Executive Order No. 80: NC’s Commitment to Address Climate Change and Transition to a Clean Energy Economy

8th Meeting
February 24, 2021
Virtual Meeting
Meeting Agenda & Objectives

1. Welcome and Introductions 10:00-10:05
   • Opening remarks and Meeting Objectives (Sushma Masemore, DEQ)
   • Introductions (Council Executive Designees)

2. Transportation (Jeremy Tarr, Governor’s Office) 10:05-11:05
   • TCI Update (James Bradbury, Georgetown Climate Center)
   • State Motor Fleet Update (Mark Edwards and Robert Riddle, DOA)
   • ZEV Plan implementation (Heather J. Hildebrandt, DOT)
   • Medium and Heavy-Duty ZEV MOU (Mike Abrazinskas, DEQ)

   • North Carolina Energy Regulatory Process 2020 Report (Sushma Masemore, DEQ and Jessica Shipley, Regulatory Assistance Project)

   • North Carolina Power Sector Carbon Policies: An Analysis of CEP Recommendation A-1 (Kate Konschnik, Duke University Nicholas Institute for Environmental Policy Solutions)

5. Public engagement 12:00-12:30
   Individuals and organizations may provide input to cabinet agencies on their implementation of the EO. Oral presentations will be limited to 2 minutes.
Council Designee Introductions
Transportation
TCI Update

James Bradbury, Georgetown Climate Center
Transportation & Climate Initiative

A Presentation to the:
North Carolina Climate Change Interagency Council
February 24, 2021

James Bradbury
Mitigation Program Director, GCC
The Transportation and Climate Initiative (TCI) is a regional collaboration of Northeast, Mid-Atlantic, and Southeast jurisdictions.

December 2018: Nine States and D.C. announced their intent to design a regional approach to cap greenhouse gas pollution from transportation.

December 2020: Rhode Island, Massachusetts, Connecticut, D.C. are First to Sign MOU to Launch TCI-P.

In an accompanying statement, eight other Northeast, Mid-Atlantic, and Southeast states signaled that they will continue to work on the development of the details of the regional program.
**TCI Program Goals**

- Reduce CO₂ emissions from transportation
- Improve air quality and public health, increase resilience to the impacts of climate change, and provide more affordable access to clean transportation choices
- Promote local economic opportunity and create high quality jobs
- Maximize the efficiency of the multijurisdictional program to ensure greater benefits
- Advance equity for communities overburdened by pollution and underserved by the transportation system

Source: TCI-P MOU, Dec. 2020
How Will this Cap and Invest Program Work?

• TCI-P reduces carbon dioxide (CO₂) emissions from diesel and gasoline sold in participating jurisdictions
• This is achieved by capping and reducing total emissions from these fuels and selling “allowances” to regulated fuel suppliers
• Proceeds from the sale of these allowances are used to invest in low-carbon transportation strategies that give communities, workers and businesses additional clean, safe and affordable options for getting from point A to point B

*The cap and the invest parts of the program both act to reduce emissions*

• Emissions Reporting begins in 2022, the cap goes into effect in 2023
• Each jurisdiction decides how to invest its share of the proceeds
Projected TCI-P Emission Reductions

- Establishes a cap on carbon pollution from on-road transportation that declines over time.

- The TCI-P cap, working with clean transportation investments and complementary policies are projected to reduce emissions by at least 26 percent in participating jurisdictions, from 2022 to 2032.

Modeling Investments in Clean Transportation

- $2 billion in annual investments
  (would be ~$300 million for NC)

- By 2032, this could result in additional sales of:
  - 24,000 electric transit & school buses
  - 23,300 electric trucks

**Illustrative investment portfolio (annual)**

- $550 million: Electric cars, light trucks and vans
- $425 million: Low & zero-emission buses and trucks
- $330 million: Transit expansion and upkeep
- $250 million: Pedestrian and bike safety, ride sharing
- $150 million: System efficiency
- $150 million: Indirect/ Other

* Assumes 13 TCI jurisdictions participate (from VA to ME)

Source: TCI Investment Strategy Tool
(https://www.transportationandclimate.org/sites/default/files/TCI%20Invest-Tool-Documentation_09212020_final.pdf)
Economic Benefits are Modest and Net Positive

• Program projected to have a positive impact on the economy in all scenarios modeled.

• GDP, income, and jobs are projected to be greater than business as usual in 2032 and substantially net positive over the 2022-2040 timeframe.

• Significant progress towards achieving climate goals by reducing carbon and other pollution from transportation at modest cost and net benefit to the economy.

* Modeling estimated potential benefits if all TCI jurisdictions – from Virginia to Maine – participate

Source: TCI-P modeling & analysis, Dec. 2020
Public Health Benefits from Improved Air Quality & Increased Physical Activity

If all 13 jurisdictions participate,* estimated annual benefits in 2032 are:

• Up to $3.2 Billion in total Public Health Improvements
• 320 premature deaths avoided, and
• Over 11,000 fewer childhood asthma cases and exacerbations

*Includes all TCI jurisdictions from Virginia to Maine (not North Carolina)

Equity is Central to TCI-P Implementation

- **Dedicated Investments**: a minimum of 35% of each state’s proceeds to ensure that underserved and overburdened communities benefit equitably

- **Equitable Processes**: ensure communities can provide meaningful input to decision making, including through equity advisory bodies (next slide)

- **Transparency**: annually assess and report on equity impacts of the program. Monitor air quality in communities overburdened by air pollution

- **Complementary Policies**: additional policies to achieve emissions reductions, particularly in overburdened and underserved communities (e.g., clean car and clean truck standards).

Source: TCI-P MOU, Dec. 2020

(https://www.transportationandclimate.org/sites/default/files/TCI%20MOU%202020.pdf)
Each Jurisdiction Establishes Equity Advisory Bodies

• Made up of diverse stakeholder groups, with a majority represented by overburdened and underserved communities, to advise on TCI-P decision-making:
  o Define underserved and overburdened communities
  o Recommend equitable investments and complementary policies
  o Develop metrics for evaluating program benefits

Source: TCI-P MOU, Dec. 2020
(https://www.transportationandclimate.org/sites/default/files/TCI%20MOU%202020.pdf)
TCI can be part of a comprehensive climate response

A variety of strategies are needed to reduce carbon emissions and air pollution from transportation

• Federal policies & programs
  o Emissions and efficiency standards for vehicles
  o Funding for transit and air quality improvement projects

• State policies & programs
  o Clean car and truck standards
  o Investments in clean transportation:
    - transit
    - incentives for clean vehicles

• What is the role of TCI-P?
  o TCI caps climate pollution region-wide and enables targeted investments and incentives to promote public benefits where they are most needed
Ongoing Opportunities for Public Input

TCI-P is committed to public engagement so communities can provide meaningful input into decision making processes

Regional processes

• Draft Model Rule (to be published March 1)
• Program review every few years

State-specific processes

• Establishing and supporting Equity Advisory Bodies
• State legislative processes, as needed
• State rulemaking processes
• Planning for investments
• Annual reports on program effectiveness
Where Are We In the Process?

- Memorandum of Understanding • December 21, 2021
- Model Rule
- Legislative & Rulemaking Processes
- Program Starts (Reporting and Readiness)
- TCL-P Program Operational
- Program Reviews and Monitoring
- Auction Proceeds and Investments

Equity Advisory Bodies
State Motor Fleet Update

Mark Edwards and Robert Riddle, DOA
NC Climate Change Interagency Council
February 24, 2021
## Motor Fleet Management ZEV & Hybrid Vehicles

### Timeline

<table>
<thead>
<tr>
<th>YEAR</th>
<th>DESCRIPTION</th>
<th>TOTAL NUMBER OF ZEV &amp; HYBRID VEHICLES</th>
</tr>
</thead>
<tbody>
<tr>
<td>2016</td>
<td>First ZEV added to the state fleet</td>
<td>1</td>
</tr>
<tr>
<td>2018</td>
<td>Governor Cooper established EO80</td>
<td>9</td>
</tr>
<tr>
<td>2019</td>
<td>MFM ZEV Plan Created</td>
<td>15 ZEV and hybrid vehicles</td>
</tr>
<tr>
<td>2020</td>
<td>First annual MFM ZEV Plan Update</td>
<td>35 electric vehicles in the state fleet (25 assigned, 5 additional hybrid vehicles)</td>
</tr>
<tr>
<td>VehicleYear/Make</td>
<td>VehicleModel</td>
<td>AgencyName</td>
</tr>
<tr>
<td>-----------------</td>
<td>--------------</td>
<td>-----------------------------</td>
</tr>
<tr>
<td>2020 Chev</td>
<td>Bolt</td>
<td>DHHS Blind Services</td>
</tr>
<tr>
<td>2020 Chev</td>
<td>Bolt</td>
<td>UNV UNC-Asheville</td>
</tr>
<tr>
<td>2020 Chev</td>
<td>Bolt</td>
<td>UNV NC State University</td>
</tr>
<tr>
<td>2020 Chev</td>
<td>Bolt</td>
<td>DHHS Central Administration</td>
</tr>
<tr>
<td>2020 Chev</td>
<td>Bolt</td>
<td>UNV UNC-Charlotte</td>
</tr>
<tr>
<td>2019 Chev</td>
<td>Volt AWD</td>
<td>UNV UNC-Charlotte</td>
</tr>
<tr>
<td>2019 Chev</td>
<td>Volt AWD</td>
<td>UNV UNC-Charlotte</td>
</tr>
<tr>
<td>2019 Chev</td>
<td>Volt AWD</td>
<td>Dept Of Environmental Quality</td>
</tr>
<tr>
<td>2019 Chev</td>
<td>Volt AWD</td>
<td>UNV Appalachian State U</td>
</tr>
</tbody>
</table>

**Vehicle Assignments by Agency As of February 2021**

- 2020 Chev Bolt - New
- 2020 Chev Bolt - New
- 2020 Chev Bolt - New
- 2020 Chev Bolt - New
- 2014 Nissan Leaf FWD - Available
- 2014 Nissan Leaf FWD - Available
- 2015 Nissan Leaf FWD - Available
- 2020 Chev Bolt - Available
- 2020 Chev Bolt - Reserved
- 2014 Nissan Leaf FWD - DHHS Blind Services
- 2014 Nissan Leaf FWD - UNV UNC-Asheville
- 2014 Nissan Leaf FWD - UNV NC State University
- 2014 Nissan Leaf FWD - DHHS Central Administration
- 2014 Nissan Leaf FWD - UNV UNC-Charlotte
- 2015 Nissan Leaf FWD - DHHS Health Benefit
- 2015 Nissan Leaf FWD - UNV UNC-Charlotte
- 2015 Nissan Leaf FWD - UNV UNC-Chapel Hill
- 2015 Nissan Leaf FWD - UNV UNC-Chapel Hill
- 2015 Nissan Leaf FWD - UNV Fayetteville State U
- 2020 Chev Bolt - DHHS Child Development
- 2020 Chev Bolt - Dept Of Natural & Cultural Resources
- 2020 Chev Bolt - Dept Of Public Safety
- 2020 Chev Bolt - Dept Of Public Safety
- 2020 Chev Bolt - Dept Of Public Safety
- 2020 Chev Bolt - Dept Of Public Safety
- 2020 Chev Bolt - UNV Appalachian State U
- 2020 Chev Bolt - UNV Appalachian State U
- 2020 Chev Bolt - UNV Appalachian State U
- 2020 Chev Bolt - UNV Appalachian State U
- 2020 Chev Bolt - UNV Appalachian State U
- 2019 Chev Volt AWD - UNV UNC-Charlotte
- 2019 Chev Volt AWD - UNV UNC-Charlotte
- 2019 Chev Volt AWD - Dept Of Environmental Quality
- 2019 Chev Volt AWD - UNV Appalachian State U
EV Suitability Assessment

• MFM has ensured telematics is on every state vehicle, allowing data-informed decisions and mileage tracking to determine vehicles best suitable for ZEV replacement.

• The 2019 EV Suitability Assessment (ezEVSA) was provided to MFM by Sawatch Labs and identified 572 vehicles suitable for ZEV replacement.

• The Sawatch Labs scoring analysis of approximately 2,500 MFM vehicles is shared with agency fleet coordinators and is used as a basis to recommend EV replacement.

• A new Sawatch Labs analysis of telematic data related to the entire 7,000+ vehicle fleet will be available in 2021. The analysis will inform infrastructure recommendations, as well as additional vehicles suitable for ZEV replacement.
Charging Solutions

• There is a critical need to invest in charging infrastructure where vehicles frequently drive and park overnight.

• MFM installed two Phase 2 chargers and four Phase 1 chargers at the Blue Ridge Rd. facility.

• MFM worked with ChargePoint and WEX fuel cards to allow state-owned ZEVs to charge at over 790+ ChargePoint locations across NC.

• ChargePoint fuel cards were issued to MFM ZEV drivers for remote charging purposes.

• State Construction is seeking funding to centralize the process for purchasing and installing charging infrastructure.
Educational Outreach

• The DOA MFM webpage includes resources critical for widespread adoption of ZEVs:
  • **Vehicle Infrastructure and Charging Stations Request Portal**
  • **State Government Capital Complex Electric Vehicle Charging** Information and Resources (ChargePoint)
  • EO80 and electrification updates are shared through DOA’s social media channels, department wide newsletters, and directly with agency fleet coordinators and agency heads
Next Steps

• Communicate results of the 2021 Sawatch Labs analysis to Agency partners
• Continue to monitor Agency vehicle requests and identify when a ZEV is suitable
• Advocate for funding to address critical infrastructure needs
• Respond to setbacks related to COVID-19 and its adverse effects on receipt supported agencies, budgets, and businesses sustainability overall
Contact Information

• Robert Riddle, Director, Motor Fleet Management, NC Department of Administration, Robert.riddle@doa.nc.gov

• Mark Edwards, Acting Secretary, NC Department of Administration, mark.edwards@doa.nc.gov
ZEV Plan Implementation

Heather J. Hildebrandt, DOT
North Carolina ZEV Plan Update

Heather Hildebrandt

February 24, 2021
NC ZEV Plan Action Areas

**Education**
- Comprehensive marketing and education campaign
  - Ride & Drive events
  - Total cost of ownership
  - Intergovernmental information sharing
  - EV owner testimonial
  - EV technology exhibits
  - K-12 EV campaign
  - Posted Registration Data

**Convenience**
- Fast Charging Infrastructure
  - Workplace Charging
  - Rest Area charging
  - Retail charging
  - Consistent signage
  - Charging for on-street parking
  - Wayfinding App

**Affordability**
- Credits/Rebates
  - Green vehicle loans w/credit unions
  - Dealership incentives
  - Fleet incentives
  - Reduced home charging rates
  - Fleet & bus infrastructure grants

**Policy**
- Pursue a regional electric vehicle initiative
  - Investigate ZEV MOU signed by other states and other collaboratives
  - Participate in Medium- and Heavy-Duty MOU
  - Identify opportunities for EV adoption in zoning and building codes
  - EV registration fees
  - EV Fleet certifications

Convenience Policy
- Affordability
- Education
North Carolina Proposed EVSE Corridors and Stations

Map Created By
NCDOT Transportation Planning Division
February 2021
EVSE Signage

• NCDOT allows for EVSE highway signage through the LOGO signing program to restaurants and lodging establishments.
Transit Electrification

- Webinar for transit systems
  - Shared current NC deployment
  - Options for smaller systems
- Volkswagen Settlement Funds
- CMAQ
  - 24 eligible counties
Multi-State Initiatives

• Medium- and Heavy-Duty MOU
• I-40 Alternative Fuel Corridor Deployment Plan
  – NC, TN and AR
• SE EV Corridor Council
  – Corridor Signage
  – Coordination of infrastructure
Contact Information

Heather Hildebrandt
Statewide Initiatives Supervisor
NC DOT
919-707-0964
hjhildebrandt@ncdot.gov
Medium and Heavy-Duty ZEV MOU

Mike Abraczinskas, DEQ
Initiatives to Stimulate Adoption of ZEVs

• Executive Order 80

• Diesel Emission Reduction Act (DERA)

• Volkswagen (VW) Settlement

• Medium- and Heavy-Duty (MHD) Zero Emission Vehicle (ZEV) Memorandum of Understanding (MOU)
# MHD ZEV Projects in NC

## Diesel Emission Reduction Act (DERA)

<table>
<thead>
<tr>
<th>DERA Projects</th>
<th>Town of Cary</th>
<th>City of Wilmington</th>
<th>City of Charlotte</th>
</tr>
</thead>
<tbody>
<tr>
<td>Vehicle being replaced (transit bus, school bus, etc)</td>
<td>Refuse Truck</td>
<td>Refuse Truck</td>
<td>Transit Bus</td>
</tr>
<tr>
<td>Infrastructure included</td>
<td>Yes</td>
<td>Yes</td>
<td>No</td>
</tr>
<tr>
<td>Total cost of project</td>
<td>$560,834.05</td>
<td>$601,302.05</td>
<td>$867,127.00</td>
</tr>
<tr>
<td>DERA funding provided</td>
<td>$252,375.32</td>
<td>$270,585.92</td>
<td>$390,207.00</td>
</tr>
<tr>
<td>Location</td>
<td>Cary</td>
<td>Wilmington</td>
<td>Charlotte</td>
</tr>
<tr>
<td>Urban or Rural</td>
<td>Urban</td>
<td>Urban</td>
<td>Urban</td>
</tr>
</tbody>
</table>
## VW Settlement

### MHD ZEV Projects in NC

<table>
<thead>
<tr>
<th>Organization Name</th>
<th>County</th>
<th>Funding Amount</th>
<th>County Classification</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>School Bus</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Department of Public Instruction</td>
<td>Transylvania</td>
<td>372,270.00</td>
<td>Rural</td>
</tr>
<tr>
<td>Department of Public Instruction</td>
<td>Cabarrus</td>
<td>360,999.00</td>
<td>Urban</td>
</tr>
<tr>
<td>Department of Public Instruction</td>
<td>Rowan</td>
<td>368,564.00</td>
<td>Urban</td>
</tr>
<tr>
<td>Department of Public Instruction</td>
<td>Randolph</td>
<td>277,963.00</td>
<td>Rural</td>
</tr>
<tr>
<td>Department of Public Instruction</td>
<td>New Hanover</td>
<td>369,325.00</td>
<td>Urban</td>
</tr>
<tr>
<td>Eastern Band of Cherokee Indians</td>
<td>Swain</td>
<td>402,810.00</td>
<td>Rural</td>
</tr>
<tr>
<td><strong>Transit Bus</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Durham</td>
<td>Durham</td>
<td>$428,066.00</td>
<td>Urban</td>
</tr>
<tr>
<td>Greensboro</td>
<td>Guilford</td>
<td>$501,838.77</td>
<td>Urban</td>
</tr>
<tr>
<td>Salisbury</td>
<td>Rowan</td>
<td>$426,502.25</td>
<td>Urban</td>
</tr>
<tr>
<td>Salisbury</td>
<td>Rowan</td>
<td>$392,269.25</td>
<td>Urban</td>
</tr>
<tr>
<td>Chapel Hill</td>
<td>Orange</td>
<td>$485,000.00</td>
<td>Urban</td>
</tr>
<tr>
<td>Raleigh</td>
<td>Wake</td>
<td>$397,200.73</td>
<td>Urban</td>
</tr>
<tr>
<td>Boone-Appalachian State</td>
<td>Watauga</td>
<td>$1,001,500.00</td>
<td>Rural</td>
</tr>
<tr>
<td>Fayetteville</td>
<td>Cumberland</td>
<td>$127,750.00</td>
<td>Urban</td>
</tr>
<tr>
<td>Fayetteville</td>
<td>Cumberland</td>
<td>$127,750.00</td>
<td>Urban</td>
</tr>
<tr>
<td><strong>TOTALs</strong></td>
<td></td>
<td><strong>$6,039,808.00</strong></td>
<td></td>
</tr>
</tbody>
</table>
Truck Classifications

- Vehicle classes are based on gross vehicle weight rating (GVWR).
- Class 2 is subdivided into:
  - Class 2a vehicles with a GVWR of 6,001-8,500 lbs.; and
  - Class 2b vehicles with a GVWR of 8,501-10,000 lbs.
- MHDVs consist of classes 2b-8.
MHD ZEV MOU

July 14, 2020
• 15 states and the District of Columbia signed a joint memorandum of understanding (MOU)
• NC DAQ involved Sept 2020
Action
• Advance and accelerate the market for electric medium-and heavy-duty vehicles, including large pickup trucks and vans, delivery trucks, box trucks, school and transit buses, and long-haul delivery trucks (big-rigs)
Goals
• 100 percent of all new medium-and heavy-duty vehicle sales be zero emission vehicles by 2050
  interim target of 30 percent zero-emission vehicle sales by 2030
• Drastically reduce greenhouse gas emissions from MHD ZEV
Health benefits
• Especially for communities burdened with higher levels of air pollution and heavy truck traffic
MHD ZEV MOU cont.
MHD ZEV Action Plan

• **Action Plan:**
  o Task Force will develop a multi-state action plan to identify barriers and propose solutions to support widespread electrification of medium- and heavy-duty vehicles

• **Focus on Disadvantaged Communities**
  o Share equitably in the benefits of truck and bus electrification
  o Provide meaningful opportunities to provide input
  o Meet community needs
  o Build long-term relationships

• **Measurable Sales of MHD ZEVs**
• **Public Fleet Purchases and Fueling Stations**
• **Inter-agency Cooperation within States**
• **Partnerships with Key Stakeholders**

**EXAMPLES for Action Plan:**
• Financial vehicle and infrastructure incentives;
• Non-financial vehicle and infrastructure incentives;
• Actions to encourage public transit and public fleet ZEV MHD development;
• Effective infrastructure deployment strategies;
• Funding sources and innovative financing models to support incentives and other market-enabling programs;
• Leveraging environmental and air quality benefits associated with adoption of the California Advanced Clean Trucks rule under Section 177 of the Clean Air Act;
• Coordinated outreach and education to public and private MHDV fleet managers;
• Utility actions to promote zero emission MHDVs, such as electric distribution system planning, beneficial rate design and investment in “make-ready” charging infrastructure;
• Measures to foster electric truck use in densely populated areas;
• Addressing vehicle weight restrictions that are barriers to zero emission MHDV deployment;
• Uniform standards and data collection requirements; and
• Any other initiative the Task Force deems appropriate.
Steps to Date

- Bimonthly calls with Task Force
- Stakeholder engagement will be an important part of this program:
  - Technology
  - EJ Groups
  - Utilities
  - Environmental Groups
  - Fleet Owners
Examples of Industries Adopting MHD ZEVs
Potential Barriers to Adoption

- MONEY
- Agency capacity
- Infrastructure
  - Not at the same level as light-duty vehicles
  - Existing areas to build up / out
- Utility capacity
- Vehicle availability in the state
- Capital costs for fleets
- Maintenance and support capacity

Vision for Moving Forward

- Identify and establish open two-way communication
- Share the latest information on medium- and heavy-duty ZEVs
- Establish structured and unstructured opportunities to provide input
- Garner input on how Action Plan strategies can align with and support stated goals of EJ communities
- Facilitate an ongoing and constructive dialogue
- Build long-term relationships with EJ advocates and community groups
- Foster community participation in clean transportation planning and decision-making
Advancing the MHD ZEV MOU Initiative: Consultation with DEQ’s EJ and Equity Advisory Board

- What are the most important transportation needs, improvements and priorities for EJ communities in NC?

- Do you see specific benefits or concerns regarding this project?

- Is there additional information you would like to have about health, safety or other impacts related to this project while considering these questions?

- What are the best ways in which to share this information and engage with communities?

- Please let us know if you would be interested and available to be a Point of Contact for NC. Or if you have anyone else you would recommend we bring into this effort, please let us know.
Contact information

Mike Abraczinskas, EIT, CPM
Director
NC Division of Air Quality
Michael.Abraczinskas@ncdenr.gov
919-707-8447

Robin Barrows, Allied Programs Supervisor
NC Division of Air Quality
Robin.Barrows@ncdenr.gov
919-707-8445
Clean Energy Plan Recommendation B-1

Sushma Masemore, DEQ; and Jessica Shipley, Regulatory Assistance Project
Clean Energy Plan Recommendation B-1
NC Energy Regulatory Process

Sushma Masemore, DEQ                Jessica Shipley, RAP
Goals

1. Reduce power sector greenhouse gas emissions by 70% below 2005 levels by 2030 and attain carbon neutrality by 2050.

2. Foster long-term energy affordability and price stability for North Carolina’s residents and businesses by modernizing regulatory and planning processes.

3. Accelerate clean energy innovation, development, and deployment to create economic opportunities for both rural and urban areas of the state.

Key Recommendation

• To successfully transition to a clean energy future, North Carolina must establish a 21st century regulatory model that incentivizes business decisions that benefit both the utilities and the public in creating an energy system that is clean, affordable, reliable, and equitable.

Core Values to Uphold

• Significant and timely decline in greenhouse gas emissions
• Affordable electricity rates
• Grid reliability
• Expanded clean energy resources and job growth
• Equity and environmental justice considerations
Clean Energy Plan
Recommendation Areas

CEP Recommendation B-1
• Design policies that align regulatory incentives and processes with public policy goals, customer expectations, utility needs, and technology innovation.
• DEQ launched stakeholder process in February 2020.
Purpose

Produce recommendations for policy and regulatory changes that can be delivered by the participants to the NC General Assembly, NC Governor, NC Utilities Commission, and other entities as appropriate.

These may take the form of issues briefs or policy proposals developed during the process.

Objectives

1. Build expertise and trust among NC energy stakeholders through shared principles, foundation setting, education and identification of priority action areas

2. Examine alternatives to the traditional utility regulatory model and incentives, carbon reduction policies, and as needed, energy market reforms identified by stakeholder group

3. Produce specific policy proposals that participants can work to implement
NERP Stakeholders

- State Government
- Regulated Utilities
- Munis and Co-ops
- Local Government
- Customer Representatives
- Industry
- Clean Energy Industry
- Environmental NGOs
- Environmental Justice
- Universities
NERP 2020 Report

Full Report
https://deq.nc.gov/cep-nerp

Package submitted to the Governor, Leaders of the NCGA, and Chair of the Utilities Commission

Contacts

<table>
<thead>
<tr>
<th>Contact</th>
<th>Organization</th>
<th>Email</th>
</tr>
</thead>
<tbody>
<tr>
<td>NERP Contact</td>
<td>NC DEQ</td>
<td><a href="mailto:sascha.masemore@ncdeq.gov">sascha.masemore@ncdeq.gov</a></td>
</tr>
<tr>
<td>NERP Fact Sheet</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Performance Based</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Regulation</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Wholesale Electricity</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Markets Study Group</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Work Products</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Expanding Securitization</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Study Group</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Work Products</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Competitive Procurement</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Guidance Document</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Study Group</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Work Products</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

58
NERP Process Timeline

NERP Workshops and Meetings

**Phase 1: Foundation Setting**
- **Kickoff Workshop** – Foundation setting + PBR Overview

**Phase 2: Topic Deep Dives**
- **March**
  - **Webinar** – Performance-based regulation (PBR)
  - **Workshop 2** – PBR legislation review
- **April**
  - **Workshop 3** – Wholesale markets
- **May**
  - **Workshop 4** – Retirement of uneconomic assets
- **June**
  - **Workshop 5** – Competitive procurement
NERP Process Timeline

**Phase 1: Foundation Setting**
- **Kickoff Workshop** – Foundation setting + PBR Overview

**Phase 2: Topic Deep Dives**
- **Webinar** – Performance-based regulation (PBR)
- **Workshop 2** – PBR legislation review
- **Workshop 3** – Wholesale markets
- **Workshop 4** – Retirement of uneconomic assets
- **Workshop 5** – Competitive procurement

**Phase 3: Policy Development**
- **Webinar** – Process of policy development
- **Workshop 6** – Transitioning into policy development
- **Workshop 7** – Advancing policy pathways
- **Workshop 8** – Refining policy pathways
- **Workshop 9** – Outputs finalized + next steps identified

**Beyond NERP**
- **Implementation of outputs**
NERP Process Timeline

NERP Workshops and Meetings

Phase 1: Foundation Setting
Kickoff Workshop – Foundation setting + PBR Overview

Phase 2: Topic Deep Dives
Webinar – Performance-based regulation (PBR)
Workshop 2 – PBR legislation review
Workshop 3 – Wholesale markets
Workshop 4 – Retirement of uneconomic assets
Workshop 5 – Competitive procurement

Phase 3: Policy Development
Webinar – Process of policy development
Workshop 6 – Transitioning into policy development
Workshop 7 – Advancing policy pathways
Workshop 8 – Refining policy pathways
Workshop 9 – Outputs finalized + next steps identified

Beyond NERP
Implementation of outputs

NERP Outputs

Study groups drive individual outputs

- PBR rec v1
- Stat Auth rec v1
- Wholesale rec v1
- PBR rec v2
- Wholesale rec v2
- Asset retirement
- Competitive procurement
- Draft Deliverables
- Recommendations

December
November
September
August
July
June
May
April
March
February
2021 Onward

Last updated on August 13, 2020
Deliverables
Finalized
# NERP Guiding Outcomes

<table>
<thead>
<tr>
<th>Outcome Category</th>
<th>Outcome</th>
</tr>
</thead>
<tbody>
<tr>
<td>Improve customer value</td>
<td>Affordability and bill stability</td>
</tr>
<tr>
<td></td>
<td>Reliability</td>
</tr>
<tr>
<td></td>
<td>Customer choice of energy sources and programs</td>
</tr>
<tr>
<td></td>
<td>Customer equity</td>
</tr>
<tr>
<td>Improve utility regulation</td>
<td>Regulatory incentives aligned with cost control and policy goals</td>
</tr>
<tr>
<td></td>
<td>Administrative efficiency</td>
</tr>
<tr>
<td>Improve environmental quality</td>
<td>Integration of DERs</td>
</tr>
<tr>
<td></td>
<td>Carbon neutral by 2050</td>
</tr>
<tr>
<td>Conduct a quality stakeholder process</td>
<td>Inclusive</td>
</tr>
<tr>
<td></td>
<td>Results oriented</td>
</tr>
</tbody>
</table>
## NERP Guiding Outcomes – Top Priorities Identified by Participants

<table>
<thead>
<tr>
<th>Outcome Category</th>
<th>Outcome</th>
</tr>
</thead>
<tbody>
<tr>
<td>Improve customer value</td>
<td>Affordability and bill stability</td>
</tr>
<tr>
<td></td>
<td>Reliability</td>
</tr>
<tr>
<td></td>
<td>Customer choice of energy sources and programs</td>
</tr>
<tr>
<td></td>
<td>Customer equity</td>
</tr>
<tr>
<td>Improve utility regulation</td>
<td>Regulatory incentives aligned with cost control and policy goals</td>
</tr>
<tr>
<td></td>
<td>Administrative efficiency</td>
</tr>
<tr>
<td>Improve environmental quality</td>
<td>Integration of DERs</td>
</tr>
<tr>
<td></td>
<td>Carbon neutral by 2050</td>
</tr>
<tr>
<td>Conduct a quality stakeholder process</td>
<td>Inclusive</td>
</tr>
<tr>
<td></td>
<td>Results oriented</td>
</tr>
</tbody>
</table>
NERP “Study Group” Focus Areas – Building Recommendations for NC

- **Performance Based Regulation**
- **Wholesale Market Reform**
- **Asset Retirement / Securitization**
- **Competitive Procurement**
NERP “Study Group” Focus Areas – Building Recommendations for NC

**Performance Based Regulation**
- Lay a foundation to align regulatory incentives with societal goals
- Create specific incentives for desired outcomes

**Wholesale Market Reform**
- Promote increased competition, reduced cost, and GHG emission reductions

**Asset Retirement / Securitization**
- Provide a mechanism to retire existing coal units while saving customers money and investing in communities

**Competitive Procurement**
- Ensure new procured resources are least cost
NERP High level findings: PBR

- NCGA direct NCUC to undertake PBR
- NCUC may be able to do some elements of PBR already
- NC should create an integrated PBR framework including:

<table>
<thead>
<tr>
<th>Revenue decoupling</th>
<th>Performance incentive mechanisms (PIMs) to motivate utility performance in critical areas</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Targets throughput incentive (kWh sold)</td>
<td>• Peak demand reduction</td>
</tr>
<tr>
<td>• Breaks link between utility revenue and amount of energy sold to customers</td>
<td>• Renewable energy, DER, and storage</td>
</tr>
<tr>
<td>• Removes utility disincentive to invest in things that decrease sales</td>
<td>• Energy efficiency</td>
</tr>
<tr>
<td></td>
<td>• Low income affordability</td>
</tr>
<tr>
<td></td>
<td>• Carbon emissions</td>
</tr>
<tr>
<td></td>
<td>• Transportation electrification</td>
</tr>
</tbody>
</table>

Implemented via **multi-year rate plan** (e.g., 3-5 years “stay out”) to motivate cost savings and reduce regulatory lag; include earnings sharing mechanism
PBR Around the Country

States addressing PBR

Minnesota:
- Performance metrics adopted
- Multi-year rate plan
- Decoupling

Hawaii:
- New performance metrics
- Multi-year rate plan
- Decoupling

Source: AEE’s PowerSuite, November 2020
NERP High level findings: Wholesale Markets

- A study should be conducted to determine the magnitude of potential benefits/costs of forming a “Carolinas RTO”
- Joining PJM market may not be the best path forward to support NC stated energy goals, including cost, emissions impact, and energy equity
- A comparative investigation into Energy Imbalance Markets and the proposed SEEM concept is timely
- A “markets” study in the State requires NCGA direction
Wholesale Electricity Markets
• Uneconomic coal assets are likely operating in North Carolina
• Incentives are not aligned to encourage these assets to be retired as quickly as possible
• Securitization is one tool for addressing this issue, and has potential upsides that other asset retirement tools do not
• Need legislative action to expand available uses of securitization to include asset retirement
Securitization for Asset Retirement

Since 1997 Utility Securitization Laws: 25 States + DC + Puerto Rico
Only 10 Active and Can Issue Now, 5 Considering Legislation, 4 New in 2019

Securitization Has Resulted in Much Lower Revenue Requirements and Large Savings in Today’s Dollars (NPV) for Ratepayers

Duke Energy Florida (FL) 2016
- $1.294 billion in unrecovered depreciation of a closed/early retired nuclear plant.
- $680 million NPV Savings

Consumers Energy (MI) 2014
- $589.6 million unrecovered depreciation of 950 MW of coal-fired capacity retired 2016.
- $135 million NPV Savings

Allegheny Energy (Monongahela & Potomac Edison) (WV) 2007,09
- $543 million in pollution control equipment and upgrades.
- $130 million NPV Savings
## Comparison of Selected Securitization Statutes

<table>
<thead>
<tr>
<th>State</th>
<th>Specified Bond Uses</th>
<th>Utility</th>
<th>Regulator</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Storm Costs</td>
<td>Plant Retirement</td>
<td>Retire Debt/Equity</td>
</tr>
<tr>
<td>North Carolina</td>
<td>X</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Colorado</td>
<td>X</td>
<td></td>
<td>X</td>
</tr>
<tr>
<td>Montana</td>
<td>X</td>
<td></td>
<td></td>
</tr>
<tr>
<td>New Mexico</td>
<td>X</td>
<td></td>
<td>X</td>
</tr>
<tr>
<td>Michigan</td>
<td>X</td>
<td>X</td>
<td></td>
</tr>
</tbody>
</table>

Source: NERP Study Group Work Product
NERP High level findings: Competitive Procurement

• Competitive solicitations should be utilized to meet identified energy and capacity needs
• NCGA or NCUC could expand the use of competitive solicitations
• Competitive solicitation has many design considerations that the NCUC would determine including the scope (what resources can compete) and whether/how utilities can participate and bid
Competitive procurement

Colorado – Xcel Energy

- All-source supply-side procurement as part of the planning process
- Open to bids from resources with various capabilities, larger than 100kW
- Resulted in 417 bids, selection of 1131 MW of wind, 707 MW of solar, 274 MW of battery storage, and 383 MW of existing gas
- Market-leading prices
- Will save customers $200 million compared to Xcel’s original preferred portfolio
<table>
<thead>
<tr>
<th>Outcome</th>
<th>Securitization</th>
<th>Competitive procurement of resources</th>
<th>Performance Incentives</th>
<th>Wholesale market reform</th>
<th>Multi-year rate plans</th>
<th>Decoupling</th>
</tr>
</thead>
<tbody>
<tr>
<td>Affordability and bill stability</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Reliability</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Customer choice of energy sources and programs</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>✓</td>
<td></td>
</tr>
<tr>
<td>Customer equity</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Regulatory incentives aligned with cost control and policy goals</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>Administrative efficiency</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>✓</td>
<td></td>
</tr>
<tr>
<td>Integration of DERs</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>✓</td>
<td></td>
</tr>
<tr>
<td>Carbon neutral by 2050</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
</tbody>
</table>
## NERP Outputs

**Performance-based Regulation**

- **Guidance document** to describe key findings and decision options for future NCUC deliberation
- **Draft legislative language** to require NCUC adoption of PBR guidance and rules
- **Summary fact sheet** to communicate key PBR ideas and opportunity to general audience and decision makers
- **Case studies** illustrating how PBR tools have been discussed and implemented in Minnesota and decoupling for gas utilities

### Asset retirement for uneconomic coal

- **Draft legislative language** to expand securitization use beyond storm recovery for retirement of uneconomic assets
- **Analysis** that evaluates options for accelerated retirement
- **Statute comparison** of securitization language from other states
- **Fact sheet** to communicate the opportunity of securitization to NC decision makers

**Wholesale Market Reform**

- **Study Proposal** for NC detailing rationale and key elements of various wholesale reform opportunities
- **Draft legislative language** to require a study
- **Fact sheets** to provide greater detail into specific reforms proposed

### Competitive procurement

- **Straw proposal to NCGA** for broad-based competitive procurement
- **Case studies** of Colorado’s experience with competitive procurement and the Virginia Clean Economy Act

*All NERP outputs were written by the participants except for the Summary Report*
NERP 2020 Report

Package submitted to the Governor, Leaders of the NCGA, and Chair of the Utilities Commission

Contacts

<table>
<thead>
<tr>
<th>Contact</th>
<th>Organization</th>
<th>Email</th>
</tr>
</thead>
<tbody>
<tr>
<td>NERP Contact</td>
<td>NC DEQ</td>
<td><a href="mailto:susanna.masemore@ncdeq.gov">susanna.masemore@ncdeq.gov</a></td>
</tr>
<tr>
<td>Salty Robinson</td>
<td>NC WARN</td>
<td><a href="mailto:salty@ncwarn.org">salty@ncwarn.org</a></td>
</tr>
<tr>
<td>Laura Bateman</td>
<td>Duke Energy</td>
<td><a href="mailto:laura.bateman@duke-energy.com">laura.bateman@duke-energy.com</a></td>
</tr>
<tr>
<td>Chris Carmody</td>
<td>NCCBA</td>
<td><a href="mailto:director@nccba.com">director@nccba.com</a></td>
</tr>
<tr>
<td>Steve Lealton</td>
<td>NCCBA Board</td>
<td><a href="mailto:stevlealton@ncnewables.com">stevlealton@ncnewables.com</a></td>
</tr>
<tr>
<td>Jack Jarak</td>
<td>Duke Energy</td>
<td><a href="mailto:jack.jarak@duke-energy.com">jack.jarak@duke-energy.com</a></td>
</tr>
</tbody>
</table>

Full Report
https://deq.nc.gov/cep-nerp
Next Steps

• NCGA – stakeholder process continues, energy bills expected (Spring 2021)

• Roadmap of Energy Policy Options to the Governor
  • Synthesis of A-1 and B-1 options that meet the CEP goals and deliver CEP core values
  • Presents menu of options for Executive action by the Governor
  • Identifies complementary and stand-alone utility regulatory and legislative options
  • Targeting mid April delivery
Thank You

Questions?
Clean Energy Plan Recommendation A-1
North Carolina Power Sector Carbon Policies

An Analysis of North Carolina Clean Energy Plan Recommendation A1

NC Climate Change Interagency Council | Feb.24, 2021
Clean Energy Plan Goals

<table>
<thead>
<tr>
<th>Year</th>
<th>Goal</th>
<th>2005</th>
<th>2030 Goal</th>
<th>2050 Goal</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>79.4 million metric tons of CO2 emitted</td>
<td>23.8 million metric tons of CO2</td>
<td>Carbon Neutrality¹</td>
<td></td>
</tr>
</tbody>
</table>

¹ Carbon Neutrality means that the net carbon emissions are zero.

---

Duke University
Nicholas Institute
Center for Climate, Energy, Environment and Economics
CEP Recommendation A-1

OVERVIEW OF STRATEGY AREAS & RECOMMENDATIONS

Carbon Reduction (A)
A. Decarbonize the electric power sector

- A-1. Deliver a report that recommends carbon-reduction policies and the specific design of such policies that best advance core values, such as GHG emission reductions, electricity affordability, and grid reliability. The report will evaluate policy designs for the following carbon reduction strategies:
  1. Accelerated coal retirements,
  2. Market-based carbon reduction program,
  3. Clean energy policies, such as an updated REPS, clean energy standard, and EERS, and
  4. A combination of these strategies.

Legislature, State Agencies, Academia
A1 Process

December 2019 to February 2021:

• Bimonthly meetings with stakeholders (~90) through fall 2020
• Policy, Technical Working Groups
• Two public forums
• Power sector modeling, economic analysis
• Interaction with parallel processes
• Stakeholder input on the draft report
• Final report: Coming soon!
Involved Sectors

- Electric Utilities (IOUs, coops)
- Renewable Energy
- Industrial Customers
- State Agencies
- Universities
- Low-Income Advocates
- Environmental and Justice Advocates

Duke
Nicholas Institute
for Environmental Policy Solutions

UNC
Center for Climate, Energy, Environment and Economics
Studies 4 policy “pathways”, variations, and combinations:

1. Accelerated coal retirements.
2. Carbon “adders” on new construction, generation.
3. Declining carbon budget (RGGI).
4. Clean energy standards.
Policy Dynamics

Clean Energy

Fossil/Emissions
Bases for Comparison

- In-state CO2 power sector emissions, in 2030 and over time (2023-2050);
- In-state NOx, SO2 power sector emissions, in 2030 and 2040;
- Imported CO2 emissions;
- Cost (NPV in total costs over time, and $/ton reduced);
- NC generation and capacity mix over time;
- [Subset of policies] Rate/bill changes; jobs/economic outlook.
A1 Core Values

Affordability
- Manufacturing Competitiveness
- Energy Burden

Equity
- Access to Clean Energy
- Impacts to Frontline Communities
- Just Transition
A1 Report Caveats

➢ Modeling did not attempt to duplicate how Duke Energy operates the grid

➢ Assumptions – where there was disagreement among stakeholders, did not use most optimistic views of renewables, but then ran alternative cases

➢ Results are directional only

➢ Results turn on how we defined policies; any policy can be designed to meet different goals
➢ System is poised for transition
➢ Highly responsive to modest changes in relative costs of different resources
➢ Policy can make a difference
➢ NC has cost effective options (ex. coal retirements, RGGI < 1% system cost increases)
What might achieve the 2030 CEP target:

– Carbon Adder on Generation ($6/ton in 2023 + 7%)

– CES on retail sales (70% clean by 2030; with/without offshore wind carve-out)

– CES Combinations: Coal Retirement, RGGI (with/without wind), and Carbon Adder on Capacity or Generation
Closing Remarks

• **Agency Requests:**
  - 2020 Agency Resiliency Status Reports – Due March 1, 2021

• **Recent EO80 Reports:**


• Next Council meeting tentatively scheduled for May 26, 2021

---

**Contacts**

Sushma Masemore, DEQ  
Deputy Assistant Secretary for Environment  
Sushma.Masemore@ncdenr.gov

Jeremy Tarr, Office of Governor Roy Cooper  
Senior Advisor for Climate Change Policy  
Jeremy.Tarr@nc.gov

Sharon Martin, DEQ  
Deputy Secretary for Public Affairs  
Sharon.Martin@ncdenr.gov

---

North Carolina  
Climate Change Interagency Council
Public Engagement

Individuals and organizations may provide input to cabinet agencies on their implementation of EO 80

(Limit: 2 minutes)