

Charge
Director's CD-2/3a Preliminary Review of the DECam Project
October 30-31, 2007

This charge is for the Committee to conduct a Director's CD-2/3a Preliminary Review of the proposed DECam project at Fermilab. This review is to assess the DECam project's readiness for the Directors' DES Review for CD-2/3a that will look at all three parts of DES (DECam, Data Management and CTIO (Cerro Tololo Inter-American Observatory)) that is currently scheduled for December 11-13, 2007.

The Dark Energy Survey (DES) Collaboration proposes to build a new 519 megapixel CCD camera (DECam) to be mounted at the prime focus of the Blanco 4m telescope at CTIO. The DECam Project is hosted by Fermi National Accelerator Laboratory (Fermilab) and is the project which will construct the camera. The DECam Project includes a large mosaic camera, a five element optical corrector, a multi-band filter system, and the associated infrastructure for operation in the prime focus cage. The focal plane consists of 62 2048 x 4096 CCD modules (0.27arcsecond/pixel) arranged in a hexagon inscribed within the 2.2 deg. diameter field of view. The project plans to use the thick fully-depleted CCDs that have been developed at the Lawrence Berkeley National Laboratory (LBNL) in order to obtain the best available quantum efficiency at near-infrared wavelengths.

CD-2 is approval of the Performance Baseline. The Performance Baseline is developed based on a design document (Preliminary Design or a Technical Design Report), a well-defined and documented scope, a resource-loaded detailed schedule, a definitive cost estimate, defined Key Performance Parameters and some additional project management documents. Approval of CD-2 authorizes submission of a budget request for the Total Project Cost (TPC) and detailed engineering design.

CD-3a is approval to start limited Construction. DECam is requesting CD-3a and will present the scope of that work at the review. The committee is to review the CD-3a items presented to assure that all environmental, safety and security criteria will be met. DOE CD-3a approval provides authorization to complete the specified work.

The preliminary design needs to be developed to a level that the scope of the project is well defined and that scope is reflected in the Resource Loaded Schedule (RLS) and Cost Estimate. The cost and schedule baselines are based on a detailed WBS – Work Breakdown Structure, WBS Dictionary, BOE – Basis of Estimate documentation, risk and contingency analyses, RLS – Resource Loaded Schedule, and time phased funding and cost profiles. The committee is asked to review each of these items, for quality, completeness, and accuracy. The committee is also asked to review and assess the quality of and comment on the additional formal project management documentation provided in support of CD-2/3a.

As part of this assessment the questions listed in Attachment 1 of this charge should be addressed. Additionally the review committee is to review and comment on the Project's response and actions taken on the recommendations from the Director's CD-1 Review of DECam on July 25-26, 2006 and the DECam related recommendations from the DOE/NSF Technical, Cost, Schedule and Management Review conducted on May 1-3, 2007. Constructive comments on presentation content, format, and style are also requested.

Finally, the committee should present findings, comments, and recommendations at a closeout meeting with DECam's and Fermilab's management.

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Attachment 1

Technical

- Is the project scope well defined and supported by the preliminary design documentation, technical specifications and objectives?
- Is the defined project scope reflected in the projects cost and schedule?

Cost

- Is the Work Breakdown Structure (WBS) appropriate for the project scope?
- Do the cost estimates for each WBS (or cost) element have a sound documented basis and are they reasonable?
- Does an obligation profile exist? How does it compare with the funding guidance?

Schedule

- Is the schedule well developed and appropriately structured by specifying relationships, predecessors, successors, critical path, resource loaded, etc?
- Are the durations for the activities and overall schedule reasonable and achievable with the assumed resources?
- Does the schedule contain appropriate levels of milestones, sufficient quantity of milestones for tracking progress, and do they appear to be achievable?
- Does the schedule include activities for design reviews, which include assessment of the designs readiness for procuring prototypes, preproduction and production materials?
- Is there narrative which precisely defines the deliverable(s) required to satisfy the CD-4 Milestone?

Management

- Is there an appropriate management organizational structure in place to accomplish the design and construction?
- Is the organization structure well documented, responsibilities defined and appropriate for the scope of work?
- Are there adequate staffing resources available or planned for this effort?
- Is there a funding plan available or proposed to meet the resource requirements to realize the project?
- Has a Risk Plan been developed, risks identified, risks analyzed, risk responses planned/implemented, risk monitoring/control process established and do they seem appropriate?

Procurement

- Have the critical procurements been identified and are they included in the schedule with adequate lead time built in?
- Have critical make vs. buy decisions been evaluated in conjunction with the scope and is that reflected in the baseline cost estimate, schedule and technical risk plan?
- Are the Project designs and procurement packages prepared to the degree appropriate to order materials and initiate construction as scheduled?