

ENSURING EQUITABLE TRANSPORTATION ELECTRIFICATION IN NORTH CAROLINA



North Carolina Transportation Electrification Roadmap

Key Takeaways

Ensuring that equity remains at the forefront of North Carolina’s transportation policy development will **allow all North Carolinians to share in the benefits of clean, electrified transportation, prioritizing communities that have been historical overburdened with transportation pollution.** To achieve an equitable transition, the State must collaborate with and address the concerns and needs of low-to-moderate income communities and communities that have been historically burdened by pollution.

Transportation Electrification: Enormous Emissions Reductions and Benefits for All Residents Of North Carolina

The Transportation sector is the largest source of greenhouse gas (GHG) emissions in North Carolina, and reducing these emissions is critical to human and environmental health. Executive Order No. 246 (EO 246), *North Carolina’s Transformation to a Clean, Equitable Economy*, sets a new GHG emission reduction goal of net-zero emissions by 2050, increases the zero-emission vehicle (ZEV) registration target to 1.25 million vehicles and creates a new ZEV in-state sales target to be at least 50 percent by 2030. Transportation electrification is an important piece of the puzzle in reducing the state’s emissions.

This analysis found that North Carolina could see up to \$150 billion in cumulative net benefits from transportation electrification, including air quality, benefits, utility customer savings, and EV owner savings.

This report includes a detailed analysis of four “core policies” to drive transportation electrification: 1) California’s Advanced Clean Cars II (ACC II) rulemaking, 2) the Advanced Clean Trucks (ACT) rule, and 3) the NOx Omnibus rule and 4) the Biden Administration’s 2030 electric vehicle (EV) sales target. It also explores how complementary policies, such as infrastructure development and vehicle financing, can help ensure that transportation electrification is implemented equitably and with the lowest cost and impact on consumers.

Background

Executive Order 246 (EO 246), *North Carolina’s Transformation to a Clean, Equitable Economy*, sets several new targets for the State including actions directed at the transportation sector. Targets include a new ZEV registration target of at least 1.25 million vehicles by 2030 and a new ZEV sales target that requires at least 50 percent of in-state sales of new vehicles to be zero emission by 2030. This Executive Order also directs the North Carolina Department of Transportation (DOT), Department of Environmental Quality (DEQ), and other agencies to develop a North Carolina Clean Transportation Plan for the Climate Council to submit to the Governor by April 2023. **Lastly, EO 246 orders State agencies to center climate action around environmental justice, equity, and affordability for all North Carolinians.**

Cumulative Estimated Reductions in Health Outcomes Under Modeled Scenarios

Policy Scenario*	Cumulative Reduced Incidents			
	Mortality	Hospital**	Asthma-Related Emer. Room	Restricted Activity Days***
Medium	773	493	277	463,271
High	1,007	640	359	603,369
High (Clean Grid)	1,070	679	379	636,083

* Compared to the Baseline Scenario

**Hospital visits include respiratory-related hospitalizations, asthma-related hospitalizations, hospitalizations related to chronic lung disease, and cardiovascular-related hospitalizations

***Restricted activity days are days where activity is limited, but not severely restricted, for example missing work

Findings

Potential Health Benefits

This report calculates the potential net societal benefits of electric vehicle (EV) adoption in North Carolina. It finds that North Carolina could see significant reductions in premature mortality, fewer hospital admissions, and emergency room visits for asthma. There could also be reduced cases of acute bronchitis, exacerbated asthma, and other respiratory symptoms, and fewer restricted activity days and lost workdays. In total, this is almost \$52



billion in monetized value of greenhouse gas (GHG), nitrogen oxides (NOx), and particulate matter (PM) reductions. An equitable transportation transition is critical to ensure that all North Carolinians, especially those already experiencing a disproportionate burden from transportation pollution, achieve these significant benefits. These total societal benefits, while important, will need to be paired with additional policies to ensure that emissions reductions are targeted towards communities of color and those that have been historically overburdened with transportation pollution.

The analysis explores three scenarios, each a combination of core policies described above, for both the light-duty vehicle (LDV) and medium- and heavy-duty vehicle (M/HDV) markets. Each of these scenarios are modeled against a Baseline Scenario that achieves Environmental Protection Agency’s (EPA) emission standards.

Under each scenario, transportation electrification achieves significant emissions reductions by 2050:

- **PM:** between 6.2 – 14.6 thousand metric tons are reduced, **up to a 43 percent reduction**
- **NOx:** between 380 – 481 thousand metric tons are reduced, **up to a 31 percent reduction**

Figure 1. Estimated On-Road Vehicle Related NOx Emissions

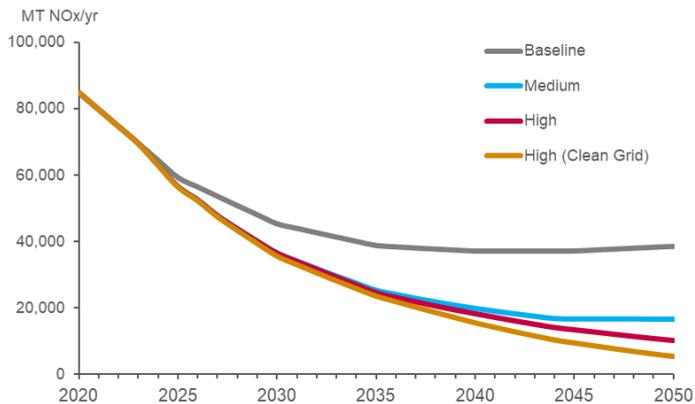


Figure 2. Estimated On-Road Vehicle Related PM Emissions

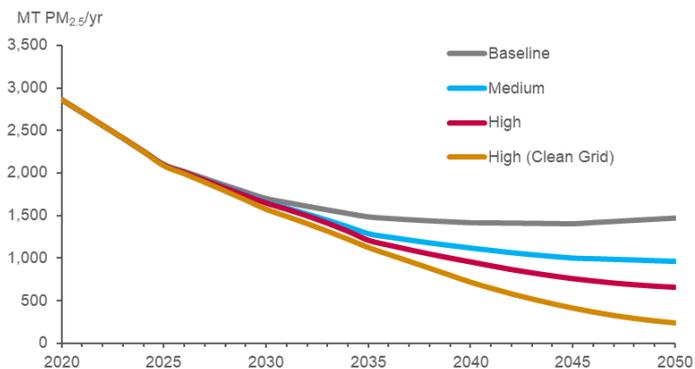


Figure 1. and Figure 2. represent cumulative reduction in NOx and PM emissions between 2020 and 2050 for the three scenarios.

Key Equity Considerations

To ensure that State agencies center climate action around environmental justice, equity, and affordability for all North Carolinians, the State should consider these key equity components when developing the EV market:

- Carry out authentic, sustained engagement with leaders in low-to-moderate income communities and communities of color at every stage of policy and or program development.
- Build comprehensive research and data on socioeconomic status and health of communities.
- Increase vocational training for EV technicians and electrical workers to ensure EV and charger maintenance skills are available in urban and rural communities.
- Ensure equity is built into all long-term planning documents.
- Develop policies and programs that encourage the growth of the used EV market, that lower the upfront cost of vehicles and provide targeted reductions of emissions in these communities.
- Craft community specific campaigns, informed by careful stakeholder engagement, to address outsized information gaps about transportation electrification within disproportionately burdened and low-to-moderate income communities.

Conclusion

Transportation electrification can have significant public health benefits to North Carolina and will have positive health impacts that can reduce premature mortality, fewer hospital admissions, and emergency room visits for asthma, among other health benefits.

North Carolina leaders must consider and collaborate with all communities across the State to achieve an equitable and affordable electrification transition.

The full report is available at [ERM.com](https://www.ERM.com)