

## **Charge for the PIP-II Machine Advisory Committee (P2MAC)**

April 10-12, 2017

Fermilab

The Proton Improvement Plan-II (PIP-II) represents a significant initial step in upgrading the Fermilab accelerator complex to support a world-leading particle physics research program based on intense beams. The goal of PIP-II is to provide, by the middle of the next decade, 1.2 MW of beam power from the Main Injector for the long baseline neutrino experimental program, while establishing a flexible platform for subsequent development of the accelerator complex. A concept, based on an 800-MeV pulsed superconducting linear accelerator (SCL) to replace the existing 400 MeV linac and accompanied by improvements to the existing Booster, Recycler, and Main Injector, has been documented in a Reference Design Report.

PIP-II is currently in the “project definition” phase, between CD-0 and CD-1. Activities during this phase are centered on conceptual design development, analysis of alternatives, and continuing R&D. The R&D activities are concentrated on the front-end and superconducting cryomodules and their RF systems, and are undertaken in close collaboration with Indian and U.S. national laboratories.

The Analysis of Alternatives report required by DOE O413.3b was prepared and reviewed over the spring/summer of 2016. Based on that report the project has been directed by DOE to proceed with development of a Conceptual Design Report (CDR) based on the alternative described in the Reference Design Report. A complete draft of the Conceptual Design Report is now available.

The P2MAC is asked to review the Conceptual Design Report for PIP-II. In particular we would like specific advice, recommendations, and/or commentary on:

1. Is the scope of the facility described in the CDR both feasible and likely to satisfy the requirements outlined in the Mission Need Statement?
2. Is the facility likely to meet the enumerated performance goals incorporated into the Functional Requirements Specification (FRS).
3. Have the risks inherent in the conceptual design been adequately identified and appropriately targeted within the R&D program?
4. Can the conceptual design be characterized as being sufficient to provide the technical basis for CD-1?

The P2MAC is not limited by these specific charge areas and may delve into other related areas, and offer advice, comment, or recommendations, as it deems appropriate under the general guidance of this charge. We request an oral closeout presentation by the P2MAC with Fermilab and PIP-II management, and DOE observer(s), at the end of the meeting. A written report is requested to be submitted to the Fermilab Chief Accelerator Officer by May 15, 2017.