



# Connecticut Department of Energy and Environmental Protection



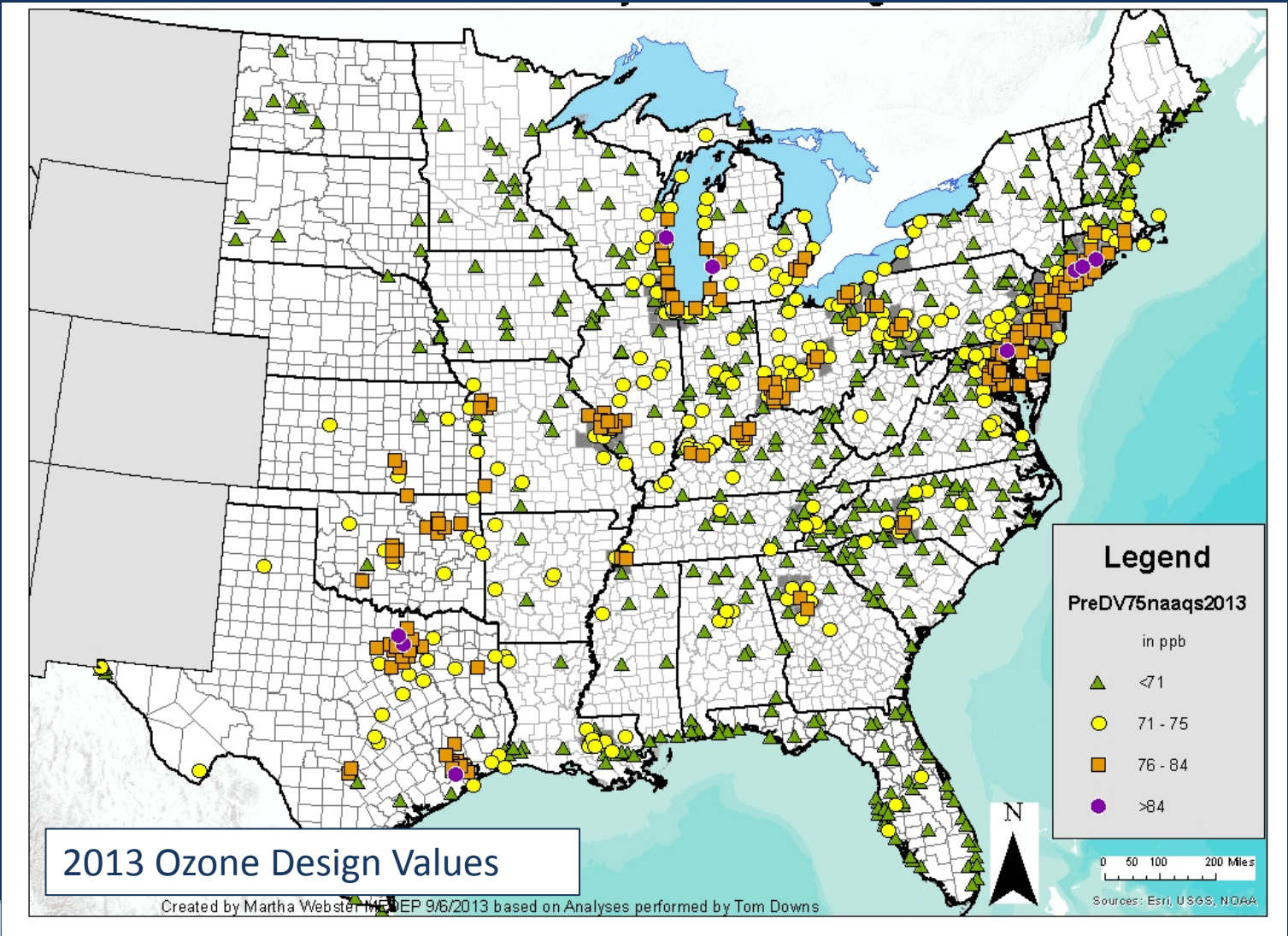


# *Connecticut Path to Clean Fuels and Clean Vehicles*

*March 17, 2014*

Anne Gobin, Chief  
Bureau of Air Management

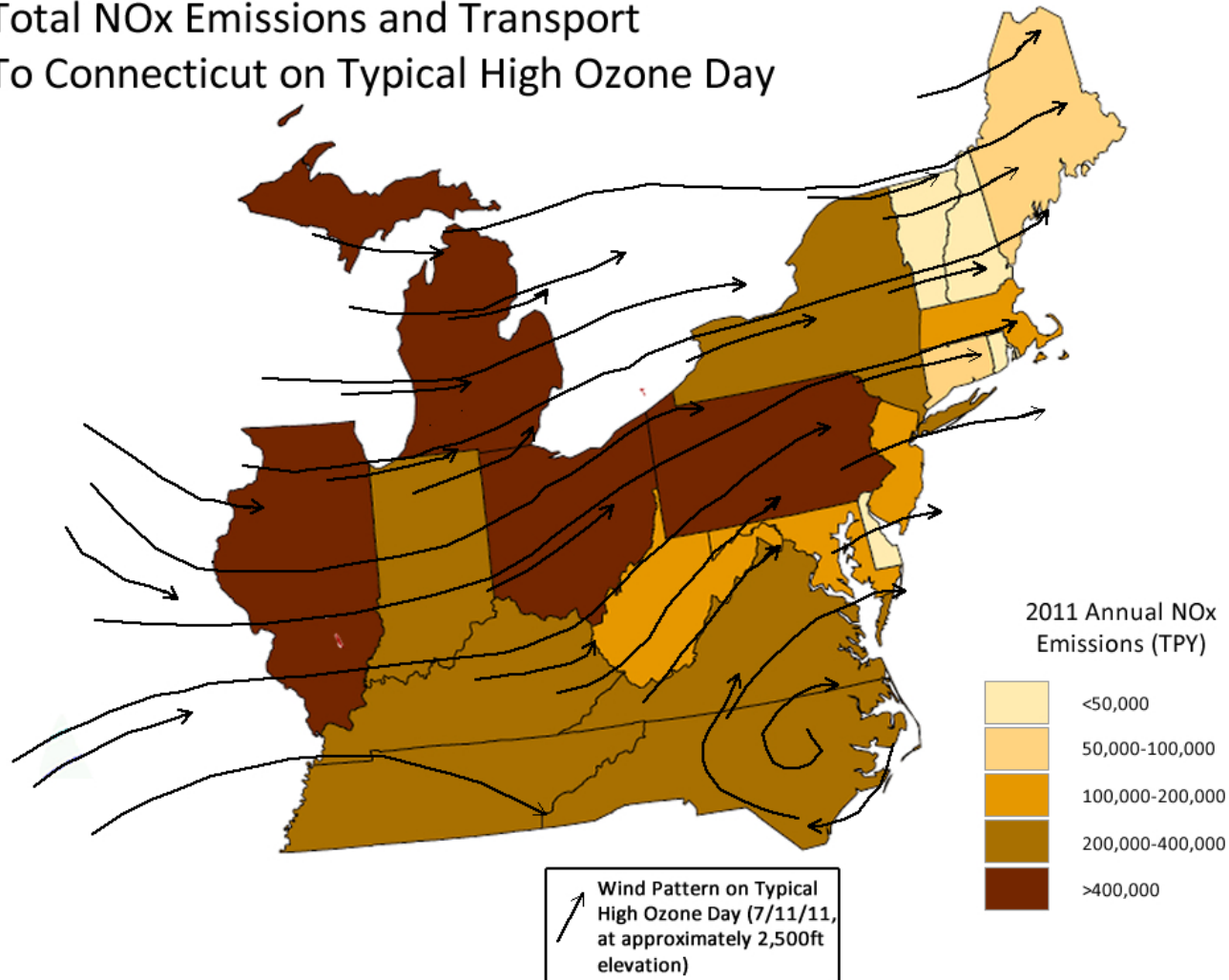
# Connecticut's Air Pollution Challenge





# Reductions Needed In and Upwind of Connecticut

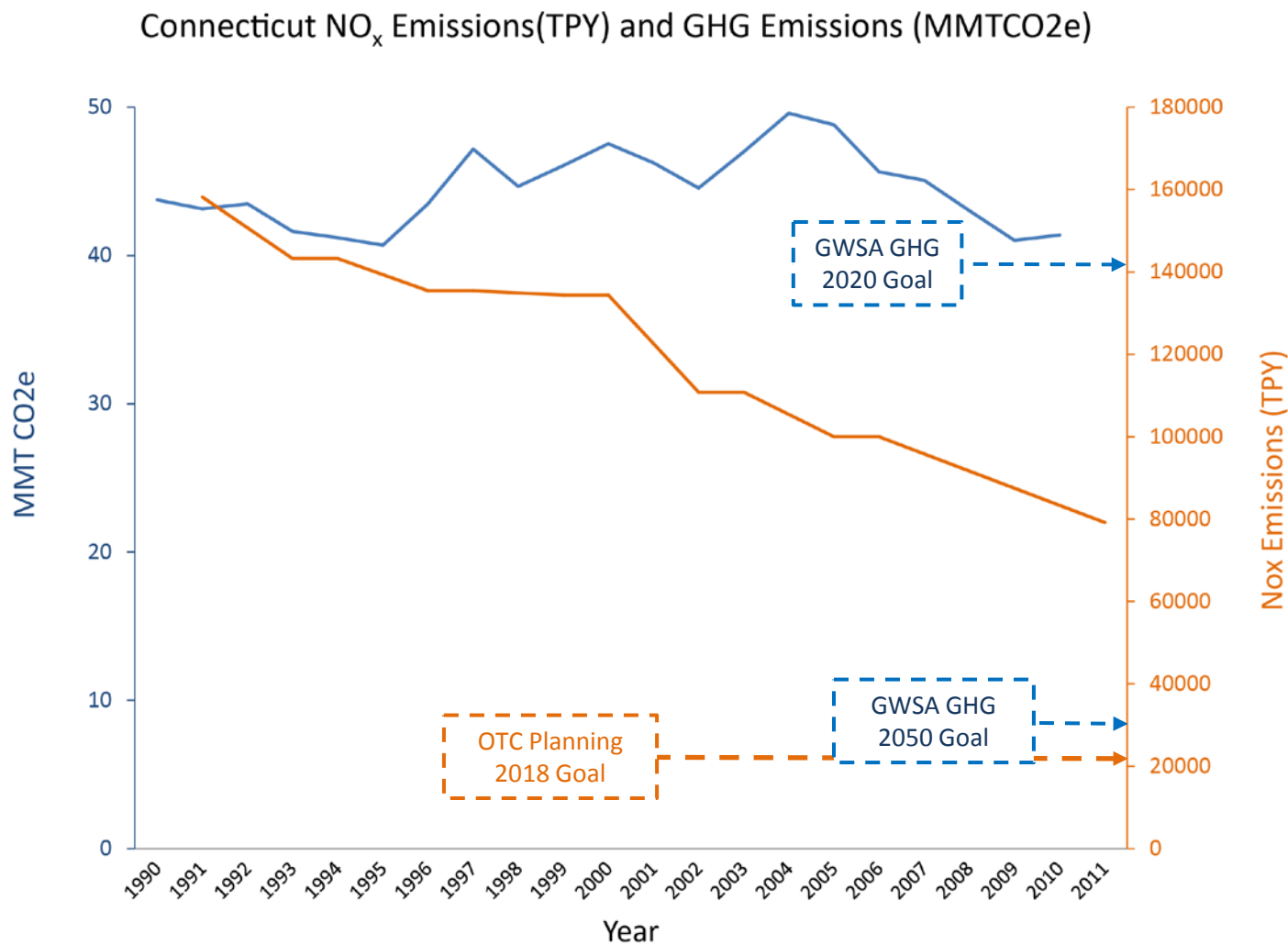
Total NOx Emissions and Transport  
To Connecticut on Typical High Ozone Day



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# Significant Reductions Have Been Made, More Are Needed

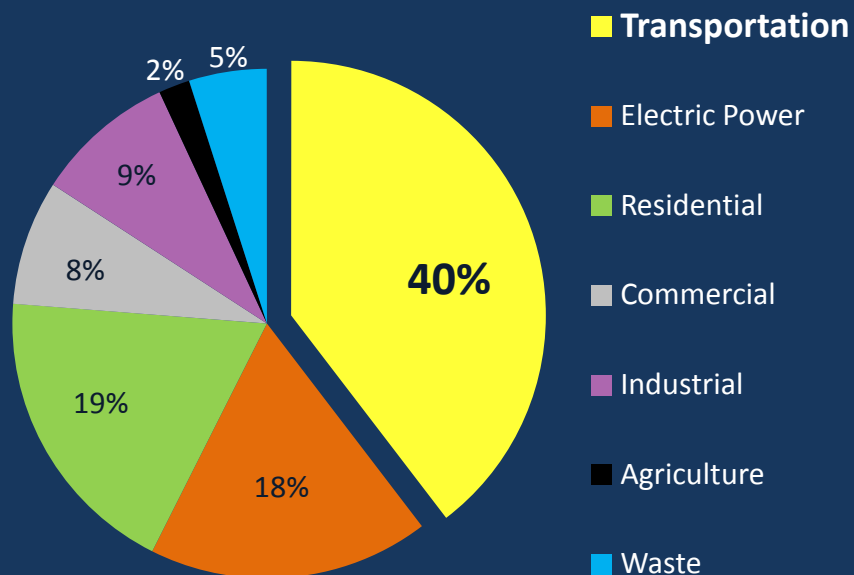


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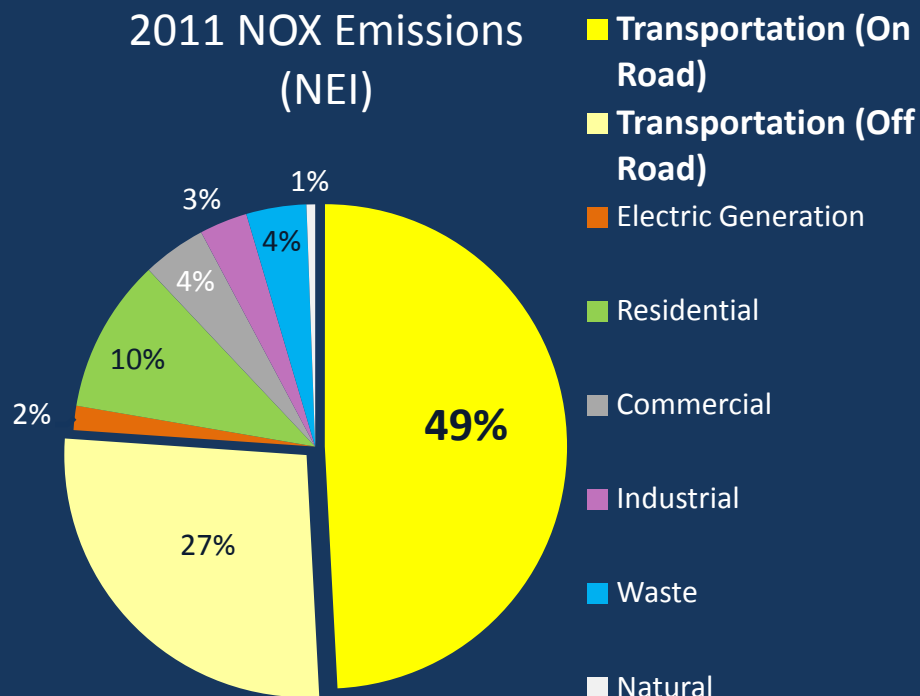
# Transportation Sector: CT's Largest Source of Emissions



2010 Annual CO2 Emissions by Sector (SIT)



2011 NOX Emissions (NEI)



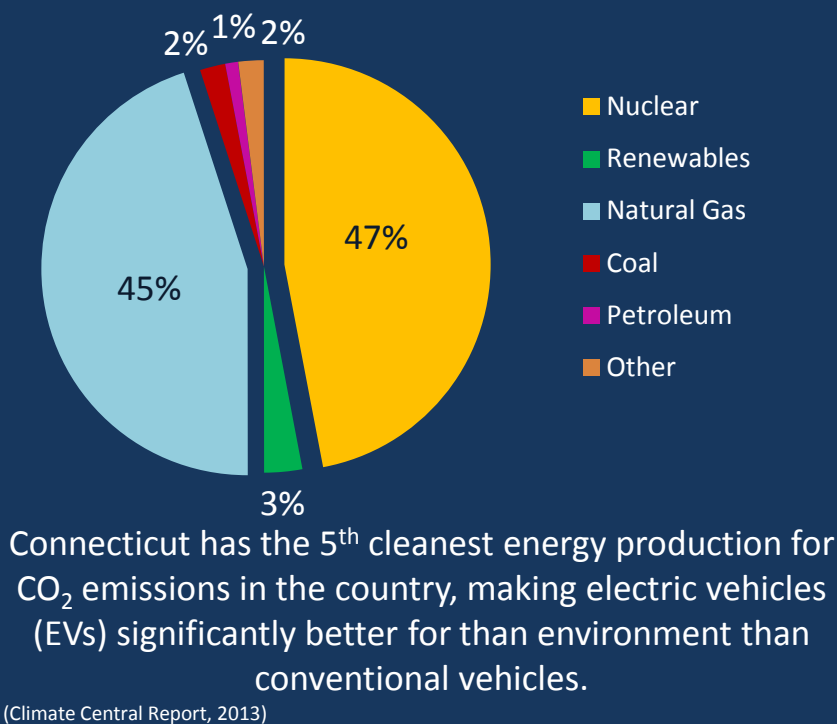
Conventional vehicles are getting cleaner due to the Low Emission Vehicle program, but people are also driving more miles



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# Connecticut's Clean Energy- Transportation Opportunity

Fuel Sources for Electric Power Generation in Connecticut in 2012 (EIA)



The CO<sub>2</sub>e emissions of EVs are *lower in Connecticut* than the national average.



## *Comprehensive Energy Strategy*

By integrating energy, environmental, and economic goals, the Strategy breaks new ground and advances a broad and robust structure for thinking through energy options.

Emphasis is placed not on “picking winners” but on using limited government resources to leverage private capital and increase the flow of funds into energy efficiency, renewable power, natural gas availability, and a 21st century transportation infrastructure that promotes mobility options, transportation-oriented development, and market-based opportunities for clean fuels and clean vehicles.







## *Connecticut Actions Underway to Grow ZEV Market*



# Significant ZEV Activity Under Way in CT



- Build out publically recognizable infrastructure to assure range confidence
- Develop workplace charging education and technical assistance program
- DEEP workplace charging, leading by example
- Assess potential fleet wins
- Engage, through CCAT, in DOE public/private H2USA Initiative
- ZEV Dealer Recognition Program



- Assess HOV access for plug-ins
- Prioritize site for chargers at commuter lots and transportation hubs
- Install fast chargers along the interstate corridor



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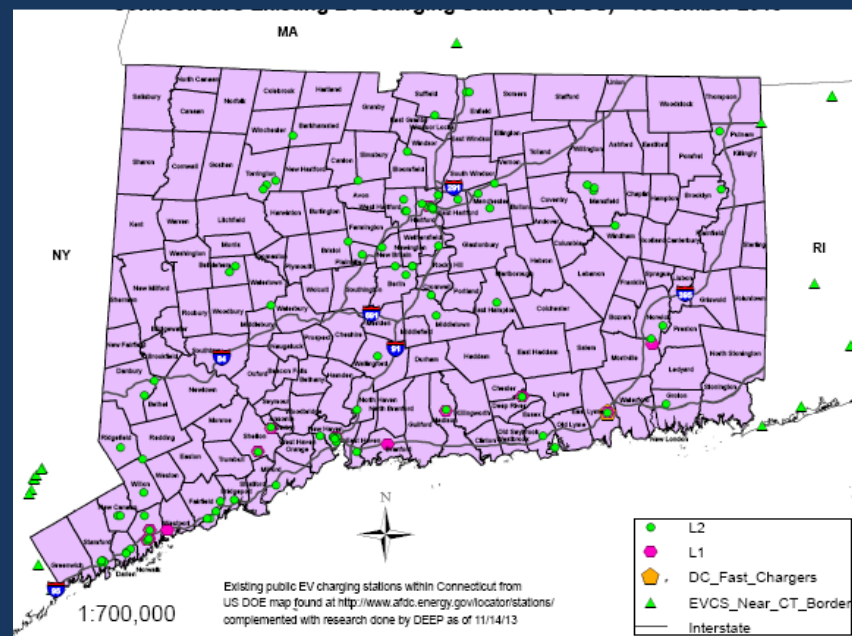
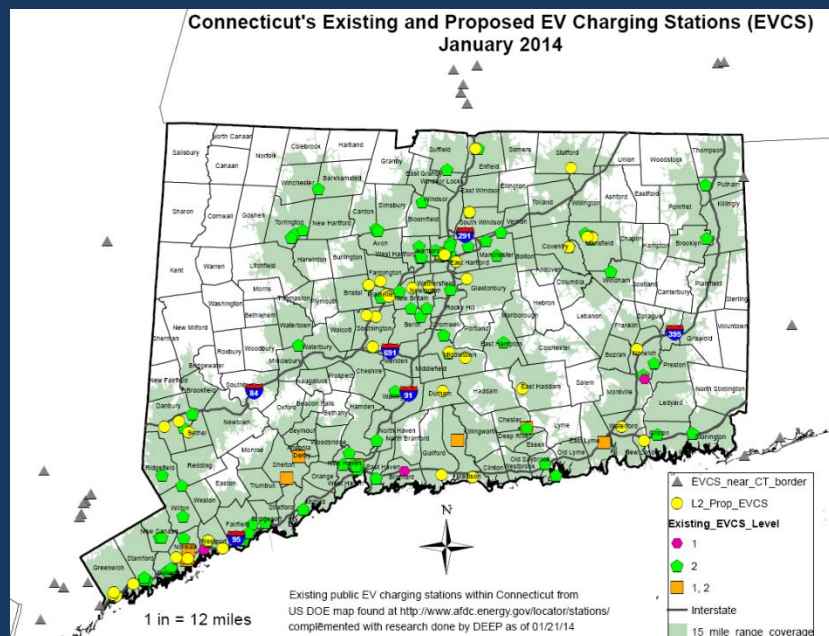
## What We Have

160 chargers at 100 locations around the state



## Our Goal

Chargers within a 15 mile range anywhere in state



## Connecticut's Current Strategy

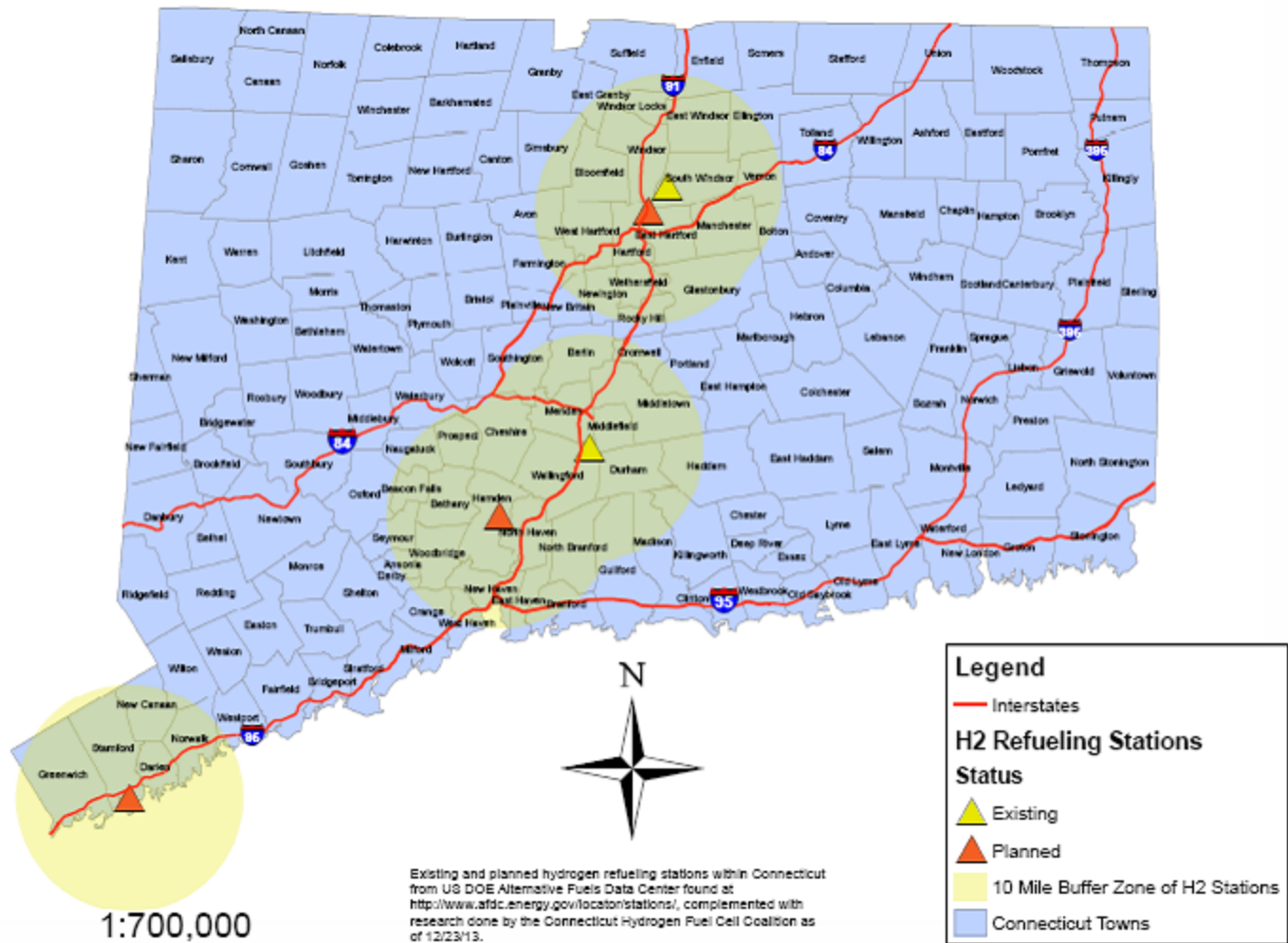
- Chargers at homes, workplaces, and multi-modal transportation hubs
- Safe and convenient chargers near destinations (food, shopping)
- Fast chargers along interstate transportation arteries



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# Connecticut Proposed and Existing Hydrogen Stations

Connecticut's Proposed and Existing Hydrogen Refueling Stations - December 2013



# ZEV Memorandum Of Understanding



## State Zero-Emission Vehicle Programs Memorandum of Understanding

WHEREAS, the Signatory States have adopted regulations requiring increasing sales of zero-emission vehicles (ZEVs), or are considering doing so; and

WHEREAS, accelerating the ZEV market is a critical strategy for achieving our goals to reduce transportation-related air pollution, including criteria air pollutants, mobile source air toxics and greenhouse gas emissions (GHGs), enhance energy diversity, save consumers money, and promote economic growth; and

WHEREAS, our states are committed to reducing air pollution, including the emission of GHGs and other air pollutants from the mobile source sector; and

WHEREAS, many of our states have obligations or otherwise seek to reduce GHGs consistent with science-based targets by 2050; and

WHEREAS, motor vehicles are among the largest sources of GHGs and criteria air pollutants that adversely affect the health and well-being of our citizens in all of our states; and

WHEREAS, providing transportation alternatives such as ZEVs will help improve air quality, reduce the use of petroleum-based fuels in the transportation sector, protect consumers against volatile energy prices, and support the growth of jobs, businesses and services in a clean energy economy; and

WHEREAS, an increasing variety of vehicles that operate on hydrogen and low-cost electricity are commercially available and have the potential to significantly reduce emissions of criteria pollutants and GHGs, enhance consumer choice, and allow for home fueling; and

1

- Create Action Plan

2

- Report # ZEVs

3

- ZEVs in Fleets

4

- Building Codes/Standards

5

- Hydrogen Fuel Cell Vehicles



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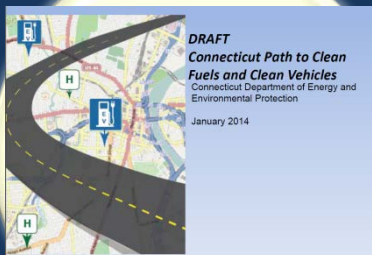


# Achieving MOU Goals



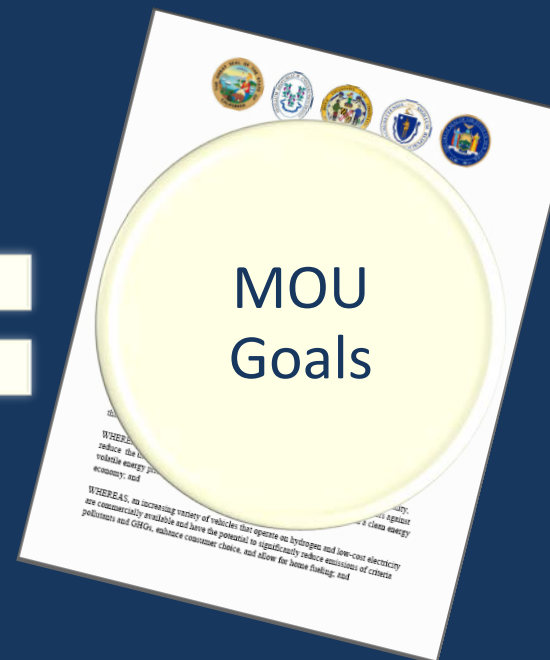
- Statewide Public Charging Network
- Public Information (Web)

Action Plan  
Implementation

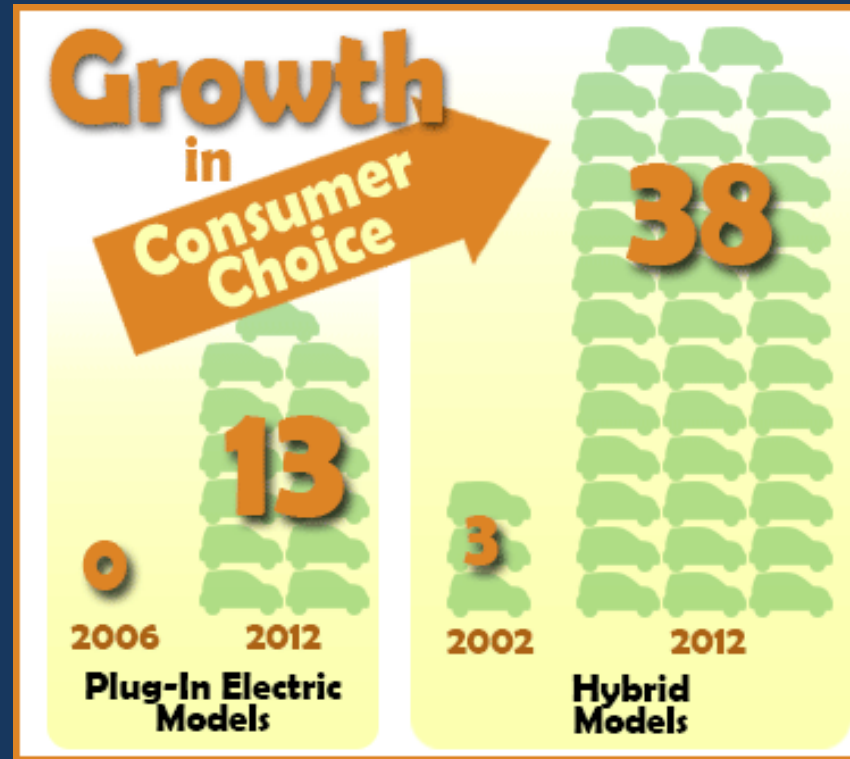


MOU  
Goals

- Dealer Awards
- CALEV Program



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## Availability

Many of the ZEV Models are currently only available in CA

Plug-in sales are three times higher in states that have adopted the California Low Emission Vehicle and Zero Emission Vehicle program.

Some automakers will begin deploying Fuel Cell Electric Vehicles (FCEV) in the United States in the 2015 model year.



*EVs compare favorably to conventional vehicles*



## Initial Price

- Federal Incentives can be used to reduce initial cost



## Fuel

- Fuel costs for EV's in CT will be closer to \$1.60 to \$2.00 gasoline equivalent



## Insurance

- Many insurance companies offer discounts of up to 5% for EV owners



## Taxes

- Consider property tax, sales tax and administration fees

## Maintenance

- Maintenance costs for EVs have been found to be up to 35% lower than for conventional vehicles



Total Cost Of Vehicle Ownership





## *Action Plan Strategies*







# Multi-state ZEV Actions



1

- Collaborate w OEMs for ZEV Success

2

- Support continuation of federal tax credits and reciprocity for ZEV incentives

3

- Explored pooled ZEV purchasing
- Establish a ZEV Fleet Users Forum

4

- Promote workplace charging coordinated with DOE Workplace Charging Challenge and state agency lead by example initiatives

5

- Promote and support public ZEV charging and fueling networks

6

- Ensure access, compatibility and interoperability of PEV charging network

7

- Coordinate and partner to address research needs and build partnerships



# ZEVs Can Be a Foundation CT's Economy and Job Growth



1. *Connecticut is home to several companies directly involved in advanced technology vehicle industry*
2. *ZEV's have the potential to increase jobs in EV and H2 related industries*
3. *Companies in Connecticut can save money by utilizing ZEV vehicles in their fleets*



## *CT Action Plan Strategy*

- Work with the Connecticut Center for Advanced Technology and ZEV partners
- Showcase business success stories and expertise
- Partner with the Connecticut Department of Economic and Community Development to assess ZEV impact on the economy





*Municipalities, State Agencies and Connecticut Businesses can save money by deploying alternatively fueled vehicles.*

## ***CT Action Plan Strategy***

- Identify fleet characteristics well suited to success
- Passenger fleets suited to EVs
- Fuel options for trucks allow choice dependent on fleet function
- Share case studies to show cost savings potential
- Leverage businesses experiences to help educate fleets about benefits





***Assure building codes facilitate the EV future.***

## ***CT Action Plan Strategy***

- Complete DEEP Lean exercise to create a standard procedure for state facility charger installation
- Put chargers on the state procurement contract for municipal and state agency procurement
- Assess best practices for state building codes





## ***CT Action Plan Strategy***

- Assess best practices in other states
- Increase marketing and public awareness on available rates and metering options for EVs
- Finalize EV rates docket to further support deployment and implementation as outlined in the CES

## ***PURA actions in 2014 will include:***

- Implementing a pilot program of interim time of day rates for public EV charging stations to inform rate design efforts.
- Determining the appropriateness of implementing time of day rates for public EV charging stations.
- Determining the appropriateness of time of day rates for other customer classes.





# Potential Federal Opportunities



Assess viability of federal authorization to allow plug-in vehicles in HOV lanes.



Pursue FHWA authorization to allow chargers at rest stops.

Assess possibility of extending and converting Federal tax credit to point of sale rebate.



U.S. DEPARTMENT OF  
**ENERGY**

Streamline Standards for Hydrogen Fueling



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# Hydrogen Infrastructure



## Establish Goals

- Development of Infrastructure
- Vehicle Deployment

## Establish Hydrogen Partnerships

- Automakers
- Hydrogen Producers and Distributors
- Government
- Equipment Manufacturers



### ***CT Action Plan Strategy***

- Assess hydrogen fueling infrastructure needs
- Coordination with stakeholders
- Implement H2 Roadmap Deployment Plan



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Air

- Air Monitoring
- Air Permitting
- Air Quality and Health Effects
- Air Quality Planning
- Air Regulations
- Compliance Assurance
- Emissions Inventory
- Mobile Sources
- Working Together for Clean Air
- Environmental Protection Begins With You
- Air Main Page
- Main Menu

Report an ENVIRONMENTAL Concern/Problem

January Calendar of Events

Laws and Regulations

Maps and GIS Data

STATE PARKS 400

## Path to Clean Fuels & Vehicles

**“Increasing the number of EVs on the road is a key component of Governor Malloy’s Comprehensive Energy Strategy”**

**- Interim Commissioner Rob Klee**

As part of Governor Malloy's efforts to provide cleaner, cheaper and more reliable transportation energy and to support our clean air goals, Connecticut is moving forward to increase the number of clean vehicles on our roads including electric vehicles (EVs) and fuel cell vehicles.

Explore the many benefits of clean vehicles related to [Clean Energy & Fuels](#), [Consumer Choice](#), and [Transportation](#) and discover how Connecticut is building out its clean vehicle [Infrastructure](#).

[Get Involved!](#) by submitting comments on [Connecticut's Path to Clean Fuels & Clean Vehicles - Draft Action Plan](#) and attending upcoming stakeholder meetings.

Watch Former Commissioner Esty Launch the ZEV Action Meeting

See DEEP Web Page ([www.ct.gov/deep](http://www.ct.gov/deep)) and select path to clean vehicles



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*Air Quality and Greenhouse Gas Reductions,  
Energy Security,  
Consumer Choice &  
Economic Development*

