

Memorandum

TO: Leslie Fordjour, NYMTC

FROM: Ben Mandel, CALSTART; Chris Lamm, Cambridge Systematics, Inc.

DATE: September 25, 2020 (revised 2/12/2021)

RE: Clean Freight Corridors Planning Study Task 3 Deliverable:
Alternative Fuel Technology and Infrastructure Regulatory Landscape
Assessment

INTRODUCTION

NYMTC has initiated a Clean Freight Corridors Planning Study to facilitate increased adoption of high-efficiency, low-emission alternative technologies for freight transportation in the New York metropolitan region. As a component of the Regional Freight Plan contained in NYMTC's Plan 2045 Regional Transportation Plan, this study will support deployment of alternative fuel medium- and heavy-duty (M/HD) vehicles for goods movement by identifying roadway corridors best suited for designation as Clean Freight Corridors to guide future investment in alternative fueling/electric charging infrastructure.

As NYMTC and study partners formulate recommendations for strategic additions of alternative fueling and charging infrastructure to boost adoption of non-diesel energy sources in on-road applications, it is critical to do so in context of the policy and regulatory environments within its planning region. The states and some municipalities in the greater New York metropolitan region have, to varying extents, pursued emissions reduction opportunities in the transportation sector to slow climate change and improve air quality. This has led to enactment of numerous legislative, regulatory, and administrative actions intended to increase use of all-electric technology and/or alternative fuels such as hydrogen, natural gas and propane. The states in this region are also active participants in regional efforts to curb transportation sector emissions.

This technical memo outlines the current policy environments in New York, New Jersey, Connecticut, and Pennsylvania for all-electric and alternative fuel technologies for use by on-road M/HD vehicles, as well as the outlook based on policy measures currently under development.

REGIONAL EFFORTS

TRANSPORTATION AND CLIMATE INITIATIVE

In 2010, Connecticut, Delaware, Maine, Maryland, Massachusetts, New Hampshire, New Jersey, New York, Pennsylvania, Rhode Island, Vermont, and the District of Columbia signed a Declaration of Intent to form the Transportation and Climate Initiative (TCI) of the Northeast and Mid-Atlantic States. The agreement cited the transportation sector's contribution of 30% of the region's greenhouse gas (GHG) emissions and recognized the need to curb emissions in the next half century to avoid the worst effects of climate change. This declaration called for signatories to research and commit to policies to address these issues.¹

TCI jurisdictions are presently in the process of developing a policy framework for a multi-state "cap-and-invest" market to rein in transportation sector emissions, similar to the Regional Greenhouse Gas Initiative (RGGI) cap-and-trade program in place since 2009 for the power sector in a roughly similar group of states. In December 2020, Connecticut, Massachusetts, Rhode Island, and the District of Columbia signed a Memorandum of understanding to implement the Transportation and Climate Initiative Program (TCI-P), the regional transportation cap-and-invest marketplace now under development.² TCI-P will auction a finite number of emission allowances to regulated entities responsible for emissions in the transportation system, and the number of allowances auctioned will decrease year-over-year. This design will achieve transportation sector decarbonization objectives by permitting progressively lower amounts of emissions each year through a declining allowance cap, while reinvesting proceeds from allowance auctions into complementary clean transportation strategies to accelerate emissions reductions.

TCI-P auctions are expected to commence in 2023, and the cap will decline each year thereafter such that motor vehicle emissions will decline by an estimated 26% in participating jurisdictions by 2032.³ The auctions are projected to generate \$300 million in annual revenues among the initial four jurisdictions, with the potential to exceed \$2 billion annually if all jurisdictions in the region join TCI-P. Finally, the TCI-P MOU includes a commitment to allocate at least 35% of auction proceeds to ensure that underserved and overburdened communities benefit equitably from clean transportation solutions.⁴

¹ Transportation and Climate Initiative (TCI). (2010). *The Transportation and Climate Initiative: An Agenda for Progress: Declaration of Intent*. Retrieved from <https://www.transportationandclimate.org/sites/default/files/TCI-declaration.pdf>

² TCI. (2020). *Transportation and Climate Initiative Program Memorandum of Understanding*. Retrieved from <https://www.transportationandclimate.org/sites/default/files/TCI%20MOU%2012.2020.pdf>

³ TCI. (2020). *Estimating the Regional Environmental, Health, and Economic Benefits and Costs of the Transportation and Climate Initiative Program*. Retrieved from https://www.transportationandclimate.org/sites/default/files/TCI-P_modeling-summary_12-21-2020.pdf

⁴ TCI. (2020). *Massachusetts, Connecticut, Rhode Island, D.C. are First to Launch Groundbreaking Program to Cut Transportation Pollution, Invest in Communities*. Retrieved from <https://www.transportationandclimate.org/final-mou-122020>

MULTI-STATE ZERO-EMISSION VEHICLES TASK FORCE

In 2013, New York, Connecticut, and New Jersey were among a group of states that signed a memorandum of understanding (MOU) to form a Zero-Emission Vehicles (ZEV) Program Implementation Task Force to work toward a collective goal of 3.3 million light-duty ZEVs in service across participating states by 2025.⁵ There are currently ten states that participate in the ZEV Task Force—California, Connecticut, Maine, Maryland, Massachusetts, New Jersey, New York, Oregon, Rhode Island, and Vermont. Northeast States for Coordinated Air Use Management (NESCAUM) administers the Task Force and works with member states to publish periodic Action Plans (most recently in 2018) recommending implementation of national and global best practice for encouraging adoption of zero-emission passenger cars. These best practices include investments in public and multi-user charging infrastructure such as at retail and workplace locations, utility programs and rate designs specific to electric vehicle (EV) users, increasing consumer awareness, and adopting public fleet ZEV procurement requirements.⁶

In July 2020, the ten ZEV Task Force states along with Colorado, Hawai'i, Pennsylvania, North Carolina, Washington, and the District of Columbia signed an MOU to advance the deployment of M/HD ZEVs.⁷ The signatory states constitute approximately one-third of the nation's M/HD vehicle registrations, nearly 40% of the goods moved by truck, and almost half of the U.S. economy. In the MOU, signatories committed to develop strategies to reach a 30% ZEV share of M/HD vehicle sales by 2030 and 100% by 2050. Currently, signatories are in the process of developing a collaborative Action Plan of strategies to achieve these ambitious targets, such as vehicle incentives, infrastructure investments, utility actions, and regulatory standards. The Multi-State Action Plan is expected to be finalized in mid-2021.

NEW YORK

Transportation is the largest individual sector contributing to GHG emissions in New York State, accounting for 36% of all emissions in 2016.⁸ The majority of GHG emissions come from fuel combustion in New York, and the transportation sector accounts for 44% of fuel combustion emissions.⁹ The emissions from the transportation sector are dominated by combustion of gasoline and diesel fuel for the purpose of powering internal combustion

⁵ Multi-State ZEV Task Force. (2013). *State Zero-Emission Vehicle Programs: Memorandum of Understanding*. Retrieved from <https://www.zevstates.us/about-us/>

⁶ NESCAUM. (2018). *ZEV Task Force Multi-State ZEV Action Plan 2018-2021: Accelerating the Adoption of Zero Emission Vehicles*. Retrieved from <https://www.nescaum.org/documents/2018-zev-action-plan.pdf>

⁷ Multi-State ZEV Task Force. (2019). *Multi-State Medium- and Heavy-Duty Zero Emission Vehicle Initiative Statement of Intent*. Retrieved from https://ww2.arb.ca.gov/sites/default/files/2019-12/Statement%20of%20Intent_ZEVI.pdf

⁸ New York State Energy Research and Development Authority. (2019). *New York State Greenhouse Gas Inventory: 1990-2016 Final Report July 2019* at S-4. Retrieved from <https://www.nyserda.ny.gov/About/Publications/EA-Reports-and-Studies/Greenhouse-Gas-Inventory>

⁹ Ibid. at S-3 and S-5

engines.¹⁰ To reduce emissions from these sources, New York has enacted a series of policies and programs aimed at encouraging all-electric and alternative fuel vehicle adoption. New York's participation in the Multi-State ZEV Task Force calls for 850,000 ZEVs on state roads by 2025, which serves as the basis for Charge NY, the state's multi-agency effort to accelerate adoption of electric cars and trucks which encompasses many of the incentive programs and administrative actions outlined below.¹¹

STATUTES AND LEGISLATION

The Climate Leadership and Community Protection Act of 2019 (CLCPA) is a recent legislative achievement that sets the most aggressive clean energy and climate targets to date in New York.¹² The CLCPA sets ambitious goals for the state's energy consumption and emissions reductions, in particular 100% zero-emission electricity by 2040 and reducing GHG emissions 85% below 1990 levels by 2050. The CLCPA notes that zero-emission transportation options for communities are key to fresher air and cleaner communities. The CLCPA is also distinctive in its explicit recognition of the disproportionate historic burden of emissions on frontline communities and directs that disadvantaged communities receive at least 40% of the benefits associated with investments resulting from mitigation planning.

Pending bills also have the potential to impact the landscape for alternative fuels adoption. In particular, Senate Bill S2962¹³ and Assembly Bill A862¹⁴ are companion bills that would mandate the development of a low carbon fuel standard across the state with the goal of reducing the carbon intensity of on-road transportation by 20% by 2030. The regulation would be phased into different sectors, likely giving priority to the heavy-duty transportation sector with heavy-duty trucks and buses. This legislation would promote GHG emissions reductions in the transportation sector by requiring more carbon-intensive fuels to support development of less carbon-intensive fuels through a credit generation and exchange mechanism. Clean Fuels NY, an advocacy coalition led by New York League of Conservation Voters, is pushing for enactment of a low carbon fuel standard in New York either through passage of this pending legislation or executive action by the Governor.¹⁵

GRANT AND INCENTIVE PROGRAMS

In 2018, the New York State Department of Environmental Conservation (NYSDEC) prepared a Beneficiary Mitigation Plan to reduce nitrogen oxide (NOx) emissions using Volkswagen (VW)

¹⁰ Ibid. at S-5

¹¹ New York State Energy Research and Development Authority. (n.d.). *Charge NY*. Retrieved from <https://www.nyserda.ny.gov/All-Programs/Programs/ChargeNY>

¹² New York State Department of Environmental Conservation. (2020). *New York's Climate Leadership and Community Protection Act*. Retrieved from <https://climate.ny.gov/>

¹³ S.B. S2962, 204th Legislature, 2021-2022 Reg. Sess. (N.Y. 2021). Retrieved from <https://legislation.nysenate.gov/pdf/bills/2021/S2962>

¹⁴ A.B. A862, 204th Legislature, 2021-2022 Reg. Sess. (N.Y. 2021). Retrieved from <https://legislation.nysenate.gov/pdf/bills/2021/A862>

¹⁵ Clean Fuels NY. Retrieved from <https://cleanfuelsny.org/>

Environmental Mitigation Trust Funds. The principal goal of the Beneficiary Mitigation Plan is to improve New York’s air quality by accelerating the market for cleaner vehicle technologies. The Mitigation Plan allocated \$127.7 million in VW Settlement funding to sponsoring agencies or departments to administer for various incentive programs. Importantly, the Mitigation Plan directs up to \$20 million toward freight vehicles (Class 4-7 local freight trucks and Class 8 local freight and port drayage trucks).¹⁶

To meet its objectives, the Beneficiary Mitigation Plan prioritizes funding to existing incentive programs sponsored by other agencies in the state. The largest such program is the New York Truck Voucher Incentive Program (NYTVIP), administered by NYSERDA, which combines VW Settlement and federal Congestion Mitigation and Air Quality Improvement Program (CMAQ) funds to reduce the incremental cost for fleets by up to 95% to replace diesel M/HD vehicles with new all-electric or alternative fuel vehicles, with incentives up to \$185,000 per truck.¹⁷ At the municipal level, the New York City Clean Trucks Program (NYCCTP), administered by the NYC Department of Transportation, provides identical truck vouchers as those offered under NYTVIP but for truck operating or domiciled in one of New York City’s 20 Industrial Business Zones (IBZs).¹⁸ Similarly, the Port Authority of New York and New Jersey’s (PANYNJ) Truck Replacement Program provides vouchers for the replacement of the oldest, highest-emitting drayage trucks servicing port facilities with newer, cleaner-burning diesel engines or alternative fuel trucks.¹⁹ All programs funded using VW Settlement funds require scrappage of the vehicle being replaced to ensure the removal of the oldest, dirtiest diesel engines from circulation.²⁰

In its initial iteration from 2014 through 2018, NYTVIP disbursed more than \$14.5 million across 60 fleets for 594 vehicles—including 86 compressed natural gas (CNG) trucks and 65 EV trucks and buses.²¹ As of February 2021, NYTVIP now has a total incentive budget of \$53.9 million, of which \$18.4 million can be used for BEV, FCEV, CNG, LPG, and hybrid trucks, and is actively accepting and processing voucher requests.²² NYCCTP is a continuation of the Hunts Point Clean Trucks Program, which had replaced or converted more than 600 diesel trucks in

¹⁶ New York State Department of Environmental Conservation. (2019). *Clean Transportation NY: Using the Volkswagen Settlement to Drive Clean Transportation in New York*. Retrieved from http://www.dec.ny.gov/docs/air_pdf/vwcleantransportplan19.pdf

¹⁷ New York State Energy Research and Development Authority (NYSERDA). (n.d.). *New York Truck Voucher Incentive Program*. Retrieved from <https://nyserda.ny.gov/truck-voucher-program/>

¹⁸ New York City Department of Transportation (NYCDOT). (n.d.). *New York City Clean Trucks Program*. Retrieved from <https://www.nycctp.com/>

¹⁹ Port Authority of New York and New Jersey. (n.d.). *Truck Replacement Program*. The Port Authority of New York and New Jersey. Retrieved from <https://www.panynj.gov/port/en/our-port/sustainability/truck-replacement-program.html>

²⁰ Supra note 16

²¹ NYSERDA. (2018). *New York Truck Voucher Incentive Program (NYT-VIP) Final Report*. Retrieved from <https://nysl.ptfs.com/awweb/pdfopener?sid=7AD020375572B8FC34C1DA38DBB8BDAD&did=136065&fl=%2FLibrary1%2Fpdf%2F1096438923.pdf>

²² Supra note 17

the South Bronx to newer diesel, hybrid, or natural gas technology, and launched in mid-2020 with an initial budget of \$9.8 million.²³

In addition to these voucher programs, grant funding is available through programs such as NYSERDA's Clean Transportation Program, in addition to hosting incentive programs to accelerate the market for alternative fuel vehicles, provides competitive grant funding for projects conducting the research and development of advanced technologies.²⁴ This program also seeks to accelerate the use of underutilized technologies and to scale up the use of promising alternative fuels.

ADMINISTRATIVE ACTIONS AND REGULATION

The New York Power Authority's (NYPA) EVolve NY program allocates \$250 million to support EVs by filling infrastructure gaps in New York. Phase 1 of EVolve NY committed \$40 million for development of a statewide direct-current fast charger (DCFC) network and the creation of EV model communities statewide.²⁵ Phase 2 of EVolve NY targets M/HD vehicle electrification, and has begun by providing infrastructure assistance to public transportation fleets statewide to aid adoption of battery electric buses.²⁶

The New York City Economic Development Corporation (NYCEDC) released the Freight NYC plan to overhaul and reduce the impacts associated with freight movement in and around New York City.²⁷ The main idea of the plan is to emphasize key investments that modernize NYC's approach to shipping. One of the key elements of this program is the promotion and incentivization of clean-technology trucks for last-mile delivery.²⁸ Subsequently, in April 2019, NYCEDC issued a Request for Expressions of Interest (RFEI) for the development and operation of electric charging stations throughout the city that are available and accessible to trucks.²⁹ The initiative attempts to advance low-and-zero-emission trucks and accelerate

²³ NYCDOT. (2020). NYC DOT in Partnership with the NYCDEC Announces Launch of the New York City Clean Trucks Program. Retrieved from <https://www1.nyc.gov/html/dot/html/pr2020/pr20-023.shtml>

²⁴ NYSERDA. (n.d.). Clean Transportation Program. New York State. Retrieved from <https://www.nyserda.ny.gov/All-Programs/Programs/Clean-Transportation-Program>

²⁵ New York State Governor's Press Office. (2018). Governor Cuomo Announces \$250 Million Initiative to Expand Electric Vehicle Infrastructure Across New York State. Retrieved from <https://www.governor.ny.gov/news/governor-cuomo-announces-250-million-initiative-expand-electric-vehicle-infrastructure-across>

²⁶ New York Power Authority. (2020). EVolve NY: A Vision for an Electric Future. Retrieved from <https://www.nypa.gov/-/media/nypa/documents/document-library/evolveny/nypa-a-vision-for-an-electric-future.pdf>

²⁷ New York City Economic Development Corporation. (2018). Freight NYC: Goods for the Good of the City. Retrieved from https://edc.nyc/sites/default/files/filemanager/Programs/FreightNYC_book_DIGITAL.pdf

²⁸ NYCEDC Public Affairs. (2018). "New York Works: De Blasio Administration Launches Freight NYC, A \$100M Plan to Modernize New York City's Freight Distribution System." Retrieved from <https://edc.nyc/press-release/new-york-works-de-blasio-administration-launches-freight-nyc-100m-plan-modernize-new>

²⁹ NYCEDC Public Affairs. (2019). "NYCEDC Lays Groundwork for Developing Truck-Accessible Electric Charging Stations Throughout City." Retrieved from <https://edc.nyc/press-release/nycedc-lays-groundwork-developing-truck-accessible-electric-charging-stations>

their adoption. The application period for this RFEI extended through the end of 2019 and NYCEDC is still in discussions with developers regarding responses and development plans.

There are also regulations that need to be kept in mind in proceeding with alternative fuel infrastructure in New York, such as the NYSDEC regulations on liquefied natural gas (LNG) transportation and facility management.³⁰ This regulation is consistent with New York City's moratorium on new LNG facilities. New York City also has a prohibition on the transportation of liquefied gases³¹—including hydrogen and propane—stemming from a 1973 explosion at a liquefied natural gas pipeline in Staten Island that killed 40 people. In the aftermath of this event, New York City imposed strict limits on storage, dispensing, and transportation of liquefied gases including natural gas and propane.³² However, most gaseous fuels must be compressed in order to be economically transported, so the NYC prohibition on liquefied gases hampers the supply of these fuels to dispensing sites. Similarly, PANYNJ has banned the operation of hydrogen fuel-cell vehicles in its crossings, with the exception of some top decks of bridges under its control owing to flammability concerns.³³ These regulatory barriers have impeded fleet integration of propane and hydrogen fuels in New York City and its immediate surroundings.

UTILITY INFRASTRUCTURE PROGRAMS

On July 16, 2020, the New York Public Service Commission (PSC) issued an EV Infrastructure Make-Ready Order, which included several resources for M/HD fleets.³⁴ In this order, the PSC authorized utility companies to facilitate the construction of EV infrastructure by their customers statewide and socialize 50-90% of eligible costs of qualifying projects to their ratepayers. The \$701 million authorization includes a \$15 million Medium- and Heavy-Duty Fleet Make-Ready Pilot Program across the state for fleets participating in either the New York Truck Voucher Incentive Program (NYTVIP) or the New York City Clean Trucks Program (NYCCTP). Incentive program participants are eligible to receive up to 90% of covered make-ready infrastructure costs from their electric utility. Additionally, Fleet Assessment Services will be made available to medium- and heavy-duty fleets by utilities and will include site feasibility and rate analysis for fleets interested in vehicle electrification. This utility-

³⁰ New York State Energy Planning Board (1998). Report on Issues Regarding the Existing New York Liquefied Natural Gas Moratorium. Retrieved from <https://www.nysed.gov/-/media/Files/EDPPP/Energy-Prices/Current-Outlook/Presentations/LNG-Moratorium-Issues-report.pdf>

³¹ New York City Fire Code, Chapter 27 Hazardous Materials—General Provisions § 270710.1 Prohibited compressed gases (2009). Retrieved from http://www.nyc.gov/html/fdny/pdf/firecode/2009/fire_code_I126_2008_amended_I137_41_64_2009_final_complete.pdf

³² SI Live. (2019). "Staten Island liquefied natural gas explosion in 1973 led to decades-long ban in New York." Retrieved from https://www.silive.com/news/2015/01/staten_island_liquefied_natural.html

³³ Automobile Magazine. (2008). *BMW Hydrogen 7 Banned from Tunnels in New York, New Jersey*. Automobile. Retrieved from <https://www.automobilemag.com/news/bmw-hydrogen-7-banned-from-tunnels-in-new-york-new-jersey-134691/>

³⁴ State of New York Public Service Commission. (2020). *Order Establishing Electric Vehicle Infrastructure Make-Ready Program and Other Programs*. Retrieved from <http://documents.dps.ny.gov/public/Common/ViewDoc.aspx?DocRefId={6238DD07-3974-4C4E-9201-3E339E311916}>

sponsored service will better prepare fleets to adopt EVs in various fleet segments and also enhance coordination between fleet and utility that is so critical to being able to scale up vehicle electrification as fleet comfort with the technology increases and technology improves. Finally, the order also instructs NYSERDA to develop a \$20 million competitive Medium- and Heavy-Duty Vehicle Innovation Prize competition to accelerate the deployment of underutilized M/HD EV technology with an emphasis on improving air quality in environmental justice communities.

This statewide make-ready program complements existing authorizations or proposals for individual utilities. In January 2020, Con Edison's three-year electric rate plan was approved by the PSC and included \$39 million in EV make-ready funding, of which \$9 million is reserved for fleets (including M/HD vehicle fleets).³⁵ Con Edison also offers a voluntary off-peak charging incentive program called SmartCharge NY, which was expanded to include M/HD EVs in 2018 and was extended in the 2020 rate case approval. These programs are accessible for customers in Con Edison's electric service territory, which includes New York City (minus the Rockaway Peninsula) and Westchester.³⁶

NEW JERSEY

In early 2020, New Jersey released its Energy Master Plan (EMP) to lay out strategies for achieving the state's goals to electrify the transportation sector and achieve 100% carbon neutral electricity by 2050. The EMP identifies transportation as the top sector to prioritize for emission reductions and provides guidelines for deploying EVs and electric vehicle supply equipment (EVSE), educates consumers and fleet owners, transitions state fleets to EVs, partners with the industry to incentivize M/HD EVs, and explores further policies.³⁷ New Jersey also recently established a Fuel Cell Task Force to increase fuel cell use in the state.³⁸

STATUTES AND LEGISLATION

The legislature is intimately involved with emissions reductions efforts in New Jersey, as is apparent in the development of EV and EVSE deployment goals and guidelines by the State Senate in the Plug-In Vehicle (PIV) Act.³⁹ This legislation sets broad and ambitious goals for ZEV deployment in New Jersey, codifying the state's commitment to 330,000 ZEVs by 2025, 2 million ZEVs by 2035, and 80% of sales to be ZEVs by 2040. The PIV Act further stipulates that 100% of new buses purchased by New Jersey Transit must be zero-emission by the end

³⁵ State of New York Public Service Commission. (2019). *Case 19-E-0065 and Case 19-G-0066 Joint Proposal*. Retrieved from <http://documents.dps.ny.gov/public/Common/ViewDoc.aspx?DocRefId={E68C7E36-2811-4999-8145-0CB3577F549C}>

³⁶ Fleetcarma (2020). *SmartCharge New York*. Retrieved from <https://www.fleetcarma.com/smartchargenewyork/>

³⁷ New Jersey Board of Public Utilities. (2020). 2019 New Jersey Energy Master Plan: Pathway to 2050. Retrieved from https://nj.gov/emp/docs/pdf/2020_NJBPU_EMP.pdf

³⁸ A741, 219th Legislature, 2020 Reg. Sess. (N.J. 2020). Retrieved from https://www.njleg.state.nj.us/2020/Bills/A1000/741_I1.PDF

³⁹ S2252 (Plug-In Vehicle Act), 218th Legislature, 2019 Reg. Sess. (N.J. 2020). Retrieved from https://www.njleg.state.nj.us/2018/Bills/S2500/2252_U2.HTM

of 2032. Further, the law requires the New Jersey Board of Public Utilities (NJBPU) to establish goals for transportation electrification and infrastructure to replace M/HD diesel vehicles, as well as the New Jersey Department of Environmental Protection (NJDEP) to develop a public education program about EVs and EVSE.⁴⁰ This type of planning extends down to the municipal level, as additional legislation requires municipal master plans to promote the installation of EVSE along corridors and in other public locations.⁴¹

Beyond goal-setting and planning, New Jersey Statutes 27:1B-22 requires that all buses purchased by New Jersey Transit to either be equipped with pollution controls or run on alternative fuels approved by the U.S. Environmental Protection Agency.⁴² Similar requirements exist in allowing trucks access to PANYNJ facilities, as vehicles with diesel engines not meeting per the Port Authority's policy.⁴³

GRANT AND INCENTIVE PROGRAMS

New Jersey has also developed multiple grant incentive programs to support the purchase and adoption of all-electric and alternative fuel vehicle technologies by fleets across the state. One such example is the State's VW Settlement program, administered by NJDEP, with \$72.2 million from the VW Environmental Mitigation Trust to disburse to NOx reduction projects statewide. DEP has made two rounds of competitive funding available to projects that can demonstrate NOx reductions by displacing diesel consumption in mostly on-road vehicle applications.⁴⁴ In the first funding round, DEP approved funding for 11 projects encompassing 10 electric refuse trucks, 18 electric yard/terminal tractors, 39 pieces of electric ground support equipment, five electric last-mile delivery trucks and five electric drayage trucks; the second round of applications closed in July 2020.⁴⁵

In January 2021, NJEDA announced a new \$15 million pilot incentive program for zero-emission medium-duty trucks called New Jersey Zero Emission Incentive Program (NJ ZIP).⁴⁶ This pilot will provide point-of-sale incentives from \$25,000-\$100,000 for zero-emission class 2b-6 trucks operating in or near Camden or Newark. NJEDA is expected to begin taking applications for funding through the NJ ZIP pilot program in early 2021 with a full-scale, multi-year program to be announced at a later date.

⁴⁰ Ibid.

⁴¹ S606, 219th Legislature, 2020 Reg. Sess. (N.J. 2019). Retrieved from https://www.njleg.state.nj.us/2020/Bills/S1000/606_11.PDF

⁴² New Jersey Transportation Trust Fund Authority Act of 1984; amended 2006 P.L.2006, New Jersey Statutes § 27:1B-22 (2006).

⁴³ Port Authority of New York and New Jersey. (2022). Tariffs. Retrieved from <https://www.panynj.gov/port/en/doing-business/tariffs.html>

⁴⁴ New Jersey Department of Environmental Protection. (n.d.). Volkswagen Settlement Information. Retrieved from <https://www.state.nj.us/dep/vw/>

⁴⁵ Supra Note 19

⁴⁶ New Jersey Economic Development Authority (NJEDA). (2021). "NJEDA Board Approves NJ ZIP Pilot Program." Retrieved from <https://www.njeda.com/njeda-board-approves-nj-zip-pilot-program/>

In addition to vehicle purchase grants and vouchers, there are a number of EVSE and alternative fuel infrastructure grants. NJDEP sponsors It Pay\$ to Plug In: New Jersey's Electric Vehicle Charging Grant Program, part of the EMP and Drive Green NJ.⁴⁷ This program reimburses employers, government and educational facilities, multi-unit dwellings, and other organizations for the cost and installation of EVSE. NJBPU also provides grant funding for both the purchase of EVs and installation of EVSE for municipal and county government entities through the Clean Fleet Electric Vehicle Incentive Program, which may be applicable toward the purchase of M/HD EVs.⁴⁸

New Jersey has implemented tax incentive strategies to advance alternative fuel vehicle technology usage. One such statute is the ZEV Sales Tax Exemption (not including hybrids) overseen by the New Jersey Department of the Treasury.⁴⁹ Another is the reduced fuel tax on propane to make it more competitive against petroleum fuels.⁵⁰

ADMINISTRATIVE ACTIONS AND REGULATION

NJDEP, NJBPU, and the New Jersey Economic Development Authority (NJEDA) also signed a memorandum of understanding to create the New Jersey Partnership to Plug-In to more strategically channel revenues from New Jersey's reentry into the Regional Greenhouse Gas Initiative (RGGI) toward clean transportation initiatives.⁵¹ The purpose of the Partnership is to increase the number of ZEVs in the state and meet ZEV adoption registration goals set by the state. In order to achieve this, the Partnership will map existing and potential locations for EVSE, evaluate financing strategies, develop a rebate program, and expand consumer education, among other initiatives.

In early 2020 the three agencies together released a RGGI Strategic Funding Plan as New Jersey prepared to reenter that program and invest auction revenues in priority clean energy areas, with transportation electrification identified as a key strategy. The plan specifies that NJEDA will receive 60% of the state's RGGI revenues and that the electrification of M/HD vehicles operated by commercial and industrial businesses in the state. NJEDA's emphasis

⁴⁷ Drive Green. (n.d.). It Pay\$ to Plug-In. Air Quality, Energy & Sustainability. Retrieved from <https://www.drivegreen.nj.gov/plugin.html>

⁴⁸ New Jersey Board of Public Utilities. (2019). Clean Fleet Electric Vehicle Incentive Program Application. Retrieved from <https://www.nj.gov/bpu/pdf/publicnotice/Clean%20Fleet%20Electric%20Vehicle%20Incentive%20Program%20Application.pdf>

⁴⁹ New Jersey Division of Taxation. (2020). Sales Tax Exemption - Zero Emission Vehicle (ZEV) (N.J.S.A. 54:32B-8.55). Official Site of the State of New Jersey. Retrieved from [https://www.state.nj.us/treasury/taxation/zevnotice.shtml#:~:text=Sales%20Tax%20Exemption%20%2D%20Zero%20Emission%20Vehicle%20\(ZEV\)%20\(N.J.S.A.,standards%20for%20the%20model%20year](https://www.state.nj.us/treasury/taxation/zevnotice.shtml#:~:text=Sales%20Tax%20Exemption%20%2D%20Zero%20Emission%20Vehicle%20(ZEV)%20(N.J.S.A.,standards%20for%20the%20model%20year)

⁵⁰ L.2010, c.22, s.3; amended 2010, c.79, s.2, New Jersey Statutes § 54:39-103 (2010).

⁵¹ New Jersey Partnership to Plug-In. (2019). Memorandum of Understanding Among the New Jersey Department of Environmental Protection, the New Jersey Board of Public Utilities and the New Jersey Economic Development Authority. Retrieved from https://drivegreen.nj.gov/pdf/MOU_6.3.19.pdf

on M/HD vehicle electrification is also intended to stimulate local supply chain capacity for green job creation.⁵²

In the last days of 2020, NJDEP took a decisive step to accelerate zero-emission truck penetration in New Jersey, announcing its intent to issue a proposed rule to adopt California's Advanced Clean Trucks rule,⁵³ which requires manufacturers to sell progressively greater shares of zero-emission trucks in classes 2b-8 beginning in model year 2024.⁵⁴ This announcement makes New Jersey the first state to formally announce an intention to adopt this landmark California regulation, and if the rule is promulgated would drastically reshape the complexion of New Jersey's truck market toward BEV and FCEV technologies beginning by the middle of this decade.

UTILITY INFRASTRUCTURE PROGRAMS

Electric utilities in New Jersey have not yet developed or been approved for assistance programs specific to M/HD vehicle fleets to facilitate EV adoption. However, a recent order from NJBPU adopts a framework for utilities in the state to cover the costs of make-ready investment associated with EV infrastructure for light-duty applications.⁵⁵ An analogous NJBPU straw proposal for utility programs to support M/HD applications is expected to be released in early 2021, and could cover such topics as utility investment in fleet make-ready infrastructure and rate design for fleet use-cases.

CONNECTICUT

Connecticut Executive Order 2019-1 created a Steering Committee on State Sustainability to direct executive branch agencies to reduce GHG emissions from vehicle fleets by expanding the state's existing "Lead by Example" program. The Committee will develop an action plan to achieve emissions reduction goals set by the Governor.⁵⁶ In April 2020, the Connecticut Department of Energy and Environmental Protection (DEEP) published its final Electric Vehicle Roadmap for Connecticut to accelerate electric vehicle adoption across the state, including recommendations for actions to assess the success of incentive programs and regulations in

⁵² New Jersey, State of. (2020). Regional Greenhouse Gas Initiative Strategic Funding Plan: Years 2020 through 2022. Retrieved from <https://nj.gov/rggi/docs/rggi-strategic-funding-plan.pdf>

⁵³ Environment New Jersey. (2020). "NJDEP Commits to Adopt Advanced Clean Truck Rule To Electrify Truck Fleet In Next Two Decades." Retrieved from <https://environmentnewjersey.org/news/nje/njdep-commits-adopt-advanced-clean-truck-rule-electrify-truck-fleet-next-two-decades>

⁵⁴ California Air Resources Board. (2020). "Advanced Clean Trucks." Retrieved from <https://ww2.arb.ca.gov/our-work/programs/advanced-clean-trucks>

⁵⁵ New Jersey Board of Public Utilities. (2020). In the Matter of Straw Proposal on Electric Vehicle Infrastructure Build Out. Order Adopting the Minimum Filing Requirements for Light-Duty, Publicly-Accessible Electric Vehicle Charging (Docket NO. QO20050357). Retrieved from <https://www.nj.gov/bpu/pdf/boardorders/2020/20200923/8F%20-%20ORDER%20Electric%20Vehicle%20MFRs.pdf>

⁵⁶ Conn. Exec. Order No. 2019-1 (Apr. 24, 2019). Retrieved from <https://portal.ct.gov/-/media/Office-of-the-Governor/Executive-Orders/Lamont-Executive-Orders/Executive-Order-No-1.pdf>

other jurisdictions (namely California and New York) that are advancing M/HD vehicle electrification.⁵⁷

STATUTES AND LEGISLATION

Connecticut has implemented numerous laws and regulations related to the acceleration of all-electric and alternative fuel vehicle adoption and GHG emissions reductions from transportation. Connecticut General Statute 16-19ggg, for example, requires owners and operators of public EVSE to allow multiple payment options, not require subscription to use services, as well as require the disclosure of the location and characteristics of each site to the U.S. Department of Energy Alternative Fuels Data Center.⁵⁸ This same statute requires DEEP to develop building standards that include EV charging stations.

The Connecticut Department of Administrative Services also demonstrates price preference in the bidding of state contracts for the purchase of alternative fuel vehicles or for conversion technology of conventional vehicles. That is, when evaluating bids for contracts, the awarding authority commissioner may give a ten percent price preference when determining the lowest responsible qualified bidder for the project. This encourages bidders for state contracts to include the provision for clean vehicles in their application even if this raises their bid, which can include either purchasing clean vehicles or purchasing and converting other vehicles to allow the use of clean fuels.⁵⁹

GRANT AND INCENTIVE PROGRAMS

Connecticut sponsors several financial incentives aimed at incentivizing all-electric and alternative fuel vehicle adoption and emissions reductions. In particular, DEEP allocates funds from the VW Environmental Mitigation Trust to support the replacement or repowering of heavy-duty vehicles with alternative fuel vehicles for both public and private entities.⁶⁰ The Connecticut Green Bank has also sought to make it easier for commercial properties to install EV chargers, whether for retail, employee, or fleet use. In early 2020, the CT Green Bank announced Charge Up CT Buildings, a limited-time initiative that provided free Level 2 charging stations to commercial properties utilizing at least \$150,000 in Commercial Property Assessed Clean Energy (C-PACE) financing through the Green Bank for other energy improvements.⁶¹

⁵⁷ Connecticut Department of Energy and Environmental Protection (DEEP). (2020). Electric Vehicle Roadmap for Connecticut. Retrieved from [http://www.dpuc.state.ct.us/DEEPEnergy.nsf/c6c6d525f7cdd1168525797d0047c5bf/f7ed4932eec438d0852585520001c81b/\\$FILE/EV%20Roadmap%20for%20Connecticut.pdf](http://www.dpuc.state.ct.us/DEEPEnergy.nsf/c6c6d525f7cdd1168525797d0047c5bf/f7ed4932eec438d0852585520001c81b/$FILE/EV%20Roadmap%20for%20Connecticut.pdf)

⁵⁸ Public Act 16-135, S. 7, Conn. General Statutes § 16-19ggg (2016).

⁵⁹ Public Act 91-179, Conn. General Statutes 4a-59 § (1991).

⁶⁰ Connecticut DEEP. (n.d.). VW Grant Information. Connecticut's Official State Website. Retrieved from <https://portal.ct.gov/DEEP/Air/Mobile-Sources/VW/VW-Settlement---Grants>

⁶¹ Connecticut Green Bank. (2020). "Free EV Charging Stations for Commercial Properties Financing Efficiency Projects through C-PACE." Retrieved from <https://www.ctgreenbank.com/charge-up-ct-buildings-ev-campaign/>

Financial incentives also include the stipulation that emissions reduction credit programs must allow credits for alternative fuel conversions for vehicles, to ensure that such technologies remain competitive compared to conventional vehicles, even if the conversion took place before the program began.⁶² Lastly, The Connecticut Department of Revenue Services issues a reduced CNG and propane tax to incentivize their usage.⁶³

ADMINISTRATIVE ACTIONS AND REGULATION

There are no administrative actions or regulations relevant to alternative fuel freight vehicles in Connecticut.

UTILITY INFRASTRUCTURE PROGRAMS

DEEP is required to deliver a biennial report in consultation with electric distribution companies on the potential for EVs to provide energy storage and other services to the grid with defined strategies to keep up with EV adoption in the state.⁶⁴ The Public Utilities Regulatory Authority (PURA) also requires that utility companies include contingencies with EV charging load projections in electricity distribution planning.⁶⁵ Utility companies are likewise required to implement EV time-of-day rates for both residential and commercial customers.⁶⁶ PURA has also opened a “ZEV docket” as part of its Grid Modernization efforts to elucidate the role of electric utilities’ distribution system planning relative to prepare for and facilitate upcoming transportation electrification trends statewide.⁶⁷

PENNSYLVANIA

In 2019, Executive Order 2019-01, 2019 set ambitious goals for Pennsylvania’s state agencies to replace 25% of their passenger car fleets with PEVs by 2025 and make evaluations about fleet composition to reduce vehicle miles traveled. This executive order also required the Governor’s Green Government Council to help oversee the actions and procedures required of state agencies. Pennsylvania, as such, is embracing electrification in the near-term future with the goal of reducing emissions and energy usage.⁶⁸

STATUTES AND LEGISLATION

There are no statutes or legislation relevant to alternative fuel freight vehicles in Pennsylvania.

⁶² Public Act 94-170, S. 4, 5, Conn. General Statutes § 22a-174i (1994).

⁶³ Public Act 07-199, Conn. General Statutes § 12-458 (2007).

⁶⁴ Public Act 16-135, Conn. General Statutes § 16a-3e (2012).

⁶⁵ Public Act 16-135, Conn. General Statutes § 16-19fff (2016).

⁶⁶ Public Act 13-298, Conn. General Statutes § 16-19f (2013).

⁶⁷ Connecticut Public Utilities Regulatory Authority (PURA). (2020). 17-12-03RE04: PURA Investigation into Distribution System Planning of the Electric Distribution Companies –Zero Emission Vehicles. Retrieved from [http://www.dpuc.state.ct.us/dockcurr.nsf/\(Web%20Main%20View%5CALL%20Dockets\)?OpenView&Start=1376](http://www.dpuc.state.ct.us/dockcurr.nsf/(Web%20Main%20View%5CALL%20Dockets)?OpenView&Start=1376)

⁶⁸ Penn. Exec. Order No. 2019-01 (Jan. 8, 2019). Retrieved from <https://www.governor.pa.gov/newsroom/executive-order-2019-01-commonwealth-leadership-in-addressing-climate-change-and-promoting-energy-conservation-and-sustainable-governance/>

GRANT AND INCENTIVE PROGRAMS

Driving Pennsylvania Forward offers competitive reimbursement grants for heavy-duty trucks and transit buses, for both replacements and repowers. In addition, the program offers competitive grants for EVSE and hydrogen fuel cell infrastructure along transportation corridors, at destination locations, and at community charging/fueling hub locations.⁶⁹ The Alternative Fuels Incentive Grant (AFIG) Program offers grants for various relevant causes. One of these, which closed to new applications in March 2020, was the Pennsylvania FAST Act Corridor Infrastructure Grant, which sought to reimburse the installation of public electric, hydrogen, propane, and CNG fueling infrastructure along “Signage Ready” and “Signage Pending” highway corridors. Municipal authorities, political subdivisions, non-profits, corporations, and limited-liability companies or partnerships all qualify for the application.⁷⁰ AFIG also offers grants aimed at incentivizing the expansion of AFV technology usage for those same entities. Finally, the Alternative and Clean Energy (ACE) Program, sponsored by the Pennsylvania Department of Community and Economic Development (DCED), provides both grants and loans to applicants involved in the utilization, development, and construction of compressed and liquefied natural gas fueling stations.⁷¹

In addition to setting benchmarks for electrification success for state agencies, Pennsylvania administers and offers various financial incentive programs intended to facilitate the transition to cleaner vehicles, including M/HD vehicles. One such example is the *Driving Pennsylvania Forward* program, sponsored by the Pennsylvania Department of Environmental Protection (DEP) funded by the state’s portion of the settlement from the VW Environmental Mitigation Trust.⁷² This program includes rebates for M/HD vehicle replacement or repower projects using all-electric, alternative fuel (natural gas, propane, or hydrogen), or cleaner diesel technologies, and includes a scrappage requirement. In addition to the rebates for vehicle replacement, the program also offers rebates for the purchase, installation, operation, and maintenance of EVSE (Level 2) for publicly accessible government- or privately-owned land, workplaces, or private multi-unit dwellings. Other opportunities include Pennsylvania’s Alternative Fuel Vehicle Rebate Program, which reduces the incremental cost of such

⁶⁹ *Driving Pennsylvania Forward*. (n.d.). Grant and Rebate Programs. Pennsylvania Department of Environmental Protection. Retrieved from <http://www.depgis.state.pa.us/DrivingPAForward/>

⁷⁰ Pennsylvania Department of Environmental Protection. (n.d.). Alternative Fuels Incentive Grant Program (AFIG). Commonwealth of Pennsylvania. Retrieved from <https://www.dep.pa.gov/Citizens/GrantsLoansRebates/Alternative-Fuels-Incentive-Grant/Pages/default.aspx>

⁷¹ Pennsylvania Department of Community and Economic Development. (n.d.). Alternative and Clean Energy Program (ACE). Commonwealth of Pennsylvania. Retrieved from <https://dced.pa.gov/programs/alternative-clean-energy-program-ace/>

⁷² Supra note 69

vehicles for eligible state residents. This program includes an additional rebate if the recipient qualifies as low-income.⁷³

ADMINISTRATIVE ACTIONS AND REGULATION

There are no administrative actions or regulations relevant to alternative fuel freight vehicles in Pennsylvania.

UTILITY INFRASTRUCTURE PROGRAMS

Pennsylvania does not have any statewide utility regulatory approvals or programs in place for EVs, but there is precedent for investor-owned utilities offering resources to facilitate fleet electrification for commercial customers. PECO, Philadelphia's main electric utility, offers a Level 2 charger rebate of up to \$500 per charger for commercial customers, up to a maximum benefit of \$1500 per customer.⁷⁴ None of the state's major utilities, including PECO, offer make-ready infrastructure assistance for commercial fleets and information on EV rate design for fleets is not available. There is also no information regarding utility resources for DC fast charger installations.

POLICY OUTLOOK

While there is significant policy support for diesel alternatives within the study region, additional actions must be taken to achieve the policy objectives (for greenhouse gas emissions, air quality, and zero-emission sales) of the states and cities in this region. Diesel fuel is a well-established norm for freight vehicle fleets in this region with familiar systems and patterns for fueling, operations, and maintenance. Scaling up adoption of diesel alternatives requires a robust and holistic policy environment that supports fleet procurement (e.g., through vehicle and infrastructure purchase incentives) and operation (e.g., through utility investments and accommodating rate design) to enable all-electric and alternative fuel technologies to better compete with diesel technology on a total cost of ownership basis.

The policy outlook is brightest for zero-emission, non-combustion technologies—battery electric vehicles and hydrogen fuel cell vehicles. Each of the four states discussed in this technical memo has signed onto the Multi-State Medium- and Heavy-Duty Zero-Emission Vehicle Memorandum of Understanding, which sets new and aggressive targets for a 30% zero-emission share of M/HD sales by 2030 and 100% by 2050. Meeting these lofty goals will require concerted action by signatory states above and beyond the resources currently in place. Recommended actions will be outlined in the forthcoming Multi-State Action Plan in 2021. The states discussed above currently have funding programs in the form of grants, rebates, vouchers, or tax incentives to emphasize electrification of M/HD vehicle fleets, but these programs likely will need to be extended, deepened and harmonized to have sufficient

⁷³ Pennsylvania Department of Environmental Protection. (n.d.). Alternative Fuel Rebates for Consumers. Commonwealth of Pennsylvania. Retrieved from <https://www.dep.pa.gov/Citizens/GrantsLoansRebates/Alternative-Fuels-Incentive-Grant/Pages/Alternative-Fuel-Vehicles.aspx>

⁷⁴ PECO. (2018). PECO Commercial Level 2 Electric Vehicle Charger Rebate. Retrieved from <https://www.peco.com/SiteCollectionDocuments/PECOL2EV.pdf>

impact. The forthcoming incentive pilot program in New Jersey offers promise as a complement to New York's voucher-style funding programs and can build more of a regional market for zero-emission trucks. Overall, there is a clear trend toward greater electrification of M/HD vehicles across the region, with new legislation and agency actions indicating this momentum should continue and expand.

The emergence of structures for utility involvement and investment in fleet electrification, led by utilities in New York, lays a groundwork for expanding EV infrastructure and can be replicated by other utilities and states in the region. Hydrogen fuel cell technology is not as mature as electric vehicle technology in the Northeast region, and its growth may face regulatory challenges such as New York City's prohibitions on the transportation of compressed gases and the ban on operation of fuel cell vehicles for certain regionally important crossings such as the Hugh L. Carey tunnel connecting Lower Manhattan and Western Brooklyn.

While there are also measures in place to support the adoption of compressed natural gas and propane use for M/HD vehicles in the study region, these fuels share some of the same regulatory hurdles as hydrogen fuel cell technology. As with hydrogen fuel, New York and Pennsylvania have programs to incentivize CNG and propane M/HD vehicles and Pennsylvania also incentivizes refueling infrastructure. In addition, New Jersey and Connecticut have tax incentives for these fuel types. Still, moratoriums on new facilities and prohibitions on the transportation of these fuels (namely propane in New York City) pose challenges to their adoption at scale. Perhaps more importantly, despite being significantly cleaner burning than diesel, these fuels systems still involve combustion of fossil fuels. As such, these combustion alternative fuels are not receiving the same beneficial policy emphasis as energy sources that do not require direct combustion. In New York, for example, natural gas and propane trucks can qualify for incentive funding, but at a significantly lower amount than zero-emission trucks. In New Jersey, the forthcoming truck funding program will focus exclusively on zero-emission technologies. Taken together, natural gas and propane are viable fuel types in the near-term but appear unlikely to receive sufficient policy support to reach critical mass in the years ahead as zero-emission technologies receive the bulk of policy attention.