US DOE Clean Cities Primary Goal and Results

**PRIMARY GOAL:**
Mass market adoption of alternative fuel and advanced technology vehicles and smarter driving habits

- Reduced Petroleum Use in Transportation
- Reduced Greenhouse Gas Emissions
- Reduced Dependence on Foreign Oil
- Improved US Energy, Economic, and Environmental Security
Implement national policies and initiatives by facilitating change on a National and Local basis

Local
Develop a Franchise model (designate CC coalitions) so that approach and message are consistent everywhere, but with attention to local market conditions and priorities (provide strategic direction and comprehensive training to franchisees)

National
Provide a national unbiased source of info
Provide tools, experts to address barriers and solve problems
Develop Corporate Partnerships with Industry and National Fleets
Increase awareness and publicize success through mass media and outreach
Provide financial assistance to jump start markets and incentivize private investment
Clean Cities Efforts Get Results!

Over 3.5 Billion Gallons of Petroleum Reduction since 1993
- Over 800,000 AFVs on the road
- 12,000 alternative fueling and charging stations (CC influenced >70%)
- Long term goal of 2.5B gal/year by 2020
Clean Cities Portfolio of Technologies

Alternative Fuels
- Electric Vehicles
- Biodiesel
- Ethanol
- Hydrogen
- Propane
- Natural Gas

Fuel Economy
More fuel efficient vehicles, adopting smarter driving and vehicle purchasing habits

Idle Reduction
- Heavy-Duty Trucks
- School & Transit Buses
- Light-Duty Vehicles

Hybrids
- Light- and heavy-duty
- Electric hybrids
- Plug-In hybrids
- Hydraulic hybrids
Coordination with key community and business leaders,
Identification of potential fleet and funding partners
Facilitating Infrastructure development projects,
Collecting data and tracking progress
Coalition technical training and strategy implementation,
~100 coalitions serving 78% of the US population

(photo courtesy of White House)
Forming **Local** Community Partnerships: (Clean Cities Coalitions)

Thousands of stakeholders from businesses, city & state governments, transportation industry, community organizations, fuel providers...
• Non-biased source of VT data and information
• Fuel Economy Guide (FE.gov), Alt-Fuel Data Center (AFDC)
• On-line tools and cost calculators, other web resources
• Training for first responders and public safety officials
• Technical response service
• Public workshops, webinars, industry technical conferences
Tools, Publications, Data, and much more!

Web Based and Mobile Versions of Powerful Clean Cities Tools

Access all of the tools and information at http://www.afdc.energy.gov/afdc/info_resources.html
Tools

- TransAtlas
- Alternative Fueling Station Locator
- Incentives and Laws
- Heavy-Duty Vehicle Search
- Petroleum Reduction Planning Tool

www.afdc.energy.gov/tools
Publications

- Propane Basics
- Natural Gas Basics
- Guide to Alternative Fuel and Advanced Medium- and Heavy-Duty Vehicles
- Guide to Alternative Fuel Commercial Lawn Equipment
- Clean Cities Vehicle Buyer’s Guide
- Guide to Aftermarket Vehicle Conversions (coming soon)
• MotorWeek
  o > 100 segments on alternative fuels, advanced vehicles, fuel economy, EcoCar Challenge
  o Clean Cities’ success stories
  o Link to Clean Cities’ websites or EcoCAR websites
Competitively-Awarded Financial Assistance: encourages private sector match and long-term investment

- Community Readiness and Policy Development
- Infrastructure Development (fueling/charging stations)
- Vehicle Deployment (incremental cost)
- Curriculum Development (safety and technical courses)
Clean Cities 2009 Awards
Refueling Infrastructure

<table>
<thead>
<tr>
<th>Infrastructure Type</th>
<th>Station Count</th>
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<tbody>
<tr>
<td>CNG</td>
<td>147</td>
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<tr>
<td>EV</td>
<td>804</td>
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<tr>
<td>LNG</td>
<td>9</td>
</tr>
<tr>
<td>LPG</td>
<td>407</td>
</tr>
<tr>
<td>E85</td>
<td>302</td>
</tr>
<tr>
<td>Biodiesel</td>
<td>157</td>
</tr>
<tr>
<td>H2</td>
<td>1</td>
</tr>
<tr>
<td><strong>TOTAL</strong></td>
<td><strong>1,827</strong></td>
</tr>
</tbody>
</table>

Based on FY2012 Q2 reports
## Clean Cities 2009 Awards Vehicle Distribution

<table>
<thead>
<tr>
<th>Vehicle Type</th>
<th>LDVs</th>
<th>HDV/MDV</th>
<th>Total</th>
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<tbody>
<tr>
<td>CNG</td>
<td>1,168</td>
<td>2,137</td>
<td>3,250</td>
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<tr>
<td>EV</td>
<td>402</td>
<td>220</td>
<td>617</td>
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<tr>
<td>NEV</td>
<td>80</td>
<td>0</td>
<td>82</td>
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<tr>
<td>HEV</td>
<td>656</td>
<td>815</td>
<td>1,409</td>
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<tr>
<td>LNG</td>
<td>0</td>
<td>366</td>
<td>417</td>
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<tr>
<td>LPG</td>
<td>2,394</td>
<td>811</td>
<td>3,330</td>
</tr>
<tr>
<td>PHEV</td>
<td>4</td>
<td>36</td>
<td>30</td>
</tr>
<tr>
<td>TOTAL</td>
<td>4,704</td>
<td>4,385</td>
<td>9,089</td>
</tr>
</tbody>
</table>

Based on FY2012 Q2 reports
• Address unforeseen permitting and safety issues,
• Identify chronic vehicle or infrastructure field problems
• Incident investigations (technology failures)
• Capture lessons learned and develop best practices

http://www.afdc.energy.gov/afdc/pdfs/EV_charging_template.pdf (NREL stock photos)
• **Natural Gas Transit and School Bus Users Group:**
  – Transit agencies, school bus fleets, and government agencies come together to receive technical assistance and share information about using natural gas.

• **Natural Gas Vehicle Technology Forum:**
  – Supports development and deployment of commercially competitive natural gas engines, vehicles, and infrastructure.
  – Stakeholders include equipment manufacturers, national laboratories, government agencies, vehicle fleets, and industry groups.
  – *Next Meeting: October 16-17, 2012 La Jolla, CA*

• These successful collaborative efforts have led to projects such as the GeoEVSE Forum and other industry groups.
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**Clean Cities Website:** [www.cleancities.energy.gov](http://www.cleancities.energy.gov)

**Clean Cities Coordinators:** [www.eere.energy.gov/cleancities/progs/coordinators.php](http://www.eere.energy.gov/cleancities/progs/coordinators.php)

**Alternative Fuels & Advanced Vehicles Data Center:** [www.afdc.energy.gov](http://www.afdc.energy.gov)


**Natural Gas Vehicle Technology Forum:** [Clean Cities Website](http://www1.eere.energy.gov/cleancities/natural_gas_forum_meeting_oct2012.html)