National Renewable Energy Laboratory
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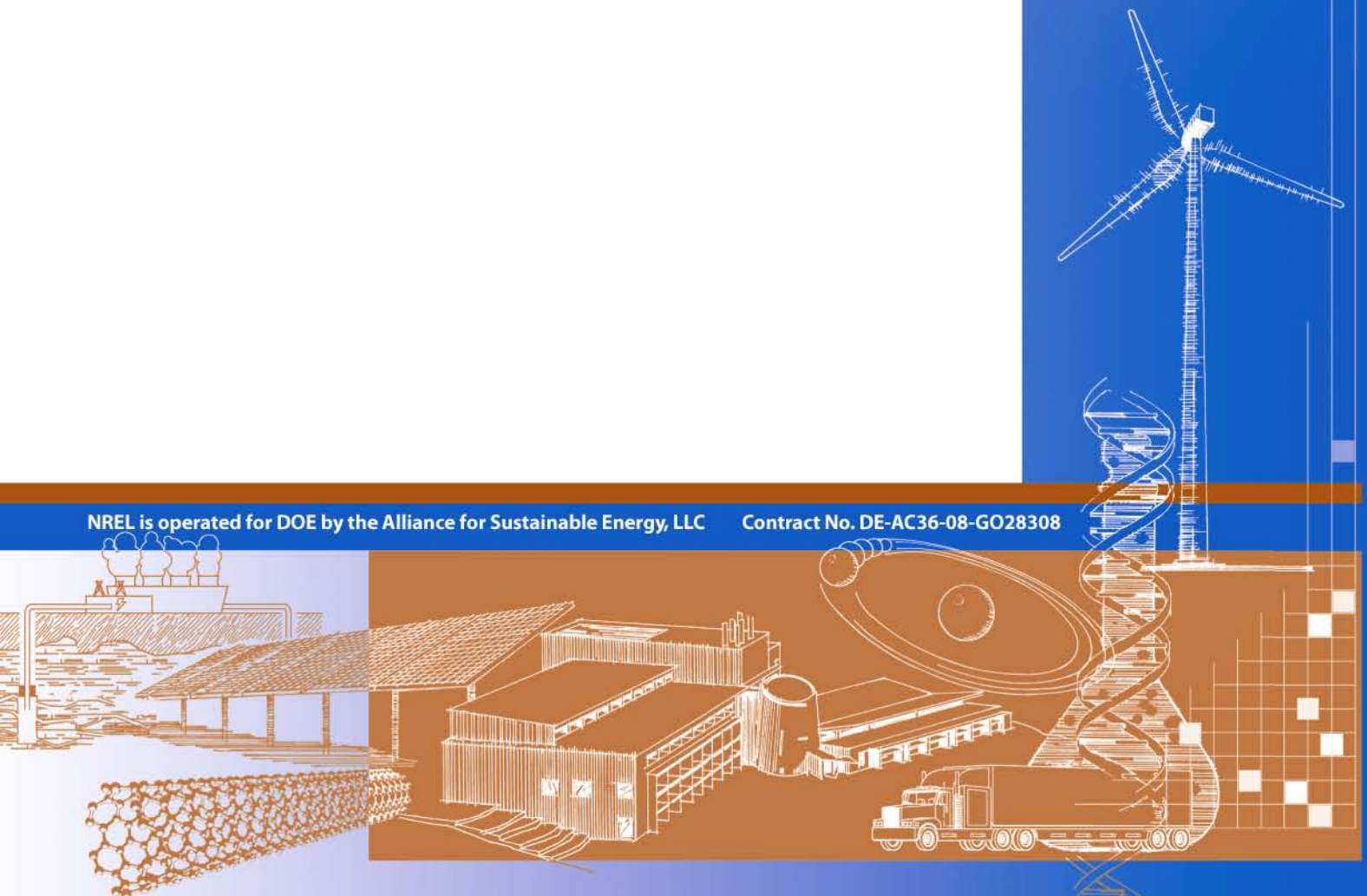
Office of Energy Efficiency & Renewable Energy
Innovation for Our Energy Future

Clean Cities Annual Metrics Report 2008

C. Johnson and P. Bergeron

Technical Report
NREL/TP-540-46424
September 2009



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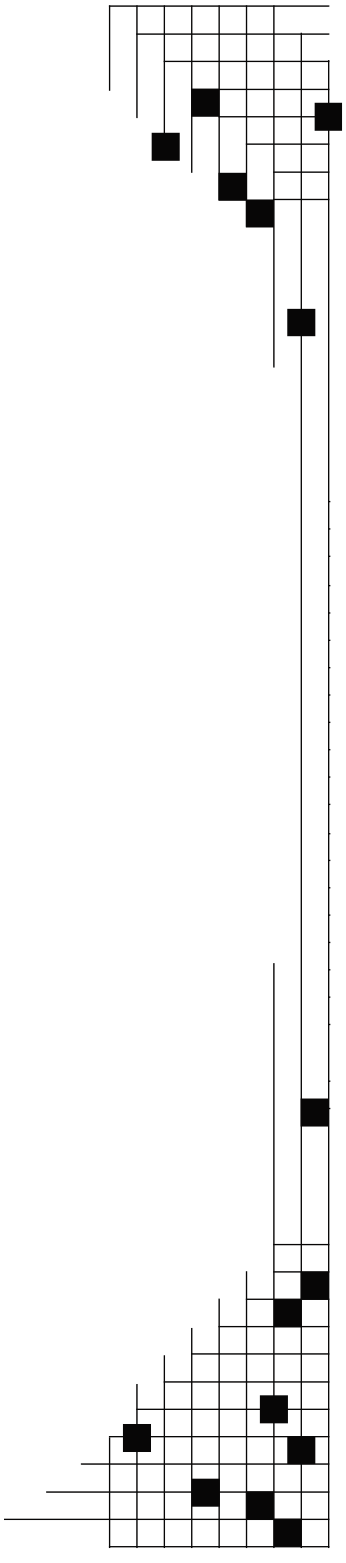

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Introduction

Each year, the U.S. Department of Energy (DOE) asks Clean Cities coordinators to submit an annual report of their activities and accomplishments for the previous calendar year. Data and information are submitted to an online database that is maintained as part of the Alternative Fuels and Advanced Vehicles Data Center (AFDC) at the National Renewable Energy Laboratory (NREL). Coordinators submit a range of data that characterizes the membership, funding, projects, and activities of their coalitions. They also submit data about sales of alternative fuels, deployment of alternative fuel vehicles (AFVs), hybrid electric vehicles (HEVs), idle reduction initiatives, fuel economy activities, and programs to reduce vehicle miles driven. NREL analyzes the data and translates them into gasoline reduction impacts, which are summarized in this report.

Eighty-five of the 86 coalitions that were active throughout 2008 completed their reports—a response rate of 99%. This is the same response rate seen in 2007. The appendix to this report lists the coalitions that submitted their 2008 surveys. Coalition coordinators assembled the data based on voluntary reports from their stakeholders—the private and public entities that are members of the coalitions. As such, these reports represent just a subset of the activities going on throughout the nation, but they are an important indicator of the impact of the coalitions and petroleum-reducing technologies at the local level.

In addition to the coordinator reports, metrics are gathered about activities funded by the Clean Cities Program at NREL and Oak Ridge National Laboratory (ORNL). NREL provides a range of technical data, tools, and resources to support coalitions in their efforts to accelerate the use of alternative fuels and other technologies. ORNL produces the Fuel Economy Guide, the Web site fueleconomy.gov, and provides a range of public information related to fuel economy. Metrics of the use and impact of these resources are also presented in this report.

A detailed breakdown of the data used to produce this and previous reports can be accessed at www.eere.energy.gov/afdc/data/cleancities.html.

Summary of Important Findings

Approximately 412 million gallons of gasoline were displaced[1] through the Clean Cities efforts in 2008—14% more than in 2007. This displacement represents the combined results of the activities reported by coalitions (as analyzed by NREL) and the impacts of the Fuel Economy Guide and related activities (as estimated by ORNL).

Three major changes were made to the Clean Cities survey this year: E10 no longer counted toward petroleum displacement goals, coordinators no longer relied on a default assumption for the percent of time flex-fueled vehicles used alternative fuel, and B20 was moved from the AFV to the blends category. The first of these changes substantially reduced the reported petroleum displacement by blends from what they otherwise would have been in 2008.

[1] The fuel displaced includes both gasoline and diesel. Fuel displacement in this report has been converted to gasoline-gallon equivalents (GGE) using the lower heating value ratio of the fuels.

AFVs still accounted for the largest share (48%) of the total 412-million-gallon displacement. Fuel economy impacts (combined impacts of coalition and ORNL activity) were responsible for displacing 129 million gallons. The use of biofuels (ethanol and biodiesel) as fuels for AFVs and in low-level biodiesel blends displaced 100 million gallons, or 24% of the total, and idle reduction and HEV technologies combined to displace 20 million gallons.

2008 was the first year that greenhouse gas (GHG) reductions were estimated for Clean Cities activities. The program kept a total of 2.7 million tons of carbon dioxide equivalent (CO_2e) from being emitted to the atmosphere—the equivalent of removing over 507,000 passenger cars from U.S. roads.

In addition to petroleum displacement and GHG reductions, a remarkable achievement of the coalitions was their ability to leverage the DOE investment. In 2008, the coalitions won 160 grants worth a total of $34 million and another $66 million in leveraged funds from coalition members. This funding represents a 9:1 leveraging of the $12.5-million program budget in FY 2008. This level of funding enabled the coordinators to spend more than 105,000 hours pursuing Clean Cities' goals, which is like having a national network of 51 full-time technical sales professionals working to reduce U.S. dependence on oil.

Coordinators entered 1,310 outreach activities for 2008, which reached an estimated 113 million people. AFVs were the most popular subject of these activities, as has generally been the case in the past. As was the case last year, fuel blends were the second most common outreach subject. Together, AFVs and blends were the subject of 60% of all outreach activities.

Changes to 2008 Survey

A number of changes were implemented in the 2008 survey to improve accuracy and reporting clarity. Three of these changes are important when comparing this report with reports from previous years:

1. Clean Cities coordinators can no longer claim displacement credit for E10 because 71% of the gasoline in the United States is now E10—a result of regulatory and market influences that are now beyond the realm of Clean Cities.
2. B20 was moved from the AFV section to the blends section because B20 does not require an AFV for use—it can be used in regular diesel vehicles. All comparisons between 2007 and 2008 displacement by blends or AFVs place B20 in the blends category despite the fact that in 2007 they were reported in the AFV category.
3. In the AFV section, the default assumption that a flexible- or bi-fuel vehicle uses alternative fuel 90% of the time has been removed. In 2008 the survey was changed to require the coordinator to input the amount of fuel used or the percent of time their vehicles used alternative fuel. The lack of growth in displacement by AFVs in 2008 may be due at least in part to this change in methodology.

Attribution and Fuel Use Factors

To improve the link between coalition activities and end results, the coalition annual report includes an attribution factor to account for the percentage of a project's outcome that might be due to coalition activities rather than those of other participants in the project. This was used in the estimate of impacts for fuel economy, idle reduction, alternative fuel blend, and outreach projects. Coordinators entered the percentage of the project's outcome for which they thought they were responsible, and the project's overall outcome was multiplied by that percentage to determine the coalitions' impact. Although subjective, this method does attempt to address the issue of attribution where coalitions are one of multiple partners involved in a project.

Portfolio Performance for Petroleum Displacement

Coordinators from 86 of the 87 active Clean Cities coalitions submitted information on the five technologies in the Clean Cities portfolio. The data were analyzed and converted into an amount of gasoline displaced by each element and reported in units of gasoline-gallon equivalents (GGEs)—the amount of energy contained in a gallon of gasoline. As shown in Table 1, about 287 million GGEs were displaced through Clean Cities coalition efforts in 2008. This is 2.7% higher than the total 2007 displacement of 279 million GGEs (once E10 was removed), and it averages 3.3 million GGEs per responding coalition. Petroleum displaced by ORNL's fuel economy guide then boosts the total Clean Cities effort by 125 million GGEs for a total displacement of 412 million GGEs.

Table 1. Petroleum Displacement of Each Portfolio Element

Technology	Million GGEs	Percent of Coalitions' Total	Change from Last Year*
AFV	198	69%	-1%
Blends	63	22%	+31%
Hybrid Electric Vehicles	12	4%	-26%
Idle Reduction	8	3%	+28%
Fuel Economy/VMT Reduction	4	1%	-25%
Off-Road	1	0%	n/a
Coalitions' Total**	287	100%	+3%
ORNL Fuel Economy	125	–	+55%
Grand Total	412	–	+14%

* To enable a direct comparison, changes from last year were calculated from 2007 displacement numbers adjusted to remove E10 and transfer B20 from the AFV section to blends.
** Totals don't fully add up due to rounding.

In 2005, Clean Cities set a goal of displacing 2.5 billion GGEs per year by 2020. The data presented in this report show that Clean Cities is on schedule to exceed this goal. Progress is being tracked in Figure 1 below, where the path set forth to achieve the 2020 goal is shown as the blue dotted line and where actual displacement is being tracked as the black solid line.

Achieving the goal of 2.5 billion gallons displaced in 2020 has become easier because of the progress made in the past three years. When the goal was set, a compounded annual growth rate of 16.6% was required. This requirement has now been reduced to 16.2% to meet the 2020 goal. The 2008 growth rate was 14% (when adjusting for the omission of E10). Assuming this rate was reduced due to improving the AFV displacement-calculation method in 2008, maintaining the required 16.2% annual growth to meet the goal looks very achievable.

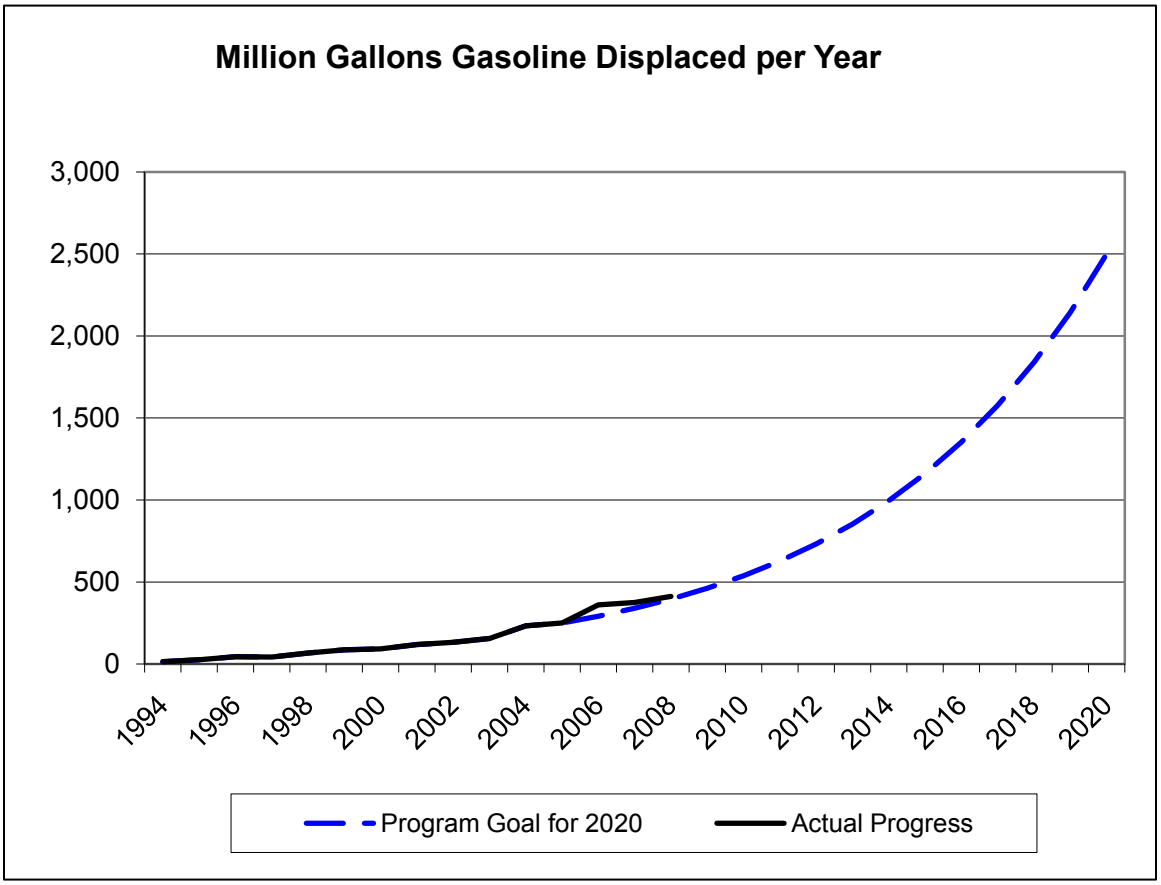

Figure 1. Annual displacement projection to meet 2020 goal and actual progress

Alternative Fuel Vehicles

As shown in Table 1, AFVs accounted for the displacement of 198 million gallons, or 69% of the coalitions' portfolio displacement. This change is a decrease of 1% in comparison to the fuel displaced by AFVs in 2007.

The 1% drop in AFV fuel displacement from 2007 to 2008 may be caused by increased accuracy of this year's report. Before 2007, fuel use was calculated based on the number of AFVs reported by coordinators and default assumptions based on average fleet fuel-use estimates. In 2007, coordinators were allowed to enter the number of AFVs or the actual amount of fuel used. If they entered the number of AFVs, defaults were used to calculate fuel use, as before. In 2008, the survey required coordinators to enter what percent of time the AFVs used alternative fuel. These changes help explain the 5% reduction in displacement that occurred between 2006 and 2008 in the use of alternative fuels in AFVs.

In 2008, coalitions reported a total inventory of nearly 632,000 AFVs split among the vehicle types (as shown in Figure 2). The "other" and B100 categories increased substantially (387% and 434%, respectively) this year, most likely because coordinators reported B20 vehicles in these two categories because the B20 category was removed. E85 vehicles increased another 36% between 2007 and 2008 while the number of neighborhood electric vehicles decreased 49%.

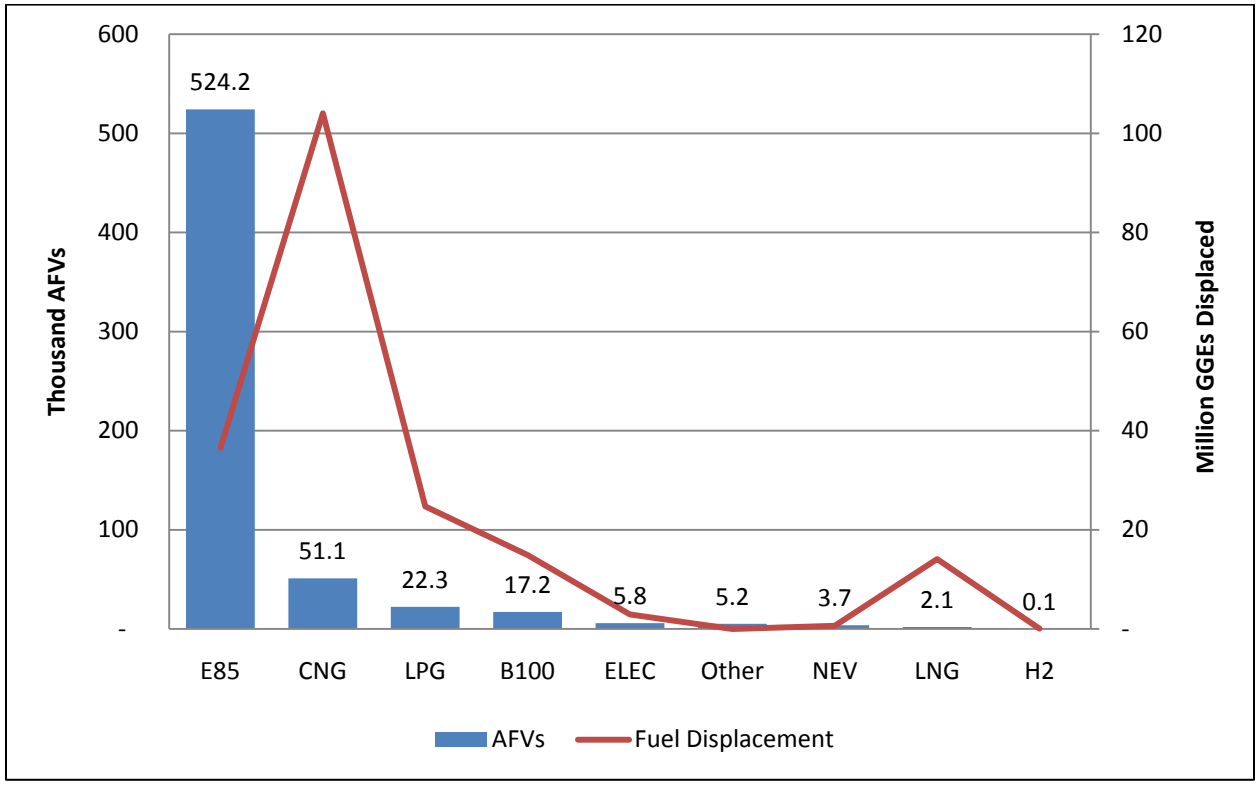

Figure 2. Number of AFVs and fuel displacement by fuel type

Figure 2 also shows the total GGEs displaced in AFVs by fuel type. Compressed natural gas (CNG) remains at the top of the list, accounting for 53% of the total AFV displacement despite the fact that only 8% of the AFVs used CNG. This effectiveness is in stark contrast to E85, which accounts for only 18% of the AFV displacement despite the fact that 83% of AFVs can use E85.

Only 7% of the reported AFVs were heavy-duty vehicles (HDV), yet 67% of the total petroleum displacement due to AFVs occurred in heavy-duty vehicles. HDVs displace a disproportionate share of petroleum because they use more fuel per vehicle and because most use alternative fuel all the time instead of occasionally, like the light-duty flex-fuel vehicles (FFV) do. The use of liquefied natural gas (LNG) and B100 is confined almost exclusively to heavy-duty vehicles. Eighty-two percent of the displacement from CNG and two-thirds of hydrogen and liquefied petroleum gas (LPG) occurred in heavy-duty vehicles.

Hybrid Electric Vehicles

The number of HEVs resulting from Clean Cities efforts approached 102,000 in 2008, about 14% of the total vehicles (AFVs plus HEVs) reported in the 2008 questionnaire. This represents an increase of 23% over those reported in 2007. Using these vehicles rather than conventional vehicles saved 12.4 million gallons in 2008. This displacement is actually a decrease from 2007 because displacement-per-vehicle estimates have been reduced in 2008, according to fuel economy numbers in the Fuel Economy Guide. Plug-in HEVs (PHEVs) seem to have lost some popularity in Clean Cities coalitions, as their numbers dropped from 896 in 2007 to 374 in 2008.

Fuel Economy

2008 saw an increase in the number of projects that improve vehicle fuel economy by a multiple of 3.5 but a decrease by 84% in the overall petroleum displaced (from 2,384 to 377 KGGEs). This reduced displacement is largely because one large hybrid transit bus project was mistakenly reported in the fuel economy section last year and correctly reported in the hybrid section this year. If it were not for this one project, total displacement by fuel economy projects would have increased fivefold in 2008.

VMT Reduction

Vehicle-miles-traveled (VMT)-reduction projects save fuel by reducing the miles that vehicles travel and include methods such as carpooling, work-from-home, and public transportation. The number of these projects reported by Clean Cities increased over 120% (to 51 projects) in 2008. Furthermore, their petroleum displacement increased 27% to 3.5 million GGEs.

Idle Reduction

Estimated fuel displacement for idle reduction (IR) technologies was 7.7 million GGEs in 2007. Idle reduction technologies include truck-stop electrification, onboard idle reduction, and idle reduction policies. As shown in Figure 4, onboard idle reduction technologies accounted for 44% of the displacement estimated for the three technologies, truck-stop electrification accounted for 17%, and policies accounted for 39%.

The total fuel displaced by idle reduction (7.7 million GGEs) is up from 6.0 million GGEs in 2007. This difference is largely due to the increase (76%) in policies enacted. Onboard IR also saw a substantial gain (37%) from last year while petroleum displacement from truck-stop electrification decreased 28%. This change was likely impacted by Idle Aire's May 2008 bankruptcy.

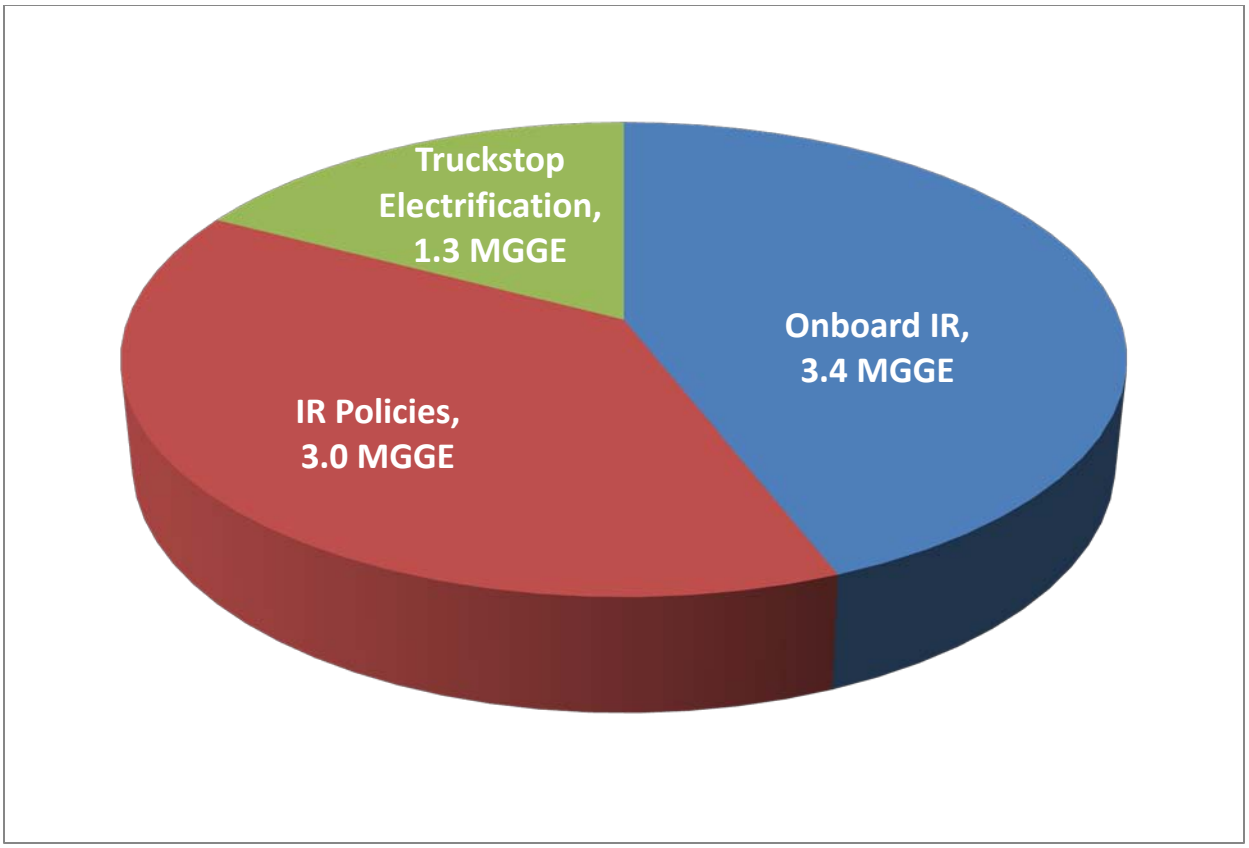

Figure 3. Displacement due to idle reduction projects in million GGEs (MGGEs)

Blends

Clean Cities' efforts to promote the use of alternative fuel blends saved over 63 million GGEs in 2008. The use of low-level biodiesel blends saved 4.7 million GGEs—a 15% reduction from last year. The use of B20 saved the remaining 58.6 million. This change is a 37% increase from 2007—when B20 was reported in the AFV category. This year, E10 was omitted from the report because its growing use is considered the result of the Renewable Fuel Standard and logistical/economic considerations rather than Clean Cities.

Greenhouse Gas Emissions Reduction

Clean Cities petroleum displacement leads to a substantial reduction in greenhouse gas (GHG) emissions—the pollutants responsible for global climate change. 2008 is the first year in which the GHG reductions were calculated for Clean Cities activities. To do so, the authors used a variation of Argonne National Laboratory's Greenhouse Gas, Regulated Emissions, and Energy Use in Transportation (GREET) model. This model takes into account the "well to wheels" GHG emissions for transportation fuels, which include fuel production, transport, and use in the vehicle. It does not take into account the emissions from indirect land use changes or vehicle manufacturing. The tons of GHGs reduced from the atmosphere due to Clean Cities activities, along with a reference for how many passenger cars would need to be removed for an equivalent reduction, are shown in Table 2.

Table 2. GHG Emissions Reduced by Clean Cities in 2008

Technology	Tons of GHG Reduced	Equivalent Cars Removed*	% of Coalition Total
AFV	512,818	95,448	43.2%
Blends	394,921	73,505	33.3%
HEV	149,566	27,838	12.6%
IR	77,178	14,365	6.5%
FE/VMT - CC	47,663	8,871	4.0%
Off Road	3,814	710	0.3%
Coalition Total	1,185,960	220,737	100%
FE - ORNL	1,540,000	286,633	
Grand Total	2,725,960	507,371	

* Calculated as total passenger car GHG emissions (Table 2–15 in the Environmental Protection Agency's Inventory of GHG Emissions and Sinks) divided by total passenger cars (Table 1–11 in the Bureau of Transportation Statistics' National Transportation Statistics)

AFVs are responsible for more GHG reductions than any other coalition activities. These reductions were calculated by subtracting the lifecycle GHGs emitted from the use of an alternative fuel from the lifecycle GHGs emitted from using gasoline or diesel in an equivalent vehicle. Gasoline is considered the base fuel for all light-duty vehicles except biodiesel, which is used in a diesel (compression-ignition) vehicle. Diesel fuel is considered the base fuel for all heavy-duty vehicles except E85, CNG, LNG, and LPG because these vehicles are equipped with spark-ignition (gasoline-like) engines. Figure 4 shows what fuels were used to achieve these reductions and how many AFVs were required for a given reduction. Notice that the GHG reductions are not necessarily proportional to the petroleum displacement shown in Figure 2. This difference occurs because various alternative fuels emit different amounts of GHGs over their lifecycle.

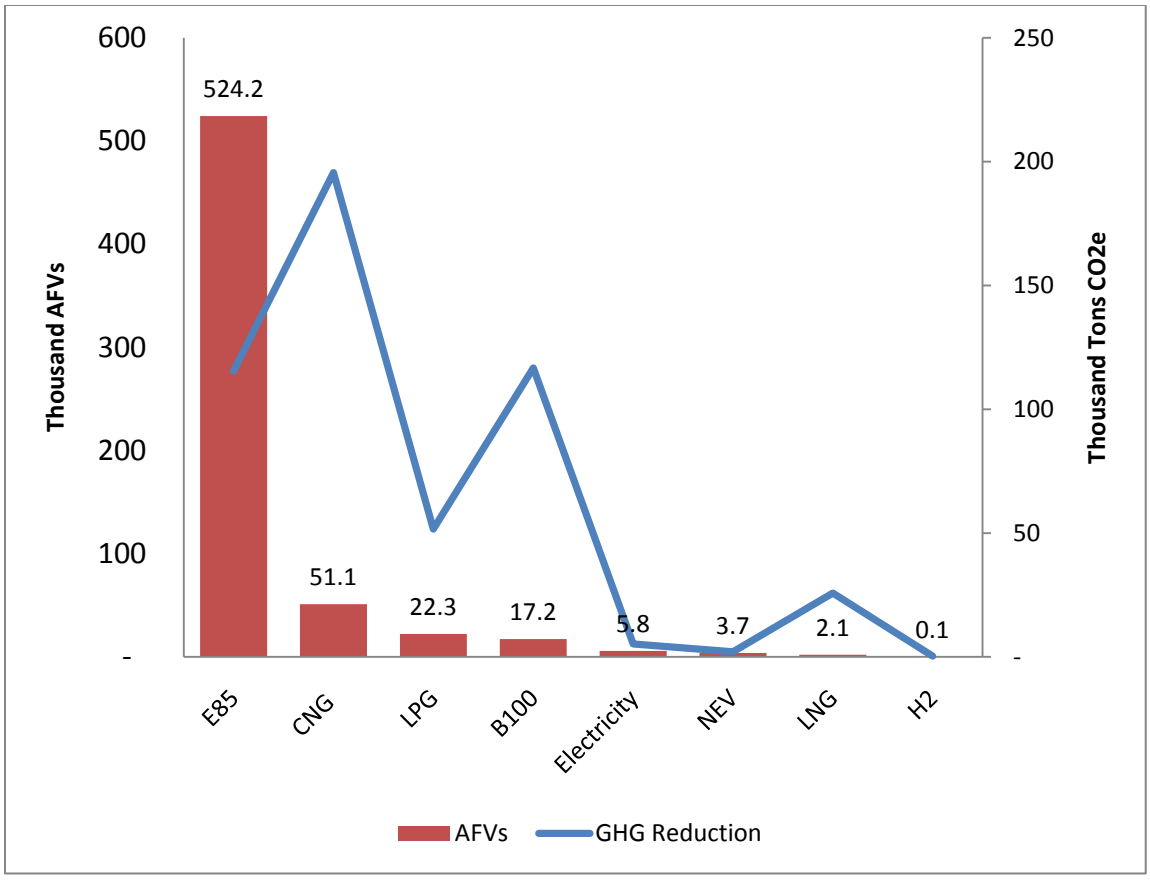

Figure 4. Number of AFVs and GHG reduction by fuel type

Niche Market Vehicles

The questionnaire also asked coordinators to categorize their AFVs and HEVs into key niche market fleets. Table 3 shows that almost 75% of all niche vehicles used E85, B20, or CNG, and Figure 6 shows that 40% of the niche vehicles were state and local government LDVs. The overall number of niche vehicles represented 12% of all reported AFVs and HEVs and stayed relatively stable between 2007 and 2008. However, there was some dramatic growth in the number of plug-in hybrid and LNG vehicles. The niches that grew the most were police, airport, and utility fleets. The growth in these niches was counteracted by a contraction in off-road vehicles, school buses, and waste haulers. Fuels that were significantly less popular in niche markets this year were hydrogen, electricity, and hybrids. Figure 6 shows the overall breakdown of AFVs in the various niche markets.

Vehicles reported in the State Government, Utility, USPS, and US Parks niches represent a vehicle population that might be reported through other federal programs such as the Federal Fleet and State and Fuel Provider programs. Analysts should be careful not to double-count these vehicles when assessing the cumulative impact of these three federal programs.

Table 3. Number and Type of Vehicles for Each Niche Market

Niche Market	E85	B20	CNG	LNG	HYB	LPG	NEV	B100	PHYB	ELEC	H2	OTHER	TOTAL
State Govt LDVs	10,568	6,820	524	25	901	224	636	-	2	32	2	-	19,734
Local Govt LDVs	2,751	2,883	1,242	5	3,286	374	317	-	4	189	10	44	11,105
Utility	392	3,464	3,108	-	485	32	8	651	13	62	3	-	8,218
Transit	7	520	6,247	414	249	236	-	-	-	40	2	14	7,729
Deliv/Transport	1,357	328	747	8	100	2,660	49	207	-	47	1	-	5,504
School Bus	-	1,829	573	-	28	451	378	-	1	-	-	2,070	5,330
Waste haulers	-	857	345	2,831	9	6	-	-	1	-	-	-	4,049
Police	2,950	5	190	-	53	-	42	-	-	5	-	-	3,245
Airport	2	155	2,410	35	46	51	77	-	1	59	5	25	2,866
USPS	2,111	51	31	-	-	-	-	-	-	-	-	-	2,193
Off-road vehicles	-	584	7	-	-	33	-	25	864	17	-	164	1,694
Maintenance	11	998	175	12	10	122	136	8	-	26	-	-	1,498
US Parks	32	544	25	-	31	5	52	-	-	42	-	-	731
Shuttle	-	149	142	-	7	46	-	6	-	6	3	-	359
Total	20,181	19,187	15,766	3,330	5,205	4,240	1,695	897	886	525	26	2,317	74,255

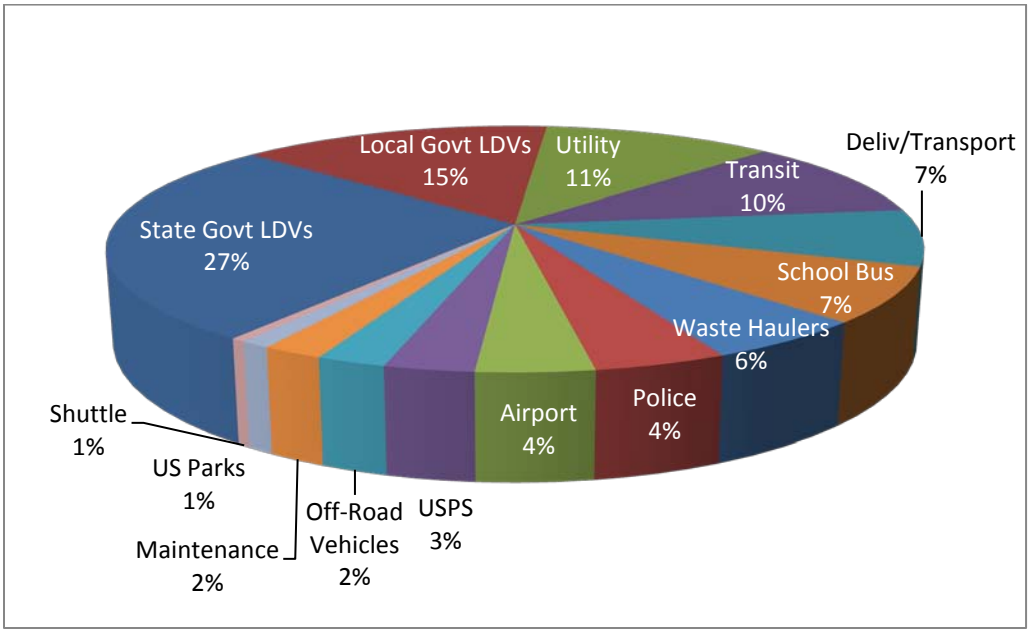

Figure 6. Percentage of total AFVs and HEVs by niche market

Off-Road Vehicles

Coalitions were asked how much off-road equipment or how many vehicles they had used in their projects. They were provided eight categories of vehicles and equipment, and their responses are shown in Table 4. Most of these categories are self-descriptive except construction equipment (such as cranes and earth movers) and recreation equipment (such as jet skis, snow mobiles, and all-terrain vehicles). Fuel-use calculations and defaults were then used to quantify how much petroleum these vehicles displaced. Fuel type was also reported, and LPG was by far the most popular fuel in off-road applications. Eighty-four percent of all alternative fuel energy was from LPG, 14% from B100, 2% from electric, and the other fuels were insignificant.

Table 4. Number of Non-Road Vehicles or Equipment and Petroleum Displacement

Application	Vehicle Number	GGEs Displaced
Forklifts	815	853,240
Other	620	339,997
Construction equipment	884	79,321
Railroads	12	60,000
Recreational equipment	2	5,600
Total	2,333	1,338,158

Outreach Activities

Outreach activities were classified into seven categories, as shown in Table 5. A total of 1,310 activities were reported and were estimated to reach over 113 million people—almost three times the number reached last year. Media events and advertisements dominated the field, combining to represent 97% of the total number of people reached. However, these numbers do not necessarily reflect the actual impact that each event had on the audience. For example, extended personal contact at an Advancing the Choice event might have had a much greater impact than an advertisement heard on the radio.

Table 5. Results for the Seven Types of Outreach Activities

Activity Type	Persons Reached	% of All People Reached	No. of Activities	% of All Activities
Media Event	90,193,899	79.6%	191	15%
Advertisement	20,106,562	17.7%	27	2%
Web Site	1,088,881	1.0%	18	1%
Literature Distribution	862,777	0.8%	254	19%
Advancing the Choice	655,252	0.6%	181	14%
Legislation	304,580	0.3%	31	2%
Meeting	66,167	0.1%	608	46%
Total for All Types	113,278,118	100.0%	1,310	100%

Coordinators were asked to judge how much they thought they were responsible for the number of people reached in each event in contrast to the contributions of other event sponsors and participants. An analysis of the responses shows that, on average, coordinators felt they were responsible for 57% of the 113 million people reached.

Figure 7 illustrates the types of audiences that the 1,310 outreach activities attempted to reach. Any one activity could be aimed at more than one audience, and in fact, 87% of the activities targeted multiple audiences. The general public was most often cited as a target audience, followed by government vehicles and then fleets in general. Specialized applications—airports, waste management, delivery trucks, utility trucks, and mass transit—were identified as audiences

in one-third of the outreach activities. Other audiences were cited as audience types in 13% of the activities reported.

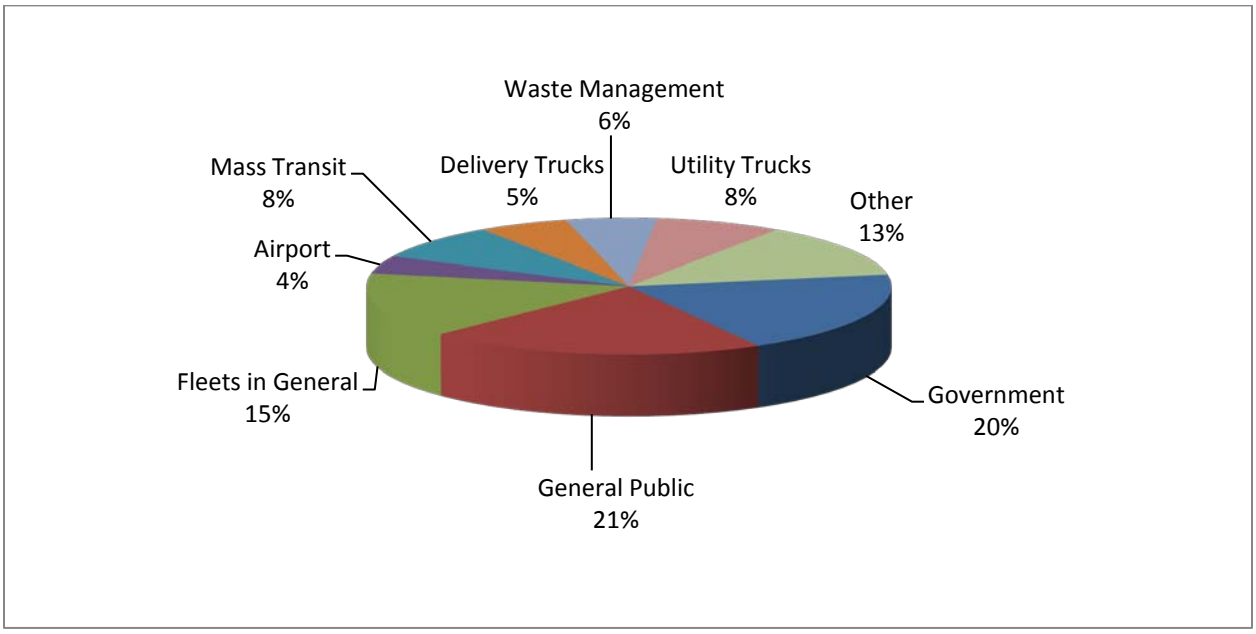

Figure 7. Number of outreach activities split among audience types

Figure 8 shows that AFVs were the technology most often targeted during outreach activities. AFVs, HEVs, and idle reduction have seen an increase in coverage this year while blends and fuel economy were targeted in fewer activities than in 2007.

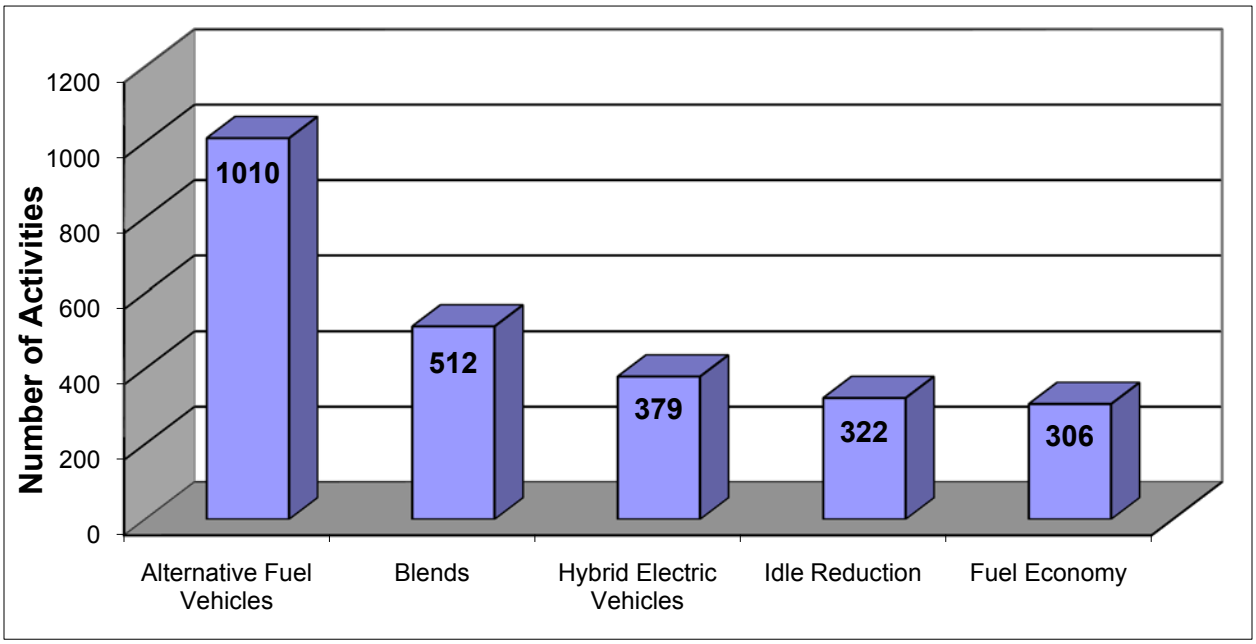

Figure 8. Number of outreach activities by technology type

About the Coordinators

Coordinators reported spending a total of 2,510 hours per week on Clean Cities tasks. For an individual coordinator, the average amount of time spent on Clean Cities business per week was 23.5 hours, and the median amount of time was 18 hours per week. All three of these metrics show substantial increases over last year in coordinator time spent on Clean Cities tasks.

Information on coordinator experience was also gathered in the questionnaire. On average, coordinators have been on the job for 4.4 years. Half of the coordinators have had more than three years of experience, and half have had three or fewer years of experience. The longest-serving coordinator has accumulated over 15 years of experience, and two have been with Clean Cities for at least 14 years. If all 86 coalition coordinators worked the average of 23.5 hours per week, then they spent almost 105,000 hours in all promoting the Clean Cities petroleum reduction portfolio in 2008. This work is equivalent to having a national network of 51 full-time, experienced technical sales professionals working to reduce U.S. dependence on oil.

Coalition Grants

In 2008, 53 coalitions reported receiving 160 grants worth a total of $34 million. These coalitions also reported garnering another $66 million in leveraged (matching) funds. Of the 160 grants, the value of seven grants each exceeded $1 million. The grant with the highest value, $7.9 million, was received by the Southern California Association of Governments coalition. The funds will be used to purchase AFVs and advanced vehicles. Of the $100 million in grants and leveraged funds, $2.6 million was listed as coming from the U.S. Department of Energy. Clean Cities "Research and Development Solutions" grants were not counted among the grants received by coalitions because they do not represent outside funding. Table 6 presents the breakdown of the number and value of grants reported by the coalitions.

Table 6. Breakdown of Grants by Number and Value

Size Category	Number	% of Total Number	Total Value	% of Grand Total Value
< $50,000	91	57%	$1,114,204	3%
$50,000–$99,999	22	14%	$1,442,431	4%
$100,000–$499,999	31	19%	$6,626,466	20%
$500,000–$999,999	9	6%	$5,683,000	17%
$1,000,000 +	7	4%	$19,106,210	56%
Grand Total	160	100%	$33,972,311	100%

About the Stakeholders

In 2008, 85 coalitions reported a total of 6,571 stakeholders for an average of 77 stakeholders per coalition. Furthermore, Clean Cities coalitions are growing: 1,145 of the 6,571 stakeholders were added in 2008 for an average of 13.5 new recruits per coalition. This growth rate is 54% greater than it was in 2007.

Clean Cities is voluntary, and coalitions draw local stakeholders from the public and private sectors. Stakeholders include local, state, and federal agencies; public health and transportation departments; transit agencies and other government offices; and auto manufacturers, car dealers, fuel suppliers, public utilities, and professional associations. Coalitions reported that 49% of the total stakeholders were from the private sector. This composition represents a slight shift (1%) from public to private stakeholders this year.

Data Sources and Quality

Gathering data is always challenging for the coordinators because they rely on the voluntary reporting from their stakeholders and members. Therefore, the survey contains a couple of questions relating to coordinator sources and data quality. In these questions, coordinators were asked to rate the quality of their data as excellent, good, fair, or poor. The "cumulative" bar in Figure 9 presents the response breakdown for the 85 coordinators who answered the question. Eighteen percent of the respondents classified their data as excellent, 55% as good, 27% as fair, and 0% as poor.

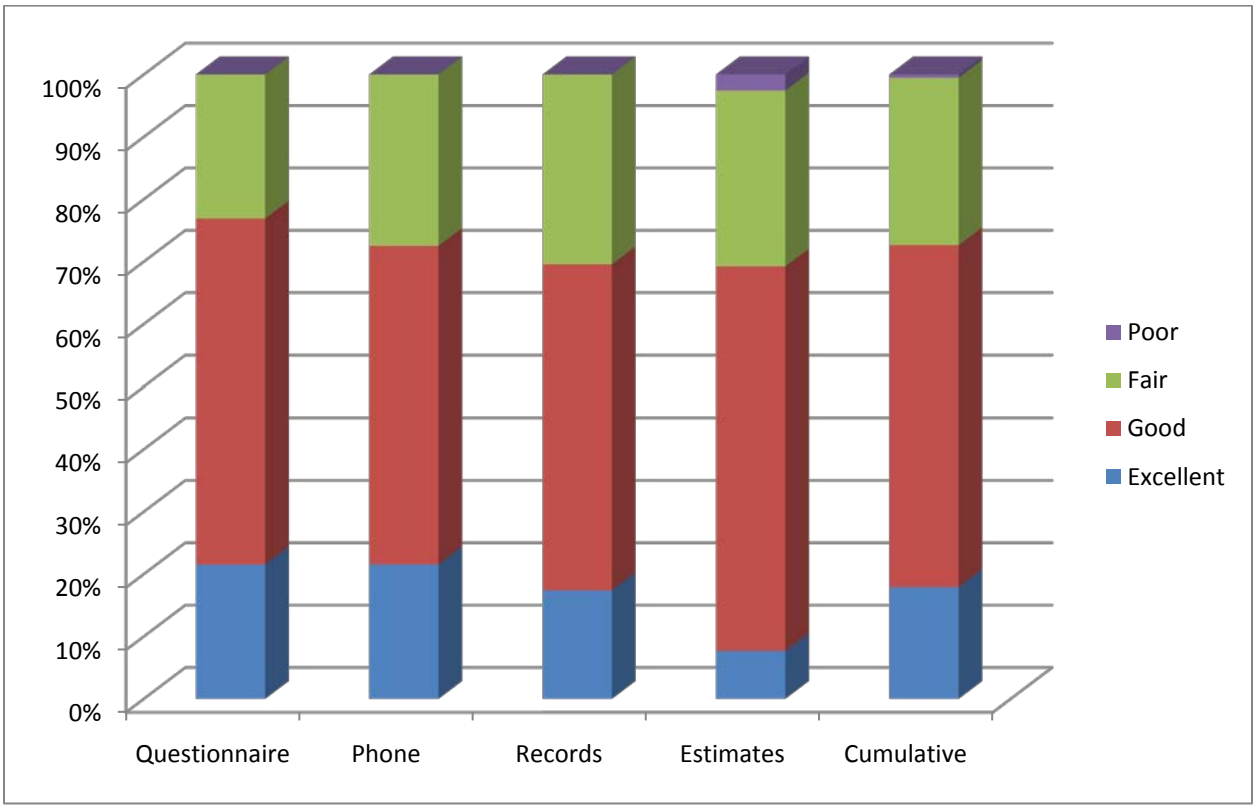

Figure 9. Data quality responses by data source

Coordinators were also asked where they obtained their data. They could choose one or more of the following: paper or electronic questionnaires to stakeholders, phone questionnaires of stakeholders, coalition records, or coalition estimates. Questionnaires gained popularity this year with 32% of the coalitions now using them. The other three methods were used equally—19% to

25% of the time. Figure 9 shows that questionnaires and phone interviews resulted in a higher rate of "excellent" and "good" data than did coalition records and estimates. This could be because the coordinators were more aware of the uncertainties in the data in the latter two options.

Metrics on Lab Activities

Both NREL and ORNL track the use of their information and resources. On behalf of Clean Cities, ORNL produces the Fuel Economy Guide based on fuel economy data developed by the Environmental Protection Agency. In addition, ORNL produces and maintains the www.fueleconomy.gov Web site along with other print and educational activities related to fuel economy. By tracking the number of new car buyers, used car buyers, and car drivers exposed to fuel economy products through their educational materials and assuming a 1% to 3.3% improvement of fuel economy per customer, ORNL estimated that the fuel economy materials resulted in a savings of 125 million gallons of gasoline in 2008. As a likely indication of increasing concerns among consumers about higher fuel prices, the annual 2008 savings are 57% higher than those estimated for 2007.

Online resources at NREL reached a large and growing audience in 2008 as users accessed 7.8 million pages of information on the Clean Cities and AFDC Web sites. The sites at www.eere.energy.gov/cleancities and www.afdc.energy.gov/afdc/ provide a range of resources to support coordinators, fleets, businesses, and local decision-makers in their efforts to implement the technologies of the Clean Cities portfolio. The sites' content includes technical data, success stories, publications, and industry contacts along with databases of federal and state incentives and laws, fuel station locations, available vehicles, and other information and tools.

Conclusion

The metrics produced by Clean Cities help quantify the impact of the program as a whole and of the activities of individual coalitions. Clean Cities believes the calculated impacts are a conservative measure of the coalitions' overall impact because the ability of coordinators to gather specific data about the impact of their activities is, by its very nature, limited. Furthermore, the ripple effect of their efforts in their local communities is difficult to measure. Clearly, though, the support of DOE and its national laboratories is enabling coalitions to coordinate the efforts of otherwise disparate groups and funding sources to accelerate the nation's progress toward petroleum displacement.

Appendix: Clean Cities Coalitions that Completed Surveys

Alamo Area
Ann Arbor Area Clean Cities Coalition
Antelope Valley Coalition
Breathe California of the Bay Area
Capital Clean Cities of Connecticut, Inc.
Capital District—Albany
Central Arkansas
Central Coast Clean Cities Coalition
Central Indiana Clean Cities Alliance, Inc.
Central Oklahoma Clean Cities
Central Texas Clean Cities
Centralina Clean Fuels Coalition
Chicago Area Clean Cities Coalition
Clean Cities—Atlanta
Clean Cities Coachella Valley Region
Clean Cities of Middle Tennessee
Clean Communities of CNY
Clean Fuels Ohio
Columbia-Willamette, Inc.
Commonwealth Clean Cities Partnership
Dallas-Fort Worth
Denver
Detroit Area Clean Cities
Earth Day Coalition Clean Transportation Program
East Bay
East Tennessee Clean Fuels Coalition
East Texas Coalition
Eastern Sierra Regional Clean Cities Coalition, Inc.
Florida Space Coast Coalition
Genesee Region Clean Communities
Gold Coast
Granite State Clean Cities Coalition
Greater Baton Rouge Clean Cities Coalition
Greater Lansing Area Clean Cities
Greater Long Island Clean Cities Coalition
Greater New Haven Clean Cities, Inc.
Greater Philadelphia Clean Cities, Inc.
Hampton Roads Clean Cities Coalition
Honolulu Clean Cities
Houston
Iowa Clean Cities Coalition
Kansas City Regional Clean Cities Coalition
Land of Enchantment Clean Cities Corridor
Las Vegas, Inc.

Long Beach
Los Angeles Clean Cities Coalition
Maine Clean Communities
Maryland Clean Cities
Massachusetts
Metropolitan Washington Alternative Fuels Clean Cities Partnership
Middle Georgia Clean Cities Coalition
New Jersey
New York City & Lower Hudson Valley Clean Communities, Inc.
Northern Colorado Clean Cities
Norwich Clean Cities Coalition
Ocean State Clean Cities Coalition
Palmetto State Clean Fuels Coalition
Pittsburgh
Puget Sound Clean Cities Coalition
Red River Valley/Winnipeg Manitoba
Rogue Valley Clean Cities
Sacramento
San Diego Clean Fuels Coalition
San Joaquin Valley Clean Cities Coalition
South East Texas Clean Cities Coalition
South Shore Clean Cities, Inc.
Southeast Louisiana Clean Fuels Partnership
Southern California Association of Governments
Southern Colorado Clean Cities Coalition
Southwestern CT Clean Cities
St. Louis Regional Clean Cities
State of Delaware
Treasure Valley
Triangle Clean Cities Coalition
Tucson
Twin Cities Clean Cities Coalition
Utah Clean Cities
Valley of the Sun Clean Cities Coalition
Vermont Clean Cities Coalition
West Virginia Clean State Program
Western New York, Inc.
Western North Carolina
Western Riverside County
Wisconsin Clean Cities—Southeast Area, Inc.
Yellowstone-Teton Clean Energy Coalition

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This report summarizes the Department of Energy's Clean Cities coalition accomplishments in 2008, including petroleum displacement data, membership, funding, sales of alternative fuel blends, deployment of AFVs and HEVs, idle reduction initiatives, and fuel economy activities.

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