Electric Vehicles
The Connecticut Connection

Columbia Automobile
Hartford, CT

Pope Manufacturing
Electric Vehicle (EV) Charging Connecticut Perspective

- Provide Motorist Safety
- Maintain Traffic Continuity
- Instill “Range Confidence”
- Allow Range Extension
- Improve Air Quality
- Support ZEV Commitment
- Enhance Fuel Diversity
- Increase Energy Security
Electric Vehicle (EV) Charging

EV Operations and Versatility

• Provide Motorist Safety
• Maintain Traffic Continuity

State DOT’s Strive to Maximize Motorist Safety & Maintain Continuous Flow

I-95 Southbound Service Plaza @ Milford, CT
Tesla Superchargers
New York Times – February 8, 2013
Electric Vehicle (EV) Charging
Increased Range and Trip Options

• Instill “Range Confidence”

• Allow Range Extension

Build Driver Confidence & Trip Versatility

Diversify from Local Use to Intercity, Destination, Touring

Image Courtesy Nissan / Renault
Electric Vehicle (EV) Charging
Air Quality / ZEV Commitments

- Improve Air Quality
- Support ZEV Commitment

CT is part of 2 Ozone Non-Attainment Areas (NY-NJ-CT & Greater CT)

Multi-State ZEV Action Plan - (CA, CT, MA, MD, NY, OR, RI, VT)
3.3 Million ZEV’s by 2025

Image Courtesy Earth First Journal
Electric Vehicle (EV) Charging
Energy Security & Diversity

- Enhance Fuel Diversity
- Increase Energy Security

*CT has relatively clean electricity grid (50% Nuclear, 25% Natural Gas, 10% Hydro)*

*500 EV Miles Driven Saves 1 Barrel of Oil*
DC Fast Chargers Paradigm Shift

- Statutory/Regulatory
- Site Considerations
- Signs & Markings
- Operations
- Fuel as a Regulated Commodity
- Contextual
Statutory & Regulatory Considerations

- Define “Charging” in Statute
- Clear Definition of Parking
- Ancillary Requirements for Fueling
- Restrictions on Sales in Facilities
- Charging as Employee Benefit
- Electronic payments
Site Considerations

• Charger redundancy (2 minimum)
• Match charging type to facility purpose
• Service Plaza / Safety Rest Area Issues
• Carpool Lots / “Fringe & Corridor” Facilities
• Ancillary Requirements for Fueling
• ADA requirements

No Level 2 EV Charging in Service Plazas
Signs & Markings

- Plug EV refueling sign is experimental
- Refueling sign warrants
- Signage within lots
- Ancillary fueling requirements
- Pavement markings colors
Operations

- Refueling moves to multitasking role
- Fueling gets “lost” in the parking maze
- Non-standard vehicle receptacle locations
- Slower fueling process → longer “dwell” time
- Electronic payment options
- “Flavors” of fuel

CHAdeMO, CCS Combo, Tesla → Beta, VHS, Laserdisc ??
Fuel as a Regulated Commodity

- Multiple supply / delivery models
- Public regulatory authority
  - CT PURA (Public Utilities Regulatory Authority)
- Defined rate structure
- Limitations on reselling electricity
- Competes with other fuel “opportunities”
- “Demand charges” to recover grid cost

Unit pricing ($/kW) becomes difficult
Contextual

- 1st viable diversification from petroleum as transportation fuel in 90+ years
- Fueling infrastructure is unique
- Fueling model is non-traditional
- EV fueling – transitional DOT role

Gas station ➔ Bread & Milk station ??