

Discussion of Testing Plans at FSD

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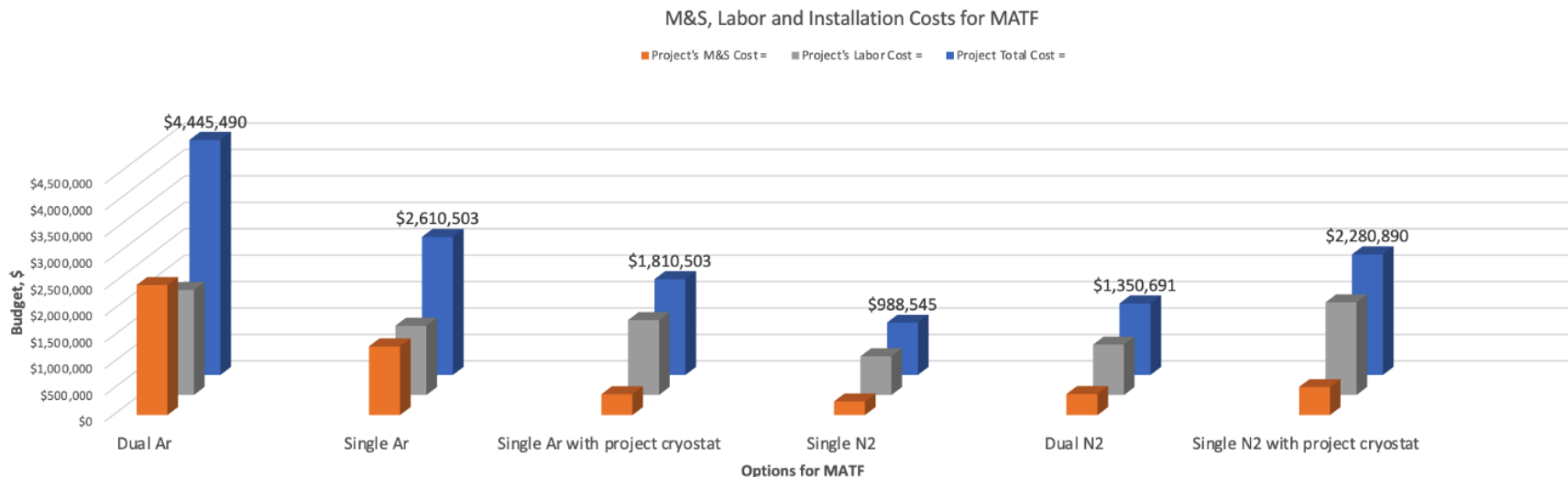
DUNE ND-LAr Assembly and Testing Meeting
December 8th, 2021

- ◆ Still have not determined what ND-LAr module testing plan at MATF will be
 - Focus of Module Testing Task Force discussions – final report expected in first half of January
 - Options include testing some or all modules in LAr, LN₂, or GN₂
- ◆ Preliminary discussions seem to be pointing us in the direction of testing in GN₂/LN₂ at MATF
 - Charge readout: needs tests in cold – GN₂/LN₂ sufficient
 - Light readout: needs checks of cables in cold – GN₂/LN₂ sufficient
 - Field structures: serious design-related checks need to be made, requiring LAr, but should be addressed before QC stage (MATF)
 - Calibration: design in flux, but seems like need main checks at I&I
- ◆ If you disagree with this stance, let us know (and why) ASAP!

Cost of MATF Cryogenics Options

**L. Suter,
M. Geynisman**

Estimated M&S, labor and install, and total costs for MATF under 6 different options



	Dual Ar	Single Ar	Single Ar with project cryostat	Single N2	Dual N2	Single N2 plus project cryostat	Budget ? (\$)
Cryostats M&S Cost =	\$2,459,200	\$1,299,600	\$394,600	\$257,900	\$398,300	\$529,600	1,086,000
preproduction Labor Cost =	\$1,986,290	\$1,310,903	\$1,415,903	\$730,645	\$952,391	\$1,751,290	1,418,721
Total preproduction + cryostat M&S	\$4,445,490	\$2,610,503	\$1,810,503	\$988,545	\$1,350,691	\$2,280,890	2,504,721

- ◆ Module testing at FSD oriented around design validation (QA), as opposed to full-module QC (MATF focus)
- ◆ Also there will be the full-scale module testing facility at Bern; not a lot of specific plans discussed for this
 - Unique scope w.r.t. activities planned at SLAC?
- ◆ Some discussions with James and Igor regarding MATF testing as concerns field structures and HV system have led to details of needed design-related tests needed for field structures at FSD (and/or Bern):
 - Longer run of single TPC module as stability test – SLAC (“nominal” plan)
 - Cryogenic cycling of single TPC module as stress test – Bern (two cryostats)?
 - Shorter tests of O(5) modules – SLAC+Bern?

BACKUP SLIDES