

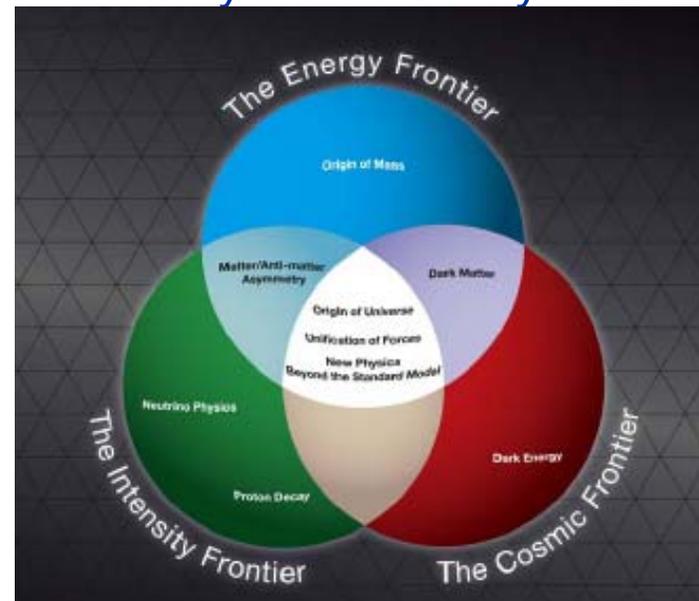
Director's Preliminary Cost and Schedule Review of Project X: Introduction and Overview

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Project X Director's Review
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http://www.fnal.gov/directorate/OPMO/Projects/PX/DirRev/2009/03_16/review.htm



- Fermilab is the sole remaining U.S. laboratory providing facilities in support of accelerator-based Elementary Particle Physics.
- The Fermilab long-term strategy is fully aligned with the HEPAP/P5 plan:
 - Energy and intensity frontiers share strong reliance on accelerators



“The panel recommends an R&D program in the immediate future to design a multi-megawatt proton source at Fermilab and a neutrino beamline to DUSEL... “

(www.science.doe.gov/hep/files/pdfs/P5_Report%2006022008.pdf)

Project X Role in Fermilab's Future

Evolution of the Accelerator Complex



- A multi-MW Proton Source (aka Project X) is the lynchpin of Fermilab's strategy for future development of the accelerator complex:
 - Energy Frontier:
 - Tevatron → ILC or Muon Collider as options for the Fermilab site
 - Aligned with ILC technology development;
 - Preserves Fermilab as potential site for ILC or a Muon Collider
 - Intensity Frontier:
 - NuMI → NOvA → LBν/μ2e → multi-MW Proton Source → NuFact
 - Steady increase in power and baseline length up to 2 MW @ 1300 km;
 - Several x 100 kW to rare processes experiments;
 - Preserves Fermilab as potential site for a Neutrino Factory



- This is not a technical review.
 - The technical design was looked at by the Accelerator Advisory Committee in February
 - (AAC were told “this is not a cost review”)
 - To first order you should accept that the configuration described will meet the technical goals.
 - To second order we expect to utilize your technical expertise to identify areas of particular risk, either technical or cost, and/or opportunities for reductions.
- This is not a baseline estimate
 - Baseline configuration is not established
 - Level of detail in the basis of estimates is not at baseline level
 - The DOE Order asks for a cost estimate range ⇒ This is a single point in time snapshot, developed very early in the process.



- Review of the schedule is secondary to the cost estimate
 - Estimates are tied to a resource loaded, “technically limited”, schedule
 - CD-0 July 2009
 - CD-1 December 2010
 - CD-2 July 2012
 - CD-3 August 2013
 - CD-4 March 2018
- } RD&D
- } PED
- There has been no effort to either optimize or load level the schedule
- Scope of the estimate
 - Hydrogen bottle through extraction kickers (MI and Recycler)
 - CD-0 to CD-4
 - CD-4 = complete hardware checkout



- Discussion of the PED profile should be confined to the Project Management breakout
 - All other breakout sessions should address the adequacy of the RD&D plan as supporting the needs of the construction project
- Breakout sessions speakers will be presenting estimates in FY2009 dollars (M&S) and person-years, with no overheads and no contingency
 - Overheads, escalation, and contingency are applied at the highest level and will be discussed in the Project Management breakout
- The specific role of collaborators is not integrated into the estimate
 - Labor is estimated as if provided by Fermilab staff
 - Fermilab labor rates are used
 - (With a few exceptions within the RD&D estimate)



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- The Project X plan is closely related to several other development programs at Fermilab, and is relying on deliverables from those programs:
 - ILC
 - SRF infrastructure
 - High Intensity Neutrino Source (HINS)
- ⇒ The committee should accept the assumption that these deliverables will be available as planned



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- The preliminary TPC estimate is \$1.49B
 - We hope the committee will concur in our view that:
 - The ICD represents a complete, well defined, scope
 - The preliminary estimate is a complete representation of the ICD
 - The methodologies used and the estimated costs are reasonable for this stage of the project
 - The preliminary estimate is sufficiently detailed and based on conservative assumptions
 - Opportunities for reduction of the estimate, while preserving the core mission needs, exist
 - The preliminary estimate is likely to represent the upper range of a subsequent baseline cost