



## Department of Energy

Washington, DC 20585

January 18, 2025

Dear Members of the SEAB,

As you know, the Secretary of Energy Advisory Board (SEAB) Laboratory Entrepreneurial Ecosystems Working Group undertook an effort to examine entrepreneurship ecosystems across the Department's Laboratory complex and explored how to create and nurture an innovative and entrepreneurial mindset at the National Laboratories (Labs). On April 9, 2024, the SEAB presented Secretary Granholm with a final report entitled "Recommendations on Laboratory Entrepreneurship Ecosystems."

The report states, "SEAB examined the entrepreneurship ecosystems across the National Laboratory complex, including the Lab-Embedded Entrepreneurship Program (LEEP), as well as entrepreneurship efforts in the National Nuclear Security Administration (NNSA) Labs," but the report and the recommendations focused on LEEP, almost exclusively. LEEP plays a major role in the Lab entrepreneurship ecosystem, and the program will benefit from the Working Group's thoughtful assessment and recommendations. However, LEEP is just one prominent program in a much larger portfolio of Lab entrepreneurship programs and activities, most of which are not discussed in the SEAB report.

At the Secretary's request, the Office of Technology Transitions (OTT) coordinated with the Office of Energy Efficiency and Renewable Energy (EERE) Advanced Materials & Manufacturing Technologies Office (AMMTO), and the National Nuclear Security Administration (NNSA) to respond to the SEAB report and its recommendations while supplementing the discussion around the National Lab entrepreneurship ecosystem. NNSA's response includes input from Los Alamos National Laboratory (LANL) requested by NNSA. The coordinated response is attached.

If you have any questions, please contact me, at (202) 586-2000 or [vanessa.chan@hq.doe.gov](mailto:vanessa.chan@hq.doe.gov).

Sincerely,

A handwritten signature in blue ink, appearing to read "Vanessa Chan", is positioned below the word "Sincerely,".

Vanessa Chan  
Director and Chief Commercialization Officer  
Office of Technology Transitions

Enclosure

### **OTT Response to SEAB and Recommended Action:**

As the report states, entrepreneurs, and the start-ups they launch, are “a key component of the U.S. innovation ecosystem and accelerate the deployment of technological advances into the commercial sector.” For this reason, the Department of Energy (DOE) created and funds a wide range of Lab entrepreneurship programming. Broadly, these programs can be thought of as harnessing “spin-in” and “spin-out” opportunities for Lab technology – sometimes both. “Spin-in” programming enables access to the Labs’ technology, researchers, and facilities for external entrepreneurial talent, often to develop and improve a concept or innovation originating outside the Lab. “Spin-out” programming invests in developing pathways and capabilities for researchers to pursue commercialization of Lab technologies in the marketplace. In addition to LEEP, which is an example of a “spin-in” program and the focus of the SEAB’s examination, we highlight below a suite of OTT-stewarded programs with both spin-in and spin-out characteristics, that catalyze Lab entrepreneurship and commercialization outcomes and address various aspects of the SEAB’s findings and recommendations.

**Energy I-Corps (EIC)** is an immersive, 10-week training program created in 2015 and inspired by the National Science Foundation’s I-Corps program, in which researchers from DOE National Labs, Plants, and Sites engage directly with industry in the form of customer discovery interviews to evaluate industry applications for their DOE technologies. Managed by the Office of Technology Transitions (OTT), the program trains researchers to better understand the commercialization process and private sector needs. In response to the evolution of the Energy I-Corps program within DOE and feedback from national lab partners and DOE program office supporters, OTT introduced additional funding tracks beyond the historically-offered immersive training cohort.

- Topic 1: EIC Pipeline Development – Program to fund projects and programming that have the potential to directly increase participation in EIC Training Cohorts (Topic 2) in subsequent EIC lab calls
- Topic 2: EIC Training Cohort – A two-month training program to investigate the market potential and accelerate the commercialization Lab, Plant, and Site technology
- Topic 3: Post EIC – Program to fund EIC Training Cohort (Topic 2) graduates advance towards their next step in technology commercialization

After 18 successful cohorts, 226 teams from 13 Labs have participated in EIC, conducting more than 15,500 stakeholder interviews. More than 20 teams have launched new businesses at the conclusion of the program, and EIC teams have received over \$177M in post-program funding and have executed 78 licenses of DOE technology. Additional information on EIC can be accessed at: <https://www.energy.gov/technologytransitions/energy-i-corps>.

The **Technology Commercialization Fund (TCF)** was authorized by the 2005 Energy Policy Act and further defined in the Energy Act of 2020 to “promote promising energy technologies for commercial purposes.” Per statute, the TCF uses 0.9% of the funding for DOE’s applied energy research, development, demonstration, and commercial application budget for each fiscal year from offices across DOE. Since 2016, OTT administers the TCF on behalf of the Department as a coordinated National Lab commercialization portfolio of high-value, innovative

Lab programs and Lab-industry partnerships intended to bolster Lab entrepreneurship opportunities and commercialization outcomes. Through the TCF, DOE has invested over \$250 million into over 500 Lab projects across 18 DOE Labs, Plants, and Sites. OTT has collaborated with 15 DOE Technology Offices to select and administer these projects. Given their focus on seeding and supporting public-private partnerships, TCF projects can collectively be understood as an investment in the Lab entrepreneurial ecosystem, including the opportunity to support LEEP entrepreneurs and projects. Two additional TCF example projects are highlighted below:

**Cradle to Commerce (C2C)** is a groundbreaking program that leverages partnerships with top incubators across the country to convert science into on-the-ground products with high, measurable, and rapid impact. The C2C team is led by Lawrence Berkeley National Laboratory in partnership with Argonne National Laboratory, Idaho National Laboratory, and Oak Ridge National Laboratory, and involves experienced external partner organizations including Decisive Point, The Engine at MIT, and OneValley. The C2C program combines IP curation, testbeds and prototyping facilities, commercialization networks, business mentorship, seed funding, and scientific resources for technology advancement in a targeted way to generate enhanced commercialization opportunities and outcomes. Additional information on C2C can be accessed <https://c2c.lbl.gov/about/about-the-program>.

**DOE Boost Platform (Boost)** is a 16-week program committed to diversifying the energy-tech ecosystem by making entrepreneurship more accessible. A partnership between Sandia National Laboratories and FedTech that brings together eight other Labs, various startups, academia, and entrepreneurs to find solutions to the energy challenges that affect underserved communities. Entrepreneurs from all backgrounds are encouraged to apply. Selected applicants will gain entrepreneurship experience without the initial risk of paying fees or giving up equity, and with an expected commitment of ~20 hours per week, many participants are able to remain employed full-time throughout the program. Boost provides an opportunity to learn from innovators across industries to develop entrepreneurial skills, ranging from technical know-how to customer discovery. Upon completion of the program, successful teams can license their technology from the Labs. Additional information on Boost can be accessed <https://www.boostplatform.org>.

More information on the Department's many TCF funded projects can be accessed at: <https://www.energy.gov/technologytransitions/base-annual-appropriations-technology-commercialization-fund>.

The **Lab Partnering Service (LPS)** is a public tool that enhances navigability of the DOE National Lab, Plant, and Site enterprise. LPS gives entrepreneurs and innovators direct access to the vast array of expertise and capabilities at the Labs by allowing public users to perform keyword searches on tens of thousands of Lab assets – including experts, facilities, and patents. Once an asset of interest is identified, users may easily obtain information about how to access it. Since its launch, hundreds of stakeholder connections and leads have been generated through LPS. This increased public access enhances entrepreneurial opportunities and commercialization outcomes. LPS can be accessed at: <https://labpartnering.org>.

**EnergyTech University Prize (ETUP)** is a collegiate competition, launched in 2022 for multi-disciplinary student teams to develop and present a business plan for commercialization of an energy technology. ETUP aims to cultivate the next generation of energy innovators while accelerating the transfer of energy technologies to market. OTT has worked to ensure that student competitors are made aware of and have easy access to available National Lab technologies through the Lab Partnering Service, and over 20% of the 2024 national competition winners used Lab tech. Over three successful years of this program, 589 student teams from more than 40 states, Washington, DC, and three U.S. territories have competed for more than \$1.1M in cash prizes. Additional information on ETUP can be accessed at: <https://www.energy.gov/technologytransitions/energytech-university-prize>.

In addition to these programs and services, OTT contributes other tools and assessments and facilitates innovative partnership opportunities for the Lab entrepreneurship ecosystem. In particular, OTT promotes convening, information sharing, and training of the National Lab tech transfer and commercialization professionals enabling entrepreneurial outcomes through our stewardship of the [Technology Transfer Working Group](#). OTT also serves as the Departmental liaison to the [newly-launched](#) Foundation for Energy Security and Innovation (FESI), an entity that will help accelerate the commercialization of energy technologies – including National Lab technologies – by raising and investing funds from the private sector and philanthropic communities, thus providing a potential pathway for Lab entrepreneurship programs to benefit from external funding streams. OTT is leading a cooperative effort with all DOE Lab Steward Program Offices (NNSA, Office of Science (SC), Office of Energy Efficiency and Renewable Energy (EERE), Office of Environmental Management (EM), Office of Fossil Energy and Carbon Management (FECM), and Office of Nuclear Energy (NE)) to launch an innovation culture survey at their Labs with which to form a baseline and build on these initiatives at the participating Labs. Finally, OTT has also developed tools, such as the [Commercial Adoption Readiness Level](#) framework, to evaluate opportunities and challenges for commercialization of emerging technologies. These tools, funds, and coordination efforts support an enhanced entrepreneurial ecosystem at the Labs.

In its role as the steward of broader National Lab commercialization efforts across the Department, OTT will take on the responsibility of creating a simple inventory of Lab entrepreneurship programs to share best practices across the Lab complex and Departmental Program Offices as a first step toward improving communication and formalizing and developing collaboration throughout DOE, as recommended by the SEAB.

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#### **NNSA Response to SEAB and Recommended Action:**

NNSA does not identify any overarching issues in the ways in which each NNSA Laboratory communicates with their own technology innovation program staff. The cultures of each Lab are unique, and NNSA views the various forms of communication at the Labs to reflect the culture of the given Lab and to be effective in matters of technology transfer. The Defense Programs (NA-10) Technology Partnerships Office (NA-10.1) is the central office that coordinates and conducts Technology Transfer (TT) activities within NNSA. The TT program in NNSA is deliberately structured and robust with an established Technology Transfer Framework, regular and consistent communications with the Labs, and an Annual Program Review process. Included

in the Framework are commercialization and entrepreneurship programs and activities, including sponsoring the LEEP at Los Alamos National Lab (LANL).

NNSA also supports other entrepreneurial programs through NA-10.1, including:

- **DOE Emerging Tech Studio** – With support from the Office of Technology Transitions , through a contract with Hyperion Technologies LLC., teams of entrepreneurs are matched with laboratory technologies and receive training to commercialize their technologies.
- **DOE Energy I-Corps** – Led by OTT and described above.
- **DiverseTECH Consortium** – Through a contract with Benalytics LLC., DiverseTECH is an accelerator program that provides entrepreneurial assistance and guidance to disenfranchised communities with an emphasis on placed-based innovation.

It is important to note that the first three years of the LEEP program at LANL were funded by a grant from the Department of Commerce to a non-profit partner. Following the creation of the NA-10.1, the operational funding for the fourth year of the program was provided by NA-10.1. This occurred after the SEAB interviews in 2023.

**NA-10 RECOMMENDED ACTION:** As Executive Principal Assistant Deputy Administrator David Hoagland concurred, recommend amending the SEAB Report on “Recommendations on Laboratory Entrepreneurship Ecosystems” to state that the report focused only on the LEEP.

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#### **LANL Feedback to SEAB via NNSA:**

In general, Los Alamos National Laboratory agrees with the recommendations of the SEAB report. Because of scarcity in New Mexico’s supply chain and unique challenges in its start-up ecosystem, the Laboratory’s entrepreneurship programs have been tailored to engage not just start-up companies, but also companies at all growth stages that could benefit from our expertise, capabilities, and resources through technical assistance. The SEAB report focuses on the Lab-Embedded Entrepreneur Program (LEEP) as its prime example of the entrepreneurship programs at the science/energy Labs. The NM LEEP program at Los Alamos is only a part of a broader range of tailored Lab Entrepreneurship programs.

*We support the recommendation of a dedicated LEEP program at the NNSA Labs that coordinates with the existing LEEP programs in DOE.*

This finding reflects the reality that each NNSA Lab is unique in terms location, capabilities, and ecosystem. Unlike within DOE, there is currently no cross-lab NNSA program to support LEEP programs at the NNSA Labs. The Los Alamos entrepreneurship programs are currently funded as a required indirect cost (Appendix N in the M&O Prime Contract) funded by NNSA. However, the NNSA Technology and Partnerships Office (NA-10.1) does serve as a coordination point for NNSA and its Labs for technology transfer programs. This Office would be the natural point of coordination for the broader DOE/NNSA recommendations in the report.

In addition, after the SEAB report interviews occurred in 2023, NA-10.1 has provided operational funding to Los Alamos for its LEEP program, which is in its fourth year. This

funding was previously provided by a grant to our non-profit partner from Department of Commerce.

FY 2024 funding includes:

- NNSA direct funding
- Indirect funding through the M&O Contract Appendix N
- TRIAD royalty funding, and
- Tax credits from the State of NM

The mission of NM LEEP is to empower visionary entrepreneurs to bring their deep tech innovations to market to solve our Nation's toughest challenges. We have focused our efforts to benefit NNSA by:

- Strengthening the ecosystem for NNSA Labs in national security technology areas that are critical to our missions with 3 of our first 5 startups developing products relevant to our nuclear security missions.
- Building partnerships to identify needs and customers within the national security ecosystem, and steer technology breakthroughs into solutions for this sensitive and underserved market.
- Developing supply chains and a talent pipeline to support innovation for NNSA deep-tech missions in and outside of New Mexico.

This Program has shown early positive impacts in its first two years with 5 startups advancing their technology & product development through Laboratory assistance, raising \$3.2M equity and non-dilutive funds, employing 6 high tech employees, and establishing key partnerships and early customer interest within the national security community.

The success of Los Alamos Entrepreneurship Programs faces three major challenges:

1. Getting our technologies "Startup Ready"
  2. Recruiting a pipeline of early-stage entrepreneurs, anchor customers & investors
  3. Creating dedicated seed capital
    - Venture funds supporting national-security-related product development and applications are uncommon and those that exist tend to wait until a startup has evolved to a Series A investment candidate. Angel investor organizations are not interested yet due to the longer timelines to get solutions into these markets and to profitability.
    - We have identified two fund managers to establish a fund aimed at providing early-stage financing to startups emerging from Lab entrepreneurship programs. The fundraising activities for this fund are scheduled to begin in 2024.
    - DOE-FESI could play a meaningful role in creating a network of early stage and next stage investors to support DOE-related deep tech startups as well as an alignment with government funding including Federal, state, and local sources for these kinds of activities does not exist.
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## **Advanced Materials and Manufacturing Technologies Office (AMMTO) Response to SEAB:**

We sincerely appreciate your service to the U.S. innovation ecosystem through your careful and thoughtful investigation of entrepreneurship-supporting activities at DOE and its National Laboratories. Our response consists of two sections: (1) an update regarding LEEP's current status and plans for the future and (2) responses that highlight how the program's ongoing activities and future plans align with the SEAB recommendations.

### **1) LEEP Program Status and Future Plans**

We appreciate the SEAB's acknowledgement of the LEEP program successes. As indicated by the SEAB report, LEEP was created in 2015 by the DOE and DOE National Laboratories to bring clean energy technological innovations to a level of maturity and deployment to meaningfully address climate change, sustainability, and social justice, while also creating well-paying jobs and economic impact via new U.S.-based manufacturing businesses. Unique among DOE programs, LEEP not only taps into the significant R&D infrastructure and scientific expertise at the Labs to help these businesses achieve strong new technology deployment, but also supports full two-year fellowships for the scientists who want to create and lead startup companies to deliver these impacts, while providing entrepreneurial training and access to unique Lab resources. As noted in the SEAB report, the program has been remarkably successful, surpassing all expectations over the past ten years, with 181 Fellows supported, 153 new businesses created (97% are still operating or have been successfully acquired), 2,343 new jobs, \$2.73 billion in follow-on funding, and many examples of new manufacturing facilities as well as technologies deployed and in-use today. In addition, 41% of LEEP Fellows are from disadvantaged groups and 25% are female founders. For every dollar the DOE has put into LEEP, more than \$42 in economic impact have been generated by the program, a metric that is, to our knowledge, un-matched by any other similar program, public or private.

We agree with the SEAB that in building on these past successes, the program has the potential to do much more. The DOE Office of Energy Efficiency and Renewable Energy is strongly committed to the long-term sustainability and growth of LEEP, and to growing it in several ways which are highlighted below. Our vision is to support an increased number of LEEP Fellows across more technology areas relevant to the DOE mission, involving most of the Labs and broader participation from underrepresented groups and regional innovation ecosystems.

The SEAB report notes several challenges -- including variation in awareness of the program, differences in operations and costs, lack of community across the LEEP nodes; and difficulties with the current CRADA process -- that have surfaced over the life of the LEEP program. Many of these challenges, which we have also identified, have recently emerged as support for the program strategically spread beyond the initiation of the program under the AMMTO due to a need to align programmatic support with multiple office mission spaces. Over the past year, we have been active in identifying ways to address these challenges while continuing to grow the program, improve its alignment with the Department's mission, and further enhance LEEP's positive impacts on the Nation's energy goals.

Our focus on increasing DOE program connections and engagement has resulted in the formation of the LEEP Multi-Office Advisory Committee's (LMAC), chaired by AMMTO and

with membership of 15 offices across the Office of the Under Secretary for Science and Innovation (S4). This engagement and coordination effort during the most recent application cycle has resulted in a record 27 Fellows being selected by the DOE this year, compared to the 21 innovators supported in the 2023 cohort. Two of the four LEEP nodes will support record-sized 2024 cohorts at their respective locations. Ten different DOE program offices will support LEEP innovators this year, the highest number in the program's history.

In 2024, EERE has accelerated efforts to develop a longer-term plan for transitioning LEEP to a more stable and robust model of support from DOE offices. This new model for LEEP includes financial support at the EERE level for operational costs incurred at each of the LEEP nodes, which enables DOE program offices to more directly support LEEP innovators aligned with their respective missions. This core support, in coordination with support from individual program offices provides an organizational and budgetary model to enable sustained growth of the LEEP program.

In addition to those changes, we are developing a strategy for transitioning the program to a new operational model among the LEEP nodes to enable stable, growing support across much of DOE. The goals of this new operational model include the following:

1. Increase the participation of entrepreneurs from underrepresented backgrounds.
2. Facilitate expanded budgetary support for the program across the Labs supporting LEEP Fellows.
3. Improve alignment of the program's outreach and recruitment efforts with stakeholders in technology areas relevant to DOE program offices.
4. Boost engagement with the program internally and awareness of the program nationally.

The general approach could be to centralize some of LEEP's key operations and increase coordination across the LEEP nodes. A major focus in developing such an approach would be to ensure that important operational and organizational dimensions that enable LEEP to be successful are retained and amplified.

The next major step we will take is to gather input from the broader U.S. clean energy innovation ecosystem on how best to design and execute these new strategies and scale the program to meet the needs of DOE and the United States regarding energy security, clean energy, domestic energy production, energy efficiency, decarbonization, job creation, energy justice, and underserved communities.

Consistent with the SEAB working group report's recommendations, the new organizational, budgetary, and operational models will enable LEEP to support more entrepreneurial Fellows across the DOE, spanning an increased number of technology areas of interest. These new models will promote more efficient operation of the program while also encouraging greater participation from the innovation ecosystems that surround the Labs and their LEEP node communities.



## **2) Major Focus Areas Identified by the SEAB Working Group**

### **2.1 Organization and Communication**

The SEAB report highlighted the importance of enhanced collaboration/coordination and communications for the LEEP program. As LEEP has recently expanded to encompass more cross-office support, we also have identified this need and have sought ways to improve the program's organization as well as internal and external communications. Over the past year, the LMAC has expanded to include 15 offices that regularly engage with the program. AMMTO as Chair of the LMAC, and in coordination with EERE leadership, will continue efforts to increase the LMAC membership and improve the general awareness of LEEP within DOE. To better publicize LEEP and its successes, the LEEP website (<https://www.energy.gov/eere/ammto/lab-embedded-entrepreneurship-program>) was recently updated to better share LEEP-related information. A more comprehensive internal communications program is being developed and implemented.

The SEAB report also noted the challenges in developing CRADAs for LEEP innovators. LEEP has worked to streamline the CRADA process by using a template that is specific for CRADAs between the Labs and LEEP startup companies. However, challenges remain since each Lab has its own process for developing a CRADA and securing DOE approval. We are exploring two approaches to address the resulting extended CRADA process timeline. First, the LEEP nodes have already adjusted programming to further deliberately plan the first 3-4 months of the program to focus mainly on on-boarding, entrepreneurial training, and engagement with mentors, advisors, industry partners, customers. These early activities will help inform the CRADA SOW prior to final submission and approval of CRADA projects. Secondly, we are working internally to assess what lessons have been learned from vouchers used by prize competitions to further update the LEEP CRADA template and process to reduce the time needed for CRADAs to be written and approved.

An additional point featured in the SEAB report was the importance of formally introducing the LEEP innovators to the DOE program offices, and the DOE ecosystem as a whole. We are currently working with the LEEP nodes to plan an annual in-person event to introduce DOE program offices to LEEP innovators, like the Energy I-Corps capstone presentations event held at DOE headquarters twice each year. This proposed annual LEEP event is part of an overall goal to build a broader LEEP community spanning all LEEP nodes, LEEP ecosystem partners, and the DOE. LMAC offices supporting LEEP Fellows will also receive updates regarding the progress of the Fellows and their startup businesses during and after their time in the program, especially as they achieve commercial success deploying their innovations.

The SEAB report also highlighted the importance of increasing efforts to engage underserved communities in the program. The individual LEEP nodes conduct recruitment activities directed at a wide range of potential applicants, including those from underserved communities and groups. These efforts in the past often focused on the local and regional ecosystem (e.g., Tier 1 universities within a few hundred miles of the nodes), which lessens their ability to connect nationally or with minority-serving institutions (MSIs) and similar organizations. We envision that the transition to an operational model that could centralize communication and outreach activities would enable such efforts to also better reach the entire U.S. innovation ecosystem.

This would give LEEP the flexibility to also be more targeted in outreach to underserved communities and organizations already engaged with them.

## **2.2 Funding and Funding Sources**

The SEAB report noted the importance of providing increased and stable funding to entrepreneurship programs at the DOE. The goals of providing stability and expanding the program are being addressed in the short-term via the budgetary and organizational changes described above, the expansion of the LMAC and formalization of its procedures, and the introduction of EERE budgetary support for core operations. The transition to a centrally coordinated operational model will address these goals in the long-term by providing an environment for robust financial support across DOE program offices. These efforts will also provide the communication and support infrastructure for LEEP innovators to be better positioned to secure additional funding from DOE, other Federal agencies, regional programs and private funding sources.

## **2.3 External Partnerships**

The SEAB report suggested that DOE offices should support LEEP innovators in applying for DOE, regional, or other funding sources. Further, the report recommended increasing support for LEEP innovators to connecting with external partners to accelerate the path to market for their technologies. The LMAC is committed to supporting the success of LEEP innovators in attracting follow-on funding and accelerating adoption of their technologies. We envision that the new operational model will enable the LEEP nodes to increase focus on providing personalized support and forging connections with local/regional resources. Further, the new model could enable the central coordinating entity to develop connections with larger national partners for bridge support opportunities (including joint venture agreements) that can be offered to all LEEP nodes.

## **2.4 Program Metrics**

The SEAB report provided several recommendations regarding the importance of metrics for tracking the LEEP program. These included tracking metrics related to achieving desired outcomes and clean energy goals, deployment of innovator technology, and visibility of start-ups. Today, there are more than 150 active LEEP companies including several dozen startups that are now manufacturing and shipping goods and providing services for the U.S. clean energy economy. Additionally, several LEEP startups have been acquired by larger companies or merged with other small businesses. In this regard, detailed and outcome-oriented data are critical to measure the success of the program as well as to identify opportunities for growth. The LEEP program already tracks a broad range of metrics, including data for follow-on funding, company size, and overall health. Moving forward, LEEP will develop new metrics to track outcomes associated with scaling technologies and DOE's clean energy goals (e.g., decarbonization, job creation, and impact on underserved communities), with input gathered from across the U.S. clean energy ecosystem. A more centrally coordinated LEEP program structure could enable standardized and increased metrics collection and reporting on LEEP program impacts.

## **2.5 Recruitment and Mentoring**

The SEAB report emphasized the importance of expanding the participation of underrepresented groups in the LEEP program. As mentioned above, LEEP is committed to increasing the diversity of the LEEP Fellow cohorts. A possible centralized coordinating piece of a new LEEP operational model would allow the program to increase connections to these communities across the country.

LEEP also recognizes the need to clarify how immigrant entrepreneurs may participate in the program, and we will look for ways and opportunities to do that. CRADA contract requirements are extensive, and DOE already closely scrutinizes CRADAs for possible foreign ownership and influence with respect to business applicants. Further expansion of non-U.S. citizen participation in LEEP would likely lead to a substantial increase in the volume of applications and the cost of evaluating each application for foreign influence risks, placing significant strain on the program's resources. Additional coordination with DOE General Counsel and the LEEP Labs would be necessary to clarify this issue.

A new application process flow — which could include a single application portal and form — could be beneficial for both applicants and the DOE. The SEAB report provided suggestions that highlighted the importance of providing mentorship along with both entrepreneurial and technical support to LEEP innovators. Providing Fellows with the proper training, mentorship, and other forms of support throughout their time in LEEP is critical to both their success and that of the program overall. The LEEP nodes provide onboarding and training for new Fellows, but these offerings are not uniform throughout the program. A centrally coordinated LEEP program structure would enable a standardized approach to orientation and mentoring for all program participants, including overview of DOE priorities and assignment of direct mentors and scientific partners. Further, the planned annual onboarding event in Washington, DC, will facilitate timely delivery of training programming at the beginning of the LEEP Fellowship.

The SEAB report also noted the importance of clear expectations for laboratory scientist involvement with LEEP. A key goal for the program is that LEEP Fellows build stable and lasting relationships with Lab scientists who are subject matter experts in technology areas relevant to their innovations. Three of the LEEP nodes currently assign each participant a mentor and a scientific peer — and we will work to ensure that this is done at all LEEP nodes. In the envisioned LEEP operating plan, every LEEP CRADA will be led by a laboratory scientist as the principal investigator (PI). For a LEEP project to be successful, the CRADA PI should be both a laboratory scientist and someone who is interested in the success of both the CRADA project and the LEEP Fellow. We will work to ensure that all LEEP nodes have a clear understanding and explanation of the level of participation from laboratory scientists expected when they engage with LEEP innovators and that those expectations are met. The SEAB report also highlighted the importance of facilitating relationships between R&D at the Labs and the commercialization activities ongoing in LEEP. We believe that by strengthening the relationships between laboratory scientists and LEEP innovators that we can better enable synergistic relationships between laboratory R&D and commercial development and demonstration.

## **2.6 Incentives for Lab Scientists**

The SEAB report identified a need to increase incentivization of Lab scientists to participate in LEEP, either as support to Fellows or as direct participants in the program. We hear the SEAB's

feedback and are working towards directing programmatic connections and opportunities to incentivize entrepreneurship opportunities in the Labs.

Specifically addressing the recommendations posed by the SEAB, we are working to establish information sharing and coordination opportunities to identify opportunities for synergistic collaboration with the NM LEEP supported by NNSA. Collaborations between the programs would spur direct mutual outreach opportunities and the support of private partners to fellows, during and after participation in both programs. We are also working with the Office of Science to identify methods to support entrepreneurs at the Labs to participate in LEEP. These methods could include developing pathways for Lab staff to participate in the program, either as direct PIs, as researcher or entrepreneurial support to fellows, or as innovators themselves.

We agree that reporting of the progress and outcomes of LEEP are key to the program's direction and success. Proactive updates to Congress and key stakeholders of the program's developments, successes and opportunities to connect with local innovation programs at the nodes in the form of briefings will be aligned with the aforementioned metrics tracking to provide the latest impacts of the program.

Supporting entrepreneurship activities at the Labs, external to LEEP was another recommendation by the SEAB to identify pathways to secure funding beyond LEEP through partnerships with other organizations and venture capital. Establishing on ramp activities into and out of the program for startups would accelerate the commercialization opportunities at the Labs and better integrate them into the national innovation ecosystem. Aligning support through programs like that of SBIR|STTR as well as external programs like that of incubators, accelerators and other clean tech entrepreneurial networks would provide progression pathways for startups participating in the LEEP program. We are looking into possibilities for both types of efforts.