

**Charge for the Director's CD-3b Review
of the
NUMI Off-Axis Neutrino Appearance (NOvA) Project**

June 16-18, 2009

This charge is for the Committee to conduct a Director's CD-3b Review of the NOvA Project. The purpose of this review is to evaluate the project's readiness for approval of Critical Decision 3b (Approval to Start Full Construction) and that the project is prepared for the DOE Independent Project Review for CD-3b scheduled for July 21-23, 2009.

On September 25, 2008, DOE approved CD-3a (Approve Limited Construction). With CD-3a, DOE approved long lead procurements and a limited set of other construction activities. A limited number of items beyond the CD-3a list have been approved by DOE for procurement in support of the 2009 recovery Act (RA). CD-3b will be an approval of the remaining items of construction necessary prior to CD-4.

The NOvA project will fabricate and install upgrades to the Fermilab proton source and NuMI facility to enhance the neutrino beam intensity, and will build two neutrino detectors to use this beam. (a smaller "near detector" on the Fermilab site and a larger "far detector" 810 kilometers away in Northern Minnesota).

The NOvA Project Acquisition Strategy calls for Northern Minnesota site preparation work, access road upgrade and far detector enclosure construction to be completed by the University of Minnesota under a financial assistance agreement. These construction costs are captured as part of the Other Project Costs and therefore part of the Total Project Costs. The project management team and the university are work together to ensure proper integration of the university's efforts into the overall project. CD-3a approval covered site preparation and access road construction, and a subsequent DOE approval was provided to start construction of the far detector enclosure building in support of the Recovery Act.

This review is to focus on the technical scope of this project. The NOvA project will present the status of their final design work. The review Committee is to validate the progress on final design and assess their plans to complete the remaining design work. This assessment includes confirming that appropriate resources are available to complete the final design as planned.

The cost and schedule will not have been updated by the time of this Director's Review, but is to be completed prior to DOE's Impendent Project Review. There are plans to conduct a separate Mini-Review of the cost and schedule as soon as NOvA has completed their update. Even though the updated cost and schedule can't be evaluated during this review, this review team should understand the approach that NOvA is taking in updating the cost and schedule that will be presented to DOE.

In your review, please evaluate whether the project is prepared to enter the construction phase beyond the CD-3a and Recovery Act approved activities. In performance of a general assessment of progress, current status, and the identification of potential issues, the committee should address the following specific items:

1. Final Design: Is the design sufficiently mature so that the project can initiate procurement and construction? For those elements of the design that are still not finalized, has the project convincingly shown that there are no major issues that need to be addressed and that they are on a clear path to a final design?
2. Baseline Cost and Schedule: Is the approach in updating the cost and schedule appear to be sound and defensible? When the updates are completed should the following two questions be able to be answered by the DOE IPR (Are the current project cost and schedule projections consistent with the approved baseline cost and schedule? Is the contingency remaining adequate for the risks?)?
3. Management: Evaluate the management structure as to its adequacy to deliver the proposed final design within specifications, budget, and schedule. Has the project responded satisfactorily to the recommendations from the previous independent project review?
4. Construction: Has there been adequate progress on the construction activities approved under CD-3A? Have Fermilab and the project done the necessary preparations to execute the remaining construction activities?
5. Documentation: Is the documentation required by DOE Order 413.3A for CD-3B complete? Has the CD-2 documentation been updated to reflect any changes resulting from the final design?

Finally, the committee should present findings, comments, and conclusions at a closeout meeting with NOvA's and Fermilab's management and provide a written report soon after the review.