

## Sustain NC Strategy Statement:

An EPA Clean Power Plan for North Carolina is just one aspect of a more sustainable state. Multiple supporting strategic activities are needed in North Carolina to modify our electric grid, and our electric grid is not our only sustainability issue. Sustain NC service projects initiate those activities. There are many potential Sustain NC partners that can assist.

Smart Grid DEEP is North Carolina's future Smart Grid, Distributed Energy, and Efficiency Program. Smart Grid DEEP is a primary focus of Sustain NC and supports completion of an NC Clean Power Plan. Smart Grid DEEP is part of North Carolina's road to a modern, low carbon economy. Smart Grid DEEP is a center of excellence developing North Carolina's clean power plan. Smart Cities and Towns goes further by making our municipalities generally more sustainable. Smart Grid DEEP / Smart Cities and Towns enhance municipal and state capabilities for competing on sustainability performance criteria.

Without statewide and national collaboration around sustainability performance, genuine success is less likely. Smart Grid DEEP will utilize modern CleanTech and sustainability techniques to make the North Carolina economy more resilient in the face of human-caused climate change. The NC Climate Protection Program, Smart Grid DEEP, and Smart Cities & Towns programs launched from associated Sustain NC service projects improve our carbon budget and add to our sustainable marketplace capabilities. How sustainable our cities and towns are forms the new competitive edge. Sustainability means improving future conditions for our people, economy, and necessary environmental requirements for future generations.

US carbon emissions were 5.2 billion metric tons metric tons in 2012 according to the Energy Information Agency. North Carolina's overall carbon emissions were 119 million metric tons. Given the nature of airborne carbon 'stickiness' in the atmosphere and the International Panel on Climate Change finding that going past one trillion metric tons will cause an extremely dangerous 3.6 F average global temperature rise initiating a range of essential climate variables, North Carolina has a role in mitigating our carbon budget. Sustain NC will be designed to support a carbon drop of 40 percent from North Carolina's electricity power generation and imported electricity from the 2012 level of 57 million metric tons of carbon to as close to a maximum 35 million metric tons of carbon by 2030 as possible. This is a higher goal than the EPA Clean Power Plan. The key is support of new municipal electrical grid load efficiencies. The current EPA Clean Power Plan deemphasizes efficiencies inside municipalities.

One of the key reasons to seek sustainable ways to exceed expectations on low carbon economic development is to expand our statewide capabilities to export CleanTech products and CleanTech expertise across the nation and globe. Obviously North Carolina communities benefit by becoming more sustainable and by growing sustainability-oriented opportunities for skilled work and resulting higher incomes. Finally, carbon economics incentivize these strategies. States highly competent in CleanTech and sustainability strategy will be rewarded.

There are a range of areas North Carolina can find carbon reducing strategies beyond grid electricity generation such as battery and fuel cell electric vehicles.

The Smart Grid DEEP Consortium is being organized to further support these activities. For further details on Smart Grid DEEP and the Smart Grid DEEP Consortium please join Sustain NC:

[www.sustainnc.com](http://www.sustainnc.com)

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# Sustain NC Strategy

## Current Researched Clean Power and Sustainability Strategy

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### 5. State Clean Power Plan Options (emphasis on Smart Grid DEEP)

Policy: Federal, State, NC

### 1. NC Climate Protection Program

- 1.1. GHG Metrics
- 1.2. GHG Protocols
- 1.3. Best Systems for Emissions Reduction
  - 1.3.1. Energy Informatics
- 1.4. Policy
  - 1.4.1. Climate Protection Act
    - Policy: Federal
  - 1.4.2. HB 571
  - 1.4.3. HB 245
    - Policy: State, NC
  - 1.4.4. HB 483
    - Policy: State, NC
- 1.5. EPA's CPP Best Systems of Emission Reduction (BSER)
  - 1.5.1. Building Block 1 (per EPA) — Coal EGU Efficiency Improvements
  - 1.5.2. Building Block 2 (per EPA) — Generation Shifts Among Affected EGUs, i.e. NGCC, stationary fuel cell and battery microgrids.
  - 1.5.3. Building Block 3 (per EPA) — Renewable Generating Capacity
  - 1.5.4. Innovation Building Block X1 — General Grid Efficiency, i.e. DOE Building America, Demand Response, et al
  - 1.5.5. Innovation Building Block X2 — Reward Integrated BSER Design, Business Model Innovation, CleanTech market signal policy and R&D
  - 1.5.6. Innovation Building Block X2 — Design, Business Model Innovation, CleanTech market signal policy and R&D

### 4. Smart Cities and Towns (ISO 37120)

Policy: Federal, State, NC

### 3. Benefits of strategy models and standardized indicators:

- 3.1. More effective governance and delivery of services
- 3.2. Enhanced sustainability competition around rapidly disseminated international benchmarks and targets
- 3.3. Better local benchmarking and planning
- 3.4. More informed decision making for policy makers and city managers
- 3.5. Amplified learning across cities
- 3.6. Leverage for funding and recognition by international entities
- 3.7. Leverage for funding by cities with senior levels of government
- 3.8. Adaptable frameworks for sustainability planning
- 3.9. Additional added value, i.e. transparency and open data for investment attractiveness, spinoff economic developments, etc.
- 3.10. Data is moving fast — big data and the information explosion — this STANDARD can help to give cities a reliable foundation of globally standardized data that will assist cities in building core knowledge for city decision-making, and enable comparative insight and global benchmarking

Sample sources: *National Association for Clean Air Agencies Implementing EPA's Clean Power Plan: A Menu of Options* (NACAA, 2015); *Sustainable development of communities -- Indicators for city services and quality of life* (ISO 37120:2014); and InnovoGraph research database

### 5.1. NACAA Menu

- 5.1.1. Optimize Power Plant Operations
- 5.1.2. Implement Combined Heat and Power in the Electric Sector
- 5.1.3. Implement Combined Heat and Power in Other Sectors
  - 5.1.4. Improve Coal Quality
  - 5.1.5. Optimize Grid Operations
- 5.1.6. Increase Generation from Low-Emission Resources
- 5.1.7. Pursue Carbon Capture and Utilization or Sequestration
  - 5.1.8. Retire Aging Power Plants
  - 5.1.9. Switch Fuels at Existing Power Plants
- 5.1.10. Reduce Losses in the Transmission and Distribution System
  - 5.1.11. Establish Energy Savings Targets for Utilities
  - 5.1.12. Foster New Markets for Energy Efficiency
  - 5.1.13. Pursue Behavioral Efficiency Programs
  - 5.1.14. Boost Appliance Efficiency Standards
  - 5.1.15. Boost Building Energy Codes
  - 5.1.16. Increase Clean Energy Procurement Requirements
  - 5.1.17. Encourage Clean Distributed Generation
  - 5.1.18. Revise Transmission Pricing and Access Policies
  - 5.1.19. Revise Capacity Market Practices and Policies
  - 5.1.20. Improve Integration of Renewables into the Grid
  - 5.1.21. Change the Dispatch Order of Power Plants
  - 5.1.22. Improve Utility Resource Planning Practices
  - 5.1.23. Improve Demand Response Policies and Programs
- 5.1.24. Adopt Public and Market-Based Emissions Reduction Programs
  - 5.1.25. Tax Carbon Dioxide Emissions
- 5.1.26. Consider Emerging Technologies and Other Important Policies

### 5.2. # Megawatts of Change

- 5.2.1. Raleigh
- 5.2.2. Charlotte
- 5.2.3. Greensboro
- 5.2.4. Winston-Salem
- 5.2.5. Asheville
- 5.2.6. Other NC Municipalities

- 4.1. Economy
- 4.2. Education
- 4.3. Energy
- 4.4. Environment
- 4.5. Finance
- 4.6. Fire and emergency response
- 4.7. Governance
- 4.8. Health
- 4.9. Poverty and Hunger
- 4.10. Safety
- 4.11. Recreation
- 4.12. Shelter
- 4.13. Solid waste
- 4.14. Telecommunications and Smart Grid
- 4.15. Transportation
- 4.16. Urban planning
- 4.17. Wastewater
- 4.18. Water and sanitation
- 4.19. Agriculture, Forestry and Other Land Use (AFOLU)
- 4.20. Industrial Processes and Product Use, i.e. Circular Economy
- 4.21. Other Smart City and Sustainability Strategy

- 2.1. Sustain NC - Smart Grid DEEP Strategy
  - 2.1.1. NC Clean Power Plan
  - 2.1.2. Business Model Innovation
  - 2.1.3. Other Sustainability Strategy
- 2.2. Program Life Cycle Management Mode
- 2.3. Benefits Management (Valuation) Mode
  - 2.3.1. Innovation and Knowledge Management Mode
- 2.4. Stakeholder Management Mode
- 2.5. Governance Mode
  - 2.5.1. Smart Grid DEEP advisory board
  - 2.5.2. Smart Cities and Towns advisory board
- 2.6. Program/Project Management Phases
  - 2.6.1. Initiating
  - 2.6.2. Planning
  - 2.6.3. Executing
  - 2.6.4. Controlling
  - 2.6.5. Closing
- 2.7. Open Strategic Innovation for Communities (OSIC)