### Project Information

- **Project start date:** 1991
- **Project end date:** Ongoing
- **Percent complete:** N/A

### Barriers

- Availability of alternative fuels and electric charging station infrastructure
- Availability of alternative fuel vehicles (AFVs) and electric drive vehicles
- Lack of technical experience with new fuels and vehicle technologies

### Budget

- **Total project funding:** $965k ($2.6M in Category)
- **NREL budget categories:** Technical and Problem Solving Assistance, Consumer Information and Outreach, Local Coalitions and Partnerships
- **% of annual allocation for budget category:** 37%

### Team Members

- **Project leads:** DOE Clean Cities program, NREL
- **DOE programs:** BETO, FEMP, H&FC
- **Vehicle Technology Office:** Hybrid Electric Systems, Fuel Technologies and Deployment
- **Labs:** ORNL, ANL
- **Collaborations:** Industry, Clean Cities Coordinators, INL, DOE T2M, ICF
The Alternative Fuels Data Center (AFDC) is a clearinghouse for information that reduces the barriers to adopting alternative fuel technologies.

**Fuel Available**
- Web Station Locator*
- iPhone Station Locator*
- Android Station Locator*
- APIs
- Widgets

**Vehicles Available**
- FuelEconomy.gov*
- Alt Fuel Vehicle Search
- TransAtlas
- Laws and Incentives

**Technical Expertise**
- Case Studies
- Publications
- AFLEET*
- PEV Scorecard
- VICE Model

*Discussed in other Clean Cites AMR presentations
Relevance - Audience

AFDC Audience
- Fleets
- Industry partners
- Government civil servants
- Clean Cities coalitions

FuelEconomy.gov Audience
- General public

Green Consumers
The AFDC connects its audience to information and data through a variety of digital channels: increasing exposure to alternative fuels and advanced vehicles.
## Project Approach – Objective

### AFDC Overall

**Overall Objective**: The AFDC provides information, data, and tools to help fleets and other transportation decision makers find ways to reduce petroleum consumption through the use of alternative and renewable fuels, advanced vehicles, and other fuel-saving measures. ([afdc.energy.gov](https://afdc.energy.gov))

**FY14 and FY15 Objectives**:
- Increase impact through new data sharing techniques

**Annual Objectives**:
- Report measured impact through quarterly metrics reports
- Ensure data and content on site is accurate and current

### AFDC APIs

**Overall Objective**: Provide data to developers, analysts, and partners via Application Programming Interfaces (APIs) ([developer.nrel.gov and api.data.gov](https://developer.nrel.gov and api.data.gov))

**What is an API?**
- Securely shares data using standard methods and data formats
- Allows the data owner to maintain ownership and control of the data
- Ensures the user always gets the most up to date data

**FY14 and FY15 Objectives**:
- Create API for laws and incentives data
- Enhance station data

**Annual Objectives**:
- Report measured impact through quarterly metrics reports
- Respond to user and partner needs
Driven by input from our market partners

Helps non-technical users understand how gaseous fuels work

3,800 people have viewed since September 2014 launch

Leveraged to create hydrogen tank visualization
SLED Tool

The DOE Technology-to-Market Program (T2M) built the State & Local Energy Data (SLED) tool to help communities understand their energy markets. AFDC widgets and APIs were used to build the transportation section.

http://apps1.eere.energy.gov/sled/#/
Project Approach – Users and Data Sharing

Data Stream

Create API
Use API internally
Share API externally

The AFDC provides data and applications for end users to enhance their own sites, analyses and tools.

Tool and Content Stream

Create application
Use application on AFDC
Share application as widget

Total API Requests

FY14
FY15 through March 23, 2015
FY15 extrapolated

0
10,000,000
20,000,000
30,000,000
40,000,000

The AFDC provides data and applications for end users to enhance their own sites, analyses and tools.
## Milestones

<table>
<thead>
<tr>
<th>Month / Year</th>
<th>Milestone or Go/No-Go Decision</th>
<th>Description</th>
<th>Status</th>
</tr>
</thead>
<tbody>
<tr>
<td>12/2014 FY15</td>
<td>Go/No-Go</td>
<td>Determine if current Outreach and Information plan is effective and initiate necessary changes. Criteria – Collect feedback from CC stakeholders to determine continued usability of and need for information products.</td>
<td>Complete</td>
</tr>
</tbody>
</table>
Project Accomplishments and Progress – FY14

Leading the Way at EERE
Clean Cities continues to lead the way for the Office of Energy Efficiency and Renewable Energy (EERE). EERE has over 140 websites and here’s how the AFDC stacks up:

24% of FY14 pageviews are to the AFDC

11 of the top 25 EERE pages were AFDC pages

Top EERE Pages FY14
- EERE Home Page
- Solar Decathlon: Home Page
- How Wind Turbines Work
- AFDC: Station Locator
- AFDC: Home Page
- Solar Decathlon: Scores
- EnergyPlus Energy Simulation Software
- Building Energy Codes Program
- AFDC: Electric Charging Station Locations
- Status of State Energy Code Adoption
- Solar Decathlon: Registration
- AFDC: Alternative Fuels and Advanced Vehicles
- AFDC: E85 Station Locations
- How Does a Wind Turbine Work?
- REScheck
- Solar Decathlon: Teams
- EnergyPlus Energy Simulation Software: Register
- AFDC: Vehicle Cost Calculator
- Steam Turbine Calculator
- AFDC: Maps and Data
- AFDC: State Laws and Incentives
- AFDC: Biodiesel
- AFDC: Natural Gas Station Locations
- Energy Plus: Weather Data
- AFDC: Laws and Incentives
The AFDC has seen continued growth over the past four years even as gas prices fluctuate.

In FY14, 1.4 million visitors viewed 6.4 million pages on the AFDC.

<table>
<thead>
<tr>
<th>Visit Summary</th>
<th>FY14 Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pageviews</td>
<td>6,355,104</td>
</tr>
<tr>
<td>Sessions</td>
<td>1,808,478</td>
</tr>
<tr>
<td>Average Pages per Visitor</td>
<td>3.51</td>
</tr>
</tbody>
</table>
**Project Accomplishments – Markets**

**Subset of Referrers Consistently in the Top 40 (2012-2014)**

- fueleconomy.gov
- teslamotors.com
- afdc.energy.gov
- energy.gov
- eere.energy.gov
- automobiles.honda.com
- content.bmwusa.com
- edmunds.com
- en.wikipedia.org
- metroplugin.com
- pge.com
- nps.gov
- smartusa.com
- dsireusa.org
- cngvc.org
- ngvamerica.org
- epa.gov

Measuring sites that send traffic to the AFDC helps find new partners and ensure we are providing value to our existing market partners.
### Project Accomplishments – API and Data Sharing

#### External API requests

- **FY14**: 422,661 requests
- **FY15 (extrapolated)**: 750,000 requests

#### API Users

- Fiat
- Department of Labor
- Recargo
- Chevy
- INL
- EPA
- Volkswagen
- Illinois State DOT
- General Electric

#### Widget Users

- Widgets
- Washington Post
- Chevy
- ABC News
- EERE
- FuelEconomy.gov
- Clean Cities Coalitions
- City of Chicago
Project Collaboration and Coordination – Tools

The Alternative Fuels Data Center offers a large collection of helpful tools. These calculators, interactive maps, and data searches can assist fleets, fuel providers, and other transportation decision makers in their efforts to reduce petroleum use.

Tools

Calculators
- Vehicle Cost Calculator
- Petroleum Reduction Planning Tool
- CNG VISE Model 2.0
- AFLEET Tool
- JOBS Model
- GREET Fleet Footprint Calculator
- PEV Readiness Scorecard

Interactive Maps
- Alternative Fueling Station Locator
- TransAtlas
- BioFuels Atlas
- Truck Stop Electrification Sites
- Coalition Locations

Data Searches
- Vehicle Search
- Laws and Incentives Search
- Fuel Properties Comparison
- State Information

NREL
ORNL
ANL
BETO
H&FC
FEMP
INL

afdc.energy.gov/tools

Technology-to-Market Program
Alternative Fuel Market Expansion - FY15 plans

**Significant Updates**
- State Pages
- Webinar Database
- Data Download
- Station Locator
- Station Admin
- Clean Cities Template
- Search Functionality
- Publication Order Form
- Annual Report

**Leveraging Existing Assets**
- Lemay Museum Apps
- Niche Market pages
- Fuel Properties
- Propane Widget
- Impact Metrics

**Expansions**
- Price Reporting Tool
- Station Android App
- Toolbox Login
- ARRA Conclusions
These 5 things need to happen before electric cars really go mainstream

Posted by Lydia DePillis on September 19, 2013 at 4:13 pm

In 1997, the world’s first real consumer-oriented electric car -- the Prius -- debuted in Japan. Sixteen years and many new models later, electric cars have stayed stubbornly at about 2 percent of global sales for light vehicles, which Forecast Research projects will only grow to 3 percent by 2020. Tesla may be doing well, but their 350,000 car won’t reach the masses anytime soon. Chevrolet’s Volt has had a rough ride, sales of Nissan’s Leaf have disappointed, several battery companies have failed, and Israel’s battery-swapping BetterPlace went under. Just this week, a car charging company that had received a $99 million federal grant went bankrupt.

But the sector is far from dead. The past few weeks have seen something of a boom in rollouts of new electric cars: General Motors is deploying a 350,000 vehicle that can go 200 miles on a single charge, BMW is planning to launch the i3 this fall, and Volkswagen says it will bring an electric compact to the United States within two years. The all-electric Fiat is just west on sale. Cadillac, Audi and Mercedes have prototypes as well. And overall sales have recently bumped:

U.S. PEV Sales by Model

<table>
<thead>
<tr>
<th>Model</th>
<th>Sales</th>
</tr>
</thead>
<tbody>
<tr>
<td>BMW ActiveE</td>
<td>15,000</td>
</tr>
<tr>
<td>Chevrolet Spark EV</td>
<td>7,000</td>
</tr>
<tr>
<td>Chevrolet Volt</td>
<td>6,000</td>
</tr>
<tr>
<td>Ford Focus Electric</td>
<td>5,000</td>
</tr>
<tr>
<td>Honda Fit EV</td>
<td>4,000</td>
</tr>
<tr>
<td>Honda Insight</td>
<td>3,000</td>
</tr>
<tr>
<td>Kia Soul EV</td>
<td>2,000</td>
</tr>
<tr>
<td>Nissan Leaf</td>
<td>1,000</td>
</tr>
<tr>
<td>Toyota Prius Plug-in Hybrid</td>
<td>1,000</td>
</tr>
</tbody>
</table>

Source: https://www.fueleconomy.gov/新能源/ev-phev/edatasheet.shtml
Notes: PEVs include plug-in hybrids, but do not include neighborhood electric vehicles. Low-speed electric vehicles, or two-wheeled electric vehicles, only fueled vehicles sold in the U.S. and capable of being charged are named.

The transportation fuel of the future is here now.

“Abundant, affordable, clean-burning natural gas presents a tremendous opportunity for America to realize an energy future using domestic resources to fuel our nation’s transportation needs. To that end, we are committed to explore the aggregate of our annual state fleet vehicle procurements to provide an incentive to manufacture affordable, functional natural gas vehicles.” Click to view

—Governor Fallin, Hickenlooper, Head, Corbett, Herbert, LePage, Martinez, Torrbln, Bosher, Perry, Kasich, Bryant, and Brown in regard to an OMB request for information.

“Think of a business that needs to transport goods. I’m challenging you to replace your old fleet with a clean energy fleet that’s not only good for your bottom line, but good for our economy, good for our country and good for our planet.”

—President Barack Obama, speaking at UPS in Maryland.

Links

NGV America: national news and dialogue for the NGV Industry
US LNG Fuel Production Plants: a service of Zeta Intelligence
Conferences and Events
NGV America Press Releases
Summary

– AFDC is a market and user driven website
– In FY14 we accomplished
  • 1.4 million visitors viewing 6.4 million pages
  • Continued growth even as gas prices fluctuate
  • Enhancement of API and data download capabilities
  • Application sharing through widgets
– Effectiveness is measured quarterly and metrics drive change
– Collaboration with our key audiences expands the alternative fuel market
  • Fleets, Industry Partners, Government Civil Servants, Clean Cities Coalitions
– Leveraging assets developed by AFDC has supported
  • Industry Partners by providing data and applications
  • GSA to build api.data.gov
  • DOE programs including Hydrogen and Fuel Cell and Technology to Market to visualize data
  • DOE websites including Energy.gov, EERE, FuelEconomy.gov, FEMP
Technical Back-Up Slides
I am truly impressed with the wealth of information and the fact so much of this information is truly up to date and accurate. This website shows that the team at AFDC take pride in their work and believe their mission to be important...and it is. This website and the AFDC is a valuable resource that allows my company to pursue its objective of providing the lowest carbon clean and compliant alternative fuel solutions to the US fleets. I feel confident that the information provided here is accurate and unbiased, which can not be said for the privately funded sites. Thanks again for your hard work and dedication.

Dr. John Reed
CEO, North American Repower
March 7, 2014

I want to congratulate whomever organized this website. It is well organized, easy to navigate, multiple links to help the visitor find what they are seeking, easy on the eyes, and contains a ton of great information.

Dean Wickstrom
(Just some guy from Minnesota)
January 31, 2014

“I know you guys hear this all the time but the resources are incredible. Thank you.”

Maggie Stritz-Calnin
Lansing Clean Cities
April 9, 2014
Project Accomplishment – Collaboration with VTP

FleetDNA Tool

- Leverages AFDC Maps and Data to visualize drive cycle data for commercial vehicles
  - Data will be used in the future to create qualitative and quantitative case studies about fleets using alternative fuels
  - API created to access summarized drive cycle data
The AFDC provides quality content for all fuels and is a trusted resource regardless of the ebb and flow of fuel popularity.