

Charge Letter: LBNC February 2024 Review, February 26-28, 2024

The LBNC is charged by the Fermilab Director to provide external scientific peer review and to monitor the technical progress of the International DUNE collaboration, and those aspects of the facility construction that have direct impact on the DUNE experiment.

For the February 2024 meeting, the LBNC will meet to review status and progress of LBNF and DUNE. As with other meetings, the LBNC should construct a report in which it acknowledges, comments on, and where appropriate, makes recommendations following the presentations and discussions during the meeting.

There are two major topics for this LBNC meeting: the LBNF beamline and DUNE computing. The DUNE near detector will be a secondary focus. In addition, the LBNC should receive updates on the DUNE collaboration, far detector progress, activities towards ProtoDUNE-II, and DUNE Phase II.

In considering the presentations and material provided for the meeting, attention should be given to prior LBNC recommendations and actions that have been undertaken to address these recommendations. We would like to continue our work toward uniform and regular reporting and tracking of major DUNE technical milestones.

For the LBNF beamline topic the committee is asked to:

- 1) Give initial impressions of the LBNF beamline TDR. Please comment on its scope and completeness, and whether the level of detail is appropriate for a CD 2/3 review.

It is anticipated that the LBNC will spend a couple of months conducting a document review of the LBNF beamline TDR to ensure its readiness for a CD2/3 review in the summer. The approach will be similar to the reviews of the two far detector TDRs last year. A presentation on the TDR will be given in this February meeting and the actual TDR document should be ready on the same timescale.

For the DUNE computing topic the committee is asked to:

- 2) Comment on the organizational structure.
 - a. Is it appropriate to the task?
 - b. Are there the right relationships with external stakeholders?
 - c. Is there any advice the committee has?
- 3) Comment on the plan to develop a core software framework for the experiment.
 - a. Is the plan achievable?
 - b. Is the timeline of the plan appropriate?
 - c. Will the resulting framework be appropriate to the task?
 - d. Is there any advice the committee has?
- 4) Comment on the readiness of DUNE computing for ProtoDUNE II data
- 5) Comment on the mapping between the stated computing requirements and the physics needs of the experiment

The LBNC should present a Closeout Report to deliver at the end of the meeting. Subsequently this should be refined into a LBNC Meeting report.