

# ***The Lake Wylie Pilot Study—and Related Efforts to Assure the Viability of Electric Grid***

**By**  
**Ambassador Henry F. Cooper**  
**Chairman, High Frontier**

***December 6, 2018***  
***Briefing in the Capitol***  
***Washington, DC***

***For more information on the threat and how to get involved to protect your family and friends, see our High Frontier webpage and its links to others who are engaged in this important fight.***

# **Top Priority: Assure Viable Nuclear Reactors:** ***Potential hazards that should be parts of the solution!***



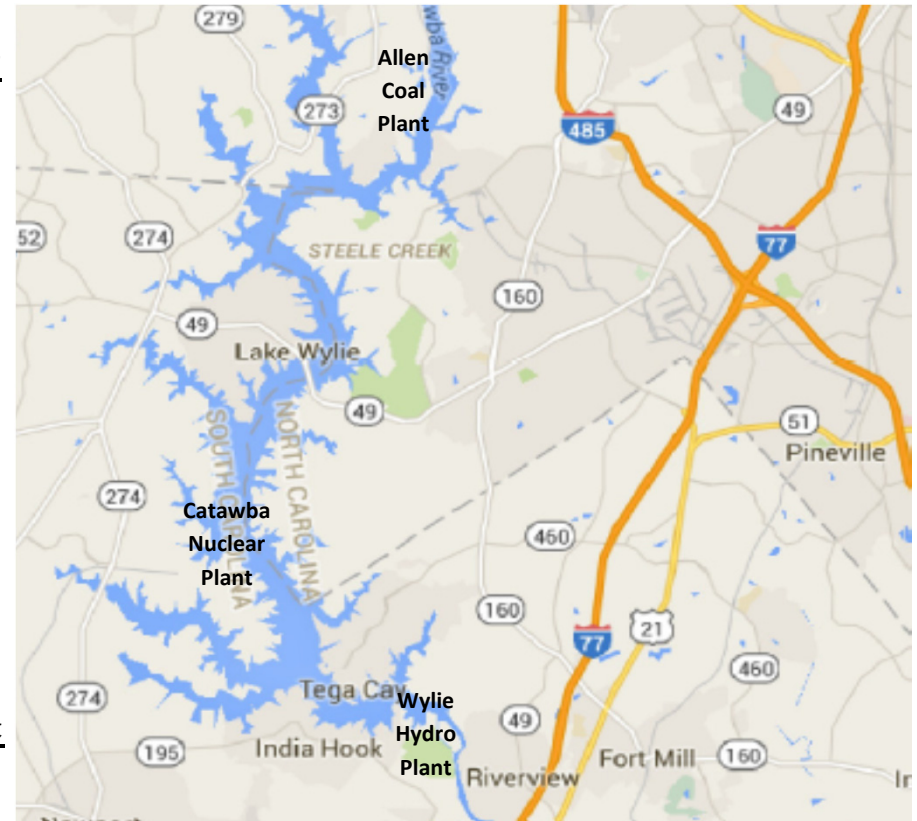
- *Reactors produce about 20% of US electricity—most are in the “Eastern Interconnection”*
- *Nuclear plants will shut down if the grid is lost, possibly leading to multiple meltdowns*
- *Result could be up to ~100 Fukushimas, with radiation carried by wind across the US*
- *However, if engineers assure reactors are viable following such a shutdown, they would be a major power source to help reestablish the grid. Objective; Prove this can be done!*

***To prove that SC & NC can help begin such an initiative, we began working “bottom up” with Clemson and Duke Energy Engineers, SC state and local emergency managers on the Lake Wylie Pilot Study!***

# Lake Wylie Pilot Study

## • Emergency Management Objectives

- Help Duke Energy, Rock Hill Utility and York County CoOps assure safe operations of Duke's power plants and top priority infrastructure to protect York County citizens, with extensions to other SC/NC counties
- Examples of Needed Operations Support
  - Security of key transmission infrastructure to top priority objectives: Hospital and Water-Wastewater
  - Safety/Life Support for Restoration Crews
  - Communications/Transportation Support for key goods and personnel
  - Maintain links to National and State Guard
  - Develop integrated CONOPS for at least York (SC); Gaston and Mecklenburg Counties (NC); and Duke Energy—in concert with National and State plans & funding requirements for timely improvement
- Some Specific Key Questions
  - Integrated Utility/CoOps and Duke infrastructure?
  - Mission critical components to harden or stockpile?
  - Communications/transportation requirements?
  - Who provides minimum essential fuel?



- How to meet water/wastewater needs?
- Public needs-essential recovery operations plan?
- Law enforcement /emergency management plan?
- Who is the architect? What are the costs?

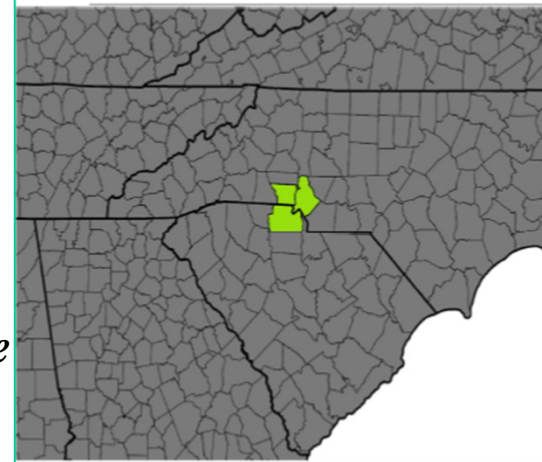
***Studies show Prepared Local & State Responders are key to assuring viable recovery from a long duration Grid Blackout***



# Background for Protecting the Electric Grid Around Charlotte, NC—Home of Duke Energy Corporate Hqtrs.

- “Core” has ~62% of Charlotte Metropolitan Statistical Area (MSA) population in 10 surrounding counties; Mecklenburg County, NC has ~69% of Core and ~43% of MSA;
- *York County, SC has ~17% and Gaston County, NC has ~14% of Core Population .*
- *Overall, expect Core generation costs to dominate and for Duke plants to dominate MSA power source...over 99% of 6177 MWs.*
- *Nuclear plants produce almost 80% of Charlotte Core power.*
- *Lake Wylie on the Catawba River is home of Duke Hydroelectric and Nuclear Power plants in York County, SC and a NC Duke Coal Power Plant in Gaston County, NC*
- Utility companies and Electric co-ops are primary sources of electricity to the citizenry

## Charlotte “Core” Metro Counties

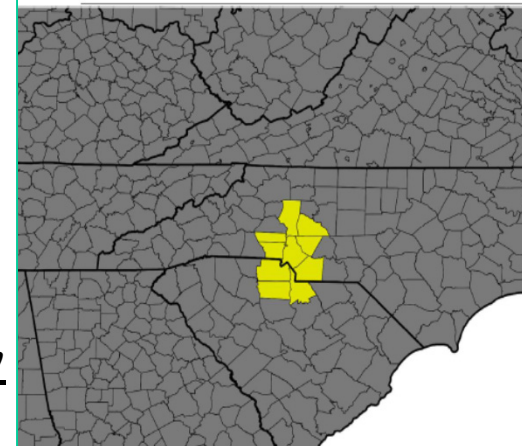


Mecklenburg, York, and Gaston Counties

Current focus of work

Comprise roughly two-thirds of MSA population and majority of bulk power system assets

## Charlotte MSA



Jurisdiction	Population
Mecklenburg, NC	1,077,000
York, SC	266,000
Union, NC	231,000
Gaston, NC	220,000
Cabarrus, NC	207,000
Iredell, NC	176,000
Rowan, NC	141,000
Lancaster, SC	93,000
Lincoln, NC	82,000
Chester, SC	32,000
Charlotte MSA	2,525,000

*Once we complete the “Core” counties, extend the analysis (including cost estimates) to the 10 “MSA” counties as a model to be followed throughout the nation.*

# **Bottom Up Strategy: Study Rock Hill Utility and York County Electric Cooperative & Extend to SC/NC Counties**

## ***• Start with Rock Hill Electric Utility***

***—Strong support from Assistant City Manager Jimmy Bagley—Clemson EE Graduate—and his staff***

***—Opened doors to lead Rock Hill engineers, including Mike Jolly, Electric Utilities Director, and the lead Hospital Engineer***

***• Bagley is President of Piedmont Municipal Power Agency (PMPA)—and no doubt will transfer lessons learned to the utility companies in 9 additional cities in Northwestern SC—these companies own an interest in the Catawba Nuclear Plant***

***• Mike Jolly is VP of SC Association of Municipal Power Systems (SCAMPS), including all 21 SC municipalities, including the 10 PMPA municipalities***

***—Lessons learned will be widely shared***

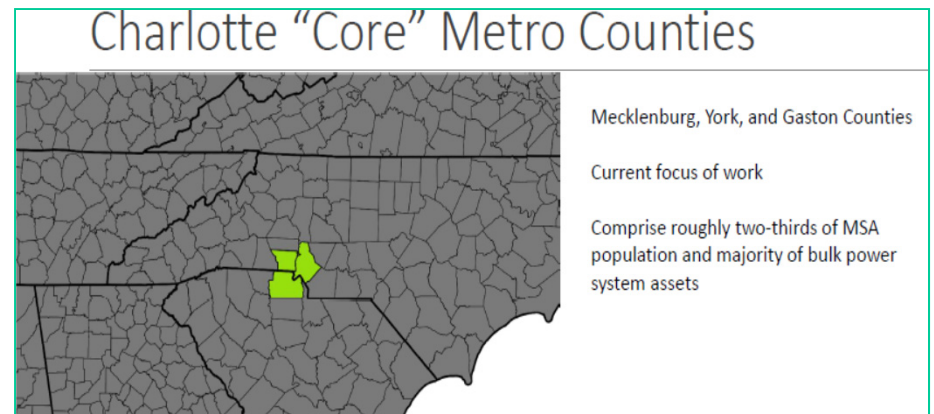
## ***• Extend to York County Electric co-op***

***--CEO Paul Basha attended Clemson***

***--Uses New Horizon Electric co-op Infrastructure, also used by four other SC county co-ops—constituting a link for sharing lessons learned to all five counties***

***--Provided infrastructure information to support associated costing studies***

***--Member of Electric Cooperatives of South Carolina (ECSC)—20 consumer-owned SC co-ops serving over 1.5 million customers in all 46 SC counties***



***Following York County, go next to Gaston County, NC—supported by a Gastonia Electric Utility Company and Gaston County co-ops, then all 26 co-ops in NC. Then extend to Mecklenburg County, home of Charlotte’s Duke Corporate Headquarters.***

# Important Companion “Rail” Efforts can broaden the benefits of the Lake Wylie Pilot Study



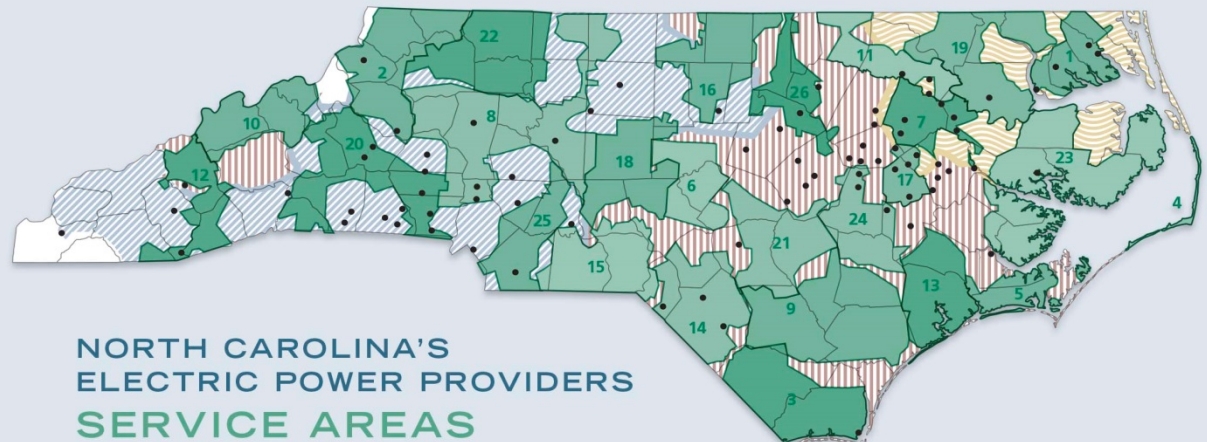
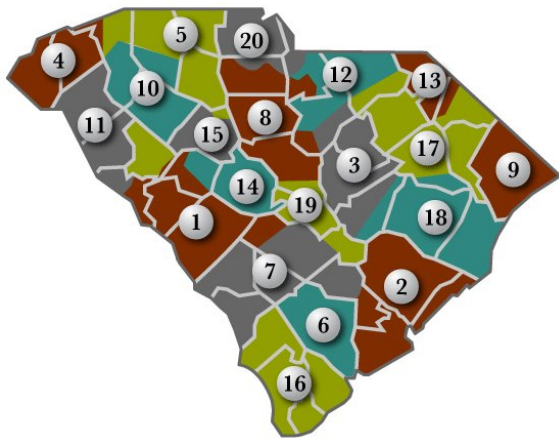
- Duke Energy has provided a UHV Transformer for serious EMP testing at the Clemson University Restoration Institute (CURI) in North Charleston, SC that has the means for advanced testing.
- When funded, this first ever EMP testing will provide important information to support assessment and validation activities in hardening the national electric power grid
- Diesel Engines can provide significant reserve “Blackstart” capability
- Indiana investigators propose that capability locally and by rail to a nuclear plant in southern Illinois, the nation’s greatest user of nuclear power generated electricity
- We are cooperating with Indiana friends in seeking to demonstrate that capability there and in our Lake Wylie Pilot Study

*We are considering the potential role of rail support to grid restoration efforts, including associated cost estimates, in our Lake Wylie Pilot Study*



# Bottom Lines

- *Over 50% of SC electricity generated by nuclear power*
- *Over 30% of NC electricity generated by nuclear power*
- *Mostly distributed by Utility Companies and co-ops*



NORTH CAROLINA'S  
ELECTRIC POWER PROVIDERS  
SERVICE AREAS

## Electric cooperatives

- |   |                                |                                  |                             |
|---|--------------------------------|----------------------------------|-----------------------------|
| 1. Albemarle EMC                        | 7. Edgecombe-Martin County EMC | 14. Lumbee River EMC             | 21. South River EMC         |
| 2. Blue Ridge Electric                  | 8. EnergyUnited                | 15. Pee Dee EMC                  | 22. Surry Yadkin EMC        |
| 3. Brunswick EMC                        | 9. Four County EMC             | 16. Piedmont EMC                 | 23. Tideland EMC            |
| 4. Cape Hatteras Electric Cooperative   | 10. French Broad EMC           | 17. Pitt & Greene EMC            | 24. Tri-County EMC          |
| 5. Carteret-Craven Electric Cooperative | 11. Halifax EMC                | 18. Randolph EMC                 | 25. Union Power Cooperative |
| 6. Central EMC                          | 12. Haywood EMC                | 19. Roanoke Electric Cooperative | 26. Wake EMC                |
|   | 13. Jones-Onslow EMC           | 20. Rutherford EMC               |                             |

## KEY

- Publicly-owned electric systems
- Electric cooperatives
- Duke Energy Progress
- Duke Energy Carolinas
- Dominion

- *Many players critical to getting electricity from generation plants to the public*
- *Plan & fund affordable “Bottoms Up” solutions*
  - *Local and State initiatives to harden priority electric generation and distribution infrastructure—in conjunction with the electric power companies*
  - *Priority: Nuclear Reactor Pilot Studies—Coupled with Lake Wylie Pilot Study Clones!*

*Get involved today—inform yourself and act! For more information on the threat and how to get involved to protect your family and friends, see [www.highfrontier.org](http://www.highfrontier.org)*

# *Please Let Us Hear From You!*

*Ambassador Henry F. Cooper  
Chairman, High Frontier  
20 F Street 7<sup>th</sup> Floor  
Washington, DC 20001*

*(703) 535-8774*

*(703-231-3521)*

*[hcooper@highfrontier.org](mailto:hcooper@highfrontier.org)*

*or*

*[hcooper@ara.com](mailto:hcooper@ara.com)*

*Check out our webpage*

*At High Frontier, we dedicate ourselves to passing to future generations the blessings passed to us by the Founders and Forefathers.*

*May God bless America!*