

5-Jan-2022

## **LBNF/DUNE-US National Laboratories Directors' Council Meeting**

### **Attendees:**

ANL: Kawtar Hafidi, Paul Kearns

BNL: Doon Gibbs, Bob Tribble

Fermilab: Nigel Lockyer, Chris Mossey, Kevin Pitts

LBNL: Natalie Roe, Mike Witherell

SLAC: JoAnne Hewett, Chi-Chang Kao

### **Agenda**

Welcome	10'	Nigel Lockyer
LBNF/DUNE-US update	40'	Chris Mossey
Host Lab update	10'	Kevin Pitts
Executive Session	30'	Lab Director or designee (1 per lab)

### **Meeting notes:**

#### **Welcome Nigel Lockyer**

Project in a critical stage, need and appreciate support of all HEP labs

High priority effort, fully international

Strong partnership with CERN on this effort.

Cost has been a big concern, originally \$1.5B, now \$3B, but believe that it's stabilized

Challenges with DOE approval process: uniqueness, scale

Critical year to move forward

Optimistic regarding reconciliation package, but still

Two pieces: 1. Facility 2. International detector collaboration

Try to formalize model of collaboration following LCLS-II/CMB-S4 examples

Project will serve high energy physics and country for a long time to come, but we need to get relevant approvals in 2022.

#### **LBNF/DUNE-US Project update Chris Mossey**

Overview of project, background, context. See slides.

Funding guidance challenge:

- can proceed with far site/far detectors on technically limited schedule
- near site facility, beamline and near detector delayed 2.5-3 years due to funding availability

Run out of CD-3A far site excavation authority this summer, need CD-2/3 in first half of 2022 to continue

Natalie: motivation for 2 FD's vs. 1 FD and ND?

Chris: primarily driven by simultaneously building both cryostats...single team.

Paul: what are the concerns for CD-2/3?

Chris: Do they believe that scope/cost is understood/under control? What's the right amount of conservatism in estimates?

Mike: uncertainty on excavation much higher than uncertainty on building costs. But your advantage is that you are well into excavation.

Chi-chang: what about building the facility, then doing pieces as MIEs \$100-200M at a time? BES-model.

Chris: MIEs part of the plan, but big base/core effort.

Kawtar: Can you define early science? Then define the rest as upgrades.

Chris: Plan is shaped by what it makes sense to do now, e.g., can only excavate now, can't later. Beamline will support an upgrade to 2.4MW. Near detector hall will support upgrades.

Doon: Driven to subprojects by events? Is it best?

Chris: yes, evolved to subprojects. There is additional overhead in managing subprojects, but real benefits from staggered/compartmentalizing approach, also preferred by DOE-PM office.

JoAnne: Funding profile, can we accelerate even without BBB? New profile doesn't meet P5 goals, concern about community response. Can stakeholders help?

Chris: Agree.

Bob: Explain legally binding partner agreements.

Nigel: agreements between DOE and partner country (e.g., DOE-UK) and agreements have layers/levels.

JoAnne: how much international

Nigel: about \$1B

Kevin: international contribution is almost 50% of detectors.

### **Host Lab update**

**Kevin Pitts**

Brief due to time constraints, see slides.

Due to the international nature of DUNE experiment (not under DOE 413.3b umbrella) FNAL plays "host lab" role similar to CERN. Slides outline host lab activities to review/assess/support international effort.