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Executive Session

Director's Progress Review of the CMS Phase II Upgrade Project

Jim Strait

17-Sep-2015

In Case of Emergency

- **Emergency Calls:**
 - Call 3131 from a lab phone
 - Call (630) 840-3131 from a cell phone
- **Fire:**
 - Exit Wilson Hall south stairways to ground floor
 - Follow building residents to assembly area
- **Tornado/Severe Weather:**
 - Exit Wilson Hall south stairways to basement refuge area (behind auditorium)
 - Stay in refuge area until “all clear” is announced

Agenda for This Executive Session

- Introductions
- CMS Phase II Background
- Charge to Reviewers
- Assignments/Write-ups
- Agenda
- Discussion

Introductions

- Please introduce yourself:
 - Your name
 - Your home institution and role
 - The area you are reviewing or role at this review

Background and Charge

- Upgrades to the CMS detector at the LHC will be needed for the future High Luminosity LHC running period, scheduled to start in 2026 and last about 10 years.
 - These upgrades will be installed during Long Shutdown 3, which is scheduled to last for 30 months, starting in January 2024.
- The DOE has given a preliminary budget profile scenario.
 - The project anticipates receiving Critical Decision 0 approval within the next year, so has not yet formally entered into the DOE project management system.
- This review is to:
 - Inform the laboratory about the state of the overall planning
 - Provide guidance as to readiness to proceed to the CD-0 stage
 - Help prepare for presentation of the project's plans to the DOE and NSF Joint Oversight Group meeting next week.
 - ... which in turn is preparatory toward a meeting of the CERN Resource Review Board (RRB) in late October.

CD-0

DOE O 413.3B
11-29-2010

Appendix A
A-3

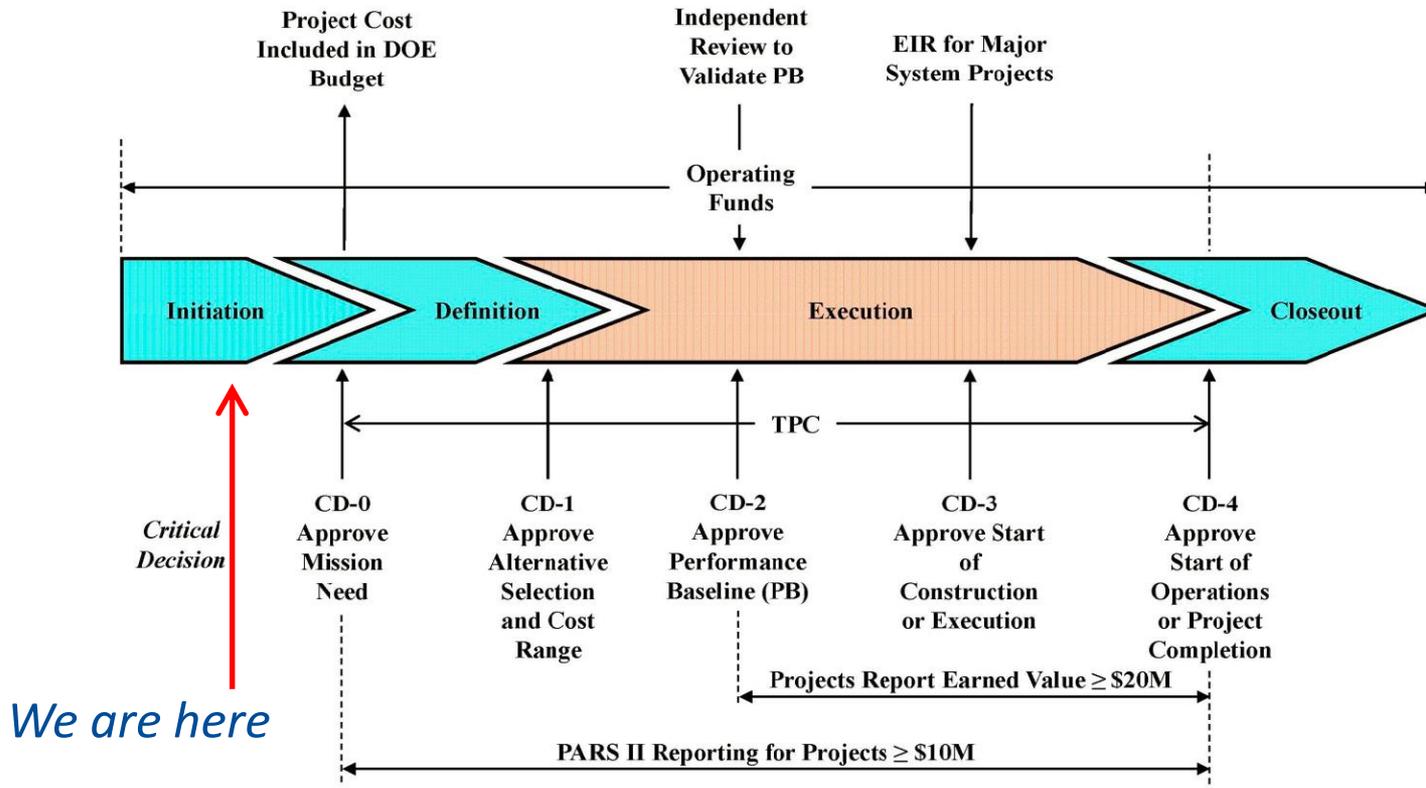


Figure 2. Typical DOE Acquisition Management System for Other Capital Asset Projects (i.e., Major Items of Equipment and Operating Expense Projects)

4. Requirements for Approval of Critical Decisions.
 - a. CD-0, Approve Mission Need.

The Initiation Phase begins with the identification of a mission-related need. A Program Office will identify a credible performance gap between its current capabilities and capacities and those required to achieve the goals articulated in its strategic plan. The Mission Need Statement (MNS) is the translation of this gap into functional requirements that cannot be met through other than material means. It should describe the general parameters of the solution and why it is critical to the overall accomplishment of the Department's mission, including the benefits to be realized. The mission need is independent of a particular solution, and should not be defined by equipment, facility, technological solution, or physical end-item. This approach allows the Program Office the flexibility to explore a variety of solutions and not limit potential solutions (refer to DOE G 413.3-17). Table 2.0 lists the requirements needed to attain CD-0.

The cost range provided at CD-0 should be Rough-Order of Magnitude (ROM) and is used to determine the AE authority designation. It does not represent the PB, which will be established at CD-2.

Reviewer Assignments

Chairperson

Jim Strait, FNAL

Trigger

Myron Campbell , Univ of MI
Jonathan Lewis, FNAL

Tracker

Anadi Canepa , FNAL
Doug Glenzinski, FNAL

Muons

Dmitri Denisov , FNAL
Tom LeCompte, FNAL

Calorimeter

Jose Repond, ANL
Adam Gibson-Even, Valparaiso

Project Management

Jim Strait , FNAL
Dan Green, FNAL

Cost and Schedule

Bill Freeman , FNAL
Ruben Carcagno, FNAL

Reporting Structure

- Report will be in MS Word and consist of the following:
 - Overall assessment (<1 page)
 - Answers to each group of charge questions, where groups are:
 - Design and Scope
 - Cost and Schedule
 - Management
 - Numbered list of recommendations (if appropriate)

Design and Scope Charge Questions

- Is the scope of the preliminary proposed US contributions well-aligned to the overall upgrade plan for CMS, and consistent with the goals outlined in the Particle Physics Project Prioritization Panel(P5)?
- Has the project identified a reasonable scope for which the DOE will be responsible, considering the early stage of the project planning?
- Have the performance requirements been defined, or is there a credible plan for doing so?
- Is there an adequate plan for independent design reviews?
- Are the designs described in the CMS Technical Proposal adequately developed to support the preliminary cost and schedule estimates?
- Is the R&D needed to design the upgrades well coordinated, funded at the appropriate level, and credible?
- Are the projected resources sufficient to complete the designs and R&D, and are these resources likely to be available when needed?

Cost and Schedule Charge Questions

- Are the cost and schedule estimates at a level consistent with the current status of the project?
- Are the cost and schedule estimates credible and realistic, and is the final project likely to fit within the proposed cost range?
- Is the proposed US scope of work consistent with the projected available budget given the DOE preliminary profile and a likely NSF contribution and profile?
- Does the scheduling strategy fit with other major projects at Fermilab?

Management Charge Questions

- Are the management teams, including partnering institutions, sufficiently defined and staffed considering the early stage of the project, and do they possess the requisite expertise and experience?
- Is the management team appropriately organized and staffed to initiate the CMS Phase 2 upgrade planning activities?
- Have the systems for managing interfaces between stakeholders been defined and are they appropriate?
- Is there a plan to develop management plan documents that are sufficient to manage the program?
- Is procurement planning sufficiently detailed and coordinated across the organizations involved for this stage of the project?

Morning Agenda

Thursday, September 17, 2015, Comitium (WH2SE)

8:00 – 8:30	AM	30	Closed Executive Session	Review Team
8:30 – 8:40	AM	10	Plenary Sessions – Welcome – One West	Joe Lykken/Patty McBride
8:40 – 9:00	AM	20	Overview of CMS HL-LHC Upgrades	Anders Ryd
9:00 – 9:30	AM	30	The CMS HL-LHC Project and US contributions	Vivian O'Dell
9:30 – 10:10	AM	40	Tracker	Chris Hill/Karl Ecklund
10:10 – 10:30	AM	20	Barrel Calorimeter	Colin Jessup
10:30 – 10:45	AM	15	BREAK – Outside of One West (WH1W)	
11:15 – 11:45	AM	30	Endcap Calorimeter	Jeremy Mans
11:15 – 11:40	AM	25	Muon System	Alexei Safonov
11:40 – 12:00	PM	20	Trigger	Jeff Berryhill

Afternoon Agenda

12:00 – 1:00	PM	60	LUNCH – 2nd Floor Crossover Committee Executive Session (Comitium)
1:00 – 3:00	PM	120	Parallel Sessions Tracker/Track Trigger – One East (WH1E) Calorimeters – Black Hole (WH2NW) Muons/Trigger – Snake Pit (WH2NE) Mgmt/Cost/Sched – Comitium (WH2SE)
3:00 – 3:15	PM	15	BREAK – Outside of Comitium (WH2SE)
3:15 – 5:00	PM	105	Executive Session/Report Writing – Comitium (WH2SE)
5:00 – 5:30	PM	30	Closeout Session – One West (WH1W)

Questions?