



Date: March 8, 2018
To: File
From: S. Peggs

Subject: **Recommendations from the Advisory Committee (February 22-23, 2018)**

See https://www.classe.cornell.edu/CBETA_PM/180222_review_AC/index.html

The following is a summary of the 12 recommendations in the Advisory Committee report written after the meeting that took place at Cornell on February 22 and 23, 2018.

Preamble

1. p2 *“The Committee is concerned that the instrumentation is somewhat constrained by the density of the component layout. We suggest a review of essential instrumentation requirements and potential possibilities for future enhancements.”*
2. p2 *“The start of the girder installation signals a new phase of the project. Communication and consensus among the technical teams is essential to ensure that the effort is well coordinated with attention to such elements as temperature stability, power requirements, assembly sequence, etc.”*

Main Linac Cryomodule

3. p3 *“Implement the microphonics mitigation plan to ensure stable and reliable operation of the MLC with beam at a 36 MeV energy gain.”*
4. p3 *“Perform an extended test of all six SSAs as soon as possible.”*
5. p3 *“Test simultaneous operation of all MLC cavities and demonstrate the required field stability at and above the minimum required MLC energy gain.”*

Halbach magnets and girders

6. p4 *“The Committee notes that for the foreseeable future the girders and magnets will remain as a critical path project element. The team should pay close attention to the delivery and assembly schedule. If possible, the production should be sped up.”*

Commissioning strategy

7. p5 *“Reword milestone 9”*
8. p5 *“Alternative commissioning scenarios should be developed for implementation if lower transmission efficiencies are encountered. Compared to the ATF test, the CBETA lattice has new optics features such as the adiabatic transitions from arcs to straights, and one should be prepared for the unexpected. An energy scan is an obvious tool to investigate transmission problems; the equivalent to a tune scan in ordinary accelerators.”*

Beam tests and studies

9. p6 *“Define a prioritized list of additional beam diagnostics tools that could be installed in CBETA in potential future upgrades and identify potential locations in the machine for their installation.”*

International collaboration

10. p7 *“The Committee recognizes that first steps in search for potential future users for the CBETA facility have started. The Committee encourages these steps. A user community could help in obtaining funding for an extended operation of CBETA beyond the achievement of the initial design goals. Starting this process now is extremely timely as a program and funding will need to be identified within the next year or two.”*
11. p7 *“CBETA is a ‘first of its kind’ machine where one would wish to have the maximum tool set possible at hand to fully study and understand this new type of machine. To this extent it would be interesting to explore options for additional diagnostics tools through international collaborations [e.g. the gas curtain monitor developed by Liverpool University for single pass transverse beam profile measurements]. In this context it would be helpful to prepare a prioritized list of tools [e.g. measurement of intra-bunch structures] and to explore possible implementations for such devices with international partners.”*
12. p7 *“The formation of an international ERL Collaboration Network might be an interesting option for strengthening the international collaboration and identifying a potential user community. Such a setup could also help in attracting additional third party funds for the full exploitation of the CBETA facility. The application for additional operation funds in the framework of the future electron Ion collider development is an excellent initiative in this direction which could be integrated within the formation of an international collaboration framework.”*