Goals

CT ECONOMY

CLEAN AIR

ENERGY

ZEV

Connecticut Department of Energy and Environmental Protection
State Focus on Growth

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 (2017)
- Total Employment: 2,834
- Total Supply Chain Companies: 611
- Total Revenue/Investment: $601 M
- OEM Revenue: $262 M
- CT Tax Revenue: $31 M - $47 M
Transportation Impact On Clean Air

**Annual GHG Emissions (2014)**

- Transportation: 43%
- Electric Power: 19%
- Residential: 21%
- Commercial: 11%
- Industrial: 6%

GHG Emissions based on US EIA 2014 CT State Energy Profile (Data Available November 2016)

**Annual NOx Emissions (2014)**

- Non-Road Equipment: 23%
- On-Road Vehicles: 44%
- Other Sectors: 33%

NOx Emissions based on 2014 NEI (Data Available December 2016)
CT’s Comprehensive Energy Strategy

- Cheaper, Cleaner, More Reliable
- 80% long term GHG reduction from 2001 levels by 2050
- 45% mid-term GHG reduction from 2001 levels by 2030 (GC3 recommendation)
- Fuel Cell EVs are a key strategy
2017 Northeast Regional FCEV Fleet Deployment Plan

- Developed for 9 states
  - Northeast states including Maryland

- ZEV Deployment Targets
  - 8,749 Fuel Cell ZEVs (Projected)
  - 591 in Connecticut

- Hydrogen Infrastructure
  - 74 to 89 hydrogen refueling stations
  - 6-7 in Connecticut

Prepared by Northeast Electrochemical Energy Storage Cluster

Connecticut Department of Energy and Environmental Protection
Why Hydrogen?

- Conventional range and refueling times
- Zero tailpipe emissions
- Reduced GHGs compared to gas vehicles*
- Cold weather “penalty” on par with gasoline
- Viable for SUVs and AWD favored by CT’s drivers
- Economically viable
- As safe and easy to fuel as gasoline
- Potential for local H2 and H2 from renewables

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

Connecticut Department of Energy and Environmental Protection
ZEV Memorandum Of Understanding

- Signed by CT and 7 other states in 2013
- Established 2025 ZEV sales goals based on GHG reduction targets
- CA has since lowered its ZEV target under this MOU due to ZEVs having better range than expected
State Rebates through Connecticut Hydrogen and Electric Automobile Purchase Rebate

Fuel Cell Electric Vehicles

Honda Clarity

Toyota Mirai

Hyundai Tucson

$5,000 Purchase Rebate

Connecticut Department of Energy and Environmental Protection
Northeast Retail H$_2$ Stations Network

H$_2$ Stations Covering the Northeast

Network of 12 Stations
Start-up over Q4 2017-Q1 2018
Dedicated H$_2$ supply chain by
Project in collaboration with

New York
Bronx
Hempstead
Brooklyn
Site Location TBA

Connecticut
Hartford

Massachusetts
Braintree
Mansfield
Two others TBA

New Jersey
Lodi
Whippany

Rhode Island
Providence

Connecticut Department of Energy and Environmental Protection
Needed for Success

- Industry partners and investment
- Availability of FCEVs in Connecticut markets
- Simple low cost H₂ refueling stations
- Network of stations along major highway corridor
- Cost effective H₂ alternative to gasoline
- Education and outreach on H₂ and fuel cells
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 available

Fuel Cell Electric
Conclusions From CA’s Efforts

- Stations must come before vehicles
- Short and convenient travel radius for early market clusters
- Stations must be consumer friendly
- People want fuel near home, work and weekend destinations
$840,000

...to develop and operate one retail hydrogen fueling station

Located within 5 miles of the I-91/I-95 interchange in New Haven

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

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

Connecticut Department of Energy and Environmental Protection
Hosting The Station

• Have a business in the New Haven area?
• With easy access to I91/I95?
• Interested in hosting a hydrogen refueling station?

Submit Your INTEREST

Connecticut Department of Energy and Environmental Protection
VW Settlement

• Connecticut’s allocation is about $55.7 Million

• Connecticut “racing to the starting line”

• Draft Mitigation Plan reserves 15% for EVSE, including FCEV, infrastructure

• In 2018 look for:
  - Additional outreach
  - Finalizing mitigation plan
  - Project solicitations

www.ct.gov/deep/vw
Format Today

Stakeholders:

- Sign up to speak
- State name, affiliation
- Limit sharing to 5 minutes
- After everyone has an opportunity, may get an additional 5 minutes
- Conclude, but will accept written thoughts for one week
- Everything received will be posted

DEEP:

- Circulated sign up sheet for speakers during meeting sign-in
- Recording meeting
- Hydrogen Grant Program web page up at 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 for:
  – initiating the partnerships necessary for an economically viable fueling network;
  – making FCEVs available for Connecticut consumers; and
  – making hydrogen a cost effective transportation fuel?
Where We Go From Here

Today’s Meeting
(Verbal comments - 5 mins)
Written comments by 1/31/18

Grant Announcement

Written Questions

DEEP/ CCAT Response

Proposals Due

Select Awardee & Negotiate Terms

Grant Award Made Public

All communications must be made in writing and will be publicly posted.

Connecticut Department of Energy and Environmental Protection
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
Thanks For Attending Today

Increasing Hydrogen infrastructure options will:

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