**New York City Mayor's Office of Long-Term Planning & Sustainability**
**Testimony before the Transportation and Housing and Buildings Committees**
**November 12, 2013**

Good afternoon, Chairmen Dilan, Vacca, and members of the Housing and Buildings and Transportation Committees. My name is Ari Kahn and I am the Policy Advisor on Electric Vehicles in the Mayor's Office of Long-Term Planning & Sustainability. I am pleased to have the opportunity to testify today about Intro. 1176 which, if passed, will provide vital basic infrastructure for supporting electric vehicles (EVs).

Before I begin my testimony I would like to thank the Council for its leadership on improving air quality and reducing climate change through clean vehicle policy. The Council spearheaded the establishment of 2005's Local Law 38, which improved the fuel efficiency of New York City's fleet. Today that fleet has nearly 6,000 hybrids and electric vehicles. Just two months ago, the Council and administration worked together to update that law with newer, more ambitious fuel efficiency standards.

Like that legislation, Intro. 1176 will help improve New York's air quality, reduce our reliance on oil, and lessen our impacts on climate change. Making new parking facilities and those receiving new utility electrical service "charger ready" adds minimum additional costs, but is absolutely necessary for enabling even modest electric vehicle adoption.

**Environmental Benefits of Electric Vehicles**

Electric vehicles are good for New York for several reasons. First, they reduce our climate change impacts. According to the 2013 PlaNYC Greenhouse Gas Inventory, electric vehicles emit almost 75% less CO2e than an average car on today's electricity grid. Of course, as the grid gets cleaner, so will electric vehicles.

Because vehicles and buildings cause the majority of our air pollution, EVs can also improve the city's air quality. Nitrogen dioxide (NOx) contributes to asthma plus other vascular and respiratory illnesses; replacing a conventional car with an electric one reduces that vehicle's in-city NOx pollution by between sixty and eighty-five percent. To use a real world example, when Times Square went vehicle free, NOx emissions declined by over 50%. EVs also reduce emissions of particulate matter like diesel soot. When Duane Reade recently replaced nearly a quarter of its sixty-truck fleet with electric trucks, the company took the equivalent of over 1,000 cars off the road. The City's success cleaning in-city power plants help increase these benefits. Since 2004 in-city power plants have reduced their NOx output by nearly two thirds, helping make the benefits of removing vehicle tailpipes so pronounced.

Finally, EVs increase our city's resilience. By increasing fuel diversity, we reduce our reliance on any one fuel. In a moment of a gas shortage, such as the city experienced during Hurricane Sandy, having many electric cars and delivery trucks on hand allows increased flexibility. Though our electricity grid is not invulnerable, the city and Con Edison are making efforts to harden it. Even in the case of a large-scale blackout, quick chargers

capable of providing electricity many vehicles in a day can still use backup power from batteries, solar or more likely, natural gas. Lastly, the cars' batteries can serve as portable generators, helping to provide backup power to individual homes. Major automakers like Nissan and Mitsubishi provide accessories to connect their cars to buildings' electrical systems.

Having just described the benefits of vehicle electrification I would now like to provide some brief background on the current state of the technology.

**Electric Vehicle Background**

Electric cars have been around for over 100 years, but primitive batteries doomed EVs in their competition with the rapidly improving internal combustion engine. Electric cars remained a historical footnote or oddity until the introduction of GM's EV1 in 1996. Yet, while that car was a technical marvel, it cost twice as much as an average vehicle and had a range of just sixty miles.

Today's picture is very different. Thanks to almost twenty years of technological advances, today's vehicles cost less, offer better range, more passenger room, and greater variety. After tax rebate, the Nissan Leaf costs just over $21,000, approximately the same as an average new car, and has a lower total cost of ownership for most buyers. Consumers also have more options to choose from today then they did before. Electric vehicles come in a range of sizes, from a Smart Car that seats two, to sedans that can seat up to seven. They also have different engine types and battery sizes. Some, like the Leaf and Tesla, use only batteries. Others like the Volt, BMW i3, and plug-in Prius, have gas backup for when the battery is depleted. Every major automaker is producing an electric vehicle. The Tesla Model S, admittedly an expensive car at $60,000 after tax credits, is the best selling car in its class, outselling the likes of BMW and Mercedes. Last month, EVs were nearly 1% of new car sales. And finally, the costs of batteries, the most expensive part of the vehicle, have dropped precipitously over the last several years. According to Navigant Research, in 2009 batteries cost $1,200 per kWh. Today they are $500, and by 2015 Navigant expects them to fall to $300 or less, an estimate that aligns with those by McKinsey Consulting and the Department of Energy. In two years, that reduction can eliminate nearly $6,000 of vehicle cost.

**The City's Electric Vehicle Efforts**

In 2010, with the pending release of the Nissan Leaf and Chevrolet Volt, the Office of Long-Term Planning and Sustainability authored a study, "Exploring Electric Vehicle Adoption in New York City." It found that New York City's electricity grid can safely accommodate car charging and quantified the environmental benefits electric cars could create, but identified several barriers that can impede adoption. Those include: a lack of education, awareness, and access to charging. 67 percent of likely adopters have limited knowledge of how EVs perform, and 21 percent were more likely to buy an EV if they had more information about charging, vehicle types and availability.

To address those obstacles, New York created a multi-pronged, public outreach campaign called Mission Electric. Over 500 people attended the non-festival premiere of the documentary *Revenge of the Electric Car* in Central Park. An additional online campaign included an e-truck challenge collaboration with the drugstore chain Duane Reade. The campaign allowed New Yorkers to select which Duane Reade stores the company would serve only with electric trucks. The E-truck Challenge received over 1,800 site visits, 300 votes, and reached a social media audience of nearly 25,000 people. And, as mentioned earlier, replacing standard trucks with electric ones removed the pollution equivalent of over 1,000 cars.

To increase access to charging, the City addressed the challenges faced by two types of drivers, those who use commercial garages and those who have their own private parking. For the former, the City worked with the private sector to make charging more widely available. To increase comfort with the technology, the City hosted a symposium for over 100 decision makers, bringing together the charging and garage industries. Today there are over 140 charge points in the city, primarily in off-street parking garages. That gives New York City one of the country's densest networks of public charging. To further increase that network, the City has done two things. First, thanks to funding by the New York Power Authority (NYPA) and the New York State Energy Research and Development Authority (NYSERDA), the Department of Transportation will install nearly 30 chargers in its public garages. Second, the City reached out to non-Manhattan parking facilities to offer, at the very least, charging from a conventional wall outlet. Over a dozen parking facilities now offer this service.

To make charging more consumer-friendly, the City worked with the state Public Service Commission to create new, clearer rules for both consumers and charging providers. Until then, charging providers feared that they would break the law by charging by the kilowatt hour, even though that is the most straightforward way to price for electricity. That model ensures that a slow charging vehicle like the Plug-in Prius does not overpay compared to a faster charging car like the Tesla Model S.

New Yorkers with their own dedicated driveways and parking garages already started with an advantage compared to much of the country. Thanks to the Department of Building's electronic permit system, an electrician can install a charger with a provisional permit, just as they would a large air conditioner or other electrical appliance. Additionally, the City strongly supports a ConEd pilot that makes accessing lower cost, lower grid-impact off-peak electricity cheaper and easier.

Another pilot that may be of interest to the Council is one that is allowing a food cart near Union Square to plug into grid power. We estimate that over the course of the year, the pilot will avoid almost 3,300 pounds of CO2. It also eliminates generator noise that can otherwise be as loud as a jackhammer. That effort is a partnership between the Office of Long-term Planning and Sustainability, the Department of Transportation, the vendor Rafiqi's, and the local startup Simply Grid.

Finally, thanks to the leadership of the Department of Citywide Administrative Services and the City's fleet managers, New York has one of the greenest fleets in the nation. The City operates nearly 200 highway ready plug-in electric vehicles, including 103 Chevrolet Volts, and 37 battery-only Leafs.

**Benefits of Intro. 1176**

Intro 1176 compliments these existing efforts by ensuring that parking built today can accommodate the growing adoption of electric vehicles. According to the city's most experienced charger installers, the majority of existing garages can accommodate at most one charger without expensive electrical upgrades, and many do not have the capacity for even that. According to the City's market research study, over 25% of early adopters park in garages or off street lots, making this lack of infrastructure a major barrier to large scale EV adoption.

Intro. 1176 would make new off-street parking "charger ready" by ensuring that there's sufficient electrical conduit to the parking facility. In a 130 spot indoor garage, this could mean enlarging already planned conduit and ensuring that there's space for an additional electrical panel near the garage. We estimate that this could add about $4,000 to the total cost of construction. For an outdoor parking field, adding "charger readiness" at the time of construction costs just 5% of a retrofit and creates fewer operational disruptions.

Intro. 1176 is also timely. Over the last five years, over 15,000 new parking spots have been permitted in New York City. If passed, this bill will create the capability, at minimal cost, to charge thousands of electric vehicles.

Other municipalities have had similar legislation in place for years. For example, since 2009 Vancouver and London have required charger readiness. London not only has similar charger ready requirements, it also mandates that 20% of residential and workplace parking have actual chargers installed. Los Angeles has built over 500 buildings charger ready. And, just last month, an eight state coalition that includes New York, California, Connecticut, Maryland, Massachusetts, Oregon, Rhode Island, and Vermont signed a memorandum of understanding (MoU) for increasing electric vehicle adoption. That MoU identifies changing building codes as a key means for aiding the EV market.

Thanks to our work with the garage and parking industries, Intro. 1176 provides maximum flexibility for parking operators. For example, this bill does not mandate specific charger technology. Like vehicles, charging also comes in different types. A normal dedicated wall outlet can fully charge a Volt or plug-in Prius overnight. A 220 volt "level II" charger can halve that charging time, and quick chargers can fully charge most vehicles to 80% in 30 minutes or less. (As an aside, quick charging seems like the superior option, and in some cases it is, but it also requires more electricity, expensive hardware, and can cost more to operate per kilowatt-hour.) This bill also exempts retail parking and we are open to language that would exempt housing that is more than 50% affordable. This bill allows the private sector flexibility to choose the technology that works best for its customers and business model. That, along with the environmental benefits and green job potential, is why

this bill has the support of so many groups that have sent the Speaker letters of support, are submitting testimony, or are here with us today.

**Conclusion**

Electric vehicles provide environmental, resiliency, and quality of life benefits that can make New York a cleaner, quieter, healthier place to live. Intro. 1176 helps address limited access to charging, one of the main barriers identified as impeding electric vehicle adoption. As such we urge the Council to join us in supporting this measure.

This concludes my testimony. Thank you and I would be happy to answer any question you may have.

**Testimony of Luke Tonachel**
**Senior Analyst**
**Natural Resources Defense Council**

**Joint Hearing of the Committee on Transportation and the Committee on Housing and Buildings of the New York City Council**

**November 12, 2013**

Good morning/afternoon Chairman Vacca, Chairman Dilan and Members of the Committees. My name is Luke Tonachel and I am a senior analyst at the Natural Resources Defense Council (NRDC). I work from NRDC's New York City office to advocate for policies that will result in cleaner vehicles and fuels. I appreciate the opportunity to testify before you today.

NRDC supports Bill No. 1176 to make New York City parking lots and garages ready for electric vehicle charging.

The foundation of our support is our strong belief that electrification of vehicles is an important and necessary strategy to combat local air pollution and climate change. Vehicles driving on electricity in New York City are estimated to achieve greenhouse gas emissions reductions of nearly 75 percent relative to average conventional vehicles on the road today. NRDC projects that for New York and the United States to meet long-term carbon pollution reduction targets of 80 percent by 2050, the automobile fleet must become primarily electric-drive.

The transition from oil-fueled internal combustion engine vehicles to cars propelled by electrons has begun. In the United States, sales of full battery electric and plug-in hybrid electric vehicles have tripled from 2011 to 2012 and are on track to grow another 70 percent in 2013. To meet climate stabilization targets, the adoption of plug-in electric vehicles will need to continue to expand rapidly. Therefore, it is critical that city, state and federal governments look for ways to break down barriers to widespread vehicle electrification.

NRDC supports Bill No. 1176 because it helps make fueling a car with electricity easier. While electricity is ubiquitous throughout the city, it is not often configured for vehicle charging. Bill 1176 will ensure that parking lots and garages are constructed in a manner that allows charging stations to be installed quickly and efficiently. The charger readiness bill will help parking providers avoid the high costs of post-construction installations and more readily offer charging services. This enhanced electric charger readiness will also send an important signal to the growing electric vehicle market, helping to propel it forward with more charging stations.

Growing the number of electric vehicle-ready charging spots in New York City would result in numerous benefits:

- Greater availability of charging encourages drivers to shift from petroleum to electricity, enabling more electrical miles—especially for plug-in hybrid vehicle owners—and more emissions reductions.
- Maximizing electric miles accelerates the payback for electric vehicles, which have higher upfront costs but lower operating costs compared to their gasoline counterparts, making them a more attractive vehicle to own.
- Electric vehicle charging offers parking facility owners a new opportunity to generate revenue and grow their businesses.

In summary, NRDC believes that adding charging-ready parking spots can fuel a positive feedback cycle of growing infrastructure that helps accelerate electric vehicle adoption. As vehicle electrification grows, the City gets closer to meeting its air quality and climate change goals.

For these reasons, we respectfully urge the Council pass Bill 1176.

NRDC also recognizes that Bills 843 and 844 regarding revocable consent and a pilot program for curbside electric vehicle charging stations can also serve to promote the availability of charging infrastructure and help promote the electric vehicle adoption. NRDC recommends that the Council consider these bills as complementary to Bill 1176.

**NEW YORK CITY DEPARTMENT OF TRANSPORTATION**
**HEARING BEFORE THE CITY COUNCIL**
**COMMITTEE ON TRANSPORTATION**
**COMMITTEE ON HOUSING AND BUILDINGS**
**November 12, 2013**

The New York City Department of Transportation (DOT) has been a leader in reducing greenhouse gas emissions in the city, from our programs to encourage transit, biking and walking, to our initiative to install energy-efficient LEDs in all 250,000 street lights. Electric vehicles are an additional way to cut down on the City's carbon footprint. DOT's vehicle fleet currently includes 17 plug-in or dedicated electric vehicles, and we have worked with the Mayor's Office of Long Term Planning and Sustainability (OLTPS) and the Department of Citywide Administrative Services to install charging stands at our facilities for these vehicles. Currently we have 17 electric vehicle chargers available to DOT fleet vehicles, and we plan on installing eight additional chargers in the near future.

The agency has also been involved in promoting the use of electric vehicles among public and private fleets in NYC through our Alternative Fuels Program. This program assists city government fleets to fund advance technology vehicles, oversees the Hunts Point Clean Truck Program, and seeks to fund electric, natural gas or hybrid trucks operating in NYC. The Hunts Point Clean Truck program offers $65,000 rebates for the purchase of electric trucks that reside in or service the Hunts Point Market. Though no company has used the rebates for an electric vehicle purchase yet, they have used $3.5 million in incentives for other advanced technologies purchases, achieving a 23% reduction in carbon dioxide, 80% reduction in carbon monoxide, and 89% reduction in nitrogen oxides.

To facilitate private electric vehicle charging, in 2011 DOT partnered with OLTPS to install four chargers at DOT municipal parking garages, with two in Queens and two in Staten Island. We are now negotiating an agreement with the New York Power Authority (NYPA) to allow them to install 29 electric vehicle charging stations in municipal parking facilities citywide for use over the next 5 years. Intro 844 would require DOT to undertake a pilot of electric vehicle charging stands. We feel our pilot with NYPA will achieve the goals of this bill.

Intro 843 would add electric vehicle charging stands as an eligible improvement for a revocable consent agreement, and require such an agreement before installing such a stand on the sidewalk or curb. DOT has legal, technical, and policy concerns with this proposal. For example,

a revocable consent agreement is not appropriate for electric vehicle charging stands, as these agreements are for the sole use and benefit of the applicant, and cannot be profited from financially. If the owner of the vehicle were to install a charging station for private use on the sidewalk of his or her property, they would need a private garage or driveway, as the city does not designate curbside parking spots for personal vehicles. Additionally, if the car were being charged on the owner's property, there is no reason it would need an on-street charger, as one could charge the vehicle from the building's electrical source. To offer electric vehicle charging to the general public, a franchise or concession agreement would be required to let a private entity use public space to charge money for this service. Even with such an agreement, there are concerns on how these stands would access the electric grid, and what effect such electricity use would have, especially during peak periods. Lastly, sidewalk-based charging stands for public use would require curbside parking policy changes, and would need to compete with commercial loading, hotel zones, rush hour regulations, and standard metered parking, among other curbside needs.

DOT will continue to expand on the use of electric vehicle technology within the agency and citywide, exploring ways to better to site, install and maintain charging stands. While we believe is not necessary to codify such efforts, we would be happy to discuss our programs with the Council and welcome your ideas for future pilots.

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**Committee on Transportation**
**Testimony by Christine Rangel**
**Preconsidered Int. 1776-2013**
**November 12, 2013**

Today I speak on behalf of the New York City Chapter of the National Electrical Contractors Association. We are the largest chapter of the National Electrical Contractors Association in the United States, and the voice of the unionized electrical construction industry in New York City, Westchester and Fairfield Counties. We are comprised of 200 unionized member firms employing over 15,000 men and women, contributing to over 20 million man-hours of work per year.

Our association **supports** the "Charger Readiness Bill", which would require 20% of new off-street parking to be built "charger ready". We already know the environmental benefits of such measures, from reducing carbon dioxide in our atmosphere to reducing asthma rates of our residents. In a city that is expected to balloon with another 1 million residents by 2030, proactive environmental initiatives like this one are vital to allowing for sustainable population growth, while improving the city's air quality.

In an article on October 6, 2013, the *Wall Street Journal* notes that "Boosting the growth of the electric-car industry is a major goal of environmentalists and government agencies seeking to reduce pollution. But many consumers are wary about buying electric vehicles because of the limited number of charging stations." And that really says it all: if we are going to drive the EV market, we must provide the necessary infrastructure.

From Ford to BMW to Cadillac, more electric vehicles are coming to market. According to several major automakers, the New York metropolitan area is considered one of the top potential electric vehicle (EV) markets. Our cities must develop action plans to ensure these vehicles are a viable solution for citizens—infrastructure development and permitting solutions are just the beginning. Existing garages have limited electrical capacity. In Manhattan, the maximum number of charger-ready spots are estimated to be as little as 2,000—that is less than 1% of the borough's total licensed parking spots.

By adding less than a fraction of a percent to a garage's total cost, charger readiness is an affordable environmental measure for building owners. Cities such as Los Angeles, Vancouver and London have all incorporated "charger readiness" into their building codes. Putting the necessary infrastructure in place now is more cost-effective than doing so in the future, when by that point we are simply playing catch-up.

We are glad to support Intro. 1176, as we know that such a law will increase New York City's ability to cut greenhouse emissions, and allow its people to breathe clean air. In keeping with the PlaNYC initiative, we believe it will help "strengthen our economy, enhance the quality of life for all New Yorkers, and deal with climate change." Accordingly, we strongly **support** such a bill and urge that it be enacted.

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Testimony of Humberto J. Restrepo
Political Affairs Liaison, Joint Industry Board of the Electrical Industry
In Support of Intro. 1176
Meeting of the Committee on Transportation
November 12, 2013

Good Morning Chair James Vacca and distinguished Committee Members. Thank you for the opportunity to testify at this hearing on behalf of The Joint Industry Board of The Electrical Industry (JIB).

My name is Humberto Restrepo; I am the Political Affairs Liaison for The Joint Industry Board of the Electrical Industry. The Joint Industry Board is a labor- management organization founded in 1943. The union partner is Local Union No. 3 of the International Brotherhood of Electrical Workers (I.B.E.W). The management partners are the New York Chapter of the National Electrical Contractors Association and the Association of Electrical Contractors, Inc. The JIB is the ERISA administrator for a family of multi-employer benefits plans serving Local Union #3 and its affiliated contractors in the greater New York City area. Local 3 has over 28,000 members, of which 12,000 work as electricians for over 300 employers. Since its founding in 1943, the Joint Industry Board has provided thousands of New York City residents the opportunity to develop the skills needed to become New York State certified electricians.

The JIB is pleased to support Intro. 1176-2013. We applaud the Mayor's continued effort to reduce green house gases by encouraging more electric vehicles in the city. The recommended 20% of newly created parking stalls requiring pre-installed conduit and electrical capacity to add Electric Vehicles Supply Equipment (EVSEs) will be a small, but significant step in setting a new building standard for parking garages and open parking lots. This common sense approach will help promote electric vehicle usage by making electric vehicle charging stations installations more cost effective, resulting in more readily available charging stations than are currently in use through out the city.

Thank you.

# Local Union No. 3
**International Brotherhood of Electrical Workers**
**OF GREATER NEW YORK AND VICINITY**

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BUILDING & CONSTRUCTION TRADES COUNCIL OF GREATER NEW YORK AFL-CIO

AND ALL STATE AND CENTRAL BODIES


Testimony of Elliot Hecht
Local Union #3 International Brotherhood of Electrical Workers
In Support of Intro. 1176
Meeting of the Committee on Transportation
November 12, 2013

Good morning Chairman James Vacca and distinguished members of the Committee on Transportation.

My name is Elliot Hecht. I am a Business Representative of Local Union #3 International Brotherhood of Electrical Workers (I.B.E.W.). Local #3 is a 28,000 member Local Union in our city.

I am here this morning to voice support for Intro. 1176-2013. This legislation is forward thinking and will meet the needs of technology that consumers are eager to see become common place.

The citizens and elected officials of New York City, for some years now have made excellent decisions to help improve the health and quality of life of its residents.

New York City is a world class city. Technology like time is constantly moving forward and we cannot allow our great city to fall behind. Electric cars are here. And the technology of electric cars continues to improve. Greater availability of electric cars will probably occur sooner than later.

The air pollution caused by carbon monoxide emissions from gasoline powered

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engines is a serious problem contributing to lung disease and other life threatening health issues. The sight of idling cars in traffic and waiting for lights as pedestrians, bikers and runners are breathing in these car's benzene, nitrogen oxide and other pollutants and not doing anything about it is wrong.

Drivers in our city would be much more inclined to drive electric cars because not only are they better for the environment, reducing the city's production of greenhouse gasses but also because they are cheaper to run.

Providing motorists with more readily available charging stations would eliminate a large obstacle and concern as to their dependability.

Local Union #3 I.B.E.W. is prepared, looks forward to and would be proud to continue to do what we do best - installation of electrical equipment for both existing technologies, and emerging technologies, all of which provide convenience, comfort ,safety, and quality of life to the businesses and residents of New York City. The availability of these services for electric car drivers will increase the number of electric cars, will aid in mobility, improve air quality in our city and provide employment.

Intro. 1176-2013 recommending 20% of the newly created parking stalls to have pre-installed conduit and electrical capacity to add Electric Vehicle Supply Equipment is a cost effective win-win for the city and its residents.

Thank you for this opportunity for Local #3 I.B.E.W. to express our support for intro. 1176-3013

**Thomas Moloughney / Plug In America**
**Testimony Before the Joint Buildings and Transportation Committee**
**November 12, 2013**

My name is Thomas Moloughney and I live in Chester, NJ. I am here today representing Plug In America, the largest electric vehicle advocacy group in the country. I also own and operate a restaurant in Montclair, NJ and own and manage commercial real estate. I strongly support the passing of Int. 1176 and believe that New York City needs this kind of legislation to accommodate the electrification of personal transportation for its residents and visitors.

Every mainstream automobile manufacturer has plug in electric or plug in hybrid vehicles available today, or in their upcoming product line up. In 2010 less than 1,000 electric vehicles were sold in the United States. In 2011 that number increased to over 17,000. In 2012 more than 52,000, and in 2013 we are on pace for about 100,000 plug in electric vehicles to be sold in the US. This isn't a passing fad. Plug in electric vehicles are here to stay and in fact will eventually be the dominant form of personal mobility, especially in large cities like New York in the not too distant future.

I've been driving an electric car for over 4 years now and have driven over 120,000 zero emission miles. I come into the City often for business meetings, to shop, dine and for entertainment and finding an available charger in the City is a daunting task. There are so few of them, that it is very difficult to find one that is available, working and not blocked by parked gas cars. In fact I took my gas car here today because I couldn't be sure I'd be able to find an available public charger.

I believe I am particularly qualified to testify in front of you today because I have personally installed public charging stations in the parking lot of my shopping plaza in Montclair, NJ. Since I didn't have the foresight to install the conduit when I developed the property back in 1998, the installation cost me many thousands of dollars more than it would have had the raceways been installed when I was doing the initial construction. I only wish there was a requirement like this proposed bill back then. The chargers on my property in Montclair get used every day and many of the people plugging in are electric vehicle drivers from NJ who are on their way to New York City or returning from a trip there. They stop at my property because they couldn't find charging in NYC or didn't want to risk going there and not being able to plug in. What does that mean to New York? Well, I have a captured customer while their car is charging. During that time, they usually eat at my restaurant and that money could have been spent at an eatery or a café in New York if only they could have charged their car while in the City.

The bottom line is, there is a real economic cost for not being an EV friendly city today, and it's going to get much worse as electric vehicle adoption increases. If New York City doesn't dramatically increase the amount of public charge points available then people will choose not to visit New York to shop, for dining or entertainment and may even choose not to live there if they can't easily find a place to plug in their car. The evolution to electric vehicles is happening. Now is the time for New York City to start preparing for the infrastructure that will be needed to support the thousands and then hundreds of thousands of plug in vehicles that will reside in and visit the City every day.

**ChargePoint, Inc.**
**Testimony Before the Joint Buildings and Transportation Committee**
**November 12, 2013**

Good afternoon, Chairmen Dilan, Vacca, and members of the Buildings and Transportation Committee. My name is Colleen Quinn and I am the Vice President for Government Relations and Public Policy for ChargePoint, Inc. I appreciate the opportunity to testify today about Intro. 1176. I am a resident of New York City and have been working closely with the Mayor's office, NYSERDA, the Governor's office, environmental groups such as NRDC as well as industry groups such as National Electrical Manufacturers Association to align New York City policies with the goal of supporting EV Adoption.

The proposal should be supported for the following key reasons:

- It will accelerate the adoption of Electric Vehicles in New York by lowering installation costs. Charger readiness can add less than a fraction of a percent to a garage's total cost
- EV Infrastructure installations create local jobs. For every station installed, three people go to work. One to manufacture and two to install the station. Installation jobs are all local jobs.
- It will address a major challenge unique to New York City where over 70% of residents live in Multi-Dwelling units and do not have an "attached garage" to "fuel" their vehicles. Parking garages and facilities will enable this large segment to adopt electric vehicles
- The policy aligns with Governor Cuomo's "ChargeNY" plan-- to enable 40,000 electric vehicles in New York State by 2018

I will address the following key points in my testimony:

1. Provide a Market overview and the importance of the New York City Market
2. How this legislation fits into the national and regional trends of the EV Infrastructure market
3. How this bill is low cost, but extremely impactful to the adoption of Electric Vehicles

## BACKGROUND ON CHARGEPOINT

ChargePoint is the world's largest network of independently owned charging stations with more than 12,000 charging spots in 14 countries with over 1,900 organizations providing charging via the ChargePoint network including major employers, municipalities, universities, real estate developers and parking garage facility owners and operators. The stations are currently dispensing more than 1,243 Megawatt hours (Mwah) of electric fuel each month, the annual equivalent of 3,000,000 gallons of gas avoided and 46 million lbs. of $CO_2$ emissions prevented.

ChargePoint is the leading provider of EV charging services in New York State. There are nearly 450 ChargePoint stations installed across the State of New York and the New York City Fleet is already operating 150 of these stations. ChargePoint currently has an estimated 80% of the public stations in the State of New York.

ChargePoint is not an Electric Vehicle Service Provider by definition or business model. We sell our stations and network software to customers such as parking garages and EVSP's like Car Charging Group represented here today. In addition we provide the network charging software to other hardware manufacturers such as Eaton, Siemens and Leviton, among others.

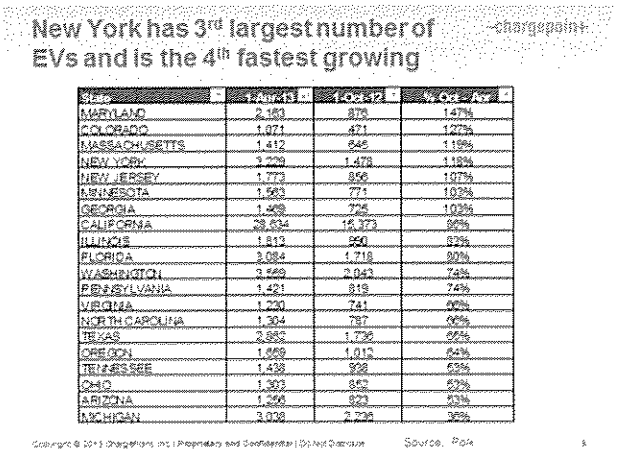
Our software enables network service plans to support business applications including energy management programs for utilities, authentication and recognition services for commercial and business applications, and transaction based services to support open access for credit cards as well as the ChargePoint cards.

ChargePoint was established by Silicon Valley entrepreneurs with the sole mission to ensure consumers do not hesitate to purchase electric vehicles because they could not find a place to charge them. The company is credited with delivering the first networked "smart" charging station in the U.S. market and is building a global EV Community and the network that connects it. Recognized by Pike Research in 2012 and 2011 as the top ranking manufacturer and provider of EV charging services, the Pike report cited Charge Point's strategy, implementation and product innovation as the market drivers

## I. MARKET OVERVIEW

New York has the potential to be one of the largest markets for electric vehicles in the world. Through policies such as ChargeNY as well as programs and funding from the New York State Energy Research and Development Authority, the New York Power Authority and tax credits recently approved by the New York State Legislature, New York is leading the way for electric vehicle adoption.

New York State has the 3rd largest number of Electric vehicles and is the 4th fastest growing at 118%.




| State | Jun-13 | Oct-12 | % Oct - Jun |
|---|---|---|---|
| MARYLAND | 2,180 | 878 | 147% |
| COLORADO | 1,071 | 471 | 127% |
| MASSACHUSETTS | 1,412 | 646 | 119% |
| NEW YORK | 3,229 | 1,478 | 118% |
| NEW JERSEY | 1,773 | 856 | 107% |
| MINNESOTA | 1,563 | 771 | 103% |
| GEORGIA | 1,469 | 725 | 103% |
| CALIFORNIA | 28,634 | 15,173 | 89% |
| ILLINOIS | 1,813 | 960 | 83% |
| FLORIDA | 3,084 | 1,718 | 80% |
| WASHINGTON | 3,569 | 2,043 | 74% |
| PENNSYLVANIA | 1,421 | 819 | 74% |
| VIRGINIA | 1,290 | 741 | 90% |
| NORTH CAROLINA | 1,304 | 787 | 66% |
| TEXAS | 2,882 | 1,736 | 66% |
| OREGON | 1,669 | 1,012 | 64% |
| TENNESSEE | 1,438 | 938 | 53% |
| OHIO | 1,393 | 852 | 63% |
| ARIZONA | 1,266 | 823 | 53% |
| MICHIGAN | 3,008 | 2,206 | 36% |

 Source: Pike

The New York City is an important market with an already growing demand.

There are 210 registered EVs in New York County.

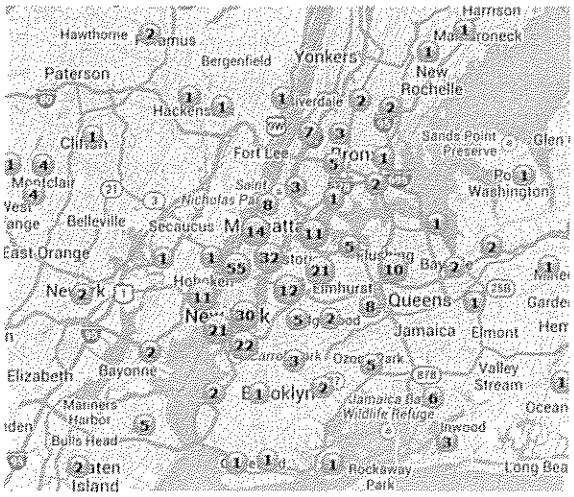
However the market must support not only the residents of the county, but the growing number of commuters in the region important as well.

These areas are: Westchester County (591); Nassau County (625) and Suffolk County (972)

There are 270 ChargePoint Stations currently deployed in New York City. The New York City Fleet, as you may know, is the largest fleet of Electric Vehicles in the world. 151 Charging Stations support the fleet.

Stations are also deployed in workplace locations such as Verizon, Multidwelling unit parking garages such as Albanese Solaire ; Seward Park as well as Parking facilities such as Manhattan Parking- this represents 44% of the market.

Below is a map of all current charging locations.




In addition, there are over 1,000 ChargePoint cardholders in the region. Below is a map of those drivers as well for the record.


Some other relevant market facts:

- Some of our customers provide charging as an amenity and others charge a fee.
- We have utilization data on all of our charging stations. What we see is increased utilization in parking garages and facilities that will be impacted by this legislation.

## II. NATIONAL MARKET AND EV INFRASTRUCTURE POLICY TRENDS.

**The growth of electric vehicles has been a phenomenal one in the United States.**

Recent numbers from automakers show that October of this year was the month with the second largest number of EVs sold ever. Aug-13 was #1

We are inching closer to 1% of total vehicle sales. October's 0.85% is the largest % ever. (August was 2nd at 0.77%). 1% is a milestone.

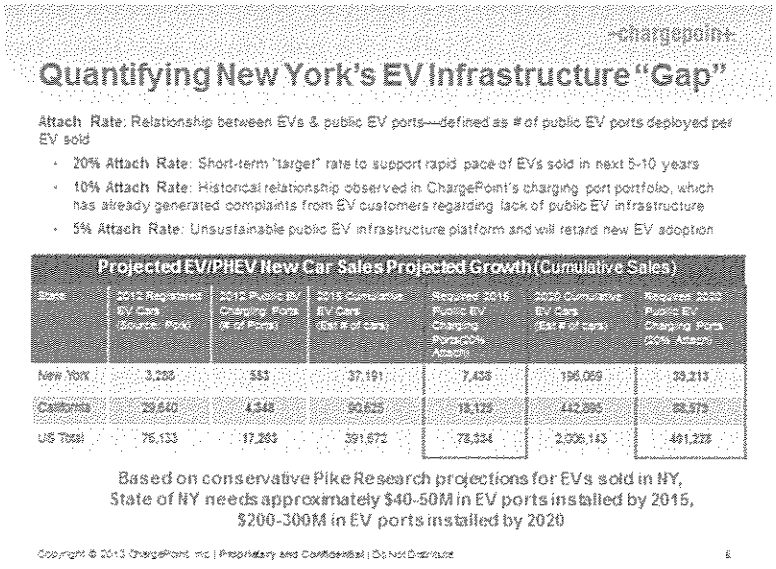
With car sales pushing over 2,000 vehicles per month, this is no longer a "compliance market."

The Chevy Volt is the #1 selling electric vehicle lifetime – 50,240 vs. 37,590 for the Leaf vs. 18,170 for the Tesla. All three represent 71% of all EVs sold.

Even if EV sales stay flat for November and December at 10,191, we will end up a little over 98,000 vehicles sold in 2013. We believe the market will hit the 100,000 marker in the US, which will be another major milestone.

## National Policies

As recently as October 24 Governor Cuomo signed a Memorandum of Understanding with seven Governor's and agreed to "a collective target of having at least 3.3 million zero emission vehicles on the road in our states by 2025 and to work together to establish a fueling infrastructure that will adequately support this number of vehicles."[1] The Governor set a goal for New York State of 30,000 EVs on the road by 2018. In order to support this number of electric vehicles close to 10,000 EV charging ports are needed.




The trend in many regions is to pass ordinances such as this to lower costs for EV Adoption.

- Recently, the California State legislature passed AB 1092, authored by Assemblyman Levine, requires the State Building Standards Commission (BSC) to adopt, approve, codify and publish mandatory building standards for the installation of electric vehicle charging infrastructure in multifamily dwellings and non-residential development
- The State of Hawaii passed a mandatory EVSE statute for existing parking structures and lots (SB 2747)
- Los Angeles, Silicon Valley, London and Vancouver have passed similar measures

[1] State Zero-Emission Vehicle Programs "Memorandum of Understanding" October 24, 2013

## III. THE PROPOSAL, IF ADOPTED WOULD LOWER INSTALLATION COSTS OF EV INFRASTRUCTURE

Based on information we have collected from installing thousands of charging stations in the United States and hundreds in New York State, a resolution such as this will improve the economic efficiency for installations. The proposal would ensure that development is designed and constructed in a way that allows for the future installation of charging infrastructure for electric vehicles. This could lower installation costs 60% if included in new construction costs.

BY THE NUMBERS

A typical cost for installing a charging station on a wall with surface conduit is typically $1,000. So, our home installations have varied from $700 to $1200. The only time it gets above that is if there is insufficient amperage available in the electric panel.

On the other hand, our average workplace charging port, installed in an open parking lot is $7,000. That's due to the need to spend $6,000 on trenching or boring. As with homes, it can get higher if the panel needs more capacity.

This ordinance will ensure that the trenching and boring are unnecessary as the conduit will be put in place while the parking lot is being built. In addition, panel capacity will be allocated at the time of building the parking lot.

If you use the ChargePoint dual-port charging stations, the list price per port is $3,350. Our estimate of an open parking lot installation will therefore go from $3,350+$7,000=$10,350 for a retrofit with trenching, down to $3,350+$1,000 or $4,350. A reduction of about 60%.

By the way, as we understand it, any money spent on EV infrastructure in 2013 is entitled to a 30% federal tax rebate and a 50% NY state tax rebate, including the "make readies" that this ordinance requires.

The other thing I'd mention is that being "EV Ready" will be an increasingly valued amenity. That's especially important for multi-family housing.

For developers looking to build LEED certified building, these can generate LEED points. See www.usgbc/credits for detail.

If apartment buildings or condos have to do trenching each time a resident wants to install an EV charger, their property will become a mess. In California, it is illegal to refuse to allow a condo homeowner to install EVSE and the result will be a mess if conduit installation wasn't planned for in advance

In any case, the resolution would be great for economic efficiency. It will reduce the average C&I installation from roughly $7000 to $1000 or so.

**New York City has the opportunity to become a national leader in EV Adoption with these actions.**

**We urge adoption of the proposal.**

# THE COUNCIL
# THE CITY OF NEW YORK

*Appearance Card*

I intend to appear and speak on Int. No. 1176 Res. No. _____

☒ in favor ☐ in opposition

*Date:* _____

**(PLEASE PRINT)**

**Name:** Christopher Kanzler

**Address:** 1430 Bowling Hollow Rd

**I represent:** New York Electrical Contractors Assoc.

**Address:**

# THE COUNCIL
# THE CITY OF NEW YORK

*Appearance Card*

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☒ in favor ☐ in opposition

*Date:* 11/12/13

**(PLEASE PRINT)**

**Name:** ELLIOT HECHT

**Address:** 158-11 H.V.A JR. AVE Flushing NY 11365

**I represent:** Local Union #3 I.B.E.W

**Address:** 158-11 H.V.A. JR AVE. Flushing NY 11365

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# THE CITY OF NEW YORK

*Appearance Card*

I intend to appear and speak on Int. No. 1176 Res. No. _____

☒ in favor ☐ in opposition

*Date:* NOV 12, 2013

**(PLEASE PRINT)**

**Name:** Colleen Quinn

**Address:** 40 E 94th St Apt 8F

**I represent:** Courage Point, INC

**Address:** _____

*Please complete this card and return to the Sergeant-at-Arms*

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# THE CITY OF NEW YORK

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☑ in favor ☐ in opposition

*Date:* _____

**(PLEASE PRINT)**

**Name:** Luke Tonachel

**Address:** 75 Concord Ave. White Plains, NY

**I represent:** Natural Resources Defense Council

**Address:** 40 West 20th Street, New York, NY

# THE COUNCIL
# THE CITY OF NEW YORK

*Appearance Card*

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☒ in favor ☐ in opposition

*Date:* _____

**(PLEASE PRINT)**

**Name:** Christine Rangel

**Address:** 1430 Bwy, Fl. 8

**I represent:** New York Electrical Contractors Assoc.

**Address:** _____

# THE COUNCIL
# THE CITY OF NEW YORK

*Appearance Card*

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☐ in favor ☐ in opposition

*Date:* 11/12/13

**(PLEASE PRINT)**

**Name:** Adi Kahn

**Address:** 253 Broadway

**I represent:** NYC Mayor's Office

**Address:** _____

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# THE COUNCIL
# THE CITY OF NEW YORK

*Appearance Card*

I intend to appear and speak on Int. No. _____ Res. No. _____

☒ in favor ☐ in opposition

*Date:* 11-12-13

**(PLEASE PRINT)**

**Name:** HUMBERTO RESTREPO

**Address:** 158-11 HUA St Ave Flushing NY

**I represent:** Joint Industry Board of the Electrical Industry

**Address:**

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# THE COUNCIL
# THE CITY OF NEW YORK

*Appearance Card*

I intend to appear and speak on Int. No. 1176 Res. No. _____

■ in favor ☐ in opposition

*Date:* 11/12/13

**(PLEASE PRINT)**

**Name:** THOMAS Malowhney

**Address:** 34 E. fox CHase RD, Chester, NJ

**I represent:** PLUG in AmeRICA

**Address:** WWW.PLUGINAMERICA.ORG

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# THE CITY OF NEW YORK

*Appearance Card*

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☐ in favor ☐ in opposition

*Date:* _____

(PLEASE PRINT)

Name: Michael McDonough

Address: 3109 Brighton 3rd Road Apt 5B 11235

I represent: Singular Charging Group

Address: _____

*Please complete this card and return to the Sergeant-at-Arms*

# THE COUNCIL
# THE CITY OF NEW YORK

*Appearance Card*

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☐ in favor ☒ in opposition

*Date:* _____

(PLEASE PRINT)

Name: Joseph Turquie

Address: 97 Pound Hollow Rd

I represent: Car Charging Group

Address: _____

*Please complete this card and return to the Sergeant-at-Arms*