

# Transportation Electrification: Demonstration and Education Projects of the ARRA

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and Battery Technology Conference  
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## **ARRA dramatically increased funding for vehicle electrification in the U.S. and allowed VTP to establish numerous electric drive projects**

- \$2 Billion in grants to establish advanced battery and power electronics and motors manufacturing
- \$400 Million for Transportation Electrification Demonstration, Infrastructure, and Education
  - 8 Awards totaling over \$360M for grid-connected vehicle and infrastructure demonstrations
    - 13k vehicles from 9 OEMs and over 22k charging stations will be deployed across America
    - Vehicle performance and grid impact data will be gathered and analyzed to help develop vehicles and supporting grid infrastructure
  - 10 Grants totaling \$39M for Electric Drive Education
    - Graduate/Under-Grad/Jr. College/1<sup>st</sup> Responders/Mechanics/Public

# Transportation Electrification Demonstration Activities

## Electric Transportation Engineering Corporation

AWARD: \$114.8M

- Demonstration of more than 7,500 Nissan Leaf EVs and Chevy Volt PHEVs
- Deployment of more than 15,000 Level 2 Charging Stations, plus 250 Level 3 Chargers, in 7 major metropolitan areas (LA, Phoenix, Portland, Seattle, San Diego, Central and Eastern Tennessee, and DC)
- Full instrumentation of vehicles and infrastructure for comprehensive data-collection and analysis effort



## Chrysler, LLC

AWARD: \$48M

- Development, validation, and deployment of 140 PHEV Dodge Ram pickups
- Deployment of vehicles through 11 partner fleets across a wide range of geographic, climatic, and operating environments



## South Coast Air Quality Management District

AWARD: \$45.4

- Development of a fully integrated, production PHEV system for Class 2-5 vehicles (8,501-19,500 lbs GVWR).
- Demonstration of 378 trucks and shuttle buses through network of partner fleets
- SCAQMD based in Diamond Bar, CA; To be Manufactured in Galesburg, MI, and Elizabethtown, KY



## Coulomb Technologies

AWARD: \$15M

- Deployment of approximately 4000 public and private charging stations in up to 9 U.S. Cities
- Locations will be coordinated with OEM deployment of 400 grid connected vehicles



# Transportation Electrification Demonstration Activities (cont'd)

## Navistar, Inc.

AWARD: \$39.2M

- Develop, validate, deploy 950 advanced Battery Electric delivery trucks (12,100 lbs GVWR) with a 100-mile range
- Manufacturing in Elkhart Co., IN; Deployment in Portland, Chicago, and Sacramento



## Cascade Sierra Solutions

AWARD: \$22.2M

- Deployment of truck stop electrification infrastructure at 50 sites along major US interstate corridors
- Provide 5,450 rebates of 25% of the cost for truck modification to incorporate idle reduction technologies



## General Motors

AWARD: \$30.5M

- Develop, analyze, and demonstrate 125 Chevy Volt EREVs for electric utilities and 500 Volt EREVs to consumers
- Manufacturing in Detroit, MI; Deployment in conjunction with several utility partners



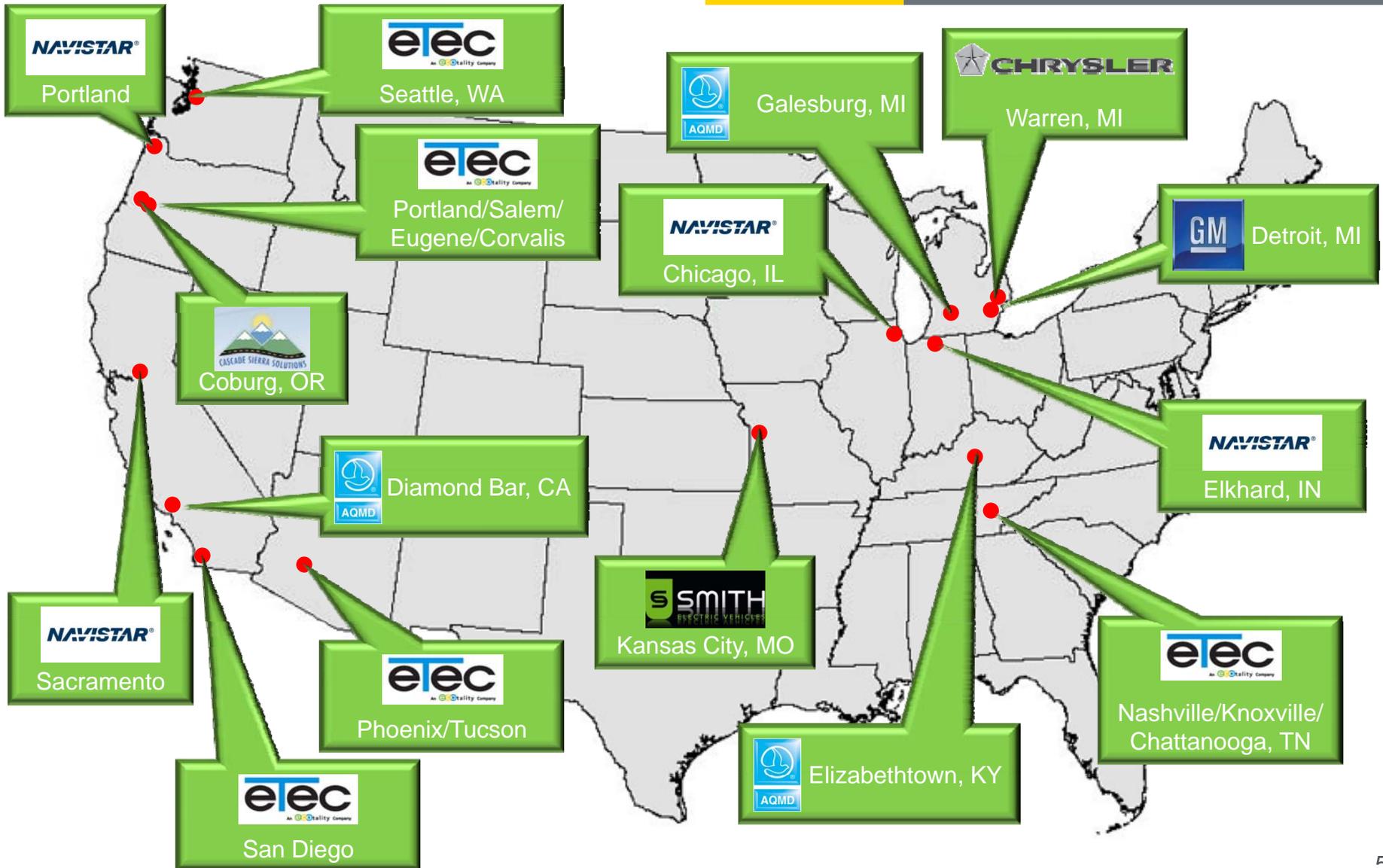
## Smith Electric Vehicles

AWARD: \$32M

- Develop and deploy up to 500 medium-duty electric trucks.
- Manufacturing in Kansas City, MO; Deployment in conjunction with 20 launch partners representing a range of commercial and public sector markets, geographies, and climates



# Transportation Electrification Demonstration Activities – Geographic Distribution



# Transportation Electrification Education Program

Award Recipient	DOE Award	Project Locations	Project Focus
West Virginia University (National Alternative Fuels Training Consortium)	\$6.9M	Morgantown, WV State of South Carolina	<ul style="list-style-type: none"> <li>•Educational programs for: Graduate, Undergraduate and Secondary Students; Teachers; Technicians; Emergency Responders; General Public</li> <li>•Partnering with: NAFTC Headquarters and members; West Virginia Department of Education; South Carolina Department of Education; Greater New Haven Clean Cities Coalition; Innovation Drive, Inc.; Advanced Vehicle Research Center; Auto Exposure LLC; Big Fish Advertising and Public Relations; MotorWeek; Sabre Engineering; Northeast Utilities</li> </ul>
Purdue University	\$6.1M	State of Indiana West Lafayette, IN	<ul style="list-style-type: none"> <li>•Educational programs for: Graduate, Undergraduate and Secondary Students; Teachers; Technicians; General Public</li> <li>•Partnering with: University of Notre Dame; Indiana University Purdue University at Indianapolis (IUPUI); Purdue University – Calumet; Indiana University – Northwest; Ivy Tech Community College</li> </ul>
Colorado State University	\$5M	State of Colorado State of Georgia Fort Collins, CO Boulder, CO Atlanta, GA	<ul style="list-style-type: none"> <li>•Educational programs for: Graduate, Undergraduate and Secondary Students; Teachers; Technicians; Emergency Responders; General Public</li> <li>•Partnering with: CSU; Georgia Institute of Technology; Arapahoe Community College; Douglas County School System; Nissan NA; KShare; Ricardo; AM General; Motion Reality, Inc.</li> </ul>
Missouri University of Science & Technology	\$5M	Rolla, MO Warrensburg, MO Linn, MO St. Louis, MO Kansas City, MO Lee's Summit, MO	<ul style="list-style-type: none"> <li>•Educational programs for: Graduate, Undergraduate and Secondary Students; Teachers; Technicians; Mechanics; Emergency Responders; General Public</li> <li>•Partnering with: University of Central Missouri; Linn State Technical College; St. Louis Science Center; Smith Electric Vehicles U.S. Corporation (SEV-US); Kokam America Inc.</li> </ul>

# Transportation Electrification Education Program (cont'd)

Award Recipient	DOE Award	Project Locations	Project Focus
Wayne State University	\$5M	Detroit, MI Warren, MI	<ul style="list-style-type: none"> <li>•Educational programs for: Graduate, Undergraduate and Secondary Students; Teachers; Technicians; Emergency Responders; General Public</li> <li>•Partnering with: NextEnergy; Macomb Community College</li> </ul>
National Fire Protection Association	\$4.4M	Quincy, MA	<ul style="list-style-type: none"> <li>•Educational programs for: Emergency Responders</li> <li>•Partnering with: Fire Protection Research Foundation; Automotive Alliance; NREL</li> </ul>
Michigan Technological University	\$2.98M	Houghton, MI (Western Upper Peninsula of MI)	<ul style="list-style-type: none"> <li>•Educational programs for: Graduate, Undergraduate and Secondary Students; General Public</li> <li>•Partnering with: Argonne National Laboratory; AVL; GM; Eaton; Horiba; MathWorks; Schweitzer Engineering Laboratories; Woodward</li> </ul>
University of Michigan	\$2.5M	Detroit, MI Ann Arbor, MI Dearborn, MI Flint, MI	<ul style="list-style-type: none"> <li>•Educational programs for: Graduate, Undergraduate and Secondary Students; Teachers; General Public</li> <li>•Partnering with: University of Michigan – Dearborn; Kettering University; Ford; GM; Chrysler; Eaton Corp; DTE Energy; Mentor Graphics; Ballard; Quantum Technologies; A123 Systems</li> </ul>
J. Sargeant Reynolds Community College	\$0.72M	Commonwealth of Virginia and Neighboring Mid-Atlantic States	<ul style="list-style-type: none"> <li>•Educational programs for: Secondary Students; Technicians</li> <li>•Partnering with: James Madison University; Virginia Department of Education; Ford; GM; Toyota; Firestone/Bridgestone</li> </ul>
City College of San Francisco	\$0.5M	San Francisco, CA	<ul style="list-style-type: none"> <li>•Educational programs for: Secondary Students; Service Personnel, Technicians</li> <li>•Partnering with: Chabot College; Central Shops; Pat's Garage; Perfect Sky Inc.</li> </ul>

# Transportation Electrification Education Programs – Geographic Distribution

