Request for Information (RFI) on Enhancing Coordination of the Lab Embedded Entrepreneurship Program (LEEP)

DATE: July 25, 2024
SUBJECT: Request for Information (RFI)

**MOD 0001 – The RFI response date has been extended to September 26, 2024.

Description

The purpose of this RFI is to gather input from stakeholders across the clean energy innovation and entrepreneurship ecosystem regarding optimal strategies and opportunities to expand the quality, reach, impact, and equity of the Lab Embedded Entrepreneurship Program (LEEP). The information being sought under this RFI is intended to assist the Advanced Materials and Manufacturing Technologies Office (AMMTO) and the Office of Energy Efficiency and Renewable Energy (EERE) as it considers approaches to and degrees of centralization and inter-node coordination. Resulting changes, along with other activities, will ensure LEEP is one of the nation's most recognizable, inclusive, and expansive programs to support entrepreneurs and accelerate the development and deployment of impactful clean energy technologies at scale.

Background

U.S. DEPARTMENT OF ENERGY | LEEP
Lab-Embedded Entrepreneurship Program

LEEP is a two-year fellowship program historically supported by AMMTO within the Department of Energy. The mission of LEEP is to train the next generation of clean tech entrepreneurs to develop and commercialize game-changing technologies for a clean energy future. LEEP connects these entrepreneurs with the many unique resources, facilities, and personnel at the National Laboratories to conduct exciting and necessary research and development (R&D) to help them further develop their technologies and achieve commercial success. LEEP also connects its entrepreneurs to the vast business and manufacturing acumen in US innovation ecosystems locally, regionally, and nationally. By brokering partnerships between National Lab subject-matter experts, aspiring climate tech entrepreneurs, and admission into DOE's ecosystem of supportive programs, LEEP seeks to move science-based innovations into deployment at scale far more quickly and efficiently than is typical for high-risk, science-based innovations.

LEEP accepted its first cohort in 2015 at Cyclotron Road at Lawrence Berkeley National Laboratory (LBNL). In 2016 it expanded to two more National Labs—referred to as nodes—at

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Argonne National Laboratory (ANL) and Oak Ridge National Laboratory (ORNL) and added a fourth node at the National Renewable Energy Laboratory (NREL) in 2021. In these first nine years, LEEP has supported 203 Fellows in partnership with four National Labs and non-government partners, and the impact has been vast: 153 new businesses founded, receiving over $2.6B in follow-on capital and generating 2,341 new jobs across the country, with a 97% success rate.[1] In that time, LEEP alumni companies have gone on to break ground on new manufacturing facilities across the US and many other LEEP alumni are shipping climate tech hardware, software products, and services to customers at scale.

LEEP consists of three primary elements:

1) **The LEEP fellowship**. Each participant is fully supported for two-years with a stipend, health insurance coverage, and $12,000 per year to cover travel and other expenses related to making connections with industry, investors, and potential customers.
2) Access to national lab resources via a **Cooperative Research and Development Agreement (CRADA).**[2] Each LEEP Fellow forms a startup company that in turn executes a CRADA with the host national lab where they will cooperatively perform work for two years to mature their innovations for commercial applications. Through the CRADA, the LEEP Fellows and startups are provided access to the National Labs' world class facilities and the scientific expertise provided by National Lab personnel who are otherwise inaccessible to most climate tech startups.
3) **Mentorship and entrepreneurial training**. Each LEEP node consists of a team whose primary focus is on supporting LEEP Fellows, connecting them with resources at the lab and within the regional ecosystem to provide entrepreneurial training, access to mentors & advisors, and connectivity with potential industrial partners, investors, community leaders, and other programs that support early stage deep-tech startups (accelerators, incubators, etc.).

The four LEEP nodes currently operate independently, with variations in their operational models, annual application, and review processes—as well as independent recruitment & outreach activities and entrepreneurial training and mentoring programs. The annual application, selection, and onboarding cycle of each new cohort is similar across the nodes but involves four different application forms and web portals with different key start and end dates.

[1] The program defines "success" as the startup company associated with the participating Fellow continuing to be in operation 10 years after completion of the program or being successfully acquired by another company in a related industry within that time.

[2] For more information on CRADAs, please see: https://www.directives.doe.gov/terms_definitions/cooperative-research-and-development-agreement-crada

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Although DOE program offices outside of AMMTO have supported LEEP Fellows in the past, this expanded support has been generally handled on a case-by-case basis. In 2023, the LEEP Multi-Office Advisory Committee (LMAC) was formed to coordinate this expanding support for the program across DOE.

As AMMTO looks to build on the success that LEEP has had over the past nine years, it aims to maximize the following eight core outcomes that will elevate LEEP to one of the nation's most impactful, inclusive, and expansive entrepreneurial fellowship programs, across a broad spectrum of clean energy technologies, at scale:

1. **Support more LEEP Fellows developing a broader range of energy innovations** by expanding support for LEEP within DOE as well as support from the private sector.
2. **Develop a stronger sense of community and connection for LEEP innovators across all LEEP nodes**.
3. **Strengthen program, node and fellow connections to ecosystem partners and other DOE support**, to increase opportunities and resources provided to innovators both during and after the program.
4. **Increase awareness of the program nationally,** to better connect with the pool of qualified applicants everywhere in the country and strengthen opportunities for innovators when they leave the program.
5. **Increase engagement of under-represented groups and disadvantaged communities**, to ensure the program realizes its potential for operating inclusively and equitably.
6. **Improve the operational efficiency of LEEP** by reducing redundancies, increasing alignment across key entities, and focusing on what is working, all of which will enable resources to drive program outcomes more directly.
7. **Expand access to unique resources and expertise at the US National Labs for LEEP Fellows** by enhancing the involvement of lab scientists in the program as well as with DOE programs that support discovery science.
8. **Capture impact of LEEP startups more systematically** by developing metrics to track outcomes associated with scaling and deployment at scale as well as outcomes related to DOE clean energy goals.

To better achieve these goals, AMMTO is considering implementing increased coordination and/or centralization of some of the program's core operations, possibly including 1) building a unified communications, outreach, and recruitment (COR) strategy; 2) consolidating to a central application portal and coordinated review and selection process; 3) developing a unified framework for training and community support; and 4) consolidating management of the fellowships and CRADA.

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AMMTO recognizes the importance of the broader community of entrepreneurs, researchers, accelerators, incubators, investors, and other stakeholders in clean energy innovation to LEEP and its success. The Department is therefore seeking broad insight and information on how it can improve LEEP to accomplish the eight outcomes above and ensure the program grows its impact and remains a leader in U.S. clean energy innovation.

Purpose

The purpose of this RFI is to solicit feedback from National Laboratories, industry, academia, government agencies, and other stakeholders on issues regarding how AMMTO can best evolve LEEP to increase the program's reach, interconnectedness, and impact. This RFI aims to gather input in three ways. First, to collect concepts on how an entity—possibly a National Lab acting as a "lead lab" or a private sector partner working with participating labs—would operationally perform some of the core program operations, such as those listed above, in a cost-effective manner while achieving an appropriate balance between central coordination and freedom for participating National Labs to benefit and adapt to their local environments. Second, AMMTO is also seeking input on how the program can better execute the core program operations from entities currently active in the clean energy innovation space who may not necessarily seek to do such work directly with LEEP but nevertheless have insight to provide. Finally, AMMTO is seeking input on other ways the program can better connect to innovation ecosystems, both locally and nationally, and achieve its goals.

Given the successes of LEEP, retaining what is a proven model at the nodes is highly desired. Ensuring the program can grow—bringing in more candidates, labs, supporters, and partners—in a sustainable way while also maximizing the experience and impacts the program provides participating Fellows necessitates a re-evaluation of LEEP's current operational and funding model. Multiple recommendations from the Secretary of Energy Advisory Board's recent report on Lab Entrepreneurship Ecosystems[3] focused on improving collaboration across the labs and with ecosystem partners, increasing outreach to underrepresented groups, and increasing consistency and structure to programmatic elements across the nodes. The types of changes being considered are intended to directly address these recommendations and more.

AMMTO desires to keep the following elements in place as it considers expansion of the LEEP program:

- The 2-year fellowship model with a continued focus on first-time entrepreneurs and energy innovations with high potential for societal and economic impact.

[3] https://www.energy.gov/sites/default/files/2024-04/SEAB%20Lab%20Entrepreneurship%20Recommendations%20April%202024.pdf

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- Access to scientists and unique facilities and resources at the National Labs.
- In-person support for LEEP communities and engagement with local and regional ecosystem partners proximate to the LEEP nodes and National Labs.
- The impressive return on investment (ROI) of the program (40x) at translating science-based innovations into new, successful businesses.

Centralization and/or increased coordination of several key operations of LEEP could improve overall operational efficiency of the program and promote more interactivity between nodes and their local innovation ecosystems. Some of the possible operational changes that could provide overall benefits to the program include:

1. A single application form and web portal to support applications to LEEP, which may simplify the application process and facilitate review by multiple parties in DOE and allow applicants to apply to multiple nodes at a time.
2. Unified LEEP brand building, marketing, and improved communications could raise the awareness of the program on a national scale, reaching applicants not currently located near the existing LEEP nodes as well as improve the diversity of the applicant pool through outreach activities focused on underserved communities.
3. The development of a framework for a standardized curriculum of entrepreneurial training, access to mentors and subject matter experts (SMEs), and connections with industry, investors, and other key stakeholders could lead to more consistent high-quality training for LEEP Fellows as well as greater connectivity for entire LEEP cohorts spanning all the nodes.

Contracting a single entity to perform and/or coordinate these key functions with the nodes may realize gains in operational efficiency, further enhance the fellowship experience, and allow for the nodes to focus more resources on bespoke support for individual LEEP Fellows/startups, as well as activities with local and regional partners and supporters of the nodes.

AMMTO may use responses to this RFI to inform several strategic decisions regarding the future of LEEP, including, but not limited to:

- Funding new program mechanics or expanding funding for existing program features.
- Expanding the number or types of Fellows supported by DOE funding for LEEP.
- Designing new communications approaches to expand the visibility of AMMTO and/or the National Labs continued investments and management of LEEP nodes.
- Connecting complementary programs for greater ecosystem impact.

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EERE is specifically interested in information on how an entity could operationally perform the key operations like those listed above in a cost-effective manner that achieves an appropriate balance between central coordination and freedom for participating National Labs to adapt to their local environments and continue leadership in their core roles. This is solely a request for information and not a Funding Opportunity Announcement (FOA). EERE is not accepting applications.

Disclaimer and Important Notes

This RFI is not a Funding Opportunity Announcement (FOA); therefore, EERE is not accepting applications at this time. EERE may issue a FOA in the future based on or related to the content and responses to this RFI; however, EERE may also elect not to issue a FOA. There is no guarantee that a FOA will be issued as a result of this RFI. Responding to this RFI does not provide any advantage or disadvantage to potential applicants if EERE chooses to issue a FOA regarding the subject matter. Final details, including the anticipated award size, quantity, and timing of EERE funded awards, will be subject to Congressional appropriations and direction.

Any information obtained as a result of this RFI is intended to be used by the Government on a non-attribution basis for planning and strategy development; this RFI does not constitute a formal solicitation for proposals or abstracts. Your response to this notice will be treated as information only. EERE will review and consider all responses in its formulation of program strategies for the identified materials of interest that are the subject of this request. EERE will not provide reimbursement for costs incurred in responding to this RFI. Respondents are advised that EERE is under no obligation to acknowledge receipt of the information received or provide feedback to respondents with respect to any information submitted under this RFI. Responses to this RFI do not bind EERE to any further actions related to this topic.

Responses should not include any information that is considered protectable, proprietary, or sensitive for any reason including but not limited to confidential business information or protected personal information.

Evaluation and Administration by Federal and Non-Federal Personnel

Federal employees are subject to the non-disclosure requirements of a criminal statute, the Trade Secrets Act, 18 USC 1905. The Government may seek the advice of qualified non-Federal personnel. The Government may also use non-Federal personnel to conduct routine, nondiscretionary administrative activities. The respondents, by submitting their response, consent to EERE providing their response to non-Federal parties. Non-Federal parties given access to responses must be subject to an appropriate obligation of confidentiality prior to being given the access. Submissions may be reviewed by support contractors and private consultants.

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Request for Information Categories and Questions

Category 1: **Centralizing aspects of LEEP operations.**

To scale the program in a sustainable way that accomplishes the previously mentioned goals, increases impacts, and supports a broader range of technology areas, AMMTO is considering several models that seek to improve the operational efficiency of the program. AMMTO seeks to retain the strengths of the current model while further improving the impacts of the program as well as making it easier for applicants to apply to multiple LEEP nodes.

To facilitate scaling LEEP, AMMTO seeks to centralize the coordination and/or execution of a set of common operational functions that are currently executed independently at the four LEEP nodes. AMMTO foresees these functions being executed and/or coordinated by a single entity or Central Lead (CL). The CL could be responsible for supporting many LEEP functions, including administration of LEEP fellowships and distributions of funds to the nodes to support operations, LEEP CRADAs, and other activities that involve all active nodes in the program (e.g., events such as Demo Day and the annual application and review process).

1. What kind of entity would be best to serve as the CL in a more centrally coordinated operational model for LEEP? Would a National Lab (NL), a University Partner (UP), or another entity from the private sector (Private Partner, PP) be best? What reasons support your conclusion?
2. What operations[4] should be substantially executed or coordinated by the CL for LEEP to best accomplish the goals previously described in this document?
3. What operations[4]should substantially or wholly remain at the individual nodes?
4. What is the ideal operational structure (i.e. CL, nodes, strategic partners, DOE) for a future LEEP that incorporates the division of operations activities by questions 2 and 3? What benefits does this structure provide, compared to LEEP's current structure?
5. What is the ideal annual funding amount that an entity would need to successfully execute the operations described in question 2 as the CL? Please consider how funding

[4] Example operational components include, but are not limited to: maintaining the LEEP website, operating a common application portal and overseeing the application review process, conducting performance of annual cohort recruitment activities, expanding marketing and communications, improving administration of fellowships, distributing funds to support LEEP CRADAs, building and performing a training curriculum, managing innovator-lab relationships, innovator mentoring, building a LEEP community, and organizing annual key LEEP events such as Demo Day.

amounts would be impacted by the scale of the program-- for example, 4 innovators selected at a node each year vs 8 vs 12.

6. If cost share is required from the CL, how could it best be leveraged to achieve the goals of the CL/LEEP?
7. What challenges would likely arise in shifting activities from their current decentralized structure to a more centralized and centrally coordinated structure? Who would be most affected by these challenges and in what way? How could these challenges be mitigated?
8. Which operational components could be modified to facilitate greater engagement of the National Labs/nodes with key regional stakeholders and communities?
9. What factors should AMMTO consider as it evaluates proposals, entities, or teams?
10. Should AMMTO consider the expansion of LEEP to other National Labs?
11. Should DOE consider LEEP projects that could benefit from unique resources at multiple National Labs? If so, what kinds of projects?

Category 2: Recruitment and outreach

The LEEP nodes each conduct their own recruitment and outreach activities, which have significantly focused on regional scope and partnerships. While the performance metrics of the nodes' outreach efforts are impressive on the scale they currently operate, it is highly desired to improve the reach of the LEEP overall, as well as the diversity of the program's applicant pool, both in terms of numbers of applicants from underrepresented groups and the geographic diversity in the applicant pool.

1. If LEEP were to greatly centralize its recruitment and outreach activities (one aspect of the CL model being considered), what would the likely impacts be?
2. Is there an optimal balance or coordination of recruitment and outreach activities between a CL and individual nodes? If so, what would that balance look like?
3. Are there any strengths or unique features of LEEP's current distribution recruitment and outreach model that would be lost if the program were to shift to a more centralized model?
4. How can LEEP enhance inclusive representation in applying to the program?

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5. Should LEEP consider the development of additional programing that would expand participation in LEEP to participants other than LEEP Fellows? If so, please describe parameters of such programming and its intended goals.

Category 3: Fellowship experience, community, and programming

One of the unique components of LEEP is the program's focus on supporting and training the next generation of energy entrepreneurs developing science-based innovations. The "fellowship experience" includes programing, access to mentors, and networking events to develop connections with investors, industry, and community leaders.

As the nodes operate largely independent of each other, the four node communities do not routinely engage except for the annual LEEP Demo Day events. As AMMTO updates aspects of its operational model across all the nodes, the Department seeks input on how it can further enhance the fellowship experience for all participants and still preserve current operational strengths.

1. What activities can LEEP incorporate into its programming to increase community across the program's nodes?
2. How could the National Labs' engagement with LEEP Fellows be improved to promote deeper levels of interaction with lab scientists, facilities, and resources?
3. Are there any aspects of LEEP's operational model that could be changed to best facilitate the participation of underrepresented groups and communities in LEEP?
4. In addition to how the nodes already operate, are there ways the program can enhance the fellowship experience, possibly leveraging regional ecosystem partners in some ways?
5. Are there any strengths or unique features of LEEP's current operational model that enhance the fellowship experience that would be lost if the program were to shift to a more centralized model?

Category 4: Connections to regional ecosystems and across nodes.

LEEP has been viewed as a new engagement model between the labs and their regional ecosystems that has led to new initiatives nucleated in part via the work ongoing within the node communities. Since its inception, LEEP has been successful because of the close collaboration between the National Labs and local/regional/national partners to support LEEP Fellows and communities. The adoption of a CL model will likely have a significant impact on current node operations at the labs, and how the labs connect with regional entities to support

the Fellows and the node communities. It is desired to strengthen these connections while also adopting a more centralized operational model for the program.

Furthermore, LEEP startups would benefit greatly from access to affordable space outside the National Labs where they could perform work that does not require National Lab resources. This affordable space might be more suitable to support generic laboratory work, prototype development and testing, development of pilot-scale demonstrations, and development of manufacturing processes. Such spaces would also facilitate participation of interns in the program. Access to affordable space both during and after LEEP is clearly needed, but realizing such spaces outside the labs requires considerable effort supported by the local ecosystem and communities. This additional workspace is not currently an operational component of LEEP.

1. What is the optimal role for a LEEP node to play in its regional ecosystem?
2. Are there complementary entities or programs in the clean energy innovation ecosystem that LEEP should engage with? What would be recommended ways of engagement? Please list as many you think are applicable.
3. If LEEP transitions to a CL model, should the lab and node teams modify their engagement with the regional ecosystem? If so, how and to what purpose?
4. What aspects of the fellowship experience are most impacted by the local lab and innovation ecosystem? What would be the likely impact of changing those aspects of LEEP or reducing the role of the local node teams and host National Labs in providing those aspects of the fellowship experience?
5. As AMMTO looks to increase central coordination of some LEEP operations, what supporting functions are ideal for the individual node teams and host labs to focus on in partnership with their regional ecosystem partners?
6. What additional local/regional ecosystem impacts could be realized if node National Labs can shift more of their focus and activities towards said ecosystems, as a result of centralization of some of their other current functions?
7. Are there additional things LEEP can do, possibly with ecosystem partners, to better support LEEP Fellows as they leave the program?
8. How can LEEP and AMMTO help the regional ecosystems to leverage or develop resources like basic lab space and/or prototyping capabilities for LEEP startups and more generally deep-tech startups?

Category 5: LEEP CRADAs and supporting technical work to mature clean energy innovations.

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The LEEP CRADA provides program participants and their new businesses access to national lab resources that would be prohibitively expensive to access if they were forced to develop such resources internally. Such access is key to accelerating the maturation of LEEP-supported innovations to commercial success. However, setting up each CRADA is a complicated process that leads to an unavoidable delay in the start of CRADA projects at the labs relative to the start of the fellowship and the program itself.

1. Given the challenges of establishing and managing CRADAs, should AMMTO explore alternative procurement methods? If so, what alternative mechanisms would you recommend for AMMTO?
2. Currently, LEEP provides the same amount of funding to each CRADA regardless of the innovation, maturity level, degree of technical risk, and the resources needed to retire the technical risk. Should LEEP provide a varying amount of support for each CRADA project? Should the amount of support be justified by an initial period of training, engagement with industry, market research, etc.?
3. How might a CL operational model for LEEP best facilitate supporting each LEEP Fellow and the work they need to perform to mature their innovations? Consider how node communities can work together to address this question.

Category 6: **Open feedback and recommendations.**

1. AMMTO invites any other feedback that the innovation community would like to share regarding LEEP and the future of the program.

Request for Information Response Guidelines

Responses to this RFI must be submitted electronically to LEEP@ee.doe.gov no later than 5:00pm (ET) on September 26th, 2024. Responses must be provided as attachments to an email. It is recommended that attachments with file sizes exceeding 25MB be compressed (i.e., zipped) to ensure message delivery. Responses must be provided as a Microsoft Word (.docx) attachment to the email, and no more than 40 pages in length, 12-point font, 1-inch margins. Only electronic responses will be accepted.

Please identify your answers by responding to a specific question or topic if applicable. Respondents may answer as many or as few questions as they wish.

EERE will not respond to individual submissions or publish publicly a compendium of responses. A response to this RFI will not be viewed as a binding commitment to develop or pursue the project or ideas discussed.

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Respondents are requested to provide the following information at the start of their response to this RFI:

- Company/institution name.
- Company/institution contact.
- Contact's address, phone number, and e-mail address.

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