Conceptual Design Review of the Magnet Circuits for the HL-LHC

Objectives and Mandate

The High Luminosity LHC (HL-LHC) Project requires changing or modifying numerous magnet circuits in the High Luminosity insertions (Point 1 and Point 5) of the collider. The higher peak field, higher current and larger magnetic energy, as well as the necessity to displace the power converter far from radiation areas, with use of superconducting links, make the system more complex and technically very challenging. "*Mr. HL-LHC Circuit*", Felix Rodriguez Mateos, has been appointed to steer the optimization and ensure consistency of the whole system.

The goal of this review is to examine the baseline choices and open variants with respect to the following aspects:

- Circuit Topology
- Magnet and Circuit Protection
- Circuit Integration
- Operation
- Voltage withstand Levels
- Plan and Schedule

The review committee is composed of:

Akira Yamamoto (Chair), KEK & CERN
Guram Chlachidze, Fermilab
Arnaud Devred, ITER
Chen-yu Gung, ITER
Davide Tommasini, CERN
Rudiger Schmidt, CERN
Markus Zerlauth (Sci. secretary), CERN

Felix Rodriguez-Mateos will be the link to the HL-LHC Project.

Reviewers are required to comment on the readiness of various circuits and on the soundness of the technical choices, especially with respect to the safety and protection of the system and its suitability for operation. Reviewers are called to comment on the different variants still open for some circuits, on the adequacy of the plan for decision making among various options, and on the status of integration.

The review will end with a close-out by the review Chair, in the form of a presentation. The review committee is asked to prepare a short report with their findings, comments and recommendations, to be delivered to the HL-LHC Project Leader and to the HL-LHC Mr Circuit. The report is required within one month of the review.

The review is scheduled on **21st to 23rd March 2016** with the close-out on **24th March at CERN**.

CC: Giorgio Apollinari, Luca Bottura, Felix Rodriguez Mateos