



Connecticut Department of Energy and Environmental Protection





Hydrogen Fueling Stations Grant

Administered Through



Funded By



Anne Gobin, Chief
Bureau of Air Management



Connecticut Department of Energy and Environmental Protection

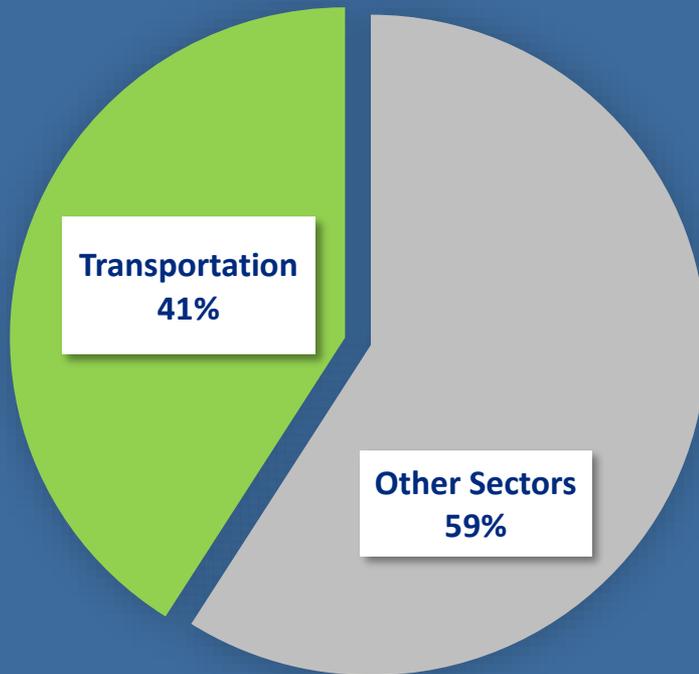
Goals



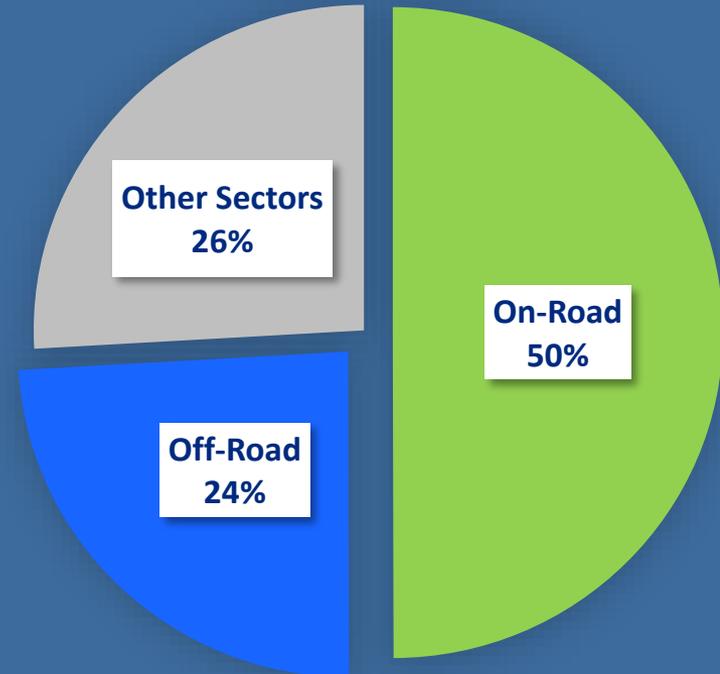
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Transportation Sector is the Largest Source of Emissions

2012 Annual CO2 Emissions by Sector (SIT)



2011 NOX Emissions (NEI v2)



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

(Connecticut Emissions)



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State Focus on Transportation

LET'S GO CT!

Connecticut's
**Bold Vision for a
Transportation Future**



State Focus on Economy



Mission: To enhance economic growth in Connecticut through the development, manufacture, and deployment of fuel cell and hydrogen technologies and associated fueling systems.

Key Statistics (2012)

Total Employment: 2,693

Total Revenue/Investment: \$605 M

OEM Revenue/Investment: \$312 M

Total Supply Chain Companies : 601

CCAT Findings

“Connecticut’s industry has been the leader and innovator of fuel cell and electrolysis technologies since the 1950s.”



Fuel cell power plants being developed for the Apollo lunar mission are shown in various stages of assembly at one of the Pratt & Whitney Aircraft's East Hartford, Connecticut facilities. May 18, 1964

Source: americanhistory.si.edu



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CCAT Findings: Fuel Cells Support Economic Development

There are favorable market conditions for the expansion of the hydrogen and fuel cell industry in Connecticut...

Such that...

- Public investment is appropriate and justified
- Investment would provide a favorable return for the state
- There are favorable sites for deployment

Benefits Received...

- Meet pressing energy needs
- Improve environmental performance
- Increase economic development
- Create new jobs



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ZEV Memorandum Of Understanding

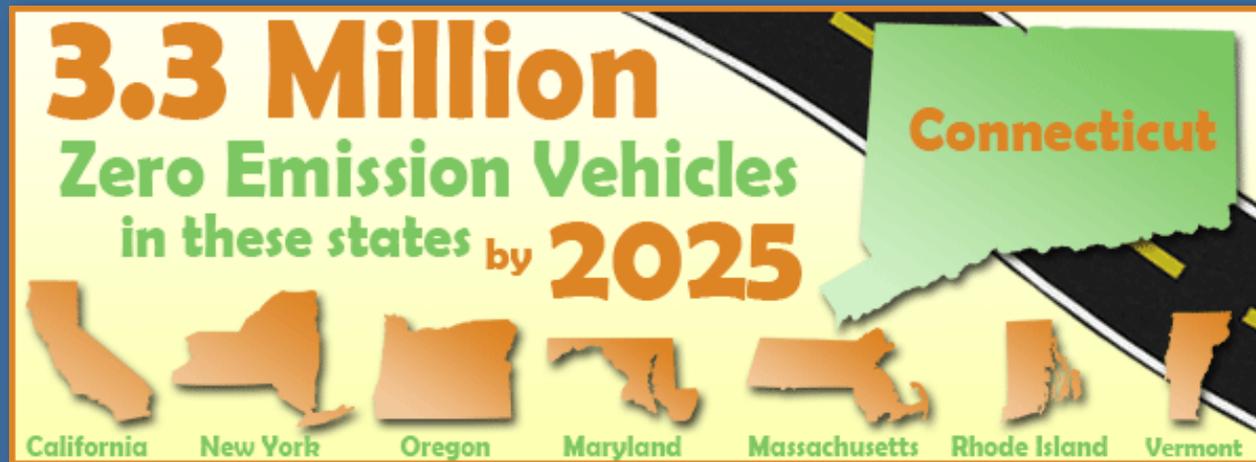
Report ZEV Volumes

Create Action Plan

Update Building Codes and Standards

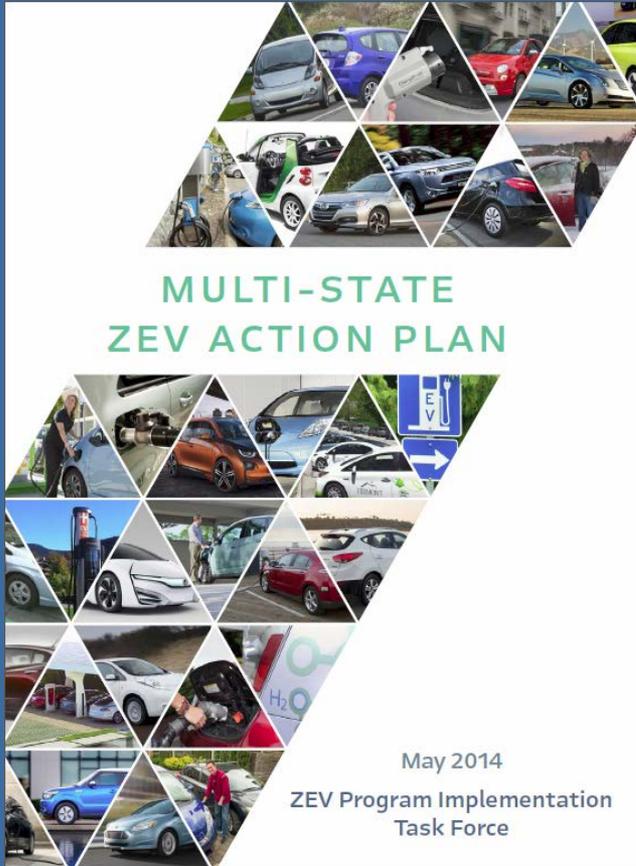
Develop a ZEV Fleet Strategy

Hydrogen Fuel Cell Vehicles



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Multi-State Activities FY15



Work With Dealers

Fleet Purchases

Build Consumer Incentives

Workplace Charging



Hydrogen
Vehicle and Infrastructure
Development



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Why Hydrogen?

- 400 mile range and 3 to 5 minute refueling
- Zero tailpipe emissions
- Reduced GHGs
- Cold weather “penalty” on par with gasoline
- Viable for CT’s larger SUVs and AWD
- Economically competitive
- As safe and easy to fuel as gasoline
- Can be locally generated with renewable pathways



Fuel Cell Electric Vehicles

Hyundai Tucson Fuel Cell



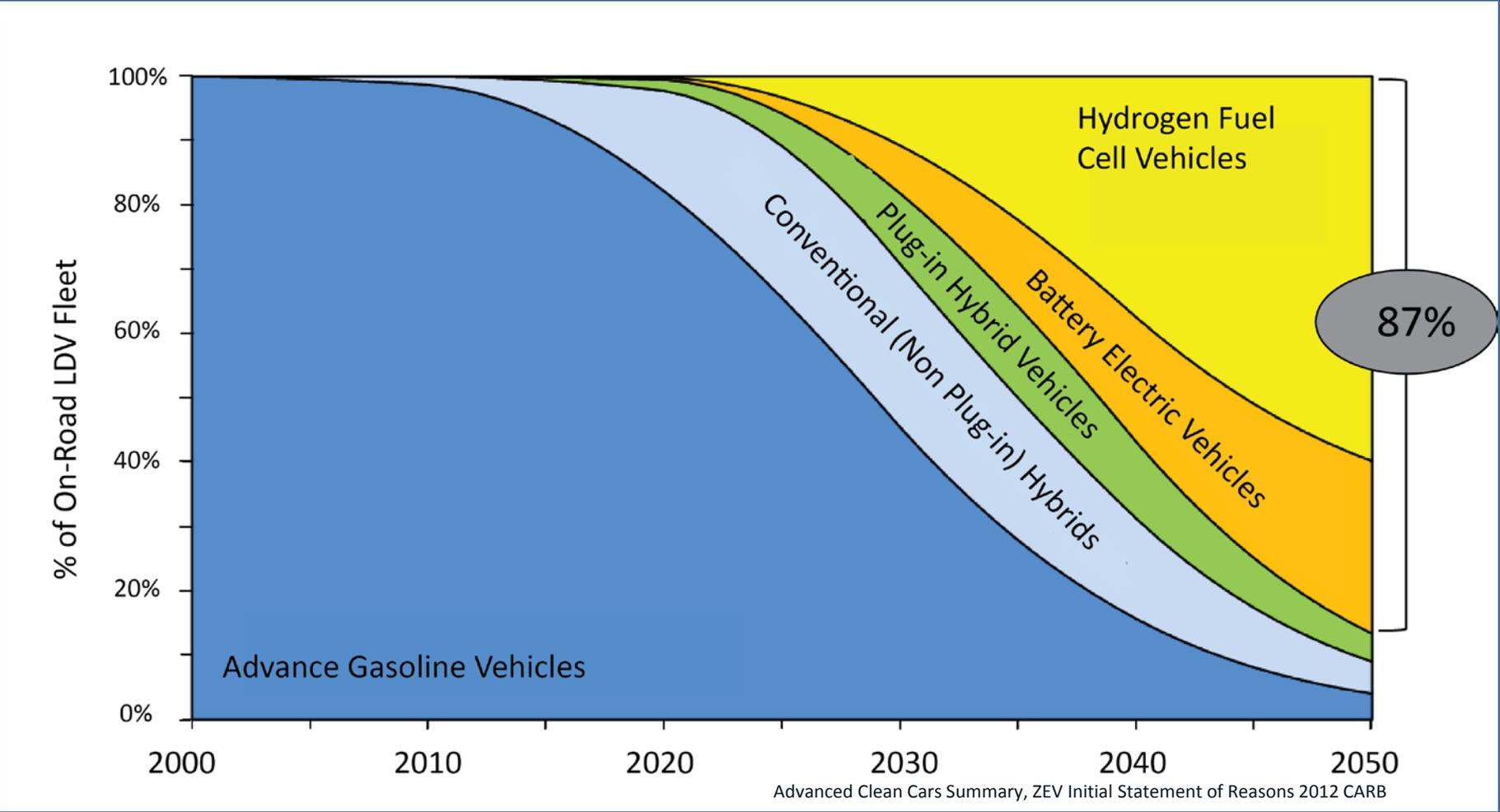
Toyota Mirai



\$3,000
Purchase Rebate



Not Picking Winners- Evolving Market Share



Hydrogen - from Research to Early Adopters



From:

- DOT H₂ Bus Pilot Program
- Proton Prototype Fueling Station
- Stationary Fuel Cell Backup Power
- CCAT Fuel Cell Coalition
- UCONN Global Fuel Cell Center



To:

- H₂ Passenger Vehicles in Fleets
- Statewide H₂ Fueling Infrastructure
- H₂ Microgrids and Stationary Power
- UCONN R&D and Lead by Example



The Cars are Coming

Honda FCEV 2016



2017 and Beyond



Hyundai Tucson 2015



Toyota Mirai 2015



CA Conclusions



- Stations must come before vehicles
- People want fuel near home, work and weekend destinations
- Stations must be consumer friendly
- Short and convenient travel radius for early market clusters



Lead By Example – State Fleet

Multistate MOU: 25% of LDV fleet by 2025



Plug-In Electric

- Plug-ins on state contract today
- Looking to add FCEVs when OEMs make available



Fuel Cell Electric



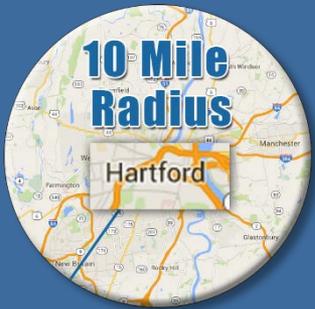
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H₂ Fueling Stations Program

CCAT will award up to...

\$450,000

...to develop and operate two publicly available hydrogen fueling stations



Within 10 miles
of the city of
Hartford

Compliance with SAE
Standards for:
Station Dispensing,
Station to Car Comm.,
Nozzles, Fuel Quality

200kg avg. daily
capacity with the
ability to handle
back to back refills



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Stakeholders:

- Sign up to speak
- State name, affiliation
- Limit sharing to 3 minutes
- After everyone has an opportunity, may get an additional 2 minutes
- Conclude, but will accept written thoughts for one week
- Everything received will be posted

DEEP:

- Circulate sign up sheet for speakers
- Taking notes
- Add Hydrogen Grant Program web page to EVConnecticut.com with all related material
- All written comments directed to:

Attn. Paul Farrell, DEEP
79 Elm St.
Hartford, CT 06106
Paul.Farrell@ct.gov

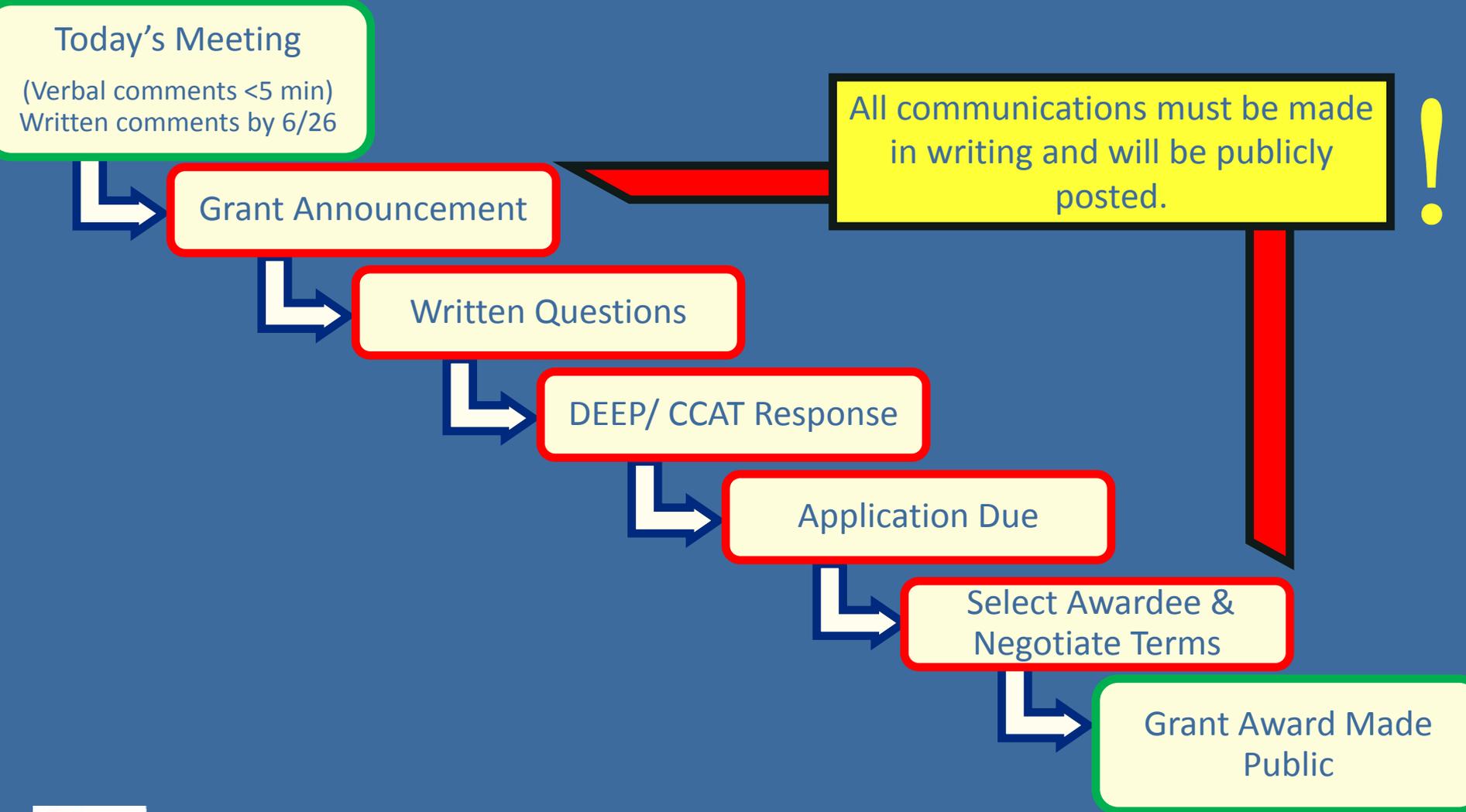


Today's Discussion

What are the most important considerations to initiating the partnerships necessary for an economically viable redundant fueling network and making FCEV cars available for Connecticut consumers?



Where We Go From Here



Where to Find More Information?

www.EVConnecticut.com

- Next week, follow the link to the “Hydrogen Fueling Stations Grant” web page
- Webpage will house all program guidelines and applications (when available)
- Comments received and all other meeting materials will also be posted here



EVconnecticut
The Path to a Clean Vehicle Future

EVConnecticut is a partnership between the Connecticut Department of Energy and Environmental Protection and the Connecticut Department of Transportation working to introduce more electric vehicles into Connecticut. Connecticut's cheaper, cleaner and more reliable energy future depends on electric vehicles putting us on a path toward greater energy independence.

Incentives

EVConnecticut recently announced a hydrogen and electric vehicle purchase rebate and also offers EV charging station incentives to municipal and state agencies and private businesses. In addition there are multiple federal and state programs that offer additional incentives.

- Connecticut Hydrogen and Electric Vehicle Automobile Purchase Rebate (CHEAPR)
- Hydrogen Fueling Station Grant Program**
- EV Charging Station Incentive Programs
- DOT Clean Fuel Program
- Other Funding and Tax Incentives

[more about incentives>>](#)

Maps

Connecticut is Range Confident!!

Connecticut has over 300 public EV charging stations...find your nearest EV charging station Now!

- CT EV Charging Stations
- USDOE Alternative Fueling Stations

[more maps>>](#)



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Win- Win

Increasing Hydrogen infrastructure options will:

- increase ZEV uptake
- benefit the state economy and environment
- provide consumers with more options

