

*Inflation
Reduction
Act
Technology
Commercialization
Fund
(IRA TCF)*



DE-LC-000L004
**Collaborative Alignment for Critical
Technology Industries for Industrial
Decarbonization (CACTI - ID) Lab Call**

Informational Webinar

September 4, 2024

Housekeeping

- All applicants are strongly encouraged to carefully read the entire lab call and adhere to the stated submission requirements.
- This presentation summarizes the contents of the lab call. If there are any inconsistencies between the lab call and this presentation or statements from DOE personnel, the lab call is the controlling document and applicants should rely on the lab call language and seek clarification from OTT at TCF.BIL@hq.doe.gov.
- Everyone has been placed on mute.
- Please provide your questions through the chat. We will endeavor to answer questions at the end of webinar. All questions will go into the formal Q&A log and will be answered and publicly posted to Exchange.
- The informational webinar will be recorded. Recording will stop after Q&A is completed. The presentation and audio of the recording will be posted to Exchange (<https://oced-exchange.energy.gov/>).



Agenda

- Key Dates
- General Information
 - Budget per Topic Area
 - Estimated Funding for this Solicitation
- Program Overview and Topics
- Eligibility
- Cost Share
- Partnering
- Community Benefits
- Application Process
- Selections and Notification
- Background
- Questions

Key Dates

KEY DATES	
Solicitation Issue Date	August 12, 2024
Informational Webinar	September 4, 2024, 3 p.m. (ET)
PROPOSAL DEADLINE AND DECISION DATES	
Submission Deadline for Applications	October 14, 2024, 3 p.m. (ET)
Expected Date for Selection Notifications	Q1 Fiscal Year (FY) 25

General Information

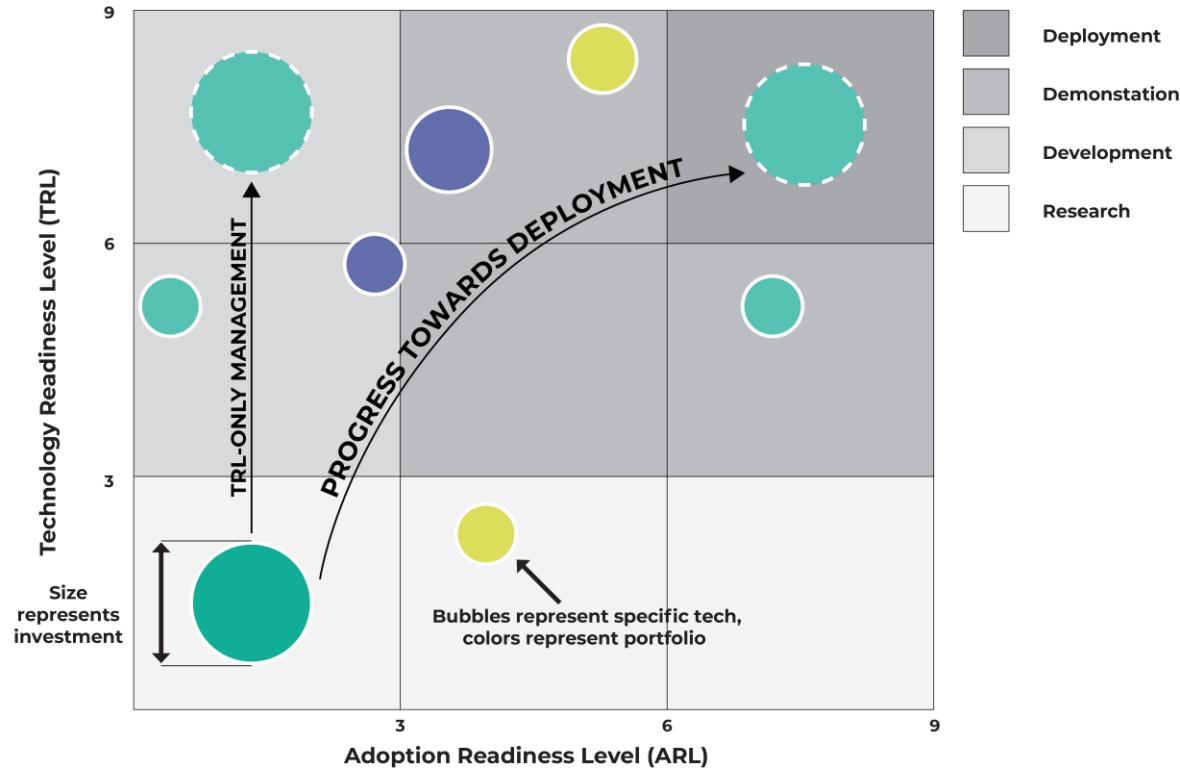
Means of Submission for Applications:	eXCHANGE https://oced-exchange.energy.gov/ (DE-LC-000L004). DOE will not review or consider proposals submitted through other means.
Total Amount to be Provided:	DOE expects to make up to \$15 million in Inflation Reduction Act funding available to fund all projects solicited in this lab call, pending program direction and go/no-go decision points. DOE may issue one, multiple, or no awards.
Estimated Number of Projects:	3 (1 per topic area)
Estimated Project Duration:	24 – 36 months
Estimated Budget per Project:	\$3 to \$8 million of DOE funding, in addition to cost share from partners
Eligible Entities:	All U.S. Department of Energy National Laboratories, Plants, and Sites
Submission of Multiple Proposals:	There is no limit on the number of applications that a lab can submit but note that DOE expects to make a single selection per topic and encourages collaborative proposals.
Questions:	TCF lab call solicitation: TCF.BIL@hq.doe.gov Using the online application portal: OCED-ExchangeSupport@hq.doe.gov

What will be discussed today

INFLATION REDUCTION ACT TECHNOLOGY COMMERCIALIZATION FUND: COLLABORATIVE ALIGNMENT FOR CRITICAL TECHNOLOGY INDUSTRIES – INDUSTRIAL DECARBONIZATION LAB CALL

- The Department of Energy's (DOE's) Office of Technology Transitions (OTT), in collaboration with the Office of Clean Energy Demonstrations (OCED) and support from the Industrial Efficiency & Decarbonization Office (IEDO) and the Office of Manufacturing and Energy Supply Chains (MESC), announced a Lab Call to bring together stakeholders across industries to address challenges that result when people work on similar issues in isolation, inhibiting scale-up and replication. These lab-led working groups will collaboratively develop and begin to implement recommendations and best practices for resolving identified challenges.
- The lab call is funded by the Inflation Reduction Act (IRA) as part of the DOE Technology Commercialization Fund (TCF).
- DOE anticipates awarding up to \$15 million in Fiscal Year 2024 IRA funding to projects led by DOE National Laboratories to accelerate commercialization in the Chemicals & Refining, Concrete and Cement, and Metals industries with a focus in industrial decarbonization.

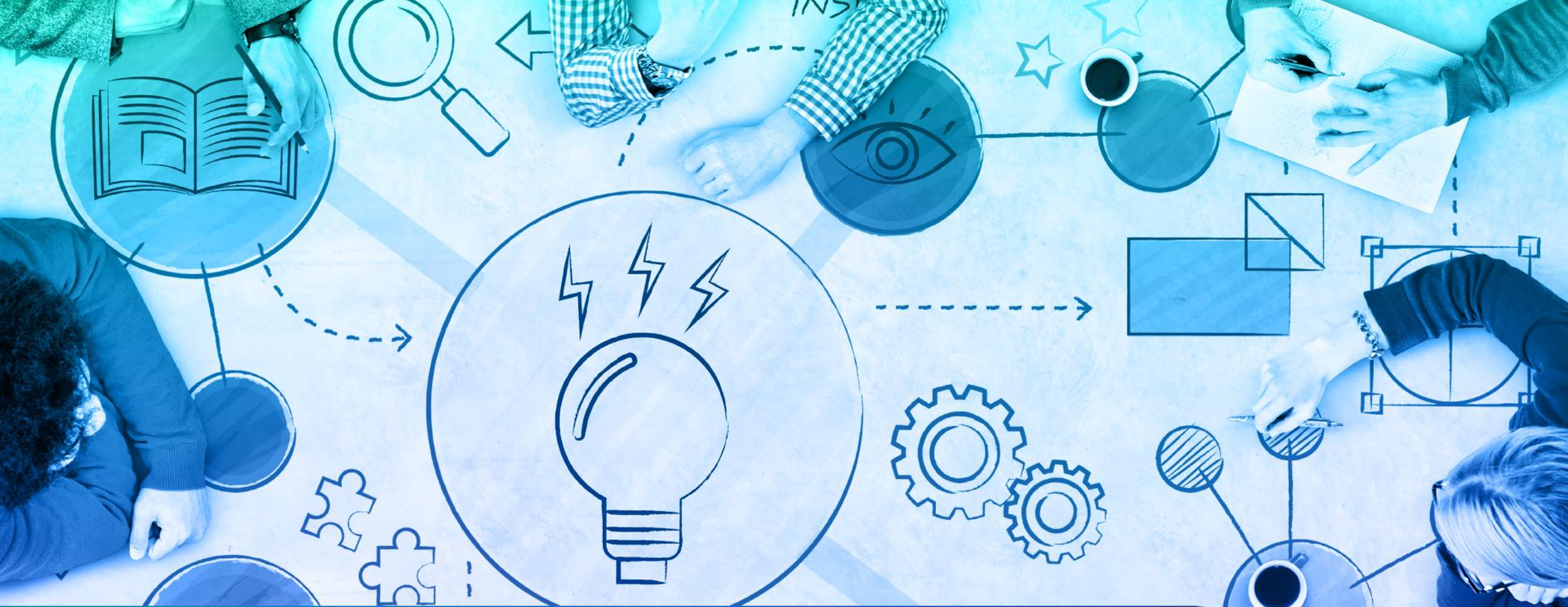
TRLs aren't enough to drive Deployment



- **TRL does not capture essential tech commercialization risk factors**, such as product-market fit, demand pull, supply chain, workforce, siting & permitting, etc.
- We have created “**Adoption Readiness Levels (ARL)**” to **describe and assess key adoption risks beyond technology risks** that impede commercialization
- We have refined this framework through **many industry discussions, as well as through piloting with DOE programs** across offices

Adoption Readiness Level – Risk Dimensions

Value Proposition	Delivered Cost		Functional Performance		Ease of Use / Complexity	
	Cost competitiveness when produced at full-scale (incl. amortization of development and capex, and switching costs)		Performance compared to incumbent solutions or ability to create new end-use materials		Operational switching costs, ability of new user to adopt and operationalize the technology with limited training, requirements or special resources	
Market Acceptance	Demand Maturity/ Market Openness		Market Size		Downstream Value Chain	
	Demand certainty and access to sales & contracting and natural / structural barriers to entry (network effects, first-mover advantages, existing monopolies)		Overall size and certainty of market that can be served by the technology		Projected path to get product from producer to customer along the value chain	
Resource Maturity	Capital Flow	Project Development	Infrastructure	Manufacturing & Supply Chain	Materials Sourcing	Workforce
	Availability of capital needed to get to production at scale (\$ # investors, insurance, speed)	Processes and capabilities to successfully and repeatedly execute projects	Large-scale systems needed to facilitate deployment at scale (pipelines, transmission lines, roads)	Entities or processes to get to end product (integrators, component manufacturers)	Availability of critical materials required (rare earth minerals)	Human capital and capabilities required to design, produce, install, maintain, and operate at scale
License to Operate	Regulatory	Policy Environment	Permitting & Sitting	Environmental & Safety	Community Perception	
	Regulations, requirements/ standards that must be met to deploy at scale	Policy actions that can support or hinder adoption at scale	Process to secure approvals to site and build equipment/ infrastructure	Hazardous side effects or adverse events caused by the solution	Perception by communities of the solution and its risks / impact	



Programs and Topics



Program Scope

- Proposed projects must align with TCF's goals to promote the commercialization of promising energy technologies and the goals of the relevant IRA provisions.*
- Applicants should clearly articulate their position within the entire ecosystem of the topic for which they are applying, including technical expertise, business development expertise, degree of thought leadership, history of partnerships, and relevant outreach and engagement in this area. Applicants should be familiar with commercialization barriers and the Pathways to Commercial Liftoff reports.**
- Proposals should describe plans for assembling and convening the working group on an ongoing basis and what deliverables will be provided to achieve the goals of the project. Key milestones for proposals under this topic should be commercialization-focused, not technology-focused.
- Proposals should describe an effective mechanism and engagement plan for working with and maintaining their cohort throughout the project period.
- Note that proposals that fall outside the parameters specified in the topic description sections will be deemed nonresponsive and will not be reviewed or considered.

*50161 – Advanced Industrial Facilities Deployment Program

**Pathways to Commercial Liftoff, <https://liftoff.energy.gov/>.

Project Structure

- DOE envisions awarding 1 project per topic area (total of 3 projects) led by national labs.
- Proposals must be broken into at least one budget period per fiscal year, with a logical go/no-go decision point between the budget periods.
- Applicants should consider the teaming elements that are needed to successfully achieve the proposed project objectives.

Topic 1: Collaborative Alignment on Decarbonization of Chemicals & Refining Industry

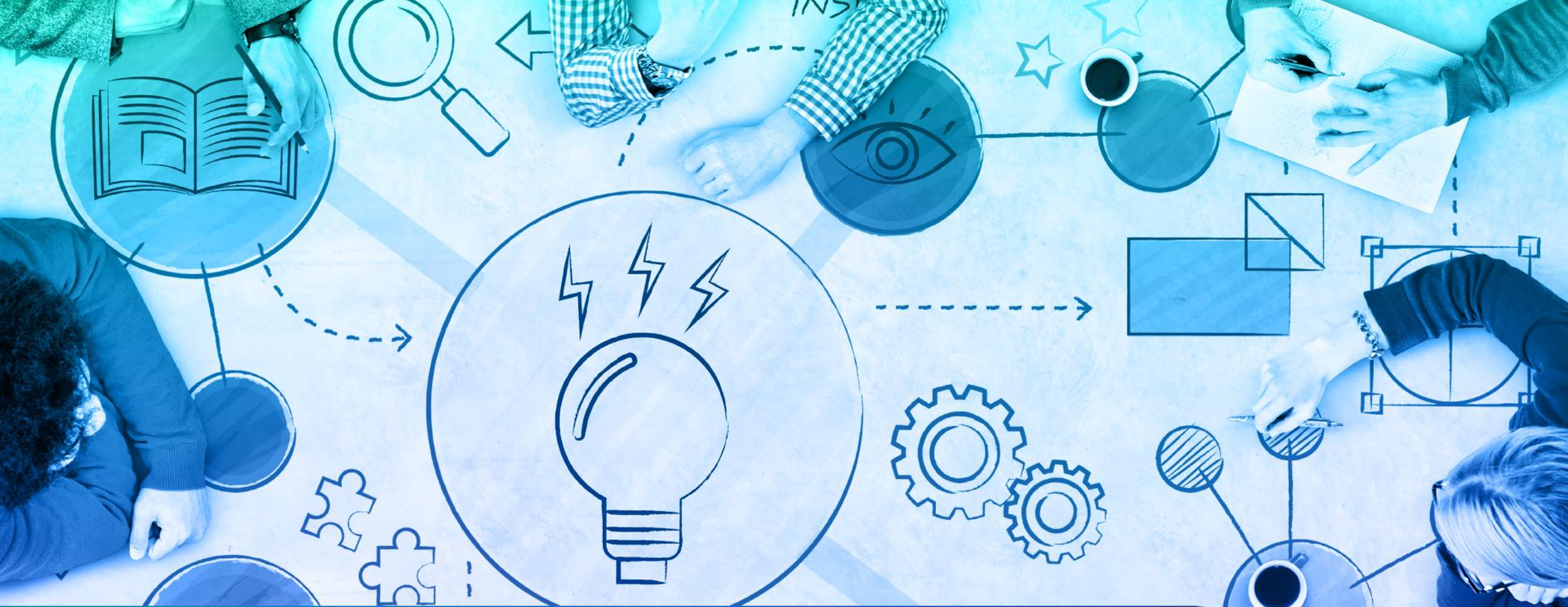
- This topic focuses on engaging relevant stakeholders on the commercialization hurdles around the decarbonization of chemicals production and refining and will include chemicals and processes outlined in the Decarbonizing Chemicals & Refining Pathways to Commercial Liftoff Report. Supporting the development of carbon intensity evaluation frameworks for chemical products to support green procurement efforts is of particular interest. This project should support the convening and implementation of these efforts across chemical products.
- DOE has identified potential areas of interest for a working group of Chemicals & Refining stakeholders to consider within the areas of carbon measurement and verification, utilization of low-carbon fuels, feedstocks, and energy sources, infrastructure build out facilitation, and demand-side support for procurement of chemical products. Please see the lab call for details. This list is not meant to be prescriptive or exhaustive.

Topic 2: Collaborative Alignment on Decarbonization of Concrete and Cement Industry

- This effort will work with existing cement consortia and other relevant industry groups to promote the commercialization of cement products and processes that have moved past R&D and are ready for demonstration in real-world applications within a short timeframe (3 – 5 years). The focus of this effort will be facilitating procurement of these materials and supporting commercialization of related products.
- DOE has identified potential areas of interest for a working group of Concrete and Cement stakeholders to consider within the areas of carbon measurement and verification, performance metrics development, low-carbon fuels, feedstocks, and energy sources, and procurement process support for novel materials. Please see the lab call for details. This list is not meant to be prescriptive or exhaustive.

Topic 3: Collaborative Alignment on Decarbonization of Metals Industry

- This topic will support the commercialization and deployment of low-carbon products, process, and feedstocks for iron, steel, steel mill products, and aluminum products. Additionally, this topic will support efforts to harmonize domestic and international frameworks for carbon intensity.
- DOE has identified potential areas of interest for a working group of Metals stakeholders to consider within the areas of carbon measurement and verification, analysis of US low-carbon iron, low-carbon fuels, feedstocks, and energy sources, and commodity pricing analysis. Please see the lab call for details. This list is not meant to be prescriptive or exhaustive.



Eligibility



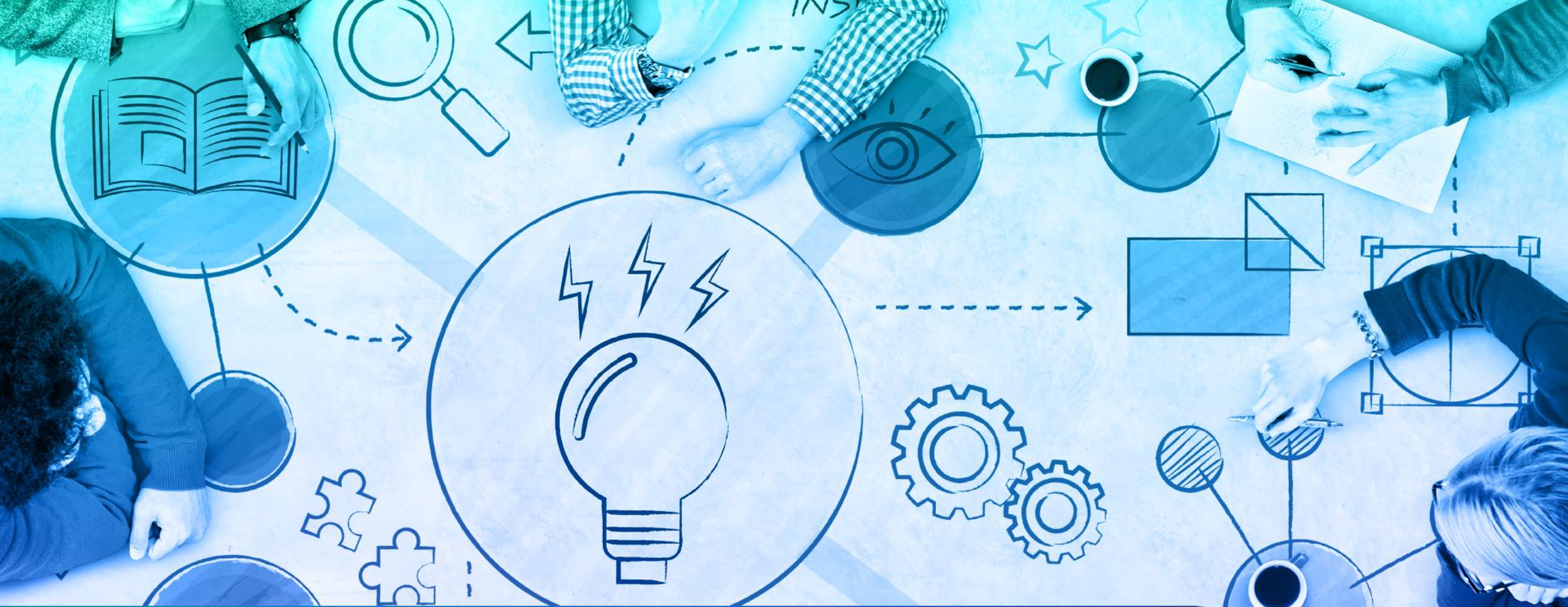
Eligibility

- Only DOE national laboratories, plants, and sites are eligible prime applicants to this lab call.
- Labs are expected to collaborate on proposals.
- DOE anticipates selecting a single, multi-lab project for each topic.
 - DOE encourages having a single lead laboratory to coordinate the project.

A blue-tinted top-down view of a collaborative workspace. Several people are visible, working together. The scene is overlaid with various icons and diagrams: a large lightbulb with three lightning bolts in the center, a magnifying glass, a book, a gear, a puzzle piece, a star, a coffee cup, a notepad, a checklist, and a network diagram. Dashed lines connect these elements, suggesting a flow of information or a process. The overall atmosphere is one of creative collaboration and problem-solving.

Cost Share

- This lab call is subject to Section 988(b)(3) of EPCA05 regarding cost-share, which requires 50% cost-share for demonstration and commercialization activities. However, DOE acknowledges that some potentially high impact proposed projects may not be able to meet this requirement.
- Labs may apply with less than 50% cost-share, clearly indicating in the application the amount of cost-share they intend to contribute and providing a justification for the cost-share reduction.
- Note that the review criteria reflect that cost share is a consideration for selection.



Partnering

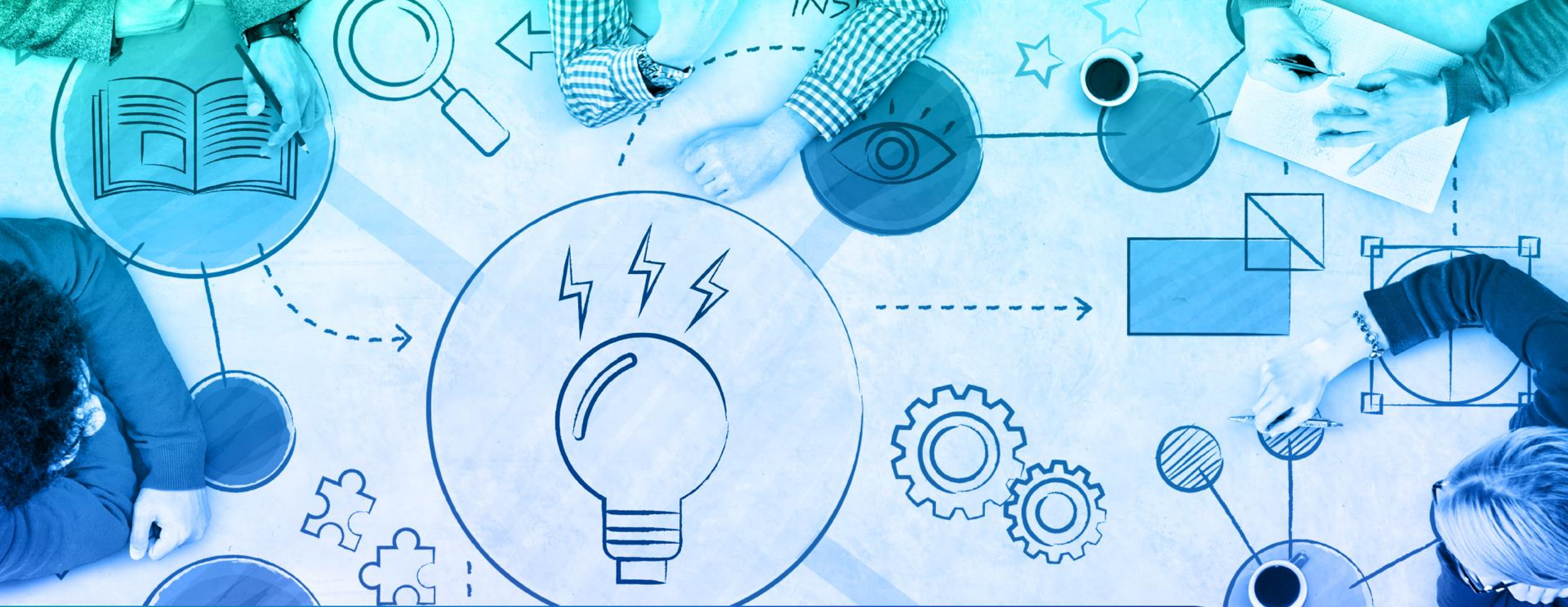


Partnering

- **DOE strongly encourages projects that bring together multiple labs** to leverage diverse lab capabilities, avoid duplication of effort, and ensure the strongest possible applications are put forward. DOE also anticipates that **meeting project goals and cost share requirements will require significant industry engagement and partnership.**
- All partnerships between the labs and outside partners **must comply with individual lab requirements under their management and operating (M&O) contracts.**
- Partners can be any nonfederal entity, including private companies, state or local governments (or entities created by a state or local government), colleges, universities, tribal entities, or nonprofit organizations.
 - **A list of existing programs, project, and organizations relevant to the program is provided in Appendix B of the Lab Call. It is strongly encouraged that project teams coordinate with these entities.**

Teaming Partner List

- To expedite external partnerships in support of this lab call, DOE is compiling a “Teaming Partner List” to facilitate the formation of new project teams. The Teaming Partner List allows organizations who may wish to participate on an application to express their interest to other applicants and to explore potential partnerships. Updates to the Teaming Partner List will be available in the eXCHANGE website. The Teaming Partner List will be regularly updated to reflect new teaming partners who provide their organization’s information.
- Submittal Instructions: Any organization that would like to be included on this list should find the Teaming Partner List for this solicitation (TPL-0000002) on eXCHANGE and submit the following information: Investigator Name, Investigator Title, Organization Name, Organization Type, Topic, Background, Interest, Website, Address, and Contact Information.



Community Benefits

Community Benefits Plan

- To support the goal of building a clean and equitable energy economy, IRA-funded projects are expected to:
 - Advance diversity, equity, inclusion, and accessibility (DEIA);
 - Contribute to the Justice40 Initiative and other considerations linked with energy and/or environmental justice; and
 - Invest in quality jobs
- Applications must include a Community Benefits Plan that describes how the proposed project would incorporate the above objectives and include specific details on how to ensure the delivery of measurable community benefits.
- The proposed project should include at least one Specific, Measurable, Assignable, Realistic and Time-Related (SMART) milestone per budget period to measure progress on the proposed actions. This implementation strategy for the proposed project will be evaluated as part of the application review process.
- Applicants are highly encouraged to include individuals from groups historically underrepresented in science, technology, engineering, and math (STEM) in their working groups

Community Benefits Plan Guidance

Advancing DEIA

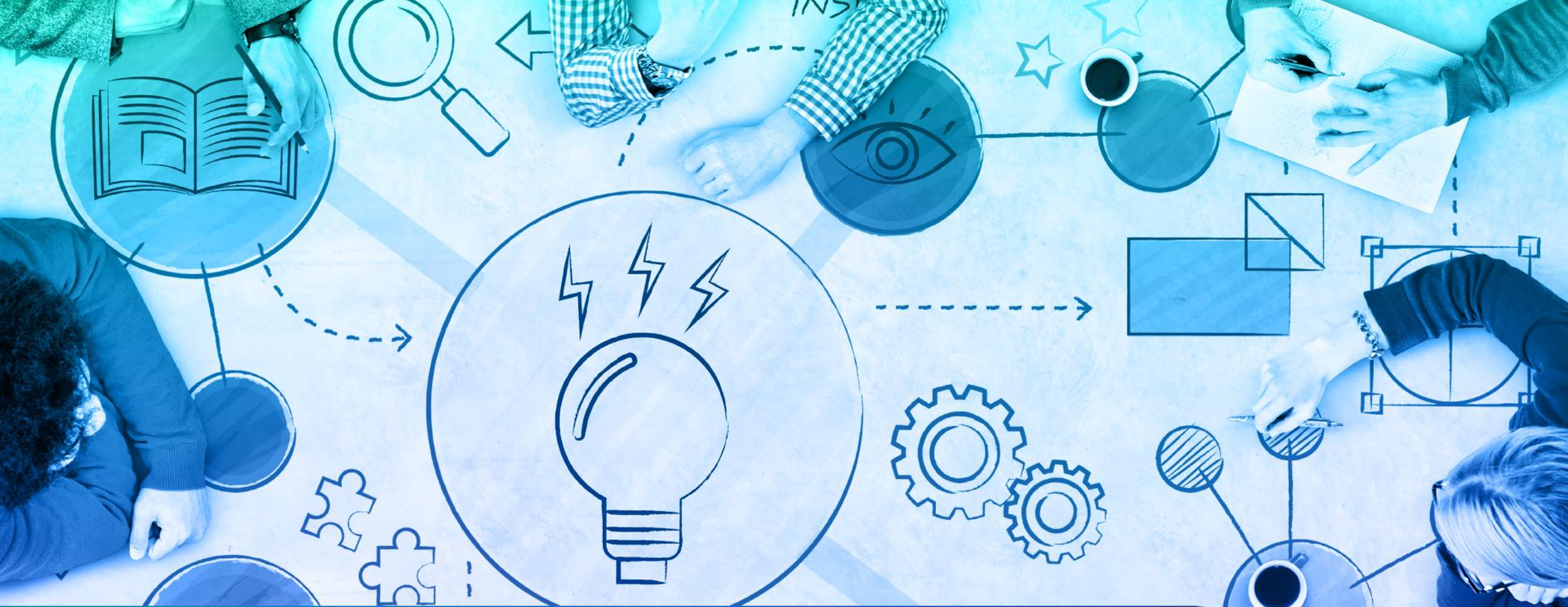
- This section of the plan must demonstrate how DEIA is incorporated in the project objectives. The plan must identify the specific action the applicant would take that integrates into the project goals and project teams. Submitting an institutional DEIA plan without specific integration into the project will be deemed insufficient.

Contributing to Justice40 goals

- This section should include information on how the project will advance the Justice40 Initiative's goal. In addition, this section must articulate the applicant's consideration of long-term equity implications of the project and any implications for environmental justice. It must identify how the specific project integrates equity and environmental justice considerations into the project design to support equitable outcomes for affected communities if the project is successful.

Investing in Quality Jobs

- This section must articulate the applicant's consideration of long-term workforce impacts and opportunities of the project. It must identify how the project is designed and executed to include an understanding of the future workforce needs if the project is successful. Applicants are encouraged to describe the influencing factors and the most likely workforce and community implications of the proposed project if the effort is successful, as well as energy and/or environmental justice implications.



Application Stage



Applications

Completed applications are required to be eligible for award(s) under this solicitation. Application materials must be submitted through eXCHANGE.

Full applications are due October 14, 2024, 3:00 p.m. (ET). DOE will not accept applications after this deadline.

DOE will not review or consider ineligible applications. Each application shall be limited to a single concept. Unrelated concepts shall not be consolidated in a single full application.

Please read the lab call in its entirety for all application requirements, starting on page 27.

Application Scoring Criteria

- Criterion 1: Impact on Industry (30%):** How impactful is the project, assuming the stated outcomes can be achieved as written? Is the proposal likely to result in implementation of recommendations, over and beyond publishing best practices? Is the proposal likely to lead to outcomes that are adopted?

Impactful	Accelerates speed of commercialization
Long-term viability	Commercialization outcomes

- Criterion 2: Coordination and Milestones (30%):** Are the stated plans for coordinating the working group(s) and cooperating with related efforts reasonable, synergistic, differentiated from existing work and scalable? Are the stated goals of the project SMART, and are they likely to be accomplished within the scope of this project? Is there a likelihood of success for the proposed project?

Reasonable	Synergistic
Differentiated	Sustainable
Measurable	Risks mitigated
Reasonable assumptions	Reasonable budget

Application Scoring Criteria

- Criterion 3: Team Experience and Expertise (30%):** Is the team well-qualified and positioned to successfully complete this project? Does the team bring the requisite experience in business development and engaging with the identified industry?

Collaboration	Capability
Participation	Commitment
Validated	Access
Business Development	Industry Engagement

- Criterion 4: Community Benefits Plan: Job Quality and Equity (Community Benefits Plan) (10%):**

DEIA goals	Community Evaluation
Equity	

Proprietary Information

- In general, DOE will use data and other information contained in proposals for evaluation purposes only, unless such information is generally available to the public or is already the property of the government.
- Applicants should not include in their proposals trade secrets or commercial or financial information that is privileged or confidential, unless such information is necessary to convey an understanding of the proposed project or to comply with a requirement in this solicitation.
- Proposals that contain trade secrets or commercial or financial information that is privileged or confidential and that the applicant does not want disclosed to the public or used by the government for any purpose other than proposal evaluation must be marked as described in the solicitation.

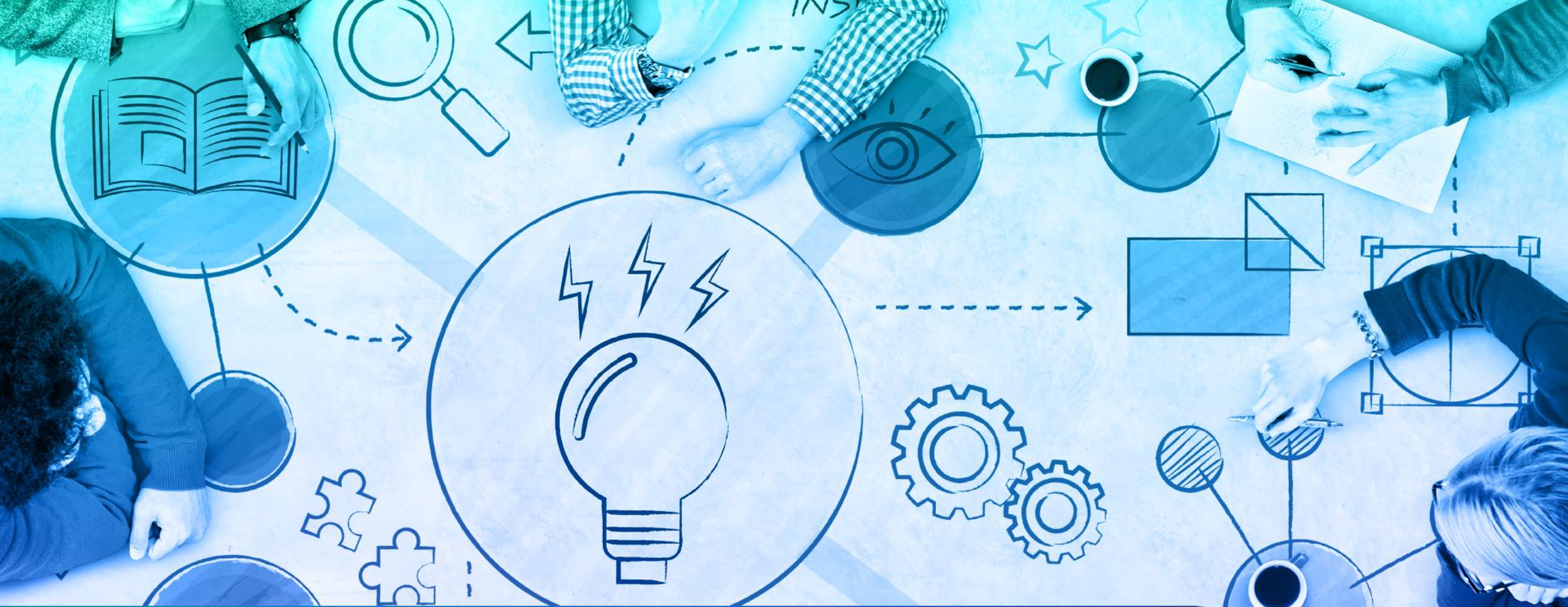


Selection and Notification



Selection and Notification

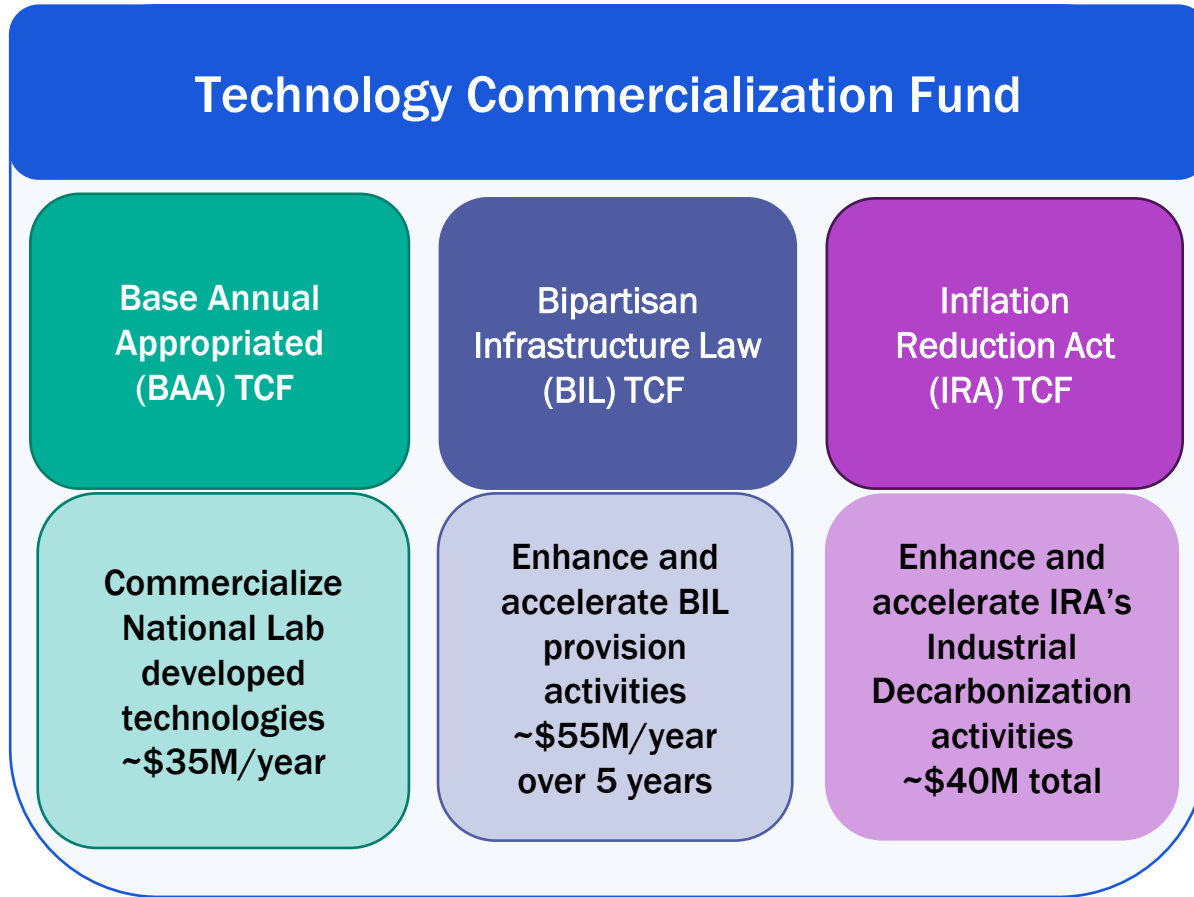
- **Merit Review and Selection Process:** Selection of winning proposals will be determined based on available funding and input from DOE.
 - DOE carefully considers all information obtained through the selection process. DOE may select or not select a proposal for negotiations. DOE may also postpone a final selection determination on one or more proposals until a later date, subject to availability of funds and other factors. OTT will notify applicants if they are, or are not, selected for award negotiation.
 - DOE will only select proposed projects that support the statutory requirement of the TCF to “promote promising energy technologies for commercial purposes” and advance the goals of IRA provision(s).
- DOE anticipates completing the selection and negotiation process by end of Q2 FY25 (subject to change). DOE will notify lab leads electronically of selection results. All of DOE’s decisions are final when communicated to applicants.
- Projects selected for award are managed by the DOE facilities in accordance with their requisite policies and procedures. OTT will provide all required project oversight and engagement with TCF project recipients; DOE program offices participating in this lab call are encouraged to engage as well.



Background



Technology Commercialization Fund (TCF)



- TCF established by Congress through the EPACT 2005 and reauthorized by the EA2020 to "0.9% of RDD&CA funding to promote promising energy technologies for commercial purposes."
- In November 2021, the Bipartisan Infrastructure Law (BIL) provided more than \$62B to DOE and led to creation of the BIL TCF program.
- In August 2022, the Inflation Reduction Act (IRA) provided significant additional funding to DOE and led to the creation of the IRA TCF program.
- Today, TCF is three parts:
 - **BAA TCF:** Mature promising energy technologies with the potential for high impact across DOE's RD&D and commercial application continuum
 - **BIL TCF:** Cultivate a broader innovation network around the BIL provision activities to enable faster replication and scaling of demonstration projects
 - **IRA TCF:** Develop programs, tools, and technical frameworks to alleviate commercialization barriers for industrial decarbonization technologies



OCED Mission

Deliver clean energy technology **demonstration projects at scale** in partnership with the **private sector** to **accelerate deployment, market adoption**, and the **equitable transition** to a decarbonized energy system.”



OCED Mandate



SCALE EQUITABLE, CLEAN ENERGY

Help enable 100% clean electricity by 2035 & net-zero emissions by 2050 through an equitable energy transition



UNLOCK NEW INVESTMENT

Unlock and scale trillion-dollar clean energy follow on investment from the private sector and other sources of capital



DE-RISK TECHNOLOGY

Maintain risk-based, balanced, and defensible portfolio of investments



PROVIDE PROJECT OVERSIGHT

Serve as primary DOE office to deliver full scale clean energy demonstration projects and project management oversight excellence



ENGAGE & COLLABORATE

Leverage private sector and broader energy ecosystem to inform OCED and DOE technology commercialization efforts



Related Activities: Industrial Decarbonization

It is anticipated that these projects will interact with existing efforts related to their selected topic area. The selected projects should avoid duplication with existing efforts and should build upon the work already completed by related efforts. Some of the specific programs that applicants should be aware of while developing their application include but are not limited to:

Organization/Program Title	Industry
Electrified Processes for Industry Without Carbon (EPIXC)	All
Industrial Heat Shot™ DOE	All
Industrial Technology Innovation Advisory Committee	All
Manufacturing USA Institutes	All

Related Activities: Chemicals & Refining

It is anticipated that these projects will interact with existing efforts related to their selected topic area. The selected projects should avoid duplication with existing efforts and should build upon the work already completed by related efforts. Some of the specific programs that applicants should be aware of while developing their application include but are not limited to:

Organization/Program Title	Industry
<u>American Institute for Chemical Engineers</u>	Chemicals & Refining
<u>Center for Energy Initiatives (CEI)</u>	Chemicals & Refining
<u>Clean Fuels & Products Shot™ DOE</u>	Chemicals & Refining
<u>Rapid Advancement in Process Intensification Deployment Institute (RAPID)</u>	Chemicals & Refining
<u>Regional Biomass Resource Hub Initiative</u>	Chemicals & Refining
<u>Reducing Embodied-energy And Decreasing Emissions (REMADE)</u>	Chemicals & Refining

Related Activities: Concrete & Cement

It is anticipated that these projects will interact with existing efforts related to their selected topic area. The selected projects should avoid duplication with existing efforts and should build upon the work already completed by related efforts. Some of the specific programs that applicants should be aware of while developing their application include but are not limited to:

Organization/Program Title	Industry
Cement and Concrete Center of Excellence IEDO	Concrete & Cement
Low Carbon Cements and Concretes Consortium NIST	Concrete & Cement
NEU – An ACI Center of Excellence for Carbon Neutral Concrete	Concrete & Cement
Federal Buy Clean Initiative Office of the Federal Chief Sustainability Officer	Concrete & Cement, Metals
First Movers Coalition	Concrete & Cement, Metals
Label Program for Low Embodied Carbon Construction Materials EPA	Concrete & Cement, Metals

Related Activities: Metals

It is anticipated that these projects will interact with existing efforts related to their selected topic area. The selected projects should avoid duplication with existing efforts and should build upon the work already completed by related efforts. Some of the specific programs that applicants should be aware of while developing their application include but are not limited to:

Organization/Program Title	Industry
Federal Buy Clean Initiative Office of the Federal Chief Sustainability Officer	Concrete & Cement, Metals
First Movers Coalition	Concrete & Cement, Metals
Label Program for Low Embodied Carbon Construction Materials EPA	Concrete & Cement, Metals
American Iron and Steel Institute	Metals
Center for Steel Electrification by Electrosynthesis Argonne National Laboratory	Metals
Revolutionizing Ore to Steel to Impact Emissions (ROSIE) ARPA - E	Metals

Questions?

Specific questions about this lab call should be submitted via e-mail to TCF.BIL@hq.doe.gov.

To ensure fairness across all labs, individual DOE staff cannot answer questions while the lab call remains open.

OTT will post all questions and answers on eXCHANGE.

Questions about Exchange: <https://oced-exchange.energy.gov/FAQ.aspx>