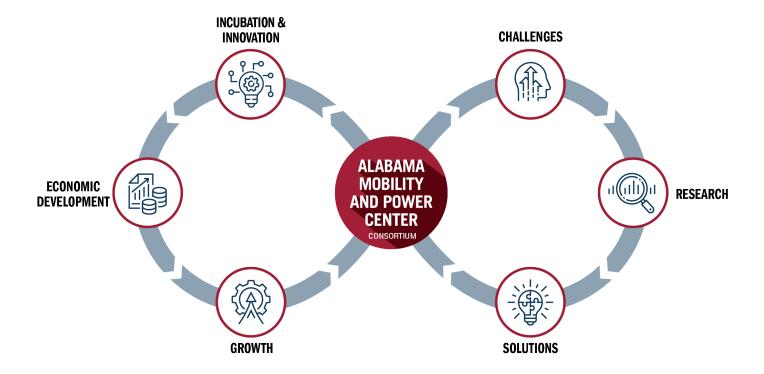


ABOUT AMP

The Alabama Mobility and Power Center envisions an innovative electric vehicle ecosystem where stakeholders from across the EV supply chain can confidently and effectively participate in activities that advance transportation electrification.

This participation includes purchasing electric vehicles, ensuring adequate grid capacity, increasing charging capability, and establishing and growing domestic industry around materials extraction, recycling, and supply chain component and system manufacturing. Through this holistic view, the AMP Center is uniquely positioned to support the new EV economy.

The combination of significant automotive manufacturers and supplier presence in the southeast, combined with substantial mining capacity for the necessary materials for batteries and other critical EV systems, makes Alabama an ideal home for a center devoted to the EV ecosystem.



A robust EV ecosystem in Alabama by 2035 will require cross-functional coordination and innovative leadership to effectively seize the opportunities the new EV economy brings.

Electric vehicles, power infrastructure and related supply chains will bring significant economic development opportunities to the state, for both existing industry and new startup businesses. The AMP Center intends to grasp these opportunities by leveraging the significant research capabilities of The University of Alabama, providing private industry use-

inspired solutions to critical issues that hinder mass adoption of electric vehicles. These public/private partnerships will create new industries to support and bolster existing industry, ensuring all components of the EV ecosystem support long term sustainability. Critical to this effort will be a skilled and available workforce.

AMP will provide leadership as well as services to ensure Alabama is well positioned to support the burgeoning EV market.

The AMP Center will serve as an innovation hub for EV technology, while supporting the manufacturing, supplier, raw materials, and consumer economies.

This combination of innovation and support of the EV ecosystem in one place will provide momentum and capacity for AMP Center to lead a similar transformation of the US EV ecosystem.

Providing leadership for the US EV ecosystem is critically needed now. Currently, auto manufacturers are leading the EV transition; however, for their efforts to be successful, the lagging components of the ecosystem (supply

chain, charging capacity and infrastructure, and consumer purchasing rate) must be aligned with the auto manufacturers' level of commitment.

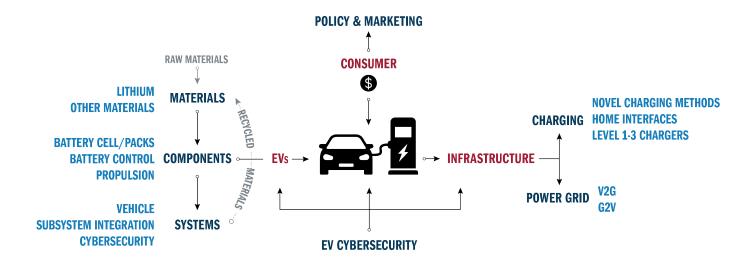
This is important for two reasons: to maintain a healthy automotive economy and, consequently, to keep our population mobile to a degree sufficient to sustain our economy and culture.

STRATEGIC VISION

The Alabama Power and Mobility Center will focus on electrification of transportation systems in the state of Alabama.

To ensure mass adoption of electric vehicles, the AMP Center must coordinate efforts with existing and new entities statewide in the public and private sectors. Through focused efforts, the state of Alabama will benefit from significant economic development opportunities

in the developing EV economy. To ensure these opportunities are secured, coordination and a common understanding of the desired outcomes is necessary. This effort will require a strong consortium of entities representing all areas of the electric vehicle ecosystem.



INDUSTRY, ACADEMIA, and GOVERNMENT

working together focused on

RESEARCH enabled INNOVATION

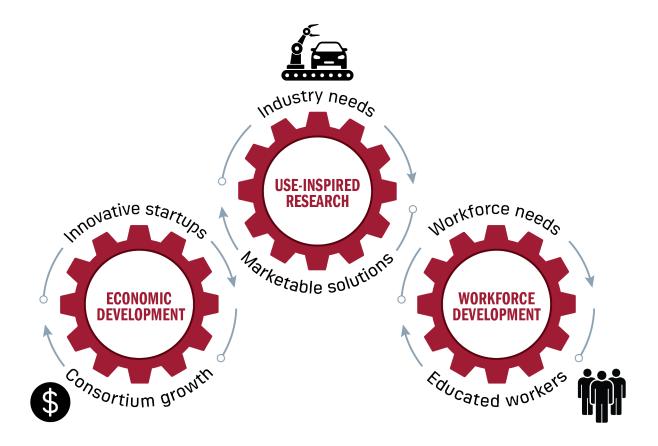
driving ECONOMIC and WORKFORCE DEVELOPMENT

capable of exceeding the needs of

E-MOBILITY CONSUMERS.

AMP will focus on three distinct areas:

- a | Use-inspired research
- **b** | Economic development
- c | Workforce development



Each system (gear) consists of an input (top) and an output (bottom). Industry challenges and opportunities brought forth by AMP's consortium members will drive use-inspired research, resulting in marketable solutions to issues that would otherwise hinder the widespread adoption of electric vehicles.

These marketable solutions then lead to economic development opportunities, enabling the onshoring of traditionally offshore components and materials. Onshoring will

provide opportunities to economic development entities in the state, attracting capital investment to either grow existing business or build new startup companies. New companies generated from this process are then recruited into the AMP consortium. This industrial growth will add jobs and require new and specific skills. AMP will focus on identifying workforce needs across the ecosystem and provide training alternatives and assistance to support the development of a trained workforce.

KEY OUTCOMES



Create a robust consortium, representing entities spanning the entire EV ecosystem. The challenges and innovations that the diverse EV ecosystem represent must be considered in the development of holistic solutions.



Enable the creation of a domestic battery industry, including raw materials supply, materials processing, cathode, anode, separator manufacturing and material recovery in the United States.



Prepare the power infrastructure required to enable mass electric vehicle introduction, including power grid, distribution, charger infrastructures and control systems incorporating V2X (vehicle to x) strategies.



Forecast, develop, and maintain a skilled and available workforce capable of providing goods and services required to maintain a healthy and robust electric vehicle economy. Leverage existing workforce development entities in the state, train, and retrain the workforce, enabling economic growth.

STRATEGIC PLAN

To ensure the AMP Center's success, the end users of the goods and services contained in the EV ecosystem must be at the center of any action.

Though a customer focused model, all activities and actions will support the desire of consumers. The result being consumer driven, predictable and sustainable EV adoption.

To this end, the first action of the AMP Center must focus on is understanding the desires, apprehensions, and anxieties of consumers entering the EV market.

ACTION ITEM 1.0

Market Analysis | Business Intelligence

Develop a robust forecasting tool to predict the adoption of personal electric vehicles (EV) adoption in the state of Alabama. This tool would allow input of critical variables that will influence the rate consumers adopt EVs. Ideally, the tool will allow users to input multiple variables that influence potential EV consumers. This will be accomplished through dropdown formatting, resulting in a forecasting tool predicting EV adoption under variable conditions over the next 15 years.

The intent of the tool is to allow various inputs to be changed. The rate of EV adoption would then be forecasted under the selected conditions. Understanding that some of the inputs are out of our direct control, i.e. gasoline prices, while other are within our control, i.e. charger availability. This tool will drive actions to influence variables within our control, allowing the growth rate of mass EV adoption to be understood.

This tool will not only be used to predict and drive specific actions but also be critical in the recruitment of AMP consortium members. EV market is in its infancy, understandably the behaviors of consumers are not well understood. This coupled with evident and significant growth in the EV market, provides the AMP Center with a desirable and marketable business intelligence product.

1

Key variables of a
FORECASTING TOOL
should include but not
limited to the following:

- + Gasoline prices
- + EV price
- + Range
- + Charger availability
- + EV availability
- + Electricity price
- + Incentive availability



Although the AMP Center offers the unparalleled research capabilities of The University of Alabama coupled with private industry — Alabama Power and Mercedes Benz — entities in the market to join a consortium have choices.

Several higher learning institutes in the United States offer what may seem comparable consortium offerings. The AMP Center will be competing for consortium members with other automotive research centers and must offer a value proposition that exceeds that of our

competitors. To this end, market research into the competition will be completed and analyzed. Using this knowledge, marketing strategies will be developed to recruit a robust and sustainable consortium membership.

ACTION ITEM 2.0

Consortium Value and Membership

Develop a marketing strategy for the Alabama Mobility and Power Center. This strategy must include several key components to ensure the long-term success of the center. These tools will be used concurrently to promote the Alabama Mobility and Power Center as the premier center for research and development, economic development, and workforce preparedness for EVs in the nation.

This value proposition must be followed up with value added propositions and outcomes. The consortium membership will require frequent, informative, and insightful information and innovation outcomes to maintain the value proposition. This will require fulltime attention to the membership through professional and concise communications.

Additionally, it is imperative that the voice of the customer and subsequent challenges that arise from their voice are understood, distilled, and translated into specific research initiatives that lead to innovations and economic development opportunities.

To this end, a mechanism to frequently listen to the consortium membership as well as the voice of the consumer must be developed and maintained. 2

The MARKETING STRATEGY will include the following:

- + AMP strategic plan
- + EV consumer business intelligence model Action item 1.0
- + Competing center market analysis Capability & value assessment
- + Market penetration strategies Conferences, speaking engagements, etc.
- + Media penetration plan Paid, earned, & owned
- + Promotional images and items Graphic representations
- + Targeted sector
 analysis
 Specific aligned
 business entity listing
- + Value proposition
 Pricing strategy

Insight from the consumers and consortium members will be invaluable to the research conducted by the AMP Center; however, currently there are significant known milestones that must be overcome to ensure a robust and sustainable EV ecosystem.

One of these is also of particular interest to the nation as it has become a national security concern. Getting to widespread electrification in the United States requires an increase in domestic lithium-based battery manufacturing by as much as 20 or 30 times current capacity.

Currently, the United States relies on imported advanced battery components from Asia. This reliance on overseas battery suppliers will become more concerning as not only consumers adopt EV's but also as military vehicles transition as well. According to a 2021 Benchmark Mineral Intelligence Forecast, "Lithium-ion battery demand in the United States is expected

to increase by over 900 percent in the next decade."

Although these statistics are concerning, they also provide a glimpse into the vast economic development opportunities that the burgeoning EV market brings. New innovations are needed in all aspects of the battery supply chain to fulfill the market demand, this coupled with the desire to onshore creates a tremendous opportunity to create a US based battery supply chain network. Alabama's chemical processing capability, graphite deposits and mining capabilities must be leveraged to seize this once in a lifetime economic development opportunity.

ACTION ITEM 3.0

Domestic Battery Industry Strategy

Create a statewide task team to identify components, skills, capital, and infrastructure requirements to effectively sustain battery production in the state of Alabama. From this initial study, an assessment of the feasibility of the scope Alabama can effectively and profitably interact in the global battery supply chain economy can be determined. Expertise from diverse backgrounds across the state will have to be collected into a task force. This taskforce must include members spanning the supply network from mining though processing and manufacturing, a wide array of state agencies such as environmental, commerce, EDPA and others will also have to be engaged.

Entry into the global battery market will be challenging as the industry is well established overseas. Understanding the economic impact and growth opportunities within the battery industry are staggering, therefore, Alabama must offer a compelling value proposition for entry into this market.

3

- + Develop business sector development strategy
- + Create a diverse targeted task force
- + Assess the requirements
- + Create research initiative
- + Identify gaps in the state
- + Target industries
- + Engage in partnerships
- + Identify skill and workforce requirements
- + Identify and secure capital requirements

Battery research and development expertise and facilities are currently unavailable in the state. To this end, AMP must also create a world class battery research center capable of driving a domestic battery supply chain.

ACTION ITEM 4.0

Domestic Battery Research Hub

The Laboratory for Advanced Battery Component Research envisions a world class battery research and industrial incubator. This center, focusing on the battery chemistry, rare earths, battery cell manufacturing, battery packs, as well as spent materials recovery, will lead the effort towards domestic battery sustainability.

Located centrally at The University of Alabama, the university's existing R1 research capabilities will be leveraged to drive innovations enabling this industry to flourish in the US. AMP Center's consortium will drive use-inspired research, leading to marketable solutions throughout the battery supply chain.



- + Develop research facility at the AIME building
- + Target faculty to drive research requirements
 Rare earths
 Battery chemistry
 Cell manufacturing
 Battery pack
 manufacturing
 Material recovery & reuse
- + Engage in partnerships
- + Identify skill and workforce requirements



While the opportunities for battery supply market growth are formidable, a robust charging infrastructure is equally important. EVs will create a new scenario for stored personal electrical energy.

Power outages could be mitigated using stored energy and grid resilience could be improved though load shaving. The possibilities are

endless. As electric vehicles grow in range and popularity, a new energy economy will be created as EVs reach market saturation.

ACTION ITEM 5.0

Robust Charging Infrastructure

Develop and fully utilize AMP's testing facility. This state-of-theart research center focused on customer use of stored energy will provide a test bed for development of products and services enabling a new energy economy. Initial testing equipment and capabilities will be modeled after actual in-use scenarios. The structure will also be designed with growth capability for the evolving EV market.

This innovative and creative environment will be staffed with members from private industry as well as academic experts to ensure robust solutions that can be adopted into the existing infrastructures.



- + Develop research strategy
- + Create state-of-the art research facility
- + Assess the requirements in the market
- + Create use-inspired solutions
- + Market and create innovative startups





Consumer adoption of electric vehicles is dependent on EVs, charging systems, and the power grid working as one integrated, easy-to-use system for everyone. EV consumers generally will not be concerned with specifics such as charger type, discharge rates, or kWh capacity, but will demand simplicity at the level traditional ICE (internal combustion engine) vehicles currently offer.

To facilitate this, battery management systems (BMS) and controls will have to be simple and predict consumer behaviors. BMS manage a rechargeable battery to ensure it operates safely and efficiently. BMS must also be aware of the battery operational characteristics to eliminate

safety risks and optimize battery operation.
Bloomberg estimates the EV battery management system market to be worth \$37.3 billion by 2029.
This area and related cyber security issues that arise due to monitoring must be considered of utmost importance.

ACTION ITEM 6.0

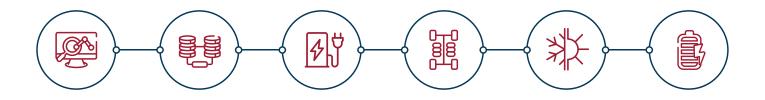
Battery Management System Research and Business Incubation

The AMP Laboratory for Advanced Battery Component Research, along with industrial battery development initiatives, must also develop BMS software to facilitate a smooth transition to electrification. This area of center, focusing on IT solutions, will lead the effort towards EV market saturation, while also providing mitigation strategies for growing grid demand, the new electric economy, and standardization.

Early, integrated development of the batteries and battery management systems may provide the advantage that Alabama needs to enter the battery market. These efforts will enable the United States to improve on the weak market share they currently hold in the global battery market.



- + Develop research strategy
- + Create state-of-the art research facility
- + Assess the requirements in the market
- + Create use-inspired solutions
- + Market and create innovative startups



The entire EV ecosystem — from raw material, component, battery and vehicle manufacturing, and charger infrastructure to end-of-life material recovery — while offering great opportunity, also represents a daunting challenge in providing skilled and available workforce to ensure seamless operation.

Currently, existing industry is challenged to maintain a skilled workforce. For Alabama to effectively become a leader within the EV space, workforce must be in the forefront of any strategy. Proactively, the state has been diligently focused on workforce and has created world class programs such as Alabama Works and AIDT. These initiatives, paired

with the Alabama Community College System and the resources of UA, provide a strong foundation for an EV workforce to be developed and maintained. An effective workforce strategy must encompass new talent entering the workforce and the vast retraining of the existing workforce required to supply and maintain the EV ecosystem.

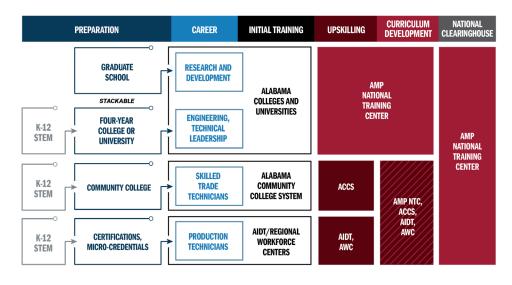
ACTION ITEM 7.0

EV Ecosystem Workforce Development

A robust and high functioning EV ecosystem must consider all aspects of the workforce and desire to create careers equally for all members of society. The AMP Center will focus on the development of programs, systems, and facilities to train and retrain individual spanning the entire ecosystem. Mass adoption of EVs will enable development of innovative programs focused on underserved communities.

Social equity should be at the forefront of any workforce initiatives.

Through utilization of existing workforce development streams, staffing needs can be effectively and efficiently developed.





- + Identify jobs and demands
- + Determine quantity of training required in each field and level
- + Engage under-served communities
- + Determine curriculum and training/retraining requirements
- + Propose new resources to fill training requirement gaps



Finally, as electric vehicles gain in popularity and eventually saturate the market, governmental policies and regulations will have to be addressed as traditional tax revenue from gasoline tax are reduced and electric power economies arise.

These issues and other policy platforms must be aligned with this wholistic strategy. For example, the state of Georgia has modified the residential building code making it mandatory for new houses to include a 220V power supply specifically for EV charging. The advent of personal ownership of significant stored power will also require regulations to ensure the stability of the grid.

ACTION ITEM 8.0

EV Policy and Regulation

The AMP Center will leverage policy experts from the public and private sectors to help create regulations and laws - including taxation strategies - that can support an electrified transportation system.

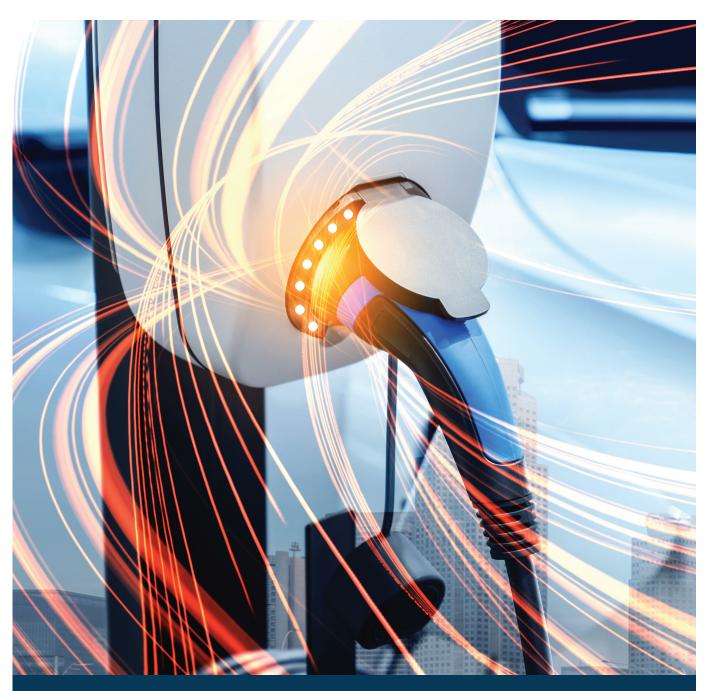


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Key MILESTONES:

- + Develop research strategy
- + Determine policy and regulation scope
- + Assess the requirements in the market
- + Create inspired policy reform
- + Market and educate public

The Alabama Mobility and Power Center will focus initially on these eight action initiatives to prepare a foundation of growth. Although the Center will initially focus within the state, longer-term, the AMP Center envisions this model being used nationally, positioning the center as the premier center of excellence for electric vehicles in the US. The AMP mid-term specific action plan provides a roadmap, resources, and funding needs to bring this strategic plan to fruition.



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