

# Why the Northeast Should Limit Pollution from Transportation

## *Clean Transportation Can Protect Our Environment and Grow Our Economy*

### HIGHLIGHTS

*The Northeast has helped lead the nation in reducing pollution from electricity. Now the largest source of pollution in the region comes from transportation. We can create a better, cleaner transportation system for Northeast residents through investments in public transportation and new technologies such as electric vehicles. An important step forward would be for the Northeast region to set an overall limit on pollution from transportation through a regional “cap-and-invest” program, similar to the program the region implemented for electricity-related emissions. This program would begin to hold oil companies accountable for their emissions and provide funding for clean mobility for Northeast residents.*

Over the past decade, the Northeast region of the United States has helped lead the country—and the world—in supporting and developing clean, renewable sources of electricity. Taken together, the policies of Northeast states, from Maine to Maryland, have generated billions of dollars in investment for solar, wind, and efficiency. One driving force behind this investment is a regional initiative that caps emissions from the electricity sector, charges power plants for the emissions they generate, and invests the revenue from those fees into efficiency and clean energy programs. This initiative has helped fundamentally change the region’s electricity sector: we have achieved unprecedented penetration of renewables, nearly eliminated the use of coal, and reduced overall electricity use at a time of economic expansion.

The next big step for the region is to bring that same sense of commitment, ingenuity, and purpose to clean transportation.

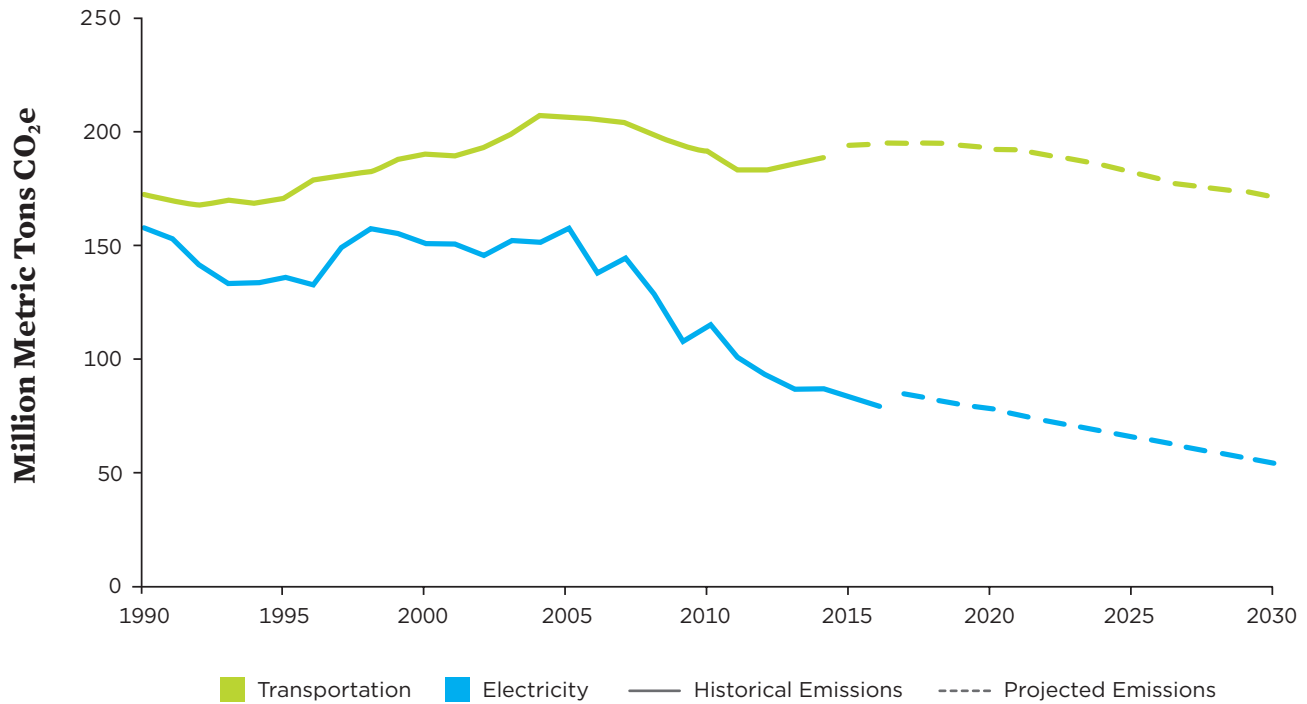
Transportation is the largest source of pollution in the Northeast region, comprising more than 40 percent of total regional global warming emissions (Georgetown Climate Center 2015). In addition to the health impacts associated with rising temperatures, soot and ground-level ozone from the region’s cars and trucks are responsible for more than 50,000 asthma attacks, 1,000 deaths, and other pollution-related illnesses that incur approximately \$27 billion in total health care costs every year (Holmes-Gen and Barrett 2016). The health impacts of transportation affect all of us, but especially vulnerable are children, the elderly, the chronically ill, and people in low-income communities (who often live in or near freight corridors).



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*A growing number of people are choosing to live in neighborhoods where nearby amenities and public transportation can make car-free living more feasible. Above, the Boston Harborwalk, more than 40 miles long, connects the city’s waterfront neighborhoods. Forward-thinking policies can help the region adapt to growing populations and reduce dependence on personal vehicles.*

FIGURE 1. Northeast Global Warming Emissions in Transportation and Electricity Sectors, 1990–2030



*Regional policies have helped drive down electricity-related emissions, and these reductions are projected to continue as emissions regulations tighten between now and 2030. Transportation-related emissions, on the other hand, have been mostly stagnant and will likely remain so unless the region invests in clean transportation solutions.*

Emissions data aggregated from states participating in the Regional Greenhouse Gas Initiative (RGGI): Connecticut, Delaware, Maine, Maryland, Massachusetts, New Hampshire, New York, Rhode Island, and Vermont. Projected emissions reductions in the electricity sector are based on emissions caps set under RGGI; electricity emissions are lower in 2016 (historical) than 2017 (projected) because actual emissions have been consistently lower than the RGGI emissions cap.

SOURCES: EIA 2017A (PROJECTED TRANSPORTATION EMISSIONS); RGGI 2017 (PROJECTED ELECTRICITY EMISSIONS); EIA 2016 (HISTORICAL EMISSIONS).

Our nation’s transportation system is very polluting because it is wasteful and inefficient. 92 percent of all transportation is powered by oil (EIA 2017b), so virtually all vehicle travel generates pollution. Four of the five states with the longest commute times in the country are located in the Northeast: Maryland, Massachusetts, New Jersey, and New York (US Census Bureau 2016); long commutes are due in part to traffic congestion, a growing problem in every Northeast metro area, as well as higher housing costs that force many people to live farther away from their jobs. At the same time, inadequate access to affordable transportation remains a major barrier to opportunity, particularly for low-income communities, communities of color, rural residents, the disabled, and the elderly.

Our transportation system is also expensive. More than 15 percent of US household income goes toward purchasing, fueling, and maintaining personal vehicles, making it the second-largest household expense behind housing (BLS 2017).

Every year, Northeast residents send billions of dollars out of the region to purchase fuel, enriching oil companies at the expense of our local economy.

### A Better Transportation System Is within Reach . . .

The good news is that we have the tools and the technologies to build a better, cleaner transportation system in the Northeast. For example, electric drivetrains offer the promise of cars, trucks, and buses that can operate with lower tailpipe emissions and fuel costs. Indeed, electric vehicles in the Northeast produce emissions equivalent to a gasoline vehicle getting anywhere from 50 to 160 miles per gallon depending on the mix of renewables in the local grid (Reichmuth 2017). Ride sharing, if properly implemented, can ease congestion by reducing the number of single-occupancy vehicles and, along

with autonomous vehicles, open up new possibilities for greater system efficiency (UCS 2017). And a growing number of people are minimizing—or eliminating—the need to drive at all. Public transportation use in the six largest transit systems in the Northeast has increased more than 8 percent since 2008 (APTA 2016). And a recent study of young professionals shows ever greater interest in public transit, cycling, and urban living (National Academies 2013).

Together, these present-day technologies and trends point toward a future transportation system that does more but costs less and pollutes less. A transportation system in which a shared network of electric vehicles, working in concert with a first-class public transportation system, gets everybody where they need to go without burning a gallon of gasoline or wasting time in traffic. A transportation system that doesn't contribute to air pollution or climate change, and isn't vulnerable to the volatile swings of oil prices.

### **... but We Need New Policies to Make This Happen**

This future won't happen on its own. Just as there was no single, silver-bullet policy responsible for the progress that we have made reducing global warming emissions from the Northeast region's electricity sector, reducing transportation-related emissions will require a coordinated set of policies and regulations. It will require cooperation between local, state, regional, and federal governments, and between government and the private sector. And most importantly, it will require policy leaders to identify and prioritize new sources of funding for clean transportation priorities.

The Union of Concerned Scientists (UCS) recommends that Northeast decisionmakers do the following to get the region on the path toward a cleaner transportation system:

- 1. Create a regional limit on transportation emissions.** The Northeast's success in reducing electricity-related emissions lies in the Regional Greenhouse Gas Initiative (RGGI); under RGGI, which came into force in 2009, Northeast states established an overall limit on emissions from electricity consumed in these states (RGGI n.d.). The RGGI process brought together local residents, community groups, utilities, legislators, and business leaders, and guided local, state, and regional policymakers' decisions about clean energy and efficiency investments. Establishing a similar program for the region's transportation sector would ensure that communities and governments take a comprehensive, coordinated approach to identifying and investing in clean transportation solutions.

*There are many valuable projects and programs in the Northeast region that could help reduce consumer costs and expand clean mobility choices.*

- 2. Enforce this limit through regulations that hold oil companies accountable for their emissions.** Under RGGI, the emissions cap is enforced by requiring power plants to purchase allowances for every ton of pollution they emit under the cap. By limiting the number of allowances available, the program guarantees overall emission reductions. Revenue from allowance sales is used to support a range of clean energy and efficiency initiatives that save consumers money and reduce pollution. This "cap-and-invest" strategy has successfully reduced the region's electricity emissions while cutting costs for consumers.

For the transportation sector, a cap-and-invest program could require polluters (in this case, oil companies serving the Northeast) to purchase allowances under a designated cap, and communities could use the funds generated from allowance sales for clean transportation programs. This strategy, coupled with complementary emissions reduction policies, has been used successfully to reduce transportation-related emissions in California and in Ontario and Quebec, Canada.

- 3. Invest in clean transportation solutions for Northeast residents.** There are many valuable projects and programs in the Northeast region that could help reduce consumer costs and expand clean mobility choices. For example, states could offer subsidies for lower-income residents who want to purchase an electric vehicle; several states outside the region offer such a program, including California, which offers low-income consumers up to \$14,000 in rebates when they trade in a vehicle (Russak 2017). States could also invest in infrastructure to make electric vehicle charging more convenient for drivers. Increasing our investments in affordable housing and transit can ensure that people who want to live in communities with multiple transportation choices, or who want to live car-free, can do so. And replacing older and less-efficient buses and trucks in government and corporate fleets with electric models could significantly improve air quality in urban environments (Chandler, Espino, and O'Dea 2016).



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Replacing older, inefficient trucks and buses with electric models—such as this bus in Washington, DC—can greatly reduce transportation-related emissions in the northeastern United States. A “cap-and-invest” program, similar to the one used to reduce the region’s electricity emissions, can help bring in revenue for this and other clean transportation projects.

**4. Engage communities and stakeholders in a broad conversation about clean transportation.** We need to be thinking about how to provide clean transportation options to all communities in the region, from our big metro areas, to our medium-sized post-industrial “Gateway Cities,” to suburban and rural areas. It is especially important for states to think carefully about how a new investment in clean transportation solutions can benefit communities that are currently poorly served by our existing transportation system, including many communities of color, rural communities, the disabled, and the elderly. Engaging community groups early in the process can help policymakers understand the real transportation needs of Northeast residents, and shape resulting policies and programs for maximum benefit.

The Northeast has long been a leader in addressing pollution from fossil fuels, and its multistate initiative to reduce electricity sector emissions has set an example for other regions to follow. With the federal government abdicating responsibility for our environment and our climate, state and regional leadership is more important than ever. Working together, we can create a clean

transportation system that works for all our residents, and the result will be a cleaner environment, a stronger economy, less spending on fuel, and a safer climate.

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**REFERENCES**

American Public Transit Association (APTA). 2016. 2016 public transportation fact book, 67th edition. Alexandria, VA. Online at [www.apta.com/resources/statistics/Documents/FactBook/2016-APTA-Fact-Book.pdf](http://www.apta.com/resources/statistics/Documents/FactBook/2016-APTA-Fact-Book.pdf).

Bureau of Labor Statistics (BLS). 2017. Consumer Expenditures in 2015. Report 1066. Washington, DC: US Department of Labor. Online at [www.bls.gov/opub/reports/consumer-expenditures/2015/home.htm](http://www.bls.gov/opub/reports/consumer-expenditures/2015/home.htm).

Chandler, S., J. Espino, and J. O’Dea. 2016. *Delivering opportunity: How electric buses and trucks can create jobs and improve public health in California*. Cambridge, MA, and Oakland, CA: Union of Concerned Scientists and The Greenlining Institute. Online at [www.ucsusa.org/clean-vehicles/electric-vehicles/freight-electrification](http://www.ucsusa.org/clean-vehicles/electric-vehicles/freight-electrification).

Georgetown Climate Center. 2015. *Reducing greenhouse gas emissions from transportation: Opportunities in Northeast and Mid-Atlantic*. Washington, DC. Online at [www.georgetownclimate.org/reports/reducing-greenhouse-gas-emissions-from-transportation-opportunities-in-the-northeast-and-mid-atlantic.html](http://www.georgetownclimate.org/reports/reducing-greenhouse-gas-emissions-from-transportation-opportunities-in-the-northeast-and-mid-atlantic.html).

Holmes-Gen, B., and W. Barrett. 2016. *Clean air future: Health and climate benefits of zero emission vehicles*. Chicago, IL: American Lung Association. Online at [www.lung.org/local-content/california/documents/2016zeroemissions.pdf](http://www.lung.org/local-content/california/documents/2016zeroemissions.pdf).

The National Academies of Sciences, Engineering, and Medicine (National Academies). 2013. *Millennials & mobility: Understanding the millennial mindset and new opportunities for transit providers*. Washington, DC: The National Academies Press. Online at [www.apta.com/resources/reportsandpublications/Documents/APTA-Millennials-and-Mobility.pdf](http://www.apta.com/resources/reportsandpublications/Documents/APTA-Millennials-and-Mobility.pdf). doi: 10.17226/22500.

Regional Greenhouse Gas Initiative (RGGI). 2017. RGGI states announce proposed program changes: Additional 30% emissions cap decline by 2030. Press release, August 23. Online at [www.rggi.org/docs/ProgramReview/2017/08-23-17/Announcement\\_Proposed\\_Program\\_Changes.pdf](http://www.rggi.org/docs/ProgramReview/2017/08-23-17/Announcement_Proposed_Program_Changes.pdf).

Regional Greenhouse Gas Initiative, Inc. (RGGI). No date. Program Design. New York, NY. Online at [www.rggi.org/design](http://www.rggi.org/design).

Reichmuth, D. 2017. Electric cars are critical to a clean future. *The Equation*. Cambridge, MA: Union of Concerned Scientists. Blog, July 24. Online at <http://blog.ucsusa.org/dave-reichmuth/electric-cars-are-critical-to-a-clean-future>.

Russak, B. 2017. *Green zones and grassroots: How California's climate investments benefit Los Angeles County's disadvantaged communities*. Los Angeles, CA: Liberty Hill Foundation. Online at: [https://www.libertyhill.org/sites/libertyhillfoundation/files/GZGR\\_2017-full-report\\_0.pdf](https://www.libertyhill.org/sites/libertyhillfoundation/files/GZGR_2017-full-report_0.pdf).

Union of Concerned Scientists. 2017. Maximizing the benefits of self-driving vehicles. Policy brief. Cambridge, MA. Online at [www.ucsusa.org/clean-vehicles/principles-self-driving-cars](http://www.ucsusa.org/clean-vehicles/principles-self-driving-cars).

US Census Bureau. 2016. Mean travel time to work (minutes), workers age 16+, 2009-2013. In American community survey, 5-year estimates. Online at [www.indexmundi.com/facts/united-states/quick-facts/all-states/average-commute-time](http://www.indexmundi.com/facts/united-states/quick-facts/all-states/average-commute-time).

US Energy Information Administration (EIA). 2017a. Annual energy outlook 2017. Washington, DC: US Department of Energy. Online at [www.eia.gov/outlooks/aeo/pdf/0383\(2017\).pdf](http://www.eia.gov/outlooks/aeo/pdf/0383(2017).pdf).

US Energy Information Administration (EIA). 2017b. Use of energy in the United States explained: Energy use for transportation. Washington, DC: US Department of Energy. Online at [www.eia.gov/energyexplained/?page=us\\_energy\\_transportation](http://www.eia.gov/energyexplained/?page=us_energy_transportation).

US Energy Information Administration (EIA). 2016. State carbon dioxide emissions. Washington, DC: US Department of Energy. Online at [www.eia.gov/environment/emissions/state](http://www.eia.gov/environment/emissions/state).

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