ASCEND ELEMENTS BUILDS OUT THE DOMESTIC BATTERY SUPPLY CHAIN

A Case Study from Hopkinsville, Kentucky

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Executive Summary

Ascend Elements has committed $1 billion in Hopkinsville, Kentucky to develop Apex 1, a commercial-scale battery recycling and manufacturing facility for precursor cathode active materials (pCAM). This facility is a first for the United States and is part of a broader effort to onshore the battery supply chain. At present, pCAM is largely produced in China. Nearly a third of the total facility investment is being provided by a Department of Energy grant, funded by the Infrastructure Investment and Jobs Act.

Hopkinsville is a town of about 30,000 residents with a long-standing agricultural history, strong ties to the local army base, and a burgeoning industrial presence. Since late 2022, the investment by Ascend Elements has created more than 1,000 construction jobs and will provide over 400 permanent positions for the local community when manufacturing begins in late 2026, bringing new revenue to the city. Further, Ascend is investing in Hopkinsville by supporting affordable childcare and transportation services, in addition to providing funding to the local community college for upskilling. Altogether, Apex 1 will deliver a projected $4.4 billion in economic benefits to Kentucky over its construction period and first decade of operation.

The delivery of economic benefits was spurred by two federal tax incentives—the Advanced Manufacturing Production Credit (45X) and the New Clean Vehicle Credit (30D). Ascend Vice President of Government Affairs Roger Lin emphasized the importance of continuing these incentives: “[t]he goal to wean the United States off of Chinese supply chain dependence remains regardless of who's in the White House or in control of Congress, and we are squarely in the center of that, so we look forward to continued support.”

This case study explores how Ascend’s significant investment, bolstered by federal support, will advance the build-out of a robust domestic EV manufacturing supply chain, while delineating the challenges the facility has faced and will face due to economic changes and the political landscape. These challenges include an evolving regulatory landscape, increased tariffs, and potential tax credit changes. Moreover, this case study will show how this investment is accelerating the growth of a community eager to reap the resulting economic and social benefits.

Introduction

In February 2025, 9.4 percent of all new light-duty vehicle sales in the United States were electric (including battery electric vehicles and plug-in hybrid electric vehicles), nearly 1.5 times the sales market share from the first quarter of 2021 (6.1 percent) [1]. In response, companies have announced a wealth of manufacturing facilities around the United States to supply the growing EV demand, demand buoyed by federal support. Per the EV Jobs Hub, as of May 21, 2025, companies have announced $208 billion in EV and EV supply chain manufacturing investments, 75 percent of which has been announced since the passage of the Infrastructure Investment and Jobs Act (IIJA) in November 2021 [2]. These investments will support 228,500 announced manufacturing jobs.

To gain a better understanding of the impact on the ground, two Atlas Public Policy staff members traveled to Hopkinsville, Kentucky where Ascend Elements is building the Apex 1 recycling and manufacturing facility, also conducting a number of onsite interviews (Figure 1) [3]. This facility is illustrative of the importance of federal support in the nascent EV manufacturing sector, the challenges of building large scale projects, and the varied and significant economic benefits from large investments in the domestic EV supply chain.

Figure 1: Location of the Apex 1 Ascend Elements Facility in Southwest Kentucky

Facilities represented here are tracked, publicly announced investments, ranging from planned to under construction to operational. As such, all may not necessarily materialize into facilities. The size of a bubble corresponds to the relative size of the facility's announced investment. The two other unmarked facilities in the Clarksville area are a $220 million Microvast and a $70 million Dongwha battery manufacturing facility, the unmarked Franklin facility is a $104.4 million LioChem battery manufacturing facility, and the unmarked Bowling Green facility is a General Motors light-duty EV assembly facility.

Source: EV Jobs Hub [2]. Accessed May 14, 2025.

About the Facility

Ascend Elements was founded as Battery Resourcers in 2015 in Massachusetts, with the goal of manufacturing advanced battery materials via essential elements recycled from used lithium-ion batteries [4]. The company rebranded as Ascend Elements in 2022 and remains headquartered in Massachusetts [5]. Ascend has three existing domestic facilities and one under construction: a headquarters and pilot production line in Westborough, Massachusetts; Base 1 in Covington, Georgia; a cathode production and development facility in Novi, Michigan; and Apex 1 under construction in Hopkinsville, Kentucky.

In addition to these operations, Ascend is developing an advanced graphite recycling plant in a commercial partnership with Koura Global, a subsidiary of Orbia [6]. Operations are likely to be co-located with Koura's existing facility in St. Gabriel, Louisiana, but plans are still being finalized. A battery recycling joint venture (JV) with SK Ecoplant was meant to be

sited in Hopkinsville as well; however, the JV has since fallen through [7] [8]. Finally, in May 2025, Poland's Ministry of Economic Development and Technology extended a $320 million cash subsidy to Ascend, incentivizing the creation of a pCAM manufacturing facility — one of the largest grants ever offered by the country [9].

Apex 1 in Hopkinsville, Kentucky, is Ascend's largest announced investment to date [10]. With $1 billion in already committed funding, the facility will operate as an EV battery recycling and remanufacturing plant, producing precursor cathode active materials (pCAM) for EV batteries. Construction on structures that will house pCAM operations began in October 2022 and was originally expected to conclude in late 2025 [11]. Construction was later paused in early 2025, with a construction restart expected in the third quarter of 2025 and completion slated for the fourth quarter of 2026. To date, Apex 1 is the only planned facility in the United States with a committed investment of at least $1 billion able to produce pCAM at a large scale. According to the International Energy Agency's Global Energy Outlook 2024, nearly 90 percent of cathode active materials are currently produced in China, making this facility key in diversifying the EV supply chain [12].

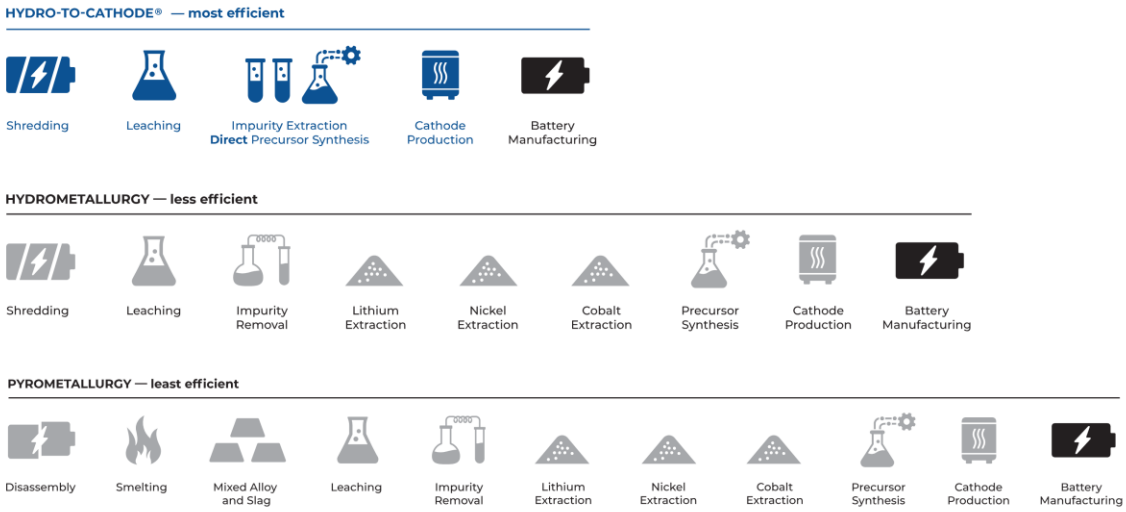
Ascend's Production Process

Ascend's production process begins at their Base 1 facility in Covington, Georgia [13]. There, end-of-life lithium batteries and manufacturing scrap are shredded and put through a solvent extraction process to produce black mass[1] and metal salts like cobalt sulfate, nickel sulfate, and lithium carbonate. In 2025, Ascend will begin producing recycled, sustainable lithium carbonate at Base 1 [14]. Base 1 currently acquires 30,000 metric tons of material per year, all domestically sourced. This material will then be delivered to the Apex 1 facility for pCAM manufacturing. After delivery, the black mass will be turned into a slurry that is piped through three stages of leaching to remove graphite, iron, aluminum, and copper, in that order. According to Ascend Construction Project Manager Ben Pope, the Apex 1 facility will receive "truckloads" of recycled battery material daily during Phase 1 production and ship more than 450 metric tons of pCAM materials per week [15]. Phase 1 production will see the recycling and manufacturing of 12.5 kilotons of pCAM annually. Depending on variables such as the battery material or whether it is intended for a battery EV or a plug-in hybrid EV, this equates to roughly 5,000 batteries per week, said Ascend's Global Head of Battery Metals, Scott Yarham.

[1] Black mass refers to the product of battery recycling, comprised of anode and cathode materials recovered from lithium batteries.

Ascend's production process, called the Hydro-to-Cathode direct precursor synthesis process, will manufacture nickel-manganese-cobalt pCAM by leaching out impurities [16]. It is a closed-loop process, whereby the original material is extracted and reprocessed. Ascend markets the technology as increasing manufacturing efficiency by removing 15 intermediary steps involved in traditional cathode manufacturing—see Figure 2. Removing these steps leads to less energy consumption, lower costs, and fewer emissions. A life cycle assessment from January 2024, performed by a third party, found that Ascend's pCAM manufacturing process will result in up to 50 percent lower costs and up to 90 percent lower carbon emissions by 2030, as compared with virgin raw materials [17]. This finding reinforces the company's commitment to producing only zero-carbon products for EV original equipment manufacturers and battery manufacturers by 2035. Further, when operational, Apex 1 will be powered using electricity through the Tennessee Valley Authority (TVA), starting at 24 megawatts (MW) of energy and potentially increasing to 50 MW. Ascend hopes to use TVA's Renewable Solutions program to reach 100 percent renewable energy in the future.

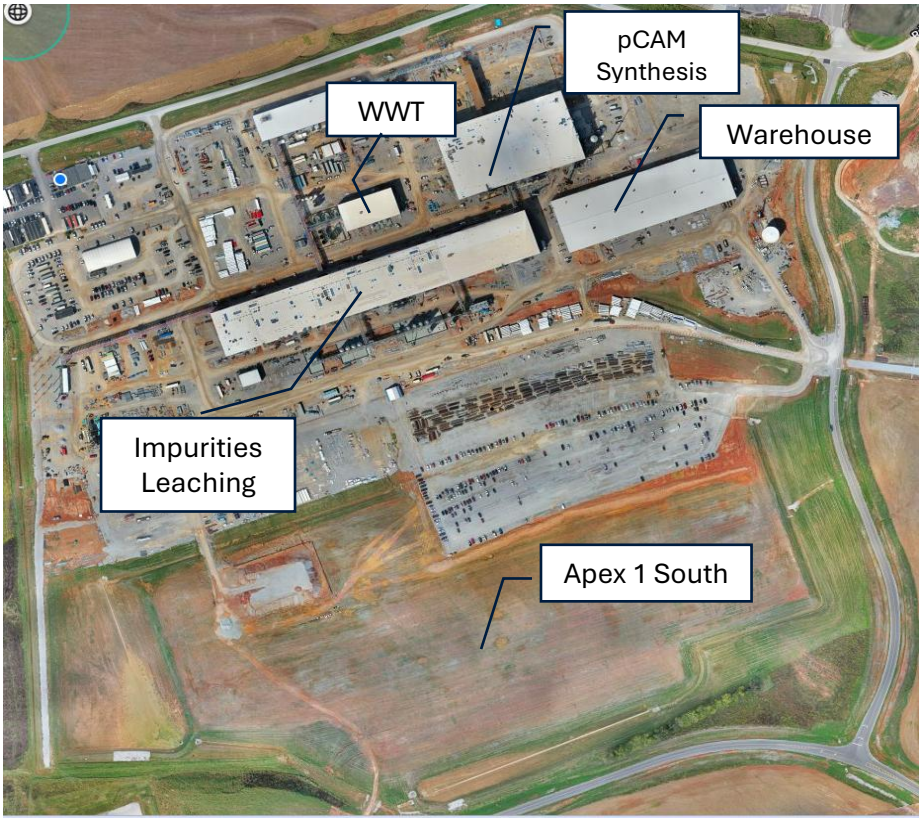
Figure 2: Ascend Element's Hydro-To-Cathode Production Process



Source: Ascend Elements [16].

The manufacturing process for pCAM will involve the movement of material through three buildings: one each for the leaching of impurities and pCAM synthesis, and one serving as a warehouse for materials storage (Figure 3). The area in Figure 3 labeled "Apex 1 South" denotes land where Ascend could expand production operations.

Figure 3: Aerial View of the Apex 1 Construction Site



The aerial view of the construction site was taken in September 2024.

Source: Ascend Elements [18].

Dedicated lab spaces and monitoring systems in the "Impurities Leaching" and "pCAM Synthesis" buildings perform intermediary quality checks (Figure 4). Construction Project Manager Ben Pope noted that Ascend's process allows for re-running the material through almost any step to avoid unnecessary waste. Further, it allows for the reuse or offloading of certain byproducts. For instance, the wastewater produced will be treated on site to draw out ammonia for repeat use in the purifying process, denoted by "WWT" in Figure 3. Another byproduct, sodium sulfate, can be used to manufacture fertilizer. An unnamed company is currently in talks to locate a fertilizer production facility adjacent to the Apex 1 facility, where they would utilize the sodium sulfate byproduct.

Figure 4: Filtration Equipment at Apex 1

“Accordion-like” filtration equipment leaches out impurities to produce pCAM.

Source: Ascend Elements [18].

Ascend expects that Apex 1 will churn out 12.5 kilotons of pCAM per year in 2026 and approximately 50 kilotons once at full capacity [19]. Altogether, and when “Apex 1 South” is constructed and operational, the announced investments will produce enough pCAM for 250,000 EVs annually, with ambitions to triple that number to 750,000 EVs annually [20]. Production will service Honda Motor Company, SK Battery America, and other manufacturers not yet publicly named [21]. Ascend has recycled end-of-life batteries from Honda since 2021, but is looking to sell recycled battery materials back to the company, per an agreement announced in 2023 [22].

Outside of domestically sourced recyclable battery materials, Ascend also uses virgin materials in some of its manufacturing. To ensure the responsible sourcing of inputs, Ascend has established a robust Responsible Sourcing Policy and Supplier Code of Conduct for its suppliers [23] [24]. Ascend manages oversight of these policies by executing third-party audits and vetting any new and existing suppliers through a five-step due diligence process, aligned with the Responsible Mineral Initiative and the Organization for Economic Co-operation and Development [25] [26]. According to Scott Yarham, all virgin metals, namely nickel, cobalt, and manganese, are currently sourced outside of the United States from countries with free-trade agreements (FTAs), where possible. Currently, 100 percent of nickel is sourced from FTA countries, while manganese and cobalt are sourced from non-Foreign Entity of Concern countries. Once production becomes available, Ascend hopes to source all virgin metals from domestic sources or FTA countries.

Ascend's Construction Processes and Jobs

The Apex 1 facility broke ground in 2022, and the company has already expended around $1 billion on construction, according to Apex 1 Facility Site Manager Mark Fern [27]. Its construction began at an accelerated pace, leading to higher-than-expected construction costs. Since November 5, 2024, facility construction has been temporarily paused due to several Ascend customers requesting between nine months to year-long delays on their pCAM deliveries; in April 2025, these horizons were pushed back to a year to 18 months [28] [29]. During the pause, Ascend Vice President of Government Affairs Roger Lin noted that Ascend is reevaluating its existing construction contracts and will inventory what equipment has been installed, with a greater focus on efficiency and managing costs moving forward. Consequently, temporary construction lay-offs have occurred.

In April 2025, Ascend provided assurances that its long-term plans for pCAM production in Hopkinsville are unchanged. Construction on the 146-acre site is expected to restart in the third quarter of 2025. The facility is now set to open in the fourth quarter of 2026. Pope estimates that more than 60 percent of the construction of buildings involved in the pCAM production process has been completed, including the installation and housing of equipment necessary to turn black mass into pCAM powder.

Figure 5: Construction Worker at Apex 1

A construction worker helps assemble the outer structure of buildings on the Apex 1 campus.

Source: Ascend Elements [18].

According to Pope, at peak, the Apex 1 facility hosted 1,100 construction workers, a higher number than anticipated by Ascend due to its accelerated construction timeline. These jobs are covered by a project labor agreement (PLA), which was created with multiple construction trade unions. Chad Mills, Director of the Kentucky State Buildings and Construction Trades Council, noted that the PLA sunsetted on March 31, 2025. Mills highlighted that 13 unions were involved in the construction process, from operating technicians to laborers to plumbers and pipefitters. Will Johnson, Business Manager of Operating Engineers Local 181, said that Apex 1 "was a great project" in part due to the robust PLA in place. While individual unions also offer their own benefits, Johnson listed several benefits, in addition to the "comfortable" hourly take-home wage of $36 to $38 an hour: insurance and pensions that are not drawn from wages, overtime rates, and double rates on Sundays. To compare, the average construction and extraction job in Christian County pays a salary of $51,310, equating to around $25 an hour [30] [31].

Since construction has been paused, Mills noted some concerns, especially around consistent communication with Ascend. As of December 2024, Mills remained hopeful about the project; since the pause has lingered, Mills noted that Ascend is re-engineering parts of Apex 1's building and intends to re-bid it once they finish that re-engineering. Frey added that Ascend plans to restart construction in 2025 with a fixed-price construction contract rather than a time and materials contract, as Ascend originally had with Kentucky trade unions. In February 2025, a lawsuit was filed by a joint venture comprised of Turner Construction and Kokosing Industrial against Ascend for $138 million in allegedly unpaid bills on construction work done at Apex 1 [32]. Ascend stated, "We are prepared to pay for all authorized and legitimate work performed, but we are also committed to being responsible stewards of both public and private funds." The lawsuit is still underway while Ascend reviews all work performed by Turner-Kokosing and its subcontractors. Mills noted that there have not been any payments made to the contractors who were owed money from the first part of the project that was completed in 2024.

Good, Local Production Jobs

Ascend noted that it expects a permanent staff of 416 in Apex 1's first five years of production, including the following highest volume positions:

- Plant operators (190)
- Control room operators (53)
- Quality technicians (28)
- Shift supervisors (28)

- Shipping and receiving (28)
- Maintenance technicians (28)
- Instrument technicians (28)

Lin said that Ascend plans to hire locally for plant operators. Due to the existing industrial presence in Hopkinsville, there is a strong local labor pool to hire from. Per a preliminary agreement with the Kentucky Economic Development Finance Authority, Ascend committed to creating and maintaining 250 full-time jobs for Kentucky residents spanning 15 years and paying an average wage of $34 per hour, including benefits [33]. As the facility is just a 20-minute drive from the Tennessee border, Ascend is also considering hiring from Clarksville and Nashville, Tennessee, as well as the surrounding Kentucky communities for positions.

The minimum wage in the state of Kentucky and Christian County is $7.25 per hour, while in Christian County the average annual living wage for a childless adult is $19.50 per hour. For a family of four with one working parent and two children, it is $37.50 [30] [34].[2] DeeAnna Sova, Ascend's Community Engagement and Site Administration Manager, said that hourly employees can expect to make approximately $58,000 a year, almost double the average salary in Hopkinsville and nearly 50 percent higher than other production jobs in the county [30]. Salaried employees and engineers are expected to make more.

Specialized jobs may require associate or bachelor's degrees; others like the hourly operating positions only require high school diplomas, according to Sova. While education and prior experience in industry or chemical handling are attractive, Sova noted that Apex 1 will prioritize hiring those with the capacity to learn and excitement about Ascend's industry. "If you have the soft skills and the ability to learn, we will train you to learn what you need to do," Sova said. Lin added that Ascend is also looking to build up the local workforce in chemical-related fields—Ascend's investments in workforce upskilling are detailed in *Hopkinsville Prepares Training and Workforce Development for Production Workers*. Ascend also has a stated commitment to union neutrality and respecting Apex 1 workers' right to join a union [35].

In describing Apex 1's benefits package, Sova said that starting on day one, all Ascend employees are provided with medical insurance, dental and vision insurance, retirement support through an unmatched 401(k), and Employee Assistance Program benefits. The company is planning for other benefits, including the provision of affordable childcare and transportation—see *The Community of Hopkinsville* for more details.

[2] The living wage shown is the hourly rate that an individual in a household must earn to support themselves and/or their family, working full-time, or 2080 hours per year. This does not include benefits.

Hopkinsville Prepares Training and Workforce Development for Production Workers

Hopkinsville Community College (HCC) has developed various partnerships with companies and industries sited locally, including recently with Ascend. Dr. Alissa Young, President and CEO of HCC, noted that HCC has been in conversation with Ascend before the company even selected Hopkinsville as its site in 2022. According to Dr. Young, these partnerships are a natural fit. “We can partner with each other to help meet each other’s needs,” Dr. Young said. “We need experienced faculty and help with equipment costs. They need trained workers.”

To support the collaboration, HCC is currently constructing an operator training and a chemical operator room, renovating a space amounting to “a miniature chemical plant,” Sova said. These programs will be housed in HCC’s growing technology center (Figure 6) and aimed directly at supporting Apex 1’s staffing. The chemical operator program will have an initial capacity of 20, Dr. Young said. Dr. Christopher Boyett, HCC’s Vice President of Academic Affairs, described working with Ascend as a “different ballgame” than their other partnerships. Dr. Boyett continued, “We are coming up with new training for them, innovative course content that’s more than just making sure your press works on the shop floor. It’s also a different kind of worker. We’re getting ready to meet that need, though, and getting word out to the public.”

Figure 6: Classroom in Hopkinsville Community College's Technology Center

Hopkinsville Kentucky Federation for Advanced Manufacturing Education classes take place here, supported by corporate sponsors whose logos are displayed. Ascend's logo has yet to be added.

Source: Atlas Public Policy [36].

Partnerships like Ascend's with HCC are critical for an aging workforce. According to Will Johnson, the historical average age of Operating Engineers Local 181's membership has been in the high 50s. Today, however, its average age is 49, pointing to a shift in the local workforce that may be attributable to the expansion of workforce training programs like those at HCC. Dr. Young added that HCC's workforce programming, the Hopkinsville Kentucky Federation for Advanced Manufacturing Education (HOPFAME) program, sees a range of students, from those straight out of high school to those with families looking to upskill, to soldiers transitioning out of Fort Campbell, the local U.S. Army base [37]. HCC has seen increasing success of late in preparing the workforce. According to program data provided to Atlas by HCC, between 2020 and 2023, total enrollment in HOPFAME grew from 74 to 107 students, an increase of 45 percent, while earned credentials from the program grew from 140 to 268, an increase of 91 percent.

Apex 1's first group of operators is currently undergoing training [27]. Lin also noted that they are helping to establish training programs for skillsets required to take a job at Apex 1 using KCTCS-TRAINS Funding, a money-matching program funded by the Kentucky General Assembly and run by the Kentucky Community and Technical College System [38]. Dr. Young mentioned that Ascend has outlined its curriculum, equipment, and training

requirements. Through KCTCS-TRAINS funding, Ascend partially funds the training cost for upskilling its workers, with HCC covering 75 percent and Ascend covering 25 percent. Thus far, Ascend has signed off on purchasing $200,000 worth of equipment to support its training.

Federal Funding Supports Hopkinsville Facilities

Ascend facilities have been recipients of various forms of public funding, including federal grants and tax credits. Ascend will receive more than $441 million from two grants through the U.S. Department of Energy's (DOE) Battery Materials Processing and Battery Manufacturing and Recycling Grants program, funded through IIJA (Table 1) [39]. Apex 1 originally received $480 million in total from two grants for Apex 1 operations, with an additional $125 million awarded to develop Ascend's Hydro-to-Anode technology facility with Koura. The former awards were part of the first round of the Battery Materials Processing and Battery Manufacturing and Recycling Grants program, announced in October 2022 [40]. In February 2025, however, Ascend and DOE announced a mutual decision to cancel its cathode-focused award due to a lack of supportive market conditions for CAM production [41].

The recycling facility award was announced as part of the second round of funding in September 2024 and will fund graphite recovery and purification before being supplied to a planned manufacturing facility by Koura in Louisiana [42].

Table 1: IIJA Awards Received by Ascend Elements

Award Title	Award & Cost Share	Jobs	Grant Status
Apex 1: For Integrated Sustainable Battery Precursor, Materials Separation & Processing (Cathode Minerals)	$316 million in federal cost share and $316 million in recipient cost share.	270	Awarded

Apex 1: For Integrated Sustainable Battery Active Material Production Plant, Component Manufacturing (Cathode)	$164 million in federal cost share and $164 million in recipient cost share.	130	Canceled by Ascend
Recycling Facility: For Recovery and Purification of Graphite from Recycled Black Mass	$125 million in federal cost share and $187.5 million in recipient cost share.	TBA	Selected; Ascend hopes to close with DOE in 2025.

Grant status information and award totals were provided by Ascend Elements in February 2025. Details about grant funding have been updated since then to reflect any ongoing changes. The grant awarded for "Cathode Minerals" is dedicated to pCAM production, while the canceled grant for "Cathode" was dedicated to CAM production. Note: recipient cost share is subject to change.

Source: Ascend Elements [41] [43] [44].

As part of the grant requirements, Ascend is delivering a plan for community benefits, explored further in *The Community of Hopkinsville* as well as a PLA; the creation of a PLA was voluntary, and Ascend elected to pursue one, according to Lin. Hopkinsville is the right place for these kinds of interventions, according to CEO and President of the Christian County Chamber of Commerce, Taylor Hayes. Hayes noted that a large part of why Ascend was drawn to the area was that "we're a diverse community, racially, economically." Hayes continued, "With Fort Campbell, the agricultural work, and the big industrial base, our local economy rocks along. We've been on the cusp for breaking through [community economic difficulty] and with all the investments taking place over the last couple of years, like the Ascend project, we now have a better growth trajectory than we've had in the past." Indeed, the Christian County facility is located near several census tracts identified as disadvantaged communities (DACs), including those directly adjacent to the tract where the Apex 1 facility is located [45]. According to Ascend, half of the tracts around the Hopkinsville area are classified as DACs, as defined by the Climate and Economic Justice Screening Tool [46].

Ascend representatives also noted the importance of the Advanced Manufacturing Production Credit (45X) and the New Clean Vehicle Credit (30D) to the facility's success. Lin said of the tax credits, "The most direct impact is through the Advanced Manufacturing Credit … We're looking at 10 percent of the costs of goods produced under that provision. The other large tax credit that has more of an indirect impact is the 30D EV tax credit, for

$7,500 per vehicle." Lin explained that the increasing domestic materials requirements of 30D will drive demand toward Ascend.

Mayor of Hopkinsville James R. Knight spoke about how federal funding helps "tremendously" to drive businesses like Ascend to the Hopkinsville area. "We want that funding, so we try to partner with whoever we have to get that money," he said. Lin also noted the crowding in effect of these DOE grants. He highlighted that receiving these grants has been crucial in obtaining additional private investors' interest in Ascend and its work. "Shortly after we were announced to have been selected for the award, we were able to convert on several large equity fundraising rounds," Lin said. Those equity fundraising rounds amounted to about $600 million in private investment that the company will leverage to help build out the EV battery supply chain.

The Community of Hopkinsville

The greater Hopkinsville area has a large agricultural workforce, with a history of producing wheat, corn, and tobacco [47]. In fact, Apex 1's site was harvested for corn, soybeans, and winter wheat up until shovels hit the ground, according to Executive Director of the Southwestern Kentucky Economic Development Council Carter Hendricks. Another key economic base for the community is the proximity to a large U.S. Army base. In the 1940s, the Fort Campbell Army base was established just 20 miles south of Hopkinsville. Since then, the community has maintained a strong connection with the local military presence. One in ten Hopkinsville residents are military veterans. Hendricks estimates that approximately 500 military personnel retire from Fort Campbell a year, about half of whom he estimates stay in the Hopkinsville area [48]. These veterans represent a significant part of the workforce who possess valuable skills that can be leveraged through workforce transition programs, as Dr. Young noted with military retirees entering HCC for retraining.

The latest unemployment data for Christian County shows an unemployment rate of 5.4 percent in March 2025, according to the Kentucky Economic Development Cabinet, compared to 4.9 percent statewide [49]. Since its peak of nearly 14 percent in early 2009, the unemployment rate has been on a downward trend, fluctuating around five to six percent in the last two years (excluding the COVID-19 pandemic's economic shock). Christian County has not significantly grown since 2000, with the population rising just 0.4 percent from 2000 to 2022. For comparison, Kentucky's population grew 11.4 percent in the same period.

Ascend Prepares to Deliver Community Benefits

As an awardee of DOE's Battery Materials Processing and Battery Manufacturing and Recycling Grants program, Ascend has committed to an array of initiatives to ensure their investments benefit the community of Hopkinsville [35] [50]. Ascend engaged Hopkinsville locals to determine the nature and design of community benefits that would best support Hopkinsville. As a result, Ascend has focused on delivering three benefits: childcare, public transportation, and economic development.

To carry out those initiatives, Ascend intends to hire a workforce that will include young parents who will benefit from the company's support of affordable childcare initiatives and transportation services. In 2023, one-third of all households with children under 18 in Christian County were single-parent households, considerably higher than the rates of 26 percent in Kentucky and 15 percent nationally (in 2022) [51] [52].[3] Sova notes that Ascend has already invested $35,000 into bolstering local childcare options. These efforts include the establishment of a daycare in June 2024, the Dr. Martin Luther King Jr. Early Learning Center, at the site of a local elementary school [53]. Hendricks said, "Every conversation around unlocking the full potential of the workforce and the economic development of the future of industry says it's childcare, and when you peel back the layers, the issue is incredibly complex." Indeed, research released in March 2024 by the Kentucky Center for Economic Policy found that more than a fifth of Kentucky families with children receive childcare assistance via the state's Child Care Assistance Program (CCAP) [54]. Further, 60 percent of families not on CCAP pay $100 to $300 a week in childcare, while 29 percent pay $300 or more. Ascend noted plans to subsidize employee childcare costs, expand Head Start (a federally funded, free program for increasing the school readiness of low-income infants, toddlers, and preschoolers), provide additional third-party childcare facilities for employees, and seek out local qualified childcare staff [55].

Next, Ascend has worked with several entities across Hopkinsville and Christian County to deliver transportation benefits, including Pennyrile Allied Community Services (PACS) since 2022. PACS Executive Director Harold Monroe describes the organization as a community action agency working to aid low-income community members through funding from the Kentucky Department of Transportation. Today, PACS maintains the only three public transportation routes in Hopkinsville via the Hopkinsville-PACS public bus partnership. "We are trying to make a difference and reduce the impacts of poverty," Monroe said. "Where we could be involved is public transportation that could be utilized by folks that work [in the

[3] Here, "single-parent households" are inclusive only of the householders with no spouse or partner present, according to the 2023 American Communities Survey. In this way, primary guardians such as grandparents or other extended family are not included in this figure.

broader Hopkinsville area].” Yet, Monroe described how due to “swing shifts,” or shifts during off-peak hours, these bus routes are not helpful to all employees of the local industrial and commerce parks. Here, Ascend has stepped in to examine the potential for subsidized expansion of select bus routes, in addition to providing shuttle services and prepaid or discounted transit passes.

Figure 7: Line Worker at Base 1 in Covington, Georgia

An employee at the Base 1 facility in Covington, Georgia, processing spent batteries for recycling and shredding, to then be shipped to Apex 1.

Source: Ascend Elements [18].

When first announced in 2022, a study by Dunham and Associates commissioned by Ascend estimated that the facility will generate $4.4 billion for Kentucky over its construction period and the first 10 years of operation [56]. A part of Ascend’s DOE grant application materials described the $4.4 billion in economic impact as including wages and benefits to construction and operations employees, state taxes, and other additional economic activity in the state catalyzed by Apex 1 construction and operation. Hendricks highlighted the direct benefits to the City of Hopkinsville and the state in terms of tax revenue. As of November 2024, Hopkinsville has received $3 million in occupational tax

revenue associated with Ascend and significant revenue through the housing of the hundreds of construction workers in local hotels, according to Hendricks. In spot checks over the construction period, Hendricks noted 50 to 80 percent occupancy in hotels, with the "single biggest driving force" being Ascend. In addition, the Hopkinsville community has grown enough for locals like Sova to notice the impact. Sova said, "I've loved watching the community grow since Ascend Elements started construction, we've grown by leaps and bounds … when does that ever happen in a town of 30,000? People are feeling comfortable enough that they can invest in their own town, which makes me happy."

Overall, interviewees conveyed positive sentiments regarding Ascend working in Hopkinsville. Hayes said that the demographics of the county lend itself to being attractive to companies looking to fulfill equity goals—namely, a high poverty rate and a lower average income. Former State Senator Whitney Westerfield, a Republican who represented Christian County from 2013 to January 2025, noted that broader policy changes by Kentucky's General Assembly likely played a part in drawing the company to the state due to its tax structure, right-to-work laws, and prevailing wage requirements. Moreover, the land is more "attractive" given it has direct rail, interstate, and water access. According to Senator Westerfield, automotive products are one of the top five largest exports in Kentucky, with agriculture being the primary driver of Christian County's regional economy. New industrial presences like Ascend's, however, are moving the needle. "There's already a presence being felt economically that is anticipated to get bigger when [Apex 1] is online and fully staffed," Senator Westerfield said. "It's a great opportunity to expand the economic footprint and … attract further industries if we continue to bolster our image for automotive manufacturing that will create new jobs." Once the facility completes construction and starts operations, the economic impact of this facility will become clearer.

Conclusion

Interviewees consistently reinforced how Ascend's investment will alter the fabric of the Hopkinsville community. Hendricks from the Southwestern Kentucky Economic Development Council mentioned that the payroll taxes during Apex 1's construction have provided the city with more funds to manage and distribute. Sova from Ascend pointed out how several new small businesses have recently moved to the area. And Mills from the Kentucky State Buildings and Construction Trades Council noted the growth in the workforce and registered apprentices in recent years. Senator Westerfield added that for this newcomer in Hopkinsville, and indeed for the EV industry, "the reception is positive and is expected to stay that way."

There are challenges, however. In the short term, construction is paused. Ascend faces an unresolved lawsuit and lagging demand for one of the key technologies it hoped to push forward in the near future — CAM. And uncertainty over federal tax credit policies, tariffs, an evolving regulatory landscape, and other market-influencing factors persist, impacting the value of key clean technologies like Ascend's pCAM.

In the longer term, it will be important to ensure that the public and policymakers see the benefits of the EV industry, and Apex 1 in particular. Sova pointed to the company's efforts to educate the community, coupled with the tangible impacts of community investment, including new storefronts and local opportunities, as important steps to ensure strong public support.

Ascend Elements shows how strong public-private partnerships in the onshoring of an EV supply chain can increase the nation's economic and energy security, promote sustainable jobs, and improve equity in communities like Hopkinsville, Kentucky. As Lin mentioned, "The goal to wean the United States off of Chinese supply chain dependence remains regardless of who's in the White House or in control of Congress, and we are squarely in the center of that, so we look forward to continued support."

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Appendix A: Methodology

Atlas Public Policy selected the Ascend facility for a case study based on three criteria:

1. The facility denotes a substantial investment in the electric vehicle (EV) supply chain. This encompasses all announcements exceeding $100 million or ranking in the top 10 percent of the largest investments within a specific segment of the supply chain. Segments of the manufacturing supply chain include batteries, light-duty vehicle assembly, medium and heavy-duty vehicle assembly, mineral processing and separation, EV chargers, EV parts, and battery recycling.
2. The facility has received or will receive support from IIJA and/or IRA or another federal program to help finance the construction or operations start-up at a facility. This includes at least one of the following programs (this is not an exhaustive list but provides examples of possible federal support) accessed by the facility and/or its suppliers or customers:
    a. Advanced Technology Vehicles Manufacturing (ATVM) Loan Program
    b. Advanced Energy Manufacturing and Recycling Program
    c. Battery Materials Processing and Battery Manufacturing and Recycling Grants Program
    d. Electric Drive Vehicle Battery Recycling and Second Life Applications Grant Program
    e. Qualifying Advanced Energy Project Credit (48C)
    f. Advanced Manufacturing Production Credit (45X)
    g. Domestic Manufacturing Conversion Grants Program
    h. New Clean Vehicle Credit (30D)
3. The facility is either under construction or operational.

For this case study, Atlas spoke with the following interviewees, ordered alphabetically by last name: Dr. Christopher Boyett (Hopkinsville Community College), Mark Fern (Ascend Elements), Taylor Hayes (Christian County Chamber of Commerce), Carter Hendricks (Southwestern Kentucky Economic Development Council), Will Johnson (Operating Engineers Local 181), Mayor James R. Knight (City of Hopkinsville), Roger Lin (Ascend Elements), Chad Mills (Kentucky State Buildings and Construction Trades Council), Harold Monroe (Pennyrile Allied Community Services), Ben Pope (Ascend Elements), DeeAnna Sova (Ascend Elements), Former Senator Whitney Westerfield (State of Kentucky), Scott Yarham (Ascend Elements), and Dr. Alissa Young (Hopkinsville Community College).

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