

A close-up photograph of a blue electric vehicle (EV) being charged. A blue charging cable is plugged into the car's charging port. The background is slightly blurred, showing the charging station and the car's body panels.

Plugging In North Carolina

Ward Lenz

Director of Government Relations, Advanced Energy

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About Advanced Energy

- Independent, non-profit organization established in 1980, Headquartered in Raleigh, NC
- Mission: Create economic, environmental and societal benefits through innovative and market-based approaches to energy issues
- Provide training, consulting, testing and outreach
 - Transportation Initiatives
 - Building Sciences
 - Energy Efficiency
 - Renewable Energy
 - Motors and Drives



Presentation Agenda

- Electric Vehicles in North Carolina
- NC PEV Taskforce
- Community Planning
- Education & Outreach
- Municipality Charging
- Workplace Charging
- Multifamily Charging



Available PEVs in North Carolina



BMW i3



BMW i8



Cadillac ELR



Chevrolet Volt



Ford C-MAX Energi



Ford Focus Electric



Ford Fusion SE Energi



Mitsubishi i-MiEV



Nissan Leaf



Porsche Panamera S E-Hybrid



SMART-Electric Drive



Tesla Model S

Electric Range in Miles:

BMW i3 All Electric – 81

BMW i8 Plug-in Hybrid – 15

Cadillac ELR Plug-in Hybrid – 37

Chevrolet Volt Plug-in Hybrid – 38

Ford C-MAX Plug-in Hybrid – 21

Ford Focus All Electric – 76

Ford Fusion Plug-in Hybrid – 21

Mitsubishi i-MiEV All Electric – 62

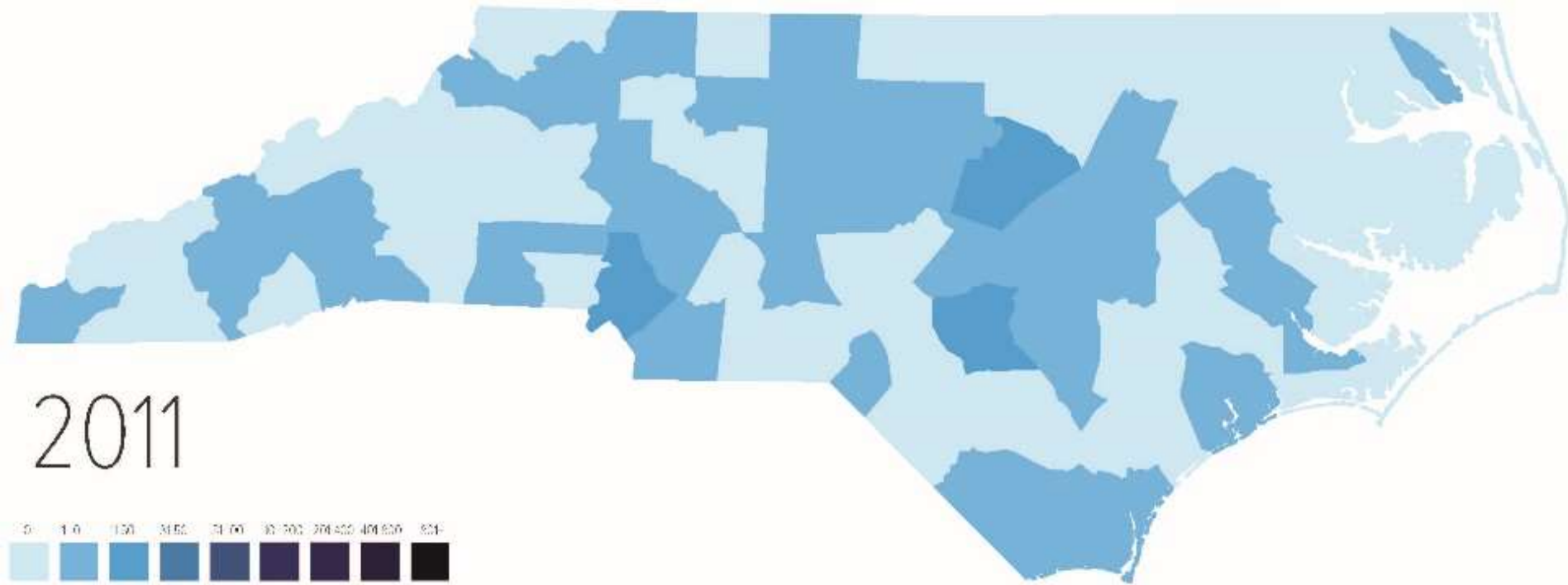
Nissan LEAF All Electric – 84

Porsche Panamera Plug-in Hybrid – 16

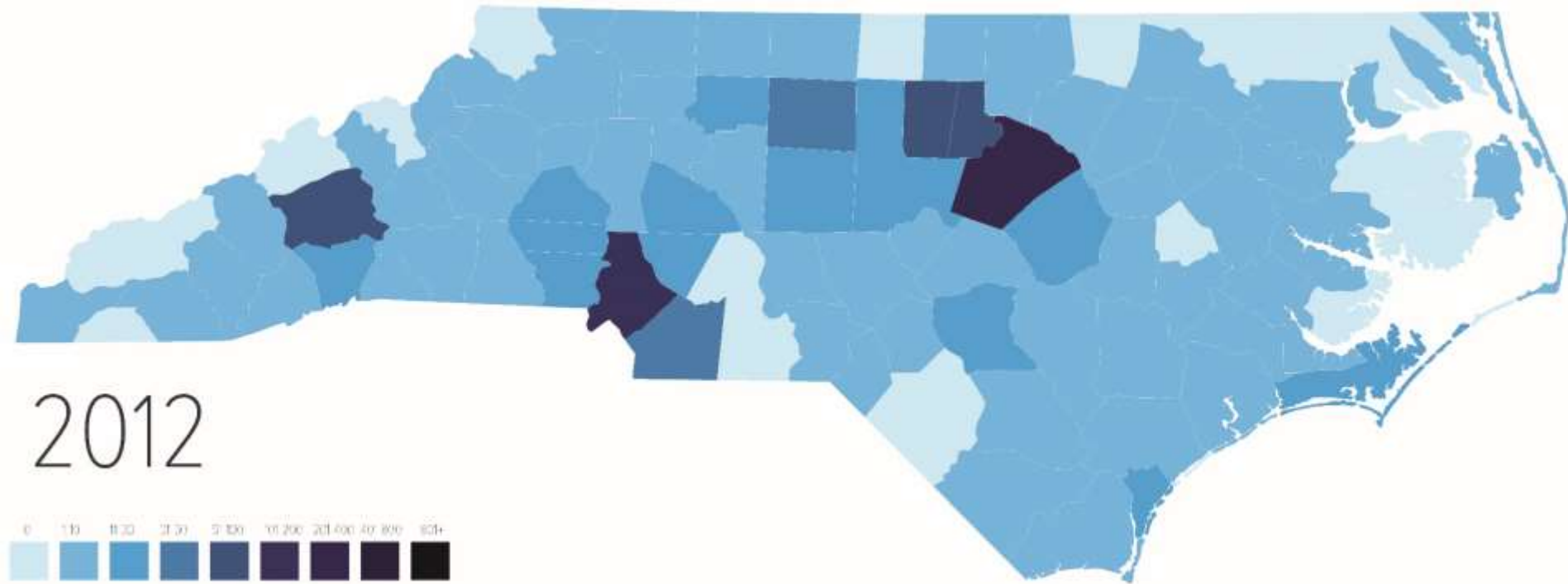
SMART All Electric – 68

Tesla Model S All Electric - 265

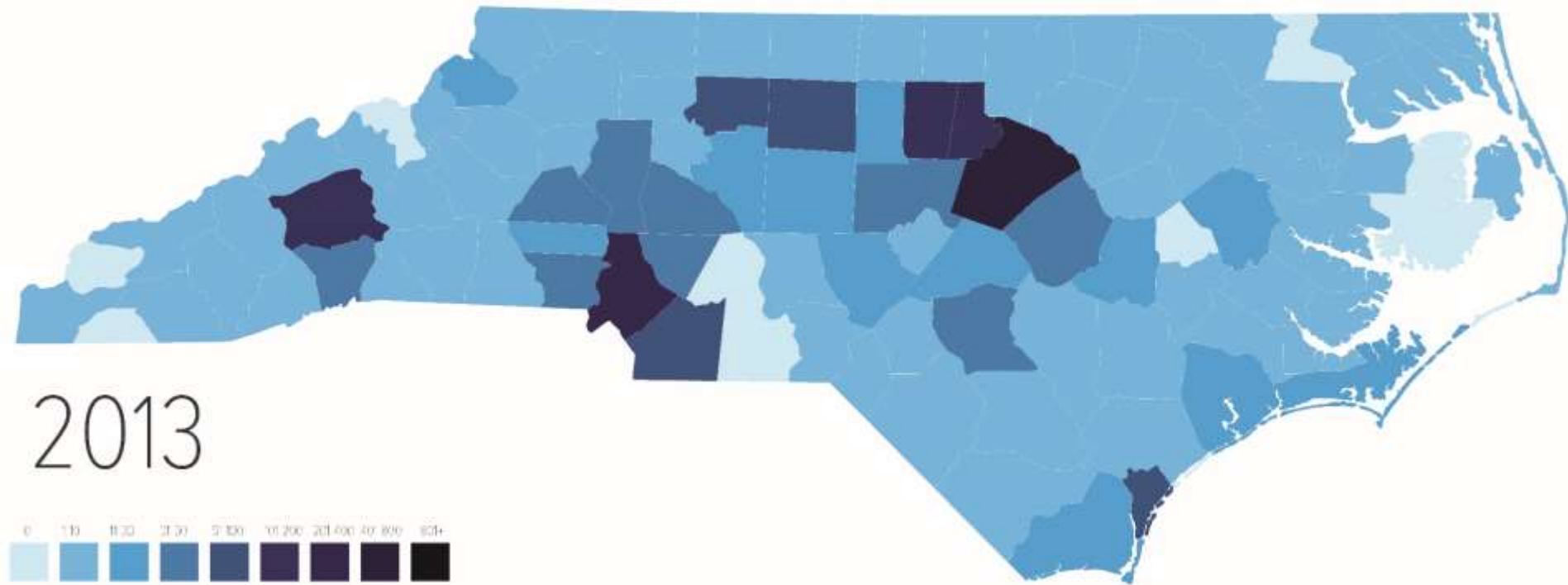
Electric Vehicle Registrations - 2011



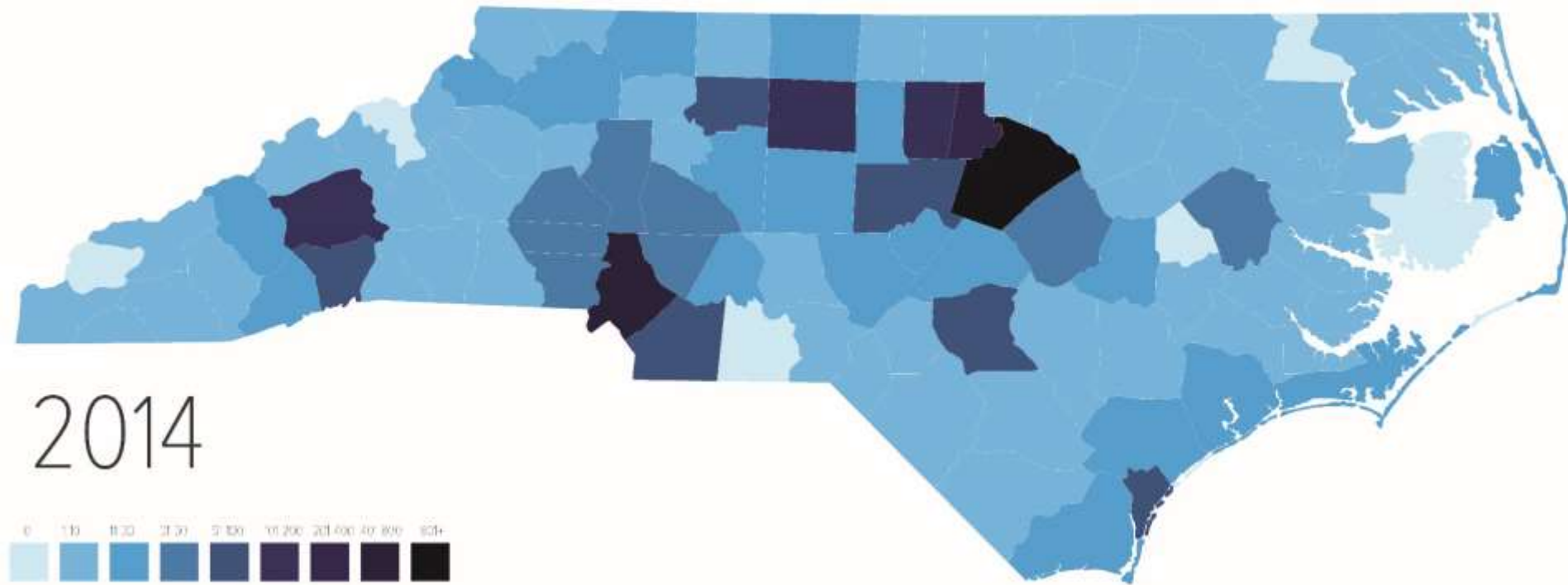
Electric Vehicle Registrations - 2012



Electric Vehicle Registrations - 2013

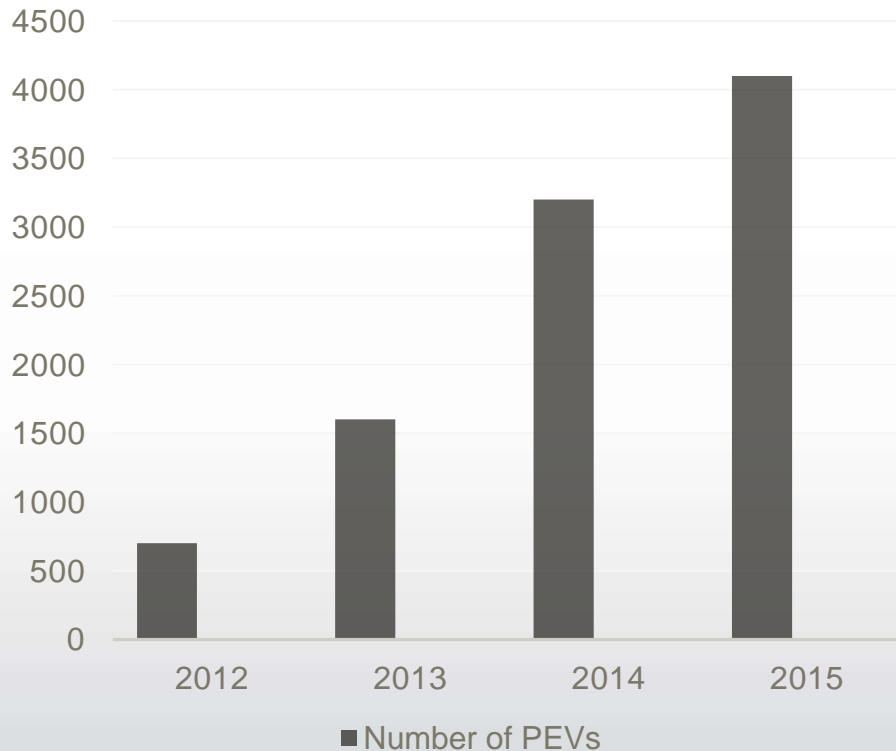


Electric Vehicle Registrations - 2014

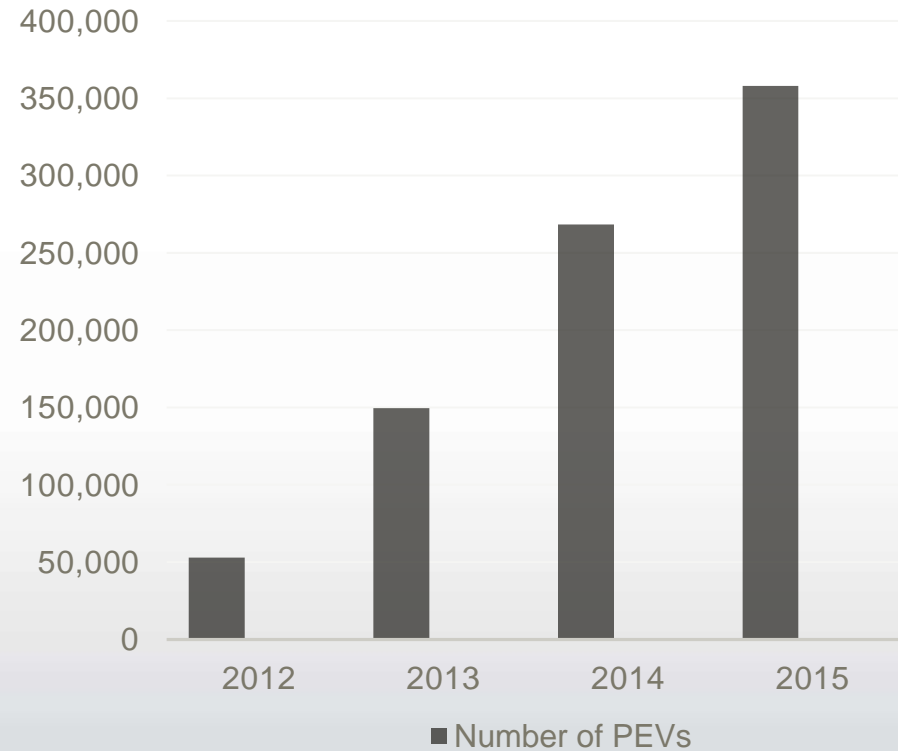


Plug-in Electric Vehicle Adoption

PEVs in North Carolina

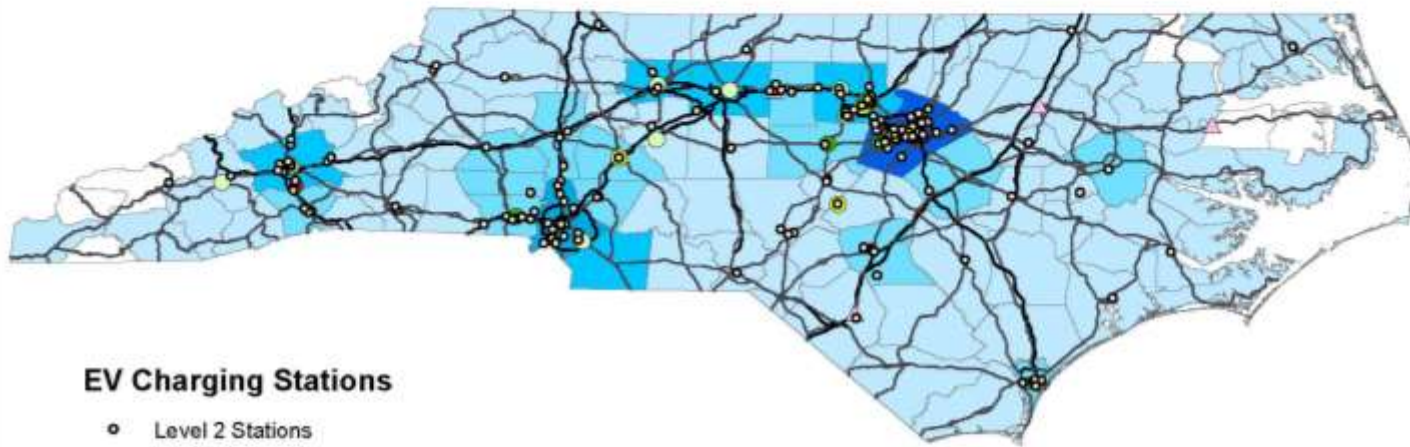


PEVs in USA



Charging Stations in North Carolina

NC EV Charging Stations and PEV Ownership by County of Residence



EV Charging Stations

- Level 2 Stations

Existing DCFC Stations

- Public
- Public - Call ahead
- Private
- ▲ Tesla Stations

Planned DCFC Stations

- Planned DCFC Stations

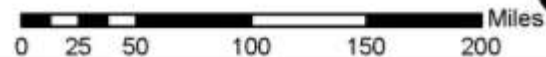
Source: NC PEV Taskforce

PEV Ownership by County of Residence

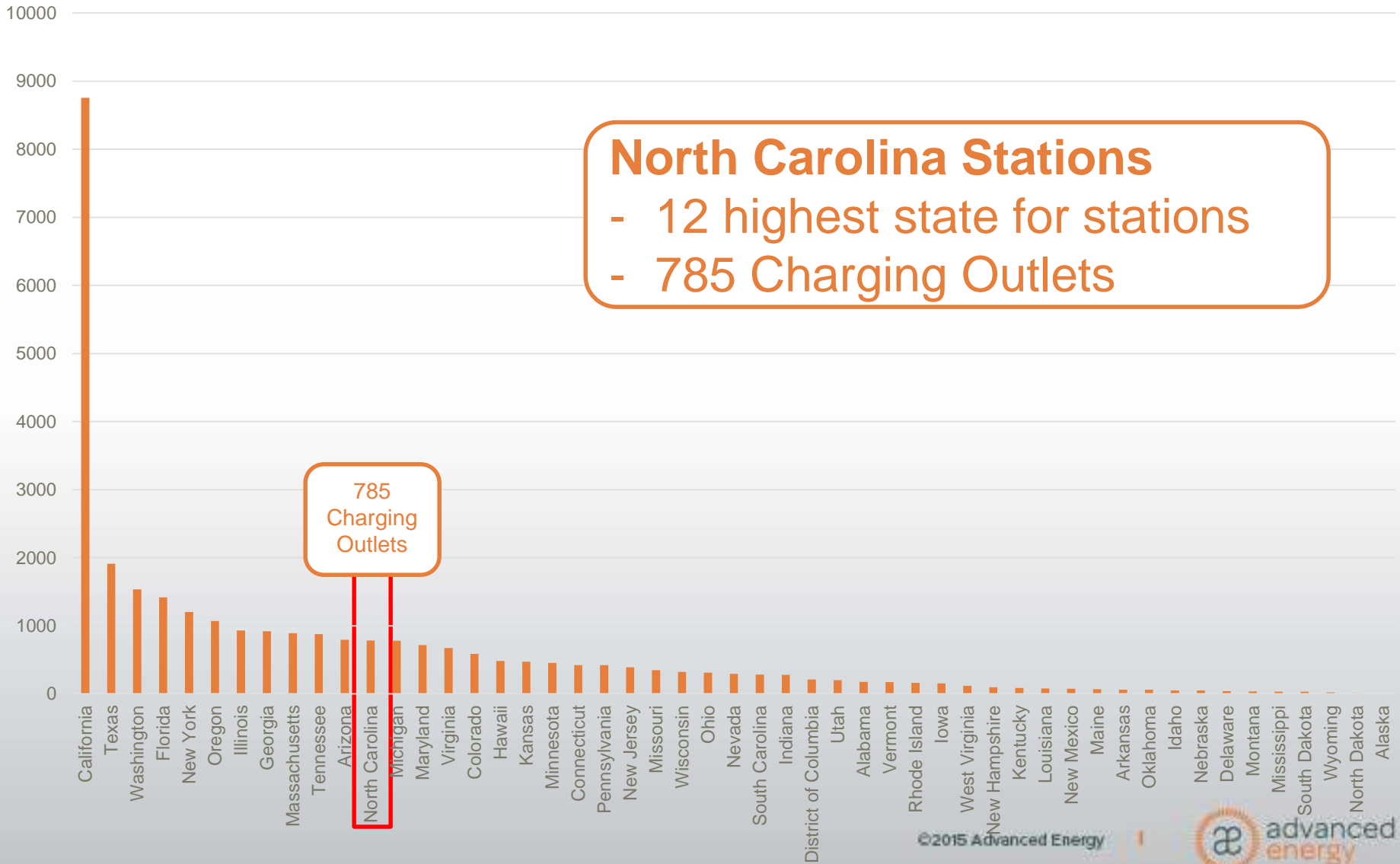


Source: NC DMV

Map Created October 20, 2014



Charging Stations – National Market



The NC PEV Taskforce

- Established in 2011 to provide a collaborative opportunity for stakeholders to identify and address barriers to plug-in electric vehicle adoption in order to ensure a seamless integration of PEVs into local communities
- Focus Areas: Community Readiness, PEV Education and Outreach, Workplace Charging, Multifamily Charging, DC Fast Charge Planning

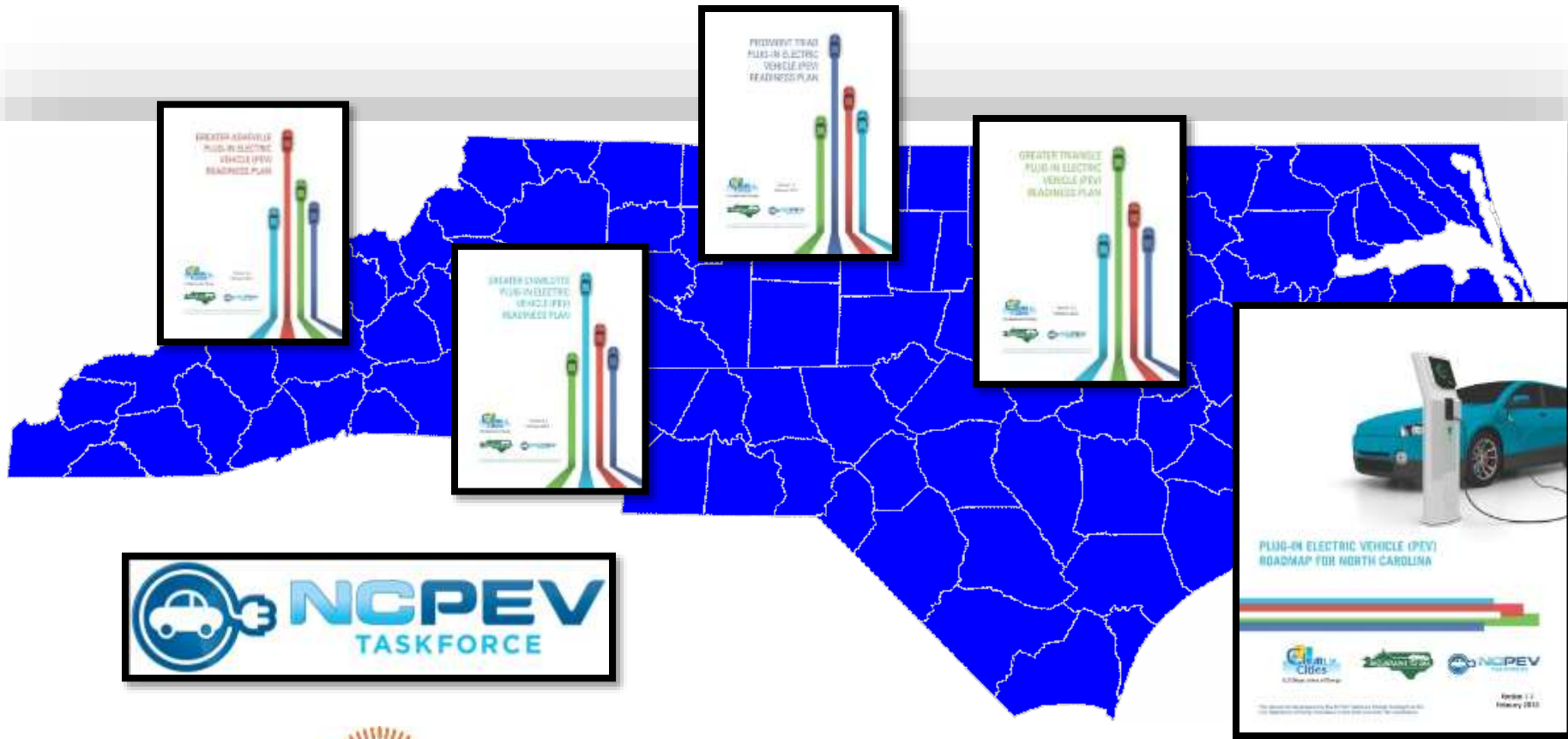


Community Planning for PEVs

- Three Levels of Planning:
 - State-wide/Multi-state Planning
 - Regional EV Corridors
 - Share Best Practices/Lesson Learned/Trends
 - Compile and Share Data
 - Regional
 - Regional PEV Planning
 - Local EV Deployment (intra-urban charging station planning)
 - Local
 - Fleet Initiatives
 - Local Codes and Ordinances
 - Permitting
 - Workplace Charging
 - Multifamily Charging



North Carolina's PEV Readiness Plans



Education and Outreach

- Webinars
- Workshops
- Ride-and-Drive Events
- Conference Booths
- Festival Booths
- Newsletter
- Social Media
- Resources



Resources

- WWW.PlugInNC.Com

COMMUNITY PLANNING GUIDE FOR ELECTRIC VEHICLES

VERSION 4.0

ELECTRIC VEHICLE READY HOMES

North Carolina is growing rapidly, incorporating the benefits of driving electric, plug-in electric vehicles already in operation to low-growth in residential use each year.



EV charging stations are readily available, cost-effective and efficient. They provide a dedicated space for a dedicated mode of charging a plug-in electric vehicle. They range from simple to complex, the most common are:

- Dedicated circuit provided with vehicle
- Dedicated circuit provided with vehicle
- Dedicated circuit provided with vehicle

At the end of providing a plug-in electric vehicle (PEV) to a home, the owner should be notified of the following:



Value to the Homeowner:
Installing a charging station with a dedicated circuit is a high expense for the homeowner.
• May require rewiring and new conduit to run the wiring.
• Approval to the electrical service panel may be needed.
An EV ready home ensures that the needed level of service panel capacity and ready pre-wiring.



NCPEV TASKFORCE

CHARGING STATION POLICY AND ETIQUETTE FOR MULTIFAMILY HOUSING

Employee Guide for Workplace Charging



As plug-in electric vehicle technologies, they are interested in expanding range management about installing workplace charging at their place of business. Employees can utilize to get their company on board with workplace charging already in North Carolina.

Involvement of Key Stakeholders:
Identifying the appropriate representatives to contact is important to start a conversation about workplace charging. Examples include:
• Senior Management Representative
• Sustainability Director
• Facilities Manager
• Legal Counsel
• Human Resource Manager
• Parking Facility Operator

"GlobalSmileline (GSU) has a history of good stewardship of available resources, has a commitment to a zero to landfill goal and a very aggressive carbon neutral goal. The management support for the sustainable aspects of plug-in electric vehicles was established through these programs."
- Tom Hild, GlobalSmileline Research Triangle Park



Should apartment managers/owners consider developing etiquette guidelines or policies for their charging stations?

Are there additional incentives in place for non-electric vehicle drivers?

Does apartment staff reserve the right to unplug a vehicle? Will there be substitutions for PEV drivers if the stations are down?



Local Efforts: Workplace Charging



Local Efforts: Cities and Counties



Local Efforts: Multifamily Charging



Future Goals for Electric Vehicles in NC



Thank You!

Ward Lenz

wlenz@advancedenergy.org