



U.S. DEPARTMENT OF
ENERGY

OFFICE OF
SCIENCE

DOE/SC Review
of the
LHC CMS Detector Upgrade Project
Fermi National Accelerator Laboratory
October 14-15, 2015

Kurt Fisher
Committee Chair
Office of Science, U.S. Department of Energy

<http://www.science.doe.gov/opa/>



- **Closeout report (prepared in PowerPoint)**
 - Presented Thursday, October 15
 - Instructions—slide 11
 - Template—slide 13
- **Final report draft (prepared in MS Word)**
 - Due Monday, October 19 to Casey
(casey.clark@science.doe.gov)
 - Instructions—slide 12



DOE EXECUTIVE SESSION AGENDA

Wednesday, October 14, 2015—Wilson Hall, in the Comitium

- 8:00 a.m. DOE Executive Session..... K. Fisher
- 8:15 a.m. Program Perspective..... S. Rolli
- 8:25 a.m. Federal Project Director Perspective..... A. Harris
- 8:35 a.m. Questions
- 8:45 a.m. Adjourn

Project and review information is available at:

<http://www.fnal.gov/directorate/OPMO/Projects/USCMS/DOERev/20151014/review.html>

<https://web.fnal.gov/project/cmsupgrades/SitePages/DOE%20Review%202015.aspx>

<https://indico.fnal.gov/conferenceDisplay.py?confId=10312>

Password: uscms_upgrade_review



Review Committee Participants

Kurt Fisher, DOE/SC, Chairperson

SC1

HCal—Hadron Calorimeter (WBS 1.2)

- * Tom LeCompte, ANL
- Jim Pilcher, U of Chicago

SC2

Forward Pixel Detector (WBS 1.3)

- * Jim Brau, Oregon (first day only)
- Leo Greiner, LBNL

SC3

Level 1 Trigger (WBS 1.4)

- * Charlie Young, SLAC
- Kevin Pitts, U of Illinois

SC4

Cost and Schedule

- * Frank Gines, DOE/ASO
- Penka Novakova, BNL
- Ray Won, DOE/OPA

SC5

Project Management (WBS 1.1)

- * Jon Kotcher, BNL
- Mark Palmer, FNAL

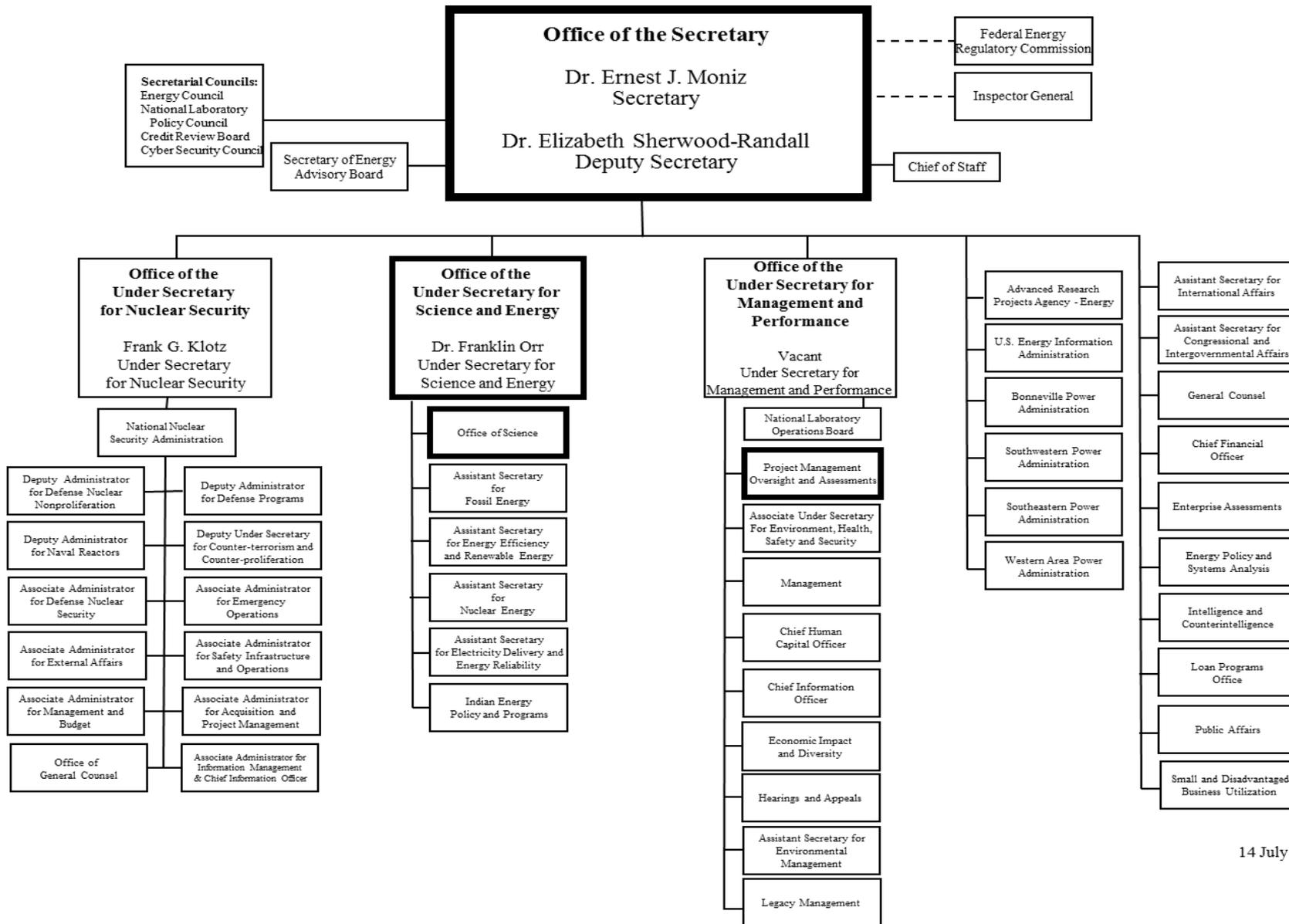
Observers

- Jim Siegrist, DOE/SC
- Mike Procaro, DOE/SC
- Simona Rolli, DOE/SC
- Alan Harris, DOE/FSO
- Pepin Carolan, DOE/FSO
- Mark Coles, NSF

LEGEND

- SC Subcommittee
- * Chairperson

Count: 12 (excluding observers)



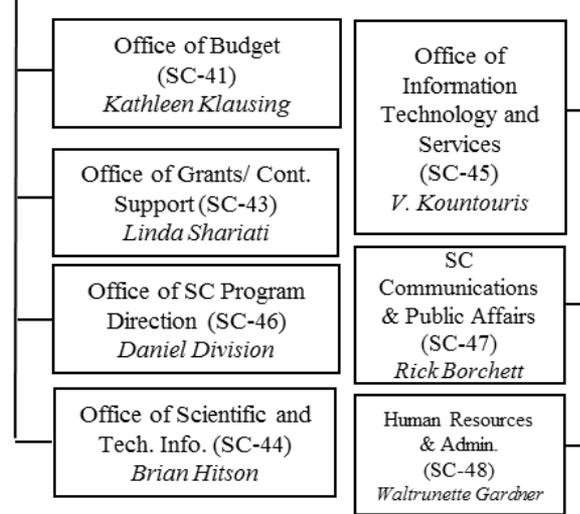
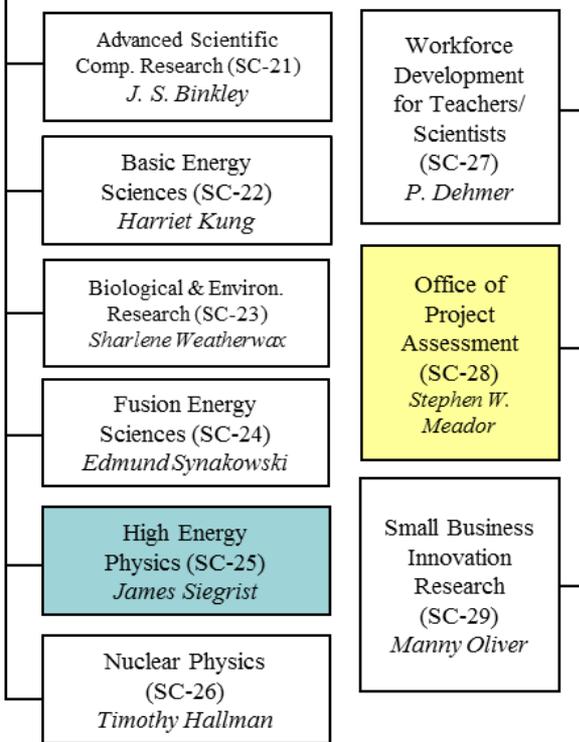
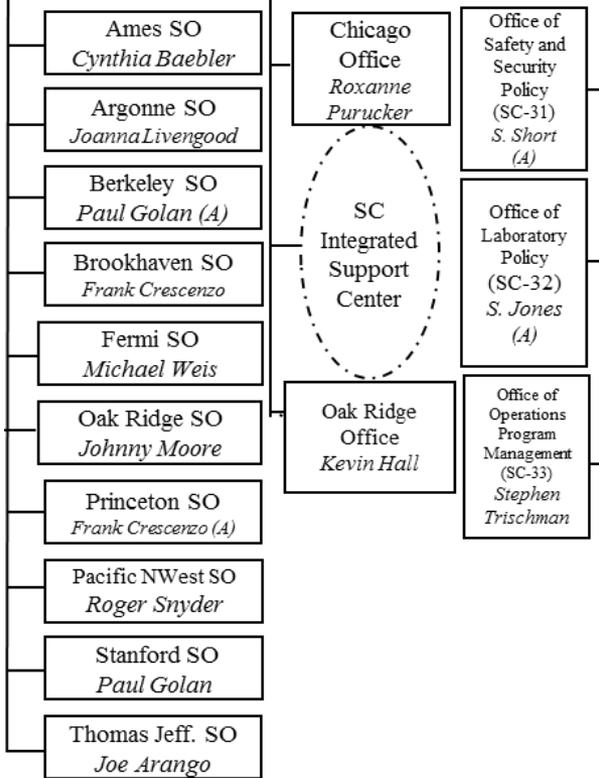


Office of the Director (SC-1)
Patricia M. Dehmer (A)

Deputy Director for Field Operations (SC-3)
Joseph McBrearty

Deputy Director for Science Programs (SC-2)
Patricia M. Dehmer

Deputy Director for Resource Management (SC-4)
Jeffrey Salmon



(A) Acting



1. Management: Is the management structure and resources adequate to deliver the proposed technical scope within stated performance by CD-4, both overall and from the point of view of individual DOE and NSF awardees?
2. Estimate to Complete: Is the Estimate to Complete updated and credible? Are the proposed annual goals and performance metrics for the current year suitable as effective indicators of performance in the coming year?
3. Cost and Schedule: Are the current project cost and schedule projections consistent with the approved baseline cost and schedule? Are the technical and financial status of the project accurately represented in the most recent monthly reports, reflecting project milestone status, EVM, risk and contingency management, configuration management and change control board actions, EH&S, and discussion of any other issues relevant to project performance from the point of view of awardees and sub-awardees?
4. Risk: Has the risk analysis been updated to accurately reflect the risks that remain in completing the project? Is the contingency still adequate for the risks? Are there any significant risks that jeopardize CD-4 completion and require high level management attention?



Wednesday, October 14, 2015—Wilson Hall, in the Comitium

- 8:00 am DOE Full Committee Executive Session—**Comitium (WH2SE)**.....K. Fisher
- 9:00 am Welcome—**One West** N. Lockyer
- 9:10 am CMS Upgrade Project Overview.....S. Nahn
- 10:00 am Break—**Outside One West**
- 10:20 am Hadron Calorimeter (WBS 401.2) J. Mans
- 11:00 am Pixel (WBS 401.3).....W. Johns
- 11:40 am Trigger (WBS 401.4)..... W. Smith
- 12:20 pm Lunch—**2nd Floor Crossover**
- 12:50 pm Reviewer Photo—**Atrium**
- 1:00 pm Subcommittee Breakout Sessions
 - Management—**Comitium (WH2SE)**
 - HCAL—**Snake Pit (WH2NE)**
 - Pixel—**Black Hole (WH2NW)**
 - Trigger—**Theory (WH3NE)**
- 3:30 pm Break—**Outside Comitium**
- 4:00 pm Subcommittee Executive Session—**Comitium**
- 5:00 pm DOE Full Committee Executive Session.....K. Fisher
- 6:30 pm Adjourn

Thursday, October 15, 2015

- 9:00 am Question and Answer Session—**Comitium (WH2SE)**
- 10:15 am Break—**Outside Comitium**
- 10:30 am Committee Report Writing
- 12:00 pm Lunch
- 1:00 pm DOE Full Committee Executive Session Dry Run.....K. Fisher
- 3:00 pm Break—**Outside Comitium**
- 3:30 pm Closeout Presentation—**One West**
- 4:30 pm Adjourn



Executive Summary/Summary Review Report (2-page report)Fisher*

1. Introduction.....Rolli*

2. Technical Status (**Charge Questions 2, 4**)

 2.1 Hadron Calorimeter (WBS 401.2)LeCompte*/SC 1

 2.1.1 Findings

 2.1.2 Comments

 2.1.3 Recommendations

 2.2 Forward Pixel Detector (WBS 401.3).....Brau*/SC 2

 2.3 Level 1 Trigger (WBS 401.4)Young*/SC 3

3. Cost and Schedule (**Charge Questions 2, 3, 4**)..... Gines*/SC 4

4. Project Management (**Charge Question 1, 2, 4**).....Kotcher*/SC 5

*Lead
SC Subcommittee



Closeout Presentation and Final Report Procedures



(Use PowerPoint / No Smaller than 18 pt Font)

2.1 Use Section Number/Title corresponding to writing assignment list.

List Review Subcommittee Members

List Assigned Charge Questions and Review Committee Answers

2.1.1 Findings – What the project told us

- In bullet form, include your account of factual technical, cost, schedule, and management. Information provided/presented by the Project

2.1.2 Comments – What we think about what the project told us

- In bullet form, include your assessment of project status (observations, concerns, feedback, suggestions, etc.) based on the findings. This section carries more emphasis than the Findings, but does not require an action as do the Recommendations. Do not number your comments.

2.1.3 Recommendations – What we think the project needs to do

- 1. Beginning with an action verb, provide a brief, concise, and clear statement with a due date.**

For Critical Decision reviews, include a specific recommendation addressing how the Committee judged the readiness for the CD, *i.e.*:

- **The project is ready to proceed to CD-2; *or***
- **The project is ready to proceed to CD-2, after addressing the following recommendations**



Format: Final Report

(Use MS Word / 12pt Font)

2.1 Use Section Number/Title corresponding to writing assignment list.

2.1.1 Findings – What the project told us

Include a brief narrative description of technical, cost, schedule, management information provided by the project. Each subcommittee will emphasize their area of responsibility.

Cost and schedule subcommittee should provide attachments for approved project cost breakdown and schedule. Management subcommittee should provide attachment for approved project organization and names of personnel.

2.1.2 Comments – What we think about what the project told us

Descriptive material assessing the findings and making observations and conclusions based on the findings. **The committee's answer to the charge questions should be contained within the text of the Comments Section.** Do not number your comments.

2.1.3 Recommendations – What we think the project needs to do

1. Beginning with an action verb, provide a brief, concise, and clear statement with a due date.
- 2.

Please Note: Recommendations are approved by the full committee and presented at the review closeout briefing. Recommendations SHOULD NOT be changed or altered from the closeout report to the Final Report.



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LHC CMS Detector Upgrade Project

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Committee Chair

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 - **Findings**
 - **Comments**
 - **Recommendations**



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 - **Comments**
 - **Recommendations**



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- **Findings**
- **Comments**
- **Recommendations**



3. Cost and Schedule

F. Gines, DOE/ASO / Subcommittee 4

PROJECT STATUS		
Project Type	MIE / Line Item / Cooperative Agreement	
CD-1	Planned:	Actual:
CD-2	Planned:	Actual:
CD-3	Planned:	Actual:
CD-4	Planned:	Actual:
TPC Percent Complete	Planned: _____%	Actual: _____%
TPC Cost to Date		
TPC Committed to Date		
TPC		
TEC		
Contingency Cost (w/Mgmt Reserve)	\$	
Contingency Schedule on CD-4b	_____ months	_____ %
CPI Cumulative		
SPI Cumulative		



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- **Findings**
- **Comments**
- **Recommendations**