Via E-Mail

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Re: New York State Department of Environmental Protection's Proposed Part 248 Use of Ultra Low Sulfur Diesel Fuel and Best Available Retrofit Technology for Heavy Duty Vehicles, and Part 200 General Provisions

American Lung Association, Earthjustice, Environmental Advocates of New York, Jobs to Move America, New York Public Interest Research Group, New Yorkers for Clean Power, and Sierra Club submit these comments on the New York State Department of Environmental Conservation's ("DEC's") proposed amendments to its regulations implementing the Diesel Emission Reduction Act of 2006 ("DERA" or "the Act").[1] We applaud DEC's proposed amendments that extend DERA's requirements to use ultra-low sulfur diesel and best available retrofit technology to heavy-duty vehicles operated "on behalf of" State agencies, and not just those vehicles directly owned, operated, or leased by State agencies.[2] The people of New York have been waiting nearly fourteen years since the Legislature passed DERA for these requirements to apply to vehicles operated "on behalf of" State agencies, and it is high time that prime contractors and others who operate vehicles on behalf of the State comply with a nearly decade-and-a-half old mandate to reduce their diesel emissions.[3]

But DEC's proposed amendments continue to allow State agencies and contractors to use high-emitting diesel vehicles with outdated technology, and thus fail to satisfy the Legislature's requirement that State agencies use only the "best available" technology to reduce emissions of particulate matter ("PM") and oxides of nitrogen ("NOx") from heavy-duty vehicles. As DEC itself has recognized in other contexts, heavy-duty engine technology has vastly improved in the 14 years since DERA was passed.[4] Zero-emission technologies, in particular, are already or will

[1] *See* DEC, Proposed Part 248 Use of Low Sulfur Diesel Fuel and Best Available Retrofit Technology for Heavy Duty Vehicles, and Part 200 General Provisions, https://www.dec.ny.gov/regulations/119230.html (last accessed May 15, 2020).
[2] *See* DEC, Proposed Part 248 Express Terms, https://www.dec.ny.gov/regulations/119311.html (last accessed May 15, 2020).
[3] *See* N.Y. Envtl. Conserv. Law ("ECL") § 19-0323(2), (3).
[4] *See* Letter from Steven E. Flint & Erik C. White, Nat'l Ass'n of Clean Air Agencies to Scott Pruitt, Adm'r, U.S. Environmental Prot. Agency, at 2 (June 21, 2018) ("2018 NACAA Letter"),

soon be cost competitive and promise to minimize or eliminate local exposures to toxic air pollutants associated with diesel exhaust, providing an "undeniable public benefit" according to a study commissioned by New York State.[5] And COVID-19 is only making that benefit even more undeniable, given the connection between morbidity and mortality from this respiratory infection with the air pollutants emitted by diesel and other heavy-duty, fossil-fuel vehicles.[6]

The need to eliminate harmful emissions from heavy-duty vehicles is even more urgent now than it was 14 years ago. DEC must therefore amend its DERA regulations to require the use of what is truly the "best available" technology to reduce heavy-duty vehicle emissions today: zero-emission technologies or, for vehicle types for which zero-emission technology is currently unavailable, the low-NOx standard of the California Air Resources Board ("CARB").

I. DIESEL EMISSIONS IN NEW YORK AND THE DIESEL EMISSION REDUCTION ACT

A. Diesel Exhaust is Associated with Serious Adverse Health Impacts.

Diesel exhaust causes numerous adverse health impacts and is the major driver of diseases and deaths from traffic-related air pollution worldwide. Diesel emissions are associated with damage to cardiovascular, respiratory, and immunological systems, impaired neurological development, stroke, impaired liver function, and other conditions.[7] These emissions can account for a majority of adverse health impacts associated with all traffic-related air pollution, even where overall emissions from gasoline-emitting vehicles are higher.[8] One study found that nearly half of the 385,000 premature deaths from traffic-related air pollution worldwide in 2015 were attributable to diesel emissions.[9] This pattern holds true for the United States, where diesel emissions account for 43% of the approximately 22,000 people that die prematurely from traffic-related air

http://www.4cleanair.org/sites/default/files/Documents/NACAA_Letter_to_EPA-Support_for_Onroad_HD_NOx_Std-062118.pdf.

[5] New York State Energy Research and Development Authority & New York State Department of Transportation, New York City Green Loading Zones Study at 57 (2014), https://www.dot.ny.gov/divisions/engineering/technical-services/trans-r-and-d-repository/C-13-52%20Final%20Report_7-2014.pdf ("NYSERDA Study").

[6] *See* Letter from Justin J. Fung et al. on behalf of New York City to Michelle L. Phillips, Acting Sec'y, New York State Pub. Serv. Comm'n at 2 (Apr. 17 2020), *filed in Proceeding on Mot'n of Comm'n Re Elec. Vehicle Supply Equipment & Infrastructure*, PSC Case No. 18-E-0138 ("NYC Comments to PSC").

[7] *See, e.g.*, U.S. Environmental Protection Agency, Health Effects Document for Diesel Engine Exhaust ch. 5 (2002) ("EPA Diesel Health Assessment").

[8] For example, DEC has found that trucks emit 10 to 100 times the number of pollutants that cars do. DEC, Albany South End Community Air Quality Study – Traffic-Related Air Pollution (TRAP) Results at 1 (2019), https://www.dec.ny.gov/docs/air_pdf/albanysouthendtrap.pdf.

[9] Susan Anenberg et al., Int'l Council on Clean Transportation, A Global Snapshot of the Air Pollution-Related Health Impacts of Transportation Sector Emissions in 2010 and 2015 at i-iii (2019), https://theicct.org/sites/default/files/publications/Global_health_impacts_transport_emissions_2010-2015_20190226.pdf.

pollution.[10] Diesel exhaust is also the main driver of the world's 4 million new childhood asthma cases each year,[11] and millions of these cases could be averted by reducing diesel emissions.[12]

Many different qualities of diesel exhaust make it particularly harmful to human health. *First*, the mixture of solid and gaseous particles emitted by diesel engines can contain dozens of chemicals that are harmful in their own right, including over 40 known carcinogens like benzene, formaldehyde, and polycyclic aromatic hydrocarbons.[13] The U.S. Environmental Protection Agency ("EPA") has found that Americans may be exposed to levels of diesel in outdoor air that can increase their cancer risk,[14] while the World Health Organization classifies diesel exhaust as "carcinogenic to humans."[15] Meanwhile, CARB found that exposure to diesel exhaust accounts for over 70% of the total cancer risk from all air toxics in California, adding 520 cancers per million residents;[16] that same study found a "[s]ignificant reduction in cancer risk" was linked to the implementation of controls on diesel and other air toxics.[17] These findings are particularly relevant to New York, which has higher ambient diesel concentrations than California or, for that matter, any other state.[18]

Second, the solid portion of diesel exhaust ("diesel particulate matter" or "DPM") is almost entirely less than 1 µm in diameter, and thus is an effective conduit for other particles to enter deep into lung tissue. DPM excels at adsorbing carcinogenic and otherwise harmful chemicals which also get introduced in the deep lung.[19] These emissions contribute to levels of fine particulate matter ("$PM_{2.5}$"), among the most harmful categories of pollutants.[20] A significant portion of $PM_{2.5}$ in urban areas comes from diesel exhaust.[21] Whereas $PM_{2.5}$ from other sources often travels long distances, $PM_{2.5}$ from mobile sources often stays local.[22]

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[10] *Id.* at 19 tbl. 4.
[11] *See* Pattanun Achakulwisut et al., *Global, National, and Urban Burdens of Pediatric Asthma Incidence Attributable to Ambient NO_2 Pollution*, The Lancet Planetary Health (2019).
[12] Damian Carrington, *Vehicle Pollution 'Results in 4M Child Asthma Cases a Year'*, The Guardian (Apr. 10, 2019), https://www.theguardian.com/environment/2019/apr/10/vehicle-pollution-results-in-4m-child-asthma-cases-a-year.
[13] Cal. Air Res. Bd. ("CARB"), *Overview: Diesel Exhaust and Health* (2020), https://ww2.arb.ca.gov/resources/overview-diesel-exhaust-and-health.
[14] *See* EPA, Technical Support Document, EPA's 2014 National Air Toxics Assessment at 16 (2014), https://www.epa.gov/sites/production/files/2018-09/documents/2014_nata_technical_support_document.pdf.
[15] Int'l Agency for Research on Cancer, World Health Org., Diesel and Gasoline Exhausts and Some Nitroarenes at 467 (2014), https://publications.iarc.fr/Book-And-Report-Series/Iarc-Monographs-On-The-Identification-Of-Carcinogenic-Hazards-To-Humans/Diesel-And-Gasoline-Engine-Exhausts-And-Some-Nitroarenes-2013.
[16] CARB *supra* note 13; Ralph Propper et al., *Ambient and Emission Trends of Toxic Air Contaminants in California*, 49 Envtl. Sci. Tech. 11,329, 11,335 fig. 4 (2015), https://pubs.acs.org/doi/pdf/10.1021/acs.est.5b02766.
[17] Propper et al., *supra* note 16, at 11,329, 33, 35.
[18] Based on an analysis of EPA's 2014 National Air Toxics Assessment ("NATA") data for diesel particulate matter. Data is available at https://www.epa.gov/national-air-toxics-assessment/2014-nata-assessment-results#pollutant.
[19] EPA Diesel Health Assessment, *supra* note 7, at 1-2.
[20] CARB *supra* note 13.
[21] EPA Diesel Health Assessment *supra* note 7, at 1–2.
[22] *See* New York State Energy Research & Dev. Auth., Final Report 08-01, Assessment of Carbonaceous $PM_{2.5}$ for New York and the Region at 1-2 (2008); New York State Energy Research & Dev. Auth., Final Report 09-10, Results and Findings from the Joint Enhanced Ozone and PM Precursor – $PM_{2.5}$ Technology Assessment and Characterization Study in New York at ES-3—ES-9 (2009).

Third, the gaseous portion of diesel exhaust undergoes chemical changes once in the air to turn into other harmful compounds. The NOx, sulfur dioxide, ammonia, and volatile organic compounds ("VOCs") emitted from diesel vehicles as larger particles can serve as precursors to the formation of additional particulate matter once in the air through a process known as secondary formation.[23] And these NOx and VOC emissions, in particular, are precursors to the formation of harmful ground-level ozone, or smog, which is associated with a range of adverse health impacts.[24]

B. The Legislature Passed DERA to Lower Diesel Emissions in New York.

Given the myriad health harms from diesel exhaust, in 2006, the undersigned American Lung Association and other health groups, like the American Cancer Society and the American Heart Association, advocated for the New York Legislature to take action to reduce diesel emissions in the State.[25] In response, a nearly unanimous New York State Legislature passed the Diesel Emission Reduction Act.[26] In so doing, the Legislature noted that "diesel exhaust particle pollution is a clear and present threat to New Yorkers," and pointed to these adverse health effects, in particular,

> According to [EPA], diesel exhaust particles are a likely lung cancer agent. In New York state, diesel exhaust is also the prime contributor to airborne fine particle pollution which is linked to premature death, asthma attacks, and cardiovascular disease. Diesel exhaust is also a contributor to formation of ground level ozone; a powerful respiratory irritant that is linked to premature death, asthma attacks and can damage the lung tissue of children. Nearly 90% of New Yorkers live in an area that fails to meet federal health standards for ozone. [27]

To reduce harmful diesel emissions, DERA (1) requires all State agencies and State and regional public authorities, and their contractors, to use ultra-low sulfur diesel fuel ("ULSD") to fuel their on- and off-road heavy-duty diesel vehicles, and (2) requires those State agencies and State and regional public authorities that have over half of their governing bodies appointed by the governor ("BART regulated entities"), and their contractors, to use the best available retrofit technology ("BART") to reduce pollution from their on- and off-road heavy-duty diesel vehicles. By one 2006 estimate, DERA was expected to cover 20,000 vehicles.[28] While this is a significant

[23] *See* Fine Particulate Matter National Ambient Air Quality Standards: State Implementation Plan Requirements, 81 Fed. Reg. 58,010, 58,014–17 (Aug. 24, 2016); EPA Diesel Health Assessment, *supra* note 7, at 1-1, 2-85 tbl. 2-19.
[24] CARB *supra* note 13.
[25] 2006 N.Y. Sess Laws A.B. 11340, Ch. 629.
[26] *Id*.
[27] *Id.*
[28] *See* Letter from G. Thomas Tranter, Jr., Corning Inc., to Hon. George E. Pataki, Governor, State of New York (June 26, 2006), *available at* New York Bill Jacket, 2006 A.B. 11340, Ch. 629.

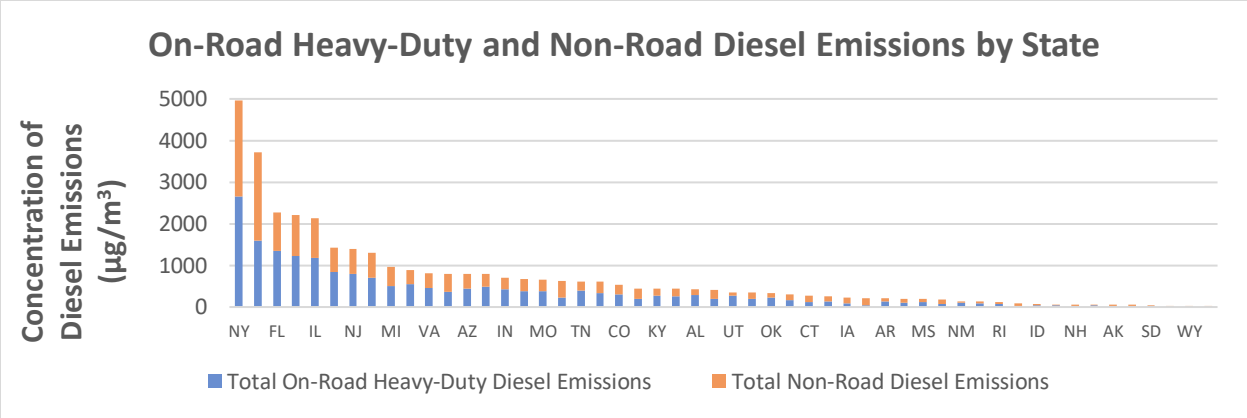
number of vehicles, it is still less than 7% of the over 300,000 diesel-powered heavy-duty vehicles registered in New York State at the time.[29]

Motivated by the urgent need to address the serious harms of diesel pollution, the Legislature required full compliance with DERA by 2010, allowing exceptions only where BART or ULSD is not available for a specific vehicle type.[30] Yet in the 14 years since its passage, DERA has gone largely unenforced. In 2010, the Legislature added a provision to allow waivers in instances were BART or ULSD *is* available, so long as the vehicle is retired by a certain date.[31] And in response to pressure from the construction industry,[32] the Legislature further amended DERA every year for eight consecutive years to incrementally extend the compliance deadline to December 31, 2019, nearly ten years after the original deadline. Despite all these amendments, the Legislature has retained the BART requirement, "making plain its continued interest" in reducing diesel emissions from covered vehicles.[33] And even with these delays in the compliance date, DEC reported last year that 97% of State-owned vehicles are already compliant with the BART requirement of its current, outdated regulations.[34]

C. Despite DEC's DERA Regulations, Diesel Emissions Remain a "Clear and Present Threat" to New Yorkers.

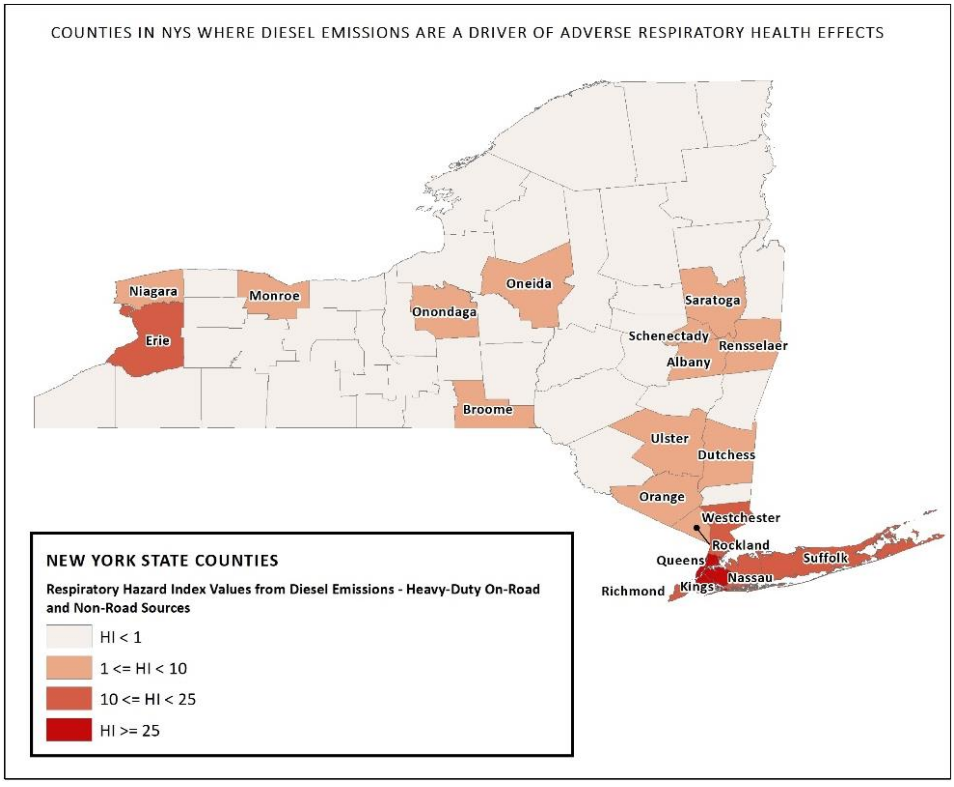
Even with the near 100% compliance rate of State-owned vehicles, diesel exhaust continues to be a "clear and present threat" throughout New York.[35] As the following chart using data from EPA's latest National Air Toxics Assessment shows, among all U.S. states and territories, New York State has the *highest* total concentration of diesel in outdoor air:[36]

[29] DEC, *New York State On-Road Motor Vehicle Emission Budget MOVES Technical Support Documentation, attached to* DEC, Redesignation Request and Maintenance Plan for the 1997 Annual and 2006 24-Hour $PM_{2.5}$ NAAQS *as* App'x D, https://www.dec.ny.gov/docs/air_pdf/sippm25rrmpappd.pdf (2013). The data comes from New York State Department of Motor Vehicles records from 2007.
[30] 2006 N.Y. Sess Laws A.B. 11340, Ch. 629.
[31] APPROPRIATIONS, 2010 Sess. Law News of N.Y. Ch. 59, Part C section 1 (A. 9709-C).
[32] *See* Keshia Clukey, *New York to Finally Enforce its Cleaner-Diesel Law—of 2006*, Bloomberg Law (June 28, 2019), https://news.bloomberglaw.com/environment-and-energy/new-york-to-finally-enforce-its-cleaner-diesel-law-of-2006; *Diesel Emissions Reduction Act Regulations Now in Effect*, Ne. Subcontractors Ass'n at 1 (Mar. 2020), http://www.nesca.org/images/newsletters/March%202020.pdf.
[33] DEC, *supra* note 1.
[34] Clukey, *supra* note 32.
[35] *See* 2006 N.Y. Sess. Laws A.B. 11340, Ch. 629.
[36] These numbers are based on an analysis of EPA's 2014 National Air Toxics Assessment results for diesel. Data is available at https://www.epa.gov/national-air-toxics-assessment/2014-nata-assessment-results.



New York also has the *highest* percentage of diesel emissions from heavy-duty vehicles and non-road equipment; the *greatest* overall health hazard attributable to total diesel exposures; and the *greatest* health hazard attributable to on-road heavy-duty vehicles or non-road equipment, specifically.[37]

In addition, New York is home to 11 of the top 100 counties in terms of ambient diesel concentrations, and has 22 counties in the 90th percentile in total diesel concentrations from heavy-duty vehicles and non-road diesel sources. As this map shows, twenty-two counties have respiratory hazard index values exceeding 1, which EPA uses to conclude that diesel emissions from these sources are a regional driver of adverse respiratory health effects:



[37] *Id.*

Based on these data, EPA classifies diesel emissions as a "regional driver of noncancer health effects" in these counties and in New York State as a whole.[38] Diesel's health effects disproportionately impact environmental justice communities in New York State – these 22 counties account for 96% of the potential environmental justice areas identified by DEC.[39] As the following chart of EPA's respiratory hazard index shows, these 22 counties include nine counties with a respiratory hazard index above ten, and two counties with a respiratory hazard index above *one hundred*:

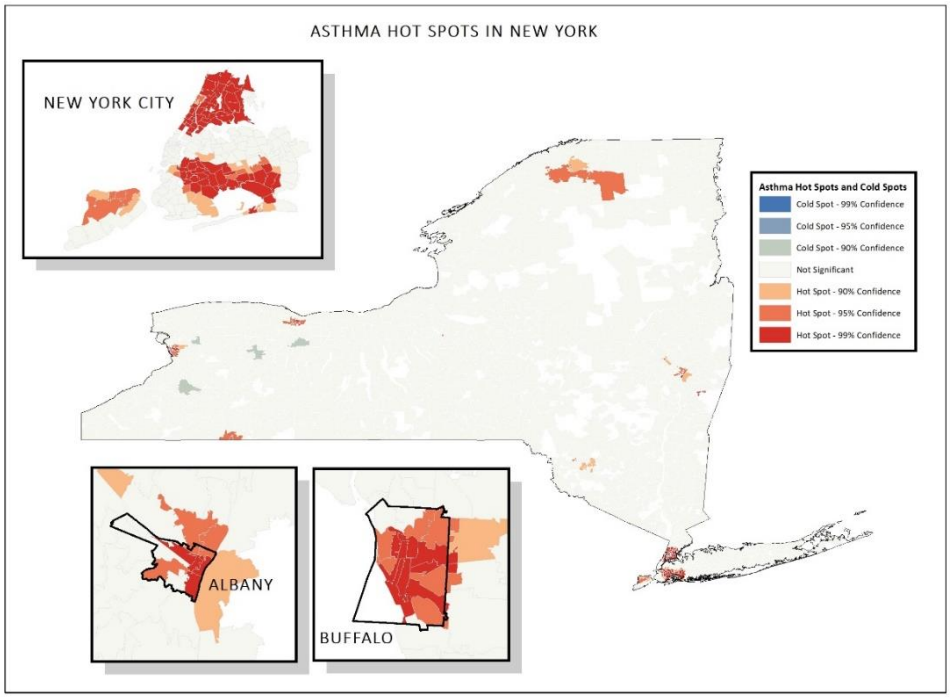
Counties in New York with Respiratory Hazard Index Greater Than 1					
County	**Total Diesel Concentration ($\mu g/m^3$)**	**National Rank***	**Respiratory Hazard from Diesel Exposures**	**National Rank***	**% of Diesel Emissions from Heavy-Duty On-Road and Non-Road Sources**
Kings	1432.595251	2	140.8757356	3	97.7%
Queens	1091.71821	4	108.7096782	4	98.0%
New York	672.9322125	5	64.7981925	5	97.2%
Bronx	633.6271157	7	62.89214918	7	98.1%
Nassau	233.07191	16	24.07416941	15	96.5%
Westchester	176.6038926	28	17.99674338	25	95.7%
Suffolk	161.8138505	33	16.69334562	31	94.6%
Richmond	115.414424	47	11.55965112	46	98.5%
Erie	102.0049479	52	10.59244219	50	98.3%
Monroe	77.27435276	69	7.580984267	69	98.0%
Onondaga	62.20167826	83	6.438173561	80	98.4%
Albany	32.46177863	131	3.363893061	127	95.5%
Rockland	31.71510112	133	3.357176553	128	94.3%
Orange	23.85031333	155	2.490091155	154	95.7%
Dutchess	23.37733339	158	2.343484283	161	95.3%
Oneida	20.77534099	170	2.042689232	174	97.7%
Broome	15.80451056	200	1.682234132	196	97.8%
Schenectady	14.80531902	210	1.527139403	207	97.7%
Niagara	13.18650139	227	1.387972902	222	97.9%
Saratoga	12.31479633	235	1.268468609	234	97.3%
Rennselaer	11.64854975	242	1.240143519	239	96.9%
Ulster	11.39151825	246	1.168478878	247	95.3%
* - Out of 1,881 counties with diesel emissions recorded in EPA's National Air Toxics Assessment					

[38] EPA's National Air Toxics Assessment calculates "hazard indices" for health effects associated with mobile sources. When the "hazard index" value for a given pollutant is greater than 1 and where the number of people exposed exceeds 10,000, EPA considers that pollutant a "regional driver of noncancer health effects." EPA, Technical Support Document – EPA's 2014 National Air Toxics Assessment at 136-37 (2018), https://www.epa.gov/sites/production/files/2018-09/documents/2014_nata_technical_support_document.pdf. The hazard index associated with diesel exposure in New York State is over 500.

[39] *See* DEC, *Maps & Geospatial Information System (GIS) Tools for Environmental Justice*, https://www.dec.ny.gov/public/911.html (last visited May 15, 2020).

DEC acknowledges that diesel emissions "ha[ve] made it increasingly difficult for the state to attain" federal air quality standards for ozone.[40] As the Ozone Transport Commission recently stated, the science is "very strong" that NOx is the most significant contributor to high ozone in states like New York, and heavy-duty diesel trucks are one of the major NO_x emitting sources categories in the region.[41] Today, almost 64% of all New Yorkers – over 12.4 million people in 10 counties – live in an area in non-attainment for national ozone air quality standards, and over 12.2 million in the New York City region live in serious non-attainment counties.[42]

Diesel emissions are a major driver of asthma, and according to the New York State Department of Health, asthma "remains an epidemic" in New York State, "with significant public health and financial consequences."[43] New York's asthma rates are roughly double the levels targeted in the Healthy People 2020 objectives set by the U.S. Department of Health and Human Services, and the State's asthma mortality rates are 2 to 3 times higher than the target levels.[44] According to New York State Department of Health data, many of the State's asthma hotspots – statistically significant, non-random clusters of zip codes with high asthma emergency department visit rates – occur in counties with the highest rates of diesel emissions:



[40] DEC, Parts 222 and 200 Revised Regulatory Impact Statement, https://www.dec.ny.gov/regulations/118058.html (last visited May 11, 2020).
[41] Ozone Transp. Comm'n, *OTC / MANE-VU Stakeholder Webinar* at 4 (Mar. 2020), https://otcair.org/upload/Documents/Meeting%20Materials/OTC-MANEVU%20MSC_Stakeholder_Presentation%20Final%2020200330.pdf.
[42] EPA, New York Nonattainment/Maintenance Status for Each County by Year for All Criteria Pollutants (last updated Apr. 30, 2020), https://www3.epa.gov/airquality/greenbook/anayo_ny.html.
[43] N.Y. State Dep't of Health, *New York State Asthma Surveillance Summary Report* at 16 (Oct. 2013), https://www.health.ny.gov/statistics/ny_asthma/pdf/2013_asthma_surveillance_summary_report.pdf.
[44] *Id*.

Even after the passage of DERA, the statewide asthma emergency room visit rate *increased* by 6% from 2005 to 2011, with increases seen across all age groups. Total emergency room visit rates in New York State are higher than the national average for all age groups. The New York State Comptroller found that "the public health and financial consequences of asthma in the State remain significant" — estimating an annual overall cost of $1.3 billion from direct medical costs and lost productivity.[45]

Urban centers like New York City are particularly impacted by diesel emissions. Four of New York City's five boroughs are among the *top six* counties most impacted by diesel emissions from heavy-duty vehicles in the country,[46] and the city ranks ninth out of all cities in the world for childhood asthma caused by traffic-related air pollution, with an additional 500 such cases every year.[47] While trucks and buses account for only 6% of all vehicle miles traveled in the city, they produce a majority of local $PM_{2.5}$ emissions, contributing almost 15% of the total ambient concentration of $PM_{2.5}$.[48] Particulate emissions from diesel engines cause 170 deaths and 360 emergency room visits in New York City each year.[49] Vehicles' outsized contribution to the City's $PM_{2.5}$ and NOx concentrations can be seen in the marked air quality improvements of streets in the city that either go car-free[50] or have seen traffic decreases during COVID-19.[51] In Buffalo, too, asthma rates are 2.5 times the statewide rate and 4.5 times the statewide rate excluding New York City, and the New York State Department of Health has found that exposure to frequent truck traffic significantly increases the risk of childhood asthma in Buffalo.[52]

Across the State, communities of color and low-income communities bear a disproportionate burden of diesel emissions. Statewide, 74 percent of the black and Latino population, and 80 percent of the Asian population, live in areas where $PM_{2.5}$ concentrations exceed state averages,[53] and average $PM_{2.5}$ exposures attributable to traffic pollution, specifically, are also

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[45] N.Y. State Comptroller, *The Prevalence and Cost of Asthma in New York State* at 1 (Apr. 2014), https://www.osc.state.ny.us/reports/economic/asthma_2014.pdf.

[46] Based on an analysis of EPA's 2014 NATA data. Looking at diesel emissions from on-road heavy-duty sources (starts and stops, normal operations, and idling) and looking at total respiratory hazard index.

[47] Carrington, *supra* note 12.

[48] Iyad Kheirbek et al., *The Contribution of Motor Vehicle Emissions to Ambient Fine Particulate Matter Public Health Impacts in New York City: A Health Burden Assessment*, Envt'l Health (2016), https://ehjournal.biomedcentral.com/track/pdf/10.1186/s12940-016-0172-6.

[49] *Id*.

[50] NYC Dep't of Health, *Air Quality in Car-Free Areas*, http://a816-dohbesp.nyc.gov/IndicatorPublic/Closerlook/aqts/index.html (last visited May 14, 2020).

[51] NYC Dep't of Health, *Air Quality During COVID-19*, http://a816-dohbesp.nyc.gov/IndicatorPublic/Closerlook/covidair/ (last visited May 14, 2020).

[52] N.Y. State Dep't of Health, *Childhood Asthma and Environmental Risk Factors in the City of Buffalo, NY* (Jan. 2005), https://www.health.ny.gov/environmental/investigations/breathe_easy_erie/.

[53] Union of Concerned Scientists, *Fact Sheet: Inequitable Exposure to Air Pollution from Vehicles in New York State* (2019), https://www.ucsusa.org/sites/default/files/attach/2019/06/Inequitable-Exposure-to-Vehicle-Pollution-NY.pdf.

higher in communities of color.[54] Ninety-six percent of DEC potential environmental justice areas are located in the 22 counties where diesel is a driver of respiratory illness. New York City's own statistics show that the low-income communities in the City are exposed to 1.7 times the amount of truck and bus-related $PM_{2.5}$ as higher-income areas, and have 9.3 times the rate of emergency room visits for asthma due to emissions from trucks and buses.[55] These high-pollution areas are disproportionately located in Latino neighborhoods.[56] For example, the Bronx – where 12,000 trucks enter and leave the largest food distribution center in the world – has some of the highest asthma rates and asthma mortality rates in the State – almost triple the State rate[57] – and diesel exhaust is a "major contributor" to the elevated rates of asthma among the South Bronx's schoolchildren.[58] In Albany, meanwhile, DEC has similarly identified diesel trucks and buses as the predominant source of air pollution in the potential environmental justice area of the South End neighborhood,[59] where the share of truck and bus traffic is over 6 times that of other parts of the city, and traffic pollution is 50% higher than background levels.[60] Asthma rates in the South End are similarly more than three times the statewide rate, and almost four times the rate in Albany County.[61] Both DEC and other researchers have concluded that reducing diesel truck and bus emissions would significantly improve health outcomes and reduce health disparities in New York City.[62]

The current COVID-19 crisis has amplified the disastrous effects of New York's poor air quality. Recent studies identify higher COVID mortality rates in areas with higher $PM_{2.5}$ pollution[63] and

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[54] *Id.* at 4 ("On average, $PM_{2.5}$ exposures from transportation for Asian American, Latino, and African American New Yorkers, as well as residents who self-identify in the census as 'other race,' are higher than for white New Yorkers. The UCS analysis finds that exposure inequalities are more pronounced between racial and ethnic groups than between income groups.").

[55] NYC Comment to PSC, *supra* note 6, at 2 (citing Kheirbek et al., *supra* note 48).

[56] Lew Daly, Demos & Priya Mulgaonkar, New York City Environmental Justice Alliance, Justicia Climática at 26 (2019) ("Electrifying public or publicly-contracted fleets, particularly buses and garbage trucks–is a significant opportunity for Latinx and other communities of color, especially for improving health in densely trafficked neighborhoods.").

[57] New York State Department of Health, Asthma Dashboard – County Level, Age-Adjusted Asthma Death Rate per 1,000,000, https://webbi1.health.ny.gov/SASStoredProcess/guest?_program=/EBI/PHIG/apps/asthma_dashboard/ad_dashboard&p=it&ind_id=ad24 (last revised May 2018).

[58] New York Univ. Med. Center & School of Med., *Asthma Linked to Soot from Diesel Trucks in Bronx*, ScienceDaily, Oct. 30, 2006, www.sciencedaily.com/releases/2006/10/061017084420.htm.

[59] DEC, *Albany South End Community Air Quality Study Summary* (Oct. 2019), https://www.dec.ny.gov/docs/air_pdf/albanysouthendsummary.pdf.

[60] DEC, *supra* note 8, at 1.

[61] *New York State Asthma Surveillance Summary Report, supra* note 43, at 77, 79.

[62] DEC, Albany South End Community Air Quality Study: High-Emitting Vehicles (HEVs) at 1 (2019), https://www.dec.ny.gov/docs/air_pdf/albanysouthendhev.pdf (concluding that reducing emissions from diesel-fueled vehicles like trucks and buses "would have the greatest benefit in improving neighborhood air quality" in communities like the Albany's South End that are heavily impacted by diesel pollution); Kheirbek et al, *supra* note 48; *see also* Union of Concerned Scientists, *supra* note 53, at 2 ("New, clean transportation technologies, such as electric trucks, buses, and passenger vehicles, give us the opportunity to begin to rectify this injustice.").

[63] *See* Xiao Wu et al., *Exposure to air pollution and COVID-19 mortality in the United States* at 11, Harvard Univ. (2020), https://projects.iq.harvard.edu/covid-pm ("[A] small increase in long-term exposure to PM2.5 leads to a large increase in COVID-19 death rate of a magnitude that is 20 times the one estimated for all-cause mortality.").

higher NO_X pollution[64] – two of the most significant pollutants from diesel engines. As of the date of these comments, the New York City area has experienced more COVID-19 deaths than any other part of the United States,[65] and more deaths than any other *entire country*.[66] And as the New York City government has recognized, the same "EJ communities [that] exhibited higher prevalence of and hospitalization rates for conditions like asthma and other respiratory issues than more affluent communities prior to the pandemic, as well as the greatest burden of air quality-related respiratory and cardiovascular disease health impacts. . . . have been among [the] hardest-hit by COVID-19."[67]

Thus, if anything, the threat from diesel emissions to New Yorkers' health – and in particular the health of low-income communities and communities of color – has *increased* since DERA's passage, despite State agencies' compliance with the current DERA regulations. The decades-old diesel engine standard DEC continues to allow for DERA compliance is plainly insufficient and, as explained further below, is no longer the "best available" technology mandated by the Act, now that cost-effective zero-emissions vehicles and lower-emitting vehicles are readily available on the market. DEC must amend the DERA regulations to require adoption of these technologies.

II. DEC MUST CONTINUALLY UPDATE ITS DERA REGULATIONS TO SATISFY THE ACT'S "BEST AVAILABLE" TECHNOLOGY REQUIREMENT.

DEC's amendments fail to make any necessary updates to the DERA technology standard, meaning that heavy-duty vehicles up to thirteen years old – and well past the warranty period DEC itself recommends[68] – can continue to spew diesel into New York air while still technically complying with the regulations. Newer, cleaner, and more cost-effective technology exists, and should be mandated by DEC's regulations.

DERA requires any diesel-powered heavy-duty vehicle owned by, operated by or on behalf of, or leased by a BART regulated entity to "utilize the best available retrofit technology for reducing the emission of pollutants."[69] It is well established that a "best available technology" standard is one that must be continuously updated as technology advances, so emission controls that may

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[64] *See* Yaron Ogen, *Assessing nitrogen dioxide levels as a contributing factor to coronavirus fatality*, 726 Sci. Total Environ. (2020), https://www.sciencedirect.com/science/article/pii/S0048969720321215?via%3Dihub ("[L]ong-term exposure to [nitrogen dioxide] may be one of the most important contributors to fatality caused by the COVID-19 virus.").

[65] The New York Times, *Five Ways to Monitor the Coronavirus Outbreak in the U.S.* (May 2020), https://www.nytimes.com/interactive/2020/04/23/upshot/five-ways-to-monitor-coronavirus-outbreak-us.html.

[66] The New York Times, *Coronavirus in the U.S.: Latest Map and Case Count* (May 2020), https://www.nytimes.com/interactive/2020/us/coronavirus-us-cases.html.

[67] NYC Comments to PSC *supra* note 6, at 2; *see also* Larry Buchanan et al., *A Month of Coronavirus in New York City*, New York Times, Apr. 1, 2020, https://www.nytimes.com/interactive/2020/04/01/nyregion/nyc-coronavirus-cases-map.html.

[68] Ne. States for Coordinated Air Use Mgmt., *Advanced Notice on Proposed Control of Air Pollution from New Motor Vehicles: Heavy-Duty Engine Standards* at 17 (Feb. 2020) ("2020 NESCAUM Letter"), https://www.nescaum.org/topics/mobile-source-controls-and-programs [Feb. 20, 2020 Comments to EPA].

[69] ECL § 19-0323(3).

have been the best available technology a decade ago would not necessarily meet the "best available technology" standard today.[70] Indeed, the text of DERA itself conveys the Legislature's intent that, as new technology enters the market in the future, it would fall under the DERA regime.[71]

Nothing in DERA or other relevant law suggests that the Legislature intended the DERA technology standard to be frozen in time,[72] or otherwise prevents DEC from updating the standard as needed. Indeed, in addition to DERA's broad grant to DEC to promulgate regulations "as necessary and appropriate to carry out the provisions of this act,"[73] DEC points to various other statutory provisions for its authority to conduct this rulemaking, including provisions that expressly authorize the Agency to "[a]ssess new and changing technology . . . and encourage alternatives which minimize adverse impact."[74] And DEC also points to statutes that authorize it to "control and regulate pollution from motor vehicle exhaust emissions,"[75] and "require the use of *all available* practical and reasonable methods to prevent and control air pollution in the state of New York."[76] DEC thus has broad authority to fulfill DERA's requirement that heavy-duty vehicles used by and on behalf of BART regulated entities use the best available emission control technology, and not merely the technologies available at the time of DERA's passing in 2006.

III. DEC MUST DEFINE "BEST AVAILABLE" TECHNOLOGY UNDER DERA AS ZERO-EMISSION VEHICLES FOR MOST TYPES OF VEHICLES.

Consistent with DERA's requirement that BART regulated entities use the "best available" technology, DEC's regulations rightfully allow these entities to demonstrate compliance through replacing or repowering their vehicles, instead of merely installing control devices on old, high-emitting diesel vehicles.[77] DEC itself has acknowledged engine replacement is the "favored means of compliance," since diesel retrofit costs, including both installation and maintenance, may exceed the actual value of the applicable heavy duty diesel vehicle.[78] And DEC notes that

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[70] *See Nat. Res. Def. Council v. EPA*, 808 F.3d 556, 576 (2d Cir. 2015) ("[T]he purpose of [the best available technology standard] is to force technology to keep pace with need."); *Sw. Elec. Power Co. v. EPA*, 920 F.3d 999, 1018 (5th Cir. 2019) (finding it "antithetical to the statutorily-mandated [best available technology] standard" for EPA to use outdated technology).

[71] *See* ECL § 19-0323(7) (requiring DEC to annually report to the Legislature on the number of State agency vehicles "equipped with an engine certified to the applicable 2007 [EPA] standard . . . *or to any subsequent [EPA] standard*" (emphasis added)).

[72] DERA, as amended, states that "all vehicles covered [by the Act] shall have best available retrofit technology on or before December 31, 2019." ECL § 19-0323(3). So even if DEC reads DERA to suggest a technology standard that is frozen in time – which it should not – that standard would still require the best technology that was available at the end of 2019, and not technology over a decade old, as DEC's proposed regulations would have it.

[73] ECL § 19-0323(4).

[74] *Id.* § 3-0301(1)(s); DEC, *Proposed Parts 248 and 200 Regulatory Impact Statement Summary* section 1 (Last visited May 15, 2020), https://www.dec.ny.gov/regulations/119316.html.

[75] *Id.* § 3-0301(2)(n).

[76] *Id.* § 19-0103 (emphasis added).

[77] 6 NYCRR § 248-3.1(f)(1).

[78] DEC, *Proposed Parts 248 and 200 Regulatory Impact Statement* https://www.dec.ny.gov/regulations/119308.html (last visited May 15, 2020).

EPA's most recent statistics from its diesel grant program show replacements favored 6 to 1 over retrofit projects for heavy-duty diesel vehicles.[79]

But DEC's proposed regulations would allow BART regulated entities to show compliance through replacement or repowerment with diesel engines up to *thirteen years* old or non-diesel engines of *any* model year.[80] As explained further below, zero-emission vehicles are now the best available technology for many types of heavy-duty vehicles, and DEC's regulations should mandate zero-emissions as BART for these vehicle types.[81]

A. Zero-Emission Vehicles Meet the DERA Definition of BART.

DERA defines BART to mean technology that is (1) "verified by the EPA or CARB," (2) "achieves reductions in particulate matter emissions at the highest classification level" and "the greatest reduction in emissions of nitrogen oxides at such particulate matter reduction level" "at a reasonable cost," and (3) is "available."[82] Zero-Emission vehicles satisfy all of these components of the DERA definition.

First, zero-emission vehicles are verified by both EPA and CARB. Under EPA regulations, a vehicle can be certified as a zero-emission vehicle ("ZEV") if it meets all of the following conditions:

- The vehicle fuel system(s) must not contain either carbon or nitrogen compounds (including air), which when burned, from nonmethane hydrocarbons, oxides of nitrogen, carbon monoxide, formaldehyde, or particulates as exhaust emissions.
- All primary and auxiliary equipment and engines must have no emissions of nonmethane hydrocarbons, oxides of nitrogen, carbon monoxide, formaldehyde, and particulates.
- The vehicle fuel system(s) and any auxiliary engine(s) must have no evaporative emissions.
- Any auxiliary heater must not operate at ambient temperatures above 40 degrees Fahrenheit.[83]

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[79] *Id*.

[80] 6 NYCRR § 248-3.1(f)(1).

[81] Because these DERA regulations affect the State's purchase, use, and contracting decisions only, and do not apply broadly to all private vehicles owners and users, they do not conflict with any provision of the Clean Air Act or other federal law. *See Bldg. Indus. Elec. Contractors Ass'n v. City of New York*, 678 F.3d 184, 185, 192 (2d Cir. 2012) (finding labor provision in New York City construction contracts not preempted by National Labor Relations Act because those provisions were the City's "permissible proprietary choice," and the City "acted as a market participant and not a regulator in entering the agreements"); *Engine Mfrs. Ass'n v. S. Coast Air Quality Mgmt. Dist.*, 498 F.3d 1031, 1050 (9th Cir. 2007) ("[T]he Clean Air Act does not preempt those provisions . . . directing state and local governmental entities' purchasing, procuring, leasing, and contracting decisions," including provisions requiring the use of vehicles meeting certain emission standards or engine requirements).

[82] 6 NYCRR § 248-1.1(b)(6).

[83] 40 C.F.R. § 88.105-94(f)(2); *see also* EPA, *Heavy-Duty Highway Engine: Clean Fuel Fleet Exhaust Emission Standards* (Mar. 2016), https://nepis.epa.gov/Exe/ZyPDF.cgi?Dockey=P100O9ZY.pdf.

CARB similarly certifies all-electric and hydrogen fuel-cell heavy-duty engines to a "zero-emission powertrain certification standard," and deems these powertrains to have "exhaust emissions of zero for any criteria pollutant or greenhouse gas."[84]

Second, zero-emission technology achieves the highest reductions in emissions of particular matter and NOx – and indeed, any other pollutant. True to its name, a zero-emission vehicle cannot be certified by EPA unless it has "no emissions of nonmethane hydrocarbons, oxides of nitrogen, carbon monoxide, formaldehyde, and particulates,"[85] nor can it be certified by CARB unless it has "exhaust emissions of zero for *any* criteria pollutant or greenhouse gas."[86]

Third, zero-emission technology is readily "available" today for many types of heavy-duty vehicles. As recognized by the Northeast States for Coordinated Air Use Management ("NESCAUM") – of which DEC is a part – CARB has certified over 100 medium- and heavy-duty zero-emission vehicles, including school buses, urban buses, intercity buses, utility trucks, tractors, and refuse trucks.[87] Indeed, 70 models of electric trucks and buses are available now from over 25 manufacturers, with the number of models having tripled since 2014.[88] Plus, many fossil-fuel-powered heavy-duty trucks can be converted to run with all-electric technology.[89]

B. DEC's Failure to Adopt Zero-Emission Vehicles Conflicts with its Obligations under the CLPCA and other New York Goals.

A failure to require zero-emission vehicles as the best available technology conflicts not only with DERA, but also the provisions of the recently enacted Climate Leadership and Community Protection Act ("CLCPA"), and commitments that New York has made as part of its zero-emission vehicles agreement with other Northeastern States.

In 2013, DEC committed to deployment of 850,000 zero-emission vehicles by the end of 2025 as part of the State Zero-Emission Vehicle Emissions Memorandum of Understanding it signed with other Northeast States.[90] As the following graph from the New York Department of Public Service shows, attaining that goal requires an exponential, nearly 2,000% increase in ZEVs in five years, from the estimated 47,000 zero-emission vehicles in the State today:[91]

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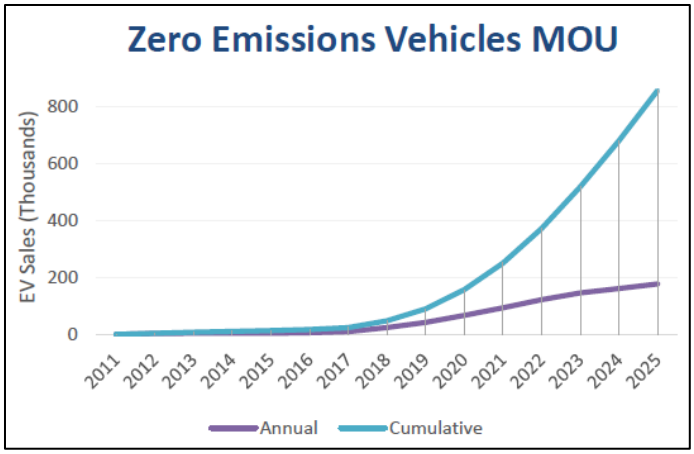
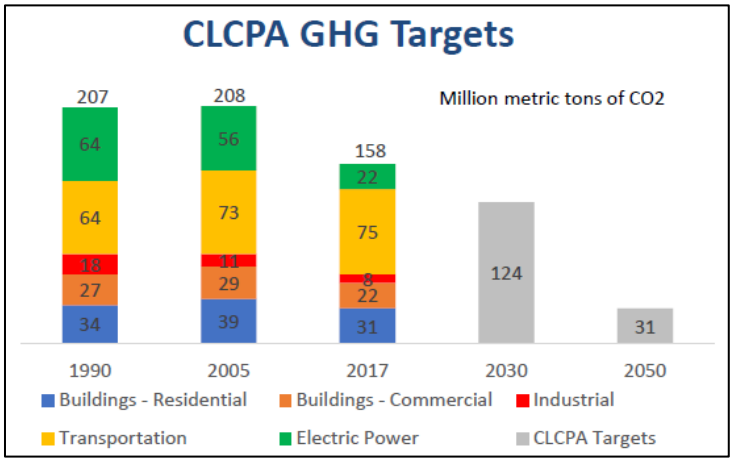
[84] Cal. Code Regs. tit. 13, § 1956.8(a)(8).
[85] 40 C.F.R. § 88.105-94(f)(2).
[86] Cal. Code Regs. tit. 13, § 1956.8(a)(8) (emphasis added).
[87] 2020 NESCAUM Letter, *supra* note 68, at 12.
[88] Jimmy O'Dea, Union of Concerned Scientists, *Ready for Work* at 8-9 (2019), https://www.ucsusa.org/sites/default/files/2019-12/ReadyforWorkFullReport.pdf ("Ready for Work Report").
[89] *See* U.S. Dep't of Energy, *Hybrid and Plug-In Electric Vehicle Conversions*, https://afdc.energy.gov/vehicles/electric_conversions.html (last visited May 15, 2020).
[90] *See* Gov. Andrew M. Cuomo, Press Release: Governor Cuomo Announces "Make Ready" Program for Electric Vehicles, Jan. 17, 2020, https://www.governor.ny.gov/news/governor-cuomo-announces-make-ready-program-electric-vehicles; NESCAUM, *State Zero-Emission Vehicle Programs Memorandum of Understanding*, https://www.nescaum.org/topics/mobile-source-controls-and-programs/atct_topic_view?b_start:int=50 [OCTOBER 24, 2013 GOVERNORS' MOU].
[91] N.Y. Dep't Pub. Serv., *Electric Vehicle Supply Equipment and Infrastructure Deployment* at 3 (Apr. 7, 2020).

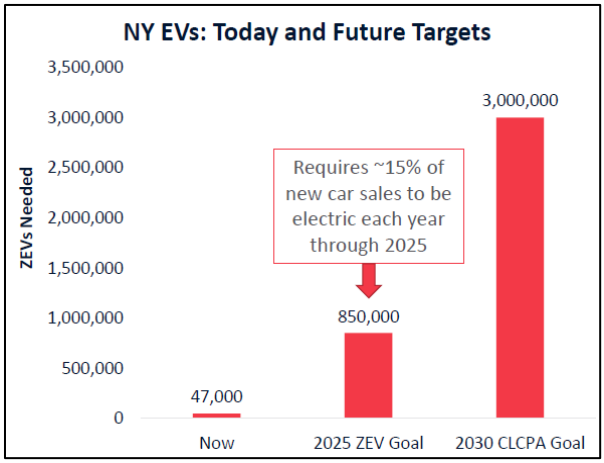


Then in 2019, the Legislature passed the CLCPA, which establishes a statewide greenhouse gas emission limit of 60% of 1990 levels by 2030 and 15% of 1990 levels by 2050.[92] To lower these emissions, the CLCPA expressly contemplates "measures to reduce emissions from . . . *internal combustion vehicles that burn gasoline or diesel fuel*,"[93] and "measures to promote *the beneficial electrification of personal and freight transport* and other strategies to reduce greenhouse gas emissions from the transportation sector."[94] As Governor Cuomo has explained, "[t]he CLCPA requires both substantial emissions reductions and complementary adaptation measures to address the severe impacts of climate change, including *transportation electrification* as a mitigation measure to harness substantial emissions reductions. New York's transportation sector is responsible for more of the State's carbon dioxide emissions than any other sector, and these emissions are growing."[95] Indeed, the Department of Public Service estimates that over half of the state's greenhouse gas emissions in 2017 came from the transportation sector:[96]



[92] ECL § 75-0107(1).
[93] *Id.* § 75-0109(2)(d).
[94] *Id.* § 75-0103(13)(f).
[95] Gov. Andrew M. Cuomo, *supra* note 90.
[96] N.Y. Dep't Pub. Serv., *Electric Vehicle Supply Equipment and Infrastructure Deployment* at 3 (Apr. 7, 2020).

The New York Power Authority estimates that the State will need 3 million electric vehicles on the road by 2030 to meet the 2030 CLCPA target – a whopping 6,300% increase over the electric vehicles on the road today:[97]



New York will need to significantly increase its electric-vehicle deployment to reach these 2025 and 2030 vehicles commitments and reduce greenhouse gases as required under the CLCPA. Indeed, no matter the operating characteristics of the vehicle or electricity grid, battery-electric heavy-duty vehicles have lower global warming emissions than diesel vehicles – and New York in particular could reduce life-cycle greenhouse gas emissions from trucking by 88% by switching to electric trucks, more than any other state.[98]

Moreover, the CLCPA requires all New York agencies to "invest or direct available and relevant programmatic resources in a manner designed to achieve a goal for disadvantaged communities to receive forty percent of overall benefits of spending on clean energy and energy efficiency programs, projects or investments in the area[] of . . . transportation."[99] And all New York agencies must "ensure that activities undertaken to comply with regulations do not result in a net increase in co-pollutant emissions or otherwise disproportionately burden disadvantaged communities."[100] Indeed, the Department of Public Service has recognized that the CLCPA governs its own electric vehicle equipment and infrastructure programs, and that it must direct 40% of program funding to disadvantaged communities.[101] Thus, DEC and other State agencies cannot continue to pollute disadvantaged communities under the cover of compliance with the DERA regulations, and must instead ensure that at least 40% of their investments in fleet electrification are directed towards routes that pass through disadvantaged communities, as

[97] *Id*. at 48.
[98] Ready for Work Report, *supra* note 88, at 8.
[99] ECL § 75-0117.
[100] *Id*. § 75-0109.
[101] New York State Dep't of Pub. Serv., Department of Public Service Staff Whitepaper Regarding Electric Vehicle Supply Equipment and Infrastructure Development at 9, 56-58, *filed in Proceeding on Mot'n of Comm'n Regarding Electric Vehicle Supply Equipment and Infrastructure*, NY PSC Case No. 18-E-0138 (Jan. 13, 2020).

defined under the CLCPA. Until the list of disadvantaged communities under the CLCPA is finalized,[102] DEC and other State agencies should direct this funding towards potential environmental justice areas identified by DEC.[103]

C. New York State is Behind the Curve on Heavy-Duty Vehicle Electrification.

New York State's delay in fleet electrification places the State well behind the curve of other government agencies that have already made the common-sense commitment to fleet electrification. California State agencies have a legal requirement to have 30% of their medium- and heavy-duty fleets be zero-emission by 2030[104] and a proposed goal of 100% zero-emission fleets by 2040.[105] And California State agencies already must purchase only zero-emission or hybrid sedans.[106] In addition, nearly 200 cities and counties in the Climate Mayors Electric Vehicle Purchasing Collaborative have committed to purchasing over 2,100 electric vehicles of all types by the end of this year.[107] Most notably among them, the City of Los Angeles has committed to a 100% zero-emission bus fleet by 2028,[108] while the County of Los Angeles bus fleet will be 100% zero-emission by 2030.[109] And New York City has announced that it will achieve an all-electric, carbon neutral municipal fleet by 2040.[110]

As Northeast States for Coordinated Air Use Management has recognized, private companies and corporations are also electrifying their fleets at a brisk pace.[111] Anheuser-Busch already has its 100th battery-electric truck in the United States,[112] and both Amazon and UPS have each placed orders for 100,000 electric delivery vans by 2024.[113] Other companies like AT&T, Cliff

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[102] *See* ECL § 75-0111.
[103] *See* DEC, *Maps & Geospatial Information System (GIS) Tools for Environmental Justice*, https://www.dec.ny.gov/public/911.html.
[104] *Governor Signs Legislation Requiring the State to Purchase Cleaner Heavy-Duty Trucks and Buses* at para. 1, (Oct. 2017), https://a49.asmdc.org/press-releases/governor-signs-legislation-requiring-state-purchase-cleaner-heavy-duty-trucks-and.
[105] CARB, *Proposed Advanced Clean Truck Sales Regulation Potential Modifications* at 13 (Feb. 2020), https://ww2.arb.ca.gov/sites/default/files/2020-02/200220presentation_ADA_0.pdf.
[106] Cal. Dep't of Gen. Serv., *State Announces New Purchasing Policies to Reduce Greenhouse Gas Emissions from the State's Vehicle Fleet*, (Nov. 2019), https://www.dgs.ca.gov/Press-Releases/Page-Content/News-List-Folder/State-Announces-New-Purchasing-Policies-to-Reduce-Greenhouse-Gas-Emissions.
[107] Climate Mayors, What is the Collaborative?, https://driveevfleets.org/what-is-the-collaborative/ (last visited May 15, 2020).
[108] Los Angeles Mayor, *Mayor Garcetti Announces Largest Single Order Of Electric Buses In America* (Feb. 20, 2020), https://www.lamayor.org/mayor-garcetti-announces-largest-single-order-electric-buses-america.
[109] Metro, *Metro Takes Delivery of First 60-foot Zero Emission Electric Bus for Orange Line* (July 5, 2015), https://www.metro.net/news/simple_pr/metro-takes-delivery-first-60-foot-zero-emission-e/.
[110] City of New York Exec. Order No. 53 at 1 (Feb. 6, 2020), https://www1.nyc.gov/assets/dcas/downloads/pdf/fleet/NYC-Mayoral-Executive-Order-EO-53-All-Electric-and-Safe-Fleets-of-the-Future.pdf.
[111] *See* 2020 NESCAUM Letter, *supra* note 68, at 12.
[112] Trucking Info, *Anheuser-Busch Receives BYD's 100th Battery-Electric Truck* (Jan. 2020), https://www.truckinginfo.com/348215/anheuser-busch-receives-byds-100th-battery-electric-truck.
[113] Gavin Bade, *Amazon to Buy 100,000 Electric Delivery Vans for 2040 Neutrality Plan*, Politico, Sept. 22, 2019, https://www.politico.com/story/2019/09/22/amazon-carbon-neutrality-vans-1507280; Victoria Tomlinson, Arrival, *Press Release: UPS Invests in Arrival and orders 10,000 Generation 2 Electric Vehicles*, Jan. 29, 2020, https://arrival.com/news/ups-invests-in-arrival-and-orders-10000-generation-2-electric-vehicles.

Bar, DHL, Consumers Energy, and IKEA North America have also committed to electrifying their fleets.[114]

Some BART regulated entities have already made commitments to electrify at least a portion of their fleets. For example, Capital District Transportation Authority, Niagara Frontier Transportation Authority, and Rochester-Genesee Regional Transportation Authority will have 100% electric transit bus fleets by 2035,[115] while the Metropolitan Transit Authority committed to purchasing only electric buses after 2029, for full fleet electrification by 2040.[116] But those commitments, while laudable, are far less than the full fleet electrification required by DERA and the CLCPA of all BART regulated entities.

D. The Adoption of Zero-Emission Vehicles is Not Only Required by New York Law, it Also Makes Economic Sense.

DERA does not allow cost consideration when assessing the best available technology to reduce particulate emissions,[117] so DEC should require zero-emission vehicles, where available, regardless of cost. But even so, thanks to significant advances in technology over the past few years, battery electric technologies are already cost-competitive with conventional vehicles for many of the most common heavy-duty vehicle applications.[118] In at least one application, electric trucks were found to have a positive cost of ownership compared to a diesel alternative today without any incentives.[119] One forecast predicts an inflection point for the sector as early as 2025, by which point many medium- and heavy-duty applications are expected to reach the break-even point on a total cost of ownership basis.[120] This date could come even sooner if policies push the marketplace forward. By the end of this decade, savings are projected to exceed $200,000 per vehicle for some applications,[121] with life-cycle cost savings projected for a majority of heavy-duty applications.[122]

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[114] Ceres, Major Companies to join New Alliance to Accelerate Transition to Electric Vehicles (Jan. 2020) https://www.ceres.org/news-center/press-releases/major-companies-join-new-alliance-accelerate-transition-electric.
[115] Gov. Andrew M. Cuomo, 2020 State of the State at 27 (2020), https://www.governor.ny.gov/sites/governor.ny.gov/files/atoms/files/2020StateoftheStateBook.pdf.
[116] *See id.*
[117] ECL § 19-0323(3).
[118] *See* ICF, *Comparison of Medium- and Heavy-Duty Technologies in California* at 17–18 (2019), ("ICF 2019 Study"), https://caletc.com/comparison-of-medium-and-heavy-duty-technologies-in-california/; Ready for Work Report, *supra* note 88, at 11–12.
[119] CARB, *Advanced Clean Trucks Total Cost of Ownership Discussion Document* at 22 tbl. 14 (draft 2019), https://ww3.arb.ca.gov/regact/2019/act2019/apph.pdf ("CARB TCOE Study"); Conner Smith, Atlas Public Policy, Electric Trucks and Buses Overview at 5-6, 9 (2019), https://atlaspolicy.com/wp-content/uploads/2019/07/Electric-Buses-and-Trucks-Overview.pdf.
[120] Bernd Heid et al., McKinsey & Co., What's Sparking Electric-Vehicle Adoption in the Truck Industry? at 4 (2017), https://ackermanmunson.com/wp-content/uploads/2019/06/Whats-sparking-electric-vehicle-adoption-in-the-truck-industry.pdf; Smith, *supra* note 119, at 2, 8.
[121] *See* Smith, *supra* note 119, at 6–7; CARB TCOE Study, *supra* note 119, at 27 tbl. 19; ICF 2019 Study, *supra* note 118, at 19-22, 29-30. The ICF study found that electric vehicles were favorable from a total cost of ownership perspective for almost all heavy-duty classes studied, even without incentives.
[122] *See* ICF 2019 Study, *supra* note 118, at 18 tbl. III-1.

Over a vehicle's lifetime, many types of zero-emissions commercial vehicles show "undeniable" cost savings compared to diesel trucks.[123] Electric trucks and buses have vastly lower operating and maintenance costs,[124] with some models showing a fuel economy roughly three times that of a conventional vehicle.[125] Upfront costs have declined by almost 40% in some segments compared to early electric models.[126] The upfront cost differential is only expected to decline over time, with battery prices expected to decline through 2030.[127] Data released by the New York State Energy Research and Development Authority ("NYSERDA") show that replacing diesel vehicles with electric alternatives resulted in the highest net savings in terms of reduced fuel and maintenance costs, exceeding the savings from diesel-emission control devices, compressed natural gas equipment, or hybrid-electric technologies.[128]

Numerous programs exist to further make heavy-duty zero-emission vehicles cost competitive. NYSERDA's New York Truck Voucher Incentive Program has $20 million of Volkswagen settlement money to fund up to 95% of the incremental cost of replacing a diesel vehicle, with zero-emission vehicles getting the highest vouchers.[129] Meanwhile, EPA's Diesel Emission Reduction Act grant program funds up to 35% of replacement vehicles.[130] And DEC's own NYS Clean Diesel Grant Program has provided millions of dollars in grants for diesel vehicle replacement.[131] In New York City, the recently announced New York City Clean Truck Program will target replacing diesel-powered medium- and heavy-duty trucks near potential environmental justice areas, giving priority to all-electric replacements.[132] And additional

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[123] Heid et al., *supra* note 120, at 4.
[124] *See, e.g.*, Ready for Work Report, *supra* note 88, at 11-12.
[125] *See* Smith, *supra* note 119, at 8. Fuel savings from electric vehicles can be enhanced even further by optimizing utility rate structures for commercial medium- and heavy-duty charging. *See* Ready for Work Report, *supra* note 88, at 14.
[126] Smith, *supra* note 119, at 4 ("Upfront costs of electric buses have come down from almost $1,200,000 in early commercialization periods to roughly $750,000 today.").
[127] *See, e.g.*, *id.* at 2; Ready for Work Report, *supra* note 88, at 11.
[128] *See* NYSERDA, Report No. 18-33, New York Truck Voucher Incentive Program Final Report at 10-13 (2018), https://www.nyserda.ny.gov/-/media/Files/Publications/Research/Transportation/18-33-NYS-Truck-VIP.pdf. All-electric projects achieved greater aggregate savings through the fall of 2018 despite accounting for the fewest number of projects.
[129] *See* NYSERDA, Truck Voucher Incentive Program, https://www.nyserda.ny.gov/All%20Programs/Programs/Truck%20Voucher%20Program (last accessed May 14, 2020); N.Y. Governor, *Governor Cuomo Announces $20 Million in Volkswagen Settlement and Federal Funds Available to Increase Number of Clean Vehicles on New York's Roads* (Sept. 24, 2019), https://www.governor.ny.gov/news/governor-cuomo-announces-20-million-volkswagen-settlement-and-federal-funds-available-increase.
[130] *See* EPA, How to Identify Low NOx Certified Engines, Diesel Emissions Reduction Act (DERA) Grants Fact Sheet at 1 (2020), https://www.epa.gov/sites/production/files/2020-02/documents/420f20010_0.pdf.
[131] *See* DEC, NY State Clean Diesel Program, http://www.dec.ny.gov/chemical/113950.html (last accessed May 14, 2020).
[132] *See* DEC, Press Release: DEC Announces $9.8 Million in Volkswagen Settlement Funds to Support New York City's Clean Truck Program (Mar. 30, 2020), https://www.dec.ny.gov/press/119978.html.

funding is available through other federal agencies, the Port Authority of New York and New Jersey, and federal tax credits.[133]

Moreover, electric trucks could benefit the local electricity grid[134] and potentially generate revenues of up to $50,000 per year, providing an additional revenue stream for fleet owners while reducing costs for other ratepayers.[135] NYSERDA has found that the added load from widespread electrification can "significantly reduce supply costs, further improving the economics of EV adoption."[136]

When considered against the backdrop of the significant public health cost attributed to diesel exhaust – the New York State Comptroller estimates an annual cost of $1.3 billion to New Yorkers from asthma alone – any short-term costs associated with the value of a zero-emissions mandate will pay for itself many times over. NYSERDA data show that replacing diesel engines with zero-emissions technologies provides the greatest social benefit, since they eliminate all local air pollution and their greenhouse gas impacts are tied to an electricity grid that is required to be 100% clean by 2050. Moreover, adopting zero-emissions vehicles as BART will drive in-state demand for cutting-edge electric vehicles and equipment, bolstering New York's status, as recognized in the New York State Energy Plan, as a "major manufacturing center for heavy-duty hybrid trucks and buses,"[137] and could further state efforts to spur job creation in the clean economy.

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[133] *See* Port Authority of New York & New Jersey, Truck Replacement Program, https://www.panynj.gov/port/en/our-port/sustainability/truck-replacement-program.html (last accessed May 14, 2020); Fed. Hwy. Admin., U.S. Dep't of Transp., *Congestion Mitigation and Air Quality Improvement (CMAQ) Program*, https://www.fhwa.dot.gov/ENVIRonment/air_quality/cmaq/reference/cmaq_diesel_retrofits/ (last updated Nov. 1, 2017); Fed. Transit Admin., U.S. Dep't of Transp., Fact Sheet: Urbanized Area Formula Program Grants (undated), https://www.transit.dot.gov/sites/fta.dot.gov/files/docs/funding/grants/37961/fast-act-section-5307-fact-sheet_0.pdf; Fed. Transit Admin., U.S. Dep't of Transp., Low or No Emission (Low-No) Program FY 2020 Notice of Funding, https://www.transit.dot.gov/funding/applying/notices-funding/low-or-no-emission-low-no-program-fy-2020-notice-funding (last accessed May 14, 2020); Fed. Aviation Admin., U.S. Dep't of Transp., Voluntary Airport Low Emissions Program (VALE), https://www.faa.gov/airports/environmental/vale/ (last modified Apr. 13, 2020).

[134] *See* PSC, Order Instituting Proceeding, *Proceeding on Mot'n of the Comm'n Regarding Electric Vehicle Supply Equipment & Infrastructure*, Case No. 18-E-0138 at 2 (2018) (EVs offer numerous benefits, including "electric system benefits . . . as distributed resources.").

[135] Yang Zhao et al., *Vehicle to Grid Regulation Services of Electric Delivery Trucks: Economic and Environmental Benefit Analysis*, 170 Applied Energy 161 (2016), https://www.sciencedirect.com/science/article/abs/pii/S0306261916302537.

[136] NYSERDA, Benefit-Cost Analysis of Electric Vehicle Deployment in New York State, Report No. 19-07 at S-5—S-6 (2019), https://www.nyserda.ny.gov/-/media/Files/Publications/Research/Transportation/19-07-Benefit-Cost-Analysis-EV-Deployment-NYS.pdf.

[137] New York State Energy Planning Bd., 2015 New York State Energy Plan, Vol. 2: End-Use Energy at 98 tbl. 21A (2015), https://energyplan.ny.gov/-/media/nysenergyplan/2014stateenergyplan-documents/2015-nysep-vol2-enduse.pdf.

IV. FOR VEHICLES WITH NO ZERO-EMISSION SUBSTITUTE AVAILABLE, DEC'S REGULATIONS SHOULD SET BART TO THE MOST STRINGENT EPA OR CARB STANDARD, CURRENTLY CARB'S LOW-NOX STANDARD.

As noted above, zero-emission vehicles are the best available technology to reduce all emissions from most types of heavy-duty vehicles, and should be mandated by the DERA regulations. But for vehicle types for which a zero-emission replacement is not currently available, DEC should, at the very least (1) require BART regulated entities to use vehicles that meet CARB's 0.02 g/bhp-hr NOx standard ("low-NOx standard"), instead of the 0.2 g/bhp-hr standard allowed by the current regulations, and (2) require BART regulated entities to meet the most stringent of heavy-duty emission standard adopted by CARB or EPA in the future.

A. The DERA Regulations Should Adopt the low-NOx Standard that DEC Has Repeatedly Called for Nationally.

DEC itself has repeatedly advocated for a national low-NOx standard for *all* heavy-duty vehicles, so at the very least should specify that the State's own heavy-duty vehicles meet this standard. In a letter dated July 25, 2016, for example, DEC joined a June 3, 2016 petition asking EPA to revise the federal on-road heavy-duty engine standards for NOx down to 0.02 g/bhp-hr ("2016 Petition").[138] DEC's letter specifically noted that a lower NOx standard would help the State reach ozone attainment.[139] The 2016 Petition itself notes that "[s]ignificant technological improvements have been made since the 2001 EPA rulemaking [that set the 0.2 g/bhp-hr standard]," and that meeting a low-NOx standard "will not require a revolutionary engine change" since CARB had already verified natural gas engines to the lower standard by 2016.[140]

Two years later, on June 21, 2018, DEC's Director of the Division of Air Resources co-authored a letter on behalf of the National Association of Clean Air Agencies ("2018 NACAA Letter") that again called on EPA to lower the heavy-duty NOx standard to 0.02 g/bhp-hr, and again noting heavy-duty vehicles' contribution to ozone nonattainment.[141] Notably, this letter asserts that "[t]he technology for lower-emitting engines is *feasible, available and cost-effective*."[142]

Most recently, on February 20, 2020, Northeast States for Coordinated Air Use Management, of which DEC is a part, again called on EPA to set a national 0.02 g/bhp-hr NOx standard, and also

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[138] Letter from Basil Seggos, Comm'r, DEC, to Gina McCarthy, Adm'r, EPA (July 25, 2016) ("DEC Letter re 2016 Petition"), https://www.regulations.gov/contentStreamer?documentId=EPA-HQ-OAR-2019-0055-0134&attachmentNumber=2&contentType=pdf (p. 7 of document); *see also* South Coast Air Quality Mgmt. Dist. et al., Petition to EPA for Rulemaking to Adopt Ultra-Low NOx Exhaust Emission Standards for On-Road Heavy-Duty Trucks and Engines (June 2016), https://www.regulations.gov/contentStreamer?documentId=EPA-HQ-OAR-2019-0055-0134&attachmentNumber=1&contentType=pdf ("2016 Petition").

[139] DEC Letter re 2016 Petition.

[140] 2016 Petition at 23–26.

[141] 2018 NACAA Letter, *supra* note 4, at 1 (calling on EPA to "to revise the nitrogen oxide (NOx) exhaust emission standards for on-highway heavy duty trucks and engines to achieve a reduction in emissions on the order of 90 percent" below EPA's current 0.2 g/bhp-hr standard).

[142] *Id.* at 2.

called for a 0.005 g/bhp-hr standard for PM emissions ("2020 NESCAUM Letter").[143] This letter noted that "on-road heavy duty diesel vehicles are the largest NOx emissions source in the Northeast," and that these NOx emissions are a major contributor to ozone nonattainment and particulate pollution.[144]

DEC cannot continue to assert that the "best available" technology for the State's own vehicles is an emission standard ten times higher than the standard it argues is the best available for *all* heavy-duty vehicles across the country. If DEC is serious about its commitment to the national low-NOx standard, it must require the State's own vehicles to meet the standard now.

B. The Low-NOx Standard Satisfies DERA's Definition of BART.

Much like zero-emission technology, the 0.02 g/bhp-hr NOx standard meets all the components of the DERA definition of BART because it is (1) "verified . . . by CARB," is (2) readily "available" today, and (3) "achieves reduction in particulate matter emissions."[145]

First, the low-NOx standard is technology "verified by . . . CARB,"[146] since the standard is part of California's regulations setting forth emission standards for heavy-duty engines and vehicles,[147] and CARB has a running list of engines it has verified that meet the standard.[148] The list currently includes 30 compressed natural gas and liquefied petroleum gas engines,[149] and CARB-sponsored research has identified current commercially available aftertreatment systems that reduce diesel NOx emissions below the 0.02 g NOx/bhp-hr standard, as well.[150] And just because CARB currently classifies this standard as "optional" does not mean this standard does not qualify as "best available" technology "verified by . . . CARB," since no part of DERA requires technology be *mandated* by EPA or CARB to be BART. Indeed, in the current DERA regulatory regime, one method of compliance is to evaluate and choose from among a list of possible BART technologies, none of which is itself mandated by CARB or EPA.[151]

Second, the 0.02 g/bhp-hr NOx standard is a standard that is "available" today, as DEC itself has recognized.[152] CARB has verified thirty engines and counting to the 0.02 g/bhp-hr NOx standard,

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[143] 2020 NESCAUM Letter, *supra* note 68.
[144] *Id.* at 2–3, 6–7.
[145] 6 NYCRR § 248-1.1(b)(6).
[146] *Id*.
[147] Cal. Code Regs. tit. 13, § 1956.8(2)(A) n.N.
[148] *See* CARB, Optional Low NOx Certified Heavy-Duty Engines (Feb. 2020), https://ww3.arb.ca.gov/msprog/onroad/optionnox/optional_low_nox_certified_hd_engines.pdf.
[149] *See id.*; *see also* CARB, *Evaluating Technologies and Methods to Lower Nitrogen Oxide Emissions from Heavy-Duty Vehicles* (May 2017), https://ww3.arb.ca.gov/research/veh-emissions/low-nox/low-nox.htm.
[150] *See* CARB, Heavy-Duty Low NOx Program: Proposed Heavy-Duty Engine Standards at slide 5 (Sept. 2019), https://ww3.arb.ca.gov/msprog/hdlownox/files/workgroup_20190926/staff/01_hde_standards.pdf?_ga=2.139910579.1074750982.1579278859-1763121676.1571767087; CARB, *Evaluating Technologies and Methods to Lower Nitrogen Oxide Emissions from Heavy-Duty Vehicles*; CARB, *Heavy-duty Engine Standards* at slide 19, 28 (Nov. 27, 2018) (low NOx for diesel engines), https://theicct.org/sites/default/files/1%20HEAVY-DUTY%20DIESEL%20STANDARDS%20AND%20MANDATORY%20AND%20OPTIONAL%20LOW%20NOX%20STANDARDS.pdf.
[151] *See* 6 NYCRR § 248-3.1(f)(2).
[152] *Id.* § 248-1.1(b)(6).

and identified current commercially available aftertreatment systems for diesel engines to attain the low-NOx standard.[153] The 2016 Petition that DEC joined notes that the Manufacturers of Emissions Controls Association had told EPA that a combination of control strategies can reduce diesel NOx emissions below EPA's 2007 standard,[154] and that diesel heavy-duty trucks were already being made that have certification levels close to 0.05 g/bhp-hr NOx.[155] The 2018 NACAA Letter similarly notes that in the "over 17 years since EPA last reviewed the heavy-duty on-highway NOx standards . . . . numerous engine technologies and controls have been successfully demonstrated and proven to be cost effective. These include the new Cummins 8.9- and 12-liter natural gas engines, idle reduction technology, engine downspeeding and advances in exhaust after-treatment technologies."[156] The 2020 NESCAUM Letter also delves into the various technologies that can reduce NOx emissions to the low-NOx standard level.[157]

Third, the 0.02 g/bhp-hr NOx standard reduces emissions of NOx, a well-established particulate precursor, and thus "achieves reduction in particulate matter emissions."[158] As DEC has recognized, NOx is a precursor to particulate matter, and reducing NOx emissions from heavy-duty vehicles is an effective way to reach PM air quality goals.[159] Thus, reducing NOx emissions will result in reduced particulates in New York air, and DEC's DERA regulations should incorporate the 0.02 g/bhp-hr NOx standard as a method to reduce particulate emissions from heavy-duty vehicles.

Because the 0.02 g/bhp-hr NOx standard reduces PM, and DERA does not provide a "reasonable cost" limitation on PM-reduction technology,[160] DEC should require heavy-duty vehicles meet the low-NOx standard without regard to cost. But even if DEC were to conduct a "reasonable cost" analysis of the low-NOx standard, low-NOx technologies meet the statutory "reasonable cost" standard of no more than 30% additional cost.[161] The 2016 Petition that DEC joined noted that the incremental cost of going from a 0.2 g/bhp-hr vehicle to a 0.02 g/bhp-hr vehicle "is expected to be relatively low," and that the incremental cost for a low-NOx 8.9 liter natural gas engine is $10,000 to $12,000, while the incremental cost for diesel after-treatment systems to

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[153] CARB, Optional Low NOx Certified Heavy-Duty Engines, *supra* note 150; CARB, Heavy-Duty Low NOx Program: Proposed Heavy-Duty Engine Standards, *supra* note 152, at slide 5.
[154] 2016 Petition, *supra* note 140, at 28 (citing Mfrs. of Emissions Ctrl. Ass'n, Statement of the Manufacturers of Emission Controls Association on the U.S. Environmental Protection Agency's Proposed Rulemaking on Greenhouse Gas Emissions Standards and Fuel Efficiency Standards for Medium- and Heavy-Duty Engines and Vehicles – Phase 2 at 7 (Tab 26) (Sept. 25, 2015)).
[155] *Id.* at 30.
[156] 2018 NACAA Letter, *supra* note 4 (citing EPA, Memorandum in Response to Petition for Rulemaking to Adopt Ultra-Low NOx Standards for On-Highway Heavy-Duty Trucks and Engines, at 17-18 (December 20, 2016), https://www.epa.gov/sites/production/files/2016-12/documents/noxmemorandum-nox-petition-response-2016-12-20.pdf); CARB, Draft Technology Assessment: Lower NOx Heavy-Duty Diesel Engines, California Air Resources Board (Sept. 29, 2015), https://www.arb.ca.gov/msprog/tech/techreport/diesel_tech_report.pdf).
[157] 2020 NESCAUM Letter, *supra* note 68, at 9–12.
[158] 6 NYCRR § 248-1.1(b)(6).
[159] 2016 Petition at 9; 2020 NESCAUM Letter at 6.
[160] *See* ECL § 19-0323(1)(c).
[161] *See id.* § 19-0323(1)(d).

meet the low-NOx standard is about $500 to $1,000.[162] The 2020 NESCAUM Letter, meanwhile, estimates $1,000 to $5,000 in incremental costs to meet the low-NOx standard.[163] These costs are lower than the diesel emission control strategies listed in DEC's Regulatory Impact Statement,[164] and are no more than 30% of the 2019 Class 5 to Class 8 heavy-duty diesel vehicle replacement costs provided by DEC.[165]

Moreover, to the extent that DEC continues to require regulated entities to justify their BART determination through an evaluation and selection process that includes a cost analysis of NOx reduction,[166] DEC should require the entity to factor into that analysis the various grants, vouchers, and incentives available to the entity to upgrade the diesel vehicle described in Section III.D above, many of which apply to low-NOx replacement in addition to zero-emission replacement.

C. The DERA Regulations Should Automatically Set BART to the Most Stringent Future EPA or CARB Standard.

Not only should DEC require the low-NOx standard for any vehicles for which no zero-emission substitutes exist, but DEC should also amend the DERA regulations to disallow the continued use of outdated standards as "best available" technology and should automatically set BART to the most stringent of any future, revised EPA or CARB emission standard.

The DERA regulations currently allow BART regulated entities to demonstrate compliance by replacing a non-compliant diesel engine with "an engine certified to the applicable 2007 EPA standard for particulate matter (0.01 g/bhp-hr) . . . *or* to any subsequent USEPA standard for such pollutant that is at least as stringent."[167] The use of "or" makes clear that compliance could be met with a 2007 EPA standard engine indefinitely, no matter how outdated that standard becomes. In addition, the regulations allow compliance by replacement with *any* non-diesel "alternative fuel" engine regardless of the model year or emissions, with the one caveat that model year 2004-2006 alternative fuel engines must be certified to CARB's optional 2.5 g/bhp-hr NOx plus non-methane hydrocarbon standard.[168] So the only emission limit for non-diesel engine replacement applies to three model years, and is a decade-old standard that allows two orders of magnitude more NOx emissions than the CARB low-NOx standard described above.

EPA and CARB will both soon finalize updated heavy-duty vehicle emission standards, and DEC's regulations should make clear that meeting the most stringent of these new standards will be mandatory, not optional. As noted above, DEC itself has asked EPA to lower the heavy-duty NOx standard to 0.02 g/bhp-hr NOx at least twice, and in response to these and other petitions,

[162] 2016 Petition at 28-29.
[163] 2020 NESCAUM Letter at 5.
[164] *See* DEC, *supra* note 74 table 1.
[165] *Id.* § 4. Costs.
[166] *See* 6 NYCRR § 248-3.1(f)(2)(ii).
[167] 6 NYCRR § 248-3.1(f)(1)(i) (emphasis added).
[168] *Id.* § 248-3.1(f)(1)(ii) (citing Cal. Code Regs. tit. 13, § 1956.8(a)(2)(A)).

EPA recently issued an advanced notice of proposed rulemaking to lower the standard,[169] and the agency intends to publish its proposed rule in early 2020.[170] In addition, CARB is developing a mandatory heavy-duty emission standard for 2024 and later model year diesel and otto-cycle engines of 0.005 g/bhp-hr PM and 0.015 to 0.05 g/bhp-hr NOx – orders of magnitude smaller than emissions allowed by the 2007 EPA standard and the current DERA regulations.[171]

Thus, DEC should at the very least amend its regulations to provide that, once a new EPA or CARB standard is in place, a vehicle that merely meets the 2007 EPA standard – or any other outdated standard – is no longer compliant with DERA, and must be replaced with the most stringent of the CARB or EPA standards.

V. THE DERA REGULATIONS SHOULD EXPRESSLY DISALLOW CRT-DF CONTROL TECHNOLOGIES THAT INCREASE NOX EMISSIONS.

At the very least, DEC's regulations must expressly disallow CRT-DF control technology, since studies indicate that this technology can *increase* NOx emissions. One method of compliance allowed by DEC's regulations is for vehicle owners to determine which EPA or CARB-verified control technology to install on diesel vehicles, but the regulations specify that "[i]n no case shall a product(s) be selected which results in a net increase in the emissions of either PM or NO_x."[172]

EPA and CARB's lists of verified control technologies include various examples of diesel particulate filters ("DPF").[173] But a 2005 study, as cited in a 2009 NYSERDA report, finds that diesel buses equipped with Continuously Regenerating Technology – Diesel Filter ("CRT-DF") have "comparable" NO emissions but "clearly higher" NO_2 emissions compared to standard diesel buses.[174] Accordingly, the DEC regulations should expressly disallow the use of CRT-DF or any other PM control technology found to increase other emissions.

VI. DEC MUST ENFORCE DERA'S TRANSPARENCY REQUIREMENTS.

DERA requires DEC to report annually to the Governor and the Legislature about the BART implementation status of covered vehicles owned or operated by BART regulated entities,[175] and DEC's regulations require regulated entities to provide this information to DEC so that it can

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[169] *See* Control of Air Pollution From New Motor Vehicles: Heavy-Duty Engine Standards, 85 Fed. Reg. 3306 (Jan. 21, 2020).
[170] EPA, News Release: EPA Jumpstarts Cleaner Trucks Initiative, Jan. 13, 2020, https://www.epa.gov/newsreleases/epa-jumpstarts-cleaner-trucks-initiative.
[171] CARB, Heavy-Duty Low NOx Program: Proposed Heavy-Duty Engine Standards, supra note 152, at slide 4.
[172] 6 NYCRR § 248-3.1(f)(2).
[173] *See* EPA, Verified Technologies List for Clean Diesel, https://www.epa.gov/verified-diesel-tech/verified-technologies-list-clean-diesel; CARB, Verification Procedure - Currently Verified, https://ww3.arb.ca.gov/diesel/verdev/vt/cvt.htm.
[174] NYSERDA, Results and Findings from Join Enhanced Ozone and PM Precursor Technology Assessment and Characterization Study in New York at 6-48 fig.6.2-8 (July 2009), https://www.nyserda.ny.gov/About/Publications/Research-and-Development-Technical-Reports/Environmental-Research-and-Development-Technical-Reports (citing J.J. Shorter et al., Real-time measurements of Nitrogen Oxide emissions from in-use New York City transit buses using a chase vehicle, Environmental Science and Technology, 39, 7991-8000 (2005)).
[175] ECL § 19-0323(7).

prepare this report.[176] But it appears DEC has not been enforcing this requirement: in an oversight hearing, DEC admitted that "we do not know how [state agencies] have been doing" in terms of complying with DERA's mandates.[177] Whatever such information DEC does have, DEC has failed to make it public,[178] and even State legislators have not been able to obtain it.[179]

Going forward, DEC should enforce the reporting provisions of its regulations and commit to full transparency with regards to the State's compliance with the BART requirements, reporting annually on DERA compliance and making those reports available on its website. The public deserves to know that the emissions reductions mandated by the Legislature are actually happening.

[176] 6 NYCRR § 248-6.1.
[177] N.Y. State Assembly Standing Comm. on Envtl. Conservation, Assembly Subcomm. on Oversight of the DEC, *Public Hearing – Impacts of the 2013-14 State Budget on the Department of Environmental Conservation and the Need for a New Environmental Bond Act* at 50:21–24 (Sept. 6, 2013).
[178] *See* Caitlin O'Brien, Envtl. Advocates of New York, *Sitting Idly By* at 10–11, http://www.eany.org/sites/default/files/documents/sitting_idly_by_0.pdf (Last visited May 14, 2020).
[179] *Id.*

VII. CONCLUSION

Much has changed in the fourteen years since the Legislature passed DERA. Diesel pollution in New York has grown worse, and has amplified the tragic consequences of the COVID-19 pandemic. But over the same time, vehicle technology has greatly improved, and zero-emission substitutes are now or will soon be available for most heavy-duty vehicles. But the one thing that has not changed in these fourteen years is DEC's definition of the "best available" technology under its DERA regulations. DEC must update its definition of "best available" technology and reduce New York's worst-in-the-nation diesel problem once and for all.

Sincerely,

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