North Carolina Electric Vehicle State Policy Bootcamp

State of the State – EV Efforts in North Carolina

September 16, 2020

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Department of Environmental Quality
Topics Covered

1. Clean Energy Plan Recommendations

2. Volkswagen Settlement Phase 1 Award

3. Medium- and Heavy-Duty Zero Emission Vehicle MOU
NC Clean Energy Plan

Declining Cost of Battery Technologies Driving Investments


$427 Billion of private investment announced
U.S. investment up but still lags China and Germany
U.S. expected to get about 15% of total investments

Source: Atlas Public Policy
Predictions of Total Zero Emission Vehicles (ZEV) in North Carolina Light Duty Vehicle (LDV) fleet

<table>
<thead>
<tr>
<th>Data source</th>
<th>2025</th>
<th>2030</th>
<th>2040</th>
<th>2025</th>
<th>2030</th>
<th>2040</th>
</tr>
</thead>
<tbody>
<tr>
<td>Auto Alliance 2018</td>
<td>0.5</td>
<td>1.1</td>
<td>2.7</td>
<td>40,600</td>
<td>85,500</td>
<td>226,000</td>
</tr>
<tr>
<td>ChargePoint 2018</td>
<td>1.0</td>
<td>1.9</td>
<td>4.5</td>
<td>74,400</td>
<td>155,000</td>
<td>383,000</td>
</tr>
<tr>
<td>AEO 2019</td>
<td>1.0</td>
<td>2.4</td>
<td>5.9</td>
<td>76,800</td>
<td>196,000</td>
<td>502,000</td>
</tr>
<tr>
<td>NREL 2013</td>
<td>0.7</td>
<td>1.7</td>
<td>6.3</td>
<td>50,600</td>
<td>136,000</td>
<td>532,000</td>
</tr>
<tr>
<td>Half of BNEF 2018</td>
<td>1.1</td>
<td>4.3</td>
<td>16.0</td>
<td>82,300</td>
<td>342,000</td>
<td>1,360,000</td>
</tr>
</tbody>
</table>

ZEV market stock

- Auto Alliance
- ChargePoint
- AEO 2019
- NREL 2013
- Adjusted BNEF
Gross GHG Emissions by Economic Sector in 2017

- **Electricity**: 35.1%
- **Transportation**: 32.5%
- **Industry**: 12.3%
- **Agriculture**: 7.0%
- **Waste**: 5.8%
- **Commercial**: 3.8%
- **Home**: 3.5%

**Estimated Reductions by 2025**

**Charlotte Ozone Maintenance Area**

- CO\textsubscript{2}: -4.41
- NO\textsubscript{x}: -0.78
- Petroleum: -6

**Reductions Statewide**

- 162 tons NO\textsubscript{x}
- 1.7 million metric tons CO\textsubscript{2}e
Clean Energy Plan Recommendation Areas

- **Carbon Reduction**
  - Decarbonize the electric power sector

- **Utility Incentives and Comprehensive System Planning**
  - Modernize utility tools and incentives
  - Comprehensive utility system planning

- **Grid Modernization and Resilience**
  - Grid modernization to support clean energy resources
  - Grid resilience and flexibility

- **Clean Energy Deployment and Economic Development**
  - Customer access to clean energy
  - DER interconnection and compensation for value added to the grid
  - Clean energy economic development opportunities

- **Equitable Access and Just Transition**
  - Equitable access and energy affordability
  - Just transition to clean energy economy

- **Energy Efficiency and Beneficial Electrification**
  - Energy efficiency and demand side management programs
  - Electrification strategies
Electrification Recommendations

Energy Efficiency and Beneficial Electrification (K-L)

K. Increase use of energy efficiency & demand side management programs

- K-5. Require utilities to develop innovative rate design pilots to encourage customer behavior that helps achieve clean energy goals, such as peak demand reduction, better utilization of renewable resources, and strategic storage deployment.
  
  *Utilities Commission, Co-Ops/Public Utilities*

L. Create strategies for electrification

- L-1. Require utilities to develop innovative rate design pilots for electric vehicles to encourage off-peak charging of vehicles and to test effectiveness of different rate structures at shifting customer usage of the grid and encouraging the adoption of electric vehicles.
  
  *Utilities Commission, Co-Ops/Public Utilities*

- L-2. Conduct an analysis of the costs and benefits of using electrification to reduce energy burden and GHG emissions in consumer end-use sectors in NC, such as in homes, buildings, transportation, industrial and agricultural operations.
  
  *Academia*
Utility Filings Status
(2012 through July 2020)

Source: Atlas Public Policy
VW Settlement Phase 1 Awards by Program

<table>
<thead>
<tr>
<th>Program</th>
<th>Number of Vehicles/Stations Funded</th>
<th>Program Total Awarded</th>
</tr>
</thead>
<tbody>
<tr>
<td>School Bus</td>
<td>111</td>
<td>$12,289,900</td>
</tr>
<tr>
<td>Transit Bus</td>
<td>24</td>
<td>$6,136,377</td>
</tr>
<tr>
<td>Off-Road</td>
<td>2</td>
<td>$1,881,700</td>
</tr>
<tr>
<td>On-Road</td>
<td>45</td>
<td>$4,254,271</td>
</tr>
<tr>
<td>ZEV Infrastructure*</td>
<td>33 DC Fast stations</td>
<td>$3,434,974</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td>182 vehicles and 33 stations</td>
<td><strong>$27,997,222</strong></td>
</tr>
</tbody>
</table>

*An additional $1,150,571 allocated for ZEV Level 2 RFP.
Medium- and Heavy-Duty Zero Emission Vehicle MOU


• Commits signatories to work together to foster a self-sustaining market for zero emission medium- and heavy-duty vehicles.

• Calls for 30% of new truck and bus sales to be zero-emission by 2030 and 100% by 2050.

• Emphasizes need to accelerate deployment of zero-emission trucks and buses in disadvantaged communities.

• Directs development and implementation of a MHD ZEV Action Plan.
Thank you.

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