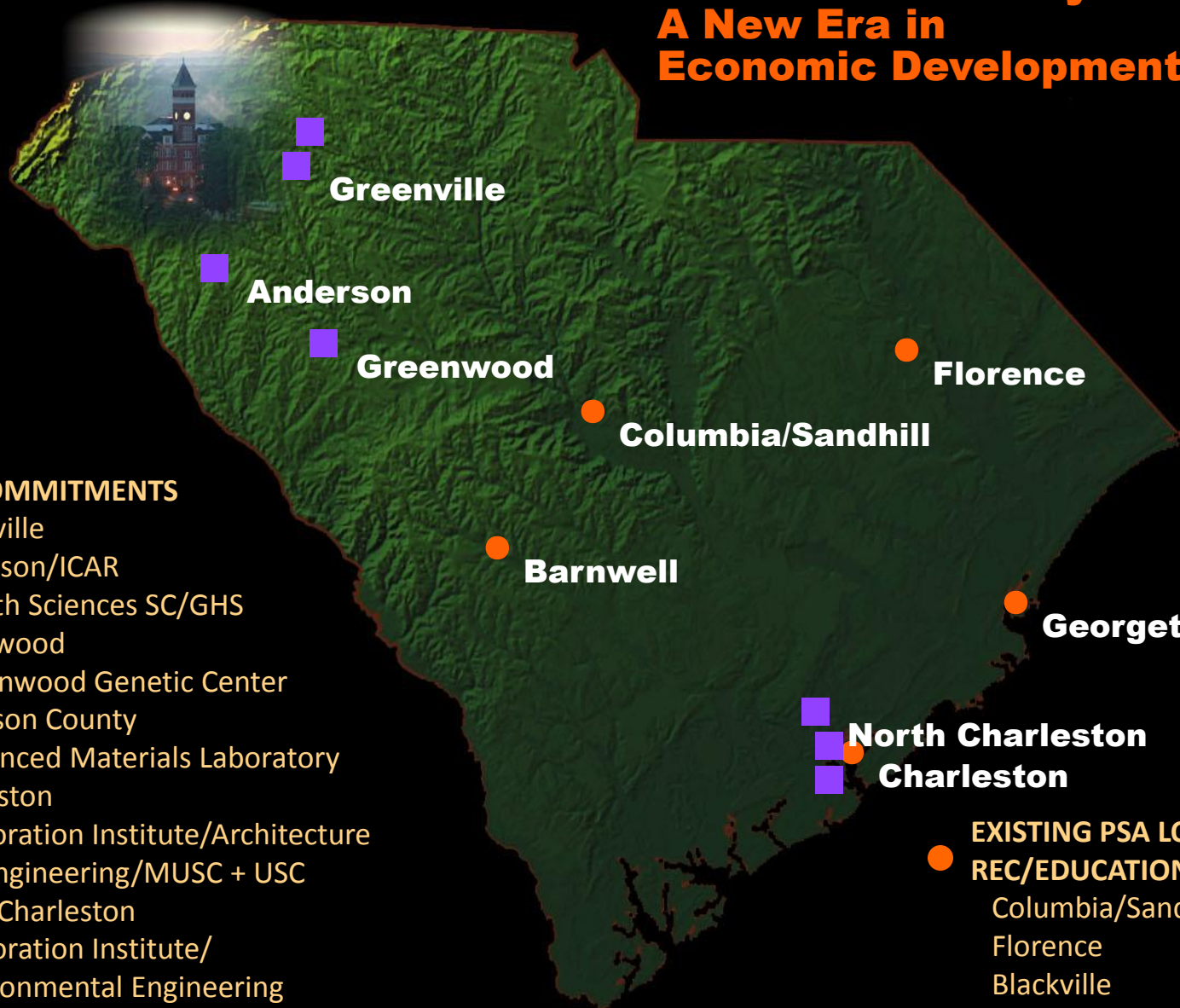


# Clemson University: A New Era in Economic Development



## NEW COMMITMENTS

Greenville

Clemson/ICAR

Health Sciences SC/GHS

Greenwood

Greenwood Genetic Center

Anderson County

Advanced Materials Laboratory

Charleston

Restoration Institute/Architecture

Bioengineering/MUSC + USC

North Charleston

Restoration Institute/

Environmental Engineering

Material Science

North Charleston

Charleston

## EXISTING PSA LOCATIONS

### REC/EDUCATION CENTERS

Columbia/Sandhill

Florence

Blackville

Charleston

Georgetown



# **Focus**

## **Invest in Appropriate Emphasis Areas**

Advanced Materials

Automotive and Transportation Technology

Biomedical/Biotechnology

Family and Community Living

General Education

Information and Communication Technology

Leadership/Entrepreneurship

Sustainable Environment



# It's about...

- ...keeping the best and the brightest
- ...accelerating new innovations into the market
- ...securing an innovation economy
- ...creating new economic opportunities
- ...fostering public / private partnerships
- ...developing the workforce of the future





# The Clemson Commitment

## **Net Zero: Build a national model for a sustainable, carbon-neutral campus**

*A comprehensive* initiative rather than a series of disconnected projects

- Production (renewable sources vs. coal)
- Distribution (more efficient delivery systems)
- Consumption (conservation technologies and practices)

Utilize the campus as an energy laboratory

- Research and educational opportunities for faculty and students
- Innovative solutions, technology testing, and pilot-program demonstration sites for industry, universities and municipalities

# Business model based on proven CUICAR model

## Public /Private Partnerships focused on meeting industry's needs



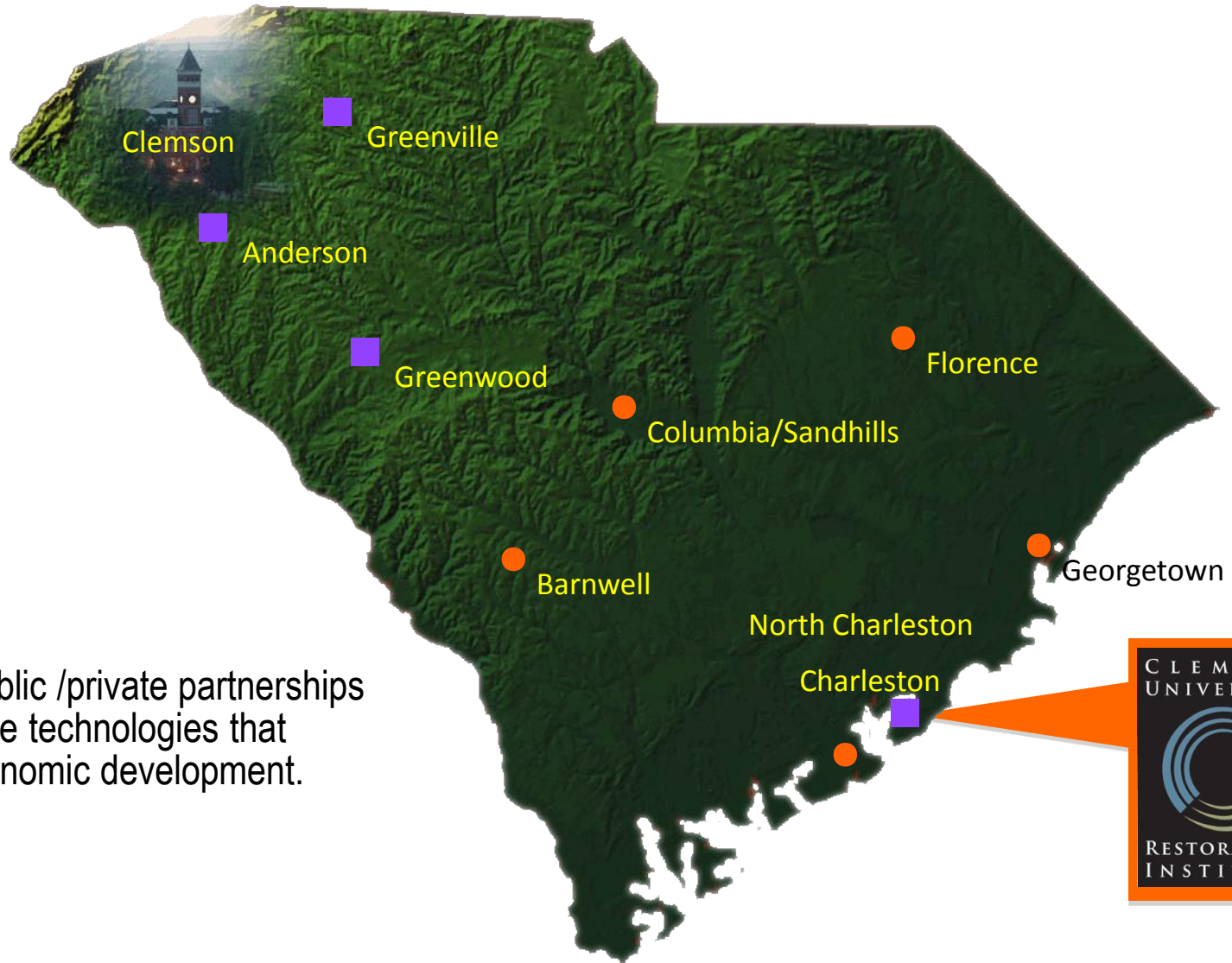
CLEMSON UNIVERSITY INTERNATIONAL CENTER FOR AUTOMOTIVE RESEARCH

- Full Scale Testing / Applied Research
- Education / Workforce Development
- Collaboration with Industrial Partners and Government
- Protection of Customer Intellectual Property





# Innovation Campuses



Mission:  
Establish public /private partnerships  
in sustainable technologies that  
promote economic development.



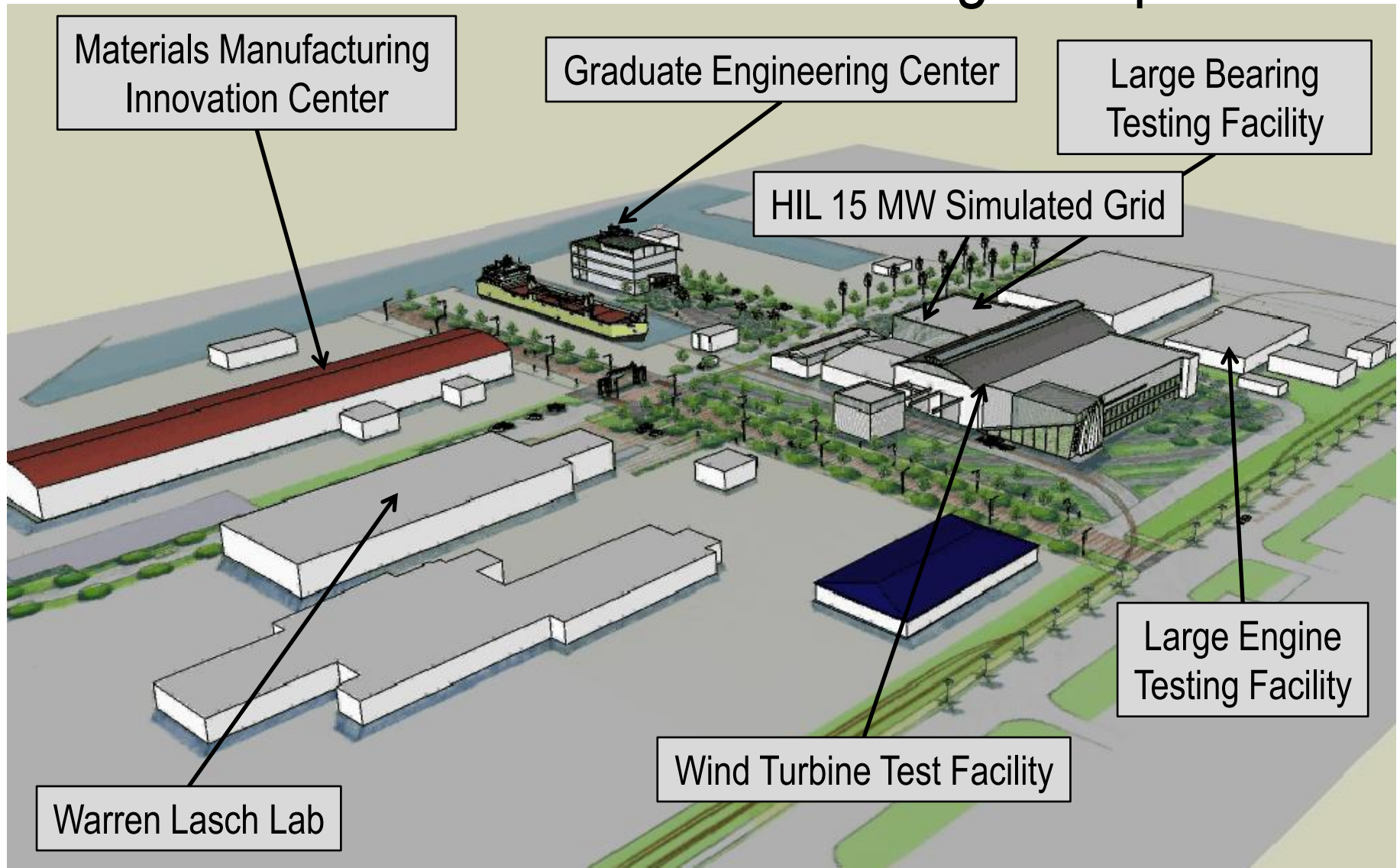
# Clemson University Restoration Institute Innovation and Testing Campus

*'Accelerating New Sustainable Technologies to Market'*





# Phase I: Innovation and Testing Campus





# CU Wind Turbine Drivetrain Testing Facility

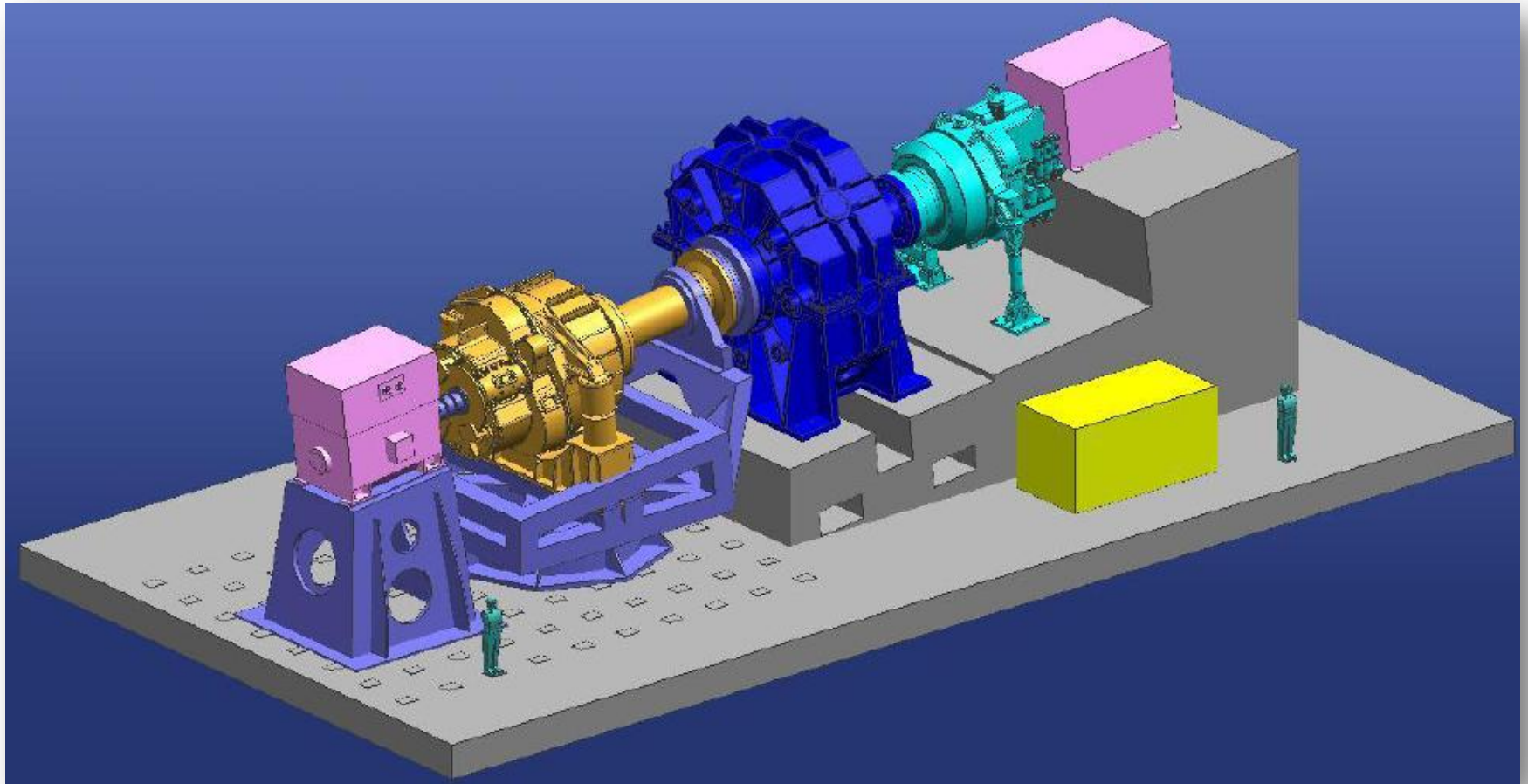


US DOE EERE: DE-FOA-000012 : \$98M Project  
▪ \$45M US DOE EERE, \$53M Matching Funds

Primary Mission: Provide (1) **High Value**, (2) **High Quality** and (3) **Cost Competitive** testing services , with high integrity and respect for the 'end users' intellectual property.

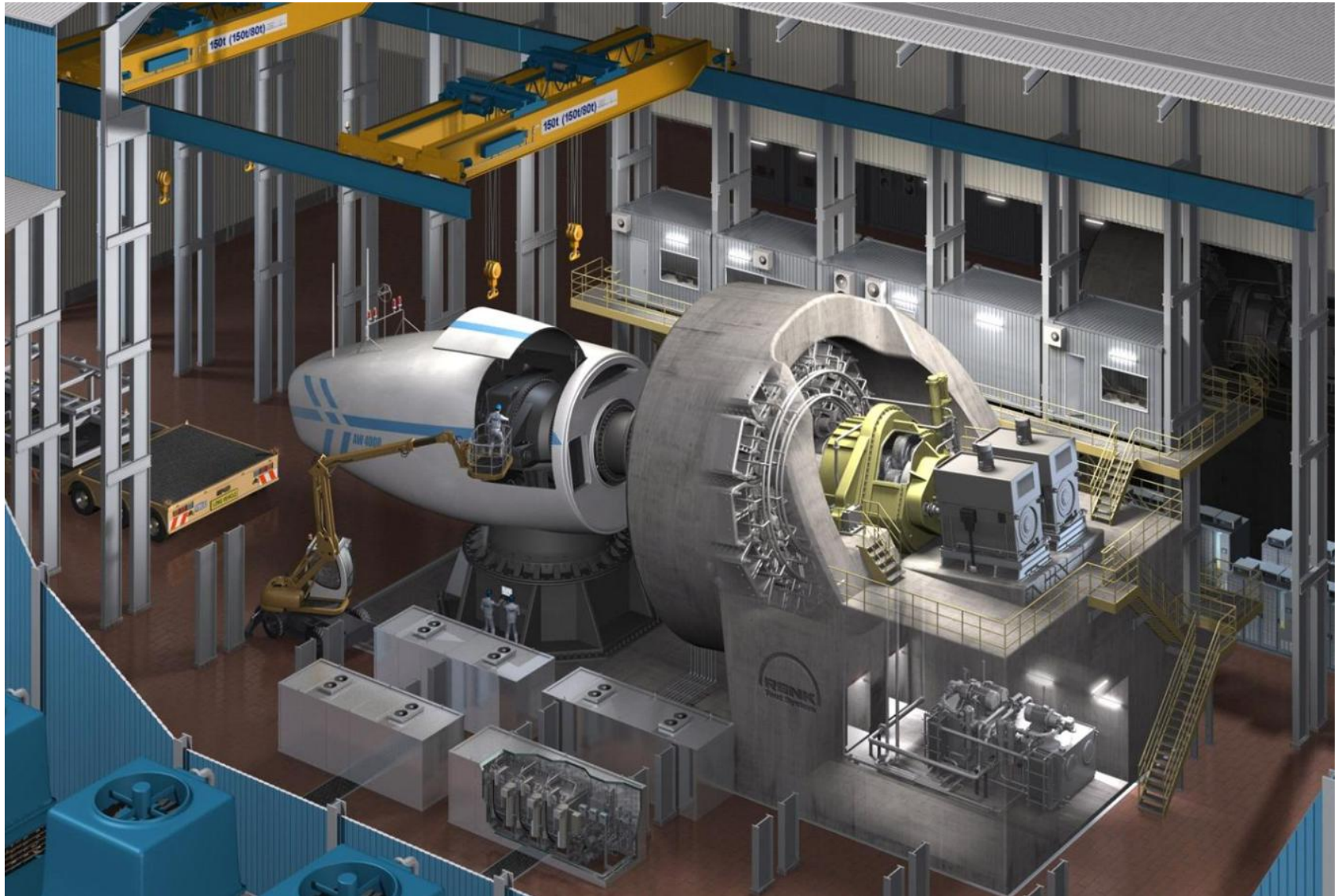
Secondary Mission: Establish long term partnerships with industry for work force development, research and education.

# 7.5 MW Capacity with Static Off-axis Load Applicator





# 15 MW Capacity with Dynamic Off-axis Load Applicator

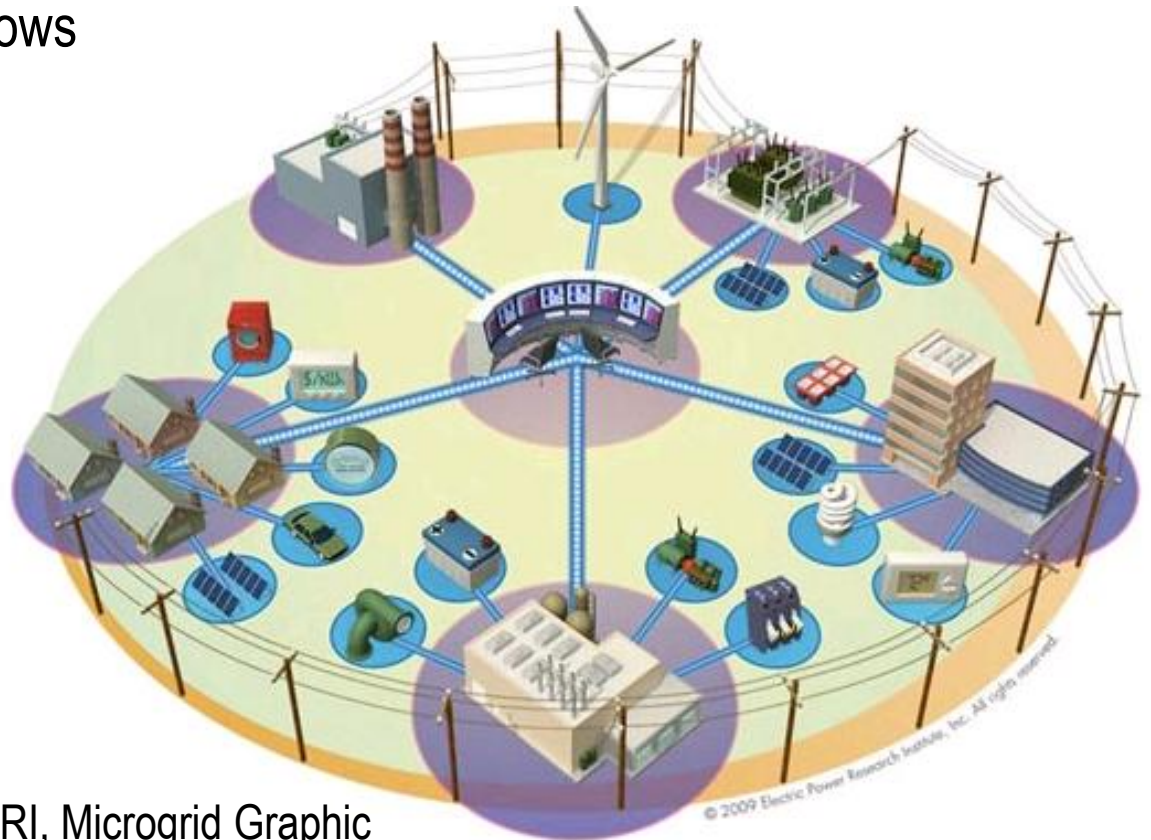







# HIL Testing Capabilities – Microgrid

- Use HIL capabilities to emulate loads, generation, or a combination of the two
- Simulate whole sections of a ‘microgrid’ at once
- The large capacity allows for testing of several pieces of equipment simultaneously
- Microgrid controllers, DG inverters and controllers, load controllers, etc.



EPRI, Microgrid Graphic

The background of the slide is a faded image of a modern, multi-story building with large windows and a flat roof. Several palm trees are scattered around the building, some in the foreground and some in the background. The overall scene is set in a bright, sunny environment.

# Center for Composite Materials Manufacturing and Prototyping

*North Charleston, South Carolina*

*'A Shared Facility Concept'*

## Create a Center for Composites Manufacturing, Joining, and Prototyping

*"To be the premier center for applied research and workforce development in composite materials manufacturing, joining technologies, and prototyping in energy, automotive, and aerospace applications"*



# Goals

- Advance the state-of-the-art in applied composites research related to manufacturing, joining, and prototyping of composite structures driving down cost and improving reliability
- Develop technologies and unique systems solutions to enable transformation of innovative designs into cost-competitive prototypes for next-generation energy and aerospace applications
- Develop a highly qualified workforce that is capable of handling next generation challenges in the utilization and manufacture of composites
- Create collaborations between industry and academia that provide synergies between aerospace, automotive, and other energy sectors.

# Aerial Site Plan of Building and Surrounding Area

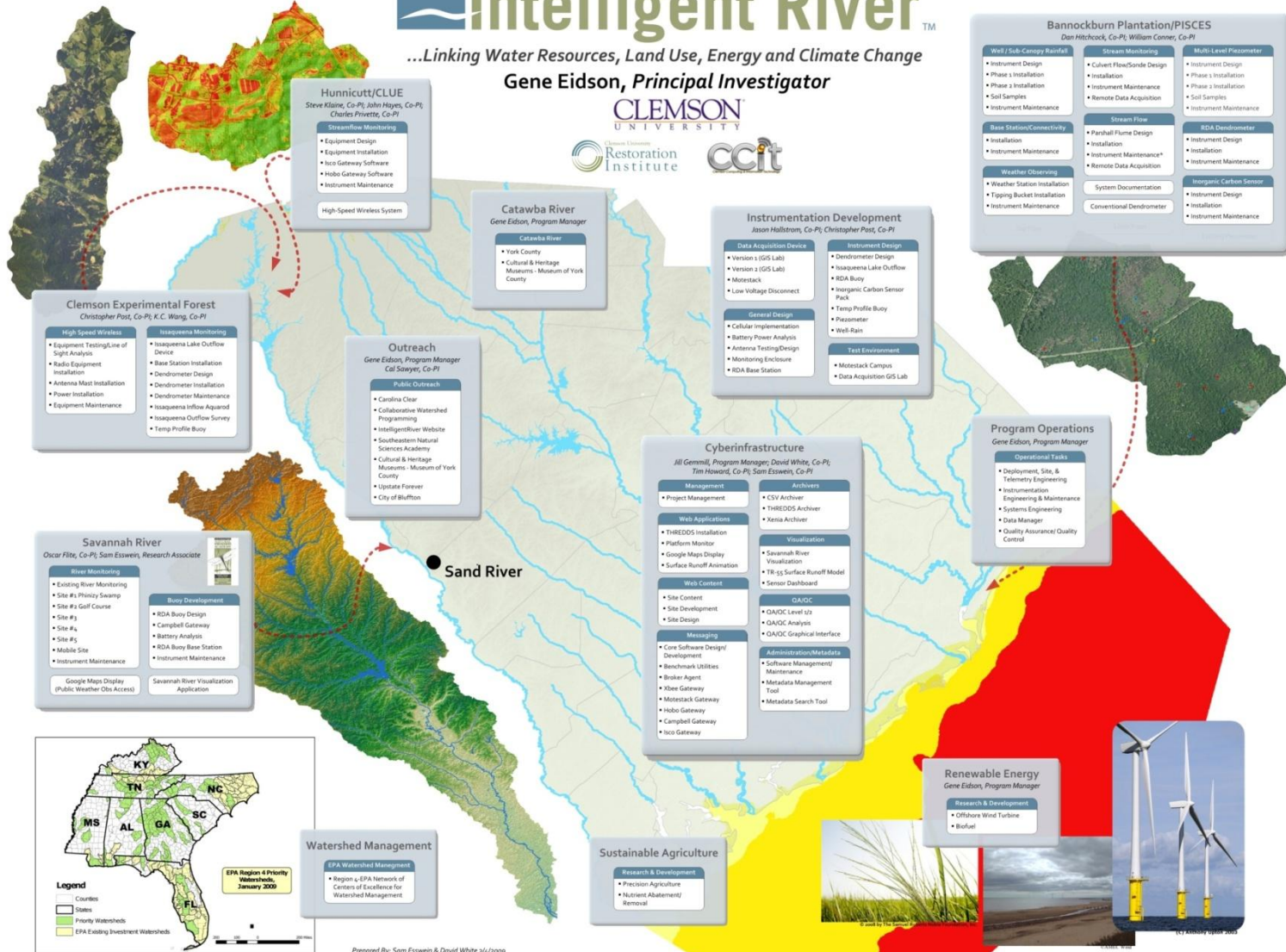


# Intelligent River™

## Intelligent River™

...Linking Water Resources, Land Use, Energy and Climate Change

Gene Eidson, Principal Investigator







# SC National Ranking 2010

- #4 "Best Business Climate"
- #3 "Automotive Manufacturing Strength"
- #2 "Wind Energy Manufacturing Leaders"
- #1 "Economic Growth Potential"

## **1. SOUTH CAROLINA**

- 2. TENNESSEE
- 3. VIRGINIA
- 4. NORTH CAROLINA
- 5. TEXAS
- 6. ARIZONA
- 7. UTAH
- 8. NEW MEXICO
- 9. KENTUCKY
- 10. KANSAS

*Business Facilities – July/Aug. '10*