

35-ton Simulation and Reconstruction News and Announcements

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35-ton Sim/Reco

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DOE CD-1 Refresh News

- Refreshed LBNF/DUNE CDR

<https://web.fnal.gov/project/LBNF/SitePages/CD-1-R%20Reports%20and%20Documents.aspx>

- Document source (LaTeX and figures)

<https://github.com/dune/cdr>

- Review web page

https://web.fnal.gov/project/LBNF/ReviewsAndAssessments/LBNF_DUNE%20DOE%20CD-1%20Refresh%20Review/SitePages/Home.aspx

- Agenda

https://web.fnal.gov/project/LBNF/ReviewsAndAssessments/LBNF_DUNE%20DOE%20CD-1%20Refresh%20Review/SitePages/Agenda.aspx

DOE CD-1 Refresh News

- Presentations went very well! The review committee consisted of world experts in HEP detectors and projects.
- Not enough time to review all aspects of this large project
- Originally the charge was to review cost and schedule, but it evolved into a more technical review
- Lively discussion
- Questions and answers were thought-provoking

See Mark and André's summary at the collab phone call:

<https://indico.fnal.gov/conferenceDisplay.py?confId=10156>

This is an excellent summary and won't be repeated here

DOE Review Questions

- We would like to understand (roughly) the physics reach degradation from failure to reach design parameters. E.g. factor of 2 in Nmodules, HV, e lifetime, photodetector efficiency.

A: This one's quite interesting – André gave a summary of estimates of which physics topics will be most impacted by each of these.

- LXE detectors have expensive Xe in the non fiducial region outside the fieldcage, which perhaps leads to smaller gaps (and HV problems) than would happen with Ar. Since DUNE is large, so is the Ar in the gap. How is the gap optimized?

A: This is mostly cost vs. risk of arcing. APA's on the outside are an optimization step addressing this issue.

DOE CD-1R Questions from Reviewers

- Describe the R&D program, measurements, and schedule for the photodetector down-select.
- Please provide the DOE cost estimate for the U.S. contributions to DUNE and what are the Core contributions?

DOE CD-1R Questions from Reviewers

- Describe the current status of the detector simulations and how they have been used to determine the detector parameters as they appear in the cost book.

A: Tom's talk

<http://lbne2-docdb.fnal.gov:8080/cgi-bin/RetrieveFile?docid=11253&filename=B01-06-Junk-FarDetSim%26Modeling.pdf&asof=2015-7-15>

But: some parameters are optimized based on back-of-the-envelope estimates and not full studies. Work to do!

- Describe how the simulation effort is organized, the deliverables, scope and schedule. How it will be used to prepare for CD2 and for detector selection steps prior to CD2?

A: Working groups being set up, task forces with 12-18m timelines being set up

Organization, Targets and Deliverables

- Mark and André will set up task forces that target delivering the required studies on the necessary timescales.
- FD simulation and reconstruction task force to be set up soon, with a timeline for deliverables of 12 – 18 months
- We have a short timescale for optimizing the detector design for the CERN test
 - Wire angle
 - Wire spacing

Would like to have that ready for December 2015 so the CERN test can be designed. Still a fallback plan in case the design evolves after the CERN test APA's are designed – re-build and rerun the prototype later to get test-beam calibration constants with the final detector design.

Other task-force deliverables: Input resolutions to FastMC, verification of detector requirements

Other Recent Reviews

- DUNE Far Detector Design Review, May 19-20, 2015

<https://web.fnal.gov/project/LBNF/ReviewsAndAssessments/Dune%20FD%20Design%20Review/SitePages/Home.aspx>

- DUNE Director's Review, June 2-4, 2015

<https://web.fnal.gov/project/LBNF/ReviewsAndAssessments/LBNF-DUNE%20CD-1-Refresh%20Directors%20Review/SitePages/Home.aspx>

Technical Scope of Work (TSW) – Computing for 35-ton

Current version on FermiPoint:

<https://fermipoint.fnal.gov/organization/cs/ocio/sm/slm/Shared%20Documents/Forms/AllItems.aspx?RootFolder=%2Forganization%2Fcs%2Focio%2Fsm%2Fslm%2FShared%20Documents%2FIn%20Progress%20TSWs%20%28Technical%20Scope%20of%20Work%29%2F35T%20Prototype%20CS%20TSW&FolderCTID=0x012000F64067810136CF4A828209B4A63289EE&View={56DFF269-5BA6-4A8E-BD10-5ADED2E7F5E6}>

Changes by Jon Paley, Brett, and Tom put in July 10.

Additional changes to the network section to be put in by Stu Fuess, then another round of review before signing.
Should finish it up by the end of July.

Vertical Slice Test Data Stored to Tape

Index of individual files available at:

<https://cdcvs.fnal.gov/redmine/projects/35ton/wiki/LBNE35tVerticalSliceTestDataFiles>

With example samweb commands to list the files.

Uploaded using Qizhong's tools:

[https://indico.fnal.gov/getFile.py/access?
contribId=0&resId=0&materialId=slides&confId=10130](https://indico.fnal.gov/getFile.py/access?contribId=0&resId=0&materialId=slides&confId=10130)