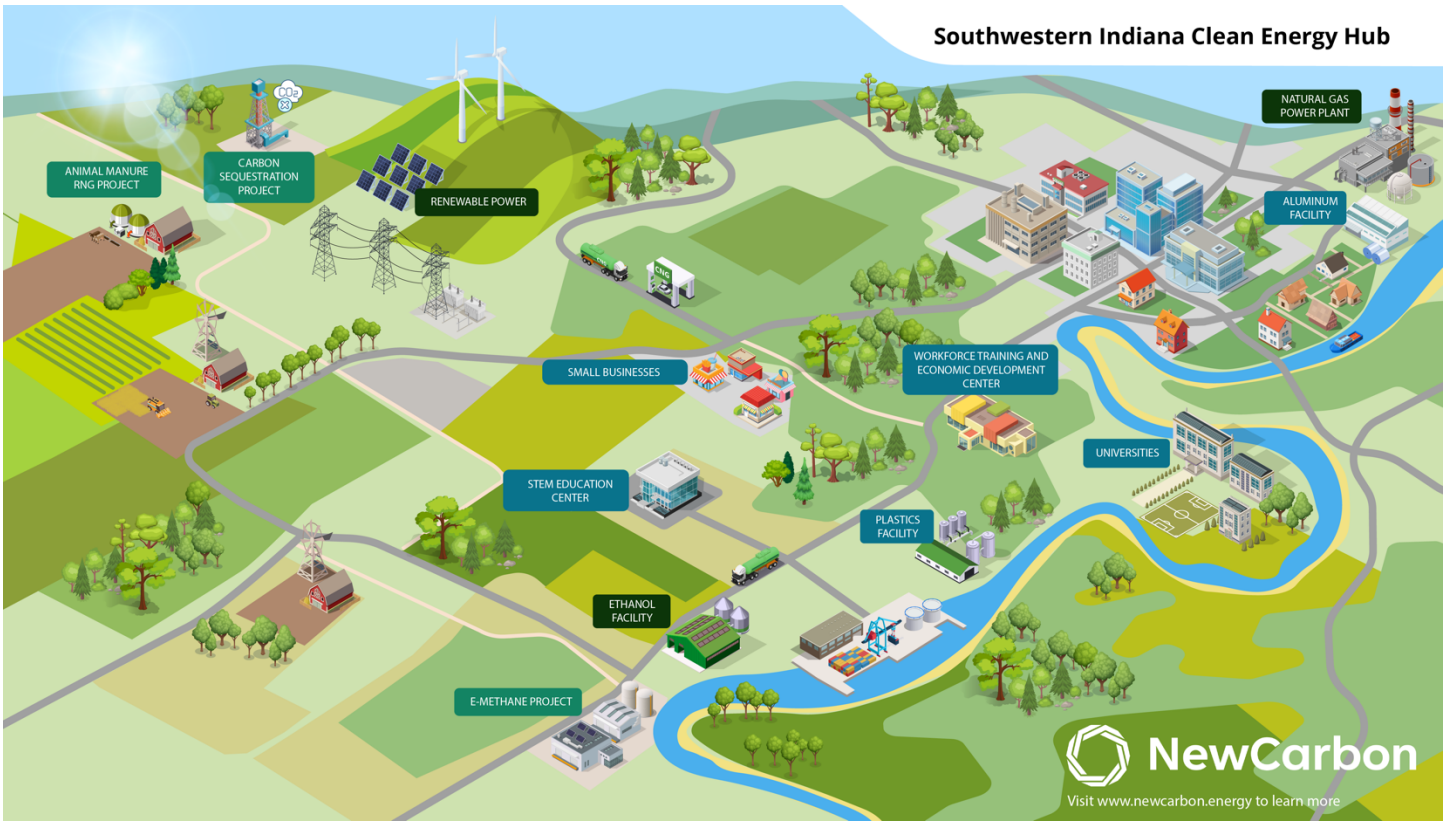

Title: Southwestern Indiana Clean Energy Hub

Background

- Southwestern Indiana has a unique energy demand profile, with a higher proportion of its energy usage coming from the industrial sector compared to state and national averages. This presents an opportunity to preserve and grow the industrial base transitioning from coal to gas-powered stations in the Southern Indiana region while developing a resilient workforce to support the attraction of new industries to the region.

Proposal

- The Southwestern Indiana Clean Energy Hub is a transformative initiative designed to transition the region from coal to cleaner energy sources. The proposed Clean Energy Hub will leverage the region's existing industrial strengths and integrate new clean energy technologies to create a sustainable and resilient energy infrastructure.

Impact

- Central to the hub are proposed new build natural gas power plants which in turn enables three new regional energy projects, an Animal Manure Renewable Natural Gas (RNG) Project, an E-Methane Project, and a Carbon Sequestration Project, that collectively aim to reduce carbon emissions by approximately 3 million metric tons of CO2 per year, generate 52 to 82 permanent full-time jobs, and bring a total capital investment of $1.9 to $3.2 billion to the region.

Center of the Clean Energy Hub

- The driving force behind the clean energy hub are proposed new build natural gas power plants that uniquely supports the objective of leveraging the energy hub concept to preserve and grow the industrial base in Southern Indiana.

- Southern Indiana's legacy coal power plants allowed for the development of a strong local supply chain, from coal mining and rail transportation activities as part of the industrial base that exists today in the region.
- Much like coal, natural gas power generation can similarly serve as an energy hub fostering new supply chains built around the strengths of the regional economy, while preserving the existing industrial load and growing the industrial base.
- The 3 potential clean energy projects leverage natural gas power generation as an energy hub from which the Southern Indiana region can integrate its agricultural, industrial and energy sectors to be cleaner and more economically resilient.

Spokes of the Clean Energy Hub

Animal Manure RNG Project

- The Animal Manure RNG Project will utilize local agricultural operations, such as dairy and swine farms, to produce renewable natural gas. This project will convert animal manure into biogas, which will then be treated and converted into RNG. The locally sourced RNG will serve as a sustainable alternative to coal, supporting natural gas plants. This project will reduce greenhouse gas emissions by 11,000 to 17,000 metric tons of CO2 per year and provide a new revenue stream for local farmers. It is expected to generate 2 permanent full-time jobs and requires a capital investment of $10 to $15 million.

E-Methane Project

- The E-Methane Project will combine captured CO2 from local industries, such as ethanol production, with hydrogen produced from renewable power to create e-methane. This clean fuel will support one or more natural gas power plants, reducing its carbon footprint by 142,000 metric tons of CO2 per year. The project will also contribute to the development of a hydrogen economy in the region, creating new job opportunities and fostering innovation in clean energy technologies. It is expected to generate 25 to 40 permanent full-time jobs and requires a capital investment of $600 million to $1 billion.

Carbon Sequestration Project

- The Carbon Sequestration Project will establish a regional hub-and-spoke network for carbon capture and storage (CCS). This network will enable the long-term transition of natural gas power plants to net-zero emissions by capturing and storing CO2 emissions from various industrial sources. The project will reduce carbon emissions by 2,850,000 metric tons of CO2 per year. The captured CO2 can also be used as a feedstock for industries that produce valuable products, such as polymers and chemicals, further enhancing the region's economic resilience. It is expected to generate 25 to 40 permanent full-time jobs and requires a capital investment of $1.3 to $2.2 billion.

Next Steps

- The private sector has a unique opportunity to take the mantle in developing the Southwestern Indiana Clean Energy Hub projects. By leveraging their expertise, resources, and innovative capabilities, companies like NewCarbon can drive the successful implementation of the Animal Manure RNG Project, E-Methane Project, and Carbon Sequestration Project. These projects not only align with the strategic goals of transitioning to cleaner energy sources but also build upon the region's existing industrial strengths and supply chains. By investing in these initiatives, private sector entities can foster new supply chains, create job opportunities, and enhance the economic resilience of the region. Moreover, their involvement will ensure that the projects are developed efficiently and effectively, maximizing the benefits for the local community and contributing to a more sustainable and prosperous future for Southern Indiana.