

## Notice of Intent No. DE-FOA-0002677

### Notice of Intent to Issue Funding Opportunity Announcement No. DE-FOA-0002678

The Office of Energy Efficiency and Renewable Energy (EERE) in collaboration with the Office of Fossil Energy and Carbon Management intends to issue, on behalf of the Vehicle Technologies Office, a Funding Opportunity Announcement (FOA) entitled “Bipartisan Infrastructure Law Battery Materials Processing and Battery Manufacturing Funding Opportunity Announcement”.

The Biden Administration has laid out a bold agenda to address the climate crisis and build a clean and equitable energy economy that achieves carbon pollution free electricity by 2035, and puts the United States on a path to achieve net-zero emissions, economy-wide, by no later than 2050<sup>1</sup> to the benefit of all Americans.

Batteries are a critical element to decarbonizing our economy and national competitiveness—for grid storage, for the resilience of homes and businesses, and for electrification of the transportation sector. President Biden’s [Executive Order on America’s Supply Chains](#) directed the Department of Energy (DOE) to produce a report identifying the risks in the current and forecasted battery supply chain landscape and policy recommendations to address them. The [Building Resilient Supply Chains, Revitalizing American Manufacturing, and Fostering Broad-Based Growth 100-Day Reviews under Executive Order 14017](#) report assesses vulnerabilities and opportunities across four key products including high-capacity batteries. The [National Blueprint for Lithium Batteries](#), a report developed by the Federal Consortium for Advanced Batteries<sup>2</sup>, lays out five critical goals and key actions to guide federal agency collaboration to secure the nation’s long-term economic competitiveness and create good-paying jobs for American workers, while supporting the Biden Administration’s decarbonization goals.

With the demand for electric vehicles (EVs) and stationary storage alone projected to increase the size of the lithium battery market five- to ten-fold by the end of the decade, it is essential that the United States invests in accelerating the development of a resilient supply chain for high-capacity batteries.

The Infrastructure Investment and Jobs Act ([Public Law 117-58](#)), also known as the Bipartisan Infrastructure Law (BIL), is a once-in-a-generation investment in infrastructure, which will grow a more sustainable, resilient, and equitable economy through enhancing U.S. competitiveness in the world, creating good jobs, and ensuring access to these economic benefits for

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<sup>1</sup> Executive Order 14008, “Tackling the Climate Crisis at Home and Abroad,” January 27, 2021.

<sup>2</sup> The Federal Consortium for Advanced Batteries (FCAB) provides a framework for cooperation and coordination among federal agencies having a stake in developing advanced battery technology and establishing a domestic supply of lithium batteries. The FCAB is led by the Departments of Energy, Defense, Commerce, and State and includes many organizations across the government.

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underserved communities. The BIL appropriates more than \$62 billion to DOE<sup>3</sup> to deliver a more equitable clean energy future for the American people by

- Investing in American manufacturing and 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.

The BIL will **invest more than \$7 billion in the batteries supply chain over the next five years**. This includes sustainable sourcing and processing of the critical minerals used in battery production without new extraction or mining all the way through end-of-life battery collection and recycling.

The anticipated FOA and any related activities support BIL sections 40207 (b) & (c). The sections are aimed at:

- ensuring that the United States has a viable battery materials processing industry to supply the North American battery supply chain;
- expanding the capabilities of the United States in advanced battery manufacturing;
- enhancing national security by reducing the reliance of the United States on foreign competitors for critical materials and technologies;
- enhancing the domestic processing capacity of minerals necessary for battery materials and advanced batteries; and
- ensuring that the United States has a viable domestic manufacturing and recycling capability to support and sustain a North American battery supply chain.

As part of the whole-of-government approach to advance equity across the Federal Government<sup>4</sup>, and in alignment with sections 40207 (b) & (c), this FOA and any related activities will seek to encourage meaningful engagement and participation of underserved communities and underrepresented groups including Tribes. Consistent with Executive Order 14008, the FOA will be designed to ensure that 40% of the benefits of the overall investments provided through the FOA will be delivered to underserved and overburdened communities (in accordance with the Justice40 Initiative. Pursuant to BIL Section 40207(b), the Department will take into consideration whether projects selected under the FOA: provide workforce opportunities in

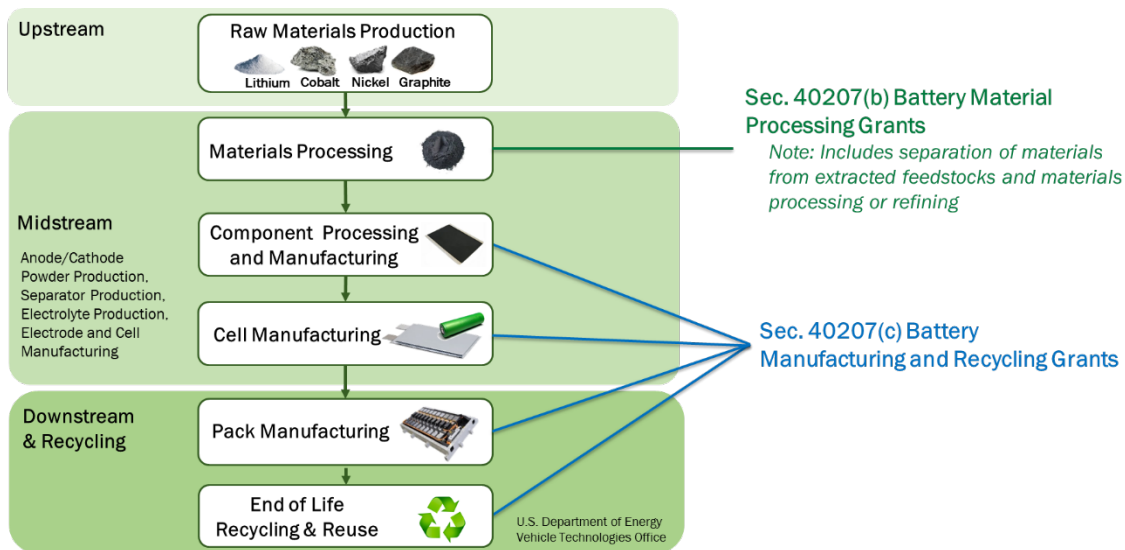
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<sup>3</sup> U.S. Department of Energy. November 2021. "DOE Fact Sheet: The Bipartisan Infrastructure Deal Will Deliver For American Workers, Families and Usher in the Clean Energy Future." <https://www.energy.gov/articles/doe-fact-sheet-bipartisan-infrastructure-deal-will-deliver-american-workers-families-and-0>

<sup>4</sup> Executive Order 13985, "Advancing Racial Equity and Support for Underserved Communities Through the Federal Government" (Jan. 20, 2021)

low- and moderate-income communities; encourage partnership with universities and laboratories to spur innovation and drive down costs; partner with Tribes; and take into account greenhouse gas emissions reductions and energy efficient battery material processing opportunities throughout the manufacturing process and supply chain logistics. Similarly, pursuant to BIL Section 40207(c), the Department shall take into consideration whether a project provides workforce opportunities in low- and moderate-income or rural communities; provides workforce opportunities in communities that have lost jobs due to the displacements of fossil energy jobs; encourages partnership with universities and laboratories to spur innovation and drive down costs; partners with Tribes; and takes into account greenhouse gas emissions reductions and energy efficient battery material processing opportunities throughout the manufacturing process and supply chain logistics.

The high-capacity battery supply chain consists of five main steps including: 1) raw material production, 2) materials processing including material refinement and processing, 3) battery material manufacturing and cell fabrication, 4) battery pack and end use product manufacturing, and 5) battery end-of-life and recycling. The graphic below shows how these five steps relate to the BIL investments in the battery supply chain.



It is anticipated that the FOA would provide approximately \$2.8 billion to fund research and development within electric vehicle battery processing, increase domestic battery manufacturing, and create good-paying clean energy jobs. The overall scope in this NOI includes demonstrations and commercial facilities for battery-grade precursor materials, battery components, and cell manufacturing and recycling. Applicants should consider and identify potential downstream domestic customers of their material or product.

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It is anticipated that the FOA may include the following Areas of Interest:

**Battery Material Processing Grants as per 40207 (b)(3)(A)**

The Areas of Interest below are directed to 40207 (b)(3)(A), which are subject to funding limitations prescribed in 40207 (b)(3)(B). These funding limitations are summarized below:

	<b>Area of Interest</b>	<b>The award shall not be less than:</b>	<b>Sections of Law Referenced</b>
New commercial-scale battery material processing facilities in the United States	1, 2, & 3	\$100,000,000	40207 (b)(3)(A)(ii) & (B)(ii)
Projects to retool, retrofit, or expand 1 or more existing battery material processing facilities located in the United States and determined qualified by the Secretary	1, 2, & 3	\$50,000,000	40207 (b)(3)(A)(iii) & (B)(iii)
Demonstration projects in the United States for the processing of battery materials	4, 5	\$50,000,000	40207 (b)(3)(A)(i) & (B)(i)

**Area of Interest 1 – Commercial-scale Domestic separation of battery materials from extracted feedstocks for Cathode Production**

The objective of this area of interest is to create a commercially sustainable battery precursor market for cathode production from extracted feedstocks. This critical gap in the supply chain provides an entry point for both mined and recycled battery materials, creates supply chain resilience, and adds to the overall value chain for the electric vehicle sector.

Sources in this area of interest can come from both geologic deposits as well as unconventional sources including but not limited to coal mine tailings and acid drainage and should produce battery-grade precursors as an output. (40207 (b)(3)(A)(ii-iii))

**Area of Interest 2 – Commercial-scale Domestic Production of Battery Grade Graphite from Synthetic and Natural Feedstocks**

The objective of this area of interest is to create a sustainable domestic industry for graphite anode production from natural and synthetic sources. Graphite is the current anode material choice for the vast majority of lithium ion batteries in production today across all major

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applications and is expected to have strong market viability for the foreseeable future. Due to the minimal processing from precursor to component, this area of interest includes the graphitization and spheroidization steps as well to create graphite anode powder from high purity graphite. (40207 (b)(3)(A)(ii-iii))

### **Area of Interest 3 – Commercial-scale Domestic Battery Materials Extraction and Processing Open Topic**

The objective of this area of interest is to support domestic production of commercially sustainable battery precursor materials not covered in area of interest 1 and 2. Competitive submissions should identify their proposed scale, timeline, and economic projections, as well as identify upstream feedstock and downstream supply markets for their proposed battery precursor material. (40207 (b)(3)(A)(i-iii))

### **Area of Interest 4 – Demonstrations of Domestic Separation and Production of Battery-grade Materials from Unconventional Domestic Sources**

The objective of this area of interest is to accelerate the commercialization of separation and extraction technologies to capitalize on the potential from unconventional domestic sources through large-scale demonstration projects. This comes in a variety of deleterious materials and sources, such as mine tailings, coal ash, and drainage ponds, among others. (40207 (b)(3)(A)(i))

### **Area of Interest 5 – Demonstrations of Domestic Battery Materials Separation and Processing Open Topic**

The objective of this area of interest is to support large-scale demonstration projects of advanced processes with the potential to improve yield and decrease cost, energy, water usage, and emissions related to the production of precursor materials. Competitive submissions should identify their proposed scale, timeline, and economic projections, as well as identify upstream feedstock and downstream supply markets for their proposed battery precursor material. (40207 (b)(3)(A)(i))

### **Battery Component Manufacturing and Recycling as per 40207 (c)(3)(A)**

Consistent with the goals of the Bipartisan Infrastructure Law (BIL) the AOIs under 40207(c) intend to fund projects that promote the use of more clean energy, create new, good-paying jobs, and lower costs for American families and workers by guiding the Nation towards a 100% carbon pollution-free electricity sector by 2035 and net-zero economy by 2050. Specifically, the AOIs within 40207(c) will ensure that the United States has a viable domestic manufacturing and recycling capability to support and sustain a North American battery supply chain. The Battery Component Manufacturing and Recycling section will focus on commercial scale battery cell, cathode, separator, and silicon-based anode production facilities and demonstrating

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manufacturing production facilities for new manufacturing processes or techniques. The proposed technologies must be capable of being used in an advanced battery that will be used in electric vehicles and the electric grid.

The Areas of Interest below are directed to 40207 (c)(3)(A), which are subject to the funding limitations prescribed in 40207 (c)(3)(B). These funding limitations are summarized below:

	<b>Area of Interest</b>	<b>The Award shall not be less than:</b>	<b>Sections of Law Referenced</b>
New commercial-scale advanced battery component manufacturing, advanced battery manufacturing, or recycling facilities in the United States	6, 7, 8, 9, 10, & 11	\$100,000,000	40207 (c)(3)(A)(ii) & (B)(ii)
Projects to retool, retrofit, or expand 1 or more existing facilities located in the United States and determined qualified by the Secretary for advanced battery component manufacturing, advanced battery manufacturing, and recycling	6, 7, 8, 9, 10, & 11	\$50,000,000	40207 (c)(3)(A)(iii) & (B)(iii)
Demonstration projects for advanced battery component manufacturing, advanced battery manufacturing, and recycling	12	\$50,000,000	40207 (c)(3)(A)(i) & (B)(i)

**Area of Interest 6 - Commercial-scale Domestic Battery Cell Manufacturing**

The objective of this area of interest is to build new manufacturing plants or to retool, retrofit, or expand existing manufacturing plant(s) in the United States that can produce lithium ion battery cells capable of being integrated into a module, pack, or system that can be used in electric vehicles and/or electric grid energy storage applications. (40207 (c)(3)(A)(ii-iii))

**Area of Interest 7 - Commercial-scale Domestic Battery Cathode Manufacturing**

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The objective of this area of interest is to build new manufacturing plants or to retool, retrofit, or expand existing manufacturing plant(s) in the United States that can produce lithium ion cathode powder that can be used in advanced battery cells capable of being integrated into a module, pack, or system that can be used in electric vehicles and/or electric grid energy storage applications. (40207 (c)(3)(A)(ii-iii))

#### **Area of Interest 8 - Commercial-scale Domestic Battery Separator Manufacturing**

The objective of this area of interest is to build new manufacturing plants or to retool, retrofit, or expand existing manufacturing plant(s) in the United States that can produce lithium ion battery separator materials that can be used in advanced battery cells capable of being integrated into a module, pack, or system that can be used in electric vehicles and/or electric grid energy storage applications. (40207 (c)(3)(A)(ii-iii))

#### **Area of Interest 9 - Commercial-scale Domestic Next Generation Silicon Anode Active Materials and Electrodes**

The objective of this area of interest is to build new manufacturing plants or to retool, retrofit, or expand existing manufacturing plant(s) in the United States that can produce silicon anode active material or silicon containing electrodes. The silicon material or electrode should be used in advanced battery cells capable of being integrated into a module, pack, or system that can be used in electric vehicles and/or electric grid energy storage applications. (40207 (c)(3)(A)(ii-iii))

#### **Area of Interest 10 - Commercial-scale Domestic Battery Component Manufacturing Open Topic**

The objective of this area of interest is to build new manufacturing plants or to retool, retrofit, or expand existing manufacturing plant(s) in the United States that can produce lithium based battery components that were not addressed in other AOIs. The battery components should be used in advanced battery cells capable of being integrated into a module, pack, or system that can be used in electric vehicles and/or electric grid energy storage applications. The lithium-based battery components could include enhancements, enclosures, electrolytes, and other associated technologies that comprise an advanced battery. (40207 (c)(3)(A)(ii-iii))

#### **Area of Interest 11 - Commercial-scale Domestic Battery Recycling**

The objective of this area of interest is to build new manufacturing plants or to retool, retrofit, or expand existing manufacturing plant(s) in the United States for battery recycling facilities. All recycling processes will be considered, provided they are able to produce battery-grade feedstock as a product. For those processes that produce intermediate products as an output, applicants should identify potential domestic partners to produce battery grade precursor material. (40207 (c)(3)(A)(ii-iii))

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**Area of Interest 12 – Domestic Battery Cell and Component Manufacturing Demonstration Topic**

The objective of this area of interest is to build a manufacturing large-scale demonstration facility for the processing of battery cells, materials, or components. The facility will introduce new manufacturing processes or techniques that have never been utilized at scale for the EV and electric grid market. The area of interest will prioritize next generation battery chemistry and/or cost savings achieved through the novel manufacturing processes implemented. (40207 (c)(3)(A)(i))

EERE envisions awarding multiple financial assistance awards in the form of grants. The estimated period of performance for each award will be approximately 3 – 4 years.

All prime recipients receiving funding under this anticipated FOA must be incorporated (or otherwise formed) under the laws of a state or territory of the United States and have a physical location for business operations in the United States. If a foreign entity applies for funding as a prime recipient, it must designate in the Full Application a subsidiary or affiliate incorporated (or otherwise formed) under the laws of a state or territory of the United States to be the prime recipient. The Full Application must state the nature of the corporate relationship between the foreign entity and domestic subsidiary or affiliate. Waivers to these requirements will not be accepted.

This Notice is issued so that interested parties are aware of the EERE's intention to issue this FOA in the near term. All of the information contained in this Notice is subject to change.

EERE plans to issue the FOA on or about April-May 2022 via the EERE Exchange website <https://eere-exchange.energy.gov/>. If Applicants wish to receive official notifications and information from EERE regarding this FOA, they should register in EERE Exchange. When the FOA is released, applications will be accepted only through EERE Exchange.

TEAMING PARTNER LIST: DOE is compiling a Teaming Partner List to facilitate the formation of new project teams for this potential FOA. 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 EERE Exchange website. The Teaming Partner List will be regularly updated to reflect new teaming partners who have provided their organization's teaming partner information.
- SUBMISSION INSTRUCTIONS: Any organization that would like to be included on this list should submit the following information: Organization Name, Contact Name, Contact

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Address, Contact Email, Contact Phone, Organization Type, Area of Technical Expertise, Brief Description of Capabilities, and Area of Interest. Interested parties should email the information to [DE-FOA-0002678@netl.doe.gov](mailto:DE-FOA-0002678@netl.doe.gov) with the subject line "Teaming Partner Information."

- *DISCLAIMER: By submitting a request to be included on the Teaming Partner List, the requesting organization consents to the publication of the above-referenced information. By enabling and publishing the Teaming Partner List, DOE is not endorsing, sponsoring, or otherwise evaluating the qualifications of the individuals and organizations that are self-identifying themselves for placement on this Teaming Partner List. DOE will not pay for the provision of any information, nor will it compensate any applicants or requesting organizations for the development of such information.*

In anticipation of the FOA being released, Applicants are advised to complete the following steps, which are **required** for application submission:

- Register and create an account in EERE Exchange at <https://eere-exchange.energy.gov/>. This account will allow the user to register for any open EERE FOAs that are currently in EERE Exchange. It is recommended that each organization or business unit, whether acting as a team or a single entity, use only one account as the contact point for each submission.

Questions related to the registration process and use of the EERE Exchange website should be submitted to: [EERE-ExchangeSupport@hq.doe.gov](mailto:EERE-ExchangeSupport@hq.doe.gov)

- Obtain a Dun and Bradstreet Data Universal Numbering System (DUNS) number (including the plus 4 extension, if applicable) at <http://fedgov.dnb.com/webform>
- Register with the System for Award Management (SAM) at <https://www.sam.gov>. Designating an Electronic Business Point of Contact (EBiz POC) and obtaining a special password called an MPIN are important steps in SAM registration. Please update your SAM registration annually.
- Register in FedConnect at <https://www.fedconnect.net/>. To create an organization account, your organization's SAM MPIN is required. For more information about the SAM MPIN or other registration requirements, review the FedConnect Ready, Set, Go! Guide at [https://www.fedconnect.net/FedConnect/Marketing/Documents/FedConnect\\_Ready\\_Set\\_Go.pdf](https://www.fedconnect.net/FedConnect/Marketing/Documents/FedConnect_Ready_Set_Go.pdf)
- Register in Grants.gov to receive automatic updates when Amendments to a FOA are posted. However, please note that applications will not be accepted through Grants.gov. <http://www.grants.gov>. All applications must be submitted through EERE Exchange.
- Due to the unique and unprecedented nature of the BIL, EERE will accept questions concerning this Notice ([DE-FOA-0002678@netl.doe.gov](mailto:DE-FOA-0002678@netl.doe.gov)). Submitted questions and answers will be posted in EERE Exchange website.

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