARS added a time phased data report to each project to support benchmarking by DOE Programs
  - Within the project report section, “Project SPAE Benchmark” contains time phased BCWS, BCWP, ACWP, and ETC for each WBS element for the life of the project.
  - If a project planned specific efforts to reach CD-2, along with an estimate of $50M to do so, but historically it takes twice a long and twice the cost for like projects, analysis may be conducted to determine if the estimate is realistic.

PARS & Data Analytics: Benchmarking



PARS & Data Analytics: Benchmarking

- Intent in PARS is to support dashboards that allow a user to put in criteria and quickly generate a Cost Estimating Relations (CER) to assist estimators. This is to take advantage of the numerous projects tracked in PARS over the years.

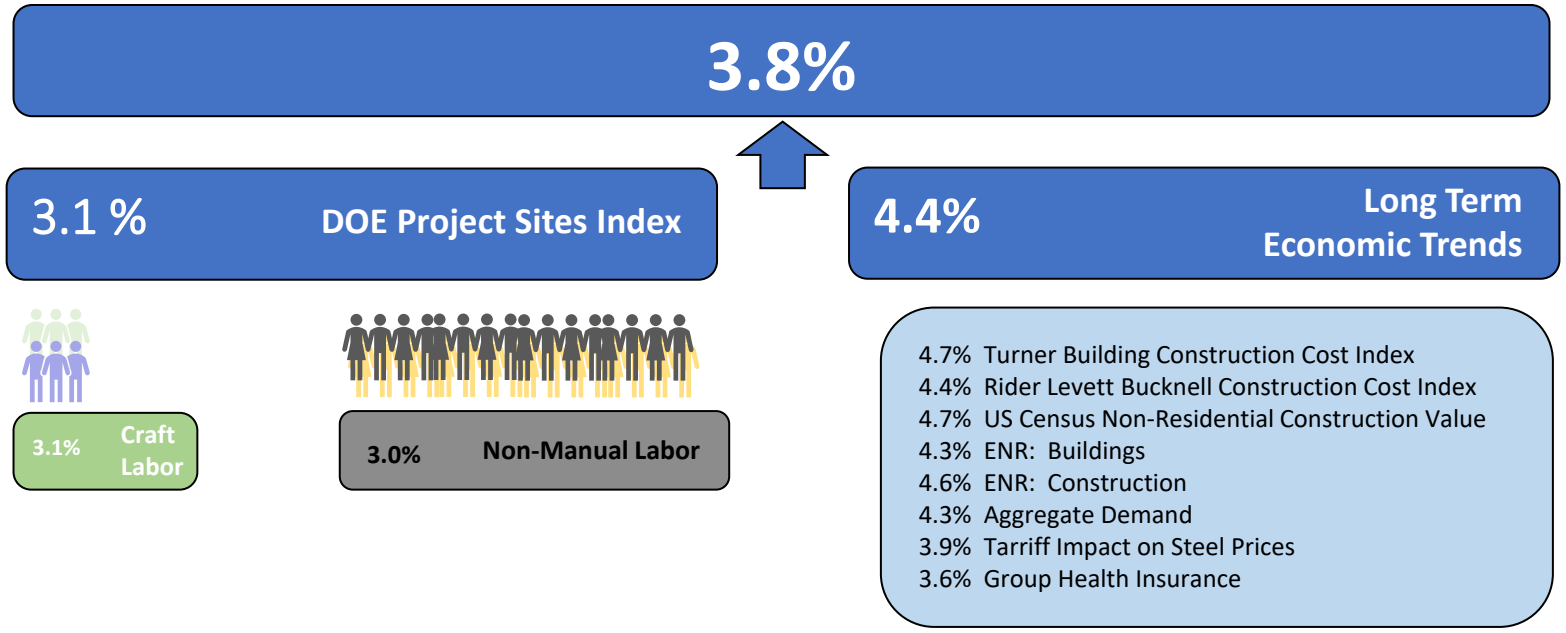
- PARS is adding fields such as gross square feet, hazard category, and FIMS ID (Real Property Database) to allow the system to better support CER development. In addition, with final contractor project performance (CPPs) data uploads on a project, PM is working to map final costs to a high-level time phased work breakdown structure (WBS) at key points in the project as well as for projects that are moving towards baseline. As there is not a standard DOE WBS, the high-level WBS is based on the DOE Guidance.

PARS & Data Analytics: Escalation

- Undergoing an annual update to current model now
- Working to add short-term look to escalation – 3 years out in-addition to long-term look
- Working with many agencies as we update the model
  - OSD CAPE
  - NASA
  - AOC
  - USACE
  - NNSA
- Goal is to make sure that we document and understand difference between agencies as well as work to improve models
- Target to publish update in early June 2022

PARS & Data Analytics: Escalation

- ***2021 Model Output – high level***
- ***Escalation does not equal inflation, as inflation is a component of escalation***
- ***One-time price increase is not inflation***
- **DOE PM utilizes a composite rate of 3.8–4.4%** (based on 2020 data)
  - **Includes both Labor from DOE Sites and Equipment**



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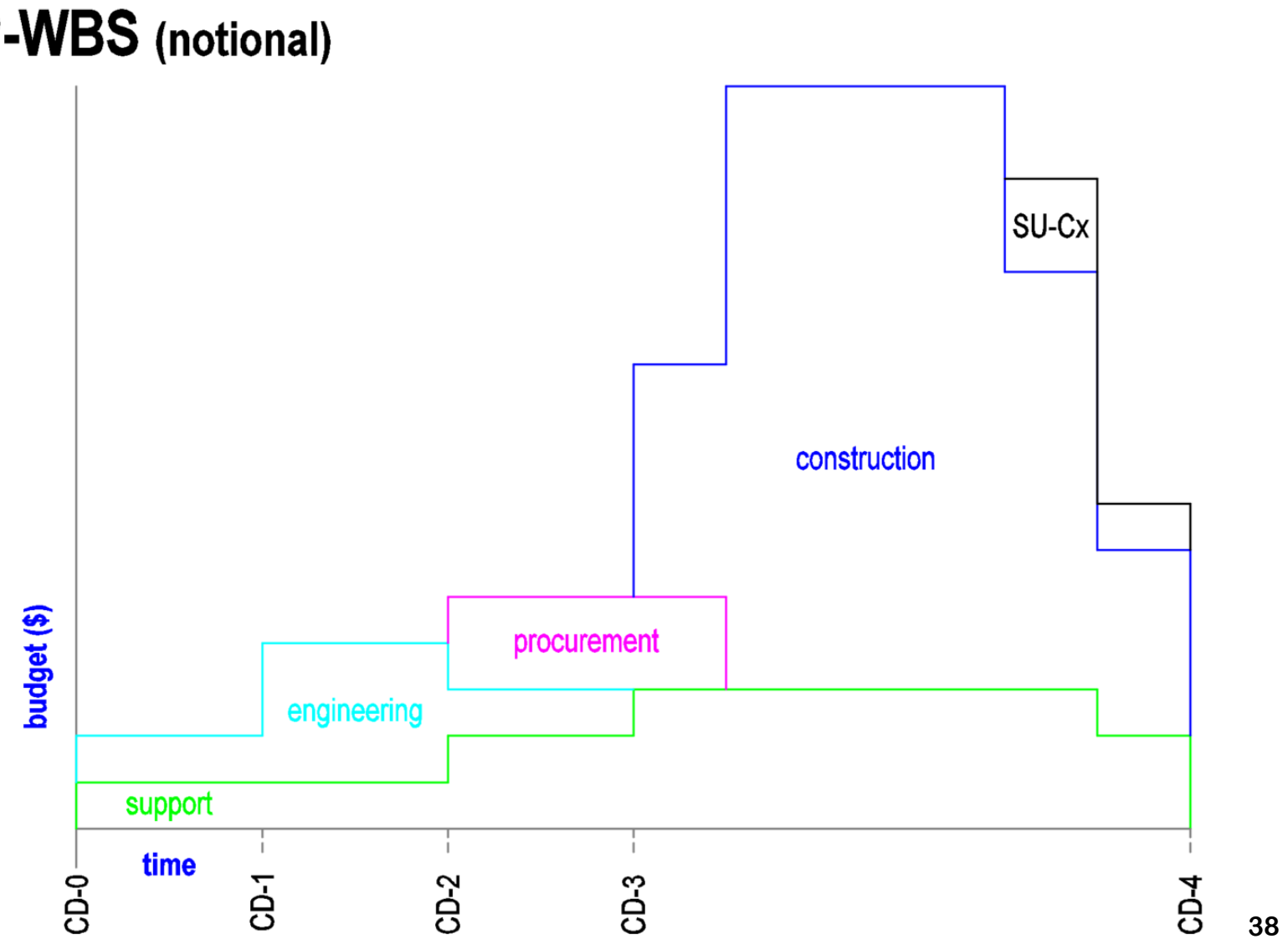
TP-WBS (time-phase work breakdown structure)

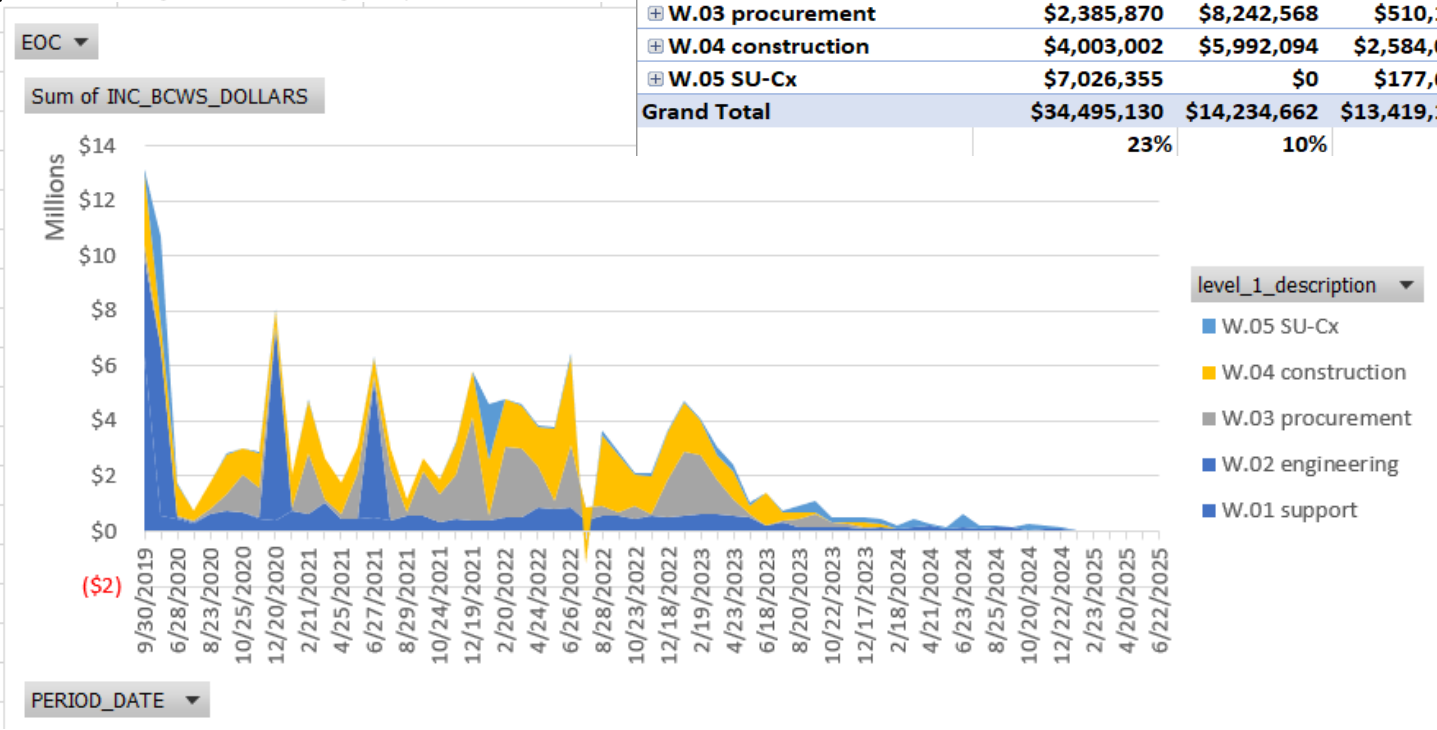
- Supports review of planned work's reasonableness & credibility
- Normalize data, e.g., WBS (support & EPCC), OBS, EOC



TP-WBS (time-phase work breakdown structure)

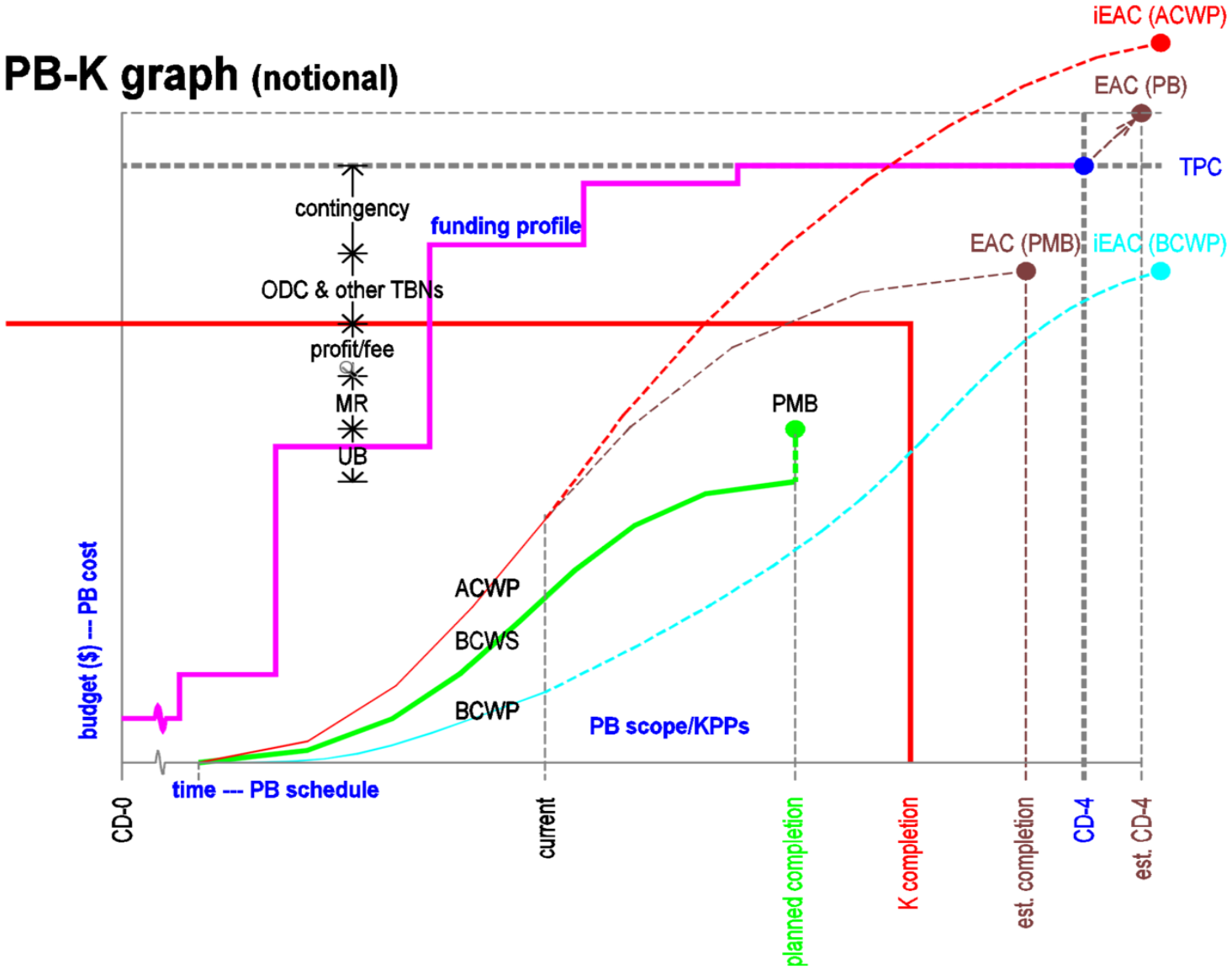
- supports review of planned work's reasonableness & credibility
- normalize data, e.g., WBS (support & EPCC), OBS, EOC
  - by WBS, e.g., support & EPCC
  - by EOC, e.g., labor, material, subcontract, ODC
- assess analysis, e.g., from graphs/tables

Sum of INC_BCWS_DOLLARS	Column Labels					% of Grand Total
Row Labels	labor	material	ODC	subcontract	Grand Total	
⊞W.01 support	$14,074,476	$0	$6,558,224	$9,135,702	$29,768,402	20%
⊞W.02 engineering	$7,005,427		$3,589,003	$11,328,568	$21,922,998	15%
⊞W.03 procurement	$2,385,870	$8,242,568	$510,168	$26,902,264	$38,040,870	25%
⊞W.04 construction	$4,003,002	$5,992,094	$2,584,059	$36,535,889	$49,115,044	33%
⊞W.05 SU-Cx	$7,026,355	$0	$177,686	$3,507,743	$10,711,784	7%
Grand Total	$34,495,130	$14,234,662	$13,419,140	$87,410,165	$149,559,098	100%
	23%	10%	9%	58%		



PB-K (performance baseline-contract) graph

- graphical snapshot of the performance baseline's plan & performance
- PB & PMB critical elements: BCWS, BCWP, ACWP, ETC, funding profile, **iEACs**



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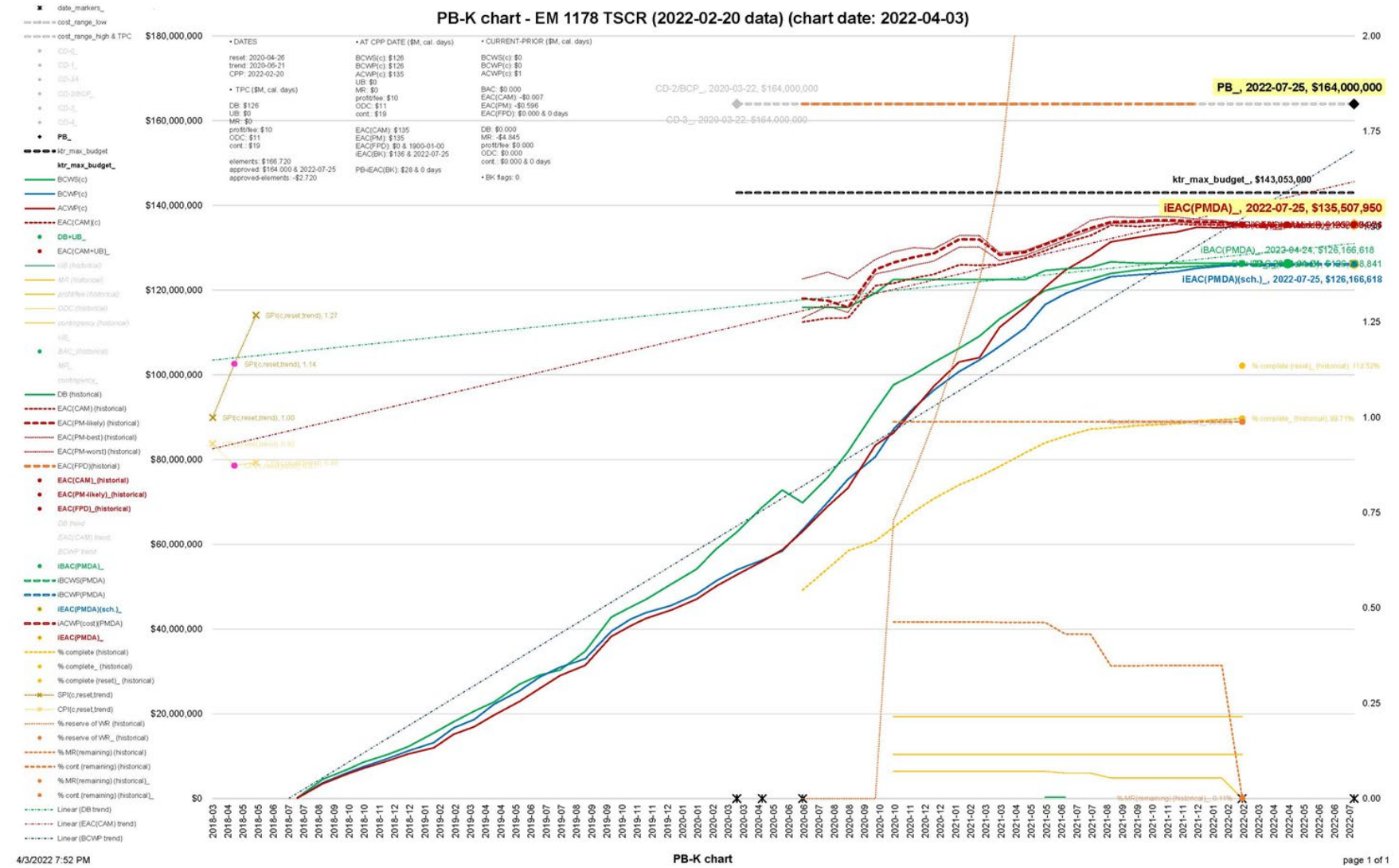

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