

Electric Drive Vehicle Demonstration & Vehicle Infrastructure Evaluation

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Engineering Corporation**

Infrastructure Development & Evaluation

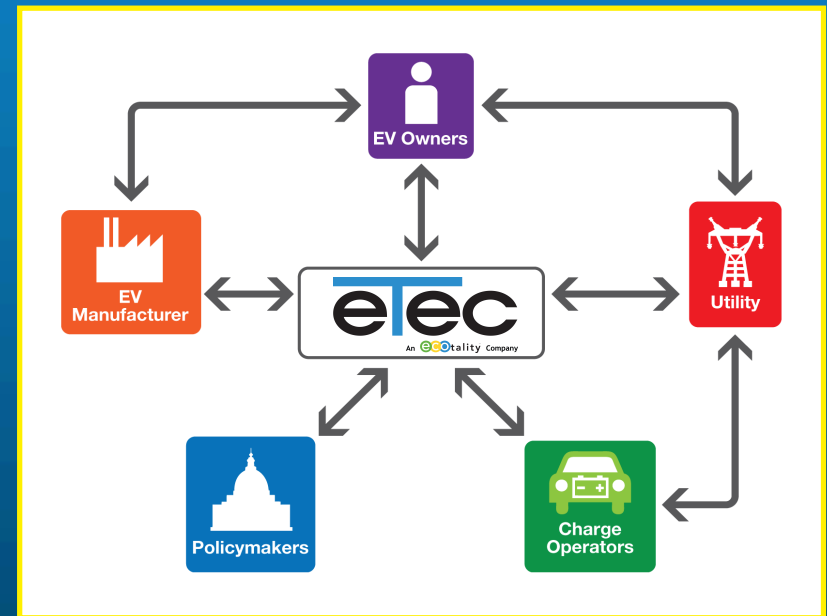
- ETEC and the USDOE will collaborate to build and study mature electric vehicle charge infrastructure
- \$99.8 million - USDOE and \$8 million - CEC expended to develop mature charge infrastructures
 - 5 market areas
 - 8 cities
 - 5 States
- Infrastructure studies and modeling
 - Data collection
 - Lessons learned
 - Grid interaction

Washington Infrastructure

- 900 vehicles
- 1,000 Level 2 commercial EVSE
- 150 Level 2 public EVSE
- 40 Level 3 fast chargers
- Fast charge transportation corridor

Infrastructure Planning

- Implement EV Micro-Climate process
- Bring together stakeholders
 - Seattle Plug-In Ready Project
 - Government
 - Industry
 - Utilities
 - Local business
- Develop roadmap
 - Deployment area
 - Target locations



Soft Infrastructure

- First responder training
- Code inspection officials coordination
- Roadside assistance development
- Installation contractor training & certification
- Dealer training
- Public awareness



Residential Infrastructure

- Deploy 900 Nissan Leaf electric vehicles
 - Program sign up at Nissan dealer
 - Participant qualification required
 - Vehicle data collection
- Level 2 residential EVSE provided for each vehicle
 - Demand & energy metering
 - Internet based user interface
 - Internet based data collection - wired interface
- Bovis Lend Lease & Coulomb Technologies partners

Commercial Infrastructure

- Deploy 1,000 Level 2 EVSE
 - Demand & energy metering
 - Revenue system pilot(s)
 - Internet based data collection - cellular interface
- Initial installations tied to retail locations
- Employer locations tied to vehicle sales
- CB Richard Ellis partner

Public Infrastructure

- Deploy 150 Level 2 EVSE
- Locations coordinated with local government
- Revenue system pilot(s)
- Coulomb Technologies partner



Fast Charge Infrastructure

- Deploy 40 Level 3 chargers
- Telematics vehicle interface
 - Price
 - Availability
- Project partners
 - BP
 - CB Richard Ellis
 - Cross Country/ATX

Transportation Corridors

- Level 3 fast chargers
- Interstate 5 study area



Infrastructure Studies

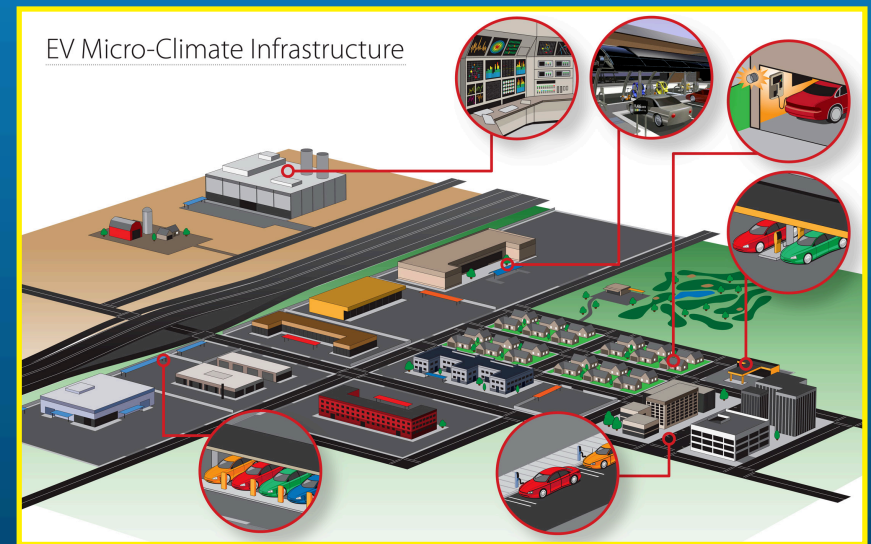
- Data collection
 - Vehicles
 - Chargers
- Data management
 - Project partner Idaho National Laboratory
 - Repository of all data
 - Periodic reporting

Data Analysis

- Project partners
 - Idaho National Laboratory
 - University of California - Davis
 - Ohio State University
- Vehicle & charger utilization
 - Climate
 - Topography
 - Driver information
 - Charger location

Lessons Learned

- Process initial lessons learned from data
- Develop action plan to improve utilization
- Implement action plan tasks
- Measure effectiveness of actions



Smart Grid Integration

- **Charger demand and energy data base**
- **Utility interface to determine grid impacts**
 - **Generation resources**
 - **Distribution system**
- **Demand reduction pilot(s)**
 - **Effectiveness of rate incentives**
 - **Transparency of charge interruption**
 - **Benefits of charging energy sales**
 - **Information requirements for effective operations**
- **GridPoint & local electric utility partners**

Schedule

- **Contract** 09/30/09
- **Initial Infrastructure** Q3 2010
- **Vehicle Launch** Q4 2010
- **Final Infrastructure** Q2 2011
- **Evaluation** Q4 2010 - Q3 2012
- **Reporting** Quarterly
- **Completion** Q2 2013

Anticipated Results

- Infrastructures established and studied
 - Diverse geography, demographics and climates
 - Fully developed charge infrastructure
- Tested models developed
 - Charger deployment
 - Driver training/information
 - Revenue/access
- Sustainable business model for charger deployment

Paving The Way For Electric Vehicles

- US Department of Energy
Vehicle Technologies Program
- Nissan North America
- Industry Participants
- Government Participants
- Early adopters

www.theEVProject.com

