



# Clean Cities Alternative Fuel Price Report



*April 2009*



# CLEAN CITIES ALTERNATIVE FUEL PRICE REPORT

APRIL 2009

## WELCOME!

Welcome to the April 2009 issue of the Clean Cities Alternative Fuel Price Report, a quarterly report designed to keep you up to date on the prices of alternative fuels and conventional fuels in the U.S. This issue summarizes prices that were collected between April 1, 2009 and April 15, 2009 from Clean Cities Coordinators, fuel providers, and other Clean Cities stakeholders.

## METHODOLOGY

In order to collect price information for both alternative fuels and conventional fuels from areas across the country, Clean Cities Coordinators, fuel providers, and other key stakeholders were contacted to request that they provide prices for fuels in their area on a voluntary basis. Prices were collected on all major alternative fuels currently in widespread use (natural gas, propane, biodiesel, and ethanol), as well as prices for conventional fuels at stations that also sell alternative fuels (or stations nearby). Prices were collected from public and private refueling stations throughout the country, and were collected between April 1, 2009 and April 15, 2009. Prices were then averaged in order to determine regional price trends by fuel and variability in fuel price within regions (and among regions). Prices in this report are grouped by U.S. areas as defined by the Petroleum Administration for Defense Districts (PADD): the districts are illustrated in the map to the right.



The prices collected for this report represent retail, at-the-pump sales prices for each fuel, including Federal and state motor fuel taxes. In some cases, prices were collected from government or utility refueling facilities and these taxes were not included in the reported price. In these instances, although these users are not required to pay these taxes, the taxes were added to the reported price to provide a more representative basis for comparison of fuel prices for the purpose of this report. In some cases, states may charge a flat annual fee for motor fuel taxes (especially for gaseous fuels like CNG): these fees are not considered in the prices reported in these pages.



## CLEAN CITIES ALTERNATIVE FUEL PRICE REPORT

### SUMMARY OF CURRENT REPORT INFORMATION

APRIL 2009

Overall nationwide average prices for conventional and alternative fuels are shown in Table 1.<sup>1</sup> As this table illustrates, alternative fuel prices relative to conventional fuels vary, with some (biodiesel, propane) higher and some (E85 and CNG) lower. CNG is about 38 cents less than gasoline on an energy-equivalent basis, while E85 is about 14 cents less per gallon than gasoline. Propane is about 55 cents per gallon more than gasoline. B20 prices are higher than regular diesel by about 22 cents. B99/B100 blends have a cost of about a dollar per gallon more than regular diesel, while B2/B5 blends are about the same price as diesel.

**Table 1. Overall Average Fuel Prices**

	Nationwide Average Price for Fuel This Report	Nationwide Average Price for Fuel Last Report	Change in Price This Report vs. Last Report	Units of Measurement
Gasoline (Regular)	\$2.02	\$1.86	\$0.16	per gallon
Diesel	\$2.27	\$2.44	\$ (0.17)	per gallon
CNG	\$1.64	\$1.63	\$0.01	per GGE
Ethanol (E85)	\$1.88	\$1.81	\$0.07	per gallon
Propane	\$2.58	\$2.73	\$ (0.16)	per gallon
Biodiesel (B20)	\$2.49	\$2.67	\$ (0.18)	per gallon
Biodiesel (B2-B5)	\$2.28	\$2.45	\$ (0.17)	per gallon
Biodiesel (B99-B100)	\$3.27	\$3.47	\$ (0.20)	per gallon

Relative to the last report from January 2009, the average prices for most of the fuels included in this price report have decreased by around 16 to 20 cents. It should be noted that the price increases or decreases could be attributed both to an actual increase in price and to a slightly differing sample of prices (both location and quantity).

Prices in this report were collected and are reported in the units in which they are typically sold (dollars per gallon or dollars per gasoline-gallon equivalent). Because of differing energy contents per gallon for these fuels, the price paid per unit of energy content can differ somewhat from the price paid per gallon. Table 2 illustrates the fuel prices from Table 1 for the current reporting period normalized to a price per gasoline-gallon equivalent, per diesel gallon equivalent, or per million Btu of energy. This calculation involves the use of nominal lower heating values in Btu per gallon of fuel which can be found in the Transportation Energy Data Book<sup>2</sup>. Note that prices for the alternative fuels in terms of cost per gallon equivalent are generally higher than their cost per gallon because of their lower energy content per gallon<sup>3</sup>. It has been seen, however, that consumer interest in alternative fuels increases as the price differential per gallon increases, even if that differential does not directly translate to savings on an energy-equivalent basis.

**Table 2. April 2009 Overall Average Fuel Prices on Energy-Equivalent Basis**

	Nationwide Average Price in Gasoline Gallon Equivalents	Nationwide Average Price in Diesel Gallon Equivalents	Nationwide Average Price in Dollars per Million Btu
Gasoline	\$2.02	\$2.26	\$17.52
Diesel	\$2.04	\$2.27	\$17.64
CNG	\$1.64	\$1.83	\$14.20
Ethanol (E85)	\$2.66	\$2.96	\$23.02
Propane	\$3.56	\$3.97	\$30.84
Biodiesel (B20)	\$2.27	\$2.53	\$19.67
Biodiesel (B2-B5)	\$2.05	\$2.29	\$17.78
Biodiesel (B99-B100)	\$3.22	\$3.59	\$27.90

<sup>1</sup> A very small sample (7 points) of hydrogen information was received: average price for hydrogen was \$13.45 per gge in this report.

<sup>2</sup> A listing of the conversion factors used appears as an appendix at the end of this report.

<sup>3</sup> For ethanol flexible-fuel vehicles, the actual difference in energy cost per mile is somewhat less than would be calculated simply on the difference in energy content of the fuels, as some sources have noted many FFVs can achieve better energy efficiency (miles per unit of energy) on E85 than on gasoline. This effect is not currently included in these calculations as the magnitude of the effect varies by vehicle.



## CLEAN CITIES ALTERNATIVE FUEL PRICE REPORT GASOLINE AND DIESEL PRICES

APRIL 2009

Average prices for gasoline and diesel as collected by Clean Cities coordinators and other stakeholders (supplemented where necessary with other reference sources for conventional fuels) are illustrated in Table 3. These prices were collected from refueling stations selling both conventional fuels and alternative fuels, and from conventional fuel refueling stations near alternative fuel stations. Just over 300 price points

**Table 3. Average Gasoline and Diesel Prices by Region from Clean Cities Sources**

	Regular Gasoline Information Reported by Clean Cities (\$/gal)		Diesel Information Reported by Clean Cities (\$/gal)	
	Average Price / Standard Deviation of Price	Number of Data Points	Average Price / Standard Deviation of Price	Number of Data Points
New England	\$2.09 / 0.28	43	\$2.46 / 0.27	33
Central Atlantic	\$2.11 / 0.10	24	\$2.47 / 0.12	11
Lower Atlantic	\$1.99 / 0.07	27	\$2.19 / 0.09	28
Midwest	\$1.96 / 0.12	123	\$2.19 / 0.22	73
Gulf Coast	\$1.96 / 0.05	16	\$2.18 / 0.11	16
Rocky Mountain	\$1.99 / 0.10	43	\$2.21 / 0.19	22
West Coast	\$2.14 / 0.21	47	\$2.35 / 0.29	30
<b>NATIONAL AVERAGE</b>	<b>\$2.02 / 0.17</b>	<b>323</b>	<b>\$2.27 / 0.24</b>	<b>213</b>

were collected for gasoline and 200 for diesel, with average prices for gasoline ranging from a low of \$1.96 per gallon in the Midwest and Gulf Coast to a high of \$2.14 per gallon on the West Coast. Diesel prices ranged from \$2.18 on the Gulf Coast to \$2.47 in the Central Atlantic. Because prices for conventional fuels were collected from stations and regions providing alternative fuel price information, data collection was not uniform across the regions of the country. The information is, however, representative of refueling stations selling both alternative fuels and conventional fuels.

Table 4 illustrates average prices as provided by the DOE Energy Information Administration (EIA) on the petroleum information section of its website ([http://www.eia.doe.gov/oil\\_gas/petroleum/info\\_glance/petroleum.html](http://www.eia.doe.gov/oil_gas/petroleum/info_glance/petroleum.html)). These prices are averages of prices from a selection of 800 retail fuel stations across the country. Note that the average nationwide price from EIA generally matches relatively closely with the averages from the station information collected from Clean Cities stakeholders. Comparisons in this document between conventional fuel prices and alternative fuel prices will be made using prices collected from Clean Cities representatives wherever possible, as these prices are most representative of stations selling both conventional and alternative fuels.

**Table 4. EIA Gasoline and Diesel Price Averages**

	Gasoline Average Price from EIA, Week of 4/13/09	Diesel Average Price from EIA, Week of 4/13/09
New England	\$2.04	\$2.42
Central Atlantic	\$2.11	\$2.40
Lower Atlantic	\$2.03	\$2.20
Midwest	\$2.00	\$2.18
Gulf Coast	\$1.96	\$2.20
Rocky Mountain	\$2.01	\$2.25
West Coast	\$2.23	\$2.34
<b>NATIONAL AVERAGE</b>	<b>\$2.03</b>	<b>\$2.23</b>

## CLEAN CITIES ALTERNATIVE FUEL PRICE REPORT

### COMPRESSED NATURAL GAS (RELATIVE TO GASOLINE)

APRIL 2009

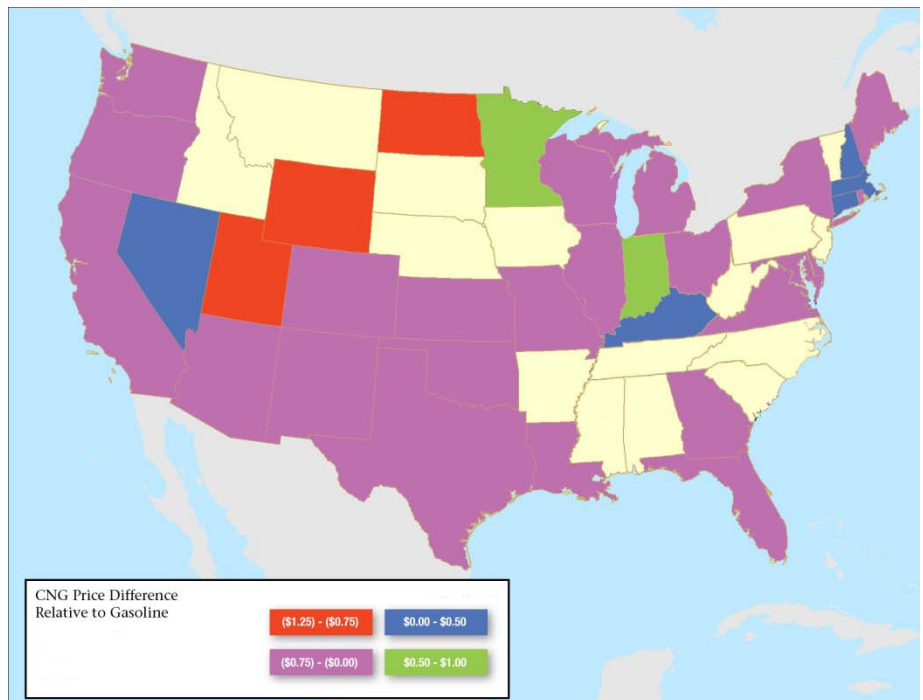
Average prices for compressed natural gas for vehicle use are illustrated in Table 5, grouped by region. Information on prices for regular gasoline as provided by Clean Cities representatives is also shown. These prices were collected from across the country from Clean Cities Coordinators, fuel providers, and other stakeholders on a voluntary basis. Just over 300 CNG prices were collected in this report<sup>4</sup>.

**Table 5. Compressed Natural Gas Average Prices by Region from Clean Cities Sources**

	Natural Gas (CNG) Information Reported by Clean Cities (\$/gge)		Regular Gasoline Information Reported by Clean Cities (\$/gal)	
	Average Price / Standard Deviation of Price	Number of Data Points	Average Price / Standard Deviation of Price	Number of Data Points
New England	\$2.30 / 0.47	22	\$2.09 / 0.28	43
Central Atlantic	\$2.02 / 0.31	59	\$2.11 / 0.10	24
Lower Atlantic	\$1.61 / 0.34	6	\$1.99 / 0.07	27
Midwest	\$1.72 / 0.44	28	\$1.96 / 0.12	123
Gulf Coast	\$1.57 / 0.18	18	\$1.96 / 0.05	16
Rocky Mountain	\$1.15 / 0.31	102	\$1.99 / 0.10	43
West Coast	\$1.75 / 0.23	102	\$2.14 / 0.21	47
<b>NATIONAL AVERAGE</b>	<b>\$1.64 / 0.48</b>	<b>337</b>	<b>\$2.02 / 0.17</b>	<b>323</b>

As Table 5 illustrates by region, CNG has a lower price than gasoline for most regions of the country for which prices were obtained, with the largest difference (\$0.84 per gge) being in the Rocky Mountain region. On average, CNG costs about \$0.38 less than gasoline on a per gasoline gallon equivalent basis. Variability of CNG prices was higher (based on a standard deviation analysis) than variability of gasoline prices.

The map to the right illustrates some cost differentials by state for natural gas relative to gasoline, based on differentials between natural gas prices and gasoline prices for each state (versus the regional averages illustrated in Table 5). In this map, negative numbers represent costs for natural gas lower than costs for gasoline. States not highlighted with a color did not have any natural gas data points in the current report. As the map illustrates, CNG prices were favorable relative to gasoline for a number of states across the country, especially in the West.



<sup>4</sup> Prices for CNG were provided by the individual stakeholders in gasoline-gallon equivalents from the “price at the pump.” It should be noted that the internal conversion factor between the physical quantities of gas delivered and gge was not collected from each of the refueling stations. Regional differences in gas heat content relative to the internal pump conversion factor may change the price per gge; these differences were not determined for this report, however.

## CLEAN CITIES ALTERNATIVE FUEL PRICE REPORT

### COMPRESSED NATURAL GAS (RELATIVE TO DIESEL)

APRIL 2009

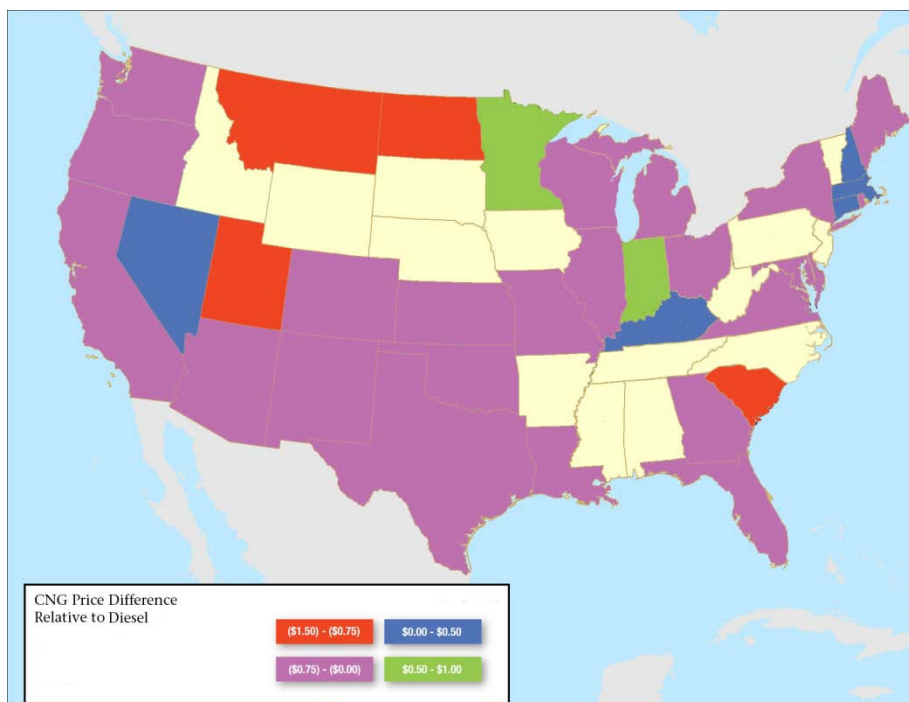
Average prices for compressed natural gas for vehicle use are illustrated in Table 6, grouped by region. Information on prices for conventional diesel fuel as provided by representatives from Clean Cities and supplemental sources is also shown. These prices were collected from across the country from Clean Cities Coordinators, fuel providers, and other stakeholders on a voluntary basis. Note that the CNG prices in Table 6 are the same group of prices as for Table 5, but converted to a cost per diesel gallon equivalent basis, in order to compare directly with diesel prices.

**Table 6. Compressed Natural Gas Average Prices by Region from Clean Cities Sources**

	Natural Gas (CNG) Information Reported by Clean Cities (\$/dge)		Diesel Information Reported by Clean Cities (\$/gal)	
	Average Price / Standard Deviation of Price	Number of Data Points	Average Price / Standard Deviation of Price	Number of Data Points
New England	\$2.56 / 0.52	22	\$2.46 / 0.27	33
Central Atlantic	\$2.25 / 0.34	59	\$2.47 / 0.12	11
Lower Atlantic	\$1.79 / 0.38	6	\$2.19 / 0.09	28
Midwest	\$1.92 / 0.50	28	\$2.19 / 0.22	73
Gulf Coast	\$1.75 / 0.21	18	\$2.18 / 0.11	16
Rocky Mountain	\$1.28 / 0.35	102	\$2.21 / 0.19	22
West Coast	\$1.95 / 0.26	102	\$2.35 / 0.29	30
<b>NATIONAL AVERAGE</b>	<b>\$1.83 / 0.53</b>	<b>337</b>	<b>\$2.27 / 0.24</b>	<b>213</b>

As Table 6 illustrates by region, CNG has a lower price than diesel for most regions of the country, with the largest difference (\$0.93 per dge) being in the Rocky Mountain region. On average, CNG costs about \$0.44 less than diesel on a per diesel gallon equivalent basis. Based on standard deviation calculations, CNG appears to have had more variability in price during this time period relative to diesel fuel.

The map to the right illustrates some cost differentials by state for natural gas relative to diesel, based on differentials between natural gas prices and diesel prices for each state (versus the regional averages illustrated in Table 6). In this map, negative numbers represent costs for natural gas lower than costs for diesel. States not highlighted with a color did not have any natural gas data points in the current report. As with the comparison to gasoline, natural gas prices relative to diesel were also favorable, as the map shows.



## CLEAN CITIES ALTERNATIVE FUEL PRICE REPORT

APRIL 2009

### ETHANOL (E85)

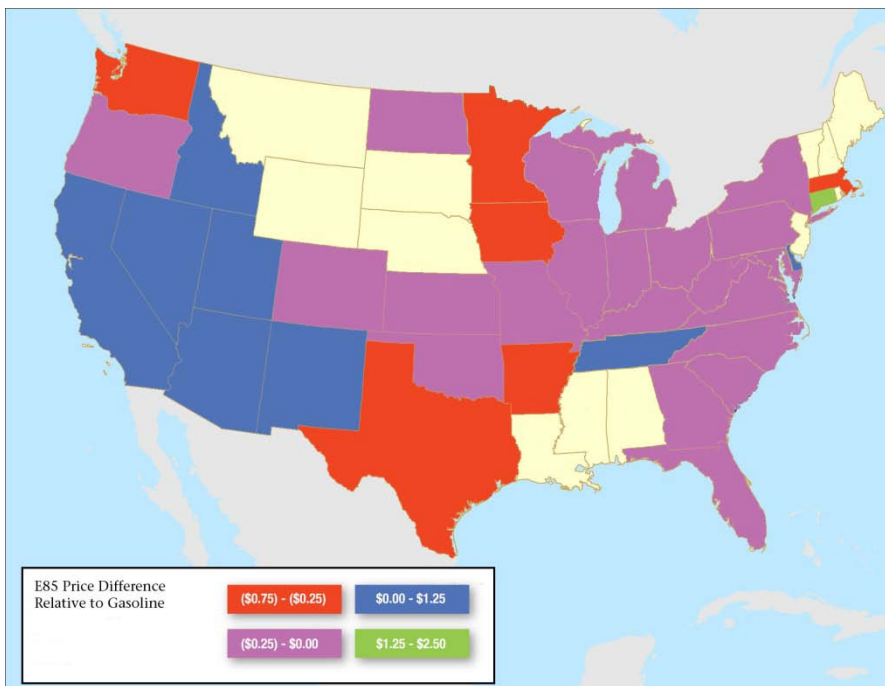
Average prices for ethanol in an 85% blend with 15% gasoline (E85) are illustrated in Table 7, grouped by region. Information on prices for regular gasoline as provided by Clean Cities representatives is also shown. These prices were collected from across the country from Clean Cities Coordinators, fuel providers, and other stakeholders on a voluntary basis. Just over 300 prices for ethanol were collected in this data collection effort.

**Table 7. Ethanol (E85) Average Prices by Region from Clean Cities Sources**

	Ethanol (E85) Information Reported by Clean Cities (\$ per gal)		Regular Gasoline Information Reported by Clean Cities (\$ per gal)	
	Average Price / Standard Deviation of Price	Number of Data Points	Average Price / Standard Deviation of Price	Number of Data Points
New England	\$2.55 / 1.50	3	\$2.09 / 0.28	43
Central Atlantic	\$1.98 / 0.27	52	\$2.11 / 0.10	24
Lower Atlantic	\$1.86 / 0.17	47	\$1.99 / 0.07	27
Midwest	\$1.83 / 0.20	97	\$1.96 / 0.12	123
Gulf Coast	\$1.73 / 0.28	15	\$1.96 / 0.05	16
Rocky Mountain	\$1.78 / 0.16	63	\$1.99 / 0.10	43
West Coast	\$2.14 / 0.47	26	\$2.14 / 0.21	47
<b>NATIONAL AVERAGE</b>	<b>\$1.88 / 0.30</b>	<b>303</b>	<b>\$2.02 / 0.17</b>	<b>323</b>

Note that E85 has a lower average price per gallon than regular gasoline for most regions, and higher in others (see Table 7). On average, E85 is about 14 cents lower in price than regular gasoline on a per-gallon basis, with the largest average differential (24 cents) being found on the Gulf Coast. Based on the calculated standard deviations in this set of E85 price information, it can be seen that price variability for E85 was somewhat larger than the price variability for gasoline for the period.

The map to the right illustrates some cost differentials between E85 and regular gasoline by state, based on differentials between E85 prices and gasoline prices for each state (versus the regional averages illustrated in Table 7). In this map, negative numbers represent costs for E85 lower than for gasoline, and positive numbers represent costs for E85 higher than gasoline. States not highlighted with a color did not have any E85 data points in the current report. In the time period for this report, E85 cost less per gallon than gasoline for many areas for which prices were available: the best pricing was across the upper Midwest.



## CLEAN CITIES ALTERNATIVE FUEL PRICE REPORT

APRIL 2009

### PROPANE

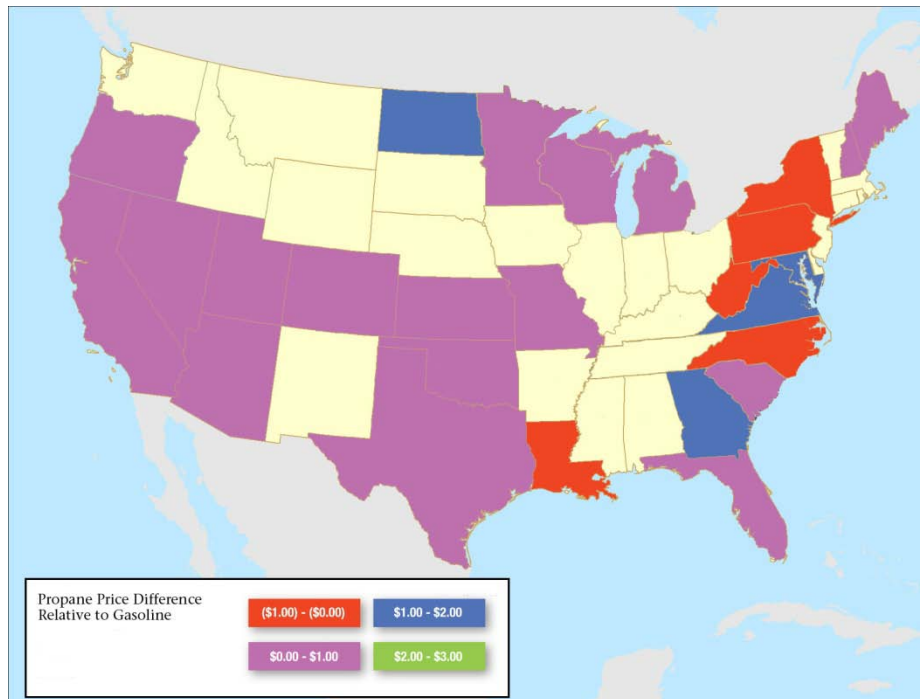
Average prices for propane are illustrated in Table 8, grouped by region. Information on prices for regular gasoline as provided by representatives from Clean Cities is also shown. These prices were collected from across the country from Clean Cities Coordinators, fuel providers, and other stakeholders on a voluntary basis. Almost 160 propane prices were collected in this reporting period.

**Table 8. Propane Average Prices by Region from Clean Cities Sources**

	Propane Information Reported by Clean Cities (\$ per gal)		Regular Gasoline Information Reported by Clean Cities (\$ per gal)	
	Average Price / Standard Deviation of Price	Number of Data Points	Average Price / Standard Deviation of Price	Number of Data Points
New England	\$2.87 / 0.42	7	\$2.09 / 0.28	43
Central Atlantic	\$2.96 / 0.97	26	\$2.11 / 0.10	24
Lower Atlantic	\$2.83 / 0.81	15	\$1.99 / 0.07	27
Midwest	\$2.63 / 0.70	35	\$1.96 / 0.12	123
Gulf Coast	\$2.21 / 0.61	10	\$1.96 / 0.05	16
Rocky Mountain	\$2.23 / 0.49	32	\$1.99 / 0.10	43
West Coast	\$2.48 / 1.14	32	\$2.14 / 0.21	47
<b>NATIONAL AVERAGE</b>	<b>\$2.58 / 0.85</b>	<b>157</b>	<b>\$2.02 / 0.17</b>	<b>323</b>

As Table 8 illustrates regionally, propane prices are somewhat higher than gasoline in all regions. Overall, propane was about 55 cents per gallon more than gasoline. Based on calculations of standard deviation in prices, it can be seen that propane prices for vehicle use seems to have varied more than gasoline prices during this sampling period.<sup>5</sup>

The map to the right illustrates some cost differentials between propane and regular gasoline on a per-gallon basis, based on differentials between propane prices and gasoline prices for each state (versus the regional averages illustrated in Table 8). In this map, negative numbers represent costs for propane lower than costs for gasoline, and positive numbers represent propane prices higher than gasoline. States not highlighted with a color did not have any propane data points in the current report. Propane prices were favorable in North Carolina, Pennsylvania, New York, Louisiana, and West Virginia.



<sup>5</sup> Prices for propane in this report are from both private fleet refueling stations and public refueling sites that can provide propane for vehicles and for other uses. The prices at private stations are generally lower, and may be more representative of the prices the majority of propane vehicle users pay.





## CLEAN CITIES ALTERNATIVE FUEL PRICE REPORT

APRIL 2009

### BIODIESEL BLENDS: B20

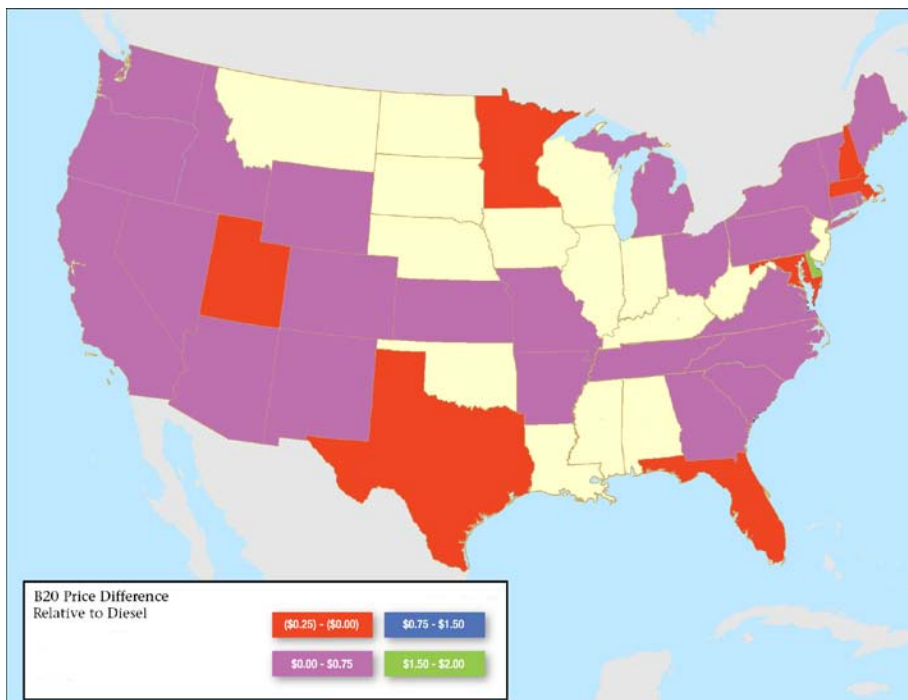
Average prices for biodiesel in a 20% blend with 80% diesel (B20) are illustrated in Table 9, grouped by region. Information on prices for regular diesel as provided by Clean Cities representatives is also shown. These prices were collected from across the country from Clean Cities Coordinators, fuel providers, and other stakeholders on a voluntary basis. Just over 100 prices were obtained for B20 across the country.

**Table 9. Biodiesel (B20) Average Prices by Region from Clean Cities Sources**

	Biodiesel (B20) Information Reported by Clean Cities (\$ per gal)		Diesel Information Reported by Clean Cities (\$ per gal)	
	Average Price / Standard Deviation of Price	Approximate Number of Stations	Average Price / Standard Deviation of Price	Approximate Number of Stations
New England	\$2.51 / 0.57	13	\$2.46 / 0.27	33
Central Atlantic	\$3.03 / 0.72	15	\$2.47 / 0.12	11
Lower Atlantic	\$2.30 / 0.28	20	\$2.19 / 0.09	28
Midwest	\$2.20 / 0.13	28	\$2.19 / 0.22	73
Gulf Coast	\$2.14 / 0.29	11	\$2.18 / 0.11	16
Rocky Mountain	\$2.40 / 0.18	16	\$2.21 / 0.19	22
West Coast	\$2.77 / 0.69	29	\$2.35 / 0.29	30
<b>NATIONAL AVERAGE</b>	<b>\$2.49 / 0.55</b>	<b>132</b>	<b>\$2.27 / 0.24</b>	<b>213</b>

As Table 9 illustrates, biodiesel in a B20 blend has an average price per gallon that is somewhat more than conventional diesel fuel (ranging from 5 to 56 cents more per gallon). Based on calculations of standard deviation on B20 prices, variability in B20 prices was a bit larger than the variability in price of conventional diesel by region. On average in the U.S., biodiesel in a B20 blend costs about 22 cents more per gallon than conventional diesel fuel based on current information.

The map to the right illustrates some cost differentials between B20 and diesel on a per-gallon basis, based on differentials between biodiesel prices and gasoline prices for each state (versus the regional averages illustrated in Table 9). In this map, negative numbers represent costs for B20 lower than costs for diesel, and positive numbers represent B20 prices higher than diesel. States not highlighted with a color did not have any B20 data points in the current report. B20 had favorable pricing in Texas, Utah, Minnesota, New Hampshire, Massachusetts, Florida, and Maryland.



## CLEAN CITIES ALTERNATIVE FUEL PRICE REPORT

APRIL 2009

### BIODIESEL BLENDS: LOW-LEVEL (B2-B5)

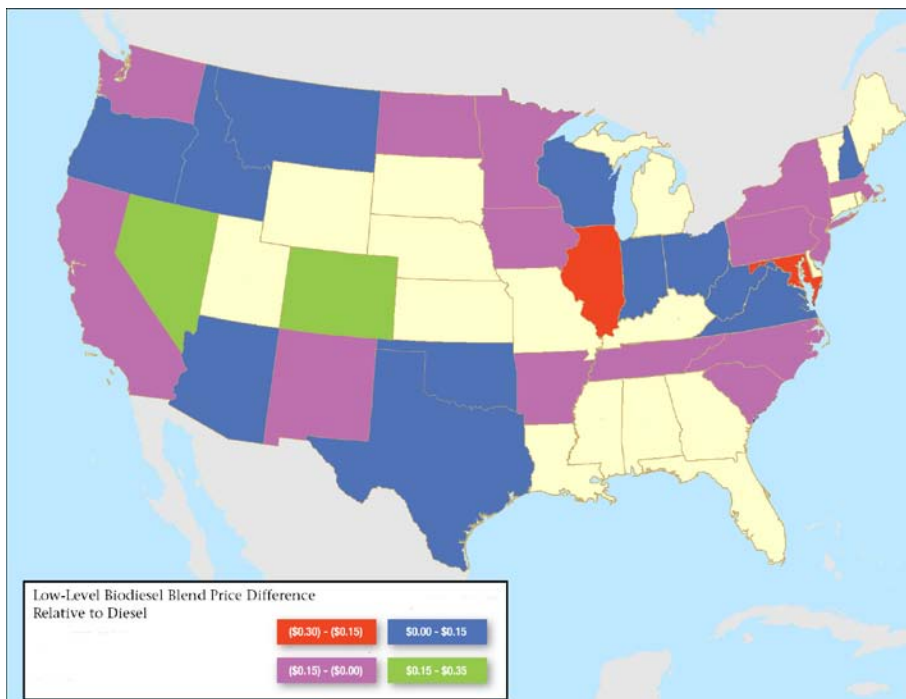
Average prices for biodiesel in lower-level blends (2-5% biodiesel in diesel fuel) are illustrated in Table 10, grouped by region. Information on prices for regular diesel as provided by Clean Cities representatives is also shown. These prices were collected from across the country from Clean Cities Coordinators, fuel providers, and other stakeholders on a voluntary basis. Almost 90 prices were obtained from areas offering low-level biodiesel blends.

**Table 10. Biodiesel (B2-B5) Average Prices by Region from Clean Cities Sources**

	Biodiesel (B2-B5) Information Reported by Clean Cities (\$ per gal)		Diesel Information Reported by Clean Cities (\$ per gal)	
	Average Price / Standard Deviation of Price	Number of Data Points	Average Price / Standard Deviation of Price	Number of Data Points
New England	\$2.37 / 0.16	9	\$2.46 / 0.27	33
Central Atlantic	\$2.33 / 0.26	27	\$2.47 / 0.12	11
Lower Atlantic	\$2.19 / 0.15	11	\$2.19 / 0.09	28
Midwest	\$2.20 / 0.16	19	\$2.19 / 0.22	73
Gulf Coast	\$2.20 / 0.14	5	\$2.18 / 0.11	16
Rocky Mountain	\$2.37 / 0.21	5	\$2.21 / 0.19	22
West Coast	\$2.35 / 0.31	11	\$2.35 / 0.29	30
<b>NATIONAL AVERAGE</b>	<b>\$2.28 / 0.22</b>	<b>87</b>	<b>\$2.27 / 0.24</b>	<b>213</b>

As Table 10 illustrates regionally, average prices for low-level blends of biodiesel are relatively close to average diesel prices (from 16 cents more to 14 cents less than diesel per gallon). Differences in price between low-level biodiesel blends and regular diesel could be attributed to the relatively small sample size. New England had the most favorable price structure for low-level biodiesel blends during this time period (based on a small sample).

The map to the right illustrates some cost differentials between low-level biodiesel blends and regular diesel on a per-gallon basis, based on differentials between biodiesel prices and gasoline prices for each state (versus the regional averages illustrated in Table 10). In this map, negative numbers represent costs for these blends that are lower than costs for diesel, and positive numbers represent prices for these blends that are higher than diesel. States not highlighted with a color did not have any low-level biodiesel blend data points in the current report. Favorable low-level biodiesel blend pricing may be found in Illinois and Maryland.





# CLEAN CITIES ALTERNATIVE FUEL PRICE REPORT

APRIL 2009

## BIODIESEL BLENDS: B100/B99

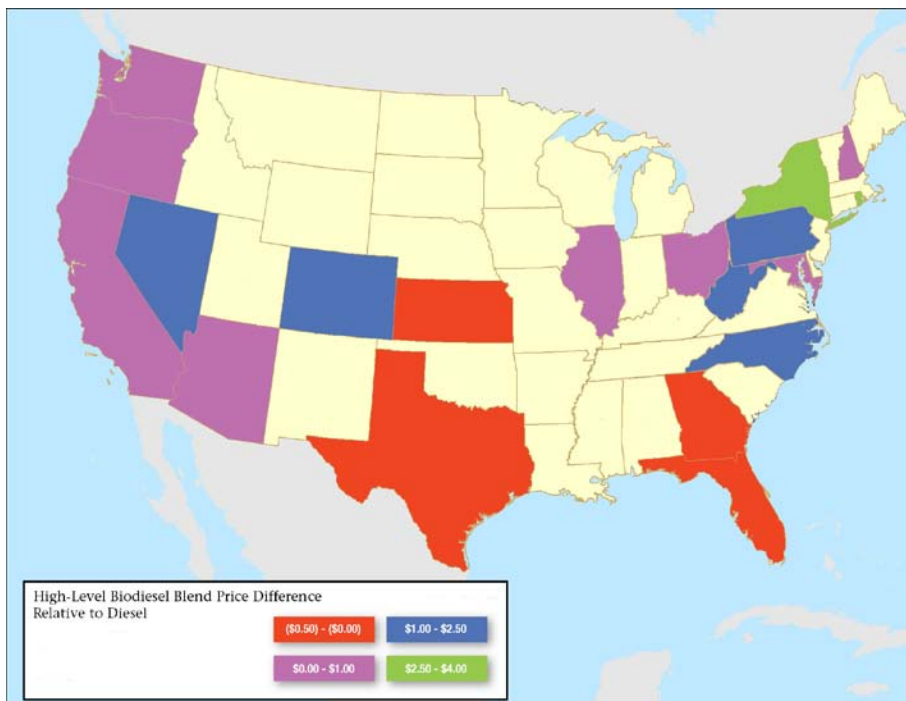
Average prices for high-level blends of biodiesel (99% or 100% biodiesel with diesel fuel) are illustrated in Table 11, grouped by region. Information on prices for regular diesel as provided by Clean Cities representatives is also shown. These prices were collected from across the country from Clean Cities Coordinators, fuel providers, and other stakeholders on a voluntary basis. About 45 price points were collected from stations offering B99/B100 for sale across the country.

**Table 11. Biodiesel (B99-B100) Average Prices by Region from Clean Cities Sources**

	Biodiesel (B99-B100) Information Reported by Clean Cities (\$ per gal)		Diesel Information Reported by Clean Cities (\$ per gal)	
	Average Price / Standard Deviation of Price	Number of Data Points	Average Price / Standard Deviation of Price	Number of Data Points
New England	\$4.14 / 2.05	2	\$2.46 / 0.27	33
Central Atlantic	\$3.73 / 1.22	7	\$2.47 / 0.12	11
Lower Atlantic	\$2.9 / 1.09	4	\$2.19 / 0.09	28
Midwest	\$2.65 / 0.54	4	\$2.19 / 0.22	73
Gulf Coast	\$1.99 / ---	1	\$2.18 / 0.11	16
Rocky Mountain	\$3.86 / 1.40	3	\$2.21 / 0.19	22
West Coast	\$3.21 / 0.52	26	\$2.35 / 0.29	30
<b>NATIONAL AVERAGE</b>	<b>\$3.27 / 0.89</b>	<b>47</b>	<b>\$2.27 / 0.24</b>	<b>213</b>

As Table 11 illustrates regionally, the cost of B99/B100 is generally more than the cost of diesel fuel per gallon in the regions for which data were collected, up to \$1.68 more than diesel. On average across the nation, B99/B100 is about a dollar per gallon higher than regular diesel. Based on standard deviation calculations on these price points, it appears that prices for B99/B100 varied more widely in this time period than regular diesel.

The map to the right illustrates some cost differentials between high-level biodiesel blends and regular diesel on a per-gallon basis, based on differentials between biodiesel prices and gasoline prices for each state (versus the regional averages illustrated in Table 11). In this map, negative numbers represent costs for these blends that are lower than costs for diesel, and positive numbers represent prices for these blends that are higher than diesel. States not highlighted with a color did not have any high-level biodiesel blend data points in the current report. Prices for B100 were favorable in several states for this report.





**CLEAN CITIES ALTERNATIVE FUEL PRICE REPORT**  
*COMPARISON OF PRICES OF THIS REPORT VERSUS LAST REPORT*

**APRIL 2009**

Table 12 below summarizes the average prices collected for this report by region, and compares them to prices collected in the Price Report from January 2009. It should be noted that a portion of the price changes could be attributed to differing sample sizes and composition between the two reports.

**Table 12. Comparison of Prices, Last Price Report versus Current Price Report**

		<i>Price for April 2009 Period</i>	<i>Price for January 2009 Period</i>	<i>Price Differential April vs. January</i>
<i>Gasoline (\$ per gallon)</i>	<i>National Average</i>	\$2.02	\$1.86	\$0.16 / 9%
	New England	\$2.09	\$2.09	\$0.01 / 0%
	Central Atlantic	\$2.11	\$1.92	\$0.18 / 10%
	Lower Atlantic	\$1.99	\$1.81	\$0.18 / 10%
	Midwest	\$1.96	\$1.83	\$0.13 / 7%
	Gulf Coast	\$1.96	\$1.80	\$0.17 / 9%
	Rocky Mountain	\$1.99	\$1.66	\$0.33 / 20%
	West Coast	\$2.14	\$2.04	\$0.10 / 5%
	<i>Diesel (\$ per gallon)</i>	<i>National Average</i>	\$2.27	\$2.44
New England		\$2.46	\$2.83	(\$0.37) / (13%)
Central Atlantic		\$2.47	\$2.65	(\$0.17) / (7%)
Lower Atlantic		\$2.19	\$2.33	(\$0.14) / (6%)
Midwest		\$2.19	\$2.36	(\$0.17) / (7%)
Gulf Coast		\$2.18	\$2.29	(\$0.10) / (5%)
Rocky Mountain		\$2.21	\$2.30	(\$0.09) / (4%)
West Coast		\$2.35	\$2.36	(\$0.01) / 0%
<i>Compressed Natural Gas (\$ per GGE)</i>		<i>National Average</i>	\$1.64	\$1.63
	New England	\$2.30	\$2.54	(\$0.24) / (9%)
	Central Atlantic	\$2.02	\$1.98	\$0.04 / 2%
	Lower Atlantic	\$1.61	\$1.66	(\$0.06) / (3%)
	Midwest	\$1.72	\$1.82	(\$0.10) / (5%)
	Gulf Coast	\$1.57	\$1.67	(\$0.10) / (6%)
	Rocky Mountain	\$1.15	\$0.88	\$0.27 / 30%
	West Coast	\$1.75	\$1.81	(\$0.06) / (3%)
	<i>Ethanol (E85) (\$ per gallon)</i>	<i>National Average</i>	\$1.88	\$1.81
New England		\$2.55	\$1.59	\$0.96 / 61%
Central Atlantic		\$1.98	\$1.91	\$0.06 / 3%
Lower Atlantic		\$1.86	\$1.78	\$0.08 / 4%
Midwest		\$1.83	\$1.79	\$0.05 / 3%
Gulf Coast		\$1.73	\$1.77	(\$0.04) / (2%)
Rocky Mountain		\$1.78	\$1.68	\$0.10 / 6%
West Coast		\$2.14	\$2.19	(\$0.05) / (2%)



## CLEAN CITIES ALTERNATIVE FUEL PRICE REPORT

APRIL 2009

Table 12. Comparison of Prices, Last Price Report versus Current Price Report

		<i>Price for April 2009 Period</i>	<i>Price for January 2009 Period</i>	<i>Price Differential April vs. January</i>
<i>Propane (\$ per gallon)</i>	<i>National Average</i>	\$2.58	\$2.73	(\$0.16) / (6%)
	New England	\$2.87	\$2.97	(\$0.09) / (3%)
	Central Atlantic	\$2.96	\$3.12	(\$0.17) / (5%)
	Lower Atlantic	\$2.83	\$2.80	\$0.04 / 1%
	Midwest	\$2.63	\$3.06	(\$0.43) / (14%)
	Gulf Coast	\$2.21	\$2.33	(\$0.12) / (5%)
	Rocky Mountain	\$2.23	\$2.25	(\$0.02) / (1%)
	West Coast	\$2.48	\$2.50	(\$0.02) / (1%)
	<i>Biodiesel (B20) (\$ per gallon)</i>	<i>National Average</i>	\$2.49	\$2.67
New England		\$2.51	\$3.12	(\$0.61) / (20%)
Central Atlantic		\$3.03	\$2.99	\$0.04 / 1%
Lower Atlantic		\$2.30	\$2.50	(\$0.20) / (8%)
Midwest		\$2.20	\$2.48	(\$0.28) / (11%)
Gulf Coast		\$2.14	\$2.33	(\$0.20) / (8%)
Rocky Mountain		\$2.40	\$2.51	(\$0.11) / (4%)
West Coast		\$2.77	\$2.72	\$0.05 / 2%
<i>Biodiesel (B2-B5) (\$ per gallon)</i>		<i>National Average</i>	\$2.28	\$2.45
	New England	\$2.37	\$2.59	(\$0.22) / (9%)
	Central Atlantic	\$2.33	\$2.45	(\$0.13) / (5%)
	Lower Atlantic	\$2.19	\$2.50	(\$0.31) / (12%)
	Midwest	\$2.20	\$2.30	(\$0.10) / (4%)
	Gulf Coast	\$2.20	\$2.34	(\$0.14) / (6%)
	Rocky Mountain	\$2.37	\$2.35	\$0.02 / 1%
	West Coast	\$2.35	\$2.61	(\$0.27) / (10%)
	<i>Biodiesel (B99-B100) (\$ per gallon)</i>	<i>National Average</i>	\$3.27	\$3.47
New England		\$4.14	\$3.17	\$0.97 / 31%
Central Atlantic		\$3.73	\$3.67	\$0.06 / 2%
Lower Atlantic		\$2.90	\$4.03	(\$1.13) / (28%)
Midwest		\$2.65	\$3.05	(\$0.41) / (13%)
Gulf Coast		\$1.99	\$2.49	(\$0.50) / (20%)
Rocky Mountain		\$3.86	\$-.-	N/A
West Coast		\$3.21	\$3.48	(\$0.27) / (8%)

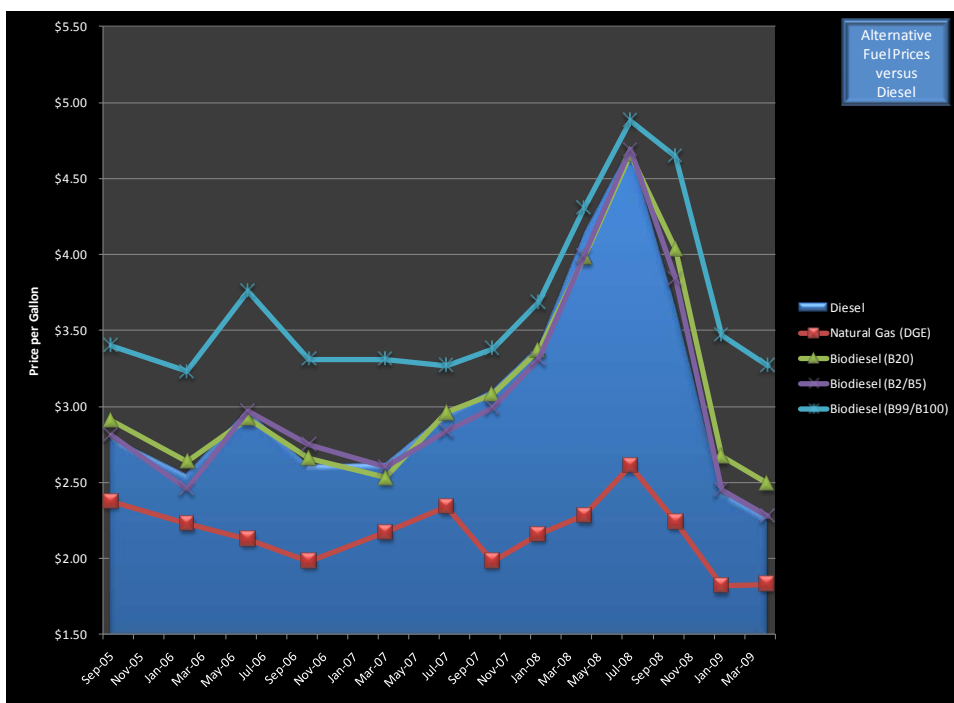
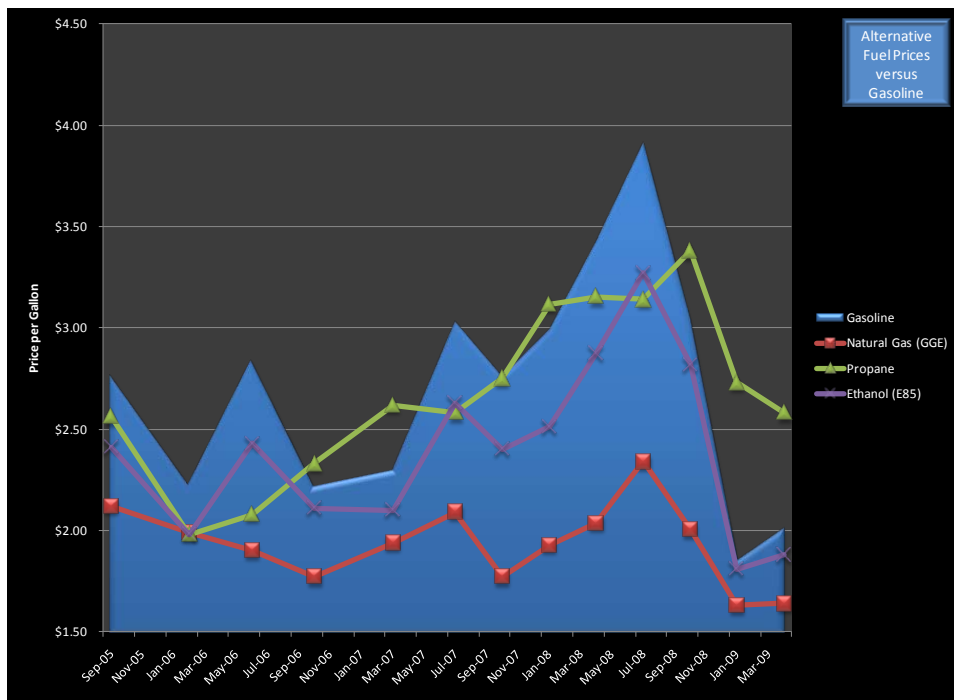


# CLEAN CITIES ALTERNATIVE FUEL PRICE REPORT

## HISTORICAL ALTERNATIVE FUEL PRICES FROM PREVIOUS REPORTS

APRIL 2009

The graphs on this page illustrate the historical prices for the alternative fuels included in these reports (specifically natural gas, propane, ethanol, and biodiesel) relative to gasoline and diesel. These graphs include prices collected as part of the current Price Report activity, which began in September 2005. Natural gas (in GGE), propane, and ethanol have been graphed against gasoline prices, while natural gas (in DGE) and biodiesel have been graphed against diesel prices.





## CLEAN CITIES ALTERNATIVE FUEL PRICE REPORT

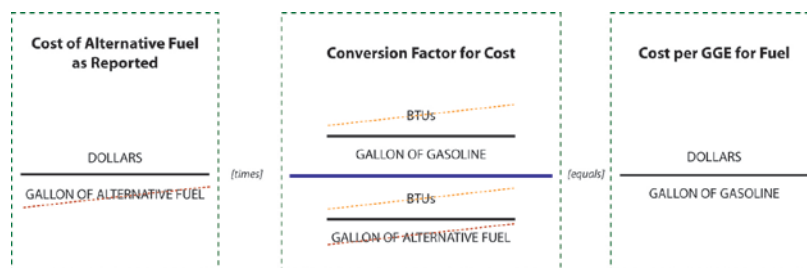
APRIL 2009

### ILLUSTRATION OF CONVERSION FACTORS FOR FUELS

The standard lower heating values for fuels from the Transportation Energy Databook 26 are listed below.

	Lower Heating Value
Gasoline	115,400 BTU/gal
Diesel	128,700 BTU/gal
Compressed Natural Gas	960 BTU/cubic foot
Ethanol	75,670 BTU/gal
Propane	83,500 BTU/gal
Biodiesel	117,093 BTU/gal

Conversion factors to establish prices in dollars per gasoline equivalent gallon are illustrated below, and were developed using the lower heating values outlined above. The conversion factors are derived in the manner shown in the graphic to the right.



In the case of CNG, prices are provided to us in GGE, so no conversion is necessary (the representative heating value of CNG is provided above as a reference). To convert a price from dollars per gallon to dollars per gasoline equivalent gallon, multiply the price per gallon by the conversion factor.

	Conversion factor to GGE
CNG	1.00
Ethanol (E85)	1.41
Propane	1.38
Biodiesel (B20)	0.91
Biodiesel (B2)	0.90
Biodiesel (B100)	0.99

Conversion factors to establish prices in dollars per diesel equivalent gallon are illustrated below, and were developed using the lower heating values outlined above. To convert a price from dollars per gallon to dollars per diesel equivalent gallon, multiply the price per gallon by the conversion factor.

	Conversion factor to DGE
Ethanol (E85)	1.58
Propane	1.54
CNG (in GGE)	1.12
Biodiesel (B20)	1.02
Biodiesel (B2)	1.00
Biodiesel (B100)	1.10



## CLEAN CITIES ALTERNATIVE FUEL PRICE REPORT

APRIL 2009

### ACKNOWLEDGEMENTS

The authors would like to acknowledge all of the contributors from the Clean Cities community who have provided prices for this report: we sincerely appreciate your continued dedication to the success of this report. The authors would also like to acknowledge the continued support of DOE for developing this report.

### WOULD YOU LIKE TO PARTICIPATE?

If you would like to provide prices for alternative fuels in your region and be part of the data collection effort for this report, please contact:

Michael D. Laughlin  
New West Technologies, LLC  
4351 Garden City Drive, Suite 600  
Landover, MD 20785  
(301) 429-1180 (phone)  
(301) 429-1185 (FAX)  
[mldughlin@nwttech.com](mailto:mldughlin@nwttech.com)

### DISCLAIMER

This document highlights work sponsored by agencies of the U.S. Government. Neither the U.S. Government nor any agency thereof, nor any of their employees, makes any warranty, express or implied, or assumes any legal liability or responsibility for the accuracy, completeness, or usefulness of any information, apparatus, product, or process disclosed, or represents that its use would not infringe privately owned rights. Reference herein to any specific commercial product, process, or service by trade name, trademark, manufacturer, or otherwise does not necessarily constitute or imply its endorsement, recommendation, or favoring by the U.S. Government or any agency thereof. The views and opinions of authors expressed herein do not necessarily state or reflect those of the U.S. Government or any agency thereof.