

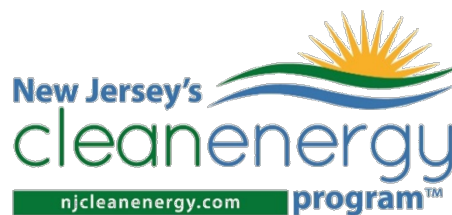


# Programs to Promote a Clean Energy Future Today

Nancy Quirk  
Energy Program Manager  
Sustainable Jersey

# Sustainable Jersey Supporters

## Underwriters



## Grants Program Underwriters



## Platinum Sponsors



## Gold Sponsor



## Silver Sponsor



## Bronze Sponsors



AMERICAN WATER



# Make Your Community Friendly for Solar and EVs

## Supportive Solar Zoning Ordinance

- Adopt Solar Zoning Ordinance
- Amend Permitting Fee Ordinance

## Streamlined Permitting

- Post requirements online
- Train permitting, codes, and inspection staff



## EV Zoning ordinance -- EV charging stations as accessory use

- Ordinance -- design standards for EVSE and EV parking spaces
- Training for local officials



## Outreach activities

- Incentive for pre-wiring for EV charging station
- Awareness event
- Commitment from 3 local partners for workplace chargers



# Community Engagement for Solar and EVs

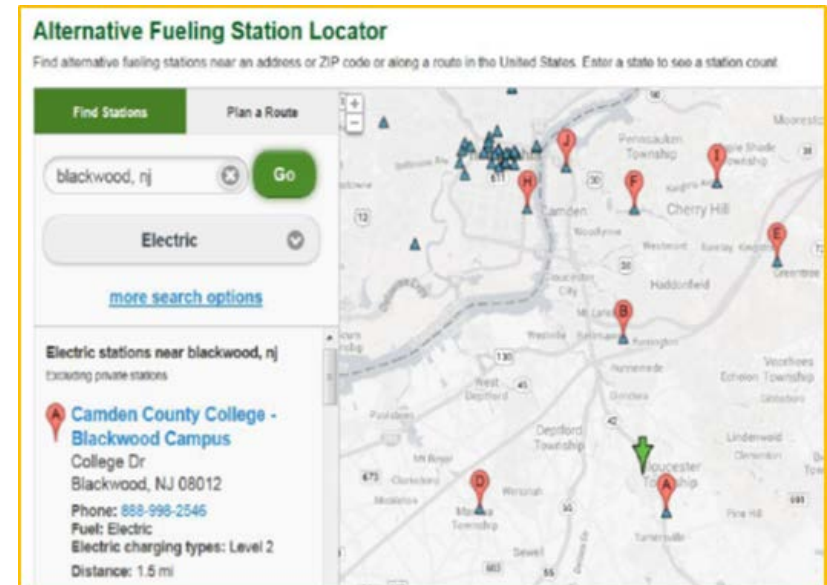
## Community Led Solar Initiatives

- Group purchasing models
  - Sustainable Jersey Solar Challenge
  - Solarize campaign
  - Solarize campaign for businesses
- Performance based criteria
  - % of residents participating
  - % of businesses participating
  - Overall kW installed per capita

## Public EV Charging Stations

- Municipality instrumental in the project
- Publicly available
- Listed on “public directory”
- Signage/Promotion of Charging Stations

**SUSTAINABLE JERSEY**  
**SOLAR CHALLENGE**



# Upcoming Events

## OPPORTUNITIES FOR ADOPTING ELECTRIC VEHICLES (EVs) IN MUNICIPAL FLEETS: A PRIMER

**SUSTAINABLE JERSEY WEBINAR  
NOVEMBER 29, 2017 - 1:00 PM TO 2:00 PM**

We will discuss procurement options as well as provide an overview of both the benefits and challenges of fleet electrification. The webinar will introduce a new fleet analysis tool developed to assist municipalities in comparing the total cost of ownership for light duty vehicles and share information about [EV Smart Fleets](#) - an upcoming multi-state public sector fleet EV procurement opportunity for state and local governments. Information about New Jersey's Board of Public Utilities EV Stakeholder process will be included in the webinar.

### Speakers:

- Matthew Goetz, Georgetown Climate Center
- Michael Hornsby, NJ Board of Public Utilities
- Nick Nigro, Atlas Public Policy

Register for the webinar on the Sustainable Jersey events page!

### Related SJ Actions:

- Green fleet target
- Fleet inventory
- Purchase alternative fuel vehicles
- Carbon footprint



# Alternative Fuels & Vehicles An Overview



**Chuck Feinberg**

Managing Partner, Greener by Design, LLC  
Chairman and Coordinator, NJ Clean Cities Coalition

The New Jersey Clean Cities Coalition is an IRS 501(c)3 non-profit corporation, and is formally designated by the US Dept. of Energy as a Clean Cities Coalition.

We are the only state-wide entity dedicated to the establishment of Public/Private Partnerships for the reduction of petroleum in transportation, and for the advancement of alternative transportation fuels and advanced vehicle technologies.



- Connecting fleets and fuel providers with industry & public partners
- Offering training and information
- Access to technical assistance
- Identifying funding; developing public/private partnerships & projects
- Providing public recognition
- Collecting data and tracking progress



**Clean Cities coalitions are locally based with the ability to tap national resources.**



- USDOE designation in 1997
- Incorporated as a NJ Non-Profit and IRS 501(c)3 tax exempt entity in 2009
- Stakeholders represent the spectrum of public and private interests
- Activities funded by:
  - ✓ Member dues (various levels)
  - ✓ Sponsorships
  - ✓ grants & contracts (including **annual?** DOE seed funding)
- Secured more than \$18 million in grants for our NJ-based stakeholders
- Regular outreach to more than 3000 through: LinkedIn Group, Facebook, Twitter, e-newsletter, [www.njcleancities.org](http://www.njcleancities.org)
- Participate on several statewide & regional workgroups

## Clean Cities

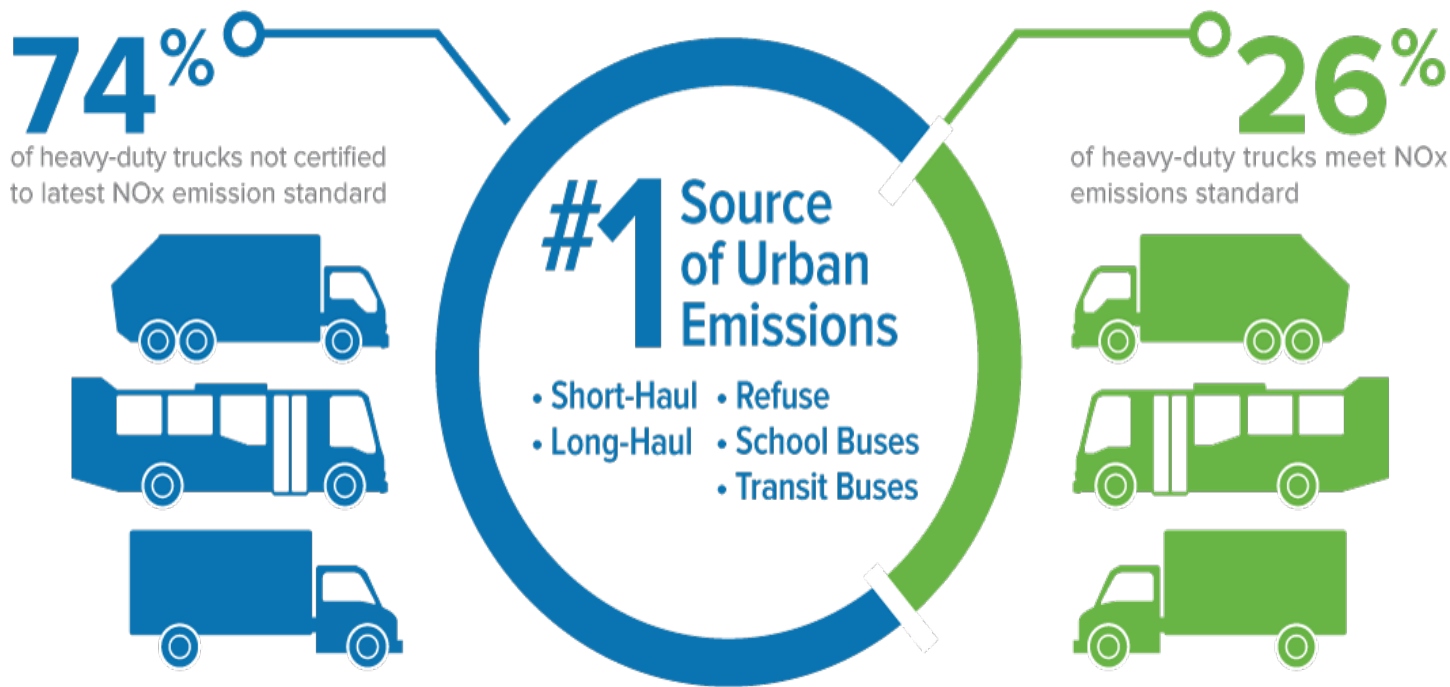
advances the energy, economic, and environmental security of the United States by supporting local actions to cut petroleum use in transportation.

Reduced petroleum consumption

Reduced greenhouse gas (GHG) emissions

Reduced dependence on imported petroleum

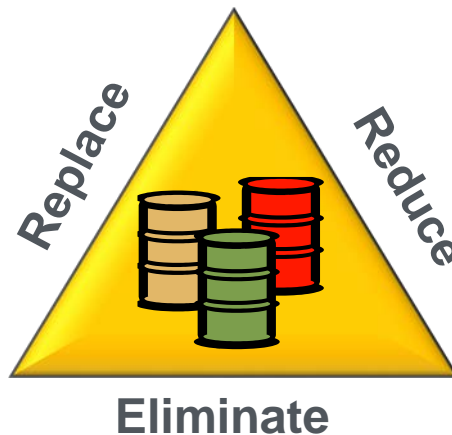
# Urban Emissions: Leading Sources



Source: DTF Analysis on HIS Vehicles in Operation Data, December 2015

## Alternative Fuels

Electric Vehicles  
Biodiesel  
Ethanol  
Hydrogen  
Propane  
Natural Gas



## Fuel Economy

More fuel efficient vehicles,  
smarter driving and vehicle  
purchasing habits, vehicle  
miles travel reductions



## Idle Reduction

Heavy-Duty Trucks  
School & Transit Buses  
Light-Duty Vehicles

## Hybrids

Light- and heavy-duty  
Electric hybrids  
Plug-In hybrids  
Hydraulic hybrids

# Post Sandy Theme = FUEL DIVERSIFICATION!

## Idle Reduction Is the Low-Hanging Fruit of Fuel Economy



## Evaluate Vehicle Needs and Use

Determine whether you can reassign, replace, or eliminate vehicles without compromising fleet activities

Define evaluation criteria and rank vehicles.

## Make Smart Vehicle Purchases

Transition to smaller, more efficient engines

Choose lighter vehicles

Use alternative fuels and vehicles.

- Limited gasoline and diesel supplies
  - Some reported no power to run station
  - Some had no fuel due to disruptions to supply chain
- Gasoline rationing instituted
- 21% of stations still had no fuel 11 days after Sandy



- Recovery efforts showed value of alternative fuel vehicles
  - Provided critical services when conventional fuel supplies interrupted
  - Alternative fuel supplies remained available post-storm
  - Point to need for **FUEL DIVERSIFICATION**
- Need to maintain an inventory of AFV resources so they can be integrated into contingency and energy assurance planning and response.



# Initiative for Resiliency in Energy through Vehicles (iREV)



- Address the need for fuel diversification and the risk of being overly dependent upon a single fuel.
- Help localities understand the energy security benefits of AFVs and support the inclusion of AFVs into emergency response plans.
- Led by NASEO, guided by a steering committee of public/private and Clean Cities partners.

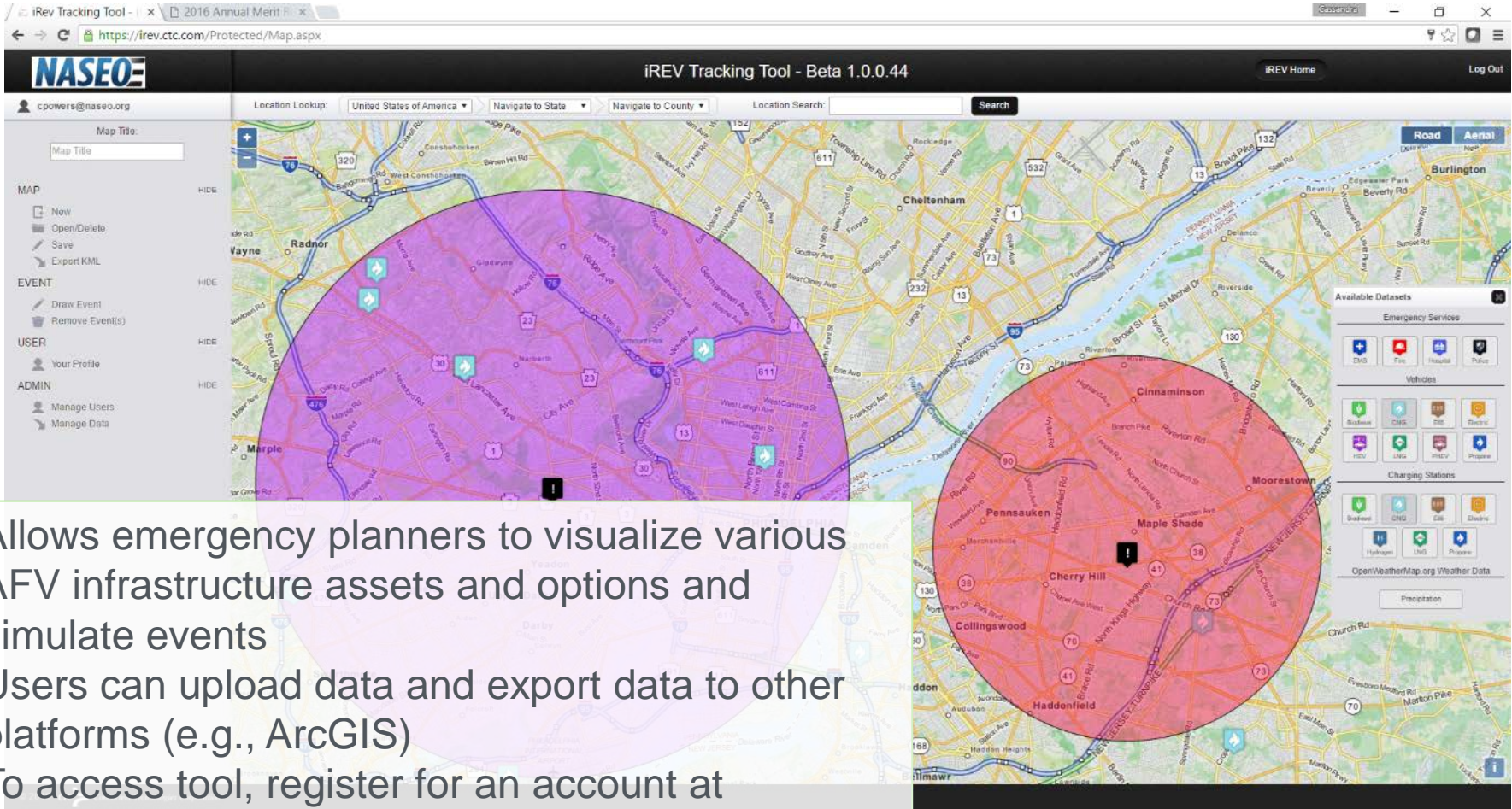


# iREV-Tracking Tool



- Mapping application for real-time information sharing.
- Overlays fleet locations and capabilities data with GIS, weather data, and manual inputs to support emergency management agencies' decision-making.
- Combines data from the Alternative Fuels Data Center, on-the-ground fleet and infrastructure information developed by local Clean Cities Coalitions, and disaster readiness tools being used at the national level to support critical infrastructure and homeland security.
- Helps emergency planners/responders understand the various AFV and infrastructure assets and options at their disposal, and optimize their planning and investment based on their specific fuel supply, geography, and risk profile.

# iREV: AFV Tool for Emergency Planners



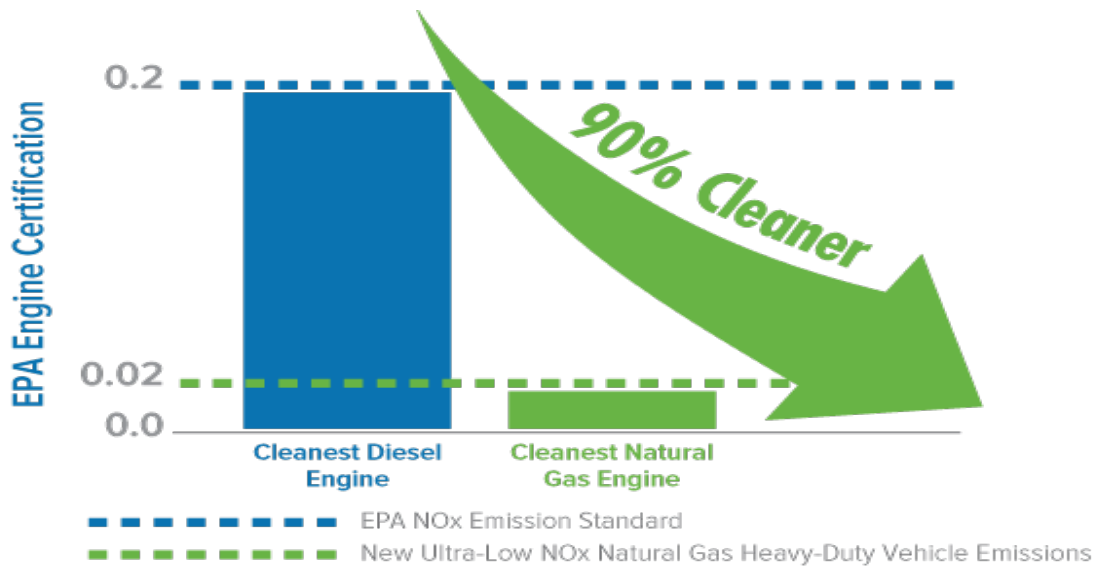
- Allows emergency planners to visualize various AFV infrastructure assets and options and simulate events
- Users can upload data and export data to other platforms (e.g., ArcGIS)
- To access tool, register for an account at <http://irev.ctc.com>

# AFVs in Emergencies



*Natural Gas vehicles were relied upon to evacuate citizens and clear debris during and after Hurricane Sandy*

[www.naseo.org/irev](http://www.naseo.org/irev)



**The cleanest heavy-duty truck engines are powered by natural gas**

*- Certified by the U.S. EPA and California Air Resources Board*

The Cummins Westport Ultra-Low NOx engine is certified to at 0.02 g standard:

- 90% cleaner than the EPA’s current NOx standard
- 90% cleaner than the latest available diesel engines

# Renewable Natural Gas

Carbon Intensity Rating of Key Transportation Fuels

Transportation Fuel	EER-Adjusted Carbon Intensity
Diesel (conventional)	102.01
Natural gas (conventional)	88.60
Hydrogen (from natural gas)	55.61
Electricity (California grid)	38.95
RNG - Landfill gas	33.89 to 65.64
RNG - Wastewater biogas	8.61 to 34.36
RNG - Food/green waste biogas	-25.48
RNG - Dairy biogas (prospective)	-303.30

**NGVs + RNG offer the cleanest commercially available path to reduce heavy-duty vehicle emissions**

(for likely a decade or more).

**WTW Greenhouse Gas Emissions Reductions**

Compared to Diesel:



**40-125% reduction**



- NJCCC led a **public/private team** to implement the first large-scale deployment of AFVs and infrastructure in NJ.
- Effectively leveraged federal investment of \$15mil with an additional \$36 mil of non-federal for \$51mil total project cost.
- Transitioned 305 highly visible vehicles to CNG from 15 fleets statewide (trash collection trucks and shuttle buses).
- Installed 6 CNG fueling stations across the state.
- Ongoing outreach & education to further develop the market.
- Base program **displaces more than 2,000,000 gallons of petroleum** and avoids more than 900,000 pounds of identified criteria pollutants and greenhouse gas emissions **per year**.

# NJ Has A Long History with EVs



**Circa 1911, Thomas Edison's Home Charging Station and EV – note the NJ license plate!**



# Full circle at the NPS Edison Lab



## Electric vehicle (EV) technology options:

- Plug-in hybrid electric vehicles (PHEVs)
- Battery electric vehicles (BEVs)
- Battery electric vehicles with a range extender (BEVx or EREVs)
- Hydrogen fuel cell vehicles (FCEVs)



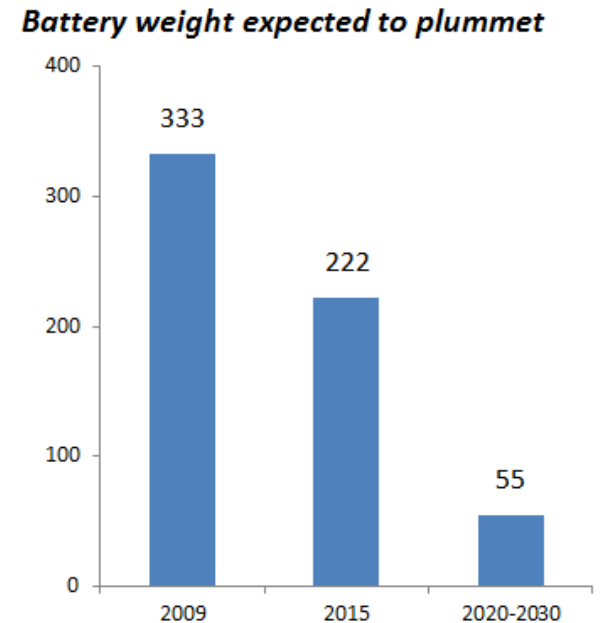
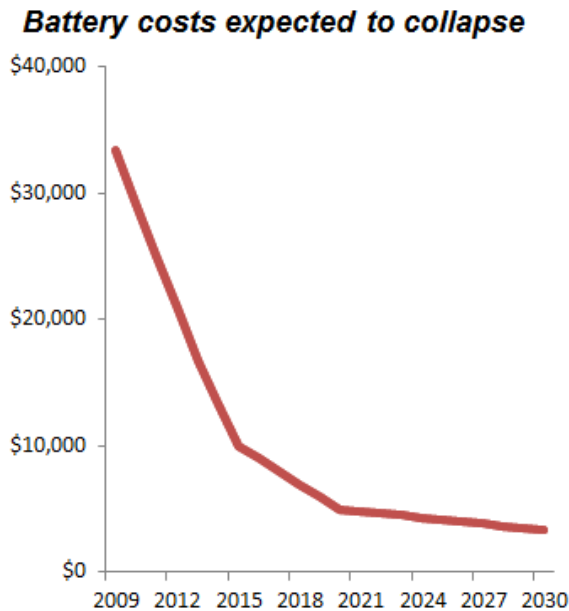
- Fuel cost savings
- Savings on maintenance
- Lower environmental impact
- Energy security



# Why has this taken so long?



- Battery technology has been the primary technical restraint in bringing these products to mass market.
- Key hurdles
  - Energy/Power densities
  - Cost
  - Weight
  - Battery life



- The 200+ mile range mass market BEV is here!
- Since 2012, BEVs have increased in range by nearly 2.5x, while holding the line on prices
- The 2018 Nissan Leaf - range up 40%, power up 38%, torque up 26%, price down 2%!

2012 Nissan Leaf  
Range – 84 miles  
\$35,200 MSRP



2017 Chevy Bolt  
Range – 200+ miles  
\$37,500 MSRP



2017 Tesla Model 3  
Range – 200+ miles  
\$35,000 MSRP



## AC LEVEL 1

**Provides 2-5 miles of electric range for each hour of charging.**

Standard home AC current (120V) is supplied to the EV using a portable cord that plugs into a regular three-prong outlet.



Single family & multi-family homes



Workplaces



Fleets



Public spaces in metro areas

Standard AC Level 1 charger connector is called SAE J1772.

## AC LEVEL 2

**Provides 10-20 miles of electric range for each hour of charging.**

Higher AC (208-240V) is supplied to the EV, using a standardized connector that works for all EV models except for Tesla, which has its own.

Standard AC Level 2 charger connector is called SAE J1772.

## DC FAST CHARGE

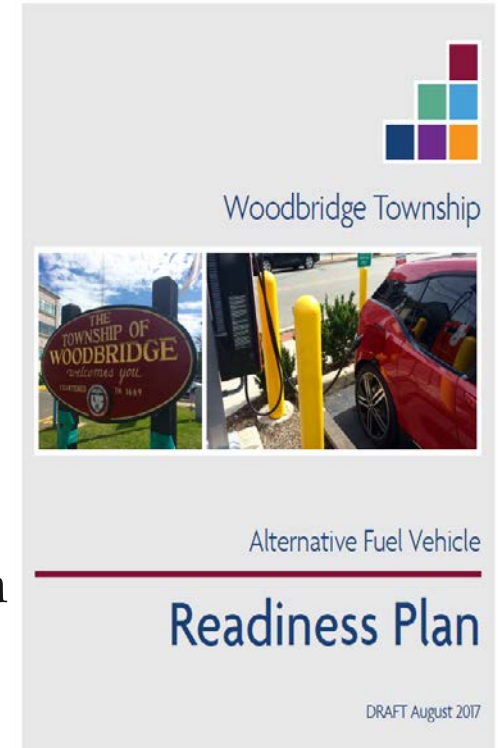
**Provides 80% of a full charge in 20 minutes.**

Direct current (DC) at 200-500V is transferred straight to the battery. Two common DC connectors exist and are available on most EVs, except for Tesla that uses its own connector.

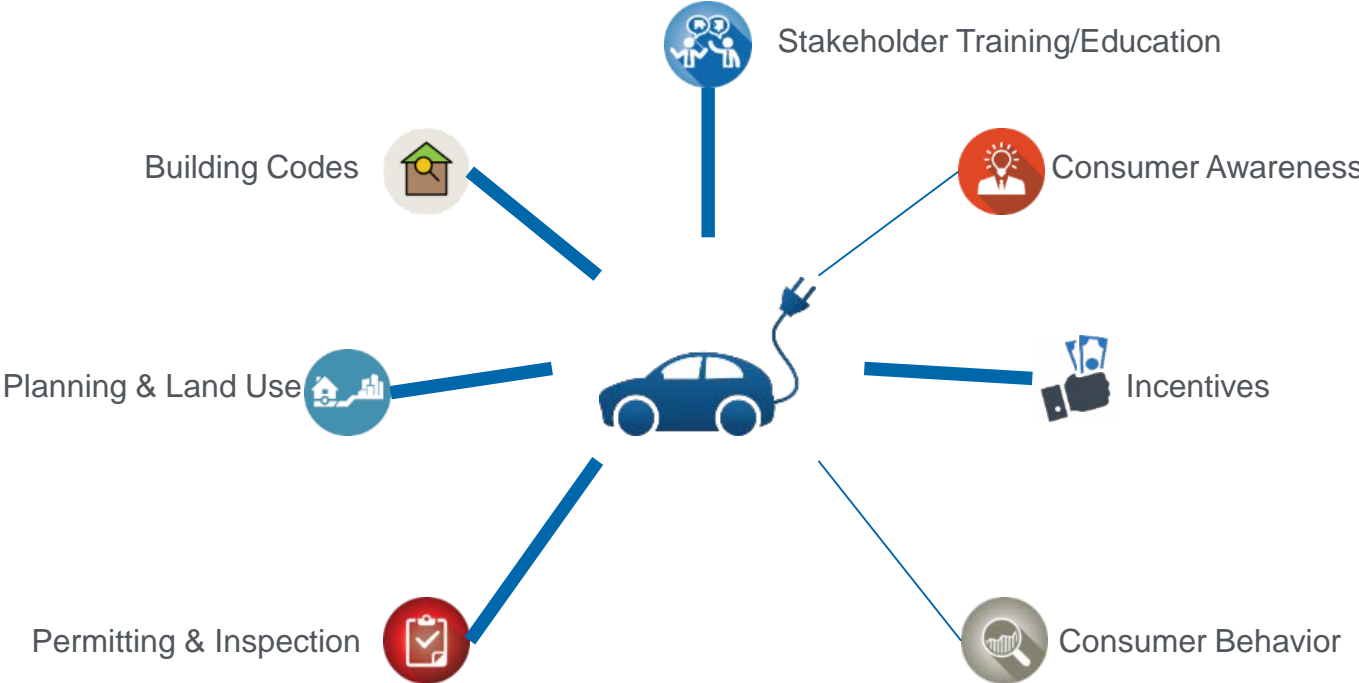
Public spaces, inter-metro

Standard DC connectors are the SAE J1772 DC Combo and CHAdeMO.

- Executive Summary
- Introduction
  - Municipal Goals
- Electric and CNG Vehicles & Infrastructure
  - Current Market
  - Barriers to Increased Adoption
  - Market Outlook
  - Regulatory Framework
  - Incentives/Funding
- Recommendations & Steps to Implementation
- Appendices



# Readiness Planning: The Basics





Objective: Quantify the potential for siting charging infrastructure.

## Process:

- Collect data
- Apply methodology
- Illustrate results

## Key socioeconomic inputs

- Income
- Hybrid vehicle ownership
- Home ownership
- Housing type

## Data sources

- Municipalities
- Travel (trip) model
- U.S. Census Bureau
- DMV/IHS Automotive

## Resulting Maps

- Residential charging
- Workplace charging
- Opportunity/public charging

- What Does it Take to Become AFV Ready?
  - Steps to pursue a readiness plan
  - Lessons learned from pilot municipalities
  - Examples and resources
- Fuels/Technologies
  - EVs, NGVs, propane, biodiesel, ethanol, hydrogen



- Start-Stop Vehicle Technologies
  - Shuts down engine to avoid idling
  - Allows better use of energy recovered from regenerative braking
- “Connected Vehicles”
  - allows sharing of access with other devices inside and outside the vehicle
    - smartphone apps, navigation, roadside assistance, voice commands, parking apps, engine controls and car diagnosis.
    - Users can unlock their cars, check the status of batteries on electric cars, find the location of the car, remotely activate the climate control system.
  - Wireless technologies to communicate in real time -- vehicle to vehicle (V2V), vehicle to infrastructure (V2I), and vehicle to grid (V2G)
    - **EV battery could serve as a resiliency tool, with peak shaving or demand response capability.**
    - Communications allow for advanced accident avoidance technologies.
- Autonomous Vehicles – save that discussion for another day!

The screenshot shows the homepage of the Alternative Fuels Data Center (AFDC). At the top, it features the U.S. Department of Energy logo and navigation links for EERE Home, Programs & Offices, and Consumer Information. The main header includes a search bar and a 'SEARCH' button. Below the header, there are navigation tabs for 'FUELS & VEHICLES', 'CONSERVE FUEL', 'LOCATE STATIONS', 'LAWS & INCENTIVES', 'Maps & Data', 'Case Studies', 'Publications', 'TOOLS', 'About', and 'Home'. The 'Fuels & Vehicles' section displays icons for Biodiesel, Electricity, Ethanol, Hydrogen, Natural Gas, and Propane. A 'Need a Jump?' advertisement is featured prominently. The 'Information by State' section includes a map of the U.S. and a dropdown menu. The 'Information by Fleet Application' section lists categories like Delivery Services, Refuse Collection, Public Transit, and School Transportation. The 'Maps & Data' section provides links to various data reports and a 'Fuel Prices' chart. The 'Tools' section lists resources such as Laws & Incentives, Electricity Sources & Emissions, Vehicle Cost Calculator, Vehicle Search, and Petroleum Reduction Planning Tool, along with a 'Station Locator' map. A 'Printable Version' and 'Share' button are also visible.

- ✓ Specific information on fuels, vehicles, technologies, & strategies
- ✓ Tools
- ✓ Publications
- ✓ State-specific information
- ✓ Fleet-specific information
- ✓ AFV station locator

[afdc.energy.gov](http://afdc.energy.gov)

## Chuck Feinberg

**Chairman of the Board, New Jersey Clean Cities Coalition**

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LinkedIn Group: New Jersey Clean Cities Coalition

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**Executive Vice President, Greener By Design**

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[cfeinberg@gbdtoday.com](mailto:cfeinberg@gbdtoday.com)





# Electric Vehicles, Clean Air and Your Community

New Jersey State League of Municipalities Annual Conference  
November 16, 2017



New Jersey Department of Environmental Protection  
Air Quality, Energy and Sustainability





Photo from Chevrolet



Photo from Proterra.com





Photo from Workhorse



Photo from Zeromotorcycles



Photo from Stevenson Crane Service



Photo from Workhorse



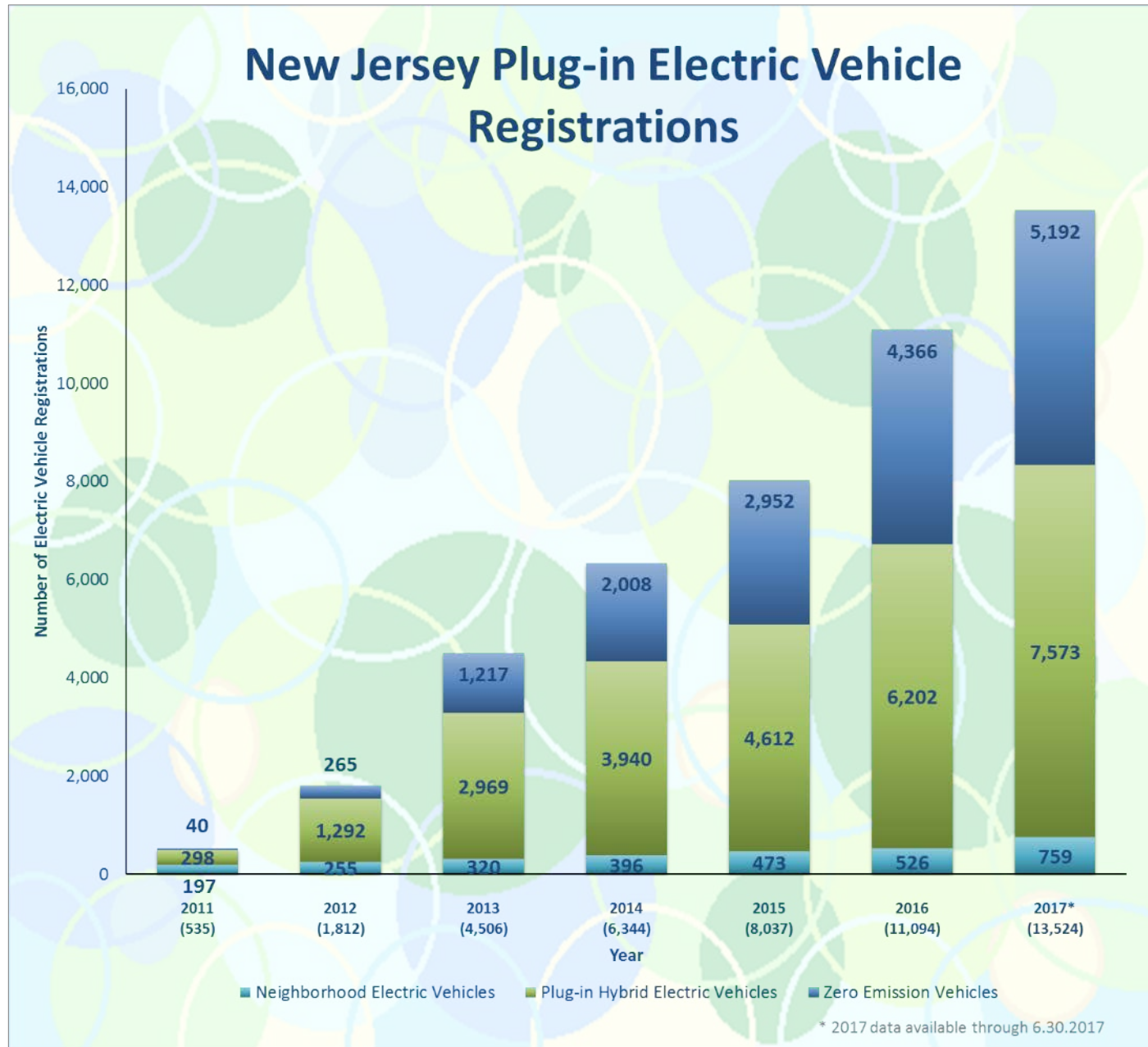
Photo from Tesla Motors

600,000 Americans have made the switch to electric.

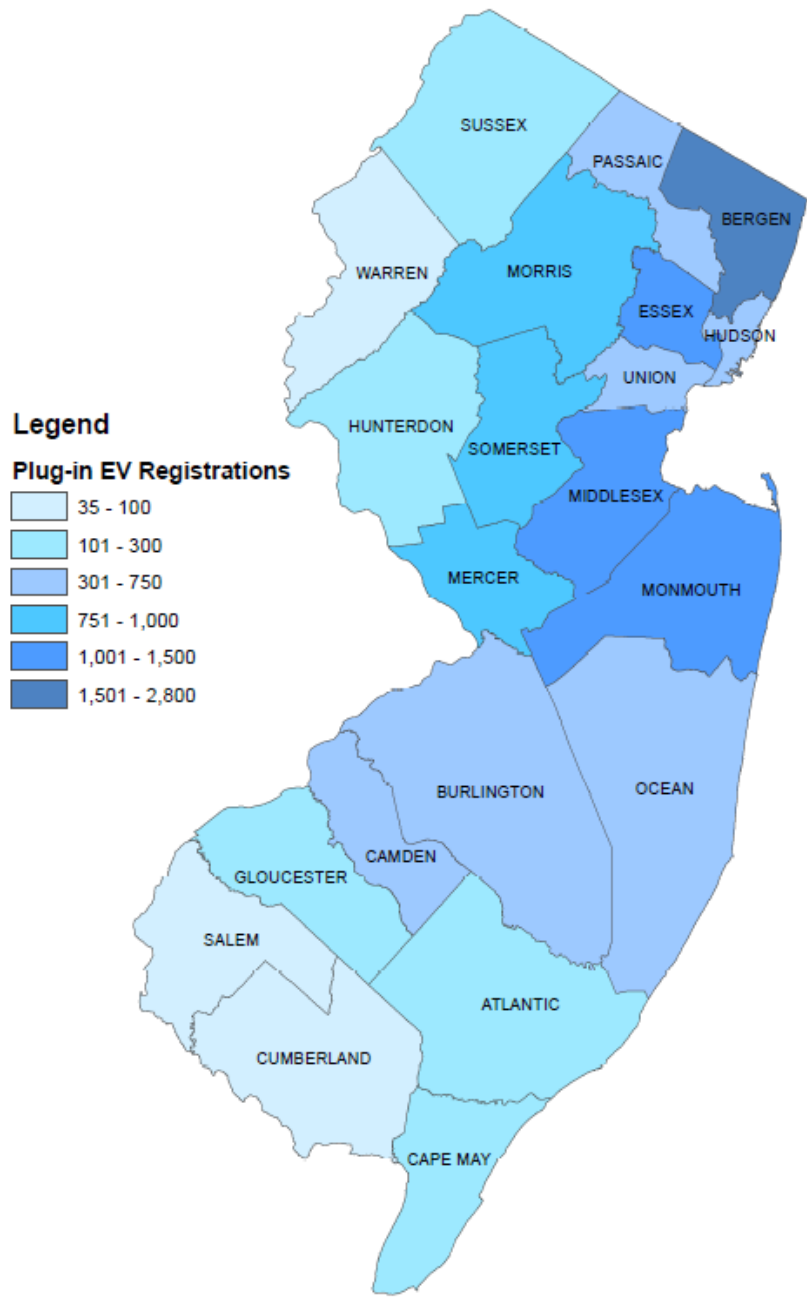
# NJ EV Registrations

2011: 535

2017: 13,524

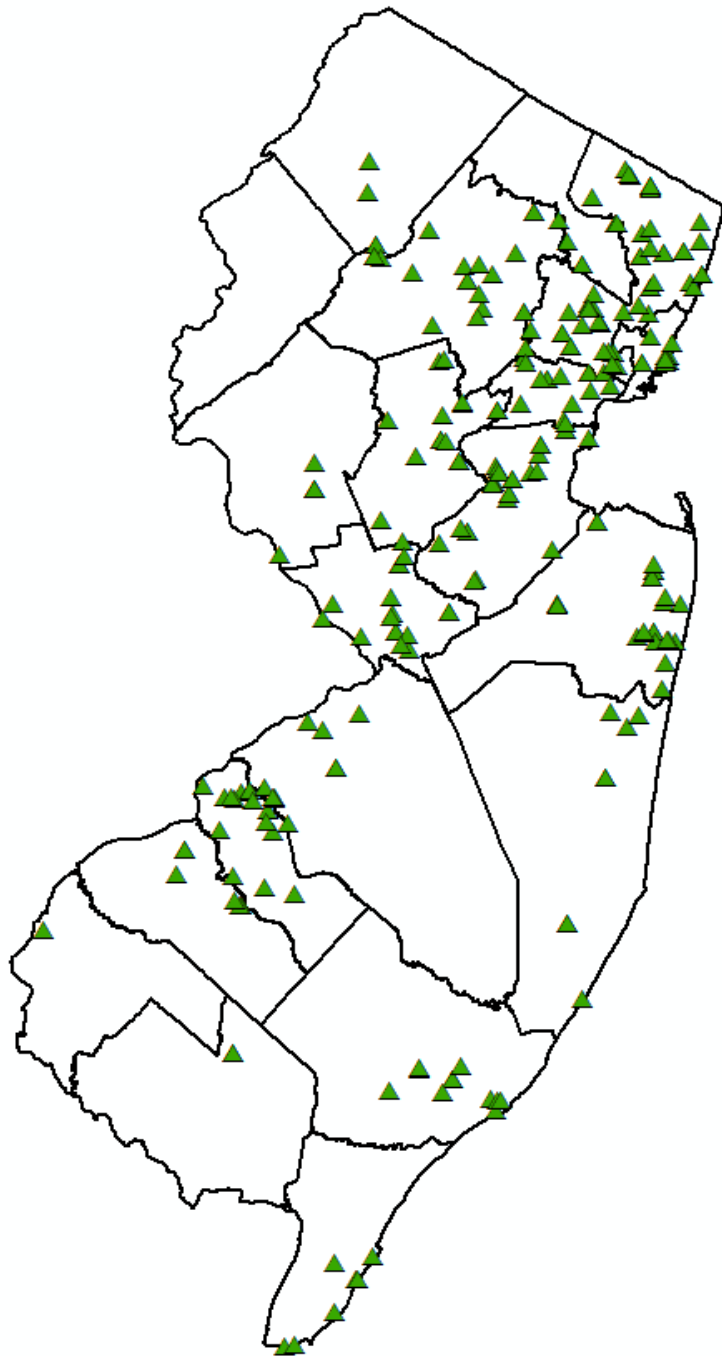


# Plug-in Electric Vehicle Registrations by County



# NJ Electric Vehicle Registrations by County

- Battery Electric Vehicles
- Plug-In Hybrid Electric Vehicles
- Neighborhood Electric Vehicles



## The Charging Network is Growing

Publicly accessible EV  
charging stations:

517 charge points at  
220 locations

**Why do we care?**



**Vehicles cause air pollution.**

Photo from Getty Images

# Ozone (Smog) Health Effects

---

Healthy  
airway



Inflamed  
airway due  
to ozone  
inhalation



## Ozone Health Effects

- Decreases lung function
- Coughing and chest pain
- Increases susceptibility to respiratory infections
- Permanent damage to lungs
- Promotes allergic reactions
- Death

**Nearly 75% of New Jersey's NOx comes from vehicles**



# Fine Particle (PM<sub>2.5</sub>) Health Effects

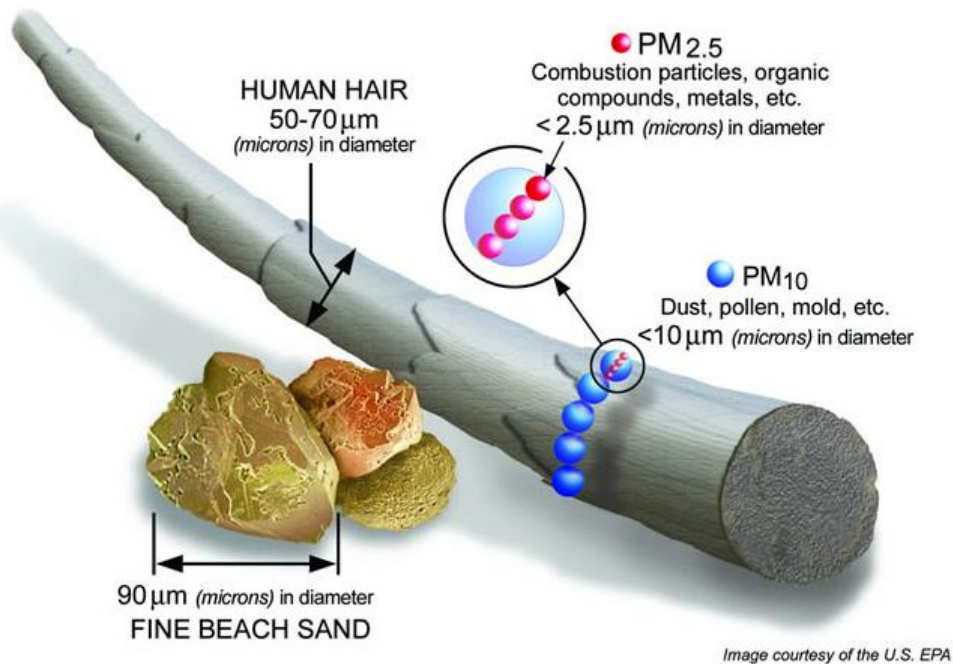


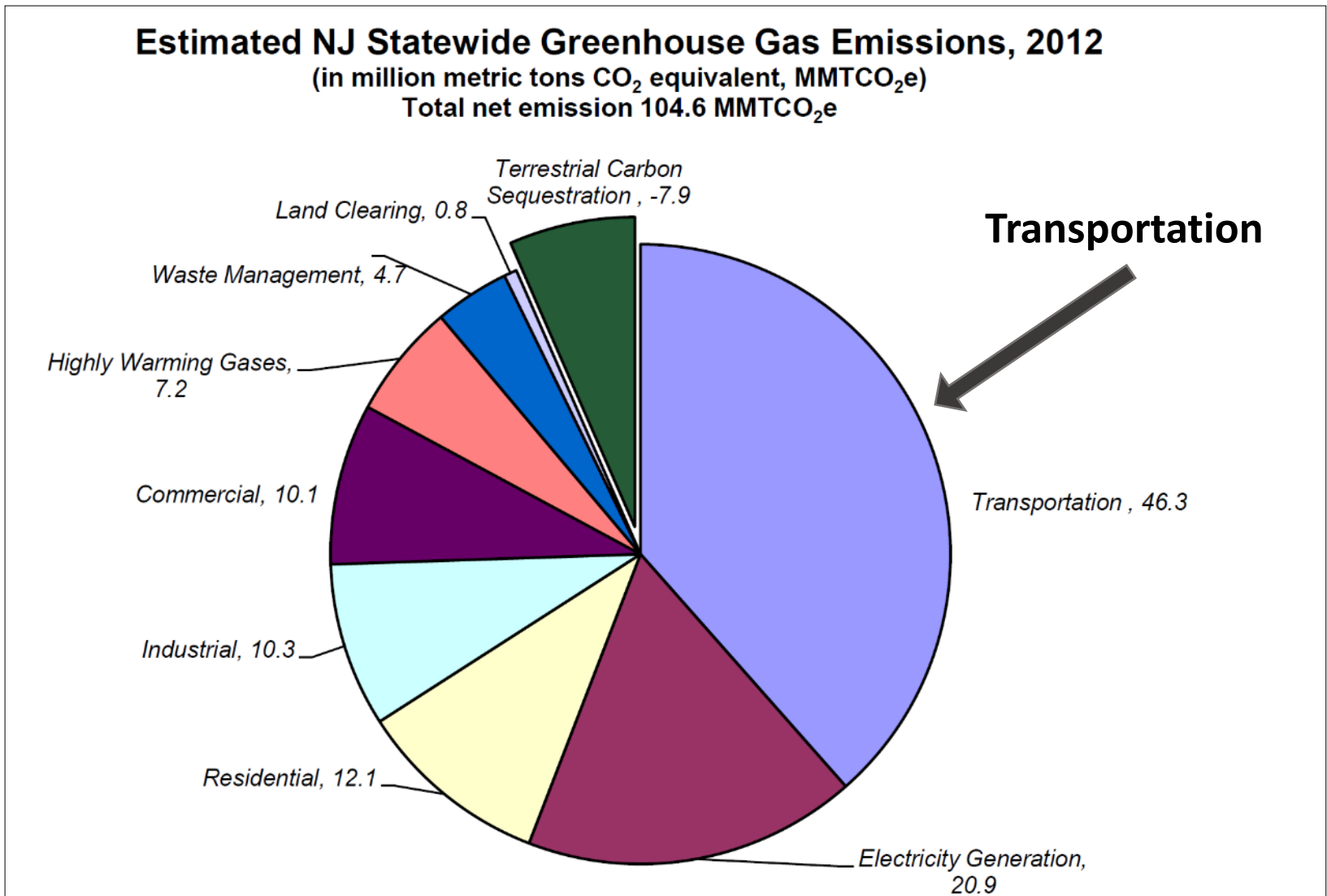
Image from USEPA

## PM 2.5 Health Effects

- Premature death
- Respiratory-related hospital admissions and ER visits
- Aggravated asthma
- Coughing, difficulty/pain breathing
- Chronic bronchitis
- Decreased lung function
- Diesel carcinogen
- Work and school absences

**More than 25% of New Jersey's  
particulate pollution come from vehicles**

# Vehicles Cause Greenhouse Gas Pollution



# Electric Vehicles Improve Air Quality

- Less ozone-causing chemicals
- Less harmful particulates
- Less greenhouse gases

Photo from Citi.io

# Electric Vehicles Improve Air Quality

- Less ozone-causing chemicals
- Less harmful particulates
- Less greenhouse gases

**Electric vehicles get cleaner over time.**

Photo from Citi.io

# Incentives!

---

- ✓ It Pay\$ to Plug in – NJ Workplace Charging Grants
- ✓ Federal Tax Credit for vehicles - up to \$7,500 \*
- ✓ State Sales Tax Exemption for Zero Emission Vehicles \*
- ✓ Toll Discounts (Garden State Parkway, NJ Turnpike)
- ✓ Utility and Automaker Incentive Programs
- ✓ High Occupancy Lane Access
- ✓ Streamlined Permitting for Home Charging Stations
- ✓ NJ Recognition Program for Workplace Charging
- ✓ See [www.drivegreen.nj.gov/affordable.html](http://www.drivegreen.nj.gov/affordable.html)

# Three Potential Incentives for Municipalities

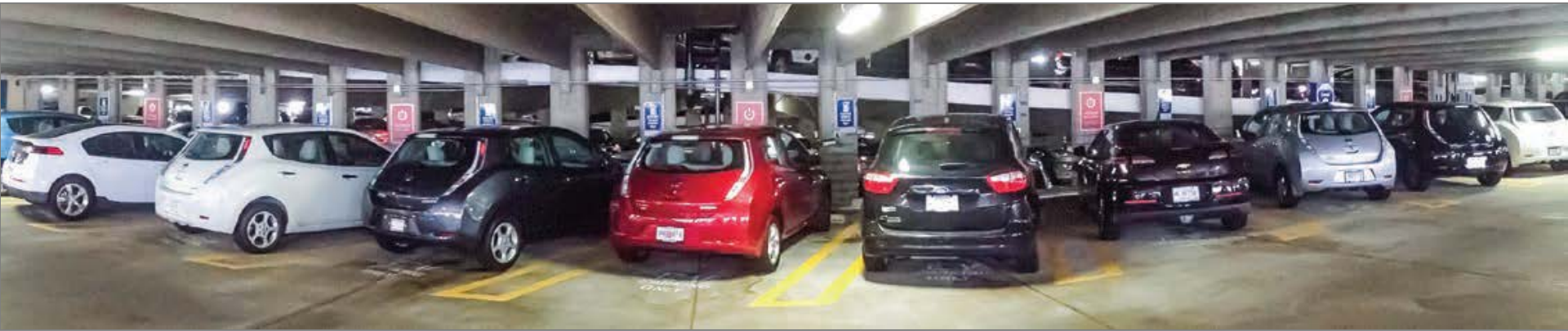
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1. It Pay\$ to Plug In – Grant Program for Workplace Charging
2. Support for Municipal Fleets
3. Volkswagen Settlement

# Incentive #1: It Pay\$ to Plug In

## New Jersey's Grant Program for Workplace Charging



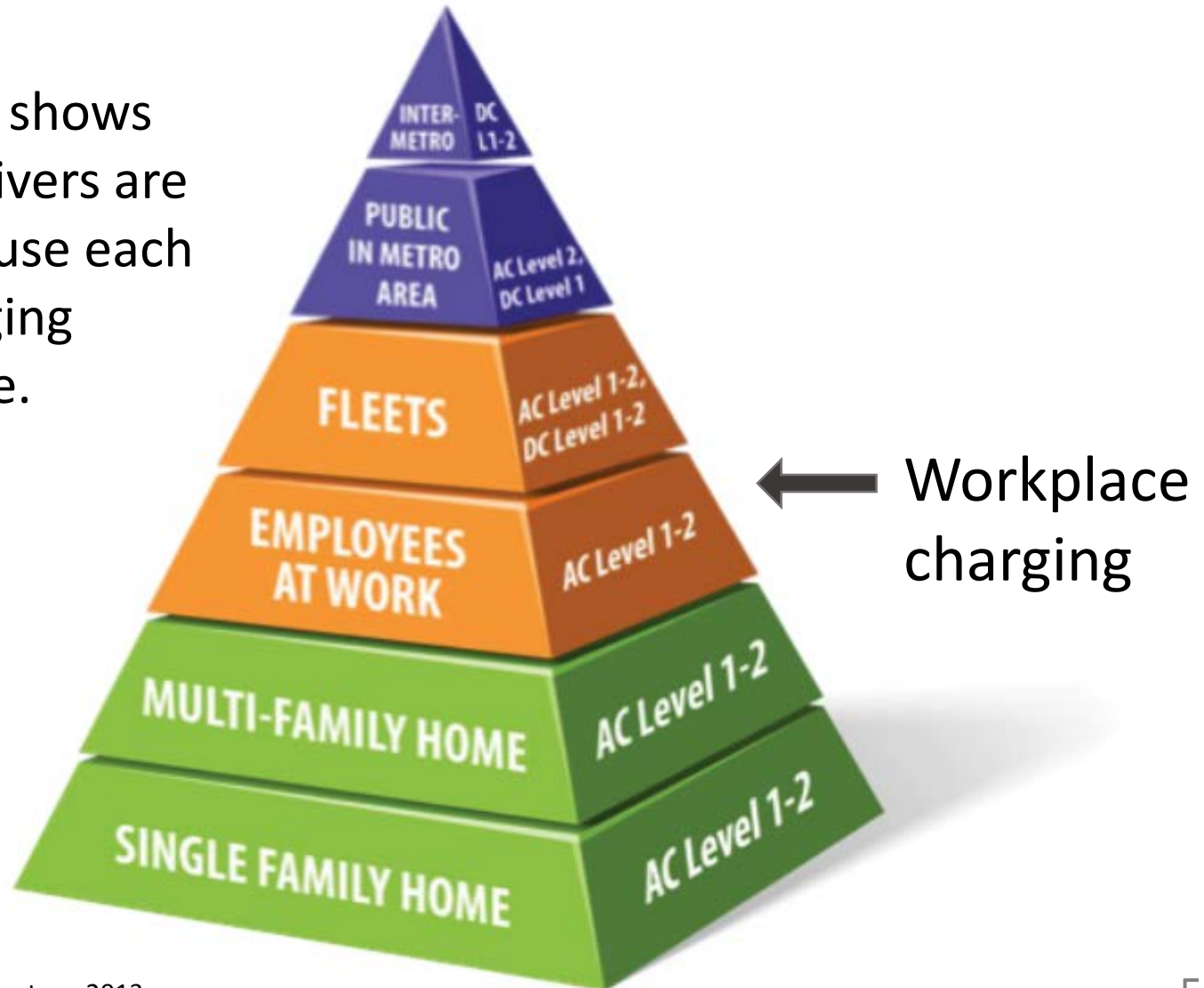
Grants offset the costs for purchase and installation of electric vehicle charging stations

Goal: Encourage employees to purchase and drive electric vehicles to work, and reduce tailpipe emissions

# Why Workplace Charging?

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This pyramid shows how likely drivers are to need and use each type of charging infrastructure.





# Success!

---

- **NJDEP Awarded nearly \$850,000 in 16 months to 66 grantees for 186 charging stations**
- Temporarily out of funds, but we are accepting applications for the waiting list



**If approved, federal grants will expand the program beyond workplace charging in late 2018.**

# Eligibility and Process

---

- All NJ employers: public, private, for-profit, not-for-profit, educational, and government entities
- Level 1 and Level 2 chargers only
- Apply online before installing charging stations.
- Receive approval letter from DEP.
- Install within one calendar year.
- Receive reimbursement.
  - Up to \$250 per Level 1 charging station
  - Up to \$5,000 per Level 2 charging station
- Contingent on funding. Applications approved on a first-come, first-served basis until funding is depleted.

# Congratulations Municipal and County Grantees!

Municipality or County	Chargers
Borough of Rutherford	8
Borough of Glen Rock	6
Hopewell Township	5
Borough of Bound Brook	4
Borough of Seaside Heights	4
Town of Secaucus	4
Borough of Beach Haven	3
Borough of Demarest	3
Borough of Park Ridge	3

Municipality or County	Chargers
Borough of Bogota	2
County of Hudson	2
Township of Edison	2
County of Hudson	2
Morris Co. Vocational Technical School	2
Township of Ocean	2
Borough of Avalon	1
City of Ocean City	1
Princeton	1

18 county and municipal grantees will install 55 Level 2 EV charging stations.

# Expansion of *It Pay\$ to Plug In* (Late 2018)

---

NJDEP has preliminary approval for \$3.6M federal grant funding for appx. 570 charging stations

- Public sector only
- Five strategic settings:
  1. Downtown areas
  2. Leisure destinations
  3. Public workplaces (including fleets)
  4. Public colleges and universities
  5. Major travel corridors
- Plus DC Fast Chargers



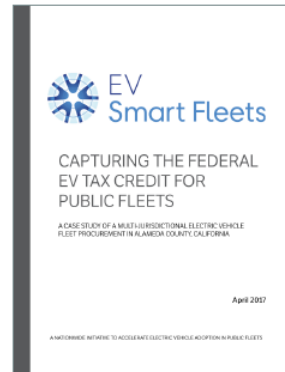
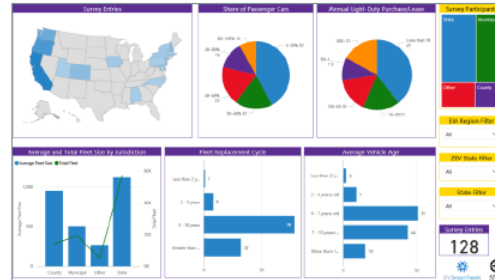
# Incentive #2: Support for Municipal Fleets



## Materials on EV Smart Fleets Website

[www.evsmartfleets.com](http://www.evsmartfleets.com)

- Explore results from our nationwide survey of public fleets on EV procurement
- Read our case studies and learn about how public fleets have acquired EVs at a low cost
- **Use the Fleet Procurement Analysis Tool to assess how EVs compare to conventional vehicles**



Procurement Summary		Vehicle Cost per Mile (Nominal)		Procurement Details	
Procurement (Over five months and increasing)	\$6,000	2017 Chevrolet Equinox	2017 Chevrolet Bolt EV (2017)	2017 Chevrolet Bolt EV (2017)	2017 Chevrolet Bolt EV (2017)
Franchising	\$6,000	\$0.486	\$0.443		
Warranty and Repairs	\$6,000				
Insurance	\$6,000				
Tax and Fees	\$6,000				
Charging Infrastructure	\$6,000				
Other	\$6,000				
<b>Total</b>	<b>\$30,000</b>	<b>\$0.486</b>	<b>\$0.443</b>	<b>\$0.443</b>	<b>\$0.443</b>
<b>2017 Chevrolet Equinox</b> Number of Vehicles Procured: 10 Years of Use (Ownership): 5 Miles Procured: 1,330,000 Total NPV Vehicle and Operating Costs: \$142,500 Total Tax Incentives Covered: \$ - Total Res-Tax Incentive Covered: \$ - Total Discounts Covered: \$ - NPV Vehicle Total Cost (incl. Incentives and Discounts): \$142,500 NPV Total Cost of Infrastructure: \$ - <b>Total NPV Cost: \$ 142,500 \$ 142,500</b>		<b>2017 Chevrolet Bolt EV</b> Number of Vehicles Procured: 10 Years of Use (Ownership): 5 Miles Procured: 1,330,000 Total NPV Vehicle and Operating Costs: \$142,500 Total Tax Incentives Covered: \$142,500 Total Res-Tax Incentive Covered: \$ - Total Discounts Covered: \$ - NPV Vehicle Total Cost (incl. Incentives and Discounts): \$0 NPV Total Cost of Infrastructure: \$ - <b>Total NPV Cost: \$ 0 \$ 0</b>			
The baseline is 8.84% more expensive than the comparison vehicle.					

**November 29 webinar “Opportunities for Adopting EVs in Municipal Fleets: A Primer”** cosponsored by Sustainable Jersey, EV Smart Fleets and NJDEP.

# Incentive #3: Volkswagen Settlement



- Volkswagen secretly installed software in certain diesel vehicles to cheat emission tests.
- Settlement: VW to provide funds to states/tribes for NOx reduction projects, including EV charging and hydrogen fueling infrastructure.
- Allocation to New Jersey: approximately \$72.2 million.
- **December 2 deadline for states to decide whether to sign on as beneficiaries to the settlement agreement.**
- See [www.state.nj.us/dep/vw](http://www.state.nj.us/dep/vw) for FAQs, to submit project ideas, and to join the email list for updates.

# Learn More: Drive Green NJ Website

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- Electric vehicle basics
- Grants and incentives
- All about charging
- Which EV is right for me?
- Can I afford it?
- Charging station locator
- Maps and data
- Sign up for our email list



[www.drivegreen.nj.gov](http://www.drivegreen.nj.gov)



## Questions?

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NJDEP Division of Air Quality  
Bureau of Mobile Sources  
[Brittany.Pfeiffer@dep.nj.gov](mailto:Brittany.Pfeiffer@dep.nj.gov)  
(609) 633-7237

Ryan Gergely  
NJDEP Bureau of Energy &  
Sustainability  
[Ryan.Gergely@dep.nj.gov](mailto:Ryan.Gergely@dep.nj.gov)  
(609) 292-8848



[www.drivegreen.nj.gov](http://www.drivegreen.nj.gov)







# Park Ridge Borough

## Electric Vehicle Charging Stations

Nov 16, 2017



# Park Ridge Borough – EV Charging Stations

James McDermott, LEED AP O&M, CEM, CRM

## Chairman Park Ridge Green Team



- 7 years
  - Community Service Award
  - Grant development
  - Eagle Scout Mentor 2015
- Green Team Initiatives
  - Municipal
  - Schools
  - SJ Certification
  - Bi-State Cleanup
  - Habitat Restoration and Gardens
  - Anti-idling
  - Student/Scout Programs
  - New Energy Technologies

## Account Executive Automated Logic – United Technologies



- 24 years experience
  - Energy management system sales
  - account management
  - project management
- Building Performance Solutions
  - Building Management Systems
  - Metering, energy reporting
  - Dashboards
  - Fault detection and diagnostics
  - IOT solutions



# Park Ridge Borough – EV Charging Stations

## Park Ridge - Electric History

- 1904 – First Hydroelectric Station in Northern NJ
- 2011 – Utility Garage and Schools Solar Panels
- 2015 - LED Street lights – Funded by SJ Gardinier Grant



# Park Ridge Borough – EV Charging Stations

## Park Ridge - Hybrid/Electric Cars

- 2010 – Leased 2 – BMW All Electric Mini-E's
- 2011 – Purchased 3 - Hybrid Cars



Toyota Prius Hybrid



Ford Escape Hybrid



Toyota Camry Hybrid

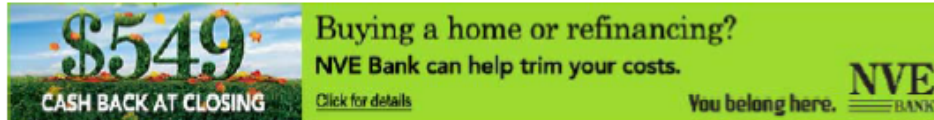


BMW Mini-E's

# Park Ridge Borough – EV Charging Stations

**NorthJersey.com**

NO. 1 IN BREAKING LOCAL NEWS



**\$549**  
CASH BACK AT CLOSING

Buying a home or refinancing?  
NVE Bank can help trim your costs.  
[Click for details](#)

You belong here. **NVE** BANK

## North Jersey officials have mixed reviews on electric car tryout

JULY 10, 2010, 10:19 AM LAST UPDATED: SATURDAY, JULY 10, 2010, 10:20 AM

BY DENISA R. SUPERVILLE

STAFF WRITER | THE RECORD

**PARK RIDGE** — The grayish silver, all-electric MINI E's driven around by meter readers and public works employees during the past 10 months were off the streets by the end of last week.

Municipal officials, who participated in BMW's pilot program on its first battery-powered electric car, have mixed reviews on the cars' performance.

Almost all interviewed said the cars performed well, but at the same time, almost all said they wouldn't buy the cars if they were mass-marketed and sold.

"Certainly, we want to be friendly to the environment, but our finances are limited," said Domenick Stampone, mayor of Haledon, where the cars were used mainly for parking enforcement. "It was perfectly suited for what we used it for. There are some drawbacks: The officers that used it, in extreme weather, they would not take the vehicles out. I don't know what the company could do to deal with that — maybe they can make an all-wheel drive version. But with those limited things aside, I would definitely consider one for the borough if the price was right."



Although BMW never intended to sell the cars, a sticker price of \$50,000 was attached to them.

"It's a bit much," Stampone said. "Even in good economic times, that's too much money to pay for what we were using the vehicle for."

But for the price at which they were offered to the towns — \$20 a month for two cars — they were too good a deal to pass up, municipal

# Park Ridge Borough – EV Charging Stations

## Park Ridge - Grants Since 2011

### - Electric Vehicle Charging Station Grants

- 2016 - Sustainable Jersey - Gardinier Foundation - \$ 10,000
- 2017 - \$15,000 – NJDEP – It pays to plug - \$ 15,000



### - Sustainable Jersey Grants

- 2012 - Wildlife Interaction Plan - \$ 10,000
- 2013 - Rain Garden - \$ 2,000
- 2015 - LED Street lights - \$ 10,000
- \* *Green Team - Additional Grants Awarded Since 2011* - \$ 32,000



# Park Ridge Borough – EV Charging Stations

## Park Ridge Green Team Achievements

2011, 2012, 2015 – Sustainable Jersey Bronze Certification

2013 - New Jersey Clean Communities Award – Bi-State Cleanup

2015 - Sustainable Jersey - Collaboration Award

2016 - Green Team Proclamation - Park Ridge Boro



# Park Ridge Borough – EV Charging Stations

## Park Ridge LED Street light Project

Sustainable Jersey Grants - 2014 – project completed 2015

35 LED Street light Fixtures installed by Electric Utility - downtown

### Benefits

- 50% Energy savings - \$3,400 per year
- Better lighting in the downtown area
- Reduced maintenance time for replacement - 10 year life
- 2017 - Boro is currently replacing failed HIP Street lights in residential neighborhoods with LED's





# Park Ridge Borough – EV Charging Stations

## Park Ridge Electric Vehicle Charging Stations

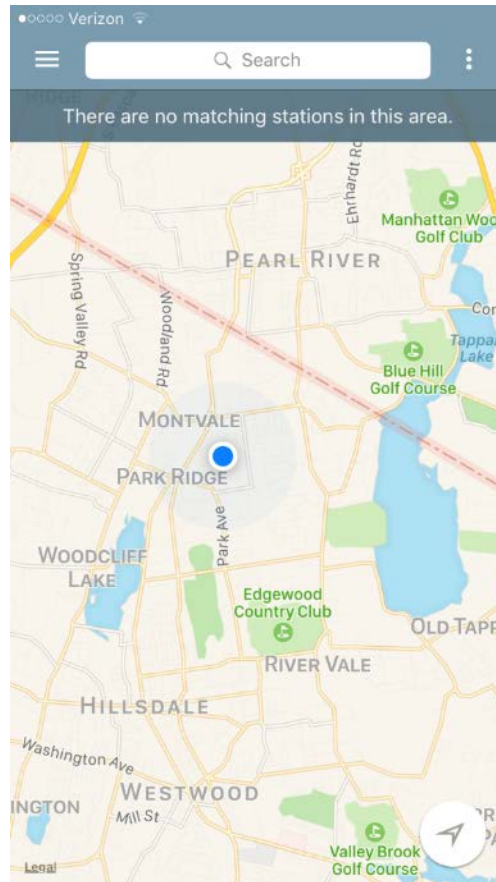
### History

- 2011 - Green Fair – GT invites Hertz to demonstrate an Electric Vehicle, (EV)
- 2014 – Sept - GT recommends SJ EV grant – Utility Board requests LED Street lights
- 2014 – Dec - \$10K LED Street lighting grant awarded
- 2016 – Feb - GT approved to apply for a \$20K SJ EV grant - not awarded
- 2016 – Oct – Boro applied and received a \$10K SJ grant - (3) Dual EV Stations
- 2017 – Jan – NJDEP matching grant funds depleted
- 2017 – Aug – Boro applied and awarded - (3) NJDEP - \$5K grants - \$15K total
- 2018 – Jan - (3) Dual EV Charging Stations to be installed



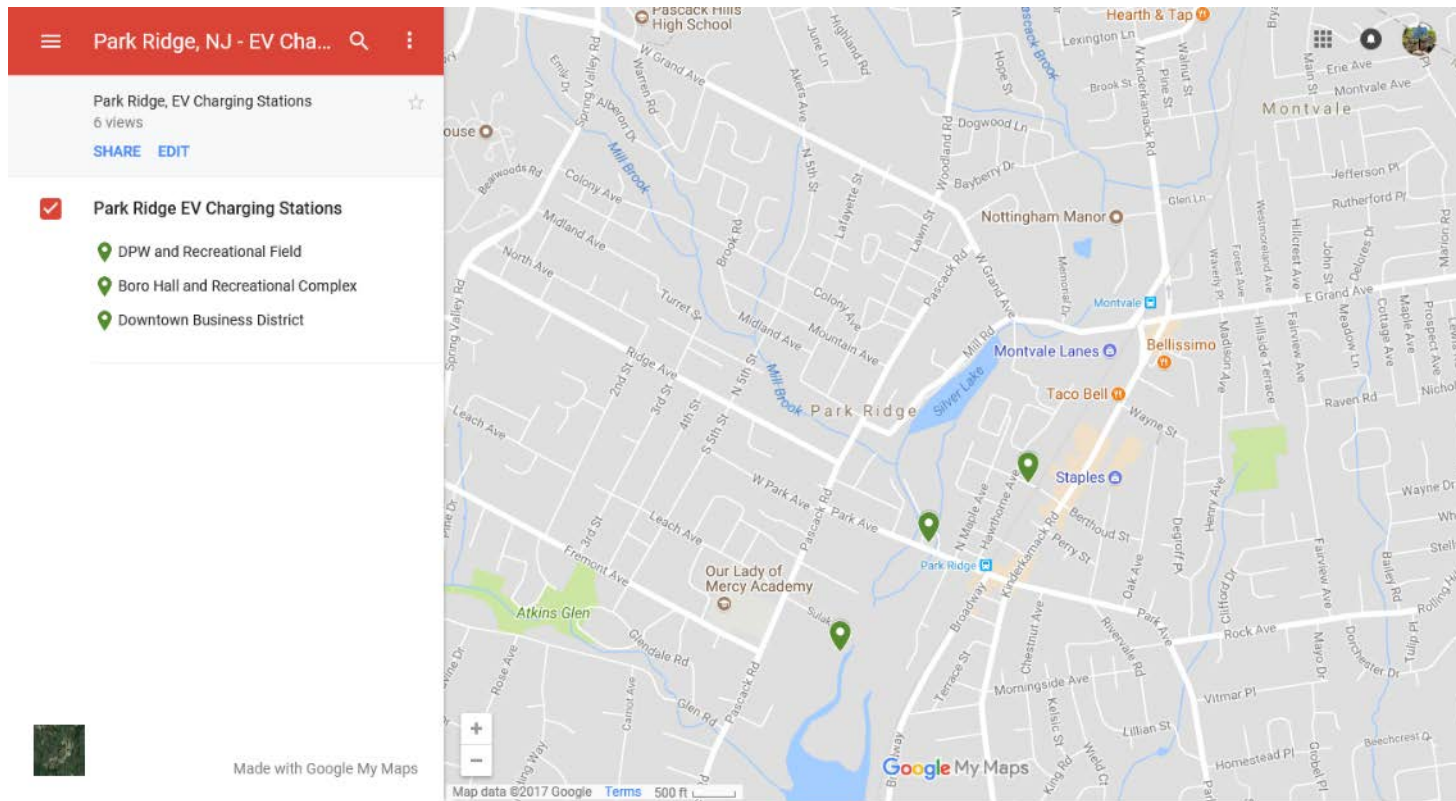
# Park Ridge Borough – EV Charging Stations

## 2017 - Electric Vehicle Charging Stations in Pascack Valley



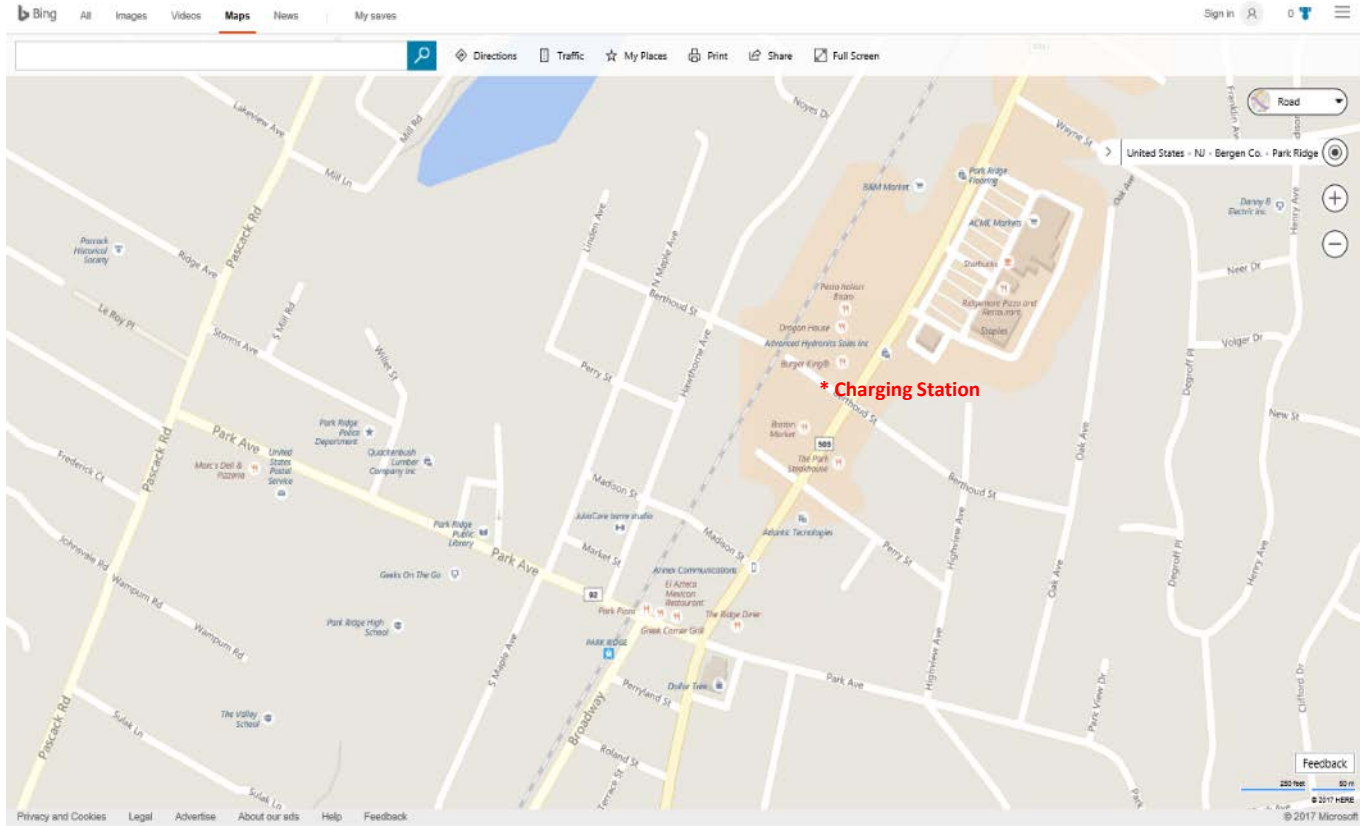
# Park Ridge Borough – EV Charging Stations

## Park Ridge – Electric Vehicle Charging Locations - Jan 2018



# Park Ridge Borough – EV Charging Stations

## Park Ridge Transit Village and Downtown Redevelopment



# Park Ridge Borough – EV Charging Stations

## Commercial Level 2 Charging Station

—chargepoint+

- + **Speed:** Provides 25 RPH (estimated miles of Range Per Hour).
- + **Clean Cord Technology:** Self-retracting, maintenance free, ultra-lightweight cord management system.
- + **Power Management Options:** Cut installation costs and double the number of parking spots served.
- + **Branding and Customization:** Promote your brand with an LCD screen and customizable signage.
- + **Consumer Friendly User Interface:** Available in multi languages (English, French, and Spanish), interactive animated user interface, and touch buttons for input (glove and ice operations).
- + **Compatibility:** 100% of EVs can charge with Level 2 Chargers



# Park Ridge Borough – EV Charging Stations

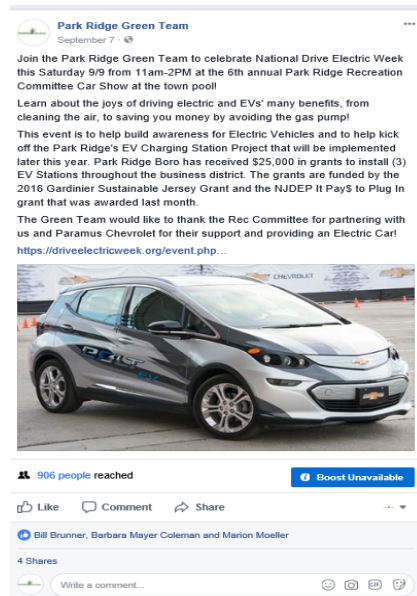
## Station Owner Benefits of ChargePoint



- + Set and manage pricing
- + Control access of who can use the stations
- + Create groups with their own specifications (ie: employees, residents, visitors, fleet)
- + Collect payment automatically (ChargePoint is PCI compliant)
- + OCPP 2.0 Core Compliant
- + Power management options
- + Track and report on:
  - Revenue
  - Station utilization/unique drivers
  - Energy (kWh) consumption and costs
  - Real-time occupancy status
  - Monthly/quarterly reports pushed to administrator
  - Environmental impact (GHG and petroleum offsets)
- + Brand/Advertise on stations (upload videos on L2)

# Park Ridge Borough – EV Charging Stations

## Outreach and Education National Drive Electric Week – 2017 Car Show



***\* Future education program at schools with Chargepoint – Mini-charger***

# Park Ridge Borough – EV Charging Stations

## Park Ridge Green Team

Dedicated to making our part of the world more environmentally responsible through education, engagement, partnerships and action.





# Park Ridge Borough – EV Charging Stations

## Park Ridge Green Team

Email [parkridgegreenteam@gmail.com](mailto:parkridgegreenteam@gmail.com)

Find us on Facebook, Twitter and Instagram



# Hopewell Solar Challenge

Rex Parker

Hopewell Township Environmental Commission

Hopewell Valley Green Team

# Sustainable Jersey's Solar Challenge

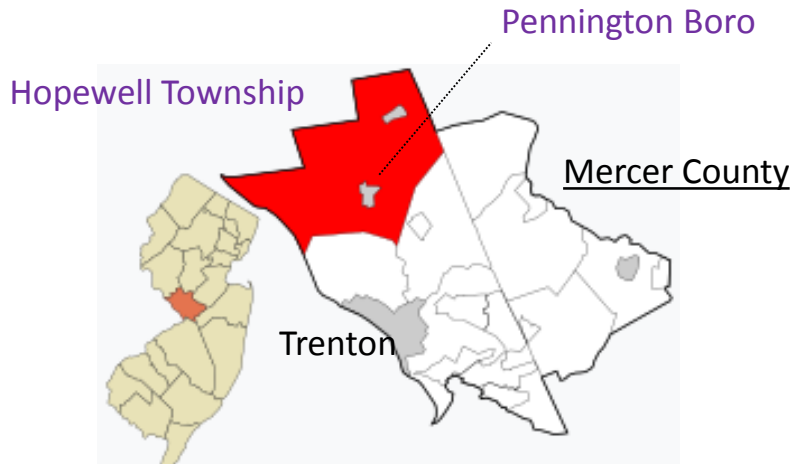
- EnergySage on-line solar marketplace
- Community-led campaign
- 7 NJ towns
- Award, incentives



**SUSTAINABLE JERSEY**  
**SOLAR CHALLENGE**

# Strengths of Hopewell Going into the Solar Challenge

- Green Team -- joint Hopewell Township + Pennington Boro
- EC's prior experience ("EQ Challenge")
- Interest in environment and green energy
- Housing stock
- Demographics



# How the EnergySage Marketplace Works

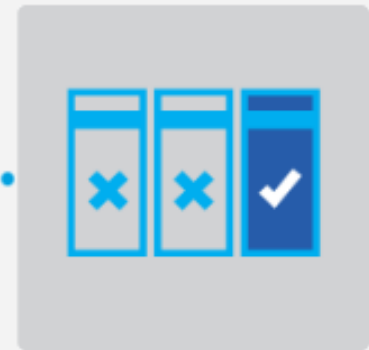
The EnergySage Marketplace gets you quotes online from multiple, pre-screened local installers and helps you compare offers in an apples-to-apples format so you get the best deal.



**Step 1:**  
**Register online**  
Register and complete your property profile



**Step 2:**  
**Pre-screened installers submit quotes online**  
Installers compete for your business



**Step 3:**  
**Compare quotes online**  
Pick the best quote for you and save with solar!

[▶ Learn more about the EnergySage Marketplace](#) | [▶ Watch our 1 minute video](#)



# Starting Up the Campaign

- Beginning

- Identify team members (roles of Green Team, EC, prof. staff)
- Develop Energy Sage landing page
- Create graphics and info content for PR
- “No annoying phone calls, no unwanted solicitations”

- Media

- On-line community news (MercerMe.com)
- Hopewell Valley News
- Middle school “virtual backpack”
- Physical banners, e.g. at Municipal center
- Links on Municipal and Green Team websites
- Mailing campaign to 6000 residents



# Landing Page for Participants



About Solar ▾

Solar Loans

888.802.8806

search

My Marketplace



Rex Parker ▾

## Explore your solar options today!

The Hopewell Township Environmental Commission & Hopewell Valley Green Team have joined with Energy Sage to help bring solar power to Hopewell Valley

Compare solar quotes online & get honest advice

or start with an **Instant Estimate** of your solar savings

## We're helping you go solar with confidence!



This Solar Challenge is a unique partnership between the Hopewell Township Environmental Commission and Hopewell Valley Green Team, and Energy Sage and Sustainable Jersey. The project has been endorsed by the Hopewell Township Committee. We seek to promote a sustainable future and foster green alternatives for all of Hopewell Valley.

The Challenge is for homeowners and businesses to use this Energy Sage web portal to identify best options, obtain quotes, decide on a contract, and install a solar photovoltaic system.



# Examples of Media

Generate clean electricity and reduce CO2 emissions

Help Hopewell Valley win Sustainable Jersey's Solar Challenge

**20% savings!**  
Hopewell Solar Challenge gets you best prices

**Hopewell Solar Challenge**

**Get Started Now!**  
SolarHopewell.org

*from the Hopewell Twp Environmental Commission & Hopewell Valley Green Team, partners with Sustainable Jersey & EnergySage*

MercerMe  
Living. Community Connected

TOWN NEWS ▾ LIFESTYLE ▾ ABOUT US ▾ FOLLOW US ▾ CALENDAR ▾ LETTERS TO THE EDITOR 🔍

**TRENDING NOW**  
Further Signs of a Fractured Relationship Between

**Featured**  
As heating season begins, know the dangers of carbon monoxide  
MercerMe - Nov 1, 2016

1,115 Followers FOLLOW

3,259 Fans LIKE

**OPEN STUDIO FOR ALL AGES**  
The Painter's **LOFT** ART STUDIO  
Walk Ins Welcome!  
1 Tree Farm Rd Pennington

Generate clean electricity and reduce CO2 emissions  
Help Hopewell Valley win Sustainable Jersey's Solar Challenge

20% savings!  
Hopewell Solar Challenge gets you best prices

**Hopewell Solar Challenge**  
Get Started Now!  
SolarHopewell.org

**Hopewell Valley Solar Challenge**

**SolarHopewell.org**

**Join the Hopewell Solar Challenge!**

Solar is easy, affordable and accessible for all property types.  
Take action to reduce CO2 emissions.





# Flier Mailed to ~6000 Residences



## Hopewell Valley Solar Challenge Begins Urgent Campaign for Local Solar Power Installations

Join the Hopewell Valley Solar Challenge to save money, generate your own "green" electricity, and help our town win a \$10,000 prize from Sustainable Jersey! All you need to do is go to [SolarHopewell.org](http://SolarHopewell.org) on the internet to receive specifics on the most appropriate system design and scale for your place and estimates for the best possible price. No annoying phone calls and unsolicited proposals.

### ABOUT THE PROGRAM

The Solar Challenge is a unique partnership between the Hopewell Township Environmental Commission and Hopewell Valley Green Team, together with Energy Sage and Sustainable Jersey. Endorsed by resolutions of the Hopewell Township Committee and Pennington Borough, the project aims to facilitate solar photovoltaic power installation across Hopewell Township and Pennington Borough.

### BENEFITS OF PARTICIPATING IN THE SOLAR CHALLENGE:

- swiftly identify the best system for your unique situation
- access free on-line resources and fully vetted installers
- save thousands of dollars through lowest prices
- make money through NJ solar renewable energy credits (SRECs)
- generate your own solar electricity, offsetting CO2 emissions
- help us win the \$10,000 prize for a more sustainable Hopewell Valley

*continued on back >*



The Challenge is a competition among 7 selected New Jersey towns seeking the greatest number of new solar installations per capita by May 31, 2017. The winning town will receive a \$10,000 prize from Sustainable Jersey to be used for a "green" project. Sustainable Jersey is an innovative nonprofit organization that provides tools, training, and financial incentives to communities pursuing sustainability programs such as cutting greenhouse gas emissions and other community-wide efforts.

EnergySage is the only independent comparison-shopping website for solar energy systems and financing options in the country. The EnergySage portal accessed through [SolarHopewell.org](http://SolarHopewell.org) provides concise information about financial options including purchase and lease comparisons, solar technologies and materials, specifications for your situation, and projected future savings. The online marketplace provides direct contact with a growing list of pre-screened and validated solar installers. By fostering competitive bidding the process leads to the most appropriate system design and scale and leads to the best possible price quotes.

There is no time like now to go solar! Take charge of your energy future, address some of the major issues of our times, and help Hopewell Valley win the Sustainable Jersey Solar Challenge. Go to [SolarHopewell.org](http://SolarHopewell.org) through your web-browser and get into the Challenge!

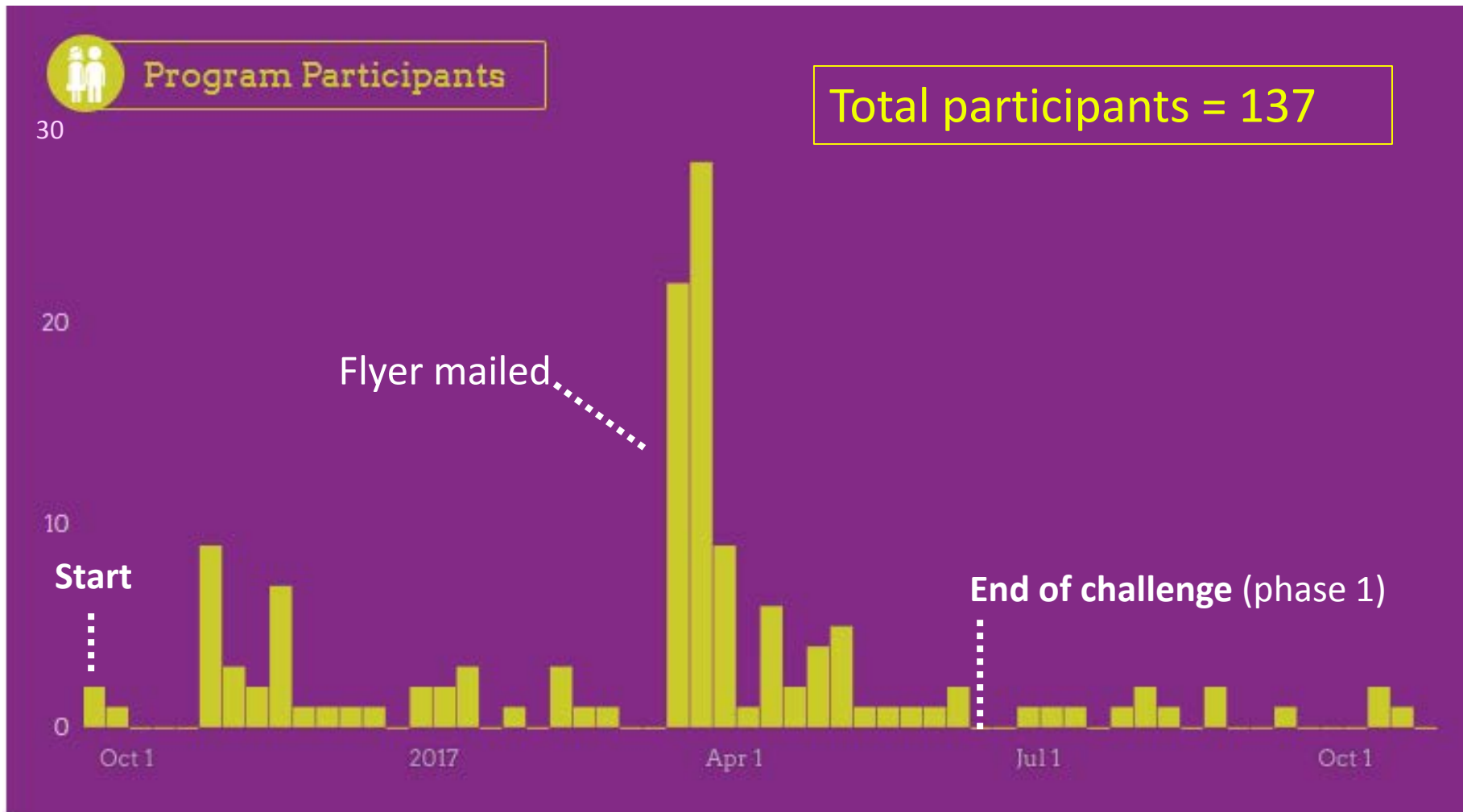
**Contact information:**  
[solarhopewell@gmail.com](mailto:solarhopewell@gmail.com)



## Key feature: Township municipality return address



# Participation Timeline



# Final Surge: Face to Face, PC to PC

- Green Team info booths at Mercer County Greenfest March 18 and Pennington Day May 20
- April 22 Earth Day weekend, solar mini-tour of local home PV systems – invited the not-yet-decideds
- One last e-mail message urging undecided's to contract by end of May



# Hopewell Wins the Solar Challenge !

## Final statistics June 2017



Total Participants

137



Total Going Solar

13



Total Solar Capacity

134  
kilowatts

## Environmental benefit over 20 years



Trees Planted

56,228



Cars off the Road

461



Avoided Carbon Emissions

2,193  
metric tons

# Plans for Award – Solarize Mercer County Technical School Curriculum



WHERE YOUR FUTURE  
IS IN YOUR HANDS.

- “Green Collar Jobs” future
- Alternative energy, sustainable design, green construction
- Draw upon existing pilot program created by NJSBA
- Funds would enable MCTS to begin adopting parts of NJ Green Program of Study
- Focus on Solar/PV for multiple applications in MCTS programs



# Green Team to Green Collar

*Times of Trenton* - Friday, 29 Sept 2017

EDITORIALS

## Boost NJ's vocational training efforts

The Times



Is New Jersey's manufacturing era forever behind us? ... Not according to members of a new "manufacturing caucus." A bipartisan panel of state legislators is looking to technology to inject new life into what was once a defining portion of the Garden State's economy. Despite decline over the last decades, the industry is still bringing in \$40 billion, employing some 360,000 people in over 10,000 companies.

... the lawmakers suggest ramping up the state's vocational-technical training to meet the needs of a workplace that demands better skilled, more tech-savvy employees to match their needs.

Each of the 21 counties in the state has a vo-tech high school. But too many people continue to look down their noses at those who pursue this path, rather than opting for a college-prep education. "There is still a stigma".



# Greening NJ's County Technical Schools

- Goal: begin broader integration of solar/PV into the MCTS curriculum as a pilot project
  - Lab projects in remote charging, PV power, battery-backup systems
  - Green building construction/design
  - Automotive, emergence of EV's
  - Solar PV-powered hydroponic systems for food production connecting sustainability to culinary arts
- Clone the program into county voc-tech schools across state



# The Real Challenge Is Just Beginning

EnergySage on-line solar marketplace  
continues into the future







# NJBPU

## Alternative Fuel Vehicle



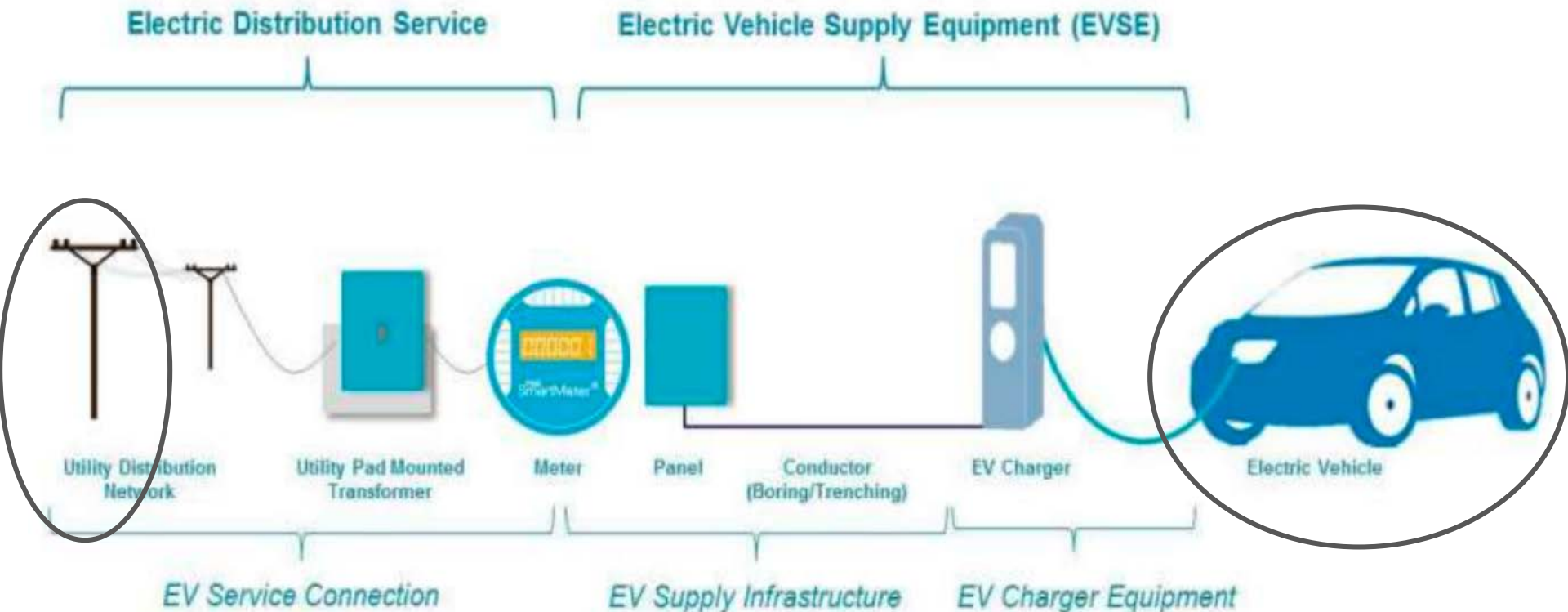
### Electric Vehicles Infrastructure Stakeholder Group

- Do EVs fall under the definition of demand side management and energy efficiency as set forth at N.J.S.A. 48:3-51 and/or N.J.S.A. 48:3-98.1.d.?
- Should owners and operators of EVSE that provide electric vehicle charging service be regulated as electric utilities? Are operators of EVSE reselling electricity or providing a charging service?

**[evstakeholder.group@bpu.nj.gov](mailto:evstakeholder.group@bpu.nj.gov)**

***<http://www.state.nj.us/bpu/about/divisions/opp/altfuelvehicle.html>***

# CHARGING INFRASTRUCTURE (RAP REPORT FIGURE 3)



Town Center DER Microgrids can provide valued fuel for EVs through public chargers

