EIC Detector– 10th DAC Meeting

June 11-13, 2025

Charge

The EIC Detector Advisory Committee (DAC) provides advice on the EIC Experimental Program in support of the EIC Project managed by BNL in partnership with Thomas Jefferson National Accelerator Facility (TJNAF). This includes advice on the suitability of the experimental equipment for the EIC science and overall matters concerning the ePIC scientific collaboration. The DAC advises on EIC-related detector R&D, design choices, cost, schedule and technical risk of detector components, the relative importance of technical tasks, the evaluation of complementary EIC detector technologies and the sub-detector integration, detector-interaction region integration, and detector commissioning.

The EIC Critical Decision 1 (CD-1) was approved on June 29, 2021, and allowed for the release of Project Engineering and Design (PED) funding and the next phases of the design of the accelerator, detector, and infrastructure. Inflation Reduction Act funding provided at the end of 2022 allowed the EIC project to proceed to next phases. The EIC Critical Decision 3A (CD-3A) was approved on March 28, 2024 and authorized start of an initial series of long-lead procurements. The EIC Project successfully passed a DOE Independent Project Review for a next series of long lead procurements (CD-3B) in January 2025 and is waiting formal DOE authorization. In parallel, a further organization of the EIC Project in terms of subprojects is ongoing. Critical Decision 2 (CD-2), Performance Measurement Baseline Approval, is planned for 2026, shortly after the conclusion of RHIC operations. Resource Review Board meetings are now held semi-annually, see https://www.bnl.gov/eic-rrbmeeting/, with the 5th RRB meeting to be hosted in Prague, Czech on June 5-6, 2025.

The 10th DAC meeting on June 11-13, 2025, will focus on the overall progress and status of the EIC Detector and its projected design maturity readiness for baselining (equivalent to CD-2) by the end of this calendar year, and for start of construction (equivalent to CD-3) roughly a year later. The exact CD-2 and CD-3 dates depend on the overall project status and funding and might be later than these aspirational dates for the detector. The main goal would be to solicit feedback from the DAC on the maturity status of all detector sub-systems, on remaining significant technical questions, and on integration and maintenance planning and issues.

For the 10th DAC meeting, the DAC is asked to address the following charge questions:

- Is the design of the ePIC detector and its sub-systems appropriate and progressing well?
- Are the remaining work and technical, cost and schedule risks adequately understood? Are there opportunities?
- Will the detector be technically ready for baselining by late 2025?
- Are the detector integration and planning for installation and maintenance progressing well? Are there areas where further ideas should be pursued?
- Will the detector be ready for start of construction by late 2026?

We welcome any other suggestions you can make that will improve the success of delivering the ePIC detector. A readiness assessment of the EIC Detector subproject is planned for November 2025. This review will include cost, schedule, and technical risk and will be informed by the results of the 10th DAC meeting.

The committee is requested to organize their assessment in terms of findings, comments, and recommendations and provide a written report by July 3, 2025.

References:

7th DAC Meeting (2023): DAC Comprehensive Design Review (2023): https://brookhavenlab.sharepoint.com/sites/EICDetectorComprehensiveDesignReview
8th DAC Meeting (2024): https://indico.bnl.gov/event/23881/ (Access Code: DAC6212024)
9th DAC Meeting on EIC Project Detector R&D (2024): https://indico.bnl.gov/event/24086/
ePIC / EIC Project Detector R&D Day (April 2025): https://indico.bnl.gov/event/27200/