
Executive Summary

The American Jobs Project was borne of two tough problems: loss of middle-class jobs in the United States and congressional paralysis. It seeks to address these problems by taking advantage of one of the biggest market opportunities of our era—the advanced energy sector—and to do so at the state, not the federal level. Policymakers who leverage the unique strategic advantages of their state to grow localized sectors of interconnected companies and institutions are poised to create quality jobs.

As a result of the state’s skilled labor force, world-class universities and research facilities, and strong manufacturing and engineering sectors, North Carolina is in a prime position to benefit from the growing demand for advanced energy. As of the end of 2015, the state boasted nearly 1,000 clean energy businesses that provide more than 26,000 full-time equivalent (FTE) jobs to North Carolinians.¹¹ A strong advanced energy economy has already taken hold in North Carolina and the sector is growing. From 2012 to 2015, employment in the clean energy industry increased from 15,200 to 26,000 FTE positions, representing an annual increase of 24 percent.¹² Leveraging this momentum to serve growing regional, national, and global markets would offer significant benefits for North Carolina’s economy and provide good-paying jobs for the state’s residents.

Extensive research and more than ninety interviews with local stakeholders and experts in North Carolina have resulted in identifying two economic sectors showing particular promise: utility-scale batteries and biogas.

There are several barriers hindering North Carolina’s advanced energy industries and preventing supply chains from reaching full potential. North Carolina must address these roadblocks to grow the state’s advanced energy sectors and realize economic gains. To take full advantage of these opportunities, North Carolina’s leaders can enact policies to increase demand for utility-scale batteries and biogas technology and to help the state’s businesses grow, innovate, and outcompete regional, national, and global competitors. Indeed, with the right policies, North Carolina can support over 19,000 jobs per year through 2030.

This project serves as a research-based roadmap for state and local leaders who seek to develop smart policies that leverage North Carolina’s resources to create skilled, good-paying jobs. The number of jobs created is highly dependent on action taken by state and local policymakers. Concerted effort at the state and



local levels can create an environment that attracts advanced energy businesses to take root in North Carolina. Employees in the advanced energy sector will spend their earnings in the local economy at grocery stores and restaurants, and those local establishments will need to hire additional staff to satisfy demand. This creates a multiplier effect throughout North Carolina's economy, where a single dollar spent in a community circulates through local businesses and their employees numerous times.

Summary of Policy Recommendations

The analysis presented in this report culminates in four thematic sets of recommendations for North Carolina's leaders. Each set of recommendations identifies opportunities for barrier removal and future growth in the utility-scale battery and biogas sectors. While the recommendations are intended to be complementary and would be powerful if adopted as a package, each can also be viewed as a stand-alone option. These recommendations chart a course for North Carolina policymakers to create and enhance jobs in the advanced energy sector.

Utility-Scale Batteries

Properly Define the Value Utility-Scale Batteries Add to the Grid:

The most significant barrier for the utility-scale battery industry is accurately valuing the multitude of services that batteries provide to the grid. The North Carolina Utilities Commission (NCUC) could establish a proper valuation method in order to demonstrate that energy storage is economically and technically feasible. Based on its feasibility, the NCUC could require utilities to include energy storage in their Integrated Resource Plans, signaling to manufacturers that North Carolina is ripe for investment.

Require Cost of Service Transparency: Utility-scale batteries can provide the grid with flexibility on a minute-by-minute basis, yet this value is currently undiscoverable due to the scale of data available. The NCUC could require all utilities to disclose sub-hourly pricing information, which is actively collected but inaccessible to industry. Transparent costs could allow the utility-scale battery industry to better demonstrate the feasibility and potential cost savings of deployment, enabling the proper valuation of energy storage.

Enhance Cost Recovery by Utilities: Pilot projects for utility-scale batteries must be large-scale in order to accurately demonstrate the value of the technology, increasing the financial and regulatory burden for utilities. To enable more pilot projects, the NCUC could authorize utilities to lease equipment from battery

companies and recover costs of the lease from ratepayers, ultimately saving a large capital expense. Alternatively, the legislature could increase the amount that utilities are permitted to recover from ratepayers without additional review.

Provide Refundable and Transferrable Tax Credits for Battery Manufacturers and Installers: Tax credits are an important support mechanism for businesses. However, income tax credits are only valuable to entities that have a tax liability (i.e., taxable profits). Thus, most new and expanding companies are unable to take advantage of them due to slow profit growth or large capital investments. The legislature could allow a franchise tax exemption or an income tax credit for in-state businesses engaged in the manufacturing or installation of utility-scale batteries and related equipment. The income tax credits could be refundable and transferrable to allow companies to benefit from the incentive immediately. By stimulating in-state manufacturing and installation, North Carolina could secure good-paying local jobs.

Biogas

Create a North Carolina Biogas Public-Private Partnership: Misinformation and lack of understanding about the costs and benefits of anaerobic digestion hinder market growth in the state. North Carolina's governor's office could create a targeted biogas public-private partnership (the "Partnership") with the NC Bioenergy Council and the Economic Development Partnership of North Carolina to help cultivate strong leadership, educate policymakers, foster strategic public-private relationships, and identify opportunities for growth. Once formed, the Partnership could recruit foreign direct investment, streamline the project development process, focus on farmer education, and create an aggregate purchasing agreement with equipment manufacturers in order to foster industry growth.

Exempt Biogas Projects from Property Tax: Capital investments, such as an anaerobic digester and associated equipment, significantly increase the value of farms. However, a major barrier to these upgrades is that farms' tax liabilities increase according to the improved value of their property, negatively impacting the economics of the investment. To encourage project development, North Carolina policymakers could offer property tax exemptions to properties installing new biogas or waste-to-energy equipment. The legislation could provide fifteen to twenty years of abatements in order to give farmers and developers the certainty and stability they need to invest in projects.

Establish a Loan Program for Biogas Projects: Due to large upfront costs of biogas projects, low-cost financing is critical to creating



favorable project economics. Given the economic potential and public health benefits of capturing methane from waste, the state government could consider creating a streamlined loan program for biogas projects by issuing low-rate bonds using a guarantee under the Clean Water State Revolving Fund. The North Carolina Department of Environmental Quality could use the revenue from the bonds to establish a loan program dedicated solely to the biogas industry. As loans are repaid, the fund would continue to invest in new projects, cultivating the manufacturing base and attracting good-paying jobs.

Enable the Use of Performance Contracts for Biogas Fleet Vehicles: Alternative fuel vehicle (AFV) fleets allow municipal governments to improve energy security, decrease fuel costs, and stimulate demand for locally sourced fuels. Despite these benefits, barriers such as lack of experience, inability to accurately predict cost savings, limited budget authority, and lack of access to financing and incentives prevent governments from retooling fleets to biogas-powered vehicles. To streamline the retooling process, North Carolina could take advantage of performance contracts. The legislature could expand energy service contracts to include public fleets. Encouraging AFV fleets could provide cost savings, increase local demand, stimulate job growth, and preserve public health in the process.

Create a Carbon Offset Market Aggregator: Biogas projects qualify as carbon offsets because they reduce methane gas emissions. Carbon offsets can improve a project's financial viability and create significant revenue streams for the project developer. However, participation in these markets presents high transaction costs for single players. Carbon offset aggregators reduce this cost burden by pooling offsets from multiple projects. To encourage market aggregation, a private company could establish a public-private partnership with the North Carolina Cooperative Extension or the Natural Resources Conservation Services to facilitate the program. This partnership could leverage existing relationships with the farming community to promote and facilitate the program, expanding benefits to more farms throughout the state.

Allow Third-Party Sales of Biogas-Generated Electricity: Farmers cite barriers such as time, cost burden, and risks associated with feedstock supply as major deterrents of biogas project development. In some states, third-party ownership of biogas systems alleviates this barrier, by allowing farmers to generate energy on their own property without purchasing the energy system outright. Currently, North Carolina does not allow third-party sales of electricity, which effectively prohibits this alternative ownership model. North Carolina policymakers could authorize third-party electricity sales for biogas projects to enable

third parties to develop, own, and sell electricity from biogas projects directly to farmers and nearby customers. Increasing access to biogas technology could help the industry achieve economies of scale and spur in-state demand.

Innovation Ecosystem and Access to Capital

Enable and Promote Equity Crowdfunding: North Carolina has consistently lost out to other states in attracting venture capital investment. To attract private funding for new in-state companies, the legislature could create a securities exemption for equity crowdfunding. Equity crowdfunding is a mechanism for early-stage companies to raise money from a large group of investors by issuing ownership shares through a streamlined process. North Carolina could further support equity crowdfunding by creating an online portal for businesses and investors. These efforts could spur innovation, economic activity, and small business growth by easing the regulatory burden faced by entrepreneurs when raising public funds.

Create Tax Incentives for Investment in Startups: North Carolina's high capital gains taxes are a barrier for investors because they cut into the profit made from investments. Investors are also often reluctant to invest in early-stage companies because of the high level of risk involved. To address this barrier, North Carolina legislators could establish a statewide policy that reduces or eliminates capital gains taxes for investments in targeted early-stage North Carolina companies, such as utility-scale battery and biogas companies. This targeted tax exemption could help attract advanced energy startups to the state by offering support during the technology development and commercialization stages, often called "the valleys of death."

Workforce Development

Improve Industry-Wide Participation in Apprenticeships: Apprenticeship programs provide valuable on-the-job skills, making them an important component of career development and workforce training in emerging industries. However, North Carolina ranked last in the country in per capita apprenticeships. The North Carolina Department of Commerce could improve the quantity and quality of apprenticeships by providing fiscal incentives for participating companies, working directly with employers to tailor program guidelines, collaborating with colleges to create career pathways, and bolstering programs through industry-wide recognition. Increased apprenticeship opportunities could reinvigorate job training and career



exploration for North Carolina students.

Enable Dislocated Veterans to Get Back to Work: North Carolina’s veteran population represents a well-trained and motivated sector of the workforce that can contribute to the growth of the advanced energy sector. Despite the high demand for their skill set and supportive state policies, North Carolina’s unemployment rate for veterans is equal to the state average. Drawing from New Jersey’s upSKILL program, partnerships between the North Carolina Department of Veterans Affairs, local workforce development boards, and community colleges could effectively connect veterans and employers, especially in the advanced energy industry. Targeted workforce development could enable veterans to return to work and help stimulate the economy.

Expand Public-Private Training Partnerships with Local Community Colleges, Workforce Development Boards, and Employers: Employers in North Carolina are having difficulty finding qualified workers to fill open positions due to lack of specialized work experience and technical skills. North Carolina could address the skills gaps in the utility-scale battery sector by expanding public-private training partnerships. Specifically, employers could collaborate with local community colleges to enhance the existing NCWorks Customized Training Program through tailored training and internship opportunities. These partnerships could support job growth, increase investment in technology, and improve productivity for local businesses.

Enhance Higher Education Programs Relevant to Advanced Energy: Employers in the state report difficulty in finding workers with cross-cutting skills. North Carolina’s universities could enhance existing degree programs throughout the state by incorporating energy-related coursework into the curriculum and providing a means for interdisciplinary collaboration. Furthermore, establishing a battery technology degree program would provide employers with workers with the specialized education needed by the industry. These programs could attract manufacturers to the state and create an environment conducive to innovation and advancement in the energy storage industry.