

# JEFFERSON LAB STATUS

Stuart Henderson, Director  
February 17, 2022

Jefferson Lab



# REMINDER: COMMUNITY STANDARDS



## COMMUNITY STANDARDS

Welcome to Jefferson Lab!



Everyone at Jefferson Lab has a responsibility to foster an environment where all employees, users, students, guests, visitors, and subcontractors feel safe, welcomed and supported in advancing the Lab's mission.

We'd like to take a moment to familiarize you with our Community Standards. Jefferson Lab actively promotes a diverse and harassment-free experience for all.

While it is not possible to provide a complete list of the types of improper behavior below, prohibited conduct includes, but is not limited to:

- Offensive verbal comments
- Bullying or deliberate intimidation
- Stalking/following
- Repetitive photography of the same person(s)
- Gender-based insults
- Displaying or circulating sexually suggestive materials
- Inappropriate physical contact
- Unwelcome sexual attention or advances

Everyone is expected to embody the values of professionalism, respect, and diversity as well as cultivate a supportive and inclusive environment where the opinions of others are embraced. Behaviors not aligned with the lab's values will not be tolerated. Failure to adhere to this Community Standard may result in being barred from further lab events, suspension of site access including housing at the SURF Residence Facility, and/or removal from the site.

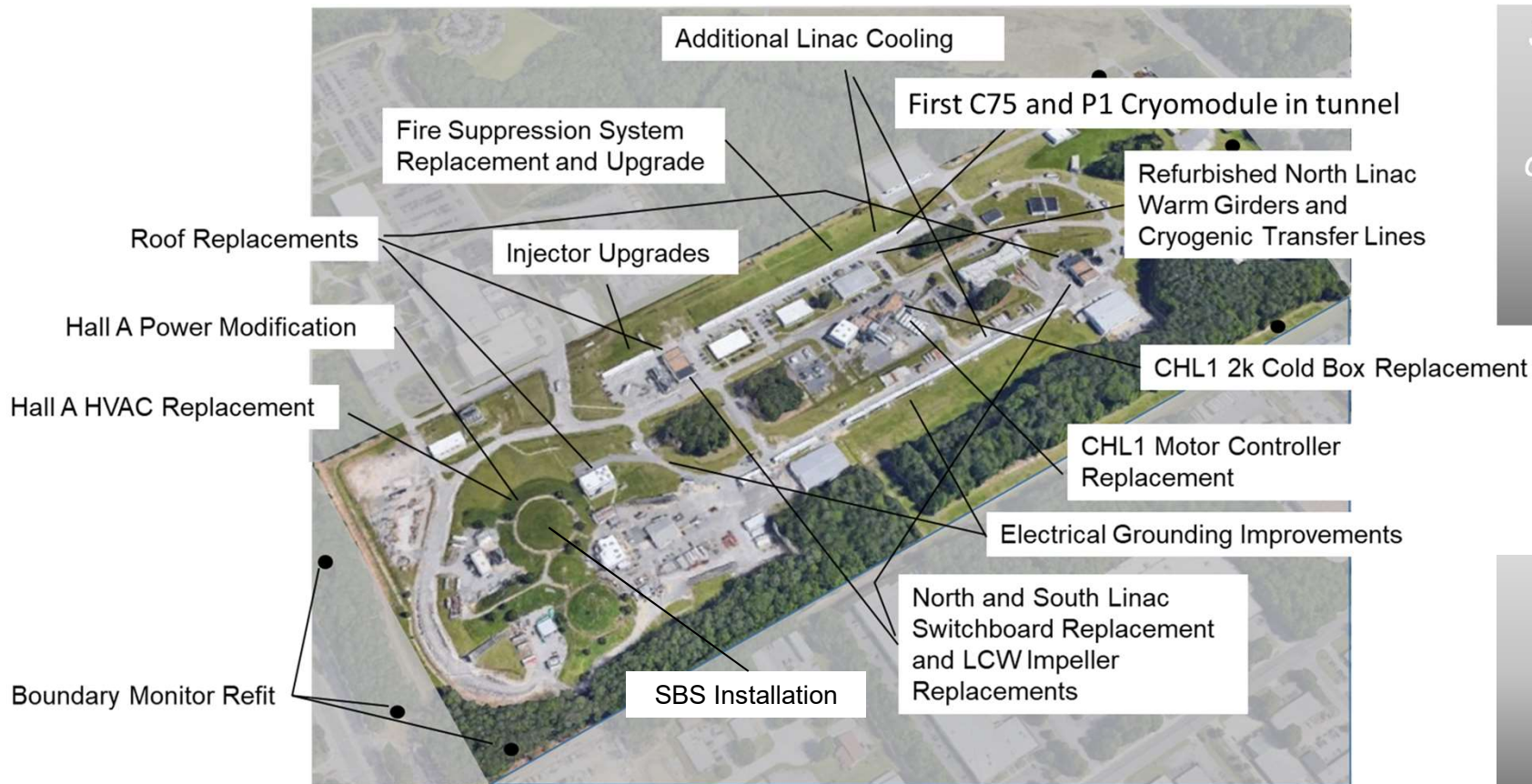


# JEFFERSON LAB LEADERSHIP TEAM





# SUCCESSFUL COMPLETION OF THE EXTENDED CEBAF SCHEDULED ACCELERATOR DOWN: THANKS TO ALL!



*Significant upgrades, improvements and maintenance tasks completed across the CEBAF accelerator, experimental halls, facilities and site.*

*Excellent work from operations staff in recovering and resuming CEBAF operations*

# THE SAD IN PICTURES



2K Cold Box moving into CHL

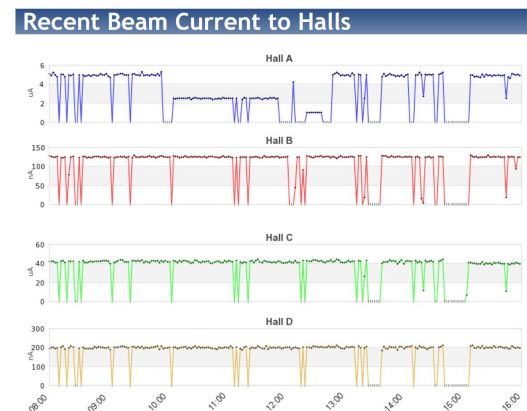
HPS Silicon  
Vertex Tracker  
assembly (Hall B)



SBS Installation (Hall A)

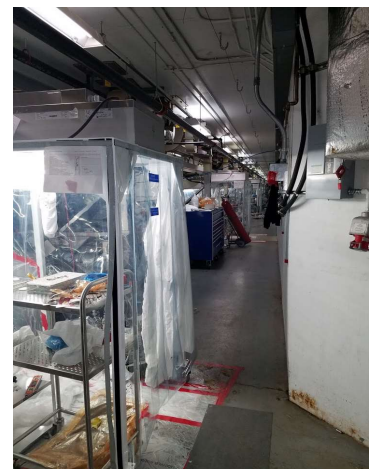


C75 Cryomodule

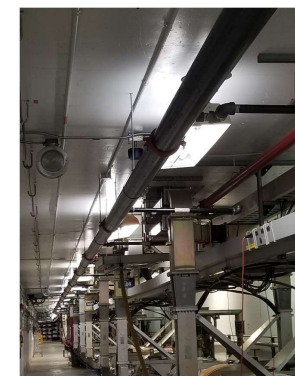


Recovered  
4-Hall  
Operation

North Linac  
Refurbishment



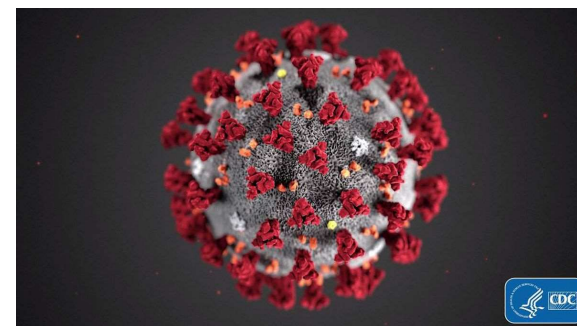
Linac Fire Suppression  
System Replacement



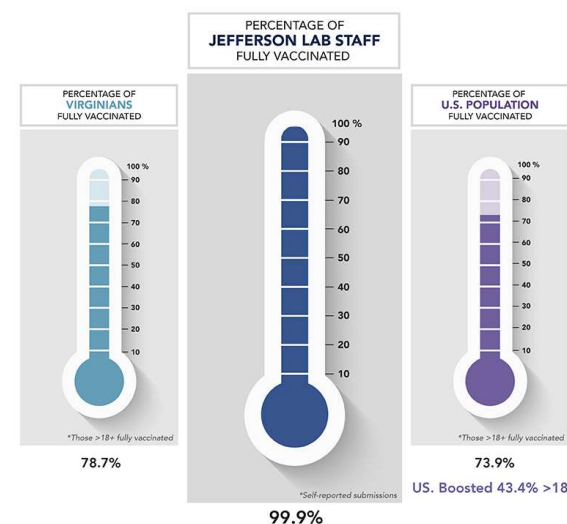


# JEFFERSON LAB COVID STATUS

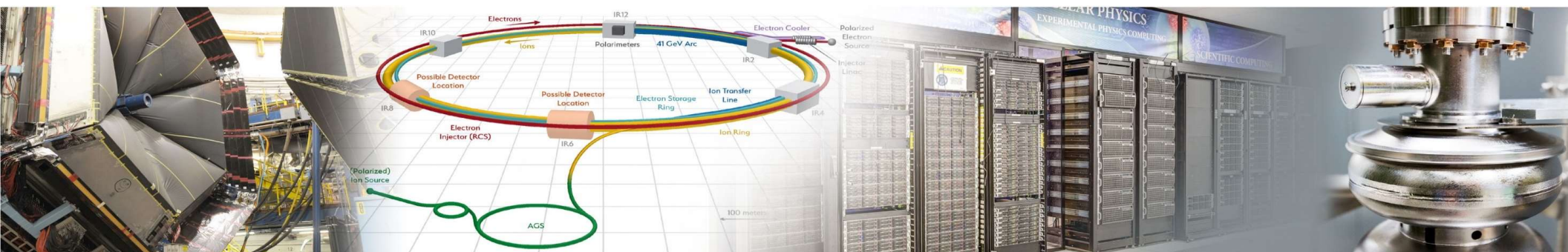
- Jefferson Lab is in MEDCON4 (Normal Operations with Expanded telework)
- A typical day has ~350 staff, ~100 contractors, many users on site and ~400 staff working remotely
- Cumulative Rates:
  - 102 Test Diagnosed
  - 51 Presumptively Diagnosed
  - 125 Contacts of Cases
- Our COVID controls have worked
  - We believe we've had no on-site transmission
  - At the same time we have accomplished a great deal of work
- We implemented the federal government's vaccine mandate for federal contractors
- We are finalizing plans for our long term hybrid work model that will be instituted once we transition to MEDCON 3 Normal Operations



CURRENT JLAB MEDCON LEVEL: **MEDCON 4**



# JEFFERSON LAB'S SCIENCE AND TECHNOLOGY VISION



## Nuclear Physics at CEBAF

Vibrant 12 GeV research program, operating >30 weeks/yr, supporting 1,700 annual users

MOLLER Project & SoLID proposal

Future opportunities in fixed-target, high-luminosity complementary to EIC

Theory and computation supporting NP goals

## Electron-Ion Collider

Partnering with BNL in the management, design, and construction of the Electron-Ion Collider Project

Leadership in EIC scientific program

## Computational Science & Technology

Vision for world-leading computational program

Developing concept of a High Performance Data Facility focused on the unique challenges and opportunities for data-intensive applications and near real-time computing needs

Computational Nuclear Physics

## Accelerator Science & Technology

Accelerator component production for DOE/SC projects, including LCLS-II and LCLS-II-HE at SLAC, and SNS-PPU at ORNL

R&D in accelerators, detectors, isotopes

# NUCLEAR PHYSICS AT CEBAF

## Near Term

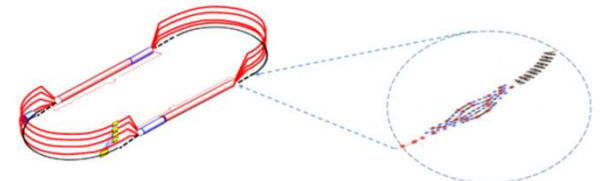
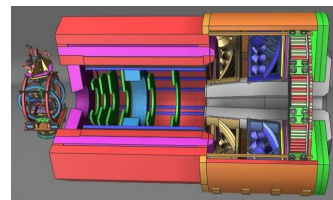
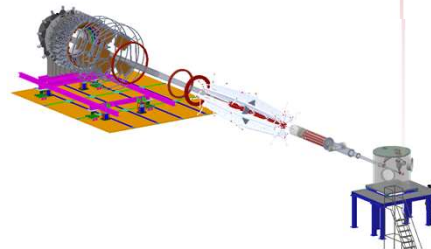
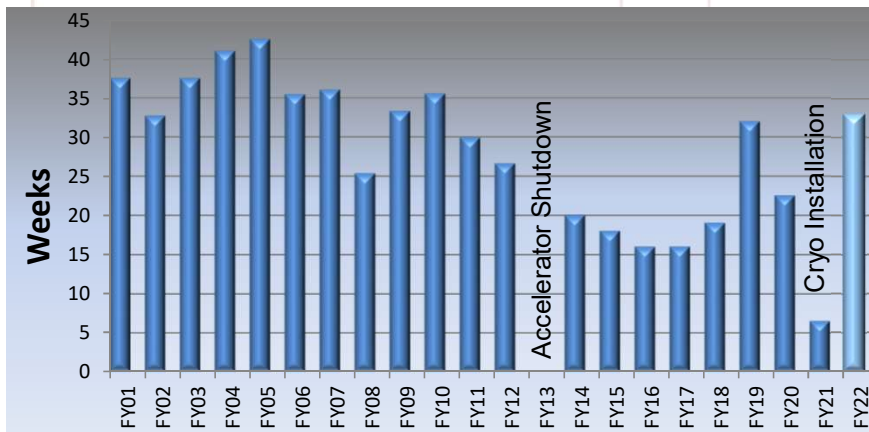
- Highest Priority is delivering on CEBAF 12 GeV Program
- Goal is >30 weeks/year with reliable operation at required energy
- Executing CEBAF Performance Plan to improve energy&reliability
- Executing and completing MOLLER Project

## Intermediate Term

- MOLLER takes data in ~2026
- SoLID Proposal submitted to DOE in 2020; DOE Science Review held March 2021
- Executing approved CEBAF program; w/MOLLER and SoLID extends into the early 2030s

## Long Term

- CEBAF will remain the prime facility for fixed target electron scattering at the luminosity frontier, complementary to EIC
- Emerging ideas: extending CEBAF energy, accelerating positrons, higher current; motivates further enhancements, perhaps including future CEBAF upgrades
- Preparing to make the case at the next Long Range Plan for Nuclear Physics

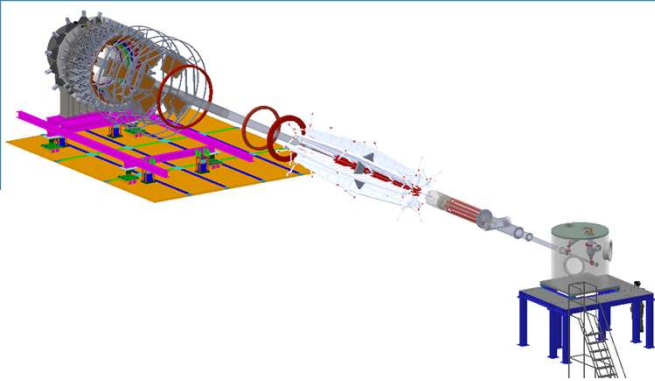




# MOLLER AND SOLID ARE MOVING FORWARD

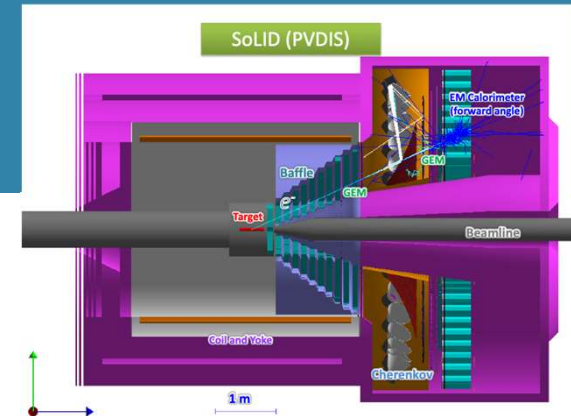
## MOLLER Project

- Cost estimate: ~\$50M
- CD-1 Approved December 15, 2020
- Successful DOE Review in November 2021, indicating the Project is well-managed and on-track for CD-2
- End Station Refrigerator 2 Project advancing in support of MOLLER



## SoLID Proposal

- Cost estimate: ~\$90M
- Submitted proposal to DOE in February 2020
- DOE Science Review held March 8-10, 2021 – first step in making SoLID a reality
- Seeking CD-0 approval



# ELECTRON-ION COLLIDER

## What we're doing:

- Taking a significant role in management, design and construction in Partnership with BNL
- Scope and responsibilities
  - Lead: Detector, RF Systems and Cryogenics
  - Joint responsibilities in nearly all areas
- Totals ~\$410M, ~25% of estimated cost
- Leadership in scientific community planning for detector and science

## Why we're doing this:

- EIC is a complex scientific facility, the next major facility for NP: it must be a success
- Success of the EIC requires our expertise and experience
- CEBAF scientific community will be central to EIC program
- DOE is a strong supporter of this partnership
- Provides significant opportunity to strengthen our capabilities, grow our expertise

### Near Term

- Defined scope and identified project team and leaders
- Building integrated project plan
- Carrying out and completing design and achieving CD-2 (2023)

### Intermediate Term

- Progressing through CD-3 (2024), beginning construction
- Executing significant technical work including procurement, construction, testing of components

### Long Term

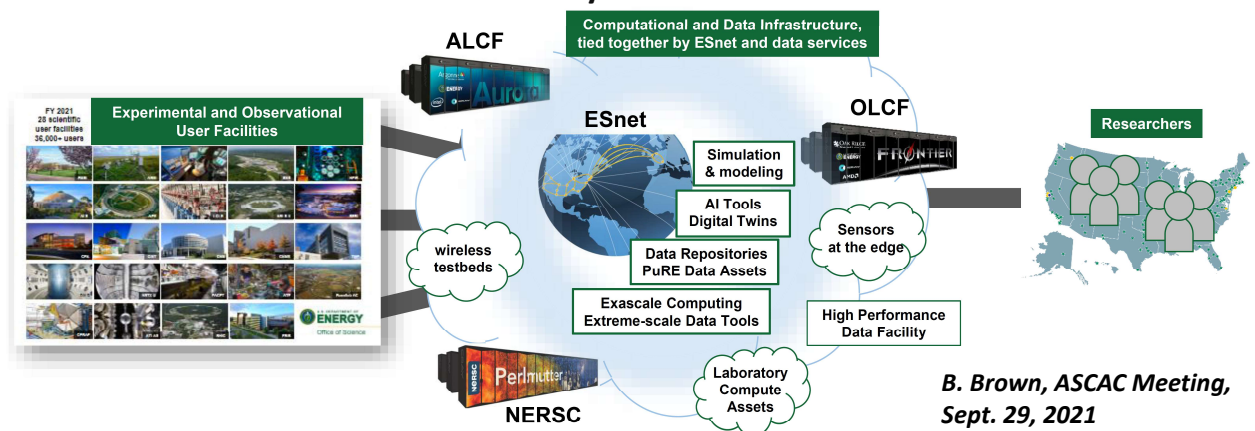
- Completing the EIC Project (2033), commissioning the facility and transition to operations
- Taking a leading role in the scientific program

# HIGH PERFORMANCE DATA FACILITY

- Scientific community studies have identified the need for a data-centered high performance computing facility
- We are designing the **High Performance Data Facility**



## Integrated Computational and Data Infrastructure: A novel discovery environment for the Nation



*B. Brown, ASCAC Meeting,  
Sept. 29, 2021*

- Integrates with edge computing at remote sites to provide real-time access to architecturally-diverse computing and storage resources that are complementary to those available at existing ASCR facilities



# BUDGET STATUS

FY21:

- Very tight year due to both increased costs and reduced funding; 6.5 weeks CEBAF operations and strained core research

FY22:

- Still under continuing resolution. We leaned (very far) forward to complete the Fall Run
- **Unless there is a federal appropriation with a significant increase of operating funds, we will not resume the FY22 scheduled run**

FY22 DOE Budget Request to Congress is very good for Jefferson Lab

- Healthy CEBAF Operations including full funding of CEBAF Performance Plan
- \$7M for MOLLER
- \$10M CEBAF Center Renovation and Expansion Project; \$1M for Thomas Jefferson Infrastructure Improvement Project

|                       | FY19  | FY20  | FY21  | FY22 PBR  |
|-----------------------|-------|-------|-------|-----------|
| Facility Operations   | 118.3 | 124.3 | 113.3 | 138.2     |
| MOLLER                | 0.4   | 2.9   | 5.2   | 7.0       |
| Total Nuclear Physics | 134.6 | 142.0 | 129.5 | 158.0 (*) |
| Weeks of Operation    | 32    | 22.5  | 6.5   | 31        |

\*Does not include EIC Funding

# SAFETY AT JEFFERSON LAB: THE STAKES ARE HIGH

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- Recently we had a series of off-normal events, including two electrical shocks from AC plugs, an Accelerator Safety Violation, and a waste handling issue
  - Staff promptly reported, openly shared lessons learned, and took prompt and meaningful preventive action. These are examples of the **learning organization** that we strive to be
- Great progress in upgrading our knowledge of electrical safety requirements through new qualification, training and inspection programs.
- We want you to be able to come to Jefferson Lab and safely carry out your research
  - Have a questioning attitude: ask yourself, what can go wrong?
  - Pay attention to your surroundings – situational awareness
  - Don't make assumptions when it comes to your safety
  - Ensure that our students in particular are properly trained and supervised

**It's not a choice between getting work done quickly or safely; we will work safely according to our standards and should accept nothing less. After all you, me and our colleagues are counting on it.**

# DIVERSITY AND INCLUSION IS AN UNCOMPROMISING VALUE

## Key Initiatives

- Focus Groups
  - More than 30 Divisional and Demographic Focus Group meetings with senior leadership sponsors
- Institutionalizing Hybrid Remote Work
- Evaluate and evolve job classification and compensation program
- Identify targeted career pathing options, based on Individual Career Profiles
- Hosted information sessions on JLab's compensation and promotion: ~350 attended
- Revise, expand and introduce DEI training portfolio
- Communication and promoting awareness
- Evaluating family-oriented Benefits and Policies



**These activities are strengthening the conditions for advancement of women and underrepresented minorities at the lab**



# PERSPECTIVE

- The Lab is in a strong position moving forward
- Achieving the level of funding called for in the FY22 DOE Budget Request is critical for the CEBAF Program
- Our priorities are clear:
  - Ensuring that the 12 GeV program is successful in all facets
  - Diversifying Jefferson Lab's scientific mission with a significant role in Advanced Computing
  - Moving EIC forward aggressively
  - Laying the groundwork for an exciting role for CEBAF in the EIC era

**Thank you for your continued enthusiasm and support for Jefferson Lab and your partnership in the lab's future**



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# Questions?

# Two Significant Building Projects Are Moving Ahead

- CEBAF Center Renovation and Expansion
  - *Modern and sustainable home for our growing staff*
  - *Expanded collaboration spaces*
- Acquisition and renovation of the Applied Research Center
  - *Highly cost effective consolidation of administrative and support staff*
  - *Room for expanded STEM education and public visitor center*
- CD-1 approved; \$87M

- Thomas Jefferson Infrastructure Improvement Project
- Renovation of EEL and new Test Lab High Bay Annex
  - *Provides needed high bay space for Physics and relieves space for SRF production*
  - *Improves operability, safety, and security by consolidating like functions*
- Upgrade and sustainment of water, sewer, comm, and traffic infrastructure
  - *Alleviates growing deferred maintenance backlog*
- CD0; \$98M



NORTH ENTRANCE  
CEBAF CENTER RENOVATION & ADDITION

