



Electric Vehicles, Clean Air and Your Community

NJDEP/Air & Waste Management Association
Annual Regulatory Update Conference
November 17, 2017

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





Photo from Chevrolet



Photo from Proterra.com



Photo from Workhorse



Photo from Zeromotorcycles



Photo from Stevenson Crane Service



Photo from Workhorse



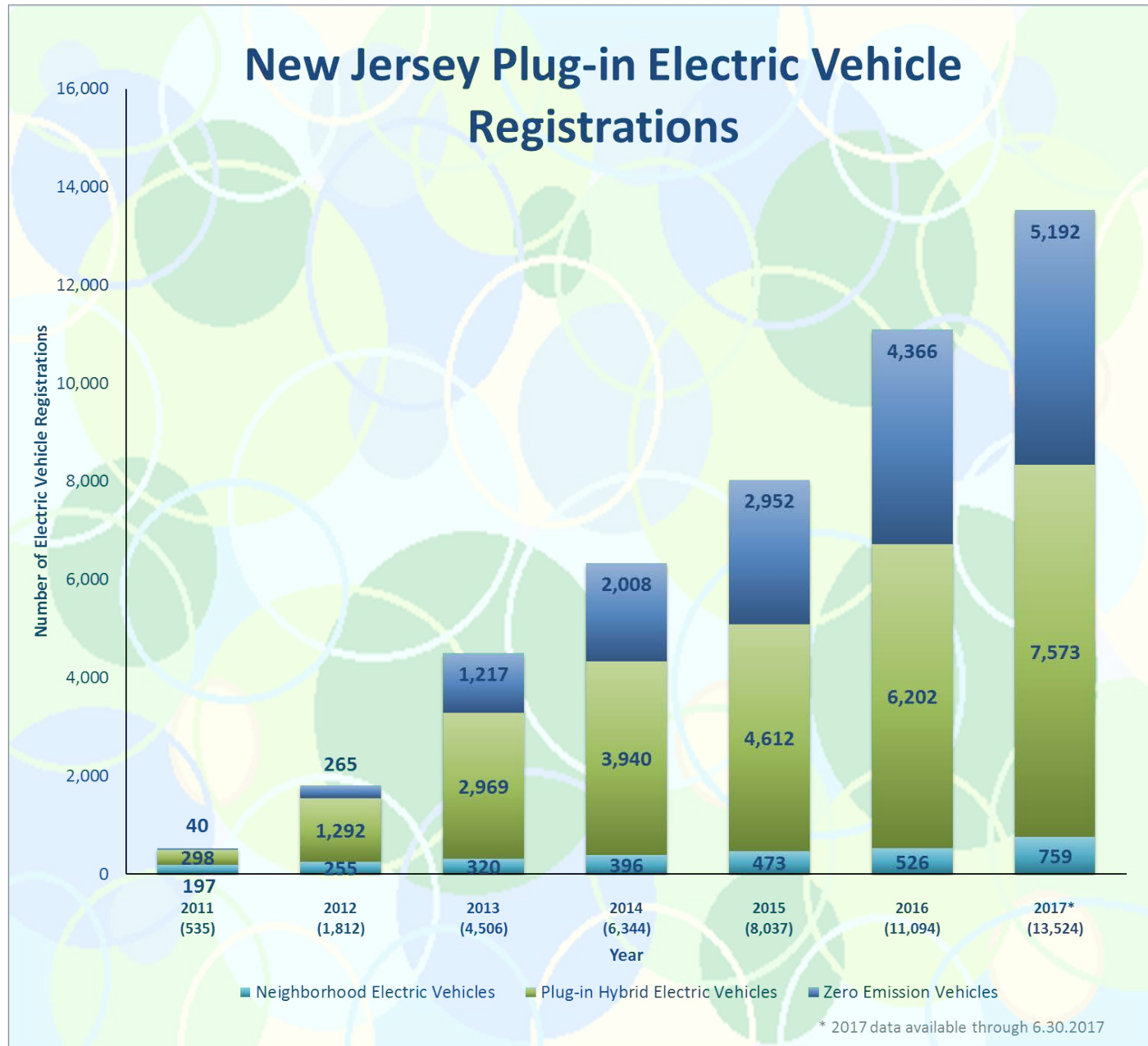
Photo from Tesla Motors

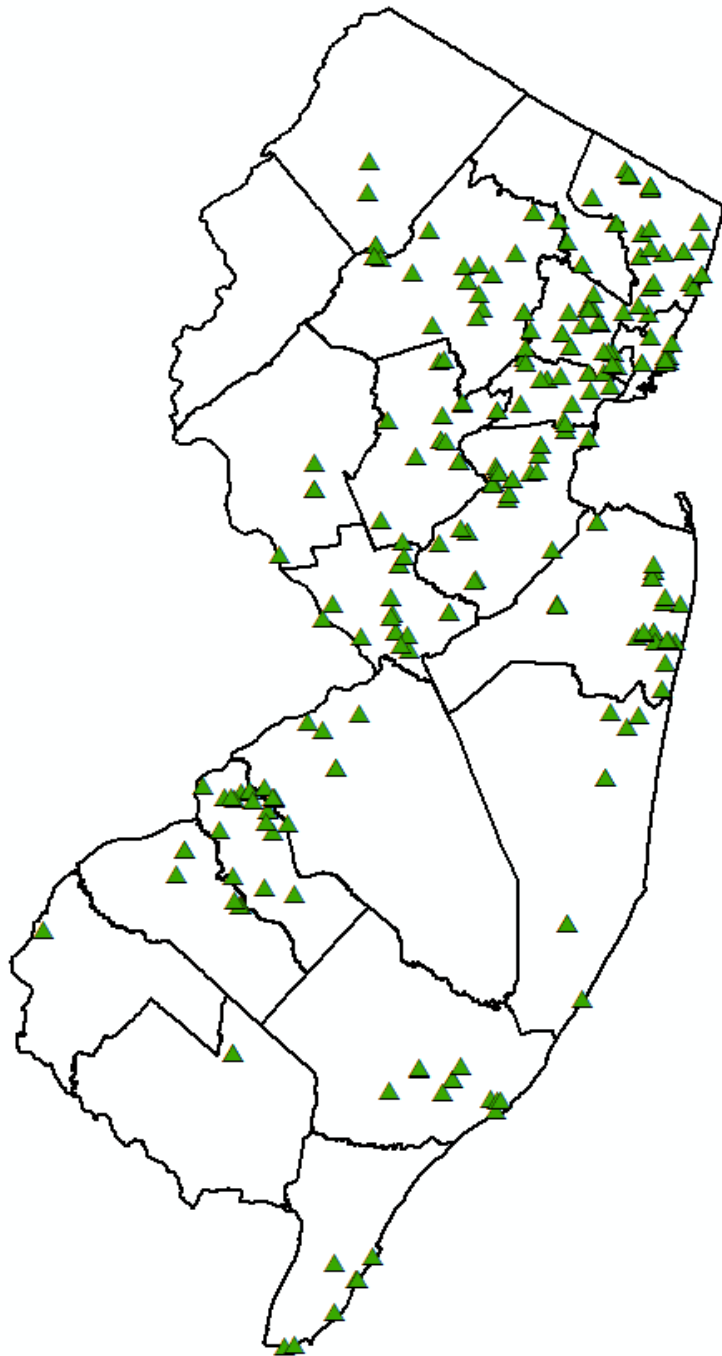
600,000 Americans have made the switch to electric.

NJ EV Registrations

2011: 535

2017: 13,524





The Charging Network is Growing

Publicly accessible EV
charging stations:

517 charge points at
220 locations

Local, Regional and National Efforts

- Northeast States for Coordinated Air Use Management (NESCAUM)
- Transportation and Climate Initiative – Northeast Electric Vehicle Network
- California Air Resources Board
- New Jersey Clean Cities Coalition
- North Jersey Transportation Planning Commission
- Delaware Valley Regional Planning
- ChargeEVC – The Electric Vehicle Coalition of NJ
- Sustainable Jersey

Incentives!

- ✓ 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
- ✓ It Pay\$ to Plug in – NJ Workplace Charging Grants
- ✓ NJ Recognition Program for Workplace Charging

- ✓ See www.drivegreen.nj.gov/affordable.html

* Not available to public entities

Why do we care?



Vehicles cause air pollution.

Photo from Getty Images

Ozone (Smog) Health Effects

Healthy
airway



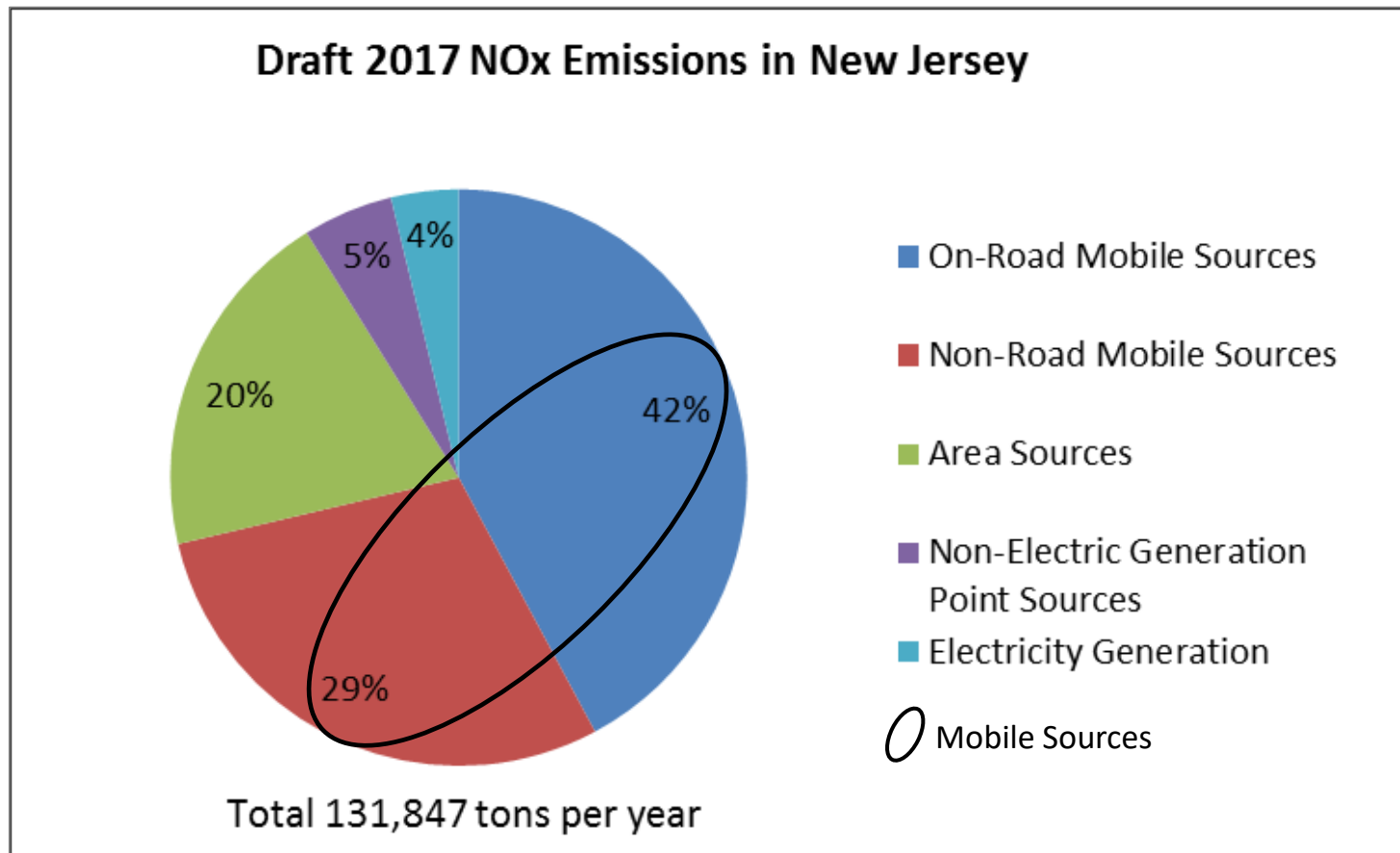
Inflamed
airway due
to ozone
inhalation



Ozone Health Effects

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

Vehicles Contribute to Ozone Pollution



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

Fine Particle (PM_{2.5}) Health Effects

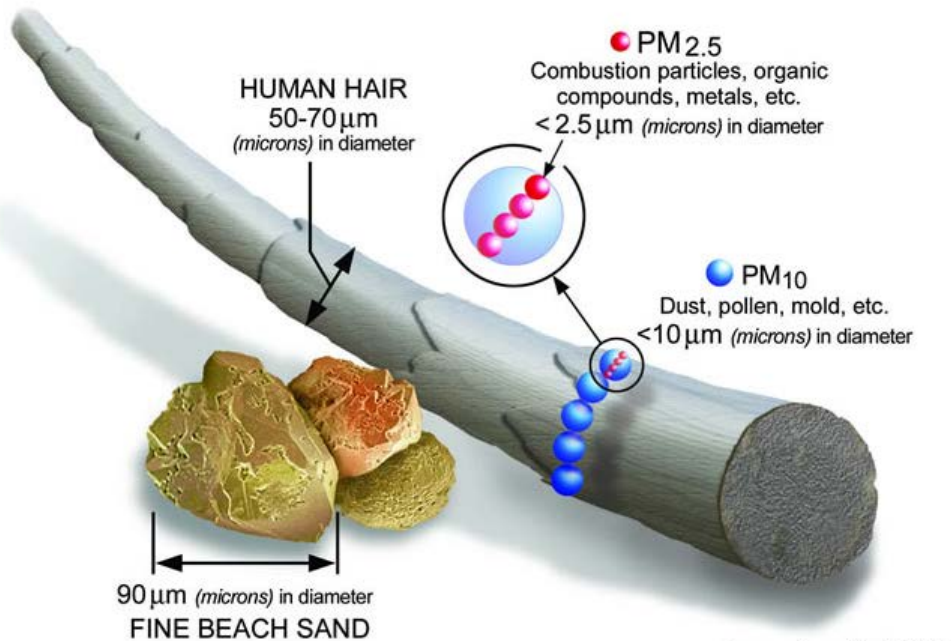


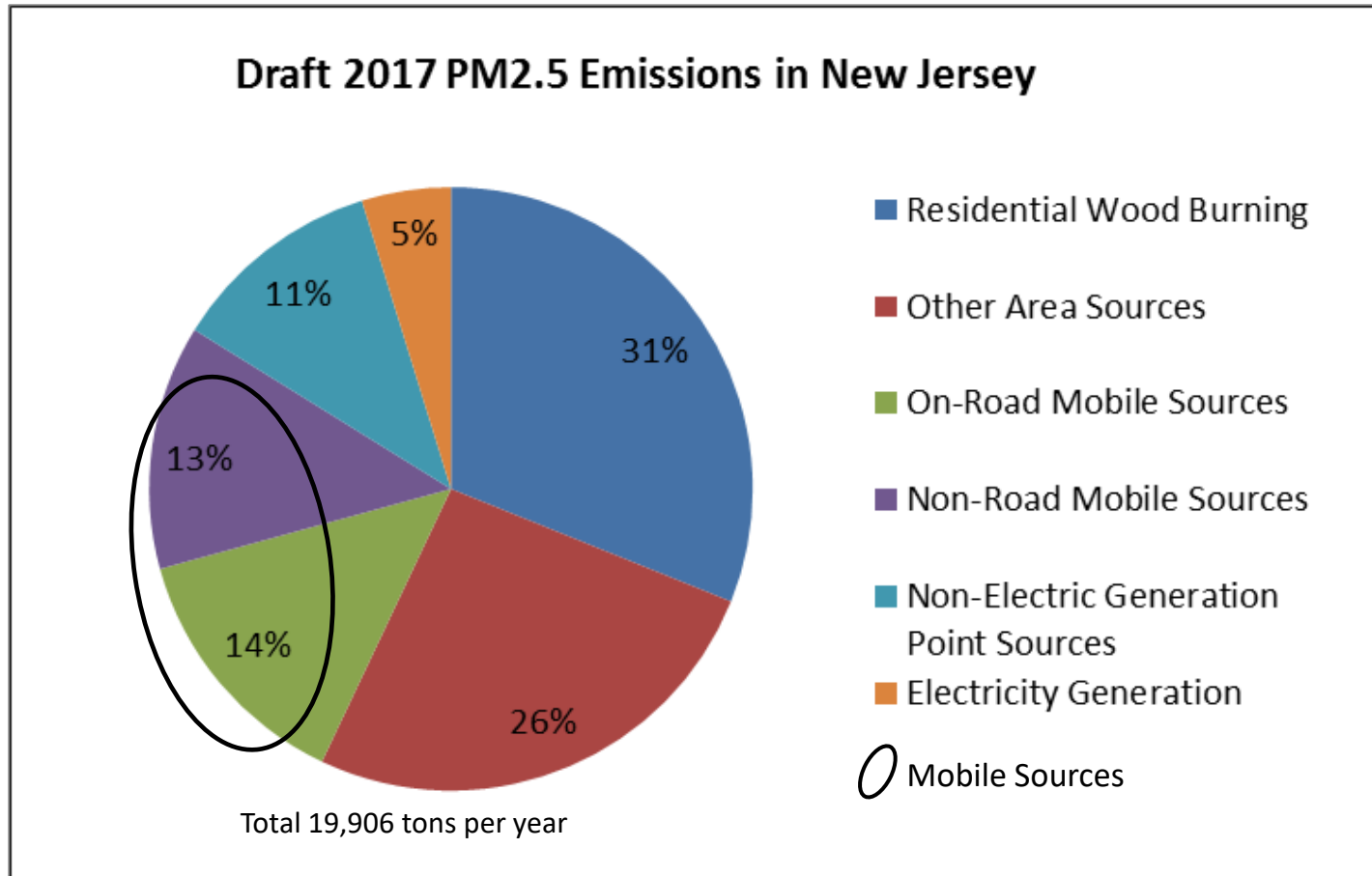
Image courtesy of the U.S. EPA

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

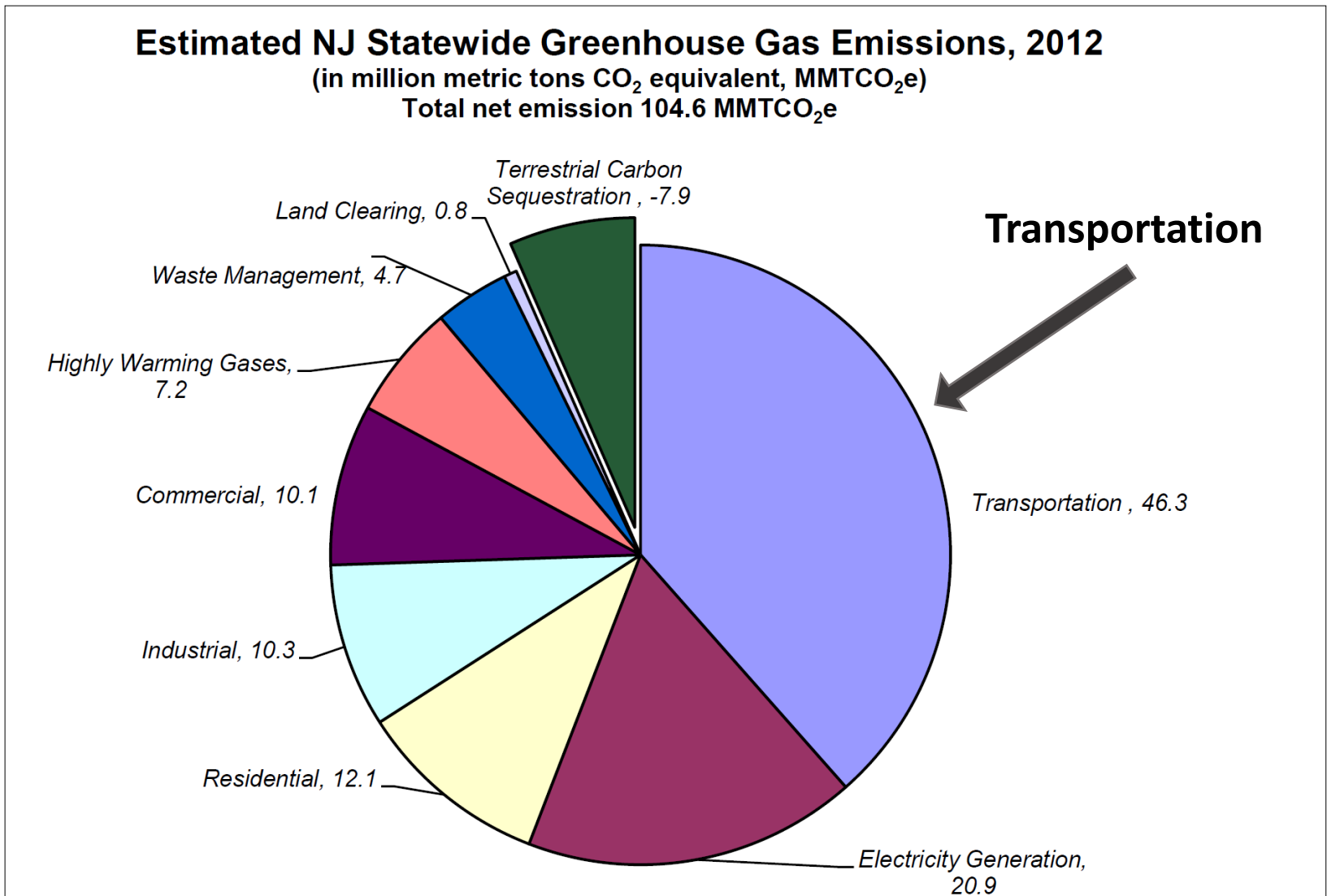
Image from USEPA

Vehicles Cause Particulate Pollution



More than 25% of New Jersey's fine particulate pollution comes 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!

- ✓ 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
- ✓ It Pay\$ to Plug in – NJ Workplace Charging Grants
- ✓ NJ Recognition Program for Workplace Charging

- ✓ See www.drivegreen.nj.gov/affordable.html

* Not available to public entities

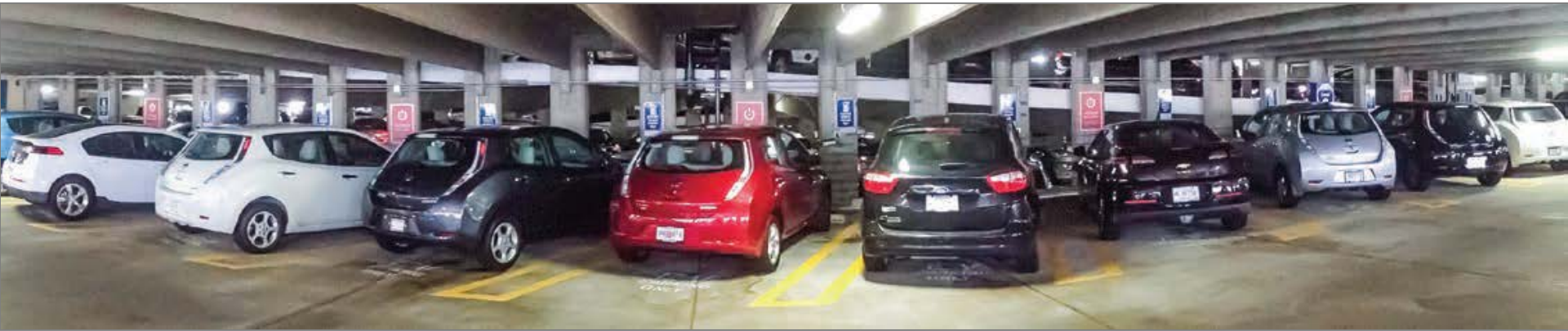
NJDEP'S EV Incentives Programs



- 1. *It Pay\$ to Plug In*** – Grant Program for Workplace Charging (with NJBPU)
- 2. NJ Charging Challenge** – Recognition Program for Workplace Charging

Incentive #1: It Pay\$ to Plug In

New Jersey's Grant Program for Workplace Charging

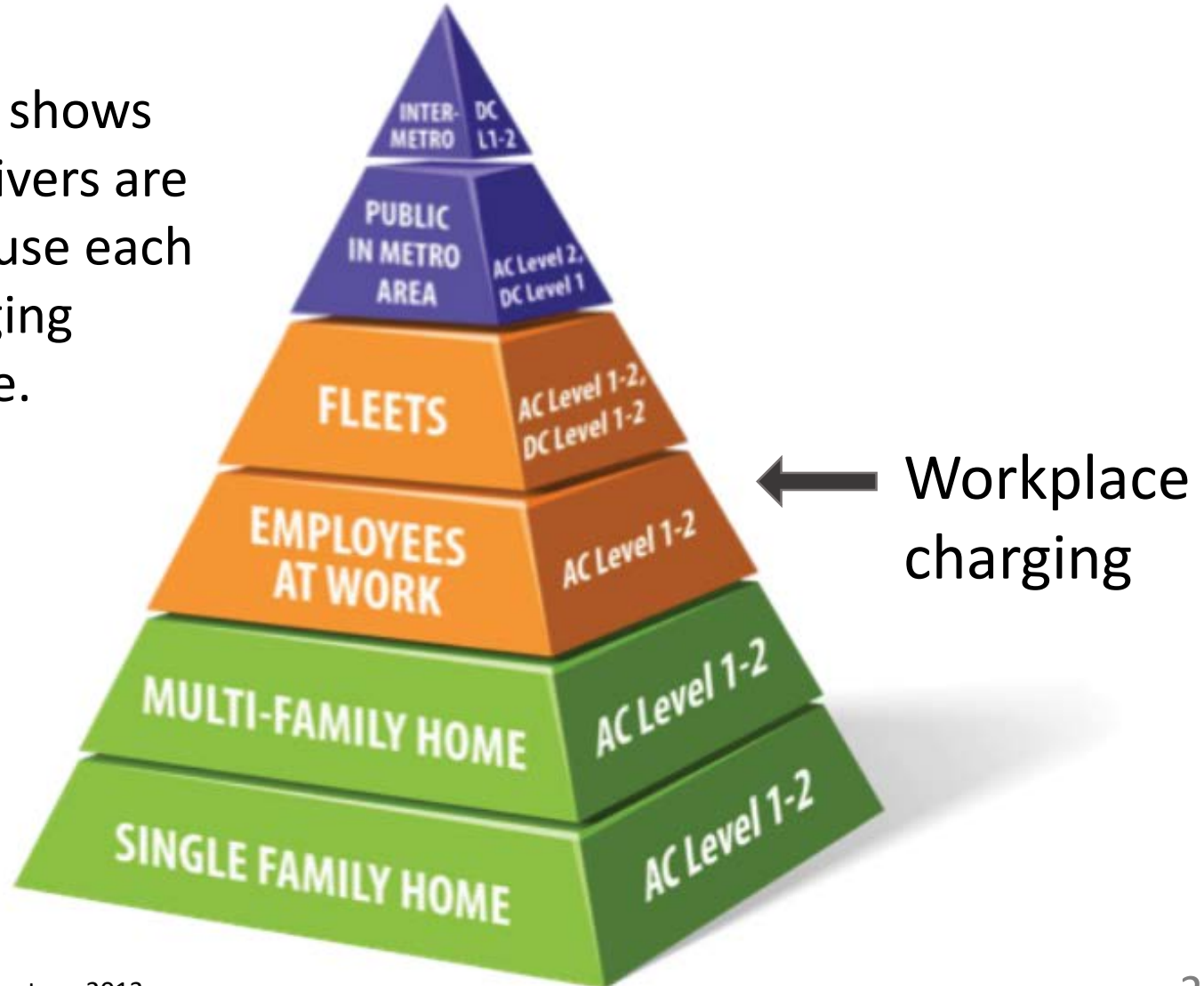


Grants offset the costs for purchase and installation of electric vehicle charging stations

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

Why Workplace Charging?

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



Success!

- **NJDEP Awarded nearly \$850,000 in one year 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.

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: NJ Charging Challenge: Electrify Your Workplace

NJDEP wants to recognize NJ employers who are making their workplaces “EV Ready”



Congratulations 2016 winners:
PSE&G and The College of New Jersey!

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 for FAQs, to submit project ideas, and to join the email list for updates.

Learn More: Drive Green NJ Website



- 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



Questions?

Andrea Friedman

NJDEP Division of Air Quality

Bureau of Mobile Sources

Andrea.Friedman@dep.nj.gov

(609) 984-2055



www.drivegreen.nj.gov



ADDITIONAL SLIDES

MYTH: We're Replacing Tailpipes with Smokestacks

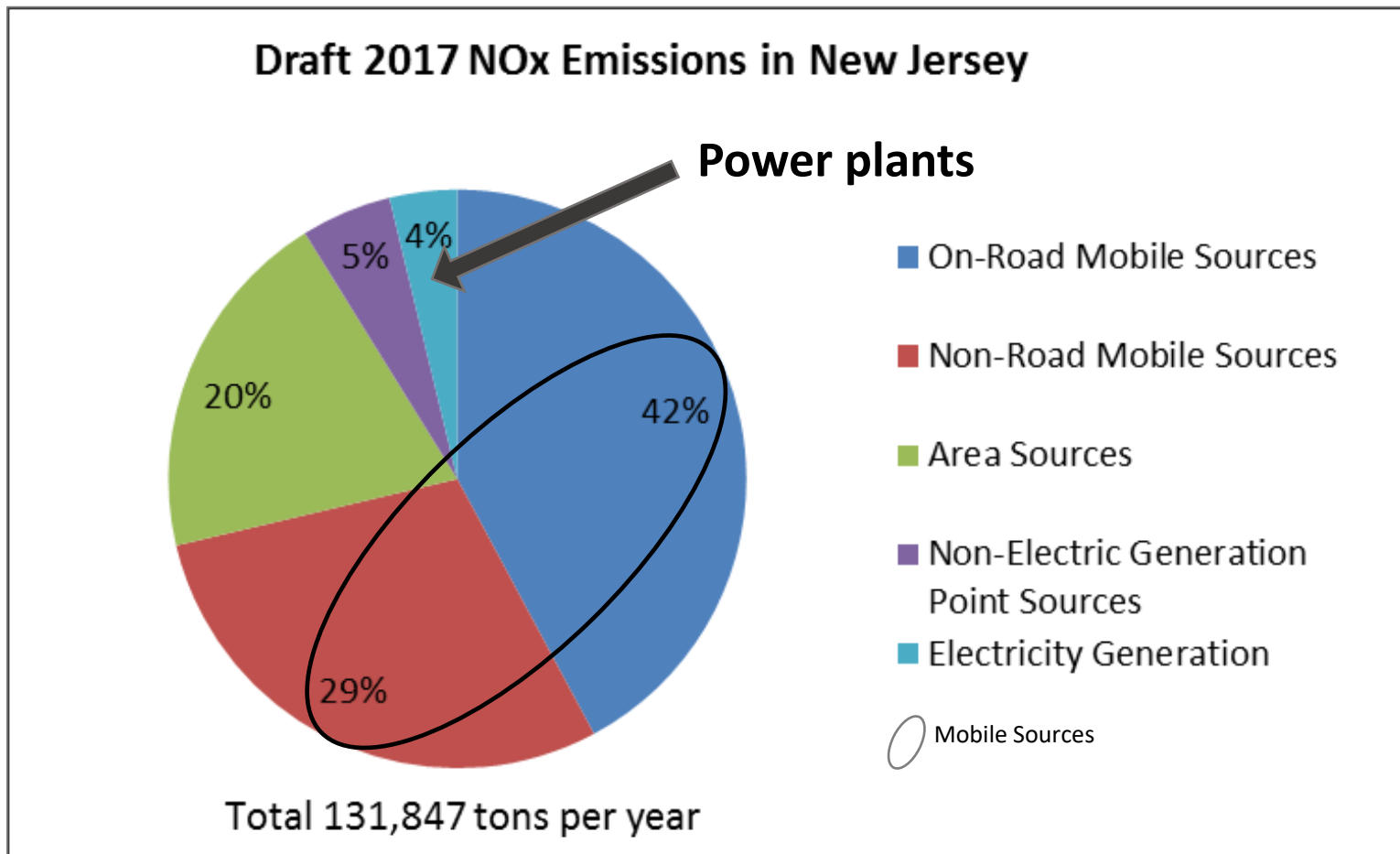


TRUTH: New Jersey produces some of the cleanest electricity in the nation.

- 2nd cleanest – sulfur dioxide
- 5th cleanest – nitrogen oxides
- 5th cleanest – carbon dioxide

Emission rates in pounds per megawatt hour compared to other states

Only 4% of NJ's NOx Comes From from Power Plants



MYTH: They're Too Expensive

TRUTH:

Electric vehicles are less expensive than comparable gasoline vehicles when you factor in the total cost of ownership

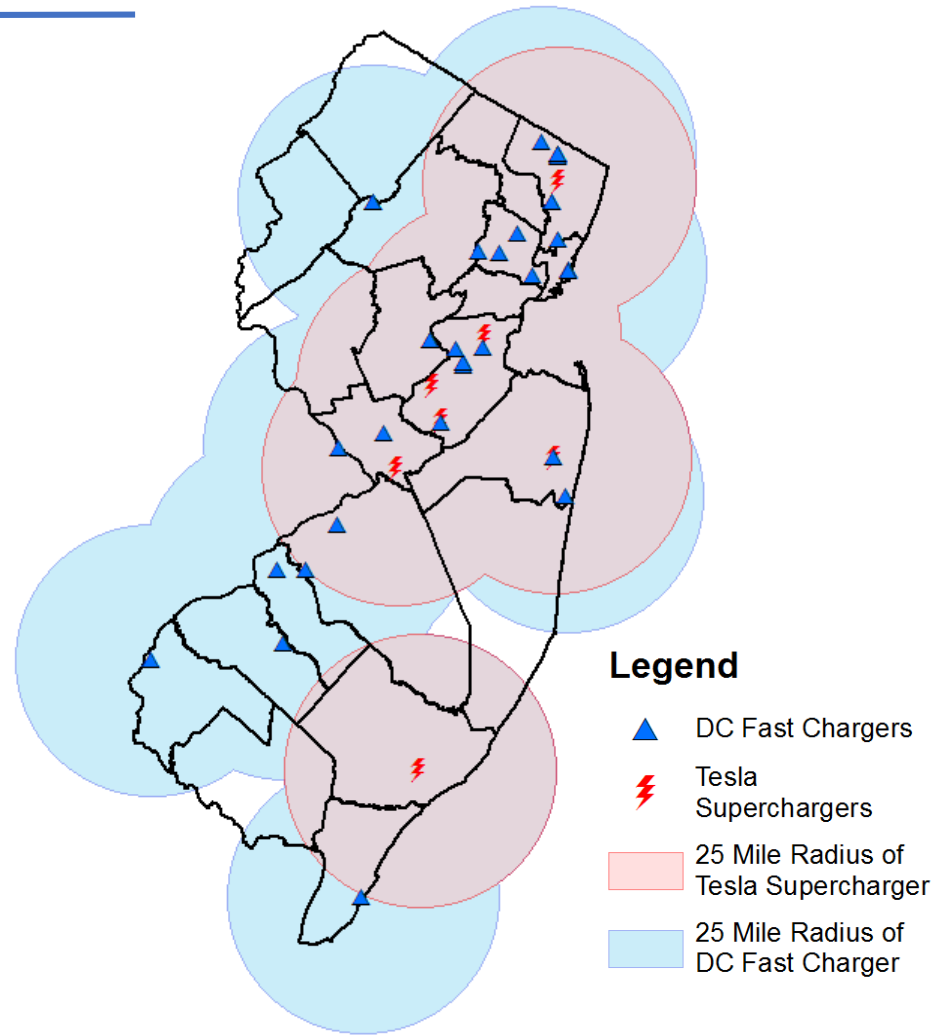


Photo from iStock

MYTH: I'll Get Stranded

TRUTH:

- NJ has 102 public DC Fast Charging outlets at 42 locations as of June 2016.
- These can charge an EV by nearly 80% in just 20 minutes.
- Many are along major travel corridors, which is perfect for those long trips.



Source: www.afdc.energy.gov (6/2017)

Charging Stations 101

Level 1 - 120V



Source: greentransportation.info

Level 2 – 240V



Source: www.fastcompany.com

DC Fast Charger – 480V



Eaton DC Fast Charger