

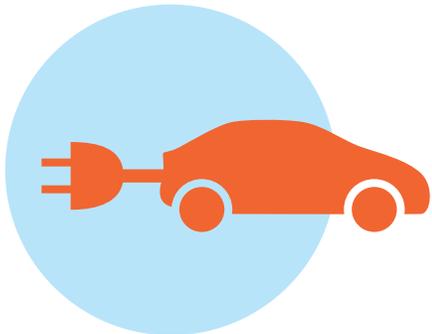
# Investing in Connecticut's Transportation Future

Summer 2019



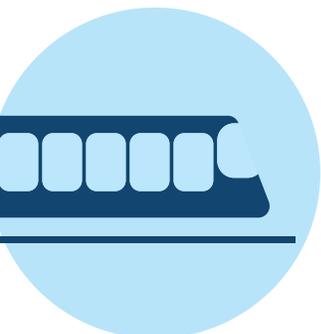
Connecticut's transportation system is overdue for an upgrade. The state's network of roads, public transit, ports, and walking and biking corridors ranks 37th in the nation.<sup>1</sup> In terms of average commute time, Connecticut ranks 35th.<sup>2</sup> Outdated infrastructure, congested roads, and polluted air are a drag on the economy. Connecticut's residents and businesses deserve transportation options that will help them thrive.

In Connecticut's major urban areas and arteries, worsening traffic congestion has led to approximately \$2.4 billion annually in lost time and wasted fuel.<sup>3</sup> Despite recent progress, public transportation in Connecticut remains significantly underfunded, resulting in major service cutbacks and inadequate statewide access.<sup>4</sup> Public bus transportation is either limited or non-existent in 70 Connecticut towns,<sup>5</sup> limiting access to jobs and healthcare services.<sup>6</sup>



The transportation sector is the largest source of Connecticut's greenhouse gas (GHG) emissions, which must be reduced for the state to meet its climate goals.<sup>7</sup> In addition to GHGs, co-pollutants from vehicle tailpipes contribute to public health problems, particularly in lower-income communities and communities of color.<sup>8</sup> Transportation is the primary cause of nitrogen oxide (NOx) pollution in Connecticut—emitting about 67% of this local air pollutant.<sup>9</sup> NOx leads to ground-level ozone and smog, which can trigger asthma attacks and other public health harms.<sup>10</sup>

Connecticut must reduce vehicle pollution across the state while expanding and improving transportation options in communities that remain underserved and overburdened by the current system. Providing more affordable, accessible, cleaner mobility options will reduce both GHG emissions and the disproportionate impacts of local air pollution.



## Transportation Investments Deliver Major Benefits

A safe, modern, and clean transportation system would offer transformative benefits to Connecticut's people and economy. By capping transportation carbon dioxide emissions, auctioning allowances, and investing proceeds—much like Connecticut already does in the electric generation sector—the state could generate \$2.7 billion in auction proceeds between 2021 and 2030. Acadia Center's analysis shows that investing these funds across the state's transportation system would generate:

- » **23,000 long-term jobs<sup>11</sup>**
- » **\$2.2 billion in new wages**
- » **\$7 billion in new business sales**
- » **\$4.3 billion in other benefits,  
including reduced air pollution**

These benefits will vary based on the final investment portfolio developed with stakeholder input; however, this analysis<sup>12</sup> shows the scale of the opportunity for Connecticut. By reinvesting proceeds thoughtfully, the state can accelerate progress to a more modern, equitable, and low-carbon transportation system.

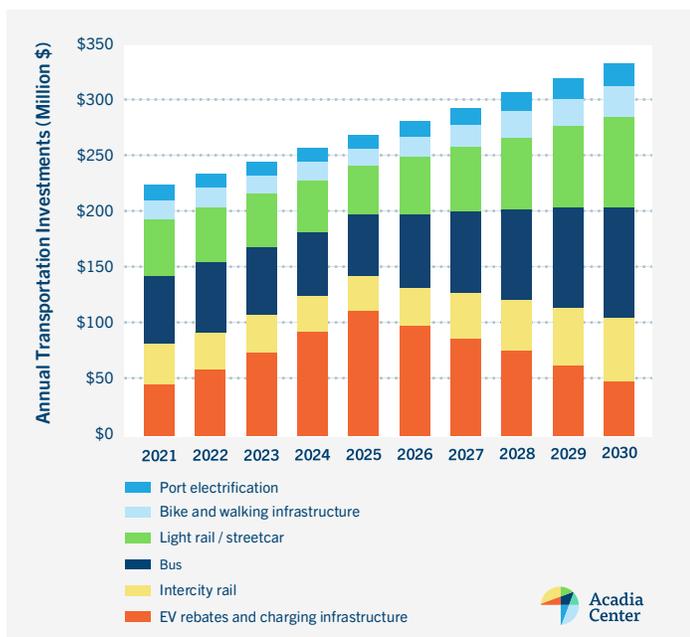
## Clean Transportation Investment Strategies

Acadia Center examined a sample portfolio of several measures that improve mobility and reduce GHGs to estimate the economic benefits that would be generated from investing in Connecticut's transportation infrastructure, (Figure 1). This portfolio has many benefits. For example:

- » **Electrifying passenger vehicles and buses will improve air quality and reduce operating costs for vehicle owners and taxpayers.**
- » **Expanding rail, bus transit, and walking and biking paths will reduce travel in single-occupancy vehicles, relieve congestion, and deliver better mobility options to more communities.**
- » **Electrifying the state's ports will target some of the dirtiest engines in the state.**

This portfolio, however, is only provided as an illustrative example, not a policy recommendation or an exhaustive list. Development of an equitable reinvestment strategy must include input from impacted stakeholders and frontline

**Figure 1: Sample Low-Carbon Transportation Investment Portfolio**



communities, with an emphasis on funding projects that benefit disadvantaged communities.

By 2030, the funding outlined in Figure 1 would enable Connecticut to invest in:

- » **800 electric buses and their charging infrastructure to expand service and replace aging and polluting diesel vehicles;<sup>13</sup>**
- » **170,000 EVs and their associated charging infrastructure by 2025 to transform the EV market and help the state meet its commitment under the Multi-State Zero-Emission Vehicle Memorandum of Understanding. By 2030, these incentives will help the state electrify 23% of the passenger vehicle fleet, aligned with Acadia Center's EnergyVision 2030 Accelerated Scenario recommendation for reducing GHG emissions 50% by 2030;<sup>14</sup>**
- » **Light rail streetcar systems throughout the state's cities, such as the proposed New Haven Streetcar;**
- » **700 miles of new walking and biking trails and infrastructure throughout the state;<sup>15</sup>**
- » **Expansion and enhancement of Connecticut's intercity rail system, such as CT Rail's Hartford line.**

## How Reducing Pollution Can Fund Transportation Improvements

On December 18, 2018, Connecticut joined eight other states and Washington, D.C., to announce that together they would create a regional program to cap transportation emissions and use allowance proceeds to invest in "low-carbon and more resilient transportation infrastructure."<sup>16</sup> As noted in the multi-state announcement, modernizing and decarbonizing the transportation sector will require a suite of complementary policies. Valuing carbon emissions through a cap-and-invest program would work in tandem with other policies by generating proceeds for reinvestment in transportation improvements. These improvements would allow the system to better serve the public while creating new jobs and attracting businesses to the state.

Connecticut and most of the TCI states have experience with the cap-and-invest model through the Regional Greenhouse Gas Initiative ("RGGI"). Launched in 2009, RGGI puts an annually-declining limit on carbon emissions from power plants, requires power plant owners to pay for their carbon emissions, and states use the proceeds to invest in renewable

energy and energy efficiency. The region has benefited significantly since the program began:

- » **CO2 emissions from the region's power plants have dropped by 47%**<sup>17</sup>
- » **RGGI has created \$4 billion in economic growth**<sup>18</sup>
- » **RGGI-funded investments have created over 44,000 job-years**<sup>19</sup>

Connecticut was a founding state of this regional cap-and-invest program, and through June of 2019 the state has received \$214 million in RGGI proceeds for reinvestment in energy efficiency and clean energy projects.<sup>20</sup> As of 2014, RGGI expenditures added \$245 million to Connecticut's economy, created 2,172 job-years,<sup>21</sup> and RGGI-driven reductions in pollution accounted for as much as \$343 million in avoided health costs in the state.<sup>22</sup>

A regional cap-and-invest program applied to transportation emissions,<sup>23</sup> like the one Connecticut and other states are currently working to create, could fund the transportation improvements described above that will reduce pollution, improve public health, expand transportation access in underserved communities, and stimulate the economy. This type of policy for the transportation sector has already been implemented in California and Quebec, where carbon revenues are helping participating jurisdictions electrify transportation to cut emissions<sup>24</sup> and deliver new means of mobility in transit deserts.<sup>25</sup>

## Endnotes

- 1 See US News and World Report, *Transportation Rankings* (2018). <https://www.usnews.com/news/best-states/rankings/infrastructure>.
- 2 Ibid.
- 3 See TRIP, *Connecticut Transportation By The Numbers: Meeting the State's Need for Safe and Efficient Mobility* (May 2017) ([http://www.tripnet.org/docs/CT\\_Transportation\\_by\\_the\\_Numbers\\_TRIP\\_Report\\_May\\_2017.pdf](http://www.tripnet.org/docs/CT_Transportation_by_the_Numbers_TRIP_Report_May_2017.pdf)), p. 1 (summary of key transportation facts).
- 4 See Connecticut Association for Community Transportation, *The Reality of Failing to Fund Transportation* (2018) <http://www.cact.info/documents/FINAL2018TheRealityofFailingtoFundTransportation.pdf>.
- 5 See Connecticut Association for Community Transportation, *Connecticut's Connections: Shaping the Economy Through Transportation* (February 2016). <http://www.cact.info/documents/FINALLegislativePaperFeb.2320162.20.16.pdf>.
- 6 See Connecticut Health I-Team, *Less Access To Health Services, Programs In Rural Areas Take Toll* (2017). <http://c-hit.org/2017/10/03/less-access-to-health-services-programs-in-rural-areas-take-toll/>.
- 7 For GHG emissions data by sector for Connecticut, see U.S. EIA data available online: <https://www.eia.gov/environment/emissions/state/>. Connecticut must reduce GHG emissions to levels set in law; targets exist for 2020, 2030, and 2050. See Conn. Gen. Stat. §22a-200a.
- 8 See Union of Concerned Scientists, *Inequitable Exposure to Air Pollution from Vehicles in the Northeast and Mid-Atlantic* (June 2019). <https://www.ucsusa.org/clean-vehicles/electric-vehicles/northeast-air-quality-equity>.

- 9 See CT Department of Energy & Environmental Protection, *State of Connecticut Mitigation Plan under Volkswagen 2.0L and 3.0L Vehicle Partial Consent Decrees*, Appendix D (April 2018). [https://www.ct.gov/deep/lib/deep/air/mobile/vw/CT\\_VW\\_Final\\_Mitigation\\_Plan.pdf](https://www.ct.gov/deep/lib/deep/air/mobile/vw/CT_VW_Final_Mitigation_Plan.pdf), at p.4.
- 10 See CT Department of Energy & Environmental Protection, *State of Connecticut Mitigation Plan under Volkswagen 2.0L and 3.0L Vehicle Partial Consent Decrees*, Appendix D (April 2018). [https://www.ct.gov/deep/lib/deep/air/mobile/vw/CT\\_VW\\_Final\\_Mitigation\\_Plan.pdf](https://www.ct.gov/deep/lib/deep/air/mobile/vw/CT_VW_Final_Mitigation_Plan.pdf).
- 11 The "long-term jobs" category does not include project-related construction jobs.
- 12 To estimate annual revenue available to invest, transportation sector emissions were projected through 2030, and a starting carbon price of \$15/ton was considered with a 7% escalation rate. 13 Investment options for these funds and the economic benefits they could generate were then estimated using economic data from studies of transportation investments in the Northeast and the country.
- 13 Considering a cost of \$750,000 per bus, \$350,000 per 6-port fast-charger, and \$250,000 per charger installation. See: <http://fortune.com/2017/09/19/electric-cars-busesproterra/> and [https://cafcp.org/sites/default/files/5\\_CARB-ACT-Cost-Model-Discussions\\_CaFCP-Bus-Team-Meeting-Aug2016.pdf](https://cafcp.org/sites/default/files/5_CARB-ACT-Cost-Model-Discussions_CaFCP-Bus-Team-Meeting-Aug2016.pdf).
- 14 See <http://2030.acadiacenter.org>. This number of EV rebates considers rebate levels of \$2000 for battery EVs (excluding luxury models), \$1000 for plug-in hybrid EVs, and a \$5000 income-eligible rebate. It also considers a \$2000 incentive for L2 EV chargers and \$20,000 for DC fast chargers. The National Renewable Energy Lab estimates that 338,200 workplace and public L2 and L1 chargers will be needed per million EVs; this analysis considers 80% of these charges will be L2. NREL also estimates the need for 470 DCFCs per million EVs. See: <https://www.nrel.gov/docs/fy17osti/66980.pdf>.
- 15 Considering a cost of \$280,000 per mile based on: <https://www.ncdot.gov/bikeped/walkbikenc/pictures/EconomyImpact-Analysis.pdf>.
- 16 See: Georgetown Climate Center, *Transportation & Climate Initiative Statement*, December 18, 2018. <https://www.transportationandclimate.org/nine-states-and-dc-design-regional-approach-cap-greenhouse-gas-pollution-transportation>.
- 17 Emissions data from RGGI, Inc.
- 18 See Analysis Group, *The Economic Impacts of the Regional Greenhouse Gas Initiative on Nine Northeast and Mid-Atlantic States: Review of RGGI's Third Three-Year Compliance Period* (2015-2017). [https://www.analysisgroup.com/globalassets/uploadedfiles/content/insights/publishing/analysis\\_group\\_rggi\\_report\\_april\\_2018.pdf](https://www.analysisgroup.com/globalassets/uploadedfiles/content/insights/publishing/analysis_group_rggi_report_april_2018.pdf).
- 19 Ibid.
- 20 See: <https://www.rggi.org/auctions/auction-results>.
- 21 Analysis Group, "The Economic Impacts of the Regional Greenhouse Gas Initiative on Ten Northeast and Mid-Atlantic States: Review of the Use of RGGI Auction Proceeds from the First Three-Year Compliance Period" and "The Economic Impacts of the Regional Greenhouse Gas Initiative on Nine Northeast and Mid-Atlantic States: Review of RGGI's Second Three-Year Compliance Period (2012-2014)".
- 22 See: ABT Associates, *Analysis of the Public Health Impacts of the Regional Greenhouse Gas Initiative* (2017). <https://www.abtassociates.com/insights/publications/report/analysis-of-the-public-health-impacts-of-the-regional-greenhouse-gas>.
- 23 See: Georgetown Climate Center, *Reducing Transportation Emissions in the Northeast and Mid-Atlantic: Fuel System Considerations* (2018). <https://www.georgetownclimate.org/reports/reducing-transportation-emissions-in-the-northeast-and-mid-atlantic-fuel-system-considerations.html>.
- 24 See: Quebec Ministry of Transportation, *Transportation Electrification 2015-2030 & Carbon Market in Québec* (2018). <http://www.raabassociates.org/Articles/L%3%A9vesque%20Presentation%206.15.18%20final1.pdf>.
- 25 See: California Air Resources Board, *California Climate Investments: Using Cap-and-Trade Auction Proceeds* (2019). <http://www.caclimateinvestments.ca.gov/>.

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