

EIC Detector R&D Proposal Guidelines

1 What R&D Projects Qualify for Funding?

For proposals to qualify for funding, they need to include a well-articulated motivation for their research, both in terms of advancement of technology and improvement in physics reach. The proposed project must address what physics program at an EIC it will enable and why the technologies to be studied have a particular importance for experiments in an EIC environment.

The focus of this R&D program moved from generic to directed R&D. Directed R&D refers to research and development of an area that has been identified as an area where current state-of-the-art is not able to meet the EIC physics requirements or where a technology is completely missing or unaffordable. Pre-construction engineering & design (PED) falls outside the scope of this program. When a concept has demonstrated proof-of-principle and has reached a level of maturity where scaling by a factor of a few is involved to bring it to an EIC experiment, then this research is considered to have reached a level of maturity where it has satisfied the goals of the R&D program, can be moved out of this program and be easily revived once calls for concept detectors are issued and *project* R&D funding can be obtained.

2 Guidelines for Preparing the Proposals and Progress Reports

When compiling your proposals, the following guidelines should be followed. They are meant to increase the reviewability of the proposals and make the program more effective.

2.1 Front Page

The front page should contain the title of the project, date of submission, a list of **all** proponents and their institutions. The PIs should be clearly indicated as well as the contact person (typically a PI). There should be at most two contact persons, preferably one. If the proposal comes from an already approved R&D group/consortium or individual, the R&D ID (eRD#) needs to be indicated on the front page. A short abstract describing briefly the project is helpful. A table of content for longer proposals is also quite helpful.

2.2 Progress Report Section

If the proposal is the **continuation of an already existing program** it must also include a progress report of achievements in the past term. **Given the current situation due to the COVID-19 epidemic and the delays cause by it, there are some changes to this report highlighted in red.**

The progress report should precede the proposal section or be provided in a separate document. It should provide answers to the following questions:

- What was planned for this reporting period?
- What was achieved?
- What was not achieved?
- **How did the COVID-19 pandemic and related closing of labs and facilities affect progress of your project?**
- **How much of your FY20 funding could not be spent due to pandemic related closing of facilities?**
- **Do you have running costs that are needed even if R&D efforts have paused?**
- What is planned for the coming months and beyond? How, if at all, is this planning different from the original plan?
- What are critical issues?

It should include a list of the existing manpower and what approximate fraction each has spent on the project. If students and/or postdocs were funded through this R&D program, please state where they were located and who supervised their work. For postdocs, please indicate how long they have been supported by this program. Please provide a list of publications coming out of the R&D effort.

The report must clarify what has been accomplished with the EIC R&D funds and what came as a contribution from potential collaborators. Describe what external funding was obtained, if any.

A template for preparing a progress report is available on the EIC Detector R&D Program web site: https://wiki.bnl.gov/conferences/images/3/3c/EIC_RD_ProgressReport_Template_2020_word.docx

Note: The Committee noted repeatedly that their recommendations are not always being followed. The decision of the research groups to not follow the recommendations may be well justified but the Committee explicitly requests that, when there are clear deviations from the recommendations, they be justified both in the documentation and in the presentations at the meeting of the advisory committee.

2.3 Proposal Section

Proposals need to include a well-articulated motivation for the research, which should include a description of the technologies currently being used, what the technical limitations are, and how the proposed research will advance the current state-of-the-art and what physics program at an EIC it will enable (based, *e.g.*, on measurements described in the 2012 White Paper, “Electron Ion Collider: The Next QCD Frontier”, arXiv:1212.1701 or equivalent widely accepted documents).

Furthermore, it should describe why the current state of the art of the instrumentation is not adequate. Tables of performance requirements with a discussion of how the resulting detector specifications will produce a detector that meets the physics goals would be most helpful. Clearly state the expected results (deliverables) of the R&D project.

If this proposal was previously turned down, please state how the proponents addressed the concerns of the EIC R&D committee.

Proposals should be as definitive as possible. When resources are requested, proposals should state where the resources would be located and the specific responsibilities of the personnel. When graduate students and postdocs are required, the proposal should state who would supervise them and where they would conduct their work (see also 2.4).

Every proposal is required to provide a research program with a deliberate schedule for yearly deliverables.

A single comprehensive section on funding requests and budget is mandatory. Funds can only be requested for the coming FY, *i.e.*, October 1 until September 30. Note that, given the current timeline for the construction of the EIC, the current program will turn into a targeted R&D program likely after the FY21 funding period. Do not suggest any funding from *this* program for FY22. The budget should be presented preferably at the end of the proposal and best augmented by separate tables listing the requests ordered by group and by subject. Please indicate the costs for manpower, hardware and travel.

Each proposal should also consider **three budget scenarios** and articulate deliverables under each scenario:

- a realistic nominal budget (baseline budget),
- a nominal budget minus 20%, and
- a nominal budget minus 40%.

Besides the deliverables, a clear set of intermediate milestones should be presented under each budget scenario and what goals will not be accomplished under the reduced budget scenarios.

Furthermore, each proposal should include a “**money matrix**” itemizing the budget allocations to the individual institutions and the area of research (that is, the sub-projects if more than one topic is addressed).

Example:

	R&D Subproject 1	R&D Subproject 2	R&D Subproject 3	
University A	\$	\$	\$	Sum A
University B	\$	\$	\$	Sum B
University C	\$	\$	\$	Sum C
Nat. Lab. X	\$	\$	\$	Sum X
	Sum 1	Sum 2	Sum 3	

Proponents are encouraged to form research consortia with a well-defined, targeted scope of research and state what synergies exist with related projects. Possibilities for collaboration should be indicated.

A combined proposal+progress report should not exceed 30 pages with reasonable formatting and font size. A proposal without progress report (first time proposals) should not exceed 20 pages.

2.4 Postdoctoral Fellows

As stated above, the R&D program will likely be restructured after the FY21 funding period with a new funding and organizational structure. Therefore, long-term financial obligation to the program cannot be guaranteed. Applying for new postdoctoral support will most likely not be granted for FY21 and is not encouraged. This does not apply for continuation of already hired postdocs.

2.5 Travel

Awarded funding will be transmitted via one or more R&D subcontracts with BNL and are thus subject to DOE regulations. While travel funds can be added to the proposal, participants should be aware that travel funded through subcontracts has many strings attached and is in general discouraged.

- International travel has to be requested 45 days in advance. This implies that you will have to contact BNL around 60 days before the actual travel day.
- The situation is somewhat better for domestic travel but should be also requested at least 14 days before travel.
- Travel can be rejected by the DOE office at any time.
- Travel funds cannot be requested after the trip has taken place. Past trips that were not requested in time cannot be covered by R&D funds.

Please be realistic in your travel estimates given the current COVID-19 situation and the restrictions in domestic and international travel that will be with us for a while to come.