SC NEXUS for Advanced Resilient Energy Overview

2024

# Goals of the Economic Development Administration (EDA) Tech Hub Program

Strengthen U.S. economic and national security through place- based investments in regions with the assets, resources, capacity, and potential to become **globally competitive, within approximately ten years,** in the technologies and industries of the future - and for those industries, companies, and the good jobs they create to start, grow, and remain in the United States.
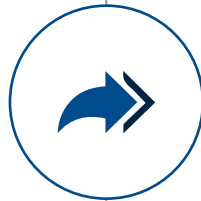
Advance the capacities of places to commercialize, deploy, and domestically manufacture and deliver technologies, increasing the speed and effectiveness with which industry and other organizations transition technologies upward from Technology Readiness Levels 6 through 9, rather than funding and building capacity for foundational research.

Support the **modernization of United States manufacturing and improve commercialization** and domestic production of innovative research.

Catalyze self-sustaining, globally-competitive regions, each focused on a key technology focus area and with a focus on geographic **diversity and equity.**

Receiving the EDA Tech Hub designation provides benefits that drive economic growth and equity

Follow-on Funding
- Tech Hubs Designees can apply directly for **future Tech Hubs implementation funding**
- Distressed communities within Tech Hubs regions will be **given higher consideration** for other relevant Economic Development Administration funding opportunities

Branding & Technical Assistance
- The U.S. Small Business Administration will provide **technical assistance** for the Small Business Investment Company (SBIC) program to **increase private investment** in Tech Hubs-located small businesses, **convene SBIC funds** with Tech Hubs leaders, **and facilitate connections** for Tech Hubs with the Small Business Innovation Research (SBIR) ecosystem

Foreign Direct Investment
- Tech Hubs Designees will have a **dedicated presence at the SelectUSA Investment Summit Exhibition Hall in June 2024.**
- Tech Hubs Designees will be invited to webinars to increase FDI interest in Tech Hubs and **create new opportunities** to showcase their regions for international business investment

Intellectual Property Guidance
- USPTO will provide Tech Hubs Designees **strategic guidance and technical assistance** on IP

Export Assistance
- U.S. Export Assistance Centers will **pilot select Tech Hubs Trade Specialists to serve as export assistance navigators** and offer a global resilience stress test for each Tech Hubs Designee

Source: EDA.gov

The EDA Tech Hub designation is a significant achievement for SC NEXUS and South Carolina, more broadly, proving the collective power of SC's advanced energy ecosystem

SC Nexus has made strides towards Tech Hub Designation

We were selected as one of 31 Tech Hubs by U.S. Economic Development Agency (EDA) from a pool of over 200+ applications

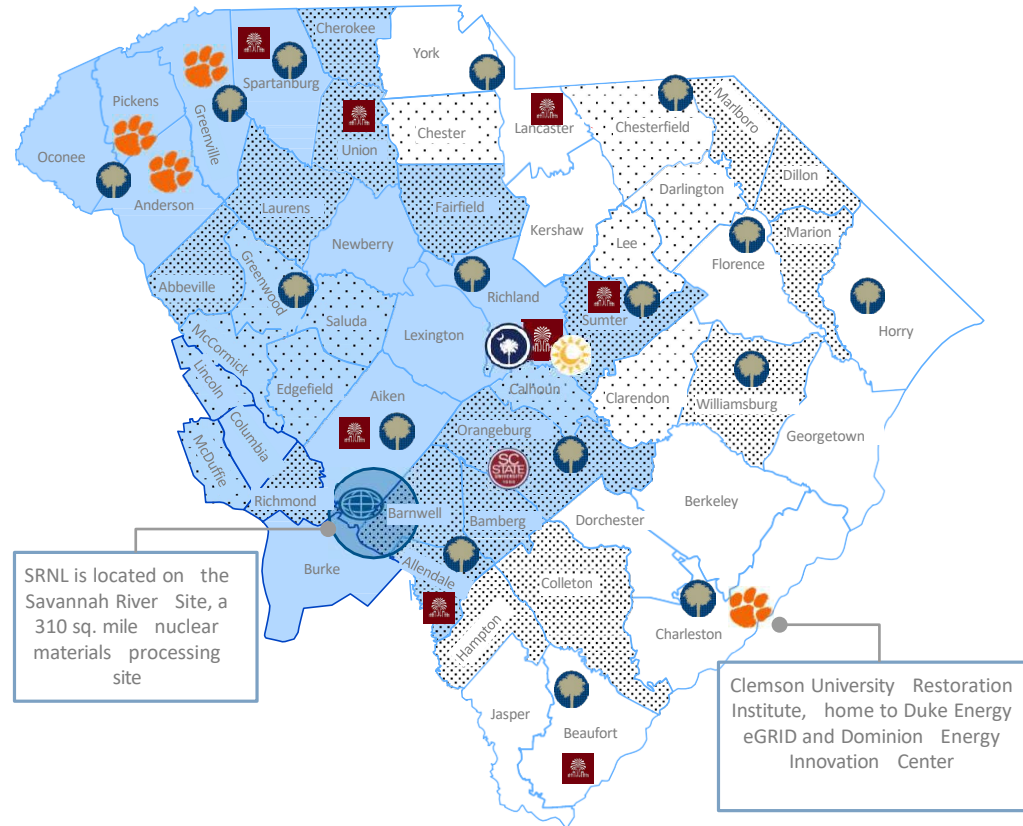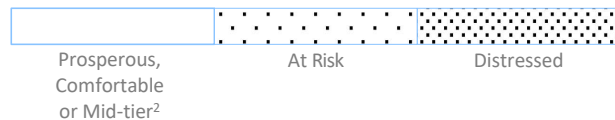# SC NEXUS' selected geography links critical assets across Midlands and Upstate

Consortium member locations

Clemson University

University of South Carolina

Savannah River National Laboratory

South Carolina State University

SC Technical Colleges

SC Department of Commerce

SC Council on Competitiveness

Included in Tech Hub boundary

South Carolina	Georgia

Distressed Communities Index (DCI)[1]

Prosperous, Comfortable or Mid-tier[2]	At Risk	Distressed

SRNL is located on the Savannah River Site, a 310 sq. mile nuclear materials processing site

Clemson University Restoration Institute, home to Duke Energy eGRID and Dominion Energy Innovation Center

Why this geography?

- EDA's Tech Hub notice of funding opportunity advises applicants to select a "tightly interconnected combination of MSAs" based on the "nexus of Tech Hub activities"

- Consortia may include assets or members outside the chosen geography

- Despite a selected geography, benefits are expected statewide

1. DCI measures the comparative economic well-being of U.S. communities and is derived from the U.S. Census Bureau's Business Patterns and American Community Survey 5- Year Estimates for 2016-2020. The seven components of the index include: HS diploma rate, housing vacancy rate, adults not working, poverty rate, median income ratio, change in employment, and change in establishments 2. For simplicity, combined categories of prosperous, comfortable, and mid-tier given the focus on at risk and distressed counties

South Carolina has the assets, resources, capacity and potential to be a global leader in grid resiliency

Dynamic growth and presence in energy market

- One of highest mix of clean energy & GDP from manufacturing in US[2]
- Manufacturing base aligned to energy industry need to reduce cost and increase supply of materials for generation (e.g., Westinghouse) and battery supply chain (e.g., anode/cathode, recycling)
- R&D in industry & higher ed in new chemistries for growing, nascent battery industry (e.g., Pomega, StoreEn)
- SC's energy grid provides testing ground for smart grid integration

Energy innovation ripe for catalytic investment[1]

- Governor McMaster's powerSC Executive Order[3]
- >$10B in industry investments across the battery supply chain,[4]
- including Pomega, Redwood, Cirba, Envision AESC
- DOE funding of ~$10M to Santee Cooper for grid resilience[5]
- NSF Engine award to CLEAN Carolinas[6]
- Duke's $3B investment in energy grid[7]
- Pending H2Hub application[8]

Business-friendly lab to market environment

- SC Fraunhofer USA Alliance's grant funding[9]
- SC Dept. of Commerce's 3PhaseSC program[10]
- SC university research capabilities and partnerships with industry and pro-business IP transfer policies[11]
- SCRA's SACT Grant Program[12]
- SRNL's deployment focus with unique resources & expertise (e.g., isolated grid)[12]

Workforce aligned to industry needs

- 10K STEM graduates joined the workforce[13]
- USC, Clemson, and SCSU's strong engineering programs[14]
- Technical college's readySC[15] and Apprenticeship Carolina[16]
- K-12's STEM programs, including Project Lead the way[17], All Girls Auto Know[18], Anderson Institute of Technology's lab[19], CTE programming, and the Governor's School for Math & Science[20]

1. Industry engagement; 2. BCG analysis; 3. SC.GOV; 4. Department of Commerce Announcements; 5. SanteeCooper.com; 6. CleanCarolinas.io; 7. Dukeenergy.com; 8. E4carolinas.org; 9. SCCompetes.org; 10. 3phasesc.com; 11. Industry engagement, USC, and Clemson; 12. SCRA.org; 13. Integrated Postsecondary Education Data System (IPEDS) 2021; 14. University engagement 15. ReadySC.org; 16. Apprenticeshipcarolina.com; 17. SC.edu; 18. Clemson University International Center for Automotive Research (CUICAR); 19. Anderson Institute of Technology; SC Governor's School for Science and Mathematics

Phase 2 NOFO | 5-10 Tech Hub Implementation Grants to be awarded in Phase 2

EDA funding expectation

- Total funding level of approximately $40-75 million per awarded Tech Hub
- ~3-8 tightly aligned projects that aim to collectively address the region's key inhibitors of global competitiveness

Implementation grants can fund a range of non-construction and construction activities that aim to increase regional capacity across four categories

- Workforce development
- Business and entrepreneur development
- Technology maturation
- Infrastructure

Additional Details on next slide

Current SC Nexus Projects

- Carolina Institute for Battery Innovation (CIBI)
- H_2LDES Testbed
- Economic Development through Grid Emulation (EDGE)
- Grid Enabled Cyber Operations Range (GECO)
- Education and Workforce Center
- Entrepreneurship and Innovation Exchange (EIX):

Source: Tech Hubs NOFO

Six component projects have been identified for EDA Phase 2 application to execute SC NEXUS's vision of being a global leader in grid resiliency

Carolina Institute for Battery Innovation (CIBI)
Led by University of South Carolina, this project would establish a stationary battery manufacturing pilot line in Columbia.

H2LDES Testbed:
Led by Rolls Royce, this project would establish a demonstration hydrogen storage system in Graniteville designed to provide resilience during multi-day peak periods or climate-related events.

Economic Development through Grid Emulation (EDGE):
Led by Clemson University, this project would upgrade the North Charleston eGRID facility power and voltage testing capabilities for grid-connected equipment.

Grid Enabled Cyber Operations Range (GECO):
Led by Savannah River National Lab, this project establishes a cyber testing range for grid connected equipment, with both grid operator training & equipment testing benefits.

Education and Workforce Center:
Led by SC Technical College System, this project enhances awareness of South Carolina's energy-focused industries and job opportunities, identifies and develops the skills necessary for success in these roles, and provides critical support services to ensure advanced energy workers have access to these opportunities

Entrepreneurship and Innovation Exchange (eiX):
Led by South Carolina Research Authority, this project provides comprehensive business, technical, and hands-on training, leverages and connects assets of the existing entrepreneurship and innovation ecosystem across the SC NEXUS hub, and deploys additional capital and incentives to support new and growing startups

Next Steps

Please reach out to SC NEXUS Regional Innovation Officer **Fearn Gupton at fgupton@sccommerce.com** if you have any additional questions or comments

Thank you