Using GIS to Plan EVSE Networks

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The Problem

- Large investments in national infrastructure deployment have not necessarily created the optimal location and distribution of charging stations
- EV Project alone: $100 million
- EVSE installation across 11 cities
Solution

- Geographic Information Systems (GIS) give a big picture view of travel patterns.
- They do not give granular details on where cars are deployed, regional driving patterns, parking locations, etc.
- ... Best for large-scale regional planning.
PEV Sales to Date

Cumulative PEV Sales

- Nissan
- Mitsubishi
- BMWi
- Fisker
- Tesla
- Toyota
- Ford
- Honda
- Mercedes
- Chrysler

- BEV Sales
- PHEV/EREV Sales
- Historic HEV Sales

Organized by: Fira Barcelona, avele, AVERE, NEA, LEA, IATED, EVAAP, EDTA
Hosted by: AVERE
In collaboration with: NEA, LEA, IATED
Supported by: European Commission
Compared to Previous HEV Sales

Organized by: Fira Barcelona
Hosted by: avele, AVERE, INEA, Laboratori de Barcelona
In collaboration with: EVAAP, EDTA
Supported by: European Commission
Sales by Quarter – up 94% over Q3 in 2012
U.S. Vehicle Deployment has Been Growing

Rate of PEV Sales as a Portion of Total Sales

- 1/100
- 1/250
- 1/500
- 1/1000
- 1/2000

Organized by: Fira Barcelona
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In collaboration with: European Commission
Supported by: European Commission
Current U.S. Infrastructure Investments – DC FC
U.S. Highway Network is Expansive and Intricate
... And Traffic in the U.S. is Heavily Dispersed
Methods for Using GIS - Town Locations for EVSE Planning
Methods for GIS – Safety Locations for EVSE Planning
A National Network Requires Both Town & Safety for Coverage
Using GIS for Smaller Scale Planning – CT Planning a DCFC Network

Connecticut PEV Charging Network: DC Fast Chargers - Phase 1

Selection Results:
- 8 DC Fast Charger locations
- 91.8% of state (by area) is located within 25 miles of a DC Fast Charger location
- 98% of state population is located within 25 miles of a DC Fast Charger location

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In collaboration with: AVERE, neA, Fira de Barcelona
Supported by: EVAAP, EDTA, European Commission
GIS for Regional Network Planning – CT DCFC Phase 2

Connecticut PEV Charging Network: DC Fast Chargers - Phase 2

Selection Results:
- 12 DC Fast Charger locations
- 100% of state (by area)
- located within 25 miles of a DC Fast Charger location
- 100% of state population located within 25 miles of a DC Fast Charger location

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Conclusions

- GIS is easily transferrable
- Planning networks is about: SAFETY & COVERAGE
- GIS can be used to create more finely tuned networks and plan phases
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