

### Demonstration

## PROJECT NAME: Plasma Low-cost Ultra Sustainable Cathode Active Material (PLUS CAM)

APPLICANT: 6k Inc

Federal Cost Share: \$50,000,000

Recipient Cost Share: \$57,395,080

Supply Chain Segment: Component Manufacturing (Cathode)

### Project Description:

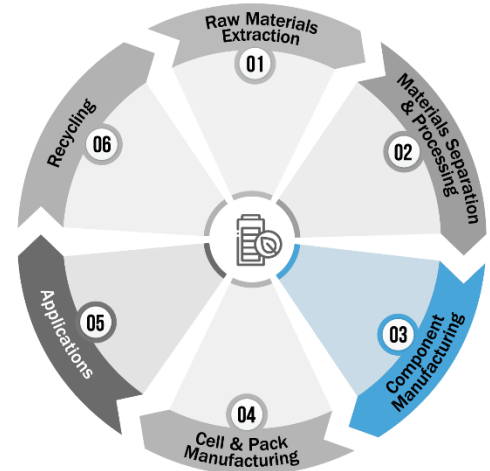
6K Inc. plans to demonstrate the ability to domestically produce multiple battery chemistries namely NMC811 and lithium iron phosphate (LFP) in a plant with the capacity of 3,000 tpa (tonnes per annum) ready for production in 2025 scaling to 10,000 tpa in 2026 using its patented 6K's UniMelt® microwave plasma processing technology. This project will be led by industry veteran Dr. Richard Holman as the principal investigator.

The demonstration plant will produce NMC811 generating zero waste and 70% less greenhouse gases by using only 10% of the water and 30% of the energy versus traditional battery material production methods. LFP will also provide environmental benefits while production costs for both materials will be significantly lower than materials sourced from China. 6K will demonstrate the ability to control feedstock sources domestically freeing the U.S. from its current dependence on conflict nations by upcycling recycled materials sourced from end-of-life batteries followed by the digestion of 6K's own metals.

6K's UniMelt microwave technology leverages a 6000 Kelvin excited plasma species to create a highly uniform, highly reactive production zone which enables the synthesis of materials at rates far greater than today's conventional methods. Additionally, the UniMelt's design flexibility can produce a much broader spectrum of battery chemistries with precise control over particle size and morphology. Finally, UniMelt technology enables a 6K plant to produce an equivalent amount of battery materials while reducing the factory footprint by 50% and lowering capital investments by up to 30% versus conventional methods.

### Community Benefits:

This U.S.-based high-tech demonstration plant will employ a workforce of up to 150, including a minimum of 40% of new employees coming from disadvantaged communities and being paid wages higher than the prevailing rate. Diversity, equity, inclusion, and accessibility principles are incorporated into all aspects of the project and 6K will work with local and regional workforce development agencies to create training and intern programs with high schools, technical and community colleges, and local universities. Final sites are in the Southeastern U.S. and final site selection is scheduled to be completed in December 2022.



### Commercialization

#### **PROJECT NAME:**

**Kings Mountain Lithium Materials Processing Plant**

**APPLICANT: Albemarle U.S. Inc.**

**Federal Cost Share: \$149,658,312**

**Recipient Cost Share: \$225,866,921**

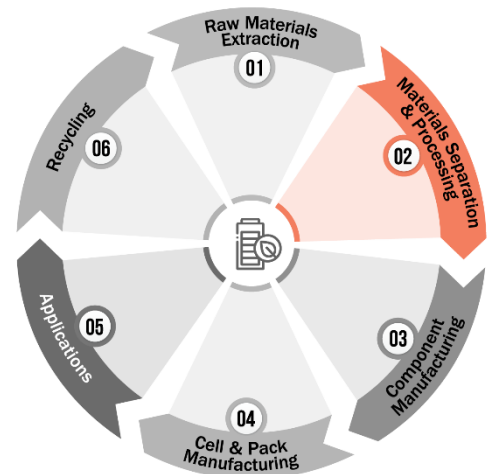
**Supply Chain Segment:** Materials Separation & Processing (Cathode Minerals)

#### **Project Description:**

The project objective is to construct a new, commercial-scale U.S.-based lithium materials processing plant at Kings Mountain, North Carolina, that uses sustainably extracted spodumene minerals from the site's lithium mine. This investment would allow Albemarle to process 8,000 tons per day (2.7 million tons per annum) of spodumene ore through a plant designed to produce 1,150-1,200 tons per day (~350,000 tons per annum) of 5.5-6.0% Li<sub>2</sub>O spodumene concentrate. Such a plant would feed a 50,000 metric ton per year conversion plant to produce battery grade lithium hydroxide to support domestic manufacturing of the lithium-ion battery cells to power 750,000 electric vehicles per year. Albemarle is finalizing the site selection for the lithium hydroxide conversion plant in the southeastern United States.

#### **Community Benefits:**

The project's infrastructure and associated jobs will help create a cornerstone of the U.S.-based lithium battery supply chain and provide critical support for the electric vehicle market. The 200+ full-time highly skilled jobs in mineral processing will be located in Kings Mountain, supported by a dedicated mineral processing operator training program at Cleveland Community College through a \$5M grant, a minerals lab research program at Virginia Tech through a \$1.5M grant, and a minerals pilot plant and engineering training program at North Carolina State University's Asheville Minerals Research Lab through a \$1.5M grant.



### Commercialization

## PROJECT NAME: Large-Scale Demonstration of Domestic Manufacturing of Low-Cost and Low-Environmental Impact Battery-Grade Lithium Hydroxide from Unconventional Domestic Sedimentary Resources

**APPLICANT: American Battery Technology Company**

**Federal Cost Share: \$57,744,831**

**Recipient Cost Share: \$57,744,831**

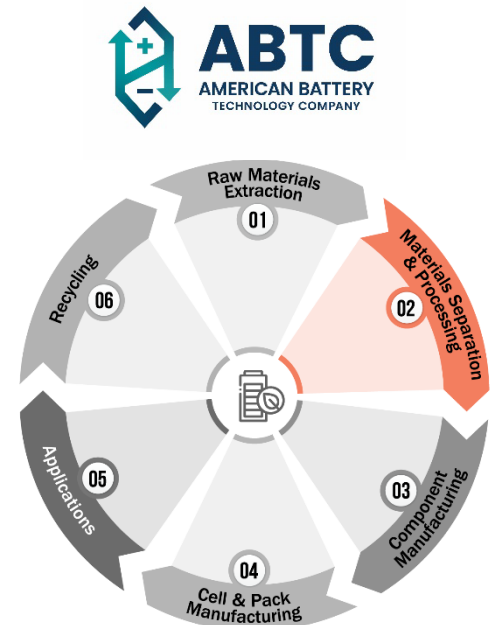
**Supply Chain Segment: Materials Separation & Processing (Cathode Minerals)**

### **Project Description:**

American Battery Technology Company (ABTC) and partners will build, and operate a commercial-scale facility to demonstrate its novel process for manufacturing battery cathode grade lithium hydroxide (LiOH) from unconventional Nevada-based lithium-bearing sedimentary resources. Through this demonstration, the domestic-U.S. lithium resource base can be expanded and create a more resilient U.S. battery manufacturing supply chain. ABTC has secured over 10,000 acres of these lithium-bearing sedimentary resources near Tonopah, NV, and its project team has been performing work under an existing grant award from the U.S. Department of Energy's Advanced Manufacturing Office (AMO) to demonstrate this process in an integrated multi-ton per day field demonstration system. With the support of this Bipartisan Infrastructure Law grant award, a 5,000 MT (metric tonnes) LiOH/year commercial processing plant will be constructed and operated at this resource site, with the capacity of the facility to subsequently be expanded to 30,000 MT LiOH/year.

### **Community Benefits:**

The project's community impact approach has been driven by an imperative and responsibility to develop domestically sourced lithium resources in a sustainable and ethical fashion. The disruptive step-change reduction in environmental impact compared to conventional processing methods allows for significant positive economic and social impacts for the host region and surrounding areas, without the negative impacts experienced with conventional processing facilities. This will create over 150 new skilled regional jobs and foster local community-improvements through an environment and equity focused micro-grants program. Building off a current partnership in place with the University of Nevada - Reno, ABTC will work to expand STEM-based education for disadvantaged communities and increase student internship opportunities. This program will work to develop the next generation of diverse scientists and engineers that will continue innovating for future generations. ABTC has been an active member in the community for many years and is proud to have received support from the Tonopah Development Corporation, as well as the Southwest Central Regional Economic Development Authority (SWCREDA) detailing the impacts that our increased activity in the area will generate with our underrepresented partners.



# Bipartisan Infrastructure Law: Battery Materials Processing and Battery Manufacturing



## Demonstration

**PROJECT NAME:** Large scale manufacturing of silicon nanowire anode electrodes by direct gas-to-electrode manufacturing

**APPLICANT:** Amprius

**Federal Cost Share:** \$50,000,000

**Recipient Cost Share:** \$140,103,890

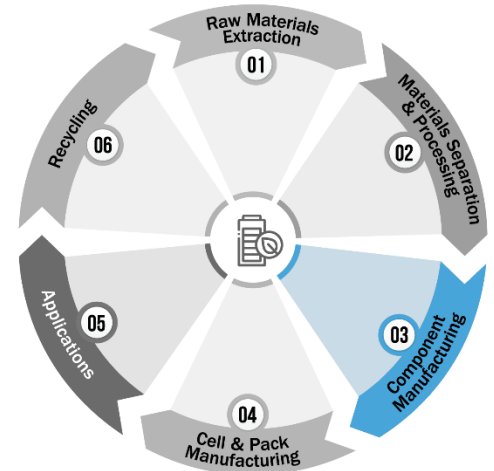
**Supply Chain Segment:** Component Manufacturing (Electrodes)

## **Project Description:**

The objective of this program is to demonstrate the manufacturing of silicon nanowire anode technology at the component and cell level on multi-megawatt-hour (MWh)-scale manufacturing lines that are comparable to those used in multi-gigawatt-hour (GWh) factories. This demonstration will install and operate the first of its kind large scale production lines for Amprius' ultra-high-energy-density battery technology and provide a bottom-up analysis of the cost factors of the demonstration line and product performance associated with the factory output. The current level of battery performance, based on low-volume pilot production, indicates that Amprius will be able to deliver cells using the proprietary anode technology that have a specific energy and energy density that are at least 50% higher, and have lower projected cost than equivalent graphite cells. Amprius' silicon anode manufacturing process leverages the global supply chain, with U.S. based materials input (silane gas) produced at large enough scale to support anode production equivalent to many GWhs of batteries. The scale-up of silicon nanowire anode and cell fabrication for high volume production is one of the most important steps needed for maturing this technology and bringing its benefits to the electrification of transportation and to society in general.

## **Community Benefits:**

Amprius is committed to diversity, equity and inclusion (DEI) efforts and has a plan that includes creating 332 new jobs wherever the project is ultimately located, with approximately 300 positions sourced locally with a recruiting emphasis in disadvantaged communities.



### Commercialization

## PROJECT NAME: Anovion: Scaling the Domestic, US Owned and Operated Anode Supply Chain for Synthetic Graphite

APPLICANT: Anovion LLC

Federal Cost Share: \$117,000,000

Recipient Cost Share: \$294,000,000

Supply Chain Segment: Materials Separation & Processing (Anode Materials)

### Project Description:

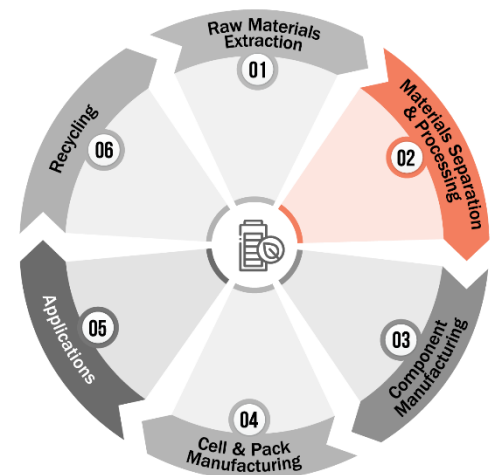
Anovion, with its partners, collaborators and stakeholders, will build 35,000 tons per annum of new synthetic graphite anode material capacity for lithium-ion batteries used in electric vehicles and critical energy storage applications. This U.S.-owned and operated, state-of-the-art manufacturing plant in northern Alabama will be the first of its size in North America. Anovion's selected site has critical infrastructure in place that will allow for an accelerated timeline for the construction of the facility. This project will expand Anovion's existing manufacturing capacity in Sanborn, NY – notably the only qualified U. S. source of battery-grade synthetic graphite commercially shipping product today – creating over 300 high-quality clean energy jobs in communities impacted by offshoring.

This project expands and builds upon Anovion's existing investments in process technology, product development, employees and communities all working to secure and decarbonize the lithium-ion battery supply value chain. Through this project, Anovion will invest in large-scale battery materials manufacturing and strengthen the domestic lithium-ion battery supply chain critical to multiple industries – including electric vehicles, energy storage systems, personal e-mobility, medical devices, military, and aerospace, as well as other industrial applications.

### Community Benefits:

Anovion is committed to creating a meaningful, positive impact on the environment, the communities where we operate, the people we employ and the broader clean-energy economy. Anovion's corporate framework, Graphite for Good™, lays the foundation for our health and safety; sustainability; corporate responsibility; and diversity, equity, and inclusion activities. In partnership with community organizations like Niagara County and State University of New York (SUNY) - University of Buffalo, Anovion will advance degree attainment programs targeted towards disadvantaged communities (DAC). This includes scholarships, tuition assistance, STEM programs, and apprenticeships through local and nationally recognized workforce development programs such as the Federation for Advanced Manufacturing Education (FAME). Furthermore, Anovion offers a range of benefits, aimed at employee development and removing barriers for success in advanced manufacturing jobs.

**ANOVION™**  
BATTERY MATERIALS



### Commercialization

**PROJECT NAME: Advanced Prelithiation and Lithium Anode Manufacturing Facility**

**APPLICANT: Applied Materials, Incorporated**

**Federal Cost Share: \$100,000,000**

**Recipient Cost Share: \$124,010,435**

**Supply Chain Segment: Component Manufacturing (Electrodes)**

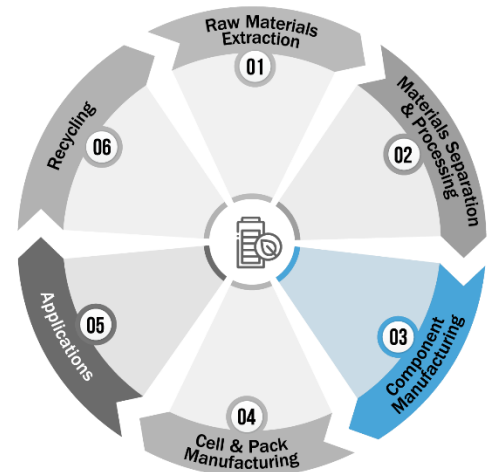
### **Project Description:**

Applied Materials, Inc. intends to set up an advanced prelithiation and lithium anode manufacturing facility to accelerate the transition to next-generation lithium-ion (Li-ion) batteries and enable the development of a robust U.S. battery component supply chain. The proposed facility will support industrial-scale production of advanced lithiated anodes for multiple battery cell makers and automobile manufacturers. Nameplate production capacity of the factory would be >5GWh (gigawatt-hour) to meet customer demand. Under currently funded programs by the Department of Energy and the United States Advanced Battery Consortium, Applied Materials has developed a scalable, high-volume manufacturing roll-to-roll solution that provides customers with high-quality, ultra-thin lithium films for pre-lithiation of graphite or silicon anodes as well as lithium metal anodes. It has been demonstrated that these advanced anodes can be paired with any commercial cathode material, resulting in significant improvements in cell energy density, power density, cycle life and charge rate.

Applied Materials, together with its partners, suppliers, and customers, will work to establish U.S. leadership in battery technology, manufacturing, and supply chain for electrification of automotive drivetrains and renewable power energy storage. This initial facility aims to enhance Li-ion battery performance, help establish global leadership, and create sustained economic benefits as contemplated in the Bipartisan Infrastructure Law.

### **Community Benefits:**

Applied Materials values what matters to employees and the communities where the company operates. Applied Materials transforms its values into location-based action through equity-centered community engagement efforts. As at its other U.S. locations, the company's presence will create quality employment opportunities and benefit the local community (e.g., education, food banks). Applied Materials anticipates hiring ~90 full-time employees and ~350-400 contingent workers including construction-related jobs.



### Commercialization

## PROJECT NAME: Apex – Integrated Sustainable Battery Precursor APPLICANT: Ascend Elements



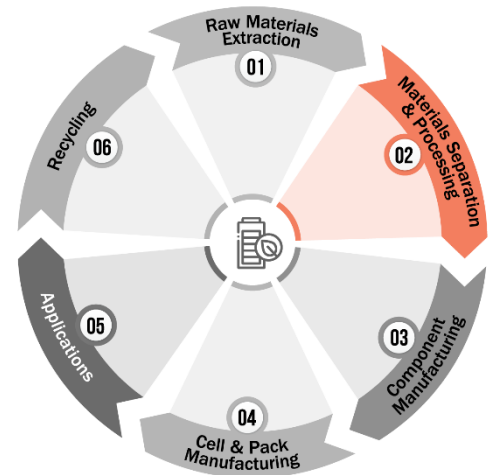
Federal Cost Share: \$316,186,575

Recipient Cost Share: \$316,186,575

Supply Chain Segment: Materials Separation & Processing (Cathode Minerals)

### Project Description:

Ascend Elements will establish industrial scale U.S. production capacity of sustainable, low-cost precursor cathode materials by integrating the separation of critical cathode materials from spent lithium-ion batteries (LiBs) with the production of both precursor cathode active materials (pCAM) and metal salts to support domestic production of cathode active material (CAM). CAM can then be used in new LiBs for electric vehicles (EV) and energy storage systems (ESS). Using Ascend Elements' proprietary and established Hydro-to-Cathode™ direct precursor synthesis process technology, developed in the U.S., the new proposed “Apex” facility will be the first domestic, commercial-scale, integrated metal extraction and pCAM facility in the United States. It will produce enough material to supply over 250,000 electric vehicles annually.



Ascend Elements will plan, design, and build Apex 1 on an existing greenfield site in Hopkinsville, a disadvantaged community (DAC) in southwestern Kentucky. This facility will consist of multiple manufacturing buildings, office space and a warehouse, as well as support infrastructure including a rail spur, unloading/loading stations and holding tanks. The construction process will use established and approved processes for building new manufacturing sites.

### Community Benefits:

The project will generate \$4.4 billion in total economic impact during its three-year construction period and over the first 10 years of operation. It will enable sourcing of critical battery materials from within the U.S. and reduce the dependence on foreign material suppliers. It will jumpstart the creation of a sustainable, secure LiB economy in the U.S. The project will create more than 270 quality, good-paying jobs that offer benefits such as healthcare and stock options. Ascend Elements also plans to offer community benefits such as workforce training and education, affordable childcare, and affordable transportation initiatives to raise equity levels in the greater Hopkinsville community. Together, these efforts will help revitalize the workforce and the economy of the greater Hopkinsville community for decades to come, while significantly strengthening the U.S. lithium-ion battery industry.

### Commercialization

**PROJECT NAME:** Apex – Integrated Sustainable Battery Active Material Production Plant  
**APPLICANT:** Ascend Elements, Inc.



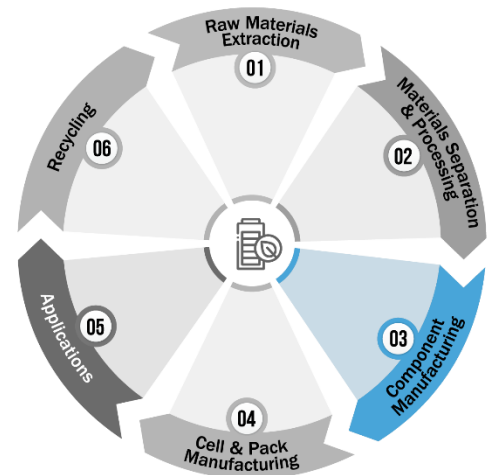
**Federal Cost Share:** \$164,395,625

**Recipient Cost Share:** \$164,395,625

**Supply Chain Segment:** Component Manufacturing (Cathode)

### **Project Description:**

Ascend Elements will plan, design, and construct a cathode active materials (CAM) plant at a greenfield site in Hopkinsville, Kentucky, and install all manufacturing equipment. The CAM plant will consist of a manufacturing building and the processing equipment necessary to convert precursor materials into CAM, the highest value component in a lithium-ion battery. Using established and approved processes for building new manufacturing plants, Ascend Elements will design and procure the manufacturing equipment needed based on its operational manufacturing pilot plant in Novi, MI, install the equipment, and bring the CAM plant to full production by the end of the 36-month project period, producing enough material to supply more than 250,000 electric vehicles annually.



### **Community Benefits:**

The CAM project will create \$299M in economic impact during construction and \$123M per year in ongoing activity. It will enable sourcing of critical battery materials from within the U.S. and reduce the dependence on foreign materials and foreign cathode material suppliers. It will jumpstart the creation of a sustainable, secure American lithium-ion battery economy. The CAM plant at Apex will also create over 130 high-quality, good-paying jobs and offer benefits such as healthcare and stock options. Ascend Elements also plans to offer community benefits such as workforce training and education, affordable childcare, and affordable transportation initiatives to raise equity levels in the greater Hopkinsville community. Together, these efforts will help revitalize the workforce and the economy of the greater Hopkinsville community for decades to come, while significantly strengthening the US lithium-ion battery industry.



### Commercialization

## **PROJECT NAME: North America Expansion Plan Lancaster, OH Plant Expansion – Lithium-Ion Battery Recycling to Produce Battery-Grade Raw Materials**

**APPLICANT: Cirba Solutions (previously Retrieval Solutions, LLC)**

**Federal Cost Share: \$74,999,925**

**Recipient Cost Share: \$107,515,014**

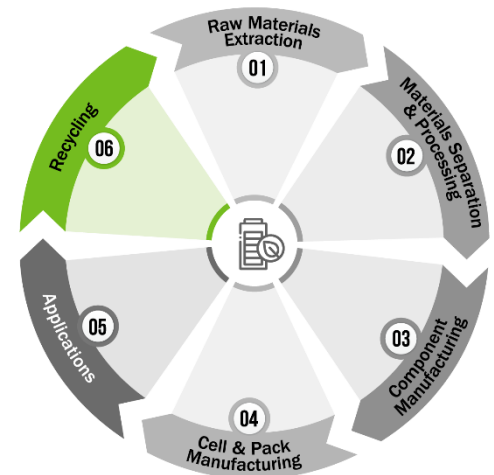
**Supply Chain Segment: Recycling**

### **Project Description:**

Funding for the project will be used to expand and upgrade Cirba Solutions' existing lithium-ion recycling facility in Lancaster, Ohio. Cirba Solutions will collect, disassemble, shred, and upgrade the critical minerals present from tens-of-thousands of tons of lithium-ion batteries so the materials can be reused to produce new lithium-ion batteries. At full operation, the Lancaster facility will be one of the largest commercial-scale recycling facilities in North America, producing enough battery-grade critical minerals to power more than 200,000 new electric vehicles (EVs) annually. The capability to recycle lithium-ion batteries is imperative for the U.S. to develop a sustainable domestic supply chain for the EV market, as well as to build a stable infrastructure for an electric future.

### **Community Benefits:**

Cirba Solutions is advancing a critical area in the battery supply chain. The expanded facility in Lancaster, Ohio, is expected to provide up to an estimated 150 jobs (creating 40 skilled positions initially), while continuing to support the broader community. The advancement of equity, environmental justice, and energy justice are woven into the framework of the organization. The company will work with a wide range of organizations, including a woman-owned small business to support environmental recruiting locally. Cirba Solutions will continue to partner with organizations such as Lancaster Parks & Recreation and Habitat for Humanity to extend its philanthropic activities, educate community groups about battery safety, and provide recycling services to robotics teams.



### Commercialization

## PROJECT NAME: ENTEK US Lithium Separator Manufacturing Project

**APPLICANT: Membrane Holdings LLC – ENTEK**

**Federal Cost Share: \$200,000,000**

**Recipient Cost Share: \$1,240,172,135**

**Supply Chain Segment: Component Manufacturing (Separator)**

### Project Description:

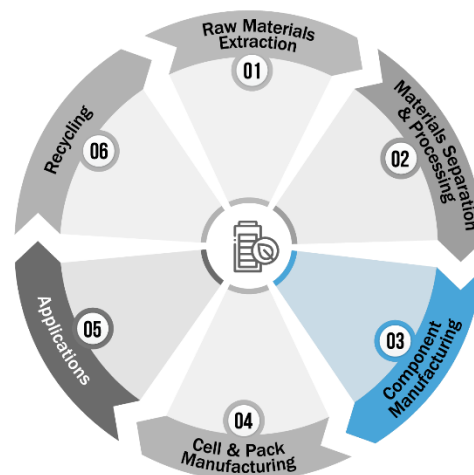
ENTEK is scaling up its production with the construction of a new U.S. separator plant with capacity of 1-1.8 billion squared meters per year, enough material for ~1.4 million electric vehicles. ENTEK is uniquely qualified to execute this project because it is the only U.S.-based manufacturer of “wet process” separators, preferred by electric vehicle battery producers. ENTEK is also a vertically integrated engineering, project management, and equipment fabrication company with deep experience in separator plant design, construction, and commissioning.

ENTEK’s new lithium battery separator plant will include:

1. Design and installation of high-capacity battery separator lines consistent with cost structure expectations of U.S. lithium battery original equipment manufacturers (OEMs),
2. Sustainable, state-of-the-art solvent extraction and recovery systems that eliminate the use of methylene chloride or trichloroethylene,
3. Recycle systems for waste streams consistent with the company’s commitment to sustainability practices,
4. Integration of robust ceramic coating intellectual property (IP) for high temperature dimensional stability and safety,
5. Approximately 650 new competitive family wage jobs and local community investment,
6. Compliance with U.S. environmental and labor laws, and,
7. Domestic manufacture of critical lithium battery component to avoid security, compliance, and trade issues, as well as the international shipping costs of competing foreign separator producers.

### Community Benefits:

A primary consideration for ENTEK’s site is early community engagement to provide community benefits based on local need. While one community might struggle with food accessibility, another prioritizes support for education and employment opportunities in disadvantaged communities. From the earliest stages of its first plant site in rural Oregon, ENTEK has been committed to working with communities from concept to execution. ENTEK strives to be a significant employer deeply invested in the communities where it works, its employees, and their families.



### Commercialization

## PROJECT NAME: Commercial Manufacturing of a Stable Silicon Anode Material Towards Fostering a Strong U.S. Battery Supply Chain

APPLICANT: Group14 Technologies Inc.

Federal Cost Share: \$100,000,000

Recipient Cost Share: \$222,936,774

Supply Chain Segment: Component Manufacturing (Anode)

### Project Description:

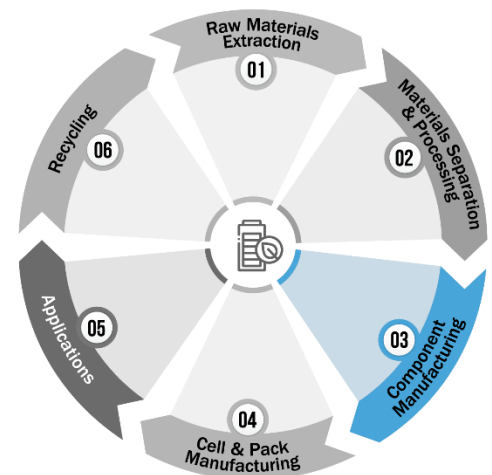
Group14's next-generation silicon-carbon composite to displace graphite in lithium-ion battery (LIB) anodes, called SCC55™, facilitates dramatic reductions in battery cost and carbon footprint on a per unit basis compared to incumbent graphite anode material. SCC55™ is an innovative composite of amorphous, nano-sized silicon within a porous carbon scaffold. This patented structure results in high-energy density, cycle stability, and fast charge capability. Importantly, SCC55™ can be deployed directly in current LIB production equipment with very low switching costs and rapid implementation timelines.

Such features, combined with scalable and efficient manufacturing, make SCC55™ a critical component of a stronger U.S. battery supply chain. Group14 intends to build two 2,000 ton per year commercial manufacturing modules. The engineering unit operations and reactor designs are validated via the company's Washington State commercial launch factory that has already produced and shipped multiple tons of SCC55™ to customers worldwide.

### Community Benefits:

As part of Group14's proposed Equity Plan, the company anticipates bolstering sustainable community economic development and prosperity with community worker engagement, job quality, diversity, equity, inclusion, accessibility, and investments in clean energy to benefit disadvantaged communities throughout eastern Washington. To support the project, Group14 has already engaged with over 20 community-based organizations in Washington State, including four local labor unions and worker organizations, three tribal nations, local government, technical schools and community colleges, and other community-based organizations. As a result, Group14 has designed the proposed project with an eye to the impact on the local community. To ramp up commercial manufacturing modules detailed in this project, Group14 expects to employ a highly skilled, diverse workforce, adding 500 employees for the construction and operation of the plant. This will create 300 new well-paying skilled trade jobs to construct the plant and an additional 200 technical/operational jobs to commission, ramp up, and sustain production.

# GROUP14



### Commercialization

## PROJECT NAME: Commercial Production of Lithium Iron Phosphate Cathode Powder for the Global Lithium Battery Industry

**APPLICANT: ICL-IP America Inc.**

**Federal Cost Share: \$197,338,492**

**Recipient Cost Share: \$232,262,211**

**Supply Chain Segment: Component Manufacturing (Cathode)**

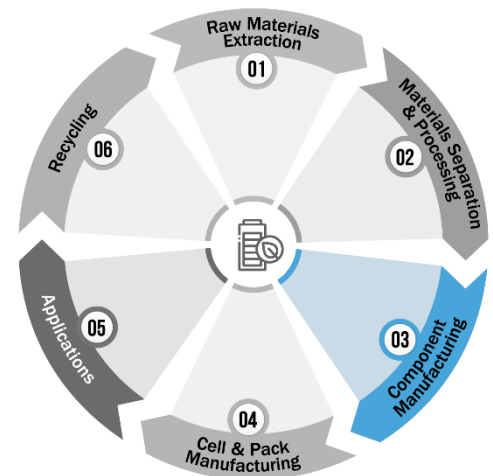
### **Project Description:**

ICL-IP America Inc. intends to build a plant in the U.S. to produce high-quality lithium iron phosphate (LFP) cathode powder for the global lithium battery industry using primarily a domestic supply chain. Using its own process technology and by acquiring licenses for certain other commercially proven processes, the plant will have two production lines built in dual phases under a single roof. Each production line will be capable of producing 15,000 tonnes per year of LFP powder. The plant will be an expansion of its existing facility in St. Louis, MO. Production will start in 33 months. The length of the project will be 60 months, resulting in a commercial and profitable manufacturing operation going forward from completion.

### **Community Benefits:**

The plant will employ approximately 150 people once fully operational. The company will hire most of the employees locally, collaborating with the workers' unions when possible. Much of the recruitment will focus on disadvantaged community (DAC) candidates and will abide by the Justice40 directive. The St. Louis Metro area is in high need of investment to offset the auto manufacturing loss from the past decades, and the local community will benefit not only from good paying union and professional jobs, but also from ICL's active role in developing the next generation of valued company employees.

ICL's Carondelet facility is located in the center of communities in need of significant investment and has been designated by the Department of Transportation census track as a Historically Disadvantaged Community within the St. Louis area. ICL recruits and retains a significant number of employees from communities of need and this new proposal will provide needed additional workforce opportunities. In addition to the manufacturing positions, there will be six full-time permanent R&D positions (STEM) created by this program, with an expectation for 12 to 16 positions in total.



# Bipartisan Infrastructure Law: Battery Materials Processing and Battery Manufacturing



## Commercialization

### **PROJECT NAME: LiPF6 Manufacturing Plant in St. Gabriel, Louisiana**

**APPLICANT: Koura, part of Orbia Fluorinated Solutions,  
(formerly Mexichem Fluor, Incorporated)**

**Federal Cost Share: \$100,000,000**

**Recipient Cost Share: \$306,584,087**

**Supply Chain Segment: Materials Separation & Processing (Precursor)**

#### **Project Description:**

Koura, a global leader in the development, manufacture, and supply of fluoroproducts, plans to build the first U.S. manufacturing plant for lithium hexafluorophosphate (LiPF6) on the grounds of the company's existing fluorochemical production site in St. Gabriel, Louisiana.

Currently, there are no large-scale domestic producers of LiPF6 and all of it comes from Asian imports. Furthermore, the material degrades over time and is costly to import to the US. As a result, lack of domestic manufacturing represents a critical risk in the supply chain for lithium-ion battery production in the U.S. As part of the fluorinated solutions business group of Orbia, a publicly traded global corporation with total revenues of \$8.7 billion in 2021, Koura employs a Mine-to-Market capability to produce and distribute its fluorochemical products globally and it owns a vertically integrated North American supply of fluorine, the primary component of LiPF6. Koura's proposed plant will produce up to 10,000MT of LiPF6 per year, which is sufficient to support domestic production of more than a million full electric vehicles (EVs) annually. Furthermore, Koura's LiPF6 plant will have a secure access to critical minerals and downstream processing to establish domestic production of LiPF6. It will also utilize vertical integration, recycling, and state-of-the-art manufacturing to achieve production economics that will be competitive with foreign imports. This capability will support the broader development of a resilient and stable domestic lithium-ion battery supply chain and reduce the need for Asian imports, providing direct benefits to automotive companies that are producing EVs to reduce the use of fossil fuels.

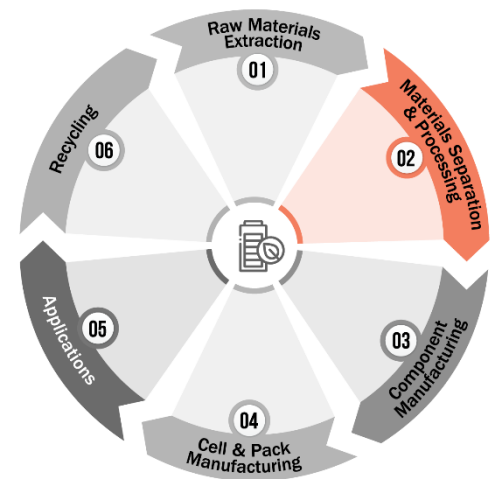
#### **Community Benefits:**

Koura has been operating a domestic fluorochemical plant in St. Gabriel, Louisiana since 1991 with a safe track record and strong community engagement. Koura's LiPF6 plant will expand employment at the St. Gabriel facility by up to 80 new jobs and provide an opportunity to expand company activities in Diversity, Equity, Inclusion, and Accessibility (DEIA) across the greater Baton Rouge region, including job training, internship programs, and funding scholarships.

koura



Fluorinated  
Solutions



# Bipartisan Infrastructure Law: Battery Materials Processing and Battery Manufacturing



## Commercialization

**PROJECT NAME: Unlocking U.S. Lithium Production**

**APPLICANT: Lilac Solutions**

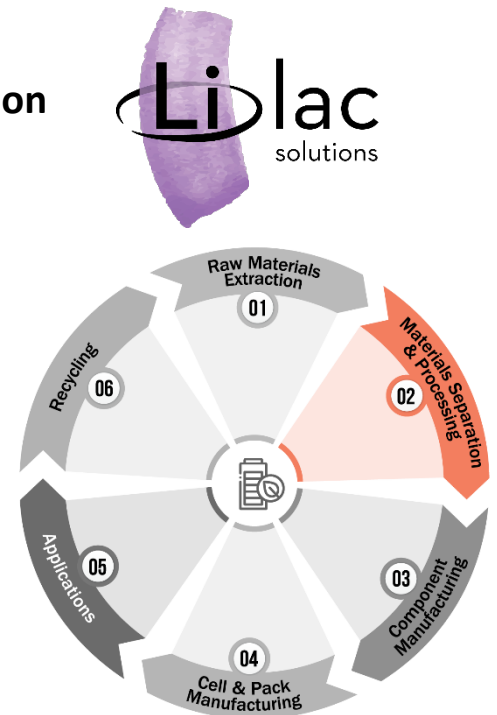
**Federal Cost Share: \$50,000,000**

**Recipient Cost Share: \$129,322,049**

**Supply Chain Segment: Materials Separation & Processing (Cathode Minerals)**

### **Project Description:**

Lilac's project in Fernley, Nevada, will demonstrate the production of lithium at commercially relevant scales (TRL 9) using the company's IX lithium extraction technology. The technology to be demonstrated has the potential to unlock lithium production from domestic resources that are unviable with current production technologies, and thereby vastly expand domestic lithium supply.



Most of the world's lithium resources are found in naturally occurring salt solutions, known as brines. However, most domestic brine resources contain lithium at concentrations too low, and impurities at concentrations too high, to make extraction commercially viable. Lilac's patented ion-exchange technology can extract lithium economically from these brines by directly capturing the lithium using solid ion-exchange beads, while impurities remain within the liquid resource and are returned to the natural environment. The extracted lithium is released from the solid ion-exchange beads using acid, producing a purified lithium stream that can be further processed into battery-grade lithium products using conventional technologies. This project will demonstrate economical and environmentally friendly lithium extraction from domestic lithium resources through three concerted efforts:

1. Demonstration of manufacturing of proprietary ion-exchange beads used by Lilac's technology at commercially relevant scales,
2. Demonstration of lithium extraction from domestic brine resources at commercially relevant scales,
3. Collaboration with partner federally funded research and development centers and universities to maximize the positive impact of such projects on communities and the environment.

### **Community Benefits:**

Domestic lithium supply is woefully inadequate to support the growth of the domestic battery supply chain and support U.S. leadership in the green-energy transition. By successfully demonstrating Lilac's lithium extraction technology from domestic lithium resources that are currently considered unviable, this project has the potential to add significant volumes of lithium to the domestic supply. Lilac anticipates that the financial assistance provided by DOE funds will significantly accelerate production of lithium within the U.S. and that the project and its associated support needs will create 250 new jobs in Nevada, Utah, and California.

### Commercialization

## PROJECT NAME: Thermally Stable Polyaramid Separator U.S. Manufacturing Plant

### APPLICANT: Microvast

Federal Cost Share: \$200,000,000

Recipient Cost Share: \$304,540,145

Supply Chain Segment: Component Manufacturing (Separator)

### Project Description:

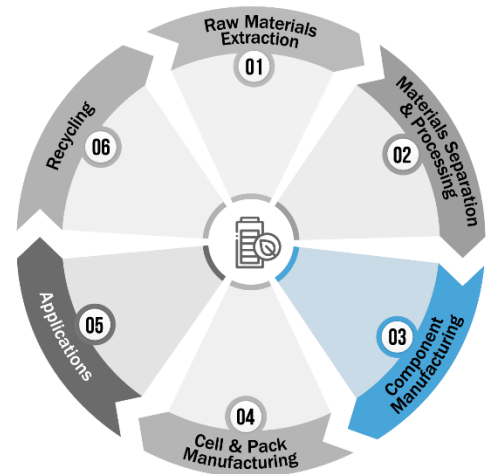
Microvast is a majority U.S.-owned company, traded on NASDAQ (MVST) and headquartered in Stafford, Texas, with additional locations Tennessee, Florida, and Colorado. The company is renowned for its cutting-edge cell technology and its vertical integration capabilities, which extend from core battery materials (cathode, anode, electrolyte, and separator) to battery packs. With DOE funding and the company's matching financial investment, Microvast will build a separator facility capable of supplying 19 gigawatt-hour (GWh) of EV batteries, including their existing 2 GWh battery plant in Clarksville, TN.

The separator is an essential component of all traditional, advanced, and next-gen Li-ion batteries and a key component in need of advancing to improve EV batteries. Microvast's unique, patented polyaramid separator offers an advanced battery technology that improves safety for electric vehicles and other battery applications. This technology will enable faster charging and longer battery life. Microvast and General Motors will combine complimentary intellectual properties to create a specialized separator. They intend to use U.S. sourced raw materials in the proposed facility and equipment manufactured within the U.S. or by U.S. allies.

### Community Benefits:

Microvast is ready to expand its production capacity from a demonstration plant of 5 million square meters to one capable of 300 million square meters of output per year (19 GWh, 380k 50kWh EVs) at a new production facility creating up to 700 new jobs. Microvast plans to partner with local governments, universities, and community groups to develop a pipeline for hiring and training workers and will engage these stakeholders to ensure the broader Clarksville community is enhanced. Microvast hopes to hire fresh graduates locally and support continuing education, particularly for historically disadvantaged communities, to ensure the facility positively impacts the entire region.

microvast 



### Commercialization

**PROJECT NAME:** Large Scale, Energy Efficient, Domestic Production of High-performance Synthetic Graphite Anode Material for Use in Electric Vehicles and Energy Storage Systems

**APPLICANT:** NOVONIX Anode Materials LLC

**Federal Cost Share:** \$150,000,000

**Recipient Cost Share:** \$877,260,704

**Supply Chain Segment:** Materials Separation & Processing (Anode Materials)

### **Project Description:**

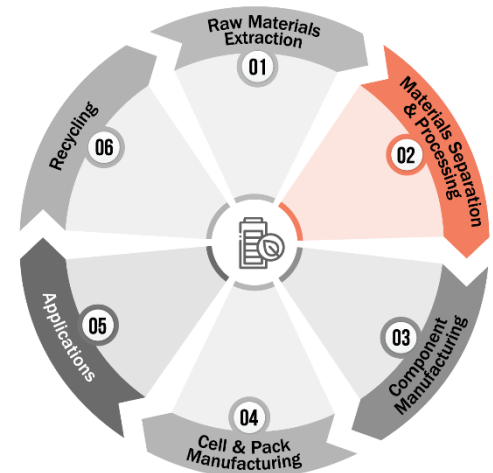
NOVONIX Anode Materials LLC (“NAM”), a wholly-owned subsidiary of NOVONIX Limited, was formed in 2017. It has developed significant process technology and experience in producing lower carbon intensity, high performance, synthetic graphite targeting the electric vehicle and energy storage sectors. Currently, NAM is building its first mass production site in the United States, which will produce 10,000 metric tons per year of battery grade synthetic graphite. The project will build a new plant in Chattanooga to produce 30,000 metric tons per year of graphite targeted at the electric vehicle industry.

The project will use raw materials primarily sourced domestically, leverage domestic technology and equipment suppliers, and enjoy significant involvement from community supporters. The project involves strong partnerships, commitments, and support from domestic technology and equipment suppliers such as Phillips 66 and Harper International, validation partners such as Oak Ridge and Argonne National Labs, and cell manufacturers and automotive original equipment manufacturers (OEMs). NAM will deploy its advanced, cost effective and environmentally friendly process technology to provide a ~60% reduction in carbon intensity relative to the traditional Chinese synthetic graphite.

### **Community Benefits:**

The project includes significant involvement and support for NAM’s local community in Chattanooga, including The University of Tennessee at Chattanooga, Chattanooga State University, and Hamilton County Public Schools. It will directly create over 1,000 clean-energy, good-paying jobs while demonstrating the company’s commitment to uplifting every corner of Chattanooga through community engagement, innovative workforce development programming, and active recruitment among traditionally marginalized communities. NAM is a critical link in an end-to-end, Made-in-America battery materials supply chain pioneering large-scale, environmentally friendly process technologies, all supported by our strong partnerships and deep-rooted commitment to the communities in which it operates.

# NOVONIX





# Bipartisan Infrastructure Law: Battery Materials Processing and Battery Manufacturing



## Commercialization

**PROJECT NAME:** Tennessee Lithium

**APPLICANT:** Piedmont Lithium Inc.

**Federal Cost Share:** \$141,680,442

**Recipient Cost Share:** \$430,356,259

**Supply Chain Segment:** Materials Separation & Processing (Cathode Minerals)

## **Project Description:**

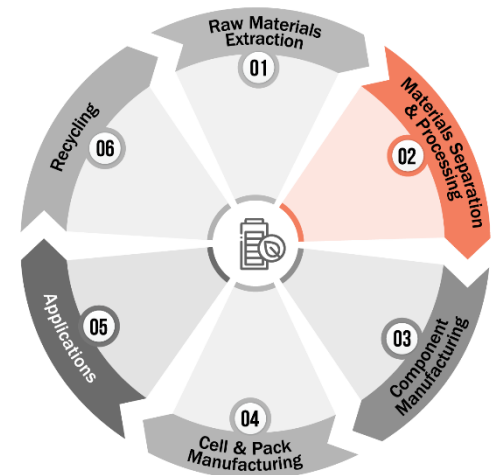
Piedmont Lithium (Piedmont) is a leading global developer of lithium resources for the U.S. electric vehicle industry. Piedmont is designing Tennessee Lithium to be a world-class lithium hydroxide facility and a large, low-cost contributor to the battery manufacturing supply chain with a sustainability footprint that is superior to incumbent producers.

Located in McMinn County, Tennessee, the project will be sited in an ideal location and uniquely positioned to supply America's rapidly growing electric vehicle market. At full production, the Tennessee Lithium is expected to produce 30,000 metric tons per year of lithium hydroxide for the domestic battery and EV market, doubling the lithium hydroxide production capacity currently available in the United States. Construction is expected to begin in 2023, subject to permitting and project financing, with first production targeted for 2025. Using modern technology and processes, Piedmont expects Tennessee Lithium to be one of the most sustainable operations in the world.

## **Community Benefits:**

Piedmont Lithium plans to invest approximately \$600 million in the development of Tennessee Lithium, drive significant economic activity, and create approximately 120 new, direct jobs. Further, Piedmont plans to partner with local organizations and community stakeholders to support necessary training programs for local employees and contribute to philanthropic and civic efforts in the region.

The location of Tennessee Lithium in McMinn County, Tennessee is Tennessee Certified and within an Opportunity Zone. The site has direct access to high voltage power, natural gas, and water and wastewater services, and is logistically advantageous with adjacent rail service by CSX and proximity to U.S. Routes 11 and 411 as well as Interstate I-75. The site is approximately 12 miles from the Hiawasee River, allowing for barge transport of spodumene concentrate (SC6) as well as the potential for modular construction. In addition to excellent infrastructure, Tennessee is home to a hardworking, talented workforce and a welcoming business climate. The location also features proximity to battery and automotive plants being constructed by prospective customers as well as Piedmont's corporate headquarters and planned Carolina Lithium project in North Carolina.



### Commercialization

**PROJECT NAME:** Auto Scale Silicon Anode Plant

**APPLICANT:** Sila Nanotechnologies

**Federal Cost Share:** \$100,000,000

**Recipient Cost Share:** \$300,000,000

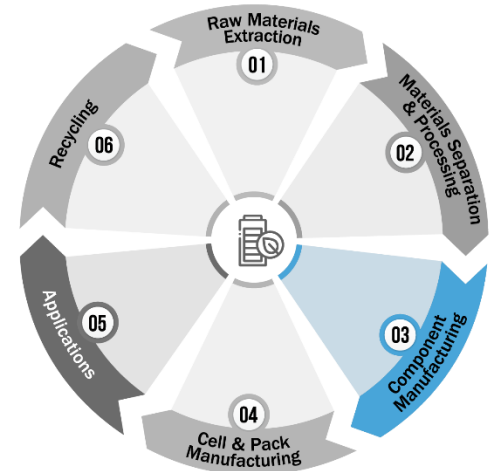
**Supply Chain Segment:** Component Manufacturing (Anode)

### **Project Description:**

These funds will support the build-out of a 600,000-square-foot factory housed in Moses Lake, Washington, that will produce breakthrough lithium-ion anode materials. The project is expected to begin production of Sila's proprietary silicon anode material in 2025, with full production of 20 gigawatt-hour (GWh) equivalent of material at the project's conclusion in 2026. Sila will build out the factory to full capacity across its 160-acre campus, producing enough materials to power 200,000 electric vehicles (EVs), making Sila's plant the largest silicon anode production facility in the world. Automaker Mercedes-Benz will be the first commercial customer served by the Moses Lake facility, as the company has selected Sila's anode materials to power its electric vehicles, starting with the G-Class series, due to be released mid-decade.

### **Community Benefits:**

Sila expects to hire and train 150- 300 additional technologists through the project's completion. To that end, Sila is working with local high schools, vocational training programs, and local community colleges such as Big Bend Community College and Columbia Basin College to recruit and train talent for the Moses Lake facility. Sila is partnering with a number of Washington state business organizations, including the Alliance for Washington Business, the Washington Economic Development Association, and the Clean Tech Alliance. Additionally, as Sila builds its presence in Moses Lake, the company intends to support local organizations such as The Boys and Girls Club of Columbia Basin, Habitat for Humanity, Youth Outdoors, Community Services of Moses Lake, and Meals on Wheels.



# Bipartisan Infrastructure Law: Battery Materials Processing and Battery Manufacturing



## Commercialization

### **PROJECT NAME: Solvay Battery-Grade PVDF Manufacturing Facility**

**APPLICANT: Solvay Specialty Polymers USA, LLC**

**Federal Cost Share: \$178,218,568**

**Recipient Cost Share: \$178,218,569**

**Supply Chain Segment: Materials Separation & Processing (Precursor)**

#### **Project Description:**

Solvay is a global leader in advanced materials and specialty chemicals. In the United States, our people are working in 35 sites across 25 states.

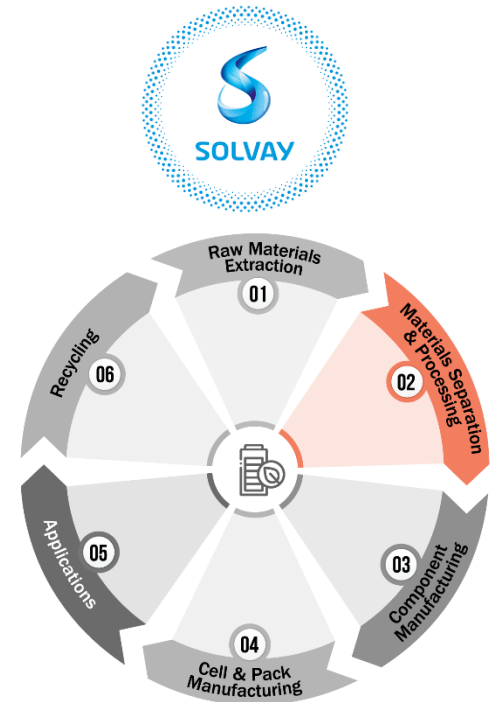
Solvay Specialty Polymers USA, LLC intends to build a new battery-grade polyvinylidene fluoride (PVDF) facility in Augusta, GA, to supply the needs of the North American electric vehicle (EV) and stationary energy storage market. As noted in the Administration's June 2021 critical product supply chain report, PVDF is indispensable in the production of batteries as cathode binder and separator coating material.

Solvay's next-generation PVDF is being used by nearly all EV battery suppliers. PVDF enables EV batteries to go farther on charge, contributes to cycle life, and enhances battery durability. The planned project, which still requires approval from the Solvay Board of Directors, has the potential to provide enough PVDF to supply more than 5 million EV batteries per year at full capacity.

#### **Community Benefits:**

Solvay is an industry-recognized leader in PVDF development and production globally, and the company recently announced production expansion plans to serve local markets in Europe. This proposed project is expected to create more than 500 local construction jobs and 100 highly skilled manufacturing jobs, with potentially more than 500 indirect jobs created across the value chain.

Once the project is approved, Solvay intends to partner with local universities and colleges to increase the science, technology, engineering, and mathematics (STEM) education and technical training for economically disadvantaged, underrepresented and rural communities, who are also expected to be a priority for recruitment for the project.



### Commercialization

## PROJECT NAME: Phase 3 Expansion of Syrah's Commercial-Scale Natural Graphite Active Anode Material Facility in Vidalia, Louisiana

**APPLICANT:** Syrah Technologies LLC

**Federal Cost Share:** \$219,820,610

**Recipient Cost Share:** \$224,996,240

**Supply Chain Segment:** Materials Separation & Processing (Anode Materials)

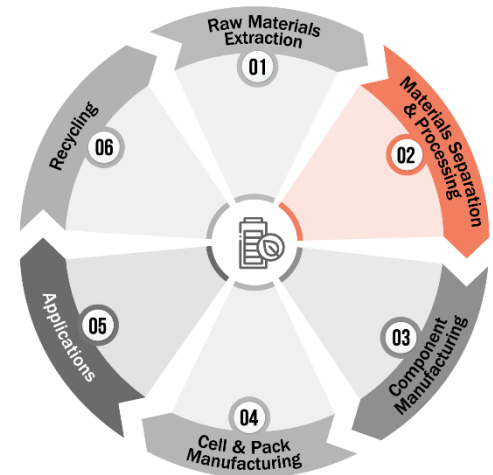
### Project Description:

Syrah's Vidalia facility is a U.S.-based integrated milling, purification, coating, and surface treatment operation producing on-specification active anode material (AAM), using natural graphite from Balama graphite operation in Mozambique. Construction of a new 11,250 metric tons per annum (tpa) AAM facility is underway, with start of production scheduled for the third quarter of 2023. This project ("Phase 3 Expansion") will expand the production capacity of the Vidalia AAM facility from 11,250tpa to at least 45,000tpa AAM.

Upon start of production of the 11,250tpa facility, Syrah's Vidalia facility will be the only vertically integrated and large-scale natural graphite AAM producer outside China and the first large-scale natural graphite AAM producer in the USA. In 2026, U.S.-based lithium-ion battery manufacturing capacity is forecast to be almost 600GWh, which is estimated to require over 500,000 tpa graphite-based AAM.

### Community Benefits:

Expansion of the Vidalia AAM facility will provide significant, localized AAM supply with a fully ESG auditable, single chain of custody back to the source, materially reducing the USA's dependency on, and cost vulnerabilities of, imported AAM supply, and is aligned with Executive Orders 13953 and 14017. Vidalia's expansion is supported by Tier 1 customers with large-scale lithium-ion battery and electric vehicle manufacturing positions in the U.S. The initial expansion of Vidalia's production capacity will add 101 jobs and the Phase 3 Expansion is expected to add 120 jobs in rural Vidalia, Louisiana. Projected wage rates are commensurate with the industry, and 20-70% above the focus area. Employing locally, training on-the-job, and progressing through a competency framework will attract and maintain a committed workforce. Syrah's community strategy includes partnering with over 150 local vendors to prioritize local investments and spending.



### Commercialization

## PROJECT NAME: Project “Double Play”: An Advanced Domestic Battery Minerals Processing Facility

**APPLICANT: Talon Nickel (USA) LLC**

**Federal Cost Share: \$114,846,344**

**Recipient Cost Share: \$318,025,927**

**Supply Chain Segment: Materials Separation & Processing (Cathode Minerals)**

### **Project Description:**

Talon Nickel (USA) LLC plans to construct a battery minerals processing facility in Mercer County, North Dakota, to support a new domestic cathode supply chain in the United States.

Talon’s proposed facility will process nickel ore from economically viable sources for the domestic manufacture of batteries. Talon has signed a supply agreement with Tesla for 75,000 metric tonnes of nickel in concentrate. The Talon and Tesla supply chain will produce nickel, copper, cobalt and iron in nickel and copper concentrates for multiple battery chemistries. This process improves yield and metal byproduct utilization relative to legacy processing of nickel ores.

### **Community Benefits:**

From mine to battery production, Talon and Tesla plan to create a domestic supply chain from primary (mined) nickel ore through to recycling. Talon is committed to working with unions, local communities, and tribal governments to ensure its facility has broad support, strong environmental protections, and contributes to the local economy. Talon has concluded a neutrality and workforce development agreement with the United Steelworkers Union, covering the new jobs created at the new facility in North Dakota. Talon is in the process of finalizing Project Labor Agreements (PLA) with the building trades unions in North Dakota. Talon’s facilities must undergo rigorous state and federal permitting and environmental review processes that include government-to-government consultations with sovereign tribal governments.

