Request for Information DE-FOA-0002825
Bat Deterrent Technology Solutions

DATE: August 23, 2022
SUBJECT: Request for Information (RFI)

Description

This is a Request for Information (RFI) issued by the U.S. Department of Energy's (DOE) Wind Energy Technologies Office (WETO), on behalf of the Energy Efficiency and Renewable Energy Office (EERE). The intent of this RFI is to obtain public input regarding research priorities, partnership interest, the solicitation process, and structure of a potential DOE Funding Opportunity Announcement (FOA) to fund activities to reduce the impacts of wind energy facilities on bat populations in accordance with section 41007(b)(1) of the Infrastructure Investment and Jobs Act.[1]

Specifically, this RFI seeks input on the following topics:

- The current state of bat deterrent technologies and market interest
- Research and development activities necessary to advance deterrent technologies
- Barriers to deployment of deterrents
- Conditions under which technology vendors and wind energy operators would participate in field validation studies
- Solicitation Process, FOA structure, and Implementation Strategy
- Employment: Expanding Union Jobs and Effective Workforce Development
- Equity, Environmental and Energy Justice (EEEJ) Priorities
- Market Adoption and Industry/Sector Sustainability

Information collected from this RFI will be used by DOE for planning purposes to develop a potential FOA. The information collected will not be published.

BIL Background

On November 15, 2021, President Joseph R. Biden, Jr. signed the Infrastructure Investment and Jobs Act (Public Law 117-58), also known as the Bipartisan Infrastructure Law (BIL). The BIL is a once-in-a-generation investment in infrastructure, designed to modernize and upgrade American infrastructure to enhance United States competitiveness, drive the creation of good-paying union jobs, tackle the climate crisis, and ensure stronger access to economic and environmental benefits for

[1] Infrastructure Investment and Jobs Act, Public Law 117-58 (November 15, 2021), https://www.congress.gov/bill/117th-congress/house-bill/3684/text.

disadvantaged communities (DACs).The BIL appropriates more than $62 billion to DOE to ensure the clean energy future delivers true economic prosperity to the American people by:

- Investing in American manufacturing and workers, including good-paying jobs with the right to join a union, and effective workforce development to upskill incumbent and dislocated workers.
- Expanding access to energy efficiency and clean energy for families, communities, and businesses.
- Delivering reliable, clean, and affordable power to more Americans.
- Building the technologies of tomorrow through clean energy demonstrations.

As part of this effort, section 41007(b)(1) of BIL authorizes appropriations of $60 million to carry out activities under section 3003(b)(2) of the Energy Act of 2020 (42 U.S.C. 16327(b)(2)) for the period of fiscal years (FYs) 2022 through 2025. Section 3003(b)(2) of the Energy Act of 2020 directs DOE to "carry out research, development, demonstration, and commercialization activities" on certain enumerated areas, including "technologies or strategies to avoid, minimize, and offset the potential impacts of wind energy facilities on bird species, bat species, marine wildlife, and other sensitive species and habitats." (42 U.S.C. 16327(b)(2)(B)(x)). DOE is considering the issuance of a Funding Opportunity Announcement (FOA) that would allocate approximately $8 million under this BIL provision to advance research, development, and deployment (RD&D) for bat deterrents and is seeking public comment on the most appropriate investment activities to accomplish that goal. This RFI is not a FOA, however, and DOE is not accepting applications at this time. If DOE ultimately issues a FOA, the actual funding amount available for awards could be more or less.

Wind energy is critical to the Biden administration's goal to achieve a carbon-free electric grid by 2035 and a net zero emissions economy by 2050.[2] Successful research conducted through this funding opportunity will improve the coexistence of wind energy and sensitive wildlife species as wind energy expands to address the nation's growing renewable energy needs.

RFI Background

The mission of WETO, located within EERE, is to accelerate widespread U.S. deployment of clean, affordable, and reliable wind power to promote energy security, economic growth, and environmental quality. WETO is committed to supporting technological innovations that

[2] FACT SHEET: President Biden sets 2030 Greenhouse Gas Pollution Reduction Target Aimed at Creating Good-paying Union Jobs and Securing U.S. Leadership on Clean Energy Technologies, https://www.whitehouse.gov/briefing-room/statements-releases/2021/04/22/fact-sheet-president-biden-sets-2030-greenhouse-gas-pollution-reduction-target-aimed-at-creating-good-paying-union-jobs-and-securing-u-s-leadership-on-clean-energy-technologies/

facilitate the growth of the domestic wind energy industry. In addition to wind energy technology RDD&T (Research, Development, Deployment & Testing), WETO funds RDD&T to address siting challenges that affect the deployment of wind energy, including the effects of wind energy on wildlife. For more information about WETO, please visit our website at https://www.energy.gov/eere/wind/wind-energy-technologies-office.

As deployment of wind energy increases across the country, wind energy developers and operators are likely to face increasing siting and environmental compliance challenges. Bat impacts represent a significant environmental concern for land-based wind deployment and operation.

Three bat species (little brown, tri-colored, and northern long eared) are under review by the U.S. Fish and Wildlife Service (FWS) under the Endangered Species Act. These three species represent approximately 10% of documented bat fatalities at wind facilities,[3] and collectively they have ranges that cover nearly the entire continental United States. The FWS is also gathering data to better understand the relative threat of wind energy development for hoary bat populations. Hoary bats make up roughly 35% of all bat fatalities at wind facilities.[4]

The primary means for addressing bat fatalities at wind facilities is through operational curtailment. In the context of wildlife impact minimization, curtailment refers to limiting turbine operations at times of high risk to the species of concern. With respect to bats, this is from sunset to sunrise during the June to October annual migration. Research has shown that seasonally curtailing operations below wind speeds of 5.0m/s can reduce total fatalities of bats by 50% or more,[5] but the reduction is not uniform across all bat species. This approach can be costly and reduces the energy generation and reliability of wind energy facilities.[6] If the wind facility is in a region with low average wind speeds, curtailing to address bat impacts may not allow the facility to produce enough energy to be profitable. DOE has previously invested in improving curtailment options.[7]

Bat deterrents are an alternative to address bat and wind energy interactions, in particular technologies that use ultrasound to deter bats from the rotor swept area. While ultrasonic deterrent technologies are currently available, there has been limited adoption of these technologies and results from published field studies indicate mixed results at the species-specific level and across geographies.

[3] AWIIC (American Wind Wildlife Information Center) database. https://rewi.org/about-us/our-work/awwic/
[4] Newman 2020. https://www.epri.com/research/products/000000003002017671
[5] Adams, E.M., Gulka, J. and K.A. Williams. 2021. A review of the effectiveness of operational curtailment for reducing bat fatalities at terrestrial wind farms in North America. PloS one, 16(11), p.e0256382
[6] Arnett, E.B., Huso, M.M., Schirmacher, M.R. and J.P. Hayes. 2011. Altering turbine speed reduces bat mortality at wind-energy facilities. Frontiers in Ecology and the Environment, 9(4), pp.209-214
[7] https://www.energy.gov/eere/articles/energy-department-awards-68-million-wind-energy-research-projects

Improving the species-specific effectiveness of bat deterrent technologies through targeted behavior research, conducting field validation tests of proposed improvements, and improving the reliability and integrability of deterrent technologies will be important as wind energy development expands.

BIL Considerations

Principles of equity and justice will guide BIL implementation, consistent with the Biden Administration's commitments to ensure that overburdened, underserved, and underrepresented individuals and communities have access to federal resources pursuant to EO 13985, *Advancing Racial Equity and Support for Underserved Communities*; EO 14020, *Establishment of the White House Gender Policy Council*; and EO 14008, *Tackling the Climate Crisis at Home and Abroad*. Implementation efforts shall ensure that 40% of the overall benefits of the BIL flow to disadvantaged communities (DACs),[8] and not exacerbate existing inequalities, including disproportionate exposure to environmental hazards and harms (the Justice40 Initiative, or Justice40). Moreover, the BIL implementation process should advance equity for all, including people of color and others who have been historically underserved, marginalized, and adversely affected by persistent poverty and inequality.

Strengthening prosperity – by expanding good, safe union jobs and supporting job growth through investments in domestic manufacturing – is a key goal set by President Biden and is discussed in depth in his Executive Orders (EOs) on Ensuring the Future Is Made in All of America by All of America's Workers (EO 14005), Tackling the Climate Crisis at Home and Abroad (EO 14008), Worker Organizing and Empowerment (EO 14025), and Promoting Competition in the American Economy (EO 14036). The research and development activities to advance technologies or strategies to minimize the potential impacts of wind energy facilities on bat species will support the creation of good-paying jobs with the free and fair choice to join

[8] The Justice40 initiative, created by E.O. 14008, establishes a goal that 40% of the overall benefits of certain federal investments flow to (DACs). The Justice40 Interim Guidance provides a broad definition of DACs (Page 2): https://www.whitehouse.gov/wp-content/uploads/2021/07/M-21-28.pdf. The DOE, OMB, and/or the Federal Council for Environmental Quality (CEQ) may issue additional and subsequent guidance regarding the designation of DACs and recognized benefits under the Justice40 Initiative.

a union, the incorporation of strong labor standards, and high-road workforce development, especially registered apprenticeship and quality pre-apprenticeship.[9,10]

BIL Provisions

The contemplated FOA referenced in this RFI would be pursuant to Section 41007(b)(1) of the BIL, which authorizes appropriations to carry out activities under section 3003(b)(2) of the Energy Act of 2020 (42 U.S.C. 16237(b)(2)).

DOE's Draft Strategy for BIL Implementation

[9] Registered Apprenticeship Program (RAPs) are a proven model of job preparation, registered by DOL or a DOL-recognized State Apprenticeship Agency (SAA), which employ workers and combine paid On-the-Job Learning (OJL) (also referred to as On-the-Job Training (OJT)) with Related Instruction (RI) to progressively increase workers' skill levels and wages. RAPs are also a business-driven model that provide an effective way for employers to recruit, train, and retain highly skilled workers. RAPs allow workforce partners, educators, and employers to develop and apply industry standards to training programs, thereby increasing the quality of the workforce and workforce productivity. RAPs offer job seekers immediate employment opportunities that pay sustainable wages and offer advancement along a career path as they complete their training. Registered Apprentice completers receive industry-recognized certificates of completion leading to long-term career opportunities. For more information on RAPs, please visit www.apprenticeship.gov.

[10] The US Department of Labor has developed a framework for Quality Pre-Apprenticeship Programs:

- Training and curriculum based on industry standards, approved by the Registered Apprenticeship sponsor with whom the pre-apprenticeship program is partnering.
  Strategies that increase Registered Apprenticeship opportunities for disadvantaged and under-represented individuals that will allow the participant to meet the entry requirements for a Registered Apprenticeship program upon completion. These involve:
  - » Strong recruitment efforts for populations under-represented in Registered Apprenticeship programs
  - » Educational and pre-vocational services that prepare participants to meet the minimum qualifications for entry into a Registered Apprenticeship program
  - » Activities introducing participants to Registered Apprenticeship programs and assistance in applying for those programs
- Access to support services that help participants remain in the program (such as childcare, transportation, counseling and ongoing career services).
- Collaboration with Registered Apprenticeship sponsors to promote apprenticeship to other employers as a quality approach to attain and retain a skilled workforce.
- Hands-on experience that simulates the work performed in the Registered Apprenticeship, while observing proper supervision and safety protocols.
- Formal agreements, wherever possible, with Registered Apprenticeship sponsors for entry into Registered Apprenticeship programs upon successful completion of the pre-apprenticeship program.

For additional information on pre-apprenticeship, please review USDOL's Training and Employment Notice 13-12.

This section provides a high-level draft plan for DOE's current plan to undertake a competitive solicitation to advance technologies to mitigate impacts to bats, specifically deterrents, at wind energy facilities pursuant to Section 41007(b)(1) of the BIL. Please note this is a preliminary plan and it may be revised as DOE gathers comment through the RFI and other stakeholder processes, if undertaken.

DOE is considering three specific areas of interest (1) behavioral response to deterrent stimuli in controlled setting (e.g., flight cage), (2) *In situ* testing with the deterrent device deployed at several wind turbines within a facility; and (3) specific hardware integration, reliability, and signal generation flexibility[11] improvements. Consideration may also be given to combinations of these areas of interest.

(1) Area of Interest: Behavioral research regarding deterrent stimuli

In this draft strategy, the objective of this area of interest would be to advance the understanding of the stimuli and treatment patterns that will illicit the greatest deterrent response (in a controlled environment) among identified species of concern. Work under this area of interest would likely require access to or ability to build a sufficiently sized controlled environment for behavior testing that most closely approximates a natural setting. Work would be expected to include development of research protocols, capturing bats, and testing stimuli treatments in a controlled environment to assess the impact of the treatments at a species-specific level. Of interest would also be an understanding of how this behavioral research will advance the future development and commercialization of deterrent devices and recommendations regarding the signals that may have the greatest deterrent impact on each species.

(2) Area of Interest: In situ testing at wind facility

This area of interest would likely include *in situ* testing of the most promising deterrent treatment protocols at a wind facility based on behavioral science. Given the limited behavioral data available, it would be expected that research in this area of interest would be combined with the first area of interest.

(3) Area of Interest: Hardware integration, reliability, and signal generation flexibility improvements

[11] For the purpose of this RFI "flexibility" refers to the ability and ease of adjusting deterrent signals (e.g. tones, pitch, patterns) generated by a bat deterrent. This feature may play an important role in adjusting deterrent outputs to achieve maximum deterrent efficacy in response to behavior research.

This area of interest would likely address the development and improvement of bat deterrent hardware. This area would focus on improving hardware to ensure that the devices 1) can meet desirable signal performance objectives such as (frequency, modulation, decibel level, etc.), 2) can be installed (tower, nacelle, hub, blades, etc.), and routinely maintained on an operational turbine 3) and operate functionally on a commercial scale turbine. This area of interest addresses suitability for use on commercial wind turbines.

Purpose

The purpose of this RFI is to solicit feedback from industry, academia, research laboratories, government agencies, State and local coalitions, labor unions, Tribal councils, community-based organizations (CBOs),[12] and other stakeholders on issues related to improving the efficacy and commercial readiness of bat deterrent technologies. WETO is specifically interested in information on how best to advance the effectiveness of deterrent technologies as well as industry/regulatory confidence. In this RFI, 'deterrent technologies' means any device (e.g., ultrasonic deterrent) that can be implemented at an operational wind energy facility with the intended effect of reducing bat mortality. This definition specifically excludes operational curtailment, and approaches aimed at other parts of the mitigation hierarchy, such as pre-construction siting or compensatory mitigation. This is solely a request for information and not a FOA. WETO is not accepting applications.

The following is a list of questions on which DOE is requesting information and comment. Respondents need not address every question. In providing responses, please use the bolded Category numbers and sub-numbers as headings the greatest extent possible and refer to the questions (C1.1a, C2.12 etc.) in the body of your responses.

Specifically, DOE is requesting input on the following categories and questions:

Category 1: Proposed FOA Objectives

WETO is considering three areas of interest to fund through this opportunity: (1) behavioral response to deterrent stimuli in controlled setting (e.g. flight cage), (2) *In situ* testing with the deterrent device deployed at several wind turbines within a facility; and (3) specific hardware integration, reliability and signal flexibility improvements.

1. To what extent are technologies such as ultrasonic deterrents a viable strategy to reduce bat mortality? Are there barriers to deploying the technology, and if so, what are the barriers?

[12] Community-Based Organizations (CBOs) are public or private not-for-profit resource hubs that provide specific services to the community or targeted population within the community.

2. What are the most important research questions to address in order to advance and commercialize bat deterrent technologies?
3. Are there areas of interest that should be considered in addition to or in lieu of those described above (i.e., behavioral research, field testing, and hardware improvement)? If so, how would you rank them in order of priority. If not, please explain.
4. What is the total investment needed to fully commercialize deterrent technologies? Please elaborate.

Category 2: Potential Funding Opportunity Structure

EERE has the flexibility to structure funding opportunities in various ways to accomplish these proposed research objectives. Past FOAs from WETO relating to wind wildlife impact mitigation have followed a multi-year, single award structure. Initial FOA applications included technical details of all tasks to be completed over the life of the award, identify all project partners, and provide high level details regarding study design and approach. These awards utilized go/no-go stage-gates at critical decision points (between controlled testing and field work, for instance), to provide DOE and awardees with opportunities to evaluate performance and critical deliverables between key project phases.

5. Would WETO's past practice for structuring FOAs present specific barriers to a FOA addressing the areas of interest discussed in this RFI? Please elaborate.

Category 3: Controlled Environment Bat Behavior (Response to Stimuli) Testing

6. What are the primary bat behavior research questions that need to be addressed to improve deterrent effectiveness at wind turbines?
7. Can these questions be addressed in controlled-environment experiments?
8. What are the best controlled conditions under which to study bat behaviors in response to stimuli? Are there facilities available with such conditions? If there are such facilities, are there any accessibility issues?
9. What species of interest are the highest priority for deterrents?
10. What geographical regions would be ideal for the development of controlled-environment testing facilities to help improve the chances of capturing and testing bat species of interest?
11. What length of "bat season" (e.g., June-October, May-October) is appropriate for testing bat behavioral responses to deterrent stimuli?
12. How many seasons of testing would be considered reasonable for developing deterrent stimuli testing recommendations?
13. Should this research include other types of stimuli in addition to acoustics? If so, which and based on what justification?

14. What would be the expected total annual budget for this type of research?

Category 4: *In Situ* Bat Deterrent Field-Testing Needs

15. How many seasons of testing would be considered reasonable for testing and validating new deterrent stimuli recommendations?
16. Which geographical regions should be prioritized for large-scale testing of deterrents?
17. Beyond signals, are there other research questions that must be explored with respect to deterrent effectiveness (such as placement on the wind turbine)?
18. Besides mortality monitoring, what other methods or technologies could be used to assess the effectiveness of deterrent technologies?
19. What would be the expected total annual budget for this type of research?

Category 5: Bat Deterrent Technology (Hardware) Status and Research Needs

Deterrent Users or Regulators:

20. What improvements are needed to bat deterrent hardware (nacelle, tower, hub, blade mounted, other)?
21. What challenges must be addressed for commercial use of blade mounted bat deterrent technologies?
22. Is signal flexibility (ability to easily change deterrent signal outputs – e.g., to potentially adjust signal patterns to the presence of a specific bat species, or to adjust in response to behavior findings) an important feature for commercial deterrent technologies? Please explain.

Deterrent Manufacturers / Vendors:

23. Please describe your technology in detail. What is the mechanism through which it deters bats?
24. How close to commercial deployment is your technology?
25. If not commercially ready, what broad research steps are needed to advance your technology to the point of large-scale field testing?
26. How flexible is your technology to issue different deterrent signals (either frequencies or patterns) based on behavior research findings?
27. If it is not flexible, could additional R&D support or enable such flexibility, if so how?
28. What is the appropriate amount of funding necessary to improve the reliability, maintainability, performance, or turbine integration capabilities? Over how many years?
29. What would be the expected total annual budget for this type of research?

Category 6: **BIL Provisions and Requirements**

30. How can activities or efforts that applicants conducting research under the proposed structure above contribute to the Administration's Justice-40 initiative? How best can a technology R&D program support underserved communities and minority communities?
31. What policies, infrastructure, or other considerations could be put in place to enable the provision implementation to be more successful?
32. How should the teams be asked to measure progress toward the Administration's goal of transforming the economy by 2050 to achieve net-zero emissions goals? Please be as specific as possible.
33. What regional factors should be considered when identifying and selecting applicants (e.g., geography, bat species presence, habitat type, workforce availability and skills, regional specific resources, etc.)?

Category 7: **Solicitation Process, FOA Structure, and BIL section 41007(b) Implementation Strategy**

34. DOE is evaluating funding mechanisms for the BIL section 41007(b) projects in accordance with the BIL. What applicable funding mechanisms are best suited to achieve the purposes of the BIL section 41007(b) (e.g., Cooperative Agreements,[13] Grants, Other Transactions Authority[14], prize competitions, technical assistance)?
35. What are the key review criteria (e.g., technical merit, workplan, market transformation plan, team and resources, financial, regional economic benefits, quality jobs, environmental justice, DEI) that DOE should use to evaluate and select the BIL section 41007(b) as well as evaluate readiness to move from one phase to the next?
36. What environmental reviews and permitting challenges might BIL section 41007(b) encounter?
37. Are there existing draft or final federal NEPA documents (e.g., environmental assessments and/or environmental impact statements) for similar or related proposals that could inform DOE NEPA reviews for the BIL section 41007(b)?
38. What external non-project partners/stakeholders (e.g., CBOs, DACs, tribal groups, state and local governments, economic development organizations, labor unions) will be critical to the success of the BIL section 41007(b)? What types of outreach and engagement strategies are needed to make sure these stakeholders are involved during each phase of the BIL section 41007(b)? Are there best practices for equitably and meaningfully engaging stakeholders?

[13] For more information about Cooperative Agreements, see the DOE Guide to Financial Assistance: https://www.energy.gov/management/articles/department-energy-guide-financial-assistance

[14] Agreements under the Other Transactions Authority (OTA), Section 1007 of EPAct 2005

39. What potential challenges or opportunities might exist to meet the new Buy American requirements in the BIL?[15]
40. Please identify any iron, steel, manufactured goods, or construction materials that will be crucial for building out the BIL section 41007(b) that would not typically be procured domestically. For each, please specify how BIL section 41007(b) could work to procure these items domestically, and any potential barriers to domestic procurement, such as lack of availability or cost.
41. What types of cross-cutting support (e.g., technical assistance) would be valuable from the DOE/national laboratories, and/or from other federal agencies, to provide in proposal development or project execution? Are there other entities that DOE could fund to provide technical assistance for the BIL section 41007(b)?
42. What data should DOE collect from the BIL section 41007(b) recipients to evaluate the impact of the program? How should this data and the program outcomes be disseminated to the public?

Category 8: **Employment: Expanding Union Jobs**

In keeping with the administration's goals, and as an agency whose mission is to help strengthen our country's energy prosperity, the Department of Energy strongly supports investments that expand union jobs, improve job quality through the adoption of strong labor standards, increase job access, strengthen local economies, and develop a diverse workforce for the work of building and maintaining the country's energy infrastructure and growing domestic manufacturing. The Department intends to use the BIL section 41007(b) to support the creation of good-paying jobs with the free and fair choice to join a union, the incorporation of strong labor standards, and high-road workforce development, especially registered apprenticeship and quality pre-apprenticeship. Respondents to this RFI are encouraged to include information about how this program can best support these goals.

43. In what ways, if any, do you anticipate BIL section 41007(b) could impact the workforce? For example:
    a. To what extent do you anticipate job creation, loss, or changes in job quality?
    b. To what extent do you anticipate the creation of construction jobs? Ongoing operations and maintenance jobs? Other jobs across the supply chain?
44. What activities and engagement (e.g., with minority serving institutions, community-based organizations, Tribal communities, women and minority-owned businesses, or other organizations) would make implementation of section 41007(b) successful and sustainable in terms of workforce development, worker recruitment, improved

[15] New Buy American requirements are located in Division G – Other Authorizations; Title IX – Build America, Buy America of the Infrastructure Investment and Jobs Act (IIJA), Public Law 117-58, which was enacted into law on November 15, 2021. https://www.congress.gov/bill/117th-congress/house-bill/3684

diversity, equity, inclusion, and accessibility across the workforce, and the creation of good-paying union jobs?

Category 9: **Equity, Environmental and Energy Justice (EEEJ) Priorities**

EEEJ principles and priorities will be central to the successful implementation of the BIL. Equity requires the consideration of existing barriers underserved and underrepresented individuals and communities face when accessing Federal resources. Environmental and energy justice principles include procedural justice, distributive justice, recognition justice, and restorative justice. For the purposes of this RFI, DOE has identified the following non-exhaustive list of potential policy priorities as examples to guide DOE's implementation of Justice40[16] in DACs: (1) decrease energy burden;[17,18,19] (2) decrease environmental exposure and burdens;[20] (3) increase access to low-cost capital; (4) increase the clean energy job pipeline and job training for individuals;[21] (5) increase clean energy enterprise creation (e.g., minority-owned or disadvantaged business enterprises); (6) increase energy democracy, including community ownership and other economic benefits associated with the energy transition; (7) increase parity in clean energy technology access and adoption; and (8) increase energy resilience.

Equity:

Ensuring that traditionally underserved populations, including Black, Latino, Indigenous and Native American people, Asian Americans and Pacific Islanders and other persons of color; members of religious minorities; lesbian, gay, bisexual, transgender, and queer (LGBTQ+) persons; persons with disabilities; persons who live in rural or remote areas; persons otherwise adversely affected by persistent poverty or inequality; and Historically Black Colleges and Universities (HBCUs), MSIs, and Tribal colleges and universities (TCUs), have access to Departmental programs and opportunities.

[16] The Justice40 Initiative states that 40% of the overall benefits of certain federal investments will flow to DACs, and those projects will have minimal negative impacts on communities with environmental justice concerns. The Justice40 Interim Guidance defines benefits as direct and indirect investments (and program outcomes) that positively impact disadvantaged communities and provides examples (Page 4): https://www.whitehouse.gov/wp-content/uploads/2021/07/M-21-28.pdf

[17] The Initiative for Energy Justice https://iejusa.org/glossary-and-appendix/#glossary_of_terms

[18] DOE's LEAD tool illustrates energy burden in U.S. https://www.energy.gov/eere/slsc/maps/lead-tool

[19] Drehobl, A., Ross, L., and Ayala, R. 2020. How High are Household Energy Burdens? Washington, DC: ACEEE.

[20] Tessum, C., et al., 2019. Inequity in consumption of goods and services adds to racial–ethnic disparities in air pollution exposure. Proceedings of the National Academy of Sciences.

[21] DOE's US Energy & Employment Jobs Report (USEER), https://www.energy.gov/us-energy-employment-jobs-report-useer; Department of Labor, Civilian Labor Force by Sex, https://www.dol.gov/agencies/wb/data/facts-over-time/women-in-the-labor-force

45. What information do communities, Tribal or State governments, or other stakeholders need to engage with the Department on this contemplated FOA?
46. What organizations, universities, or communities should the Department consider partnering with to develop this contemplated FOA?
47. What are the key equity-aligned review criteria that DOE should use to evaluate and select projects under this contemplated FOA?

Environmental Justice and Energy Justice

Environmental justice is the fair treatment and meaningful involvement of all people regardless of race, color, national origin, or income, with respect to the development, implementation, and enforcement of environmental laws, regulations, and policies. This goal will be achieved when everyone enjoys: (1) the same degree of protection from environmental and health hazards, and (2) equal access to the decision-making process to have a healthy environment in which to live, learn, and work. (www.epa.gov/environmentaljustice).

Energy justice refers to the goal of achieving equity in both the social and economic participation in the energy system, while also remediating social, economic, and health burdens on those disproportionately harmed by the energy system. Initiative for Energy Justice (2019).

Procedural Justice

48. How can this contemplated FOA ensure community-based stakeholders/organizations are engaged and included in the planning, decision-making, and implementation processes (e.g., including community-based organizations on the program/project/activity team)?
49. What barriers exist, if any, for deeper economic and other engagement with communities impacted by projects awarded under this contemplated FOA?

Distributive Justice

50. Please describe any issues that should be addressed to enable the equitable implementation of the contemplated FOA under Section 41007(b)(1) of the BIL?
51. What equity, energy and environmental justice concerns or priorities are most relevant for this contemplated FOA? How have/can these concerns or priorities been/be addressed?
52. How are adverse impacts currently measured or monitored, and which materials/processes/components result in the largest environmental impact? What opportunities exist to minimize impacts?
53. Describe possible human health, environmental or ecological considerations, both positive and negative (e.g., are there any air quality impacts, sensitive ecosystems,

National Environmental Policy Act (NEPA) issues, environmental justice communities, other considerations) in connection with implementation of this provision.

54. How are Tribal communities or lands impacted by this contemplated FOA?

Recognition Justice

55. What are the demographics of the area immediately surrounding the program/project/activity site and what are the characteristics of the area immediately surrounding the site (e.g., residential, industrial, Tribal, rural, urban)?

Category 10: **Market Adoption and Industry Sustainability**

56. What mechanisms (e.g., tax/other incentives, offtake structures, prizes, competitions, alternative ownership structures, contracts for difference, etc.) would be valuable to incentivize market-based supply and demand relevant to this contemplated FOA?
57. What role/actions can DOE take to support reliable supply and demand for potential producers and customers relevant to this contemplated FOA?
58. If DOE asks for a market analysis as part of the application process, what should the analysis include so that DOE can be confident that a proposed project will be successful?
59. What can DOE provide/do that would be helpful to a project to facilitate its collaborations with potential financing partners?
60. How can DOE support the applicants in working together to increase competitiveness and scale?
61. Which regional and site-specific metrics should DOE track to estimate the impact related to this contemplated FOA?
62. Other than greenhouse gas emissions, what sustainability metrics should DOE include in evaluating this contemplated FOA?
63. The DOE's goal is for the clean energy technology to be sustainable beyond the BIL funding (i.e., without additional government funding). To what extent will the section 41007(b)(1) of the BIL be capable of demonstrating a path to economic viability after the BIL funded phases and how should the FOA and project (once awarded) be structured to ensure this outcome?

Category 11: Questions related to the new Build America, Buy America requirements

64. Does any of the work relevant to this RFI involve the construction, alteration, maintenance, or repair of any of the following:
    a. Roads, highways, and bridges;
    b. Public transportation;
    c. Dams, ports, harbors, and other maritime facilities;
    d. Intercity passenger and freight railroads;
    e. Airports;

f. Water systems, including drinking water and wastewater systems;
g. Electrical transmission facilities and systems;
h. Utilities;
i. Broadband infrastructure; and
j. Buildings and real property.

65. If your answer to question 1 is yes, please identify any iron, steel, manufactured goods/products or construction materials which are crucial to this work, and whether you would normally procure those items domestically or from a foreign source.
66. For any item you indicate that you would normally procure from a foreign source, please specify to the best of your ability whether you would avoid seeking to procure these items domestically due to lack of availability or cost.

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.

Confidential Business Information

Pursuant to 10 CFR 1004.11, any person submitting information that he or she believes to be confidential and exempt by law from public disclosure should submit via email, postal mail, or hand delivery two well-marked copies: one copy of the document marked “confidential” including all the information believed to be confidential, and one copy of the document marked “non-confidential” with the information believed to be confidential deleted. Submit these

documents via email or on a CD, if feasible. DOE will make its own determination about the confidential status of the information and treat it according to its determination.

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.

Request for Information Response Guidelines

Responses to this RFI must be submitted electronically to WETOBATRFI@ee.doe.gov no later than 5:00pm (ET) on **September 16, 2022**. 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) or PDF attachment to the email, and **no more than 10 pages in length**, 12-point font, 1-inch margins. Only electronic responses will be accepted.

For ease of replying and to aid categorization of your responses, **please copy and paste the RFI questions, including the question numbering, and use them as a template for your response.** 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.

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.

This is a Request for Information (RFI) only. EERE will not pay for information provided under this RFI and no project will be supported as a result of this RFI. This RFI is not accepting applications for financial assistance or financial incentives. EERE may or may not issue a Funding Opportunity Announcement (FOA) based on consideration of the input received from this RFI.