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## Is the Big Apple Ripe for Electric cars?

Sally Kneeshaw Lead Expert of EVUE met with two New York City (NYC) electro mobility professionals at the forefront of the city's efforts to increase the uptake of Electric Vehicles (EVs).

Mark Simon is the Director of the Alternate Fuel Programme at the NYC Department of Transportation and Ari Kahn is Electric Vehicle Program Manager in the Mayor's Office for Long Term Planning and Sustainability. The Mayor's office determines the policy direction for EV strategy and the Department of Transportation implements the actions. The dialogue centred on the city's objectives, challenges and progress to date and reflected upon some of the key differences between these and EVUE cities.

### Background

NYC Mayor Bloomberg is Chair of the C40 initiative and a global leader in urban sustainability. In 2007 the Mayor's office produced **planNYC**, a strategy document that encapsulates the city's green agenda, with key goals and initiatives including transportation<sup>1</sup>. The plan aims to reduce the city's greenhouse gas emissions in 2030 by 30% from 2005 levels. 78% of the city's CO<sub>2</sub> emissions come from buildings and around 20% from transport. This compares with the EU Climate and Energy package targets of a reduction in EU greenhouse gas emissions of at least 20% below 1990 levels by 2020, and where the transport sector is the biggest emitter of greenhouse gases, the second biggest energy consumer and the only sector where emissions are still increasing.

Transport policy gives priority to in mass transit, walking, cycling and greener modes of mobility. The aim is to reduce the number of vehicles coming into the city overall. NYC has the lowest vehicle ownership in the USA, but residents of neighbouring states of Connecticut and New Jersey also drive into the city. CO<sub>2</sub> reduction, fuel security and air quality are drivers for the clean vehicle actions.

### Electric vehicle adoption strategy

In 2010 the city embarked on a study in partnership with McKinsey to advise on NYC's policy. The report 'Exploring Electric Vehicle Adoption in NYC'<sup>2</sup>, published in January 2010, took the view that in the short term demand will exceed supply for EVs. The findings were:

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<sup>1</sup> <http://www.nyc.gov/html/planyc2030/html/home/home.shtml>

<sup>2</sup>

[http://www.nyc.gov/html/om/pdf/2010/pr10\\_nyc\\_electric\\_vehicle\\_adoption\\_study.pdf](http://www.nyc.gov/html/om/pdf/2010/pr10_nyc_electric_vehicle_adoption_study.pdf)



- NYC has a large group of potential early adopters
- Demand from them will outstrip supply in the next five years
- Action should be targeted to remove barriers for this group, and focus on other consumer segments can be delayed
- Early adopters appear not to need public charging infrastructure or financial incentives
- Early adoption should not have a big impact on the grid, smart charging needs to be planned
- Industry and city stakeholders need to partner to encourage and prepare for next phase of EVs

The report recommends policy actions that speed up this potential adoption by individuals, with a set of low cost actions capable of delivering high impact including:

1. Educating potential consumers
2. Helping them to install charging equipment
3. Recognizing their leadership

Contrary to many European strategies, the report does not recommend financial incentives for EVs or large investment in public charging infrastructure at this stage. (This is at the local level only. We recognize the need for national financial incentives and there currently is a \$7500. incentive nationally.

*"monetary incentives cannot create a substantial EV market in and of themselves and should therefore be re-evaluated once a certain level of penetration is reached. ...Expanding the charging station infrastructure in New York beyond private garages would initially only produce a 3 percent increase in electric car ownership." plaNYC McKinsey report*

Mark Simon and Ari Kahn went on to give their views on how the city strategy is progressing and the particular challenges they face.

### **Charging infrastructure**

To date NYC has focused on getting charging points (CPs) into commercial garages rather than on street.

*"New York is a very compact dense city. We are starting with CPs in commercial garages because we can get high utilization from them. You have a charger serving several vehicles belonging to both residents and visitors. It effectively serves as home charging as more than half of Manhattanites park their cars in these garages."*

The City recently ran a successful workshop with the Metropolitan Association of Parking Industry about CP equipment and installation. The garages see on-site CPs as an additional marketing advantage. There are no on-street CPs yet.



*"On-street charging hasn't been figured out yet. There are legal issues about selling electricity on public streets. There will need to be a change in the law for the state to allow that."*

*Ari adds "Every inch of kerb is contested in this city- for cycling, pop up cafes etc. Let's wait to see how the technology develops before investing in street charging. Level II kerbside charging might become an obsolete system depending on how the technology changes"*

Federal stimulus money through the American Recovery Act is providing a modest investment, in line with the report findings, of 40 publicly accessible CPs across the city. The city is in dialogue with the electricity company Con Edison to make home charging installation quick, and to help them predict grid issues.

### **Education and outreach**

Outreach education is a key action recommended by the plaNYC report. Displays of cars and trucks are organised wherever it makes sense, for instance in Times Square for the Earth Day event. There are plans to host a screening of 'Revenge of the Electric car' in Central Park and to develop a city wide EV website and General Electric just hosted an electric vehicle awareness day at a local sports stadium (CITYfield). NYC also shares information with Boston and Philadelphia who have similar electro mobility goals and is active with the national organisation Electric Drive Transportation Association (EDTA).

*"The total cost of ownership model is new to Americans. They will have to adjust to higher upfront and lower costs overtime in the financial model."*

These actions serve to encourage the early adopters and remove barriers to take up, and are similar to many of the awareness raising actions being undertaken in Europe.

### **City fleets**

The PlaNYC McKinsey report focussed on individual EV adoption, and the City recognizes that introducing clean vehicles into municipal and commercial fleets can also make a big impact. New York City benefitted from an early experience with EVs from 1997 through to 2003 when it had the largest EV fleet programme outside of California, with about 100 vehicles.

*"We learnt a lot from that. EVs worked fine, even the lower mileage Ford pickup truck that had a 48 miles range - it seldom went more than that in one day. The drivers liked them, especially the Toyota RAV4 passenger cars"*

The city currently has a fleet of 26,000 of which 10,000 are light duty, non emergency vehicles where an electric sedan could easily fill that role. Many of these sedans are relatively lightly used (travelling less than 9,000 miles per year) As a result the City is exploring a number of options to more efficiently use the City fleet and reduce the carbon footprint. Among those is a new car



sharing evaluation where the City has retired 50 ICE city vehicles and replaced them with 25 vehicles owned by a car sharing company.

There is a major challenge for the future around charging for plug ins in the city fleet, as many are parked in the street, and there is no depot where CPs could be installed. This is likely to be an issue in many European cities too.

*"If I were a guessing man I would say it will mean some fast charging facilities. The city does not have the real estate for re-fuelling. It is easy when you are dealing in tens and twenties. Down the road, we may need to look at fast charging or battery swap"*

The Transportation Department applies for grants to assist the municipality to buy EVs for the public fleet. 3% of the Federal Highway Programme is allocated to reverse the damage it causes in the shape of the Congestion Mitigation and Air Quality fund. The fund is distributed to US cities based on population and air quality. 360 million \$ a year is guaranteed, then New York state and the city determine how that money is used. Much of the funding goes into transit systems and traffic signals programmes and EVs have to compete for a share. Traditionally the Alternate Fuels Department gets 10million \$ a year. These funds are contingent upon Congress continuing the programs and the level of funding.

*"We talk to manufacturers and say 'don't forget us, we are ready'. We are currently taking delivery of our first 50 Volts from GM arriving by June 2011. They are extended range electric -hybrid, whereby the first 40 miles runs on electricity but longer trips are still possible. The price at 40,000 \$ is significantly above what the city likes to pay for a vehicle!"*

The grant also funds special projects. Hunt's Point is an area of the Bronx where the produce, meat and fish markets are located. It suffers from large volumes of polluting truck traffic. 20 million \$ has been allocated to clean up the trucks, to fit filters, educate the fleet owners, and support replacement with EV and Hybrids by offering some of the price differential. One seafood company now has all electric trucks and all electric refrigeration delivering into Manhattan.

*"Working with fleet managers is important. The average fleet manager wants a truck for every possible reason and they have to trust the advice about cleaner models. We also work with truck leasing firms, one of which is developing an employee to specialize in EVs. That's what you need- an advocate in the business."*

## **Taxis**

Cleaning up the more than 12,000 iconic NYC taxis could make a difference to air quality in the city. This a challenging market. Many taxis run 24 hours and 100s of miles a day. There is no time to charge, so battery swap may be the solution and NYC is looking with interest at the Better Place trials in Tokyo and Copenhagen.



The Mayor of NYC has tried to offer incentives to the taxi fleet to buy more fuel efficient cars, but these were blocked as interfering in commerce. Voluntarily one third is made up of hybrids. Now the city has come up with a purpose built vehicle as part of a Taxi of the Future programme. The result was recently announced as the NV 200 to be produced by Nissan.<sup>3</sup>

### **Future Solutions**

The NYC team continually looks for innovations and feasible solutions for the future. A Korean group had recently visited to demonstrate inductive charging built into the street for a transit bus which charges the vehicle as it rides over it. Google has put in inductive charging in its car park.

Ari Kahn will be visiting Germany later in 2011 on a fellowship to look at the national electro mobility plan and transferability to NYC. EVUE partner Frankfurt am Main is likely to host a visit and give information about the German national Elektromobilität programme.

### **Advice to other cities from the NYC EV professionals**

At the end of the discussion the NYC experts were asked to offer some advice to their counterparts in other cities. This was direct and to the point, in true New York style:

- Start with your city fleets. It is important to demonstrate how EVs work and to speak from experience
- Make sure the city EV drivers are willing and able to interact with the public to educate them about the cars
- Work with the utility companies to get them involved. They also need information to forecast grid capacity, as there is evidence from sales of hybrids that there can be local clusters and the utilities need to avoid localized grid issues.
- Make it easy and quick to drive an EV. Make the city inspection of CPs happen fast. You should be all set up and ready to drive within three days of buying an EV

*"President Obama announced a goal of 1million clean vehicles by 2015. That would be nice. We may not achieve the target but we are on that trajectory."*

The conversation showed that across the pond New York City is facing similar challenges to European cities. The approach recommended by the PlaNYC McKinsey report differs from some European strategies, in that the public charging infrastructure and incentives to individuals will be more modest in this first phase as the market ramps up. Like many European cities street space in the public realm it at a premium, so the city is thinking carefully about where and how EV infrastructure can be accommodated. EVUE cities will be keen to hear about potential solutions around fast charging and battery swap as greater

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<sup>3</sup> <http://www.nyc.gov/html/media/totweb/taxioftomorrow.html>



volumes of EVs need to charge in future. It will be useful to continue the exchange and share information on the success and learning that NYC and EVUE cities can bring to find the optimal solutions for each national and urban context.

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