



Global Business Services

# External Review of Nodal Program PMO Control System

## Executive Discussion

Electric Reliability Council of Texas,  
Inc. (ERCOT)  
Board of Directors Meeting  
May 16, 2007

# Agenda

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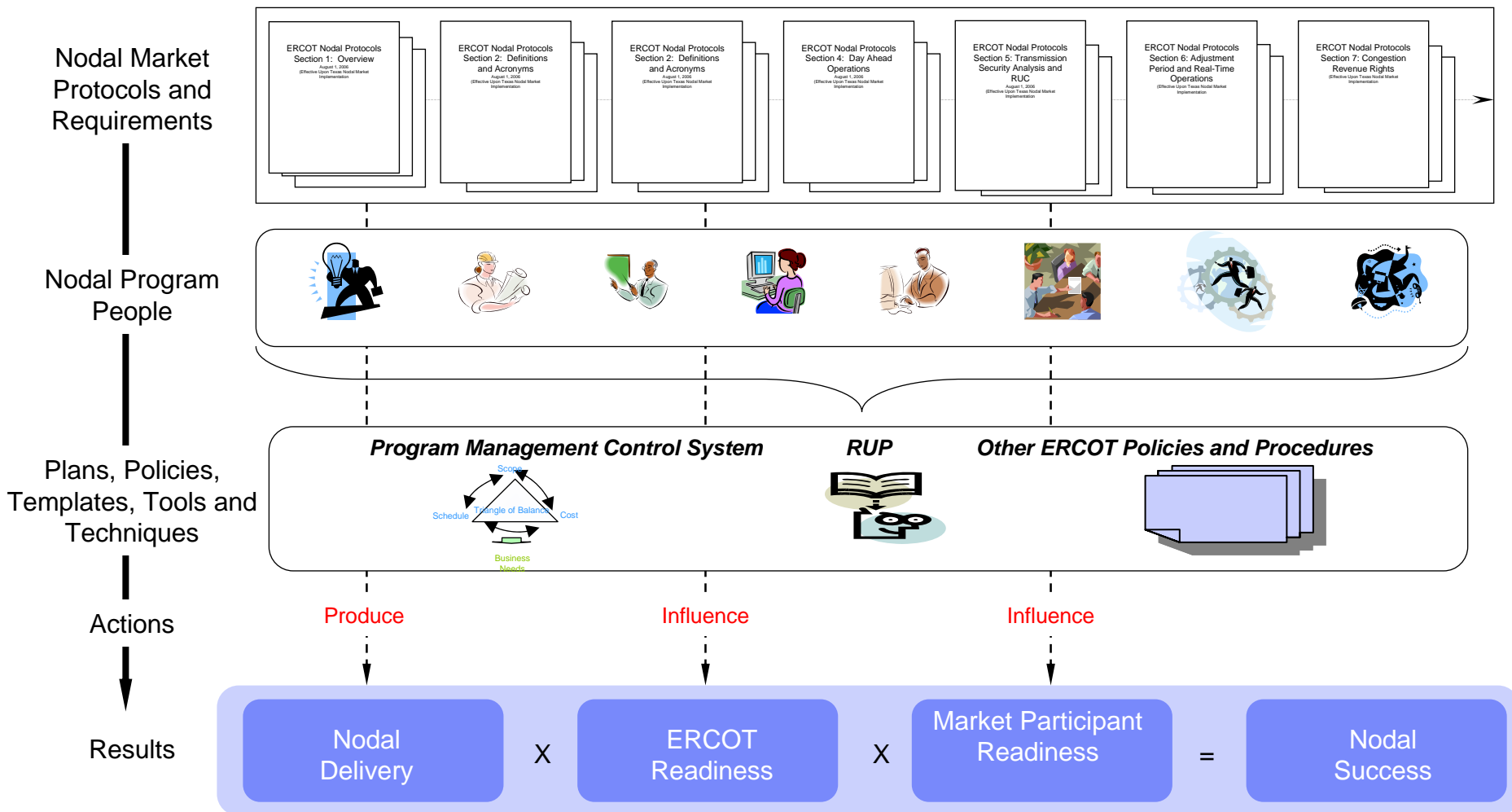
Background

Findings

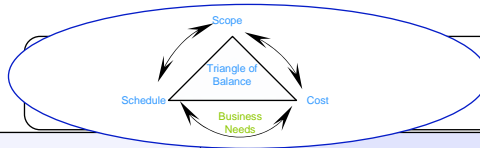
Recommendations

Other Topics – Software Effort Estimation

# Nodal Program Management Control System provides order to the Actions of Nodal Program



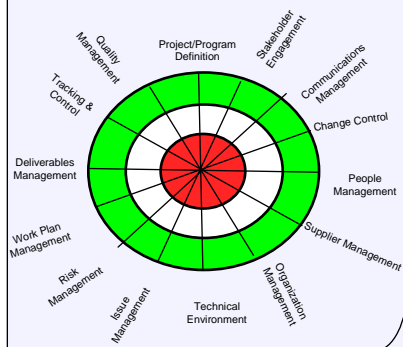
# The Program Management Office Control System (PMOCS) supports program direction and increases productivity



## PMOCS Elements

## PMOCS Impact

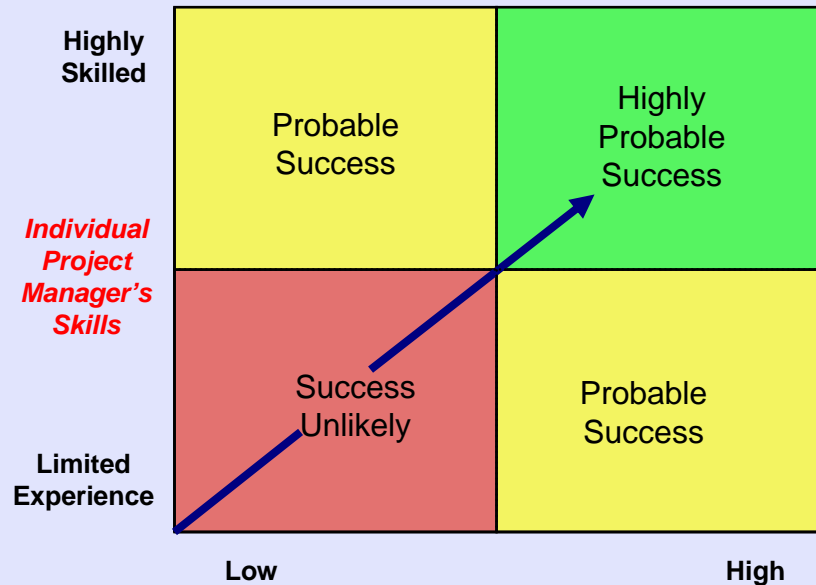
The PMOCS involves fourteen categories of support



### Examples of PMOCS Content

- Program Critical Path Plan
- Project Schedules
- Program Resource Plans and Commitments
- Program Budget
- Project Estimates and Forecasts
- Progress Reporting
- Scope and Change Controls
- Risk Management Plans
- Issues Tracking
- Communications Plans
- Deliverables Controls
- Quality Management Plan
- Technical Support Tools – Version Control, Configuration Management, etc.
- Other Program Management Tools and Techniques

### Program Performance



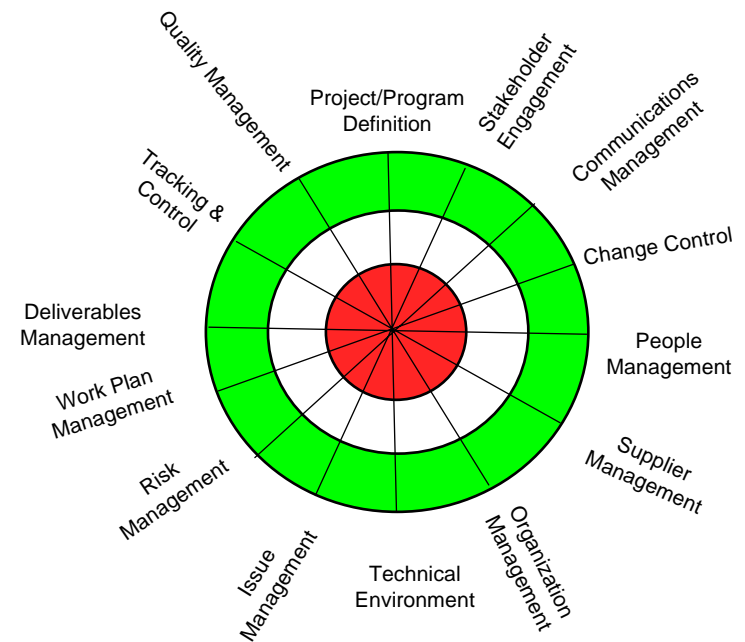
**Program Management Office System Structure (PMOCS) Strength and Performance Level**

## The IBM reviews consider PMOCS structure and use

- **This is the 3<sup>rd</sup> Review and it included:**
  - ▶ **All fourteen categories** of control with the PMOCS
  - ▶ Assessment of the current state of the **PMOCS Structure**
  - ▶ Evaluation of **PMOCS Performance**
  - ▶ Consideration of a **sub-set of the Nodal Program Projects:**
    - Project Management Office (PMO)
    - Enterprise Integration (EIP)
    - Energy Management System (EMS)
    - ERCOT Readiness and Transition (IRT)
  - ▶ **Review of plans and other documents, interviews and other testing**
  - ▶ Provision of **recommendations for improvement**
- **Review based on PMOCS in place as of March 20, 2007**
- **Progress Review Schedule includes five more reports:**
  - ▶ July 2007 – Report 4
  - ▶ October 2007 – Report 5
  - ▶ January 2008 – Report 6
  - ▶ March 2008 – Report 7
  - ▶ Final 2009 – Report 8

Note: Program Management Control System (PMOCS)

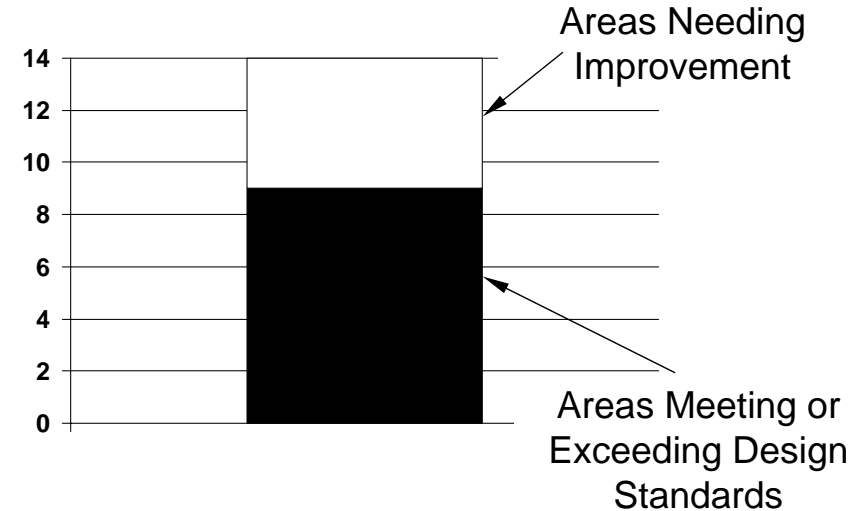
### PMOCS Areas: Fourteen Control Categories



## Findings – The PMOCS is Operational, but certain areas of structure can be improved

- Most components meet best practices standards
- A few of the components in the PMOCS do not meet structural expectations:
  - ▶ **Work plan integration and content**
  - ▶ **Contractor extension procedures**
  - ▶ **Organization target and decision framework**
  - ▶ **Internal stakeholder communications**
  - ▶ **Integrated testing phases**

### PMOCS Structure Assessment

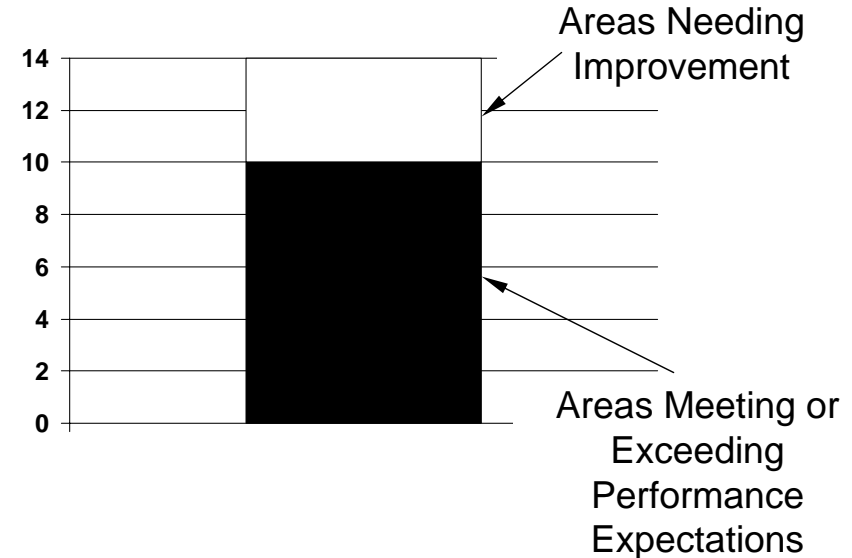


Source: March 2007 ERCOT PMOCS Structure Analysis

## Findings - The PMOCS is working in most areas, but certain areas of performance can be improved

- Most components of the PMOCS are being used effectively
- A few of the components in the PMOCS do not meet performance expectations:
  - ▶ **Slow migration to single Risk and Issue Management tool usage and contingency planning**
  - ▶ **Undisciplined updating of Project Schedules**
  - ▶ **Absence of re-estimate triggers**
  - ▶ **Low compliance with Quality Management Reviews as required by Nodal Program**

### PMOCS Performance Assessment



Source: March 2007 ERCOT PMOCS Performance Analysis

# The PMOCS has been improved, but there are some areas that require emphasis and focus

## IBM Review Reports

**Structure and Performance Ratings**

Meets or Exceeds ●

Under ○

Perform

Structure

**Combined Review Ratings**

Effective Controls

Minor Improvements Needed

Moderate Improvements Needed

Significant Improvements Needed

Unsatisfactory

Not Evaluated

Control Activity

	Report 1	Report 2	Report 3	Trend
Control Dimension	10 Oct 2006	15 Jan 2007	24 Apr 2007	
Program Definition	●	● ●	● ● ●	▲
Stakeholder Engagement	●	● ○	● ● ●	▲
Change Management	●	● ○	● ● ●	▲
People management			○ ●	▲
Supplier Management			○ ●	▲
Risk Management	●	○ ○	● ○ ○	▲
Issue Management	●	○ ○	● ○ ○	▲
Communications Mgmt	●	● ○ ○	○ ○ ●	▼
Work Plan Mgmt	●	○ ○ ○	○ ○ ○	▼
Tech Environment	○	● ● ●	● ● ●	▲
Deliverables Mgmt	○	● ● ●	● ● ●	▲
Organization Mgmt		○ ○ ○	○ ○ ●	▲
Tracking and Control	●	● ○ ○	● ○ ○	▼
Quality Management	●	● ● ●	● ○ ○	▲

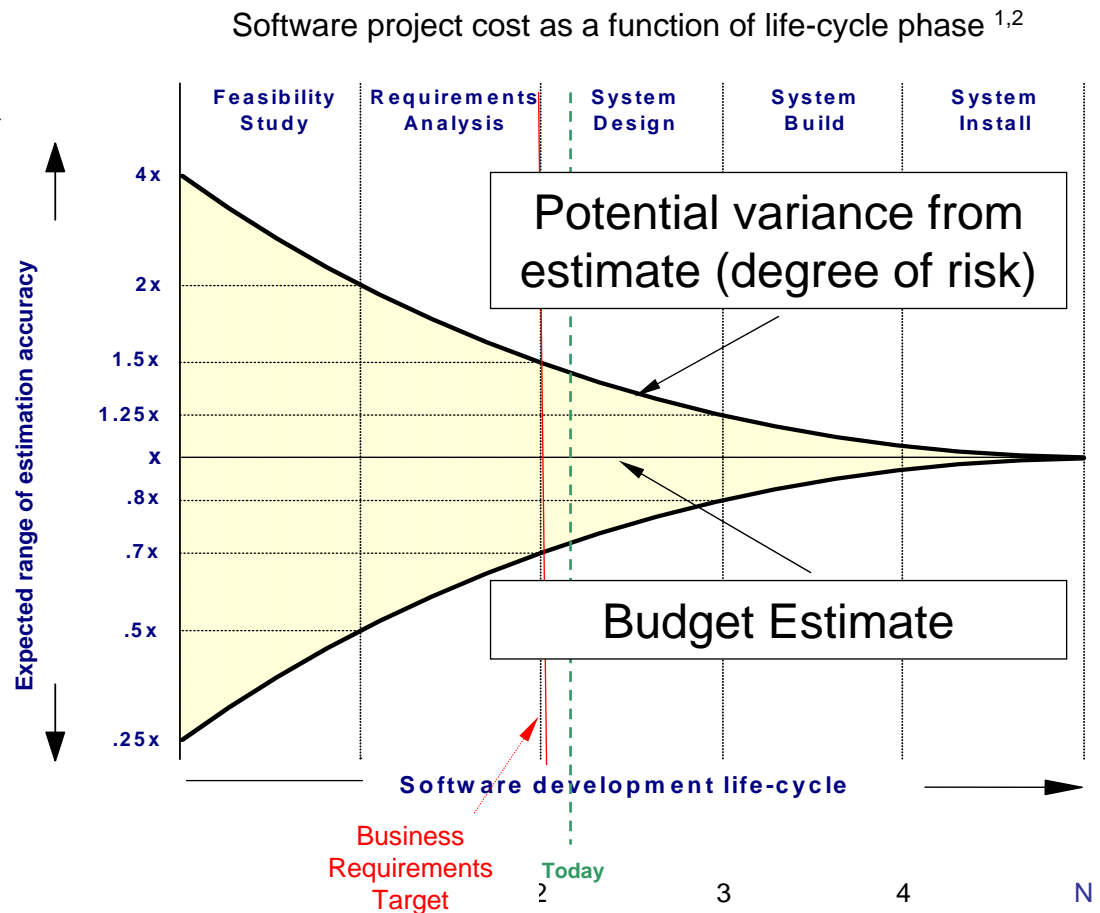


## Recommendations for Improvement – Priority for Action

Recommendation	Impact	Action
Integrate work plans	Reduced PM administrative burden and improved information	Simply process with use of software to support project plan and task lists
Forecasts linked to productivity and deliverables in work scheduled	Ability to manage budget variance	Establish and monitor Productivity Measure to trigger need for budget review
Update Communications Plan to ensure specific cascading communications	Directed communications to all organization levels	Provide more detail in existing plan to address internal communications actions
Accelerate transition process for single Risk and Issue Tool	Issues are not being tracked even if evaluated; risks are not completely evaluated and mitigation not documented	Review progress and make course adjustments
Determine ERCOT Organization target and components of employee transition	Consistent decision framework for ERCOT Transition	Leadership team define tenets of target
Simplify approval process for contractor extensions	Avoid work disruption and delays	Consider alternative process for approved contractors for ongoing effort.
Accelerate implementation of and compliance with QA Policy	Avoid program delays due to absence of requirements traceability	Change behaviors by placing emphasis on the process
Provide manager responsible for all testing events including EDS	Improved integration, reduction of duplication of effort, better readiness measure	Assign ERCOT owner (s) of testing process – FAT to EDS

## Other Topics – Software Effort Estimation

- Variances to estimated effort and cost will exist throughout a project
- Variance (risk) declines as more is known about the work
- Actions to manage variance are critical
- Forecasting based on effort drivers identify factors to be managed
- Track and manage to metrics to reduce variance from authorized spending



<sup>1</sup> *Software Engineering Economics*, Barry W. Boehm, Prentice Hall PTR, 1981

<sup>2</sup> "Software Size Estimation of Object-Oriented Systems," *IEE Transactions on Software Engineering*, Vol. 16, No.5, May 1990

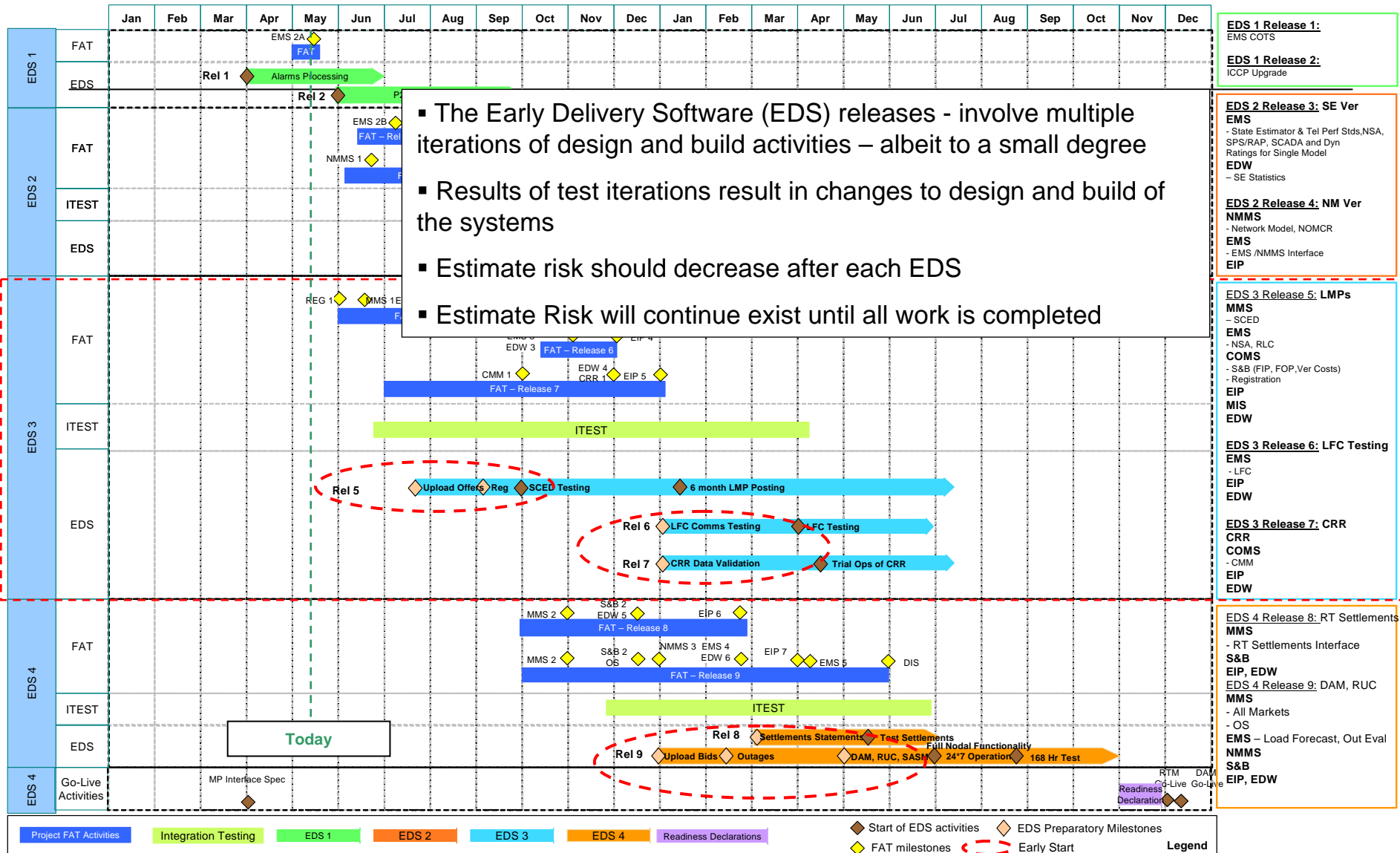
## Other Topics – Software Effort Estimation

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Forecasting, tracking and quality assurance based on deliverables provides a common measurement of progress and success

- ▶ Alarm Data Model Energy Management System (example deliverable)
- ▶ Compare effort (budget and actual) to produce deliverable
- ▶ Variance analysis yields insight into effort for other similar work
- ▶ Manage work around deliverables
- ▶ Provides more better variance control
- ▶ Supports more accurate forecasts
- ▶ Provides information for program direction and control focus

# Other Topics – Software Effort Estimation



▪ The Early Delivery Software (EDS) releases - involve multiple iterations of design and build activities – albeit to a small degree

▪ Results of test iterations result in changes to design and build of the systems

▪ Estimate risk should decrease after each EDS

▪ Estimate Risk will continue exist until all work is completed

Today