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Michael B. Gerrard
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NY Green Bank Capital to Support New York State Vehicle Electrification

Viewpoint

Robert O. Gurman, in consultation with NY Green Bank and NYSERDA

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In New York State, transportation accounts for 36% of greenhouse gas emissions.[1] Consistent with the State's overall goals to reduce greenhouse gas emissions, as most recently crystalized by the New York State Climate Leadership and Community Protection Act (CLCPA),[2] vehicle electrification is a priority component of both the near- and long-term plans for achieving the State's goal of reducing greenhouse gas emissions by 85% from 1990 levels by 2050.

Financing Needed

Over the past decade, the initiatives that supported New York State clean energy goals such as proliferation of solar and wind power needed private capital to move the commercial market into full gear. Similarly, the numerous public initiatives to support achievement of New York State vehicle electrification goals also will need to be supplemented by private capital. Yet many hurdles exist for traditional sources of clean energy capital, including the small size and scale (currently) of electric vehicle (EV) stakeholders' capital requirements, unproven business models, and residual value of vehicles and batteries, among other factors.

To date, most of the private financing activity observed in the electrification market, nationwide, has been through capital provided by strategic investors, such as traditional original equipment manufacturers (OEMs) or gasoline companies looking to take a small position in this new market, as well as investor-owned utilities (IOUs), rather than financial investors. The financial sector has not gotten comfortable with the electrification market's risks, business models, technologies, comparable valuations, liquidity and exit mechanisms, or potential returns, to name a few factors, and has not proven willing—yet—to make significant loans or investments in electrification.

That is where NY Green Bank comes in: working to catalyze private market capital by identifying and closing financing gaps to help scale up proven technologies with immediate potential to advance New York State's vehicle electrification efforts.

[1] N.Y. State Energy Research & Dev. Auth. (NYSERDA), New York State Greenhouse Gas Inventory: 1990–2016 (Final Report) (July 2019), https://www.nyserda.ny.gov/-/media/Files/EDPPP/Energy-Prices/Energy-Statistics/greenhouse-gas-inventory.pdf.

[2] 2019 N.Y. Laws ch. 106.

NY Green Bank 1: Background

NY Green Bank is a $1 billion State-sponsored specialized financial entity working with the private sector to identify, address, and alleviate market barriers preventing the widespread deployment of clean energy across New York State. NY Green Bank uses demonstrated financing tools to promote self-sustaining markets, while enabling private sector capital providers to expand the frontiers of current commercial clean energy investment opportunities. NY Green Bank is currently working with some of the most prominent global financial institutions and regional banks, as well as developers, to advance the State's clean energy agenda.

After approximately five years in operation and as of June 30, 2019, NY Green Bank has committed over $786.7 million of capital to new clean energy and sustainable infrastructure investments across 51 transactions in support of up to $2.14 billion in total clean energy project costs in the state. These investments are expected to reduce greenhouse gas emissions by up to 16.40 million metric tons, equivalent to removing between 139,707 and 164,476 cars from the road for a period of 23 years. Additionally, since March 2017, NY Green Bank has maintained self-sufficiency by generating $65.4 million in revenues. All of NY Green Bank's revenues are used to cover operational expenses and reinvest in clean energy projects.

NY Green Bank also engages internationally as a member of broader global and national clean energy financing collaborations through membership in several key stakeholder groups. The Green Bank Network—comprising 10 Green Bank-like entities from around the world—announced during Climate Week 2019 that the network will collectively mobilize $50 billion into global clean energy markets by the end of 2019, surpassing its commitment goal and demonstrating how public financing institutions can harness the power of private markets to transform infrastructure financing globally to collectively advance solutions to increasingly dire climate change projections.

NY Green Bank also continues to lead nationally through its participation in the U.S. Climate Alliance, which Governor Cuomo co-founded in June 2017 as a bipartisan coalition of states and territories committed to upholding the objectives of the 2015 Paris Agreement within their borders. As of fall 2019, the 25 members of the Alliance represent 55% of the United States' population and an $11.7 trillion economy—an economy larger than all countries other than the United States and China.[3] This group is dedicated to the advancement of coordinated climate solutions across the United States and has, among other roles, served as a valuable resource for other states aspiring to establish their own Green Bank-like institutions.

In addition to providing thought leadership around Green Bank development and organizational best practices among Alliance members, NY Green Bank has been exploring varied financing structures and looking into opportunities to deploy cross-state financing solutions. We have received strong and encouraging feedback from a wide variety of investors who are interested in providing third-party capital to expand NY Green Bank's financing solutions—and we expect to keep working closely with other like-minded entities to advance sustainable infrastructure.

To the best of our knowledge, no other investment manager in the United States with an exclusively sustainable infrastructure credit focus has closed as many transactions and committed as much capital as NY Green Bank.

NY Green Bank 2: Challenges and Opportunities in Financing Vehicle Electrification and Charging Infrastructure

EV Adoption Challenges: NY Green Bank sees significant potential in the EV sector—especially in charging infrastructure and medium- to heavy-duty vehicles such as delivery trucks and buses. Multiple New York State agencies support extensive initiatives in the EV sector (see discussion below in "New York State Tailwinds"). However, based on extensive market outreach, NY Green Bank has observed several challenges associated with EV and EV infrastructure financing, including the financing of:

- EV production costs;
- EV leased vehicle fleets;
- EV purchased vehicle fleets;
- EV batteries; and
- EV charging infrastructure.

NY Green Bank Proposed Solutions: NY Green Bank has developed indicative financing frameworks to address these challenges, all subject to the due diligence and terms and conditions applicable to each individual financing opportunity:

- *Financing OEM EV Production Costs*: NY Green Bank will finance the purchase of materials and labor for EV trucks or equipment based on the value of qualified purchase orders. NY Green Bank will securitize the purchase order proceeds and OEM-eligible New York State Truck Voucher Incentive Program (NYT VIP) incentive payments to service the NY Green Bank production-finance debt.
- *Financing OEM EV Fleet Lease Arrangements*: NY Green Bank will finance against the value of contracted lease payments (minimum fleet size to be determined). NY Green Bank will assign a customized residual value to the vehicle after its contracted life, and advances would be based on the present value of contracted cash flows, OEM-eligible NYT VIP incentive payments, and residual value, all with an advance rate applied for further collateral protection.

[3] *U.S. Climate Alliance Fact Sheet*, U.S. CLIMATE ALLIANCE, http://www.usclimatealliance.org/us-climate-alliance-fact-sheet (last visited Oct. 7, 2019).

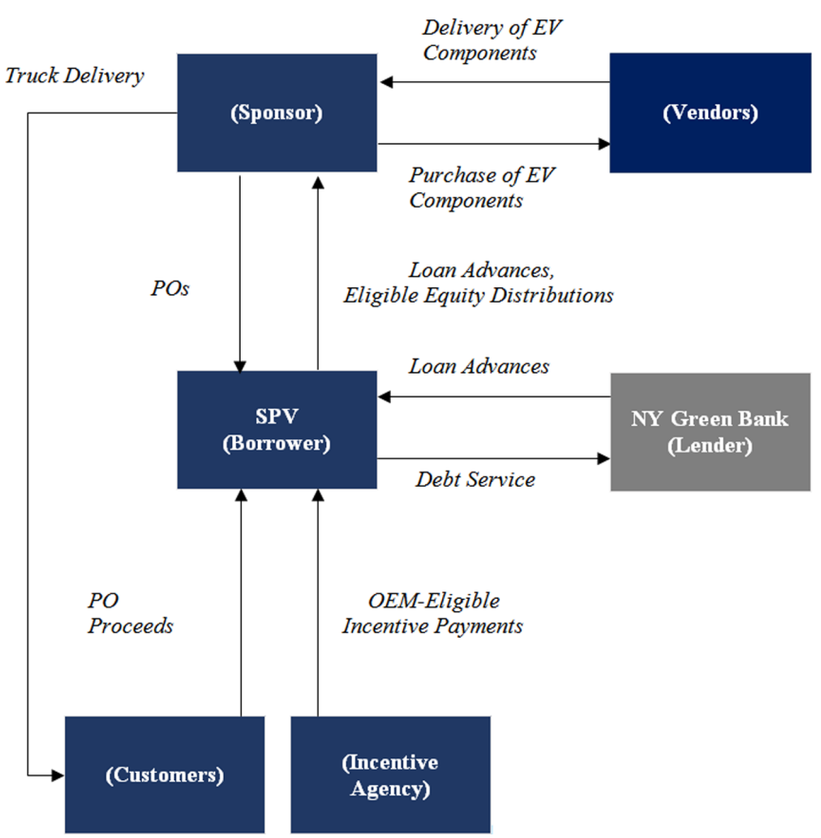
- *Financing Customer EV Purchases*: NY Green Bank will finance against customer loan payments and incentive payments or other reimbursements (minimum fleet size to be determined). NY Green Bank will assign a customized residual value to the vehicle after its contracted life, and advances would be based on the present value of contracted cash flows and residual value, all with an advance rate applied for further collateral protection.
- *Financing OEM Battery Lease Arrangements*: NY Green Bank will consider the financing of the battery specifically of a customer's EV fleet purchase, reducing the customer's upfront capital outlay (minimum number of batteries to be determined). NY Green Bank will finance against the value of contracted battery lease payments from a customer (lessee) to a NY Green Bank-affiliated Special Purpose Vehicle (SPV) (lessor), and advances would be based on present value of contracted cash flows, OEM-eligible NYT VIP incentive payments, and residual value, all with an advance rate applied for further collateral protection.
- *Financing EV Charging Infrastructure*: NY Green Bank will finance the capital expenditures (capex) of EV charging infrastructure, with loan advances based on a) the value and term of the charging-as-a-service (CaaS) payments and b) any incentive payments, multiplied by an advance rate. Customer must be a credit-worthy entity and must guarantee a minimum "off-take" amount through one or more long-term CaaS contracts.

NY Green Bank 3: Indicative Financing Structures

Structure diagrams are included and discussed below to illustrate two of the financing solutions introduced above.

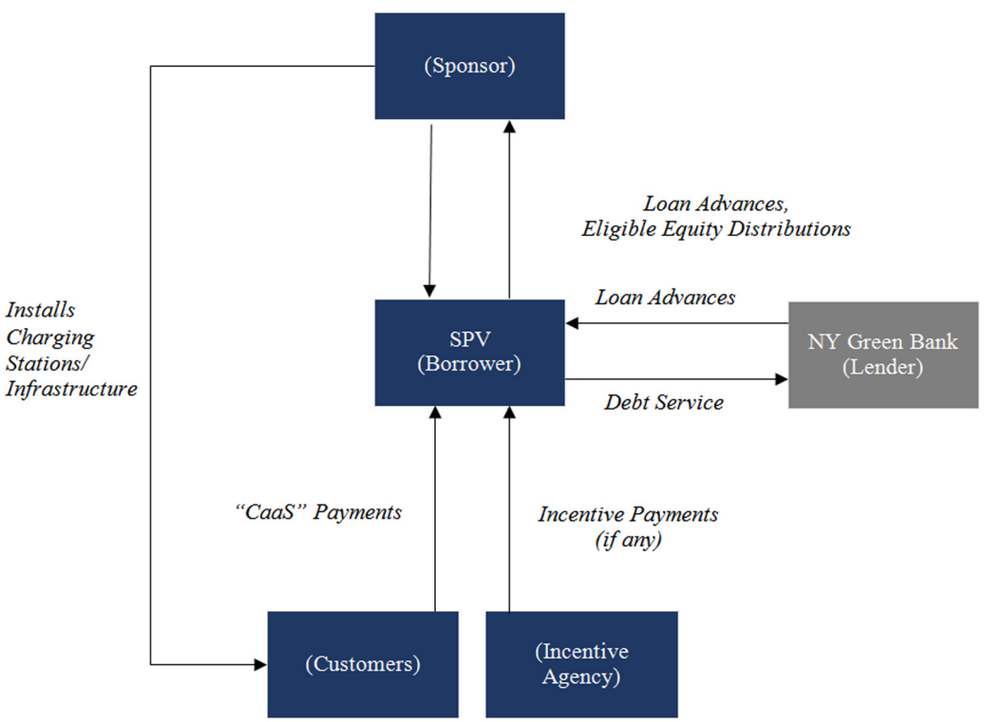
Financing OEM EV Production Costs—Indicative Structure Diagram

In this indicative approach, NY Green Bank lends to an OEM (via an SPV for security and collateral-control purposes) to manufacture electric trucks based on the value of qualified purchase orders. NY Green Bank will have undertaken rigorous diligence to ensure the OEM's technical and operational capability. The OEM produces and delivers the vehicles to the Customer, which is required to make payment under the purchase order to the SPV. After satisfying the NY Green Bank debt service quantum, remaining proceeds are distributed to the OEM as eligible equity distributions (subject to compliance with equity distribution conditions). This process is repeatable and scalable, and can be sized specifically to the OEM's current and future production needs.



Financing EV Charging Infrastructure—Indicative Structure Diagram

In this indicative approach, NY Green Bank lends to a charging infrastructure developer (via an SPV for security and collateral-control purposes), which has secured a contractual arrangement with a customer to make regular (likely monthly) fixed payments for the charging service (i.e., CaaS). The NY Green Bank loan sizing is based on a) the value and terms of the CaaS and b) incentive payments (if any), with an advance rate applied for further collateral protection. Eligible uses of proceeds would be to cover the infrastructure capex and utility interconnection costs.



Financing the Electrification of Commercial Fleets

NY Green Bank sees the EV Charging Infrastructure indicative structure as being particularly applicable to the commercial fleet market, which, according to Bloomberg New Energy Finance and along with the rapidly declining cost of batteries, "opens up electrification opportunities in some segments of the trucking market, *starting within a year or two*. In urban duty cycles, battery electric delivery vans and trucks become the cheapest option from 2021-22 in LCVs [light-duty commercial vehicles] . . .. We expect PHEVs/REXs (range extender electric vehicles) to gain larger market share in the short-term."[4]

New York City, as well as the State's other urban markets such as Buffalo, Albany, and White Plains, are ideal locations for electrification of the many "last mile delivery" fleets operated by UPS, DHL, IKEA, Amazon, etc., and there are active pilot projects being undertaken in many other locations around the U.S. There is significant potential for fleet operators to reduce urban greenhouse gas emissions, noise pollution, and fossil fuel consumption and thereby achieve publicly stated sustainability goals through fleet electrification. In addition, the commercial case for fleet electrification is compelling, for several reasons:

- The duty cycle of these trucks is reliable and predictable; range is generally well within the capabilities of a battery pack's daily charge capacity;
- As a result, the charging times and patterns are predictable as well, and so charging can be managed most cost-effectively, and charging infrastructure can be engineered for the specific fleet and depot location;
- Solar plus storage is an added feature that, while increasing capital cost, can lead to efficiencies in charging and load management that can be cost-effective;

[4] BLOOMBERG NEW ENERGY FINANCE (BNEF), ELECTRIC VEHICLE OUTLOOK 2019 (May 15, 2019).

- Capital and operational budgeting can be undertaken with a high degree of confidence, built around the known charging infrastructure costs and predictable electricity (charging) costs; under most circumstances, charging times can be optimized around off-peak hours;
- A financial model can then determine—again, with relative certainty—the revenues necessary to support those operating expenses, as well as the capital necessary to be invested upfront, consisting of the appropriate combination of a) bank debt and b) equity. For bank debt, the model will demonstrate the necessary level of periodic and life-of-loan debt service coverage, and for equity, the model will project an appropriate return on capital, commensurate with the risk the investor has taken on; and
- Finally, all of the foregoing depends on two very important factors: i) the fleet operator being judged an acceptable long-term credit risk (which the major, and many minor, fleet operators are); and ii) the fleet operator signing up to a long-term service contract with the charging infrastructure provider, in the form of a CaaS contract, as mentioned above. These two factors enable the developer to invest in the infrastructure and gain confidence in being able to secure the capital necessary, as well as to repay that capital over the long term.

Utilization of a CaaS contract is a similar approach as using a PPA (power purchase agreement), which then lends itself to NY Green Bank's fundamental transaction approach of project or structured finance. NY Green Bank has been in active discussions with fleet operators and charging infrastructure providers and is confident that the interest and demand are there for ready acceptance of this type of financing.

Current EV Setting—New York State

There are currently 40,700 plug-in electric vehicles registered in New York State and 44,551 EVs on the road.[5] More than 48,000 electric vehicles have been sold in New York State since 2010. More recently, EV growth has been accelerating, as the 2016–2018 period saw 50–70% year-over-year sales growth, with 15,752 EV sales in 2018.[6] However, for some perspective: while EVs made up about 1.5% of all car sales in New York State in 2018, they only make up 0.47% of standard vehicles in the state.[7]

Commercial electric vehicles (primarily trucks, transit buses, and school buses) are a nascent EV market in New York with virtually non-existent current penetration except for pilot programs. In fact, in 2018 there were no light-duty electric trucks sold in the entire U.S., and only approximately 5,000 electric trucks are currently on U.S. roads; only 415 electric buses were sold last year in the U.S.[8]

As to the associated charging infrastructure, more than 3,800 electric vehicle charging stations had been installed statewide through September 2019, which is up from 800 in 2013. Charging stations are spread across the state but predominantly in metropolitan areas. Most (more than 90%) of charging stations in service currently are Level 2,[9] but the number of DCFCs (direct-current fast chargers) is growing. 2019 EV charging station growth is expected to be strong, driven by two New York State agencies: NYSERDA (the New York State Energy Research and Development Authority), which has programs projected to result in completion of at least 500 more Level 2 stations this year, and NYPA (the New York Power Authority), which is aiming for 100–200 DCFCs this year through their EVolveNY program.

Vehicle Electrification Goals—New York State

The State hopes to increase the number of electric vehicles on the road to approximately 850,000 by 2025 and two million by 2030. In New York City, Fleet NYC (an EV initiative for City-owned or -operated vehicles) in May 2019 increased its commitment to electrification, setting a goal of 4,000 EVs by 2025.

Electrifying trucks and buses is an entirely different task and likely will require significantly more public funding and incentive programs than are currently available through New York State, including funds available from the Volkswagen settlement program. However, there is a more compelling economic case for electrification of the commercial vehicle sector because an argument can be made for less expensive Total Cost of Ownership (TCO) in certain defined-duty circumstances for electric versus internal combustion (ICE) or diesel engine-propelled vehicles.[10] TCO takes the full range of costs over a vehicle's entire expected life, from upfront costs through and including

[5] *Electric Vehicle Registration Map*, CHARGE NY, https://www.nyserda.ny.gov/All-Programs/Programs/ChargeNY/Support-Electric/Map-of-EV-Registrations (last updated Sept. 3, 2019).

[6] *EV Market Share by State*, EVADOPTION, https://evadoption.com/ev-market-share/ev-market-share-state/ (last visited Oct. 10, 2019).

[7] These numbers are drawn from New York State Department of Motor Vehicles data on vehicle registrations on file at the end of year 2018. *See* N.Y. State Dept. of Motor Vehicles, NYS Vehicle Registrations of [sic] File - End of Year 2018 (not dated), https://dmv.ny.gov/statistic/2018reginforce-web.pdf.

[8] INT'L ENERGY AGENCY, GLOBAL EV OUTLOOK 2019 (May 2019), https://webstore.iea.org/global-ev-outlook-2019.

[9] Level 2 charging refers to the voltage that the electric vehicle charger uses (240 volts) and is more powerful than voltage used by the simplest home charger (Level 1), yet not as powerful or fast as Level 3 or direct-current fast chargers. *See 2019 Guide on How to Charge Your Electric Car with Charging Stations*, CHARGEHUB, https://chargehub.com/en/electric-car-charging-guide.html (last visited Oct. 10, 2019).

[10] BNEF, *supra* note 4, at 61.

operations and maintenance costs (O&M), as well as lifetime fuel costs. While upfront costs are currently much higher for electric vehicles compared to diesel vehicles, this differential can be made up through demonstrably lower O&M costs (electric vehicles have far fewer moving parts and suffer significantly less wear and tear) and advantageous fuel costs (kilowatt-hours converted to an mpg (miles per gallon)-equivalent number) in certain duty cycles and geographies.[11]

Beyond the 2019 goals for EV charging station installations for NYSERDA and NYPA, the macro goal is to increase the number of charging stations across the state to 10,000 by 2021, including access on all major travel corridors. Far more EV charging stations will be needed by 2025 and 2030—possibly more than 100,000—to support the long-term targets of 850,000 vehicles by 2025 and two million by 2030. NYSERDA published an analysis in February 2019 showing societal benefits of up to $5 billion for New York State and significant benefits to EV drivers and electric ratepayers (in most scenarios) if the 2030 EV adoption targets are met.[12] It is clear that innovative business models and corresponding new financing techniques will have to play an integral role in this rapid expansion—that is what NY Green Bank is working to develop.

New York State Tailwinds 1: The Critical Role of NYSERDA

NYSERDA has a number of EV support programs, all designed to promote and accelerate transportation electrification in New York State.[13] At the research and development level, NYSERDA has approximately $15 million available (about $5 million committed to date) for projects focused on developing and demonstrating new EV-related products, reducing grid impacts of EV charging, consumer education and outreach, and medium- and heavy-duty EV innovations. In terms of policy development, NYSERDA is assessing a wide range of options, and pilot projects are in progress related to EV carsharing, used EV market development, and EV charging at multifamily buildings to support EV adoption by low- and moderate-income populations, as well as adoption across all income levels. NYSERDA has funded community-based EV outreach campaigns around the state and has led New York State involvement as a major backer of a brand-neutral EV marketing campaign with six other northeastern states and 16 automakers (major OEMs minus Tesla).

NYSERDA's programs include the Drive Clean Rebate, which provides up to $2,000 per EV based on electric range, with more than 15,000 rebates approved since the program's launch in March 2017. Charge Ready NY provides a rebate of $4,000 per charging port for Level 2 charging stations; NYSERDA is looking to develop a DCFC incentive as well.

New York State Tailwinds 2: Multi-Agency Efforts

In addition to the extensive range of NYSERDA programs, numerous other New York State and local or regional programs and policies support the State's goals of rapid and expanded adoption of electric vehicles. A sample of these government-supported programs is presented below.

New York State Department of Environmental Conservation (DEC): In a Multi-State ZEV Action Plan first issued in 2014, and then updated in 2018, eight states (now nine), including New York, committed to collectively have 3.3 million zero-emission vehicles (ZEVs) on the road by 2025, with New York's share being 800,000–850,000 vehicles; DEC is the New York State agency through which New York State's commitment is effected.[14] The Action Plan requires the states to work collaboratively among themselves and with other stakeholders to remove barriers to ZEV adoption; a complementary plan is *Northeast Corridor Regional Strategy for Electric Vehicle Charging Infrastructure for 2018 – 2021*.[15] Additionally, DEC's Municipal Zero-Emission Infrastructure Rebate and Municipal Zero-Emission Clean Vehicle Rebate Programs offer incentives to municipalities for electric charging equipment and vehicles, which have totaled almost $3 million to date.

Volkswagen (VW) Settlement: DEC, along with the New York State Department of Transportation (NYSDOT), are the primary agencies through which New York State's share of VW settlement money will flow to the NYS Truck Voucher Incentive Program, managed by NYSERDA.[16] The NYT VIP provides rebates for medium- and heavy-duty electric and other alternative fuel trucks and buses. The first phase of the program, which ran from 2013 to June 2018, provided $14.5 million of rebates. It will relaunch shortly with VW settlement funds (through DEC) and CMAQ (Congestion Mitigation and Air Quality) funds (from NYSDOT), consisting initially of approximately $20 million for trucks, with an additional approximately $20 million of VW money for buses. Approximately two-thirds of New York's $127.7 million

[11] AMPLY Power, Understanding Electric Vehicle Fueling Costs Compared to Gasoline for Fleets (2019 White Paper) (2019), https://www.amplypower.com/whitepaper/.

[12] NYSERDA, REP. NO. 19-07, BENEFIT-COST ANALYSIS OF ELECTRIC VEHICLE DEPLOYMENT IN NEW YORK STATE: FINAL REPORT (Feb. 2019), https://on.ny.gov/2ASYJUs.

[13] *Electric Vehicles*, NYSERDA, https://www.nyserda.ny.gov/Researchers-and-Policymakers/Electric-Vehicles (last visited Oct. 7, 2019).

[14] ZEV Task Force, Multi-State ZEV Action Plan: Accelerating the Adoption of Zero Emission Vehicles, 2018-2021 (2018), https://www.nescaum.org/topics/zero-emission-vehicles/multi-state-zev-action-plan-2018-2021-accelerating-the-adoption-of-zero-emission-vehicles.

[15] Northeast States for Coordinated Air Use Management (NESCAUM), Northeast Corridor Regional Strategy for Electric Vehicle Charging Infrastructure (May 16, 2018), https://www.nescaum.org/documents/northeast-regional-charging-strategy-2018.pdf/.

[16] *VW Settlement Information*, N.Y. STATE DEPT. OF ENVTL. CONSERV., https://www.dec.ny.gov/chemical/109784.html (last visited Oct. 8, 2019).

allocation from the VW settlement will involve electrification programs, ranging from electrification of airport ground support and marine port handling and drayage equipment, to school and transit buses, to Class 4-7 local freight trucks.

New York State Public Service Commission (PSC): In February 2019, the PSC issued an order designed to support deployment of up to 1,074 DCFC across all investor-owned utilities (IOU) in the state (except the Long Island Power Authority (LIPA), which is developing a separate, but comparable program for PSC approval).[17] There is an ongoing PSC (#18-E-0138) on EV charging infrastructure which addresses IOUs' role in supporting public EV charging, including "make-ready" investments, metering, and rate design. An order is anticipated in December 2019. In November 2018, a PSC order in connection with residential charging supported tariffs with time-of-use structures, reduced customer charges, and a one-year bill guarantee for residential customers with an EV.[18]

New York City: In May 2019, Fleet NYC increased its commitment to EVs, setting a goal of 4,000 EVs by 2025. In August 2019, the New York City Taxi and Limousine Commission created an exemption for EVs under the cap for new for-hire licenses. In April 2019, NYC's Economic Development Commission released an RFEI (request for expressions of interest) soliciting bids to electrify freight mobility, promoting clean EV trucks. New York City's Department of Transportation is promoting its Clean Trucks program for last-mile logistics delivery, as well as supporting a public outreach program for siting of public EV charging stations. The City's goal is to have 50 DCFC stations citywide by 2020 and to have 20% of all new vehicle registrations be EVs by 2050.[19]

New York Power Authority (NYPA):

- *EVolveNY* is a $250 million investment program through 2025, with a Phase 1 goal to deploy 200 150kw DCFC across all key New York State highways and major arteries through 2020 to enable travel anywhere in the state with an EV. More specifically, key milestones include 16 sites and 70 150 kw fast chargers implemented by the end of 2019 and 50 sites and 200 fast chargers implemented by the end of 2020.[20]
- *Airports*: At JFK, NYPA is creating a charging hub of ten 150 kw DCFCs, as well as working with the Port Authority and Jet Blue to electrify ground support vehicles such as baggage tugs. Rapid charging of baggage vehicles has been implemented: JFK—American, 105 vehicles; LGA—Delta, 15 vehicles; Westchester, 25 vehicles; Albany—Delta, 9 vehicles; and Stewart, jet bridge electrification, consisting of seven gates equipped with auxiliary power and pre-conditioned air units.
- *New York Transit Authorities (Upstate)*: NYPA is finalizing a cooperative agreement with DEC on using VW settlement funds for electric bus chargers at upstate transit agencies (Ithaca, Rochester, Westchester, and Ulster counties). NYPA just released a request for proposals (RFP) for the first round of chargers for the upstate depots, with NYPA managing procurement and installation.
- *New York Transit Authorities (Downstate)*: NYPA is assisting New York City Transit in its drive to achieve 100% electric buses by 2040 (see MTA, below), including managing the RFP for state-of-the-art overhead automated charging systems.
- *Model EV Community* is an effort to identify two municipalities to create an EV ecosystem where the entire electric vehicle experience is optimized, including integrating into the electricity system and wider community; building a living lab for partners, third parties, and others to test and learn; and sharing insights and data.

ConEdison: ConEd's SmartCharge NY program rewards off-peak charging behavior. The utility is installing 120 curbside chargers across all five New York City boroughs; piloting V2G (vehicle-to-grid) capability through a five-vehicle electric school bus program in White Plains; and supporting the Metropolitan Transportation Authority's electric transit bus pilot program. ConEd's current rate case in front of the PSC proposes $30 million in "make ready" investment for DCFC and another $15 million to expand its SmartCharge NY program.[21]

Metropolitan Transportation Authority (MTA): MTA, the largest transit agency in North America with 5,700 buses, has commenced with a program to implement an all-electric bus fleet in New York City by 2040. There are currently 10 test e-buses in operation in Manhattan, and installation started this summer on 16 in-depot electric chargers; 45 electric buses are scheduled for delivery beginning in 2020.[22]

[17] Order Establishing Framework for Direct Current Fast Charging Infrastructure Program, Proceeding on Motion of the Commission Regarding Electric Vehicle Supply Equipment and Infrastructure, Case 18-E-0138 (Feb. 7, 2019), https://on.ny.gov/2uTPtMO.

[18] Order Rejecting Tariff Filings and Directing Tariff Revisions, Tariff filings to Effectuate the Provisions of Public Service Law Section 66-o (Residential Electric Vehicle Charging Tariff), Case 18-E-0206 (Nov. 15, 2018), https://on.ny.gov/35qtQVl.

[19] *Transportation*, NYC MAYOR'S OFFICE OF SUSTAINABILITY, https://www1.nyc.gov/site/sustainability/our-programs/transportation.page (last visited Oct. 8, 2019).

[20] *EVolveNY*, N.Y. POWER AUTH., https://www.nypa.gov/innovation/programs/evolveny (last visited Oct. 8, 2019).

[21] *Electric Vehicle Charging Rewards*, CONEDISON, https://www.coned.com/en/save-money/rebates-incentives-tax-credits/rebates-incentives-tax-credits-for-residential-customers/electric-vehicle-rewards (last visited Oct. 8, 2019).

[22] News Release, MTA, MTA Testing 10 New, All-Electric Buses to Reduce Emissions & Modernize Public Transit Fleet (Jan. 8, 2018), http://www.mta.info/news/2018/01/08/mta-testing-10-new-all-electric-buses-reduce-emissions-modernize-public-transit.

Port Authority of New York and New Jersey (PANYNJ): The Port Authority of New York and New Jersey's Clean Vehicle Program seeks to convert 50% of its vehicle fleet to electric—approximately 600–700 vehicles—by 2025; electrify 100% of the airport shuttle fleet across its several metropolitan New York City airports; support the required complementary EV charging infrastructure; work with its airport ground service partners to electrify the extensive inventory of GSE (ground service equipment); and, at the ports and terminals that PANYNJ operates, partner with operators to electrify cargo handling equipment.[23]

NY Green Bank 3: Expectations for Market Growth and the Catalyzation of Private Market Capital

NY Green Bank is actively pursuing financing opportunities, across the numerous commercial stakeholders in the New York State electrification landscape, which includes nationwide participants with New York State-specific market objectives and deployments. In addition, NY Green Bank is coordinating its activities with many of the New York State agencies cited above and is looking to collaborate in offering solutions across the New York State electrification landscape.

The five financing solutions described in this article are a result of extensive market soundings and stakeholder feedback, yet NY Green Bank has also developed them with an eye toward conventional clean energy finance providers. NY Green Bank anticipates providing financing across these structures, after performing comprehensive due diligence, and transacting with market-based terms and conditions. In this way, NY Green Bank will provide "proof of concept" for electrification financings, and then be able to draw in private market capital. By providing both its own resources, and then catalyzing private capital, NY Green Bank anticipates attracting the massive amounts of financing necessary to support New York State's ambitious but necessary long-term goals in vehicle electrification and corresponding reduction of greenhouse gases.

In sum, NY Green Bank is here to assist in the implementation of New York State's priority of advancing vehicle electrification, and so is eager to hear from any and all stakeholders in need of financing, facing financing challenges, or simply looking to move the adoption process forward.

Robert O. Gurman is Managing Consultant of Proenergy Consulting LLC. He is an experienced finance professional in the clean energy, vehicle electrification, renewable energy, and project and infrastructure finance space, having closed over $25 billion of transactions in his more than 30-year career.

[23] *Port Authority Clean Vehicles*, PORT AUTH. OF N.Y. & N.J., https://www.panynj.gov/about/greening-vehicles-equipment.html (last visited Oct. 8, 2019).