EIC Resource Review Board (RRB)
Meeting Minutes of the 6th EIC RRB Meeting
November 4-5, 2025
Brookhaven National Laboratory
Website/Indico

Day 1 – Tuesday, November 5, 2025

Opening remarks were provided by the Host Lab Directors, John Hill (BNL) and Jens Dilling (JLAB), Linda Horton (DOE), and Paul Mantica (DOE). The DOE expressed their regret at not being able to attend the meeting in-person due to the government shutdown and reaffirmed their strong commitment to the EIC project and to realizing the facility in partnership with our collaborators.

June 2025 Meeting Minutes were unanimously approved.

Report from the Advisory Board Chair – Jens Dilling

The Advisory Board's primary focus is to ensure full alignment between the host laboratories—BNL and JLab—and to maintain strong connections with key stakeholders. The October meeting marked Jens's first as chair, during which he reaffirmed JLab's full commitment to delivering the EIC project. Given the project's long timeline, maintaining active engagement with the scientific community is essential. AI remains a key deliverable for EIC physics.

No questions or comments.

Report from the Project Director – Jim Yeck

The facility performance requirements established by NSAC are well understood and have remained stable. Our project scope is fully traceable to these requirements. The EIC project will leverage the existing $2 billion investment in RHIC infrastructure, plus an additional by $3B+ in new investments. The EIC is single line-item construction project, to be executed through defined subprojects approved by the DOE.

The EIC subproject delivery strategy enables possibility of starting construction of the accelerator storage rings following the conclusion of RHIC operations. Site clearing, funded by the $100 million New York State Grant, is expected to begin by the end of this year. To align our planning with the latest funding guidance, a Project Strategy Workshop has been scheduled for December 4 to engage stakeholders on revising our technically driven plan

based on current funding guidance. The chairs from our advisory bodies as well as ePIC and EICUG have been invited to participate. Our CD-3A long-lead procurements are executed and DOE approval for the CD-3B long-lead procurement package is expected soon.

No questions or comments.

Report from the Technical Director -Sergei Nagaitsev

The performance requirements for the EIC have been driven by many years of refining its physics goals and proposed experiments. Luminosity has been optimized. Electron beam energies were presented for 5, 10 and 18 GeV. Since the publication of the 2021 Conceptual Design Report, we have implemented several design updates to address identified technical uncertainties and risks, without impacting the project's performance or cost objectives. These updates include optimizing the locations of the 41 GeV bypass and the HSR injection, adding a low-energy cooler while removing the CeC cooler, and refining the electron injector concept. The EIC accelerator design is now stable and complete. Therefore, it can be costed.

- Question: Given the new timelines presented, do you foresee any impact on the schedule for In-Kind Contributions from the UK?
    - No. In fact, we have been speaking with UK researchers about crab cavities and polarization simulations.
    - The Accelerator Storage Ring Subproject does not require any concrete in-kind agreements. The bigger issue is the potential impact on the overall UK plans if the project is delayed. While we recognize that some delay to the schedule is inevitable, our goal is to minimize it as much as possible. We remain fully committed to the successful delivery of the EIC and will continue to collaborate closely with our partners and maintain transparency. We apologize for not being able to present an updated schedule today, but we are actively working on it and will share a revised plan within the next few months.
- Question: Do you have the technical workforce needed to achieve your goals?
    - Maintaining a large technical workforce continues to be a challenge for the EIC, as well as for other large projects across the DOE complex. BNL has ramped up hiring to fill critical positions necessary to initiate construction. We are also leveraging the skilled staff available at Jefferson Lab, other DOE laboratories, and in-kind partner institutions. Additionally, the planned transition of the RHIC workforce to the EIC following the conclusion of RHIC operations will provide additional support.
- Do you expect to be able to improve the luminosity profile?

    - It can be improved by introducing on-energy proton cooling, i.e. strong hadron cooling. This concept is still in the R&D phase and not part of the project's scope. However, it is expected that the community will solve this.
- Question: You presented the decay in luminosity over a 24-hour period, but the effects on proton–proton polarization were not shown. It would be helpful to know this.
    - We predict that it is nearly constant. For example, at RHIC, polarization decay is approximately 1%, and it can be measured with high precision. The AGS has demonstrated a dependence between bunch current and polarization. To address this, improvements are currently being implemented for upcoming RHIC runs, including the installation of new magnets.

Report from the Detector Advisory Committee (DAC)– Andrew White

The Detector Advisory Committee (DAC) conducted a review of ePIC on June 11–13, 2025, to evaluate progress in detector R&D, design maturity, system integration, and construction readiness. The committee commended the team for successfully transitioning from the R&D and PED phases and expressed optimism about the project's overall progress. They emphasized, however, the importance of closely managing critical technical and schedule risks, particularly those related to MOSAIX access, ASIC availability, and system integration logistics.

- Comment: Members of the BNL Director's Office visited Washington, D.C., last week to discuss the status of the CERN General Operational Protocol and the EIC addendum. The documents are currently under review by DOE General Counsel, and the Office of Science has made finalizing the agreement a top priority.
- Comment: The RRB should inform the CERN members know if there are any actions they can take to support this effort.

EIC Project Session

EIC Project Detector Update – Elke Aschenauer

Support for the EIC continues to grow, with over 1,500 members in the EIC User Group and more than 1,000 in the ePIC Collaboration, with strong international engagement and support. The ePIC Collaboration is established, and the EIC detector is technically baselined. A June 2025 review by the Detector Advisory Committee highlighted significant progress and projected readiness for baselining in late 2025 or early 2026. The detector design is ~60% cost-weighted mature, advancing toward ~80% by June 2026. CD-3A scope is progressing well, preparations for CD-3B are underway, and subsystem design reviews

are on track. A Baseline Readiness Assessment is planned for February 2026, with documentation already well advanced.

- Question: Will taking ePIC out and breaking the vacuum take 5 months? Have you thought about anyways to optimize this?
  - Yes, this is based on our experience with STAR. It takes 5 months total (~2.5 months each way).
- Question- Will you have the enough technical support manpower to achieve the schedule for the detector?
  - The schedule presented is technically driven and fully loaded. General maintenance and installation of the device in ePIC - responsibility of host labs.

Progress of EIC International Partnerships & Agreements since last RRB– Luisella Lari

The EIC iCRADA single-signature and multi-signature templates have been fully approved by the DOE. The EIC Project is preparing to sign the first iCRADA for the INFN detector solenoid scope as soon as possible. Additionally, the EIC IKC documentation remains on track to fully support the Project's baseline strategy.

- Question: Does multi-signature mean multiple countries will sign?
  - No, it means both JLAB and BNL can sign with each country. For items shipped from JLAB to BNL, there will be an acceptance at BNL.
- Question: When BNL accepts a delivery of a sub-detector system to BNL, does it mean a transfer of ownership?
  - No. It is a transfer of responsibility and an indefinite loan.
- Comment: You should discuss what institutions will be responsible for the costs of any tariffs early on.
  - The EIC general assumption is that we do not expect to impose the cost of tariffs on our in-kind partners. There is also the possibility of requesting exemptions in some cases.

ePIC session

Report from the ePIC Collaboration Spokesperson – John Lajoie

The ePIC Collaboration is a strong, active, and expanding international effort, with global participation playing a vital role in its success. The collaboration remains dedicated to advancing the detector's technical design and supporting the baselining process (CD-2) for the DET subproject. Physics Working Groups are actively developing the EIC Early Science

Program, while the Software and Computing teams have made significant progress in supporting simulation efforts and building the ePIC Streaming Computing Model. The upcoming 2026 survey will help clarify institutional commitments and guide the future trajectory of engagement. This period presents an important opportunity for collaboration leadership to strengthen connections with institutions and enhance participation across all aspects of the project.

- Question: Do you know the average FTE dedicated per collaboration member?
  - It varies but we have the data.
- Question: What is the FTE requirement per institution required for membership?
  - To maintain good standing, it is 15%. This is a low number and will probably increase overtime. A working group dedicated to updating the charter is currently reviewing the membership requirements. We want to avoid having a large amount of people dedicating a small amount of effort.
- Question: How many institutions responded to the 2025 survey?
  - 90%

Report from ePIC Technical Director - Silvia Dalla Torre

There is strong integration between the EIC Project and the ePIC Collaboration in advancing the development of the ePIC detector. The 400-page standalone ePIC pre-TDR highlights the substantial progress achieved toward finalizing the detector's design. ePIC's scientific workforce, contributing approximately 250 FTEs, is paving the way for in-kind contributions—including components such as tracking, calorimetry, dRICH, and solenoid.

- Question: Is 200-250 FTEs the optimal number for the scientific workforce?
  - No. More financial support is needed to increase this number.

Report from ePIC Computing Coordinator - Markus Diefenthaler

Since our last meeting, there has been major progress in software and computing for the ePIC experiment. The EIC Computing & Software Advisory Committee conducted their annual review in October 2025 and commended strong advances in streaming data processing, simulations, and software readiness for the pre-TDR, while recommending multi-year planning, a data-lifecycle strategy, and expanded engagement of institutions. Active testbeds and prototypes now demonstrate streaming orchestration and reconstruction using tools like PanDA, Rucio, and JANA2, with AI/ML driving autonomous calibration and control. Simulation campaigns run monthly to support the detector design efforts needed for the preTDR and early science program efforts.

- Question: What is the one bottleneck that has prevented ePIC computing progress?

    - The limited workforce. Our FY28 goal is to have a functioning testbed available for one detector system using simulated streaming data.
- Are your simulation campaigns limited by storage or computing access.
    - They are at some level, but we are currently able to work with what is provided by the host labs and from in-kind partners. We are also utilizing the open science grid.
- Comment: ePIC's streaming readout is currently at the level that ATLAS/CMS was at in 2010. Our goal is to accelerate our path by utilizing automation whenever possible to minimize the gap between data taking and its availability to users.

Computing and Software Session

International Computing Model and Governance - Amber Boehnlein

The EIC Computing & Software Advisory Committee met on October 6–7 and recommended implementing the EIC International Computing Organization (EICO) model as presented, following a staged approach that would initially focus on collaboration-related aspects. Since the last RRB meeting, the draft charter for the EICO was finalized and distributed for final review. The RRB called a vote on the charter, which was approved unanimously. The ECSJI charter will be reviewed to ensure alignment with the EICO charter ahead of the next RRB meeting. Work on the EICO Cooperation Agreement is in progress, with the first draft targeted for completion by Fall 2026.

- ACTION: Present the Echelon 1 and Echelon 2 requirements draft document at the June 2026 RRB meeting.

Day 2 - Friday June 6, 2025

Common Funds and Global Strategy Session

Common Funds, Global Outreach Strategy & Scrutiny Group Session– John Lajoie Abhay Deshpande, Rolf Ent, Paolo Giubellino,

The progress of toward establishing the Common Funds framework for ePIC was presented including discussions on proposed mechanisms for transferring money, contribution requirements, the funding outreach activities, and establishing a M&O process. The importance of the Scrutiny Group was emphasized. The RRB needs to decide the frequency for reports from the Scrutiny Group, independent of annual legal fiduciary audits. It is important to begin planning the funding process for global strategy support in CY2026. BNL management confirmed their pledge of $10K in funding for outreach activities.

- Question: Has the working group looked at the examples from DUNE at Fermilab and BaBar at SLAC?
    - We did some years ago. DUNE Common Funds go through the University of Chicago. It is dependent on the host lab's contract. It is preferred not to collect common funds through the host lab in order to avoid paying overhead rates. A nonprofit organization supported by the host lab's operating contractor seems like the best solution.
- Question: What are overhead rates for?
    - They typically cover indirect costs at the host labs such as management and support organizations.
- Comment: The Working Group should consider lessons learned from CERN to ensure the Scrutiny Group works closely with the RRB.
- Comment: Contribution requirements should not cause students to be excluded.

Global Strategy Proposal - WG presentation – Elke Aschenauer

The ePIC Outreach Working Group is comprised of international representatives from multiple countries, aims to expand the EIC experimental community, strengthen STEM pipelines, and foster diversity and international collaboration. Ongoing activities include a global outreach survey to compile educational and engagement resources, photo and poster contests, and the creation of a repository for outreach materials and an EIC YouTube channel. Future initiatives involve a Masterclass on particle identification and proton structure, developing fellowship and mobility opportunities, and organizing interactive events like slam talks, science pub sessions, and game-based activities to boost public and scientific engagement with the EIC program.

- Comment: An ePIC Instagram account has been established by early career scientists in Italy with the goal of educating a broad audience on EIC science.
- Comment: Most institutions have a central Communications Office that can assist with outreach strategies for social media.
- Comment: ePIC Computing would be happy to help with creating the tutorials for the Masterclass.
- Comment: It is important that we all promote EIC on social media platforms.

Updates were given by the following Funding Agencies Representatives and/or PIs:

- Marek Vyšinka, Ministry of Education, Youth, and Sports/Czech Republic
- Jarolslav Bielčik, Czech Technical University in Prague/Czech Republic

- Marcella Grasso, CNRS/IN2P3/France
- Franck Sabatie, CEA Saclay/France
- Diego Bettoni, INFN/Italy
- Paolo G, INFN/Italy
- Ryohei Kobayashi, Embassy of Japan, Washington DC
- Jaeyoung Kim, Korean Basic Science Institute/South Korea
- Taku Gunji, Center for Nuclear Study, the University of Tokyo/Japan
- Chia Ming Kuo, National Central University/ Taiwan
- Helen Beadman, UKRI-STFC/UK
- Daria Sokhan, University of Glasgow, UK
- Paul Mantica, DOE/ United States

Future RRB Meeting, Dates and Venues

The 7th RRB Meeting will be hosted by MEXT on June 9-10 in Tokyo.