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## Clean Cities Alternative Fuel Price Report



January 2008

## WELCOME!

Welcome to the January 2008 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 January 21, 2008 and January 31, 2008 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 January 21, 2008 and January 31, 2008. 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.

Overall nationwide average prices for conventional and alternative fuels are shown in Table 1. ${ }^{1}$ As this table illustrates, alternative fuel prices relative to conventional fuels vary, with some ( $100 \%$ biodiesel) higher and some (propane, E85 and CNG) lower. CNG is about a dollar less than gasoline on an energy-equivalent basis, while E85 is about 48 cents less per gallon than gasoline. Propane is about 13 cents per gallon more than gasoline. B2/B5 prices for low-level blends are lower than regular diesel by about 9 cents, and B20 blends are the same as regular diesel. B99/B100 blends have a cost of about 29 cents per gallon more than regular diesel.

Relative to the last report from October 2007, the average prices for all of the fuels included in this price report have increased, by as much as 37 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 ${ }^{2}$. 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 ${ }^{3}$. 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. January 2008 Overall Average Fuel Prices on Energy-Equivalent Basis

|  | Nationwide <br> Average Price in <br> Gasoline Gallon <br> Equivalents | Nationwide <br> Average Price in <br> Diesel Gallon <br> Equivalents | Nationwide <br> Average Price in <br> Dollars per <br> Million Btu |
| :--- | :---: | :---: | :---: |
| Gasoline | $\$ 2.99$ | $\$ 3.33$ | $\$ 25.90$ |
| Diesel | $\$ 3.05$ | $\$ 3.40$ | $\$ 26.40$ |
| CNG | $\$ 1.93$ | $\$ 2.15$ | $\$ 16.72$ |
| Ethanol (E85) | $\$ 3.55$ | $\$ 3.96$ | $\$ 30.79$ |
| Propane | $\$ 4.31$ | $\$ 4.80$ | $\$ 37.33$ |
| Biodiesel (B20) | $\$ 3.08$ | $\$ 3.43$ | $\$ 26.69$ |
| Biodiesel (B2-B5) | $\$ 2.98$ | $\$ 3.32$ | $\$ 25.79$ |
| Biodiesel (B99-B100) | $\$ 3.63$ | $\$ 4.05$ | $\$ 31.49$ |

[^0]Table 1. Overall Average Fuel Prices

|  | Nationwide <br> Average Price for <br> Fuel This Report | Nationwide <br> Average Price for <br> Fuel Last Report | Change in Price <br> This Report vs. <br> Last Report | Units of <br> Measurement |
| :--- | :---: | :---: | :---: | :---: |
| Gasoline (Regular) | $\$ 2.99$ | $\$ 2.76$ | $\$ 0.23$ | per gallon |
| Diesel | $\$ 3.40$ | $\$ 3.11$ | $\$ 0.29$ | per gallon |
| CNG | $\$ 1.93$ | $\$ 1.77$ | $\$ 0.16$ | per GGE |
| Ethanol (E85) | $\$ 2.51$ | $\$ 2.40$ | $\$ 0.11$ | per gallon |
| Propane | $\$ 3.12$ | $\$ 2.75$ | $\$ 0.37$ | per gallon |
| Biodiesel (B20) | $\$ 3.37$ | $\$ 3.08$ | $\$ 0.29$ | per gallon |
| Biodiesel (B2-B5) | $\$ 3.31$ | $\$ 2.99$ | $\$ 0.32$ | per gallon |
| Biodiesel (B99-B100) | $\$ 3.69$ | $\$ 3.38$ | $\$ 0.31$ | per gallon |

CLEAN CITIES ALTERNATIVE FUEL PRICE REPORT
GASOLINE AND DIESEL PRICES

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. About 500 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 <br> 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 | \$3.21 / 0.15 | 36 | \$3.60 / 0.12 | 30 |
| Central Atlantic | \$3.11 / 0.16 | 40 | \$3.53 / 0.15 | 38 |
| Lower Atlantic | \$2.97 / 0.12 | 74 | \$3.36 / 0.12 | 60 |
| Midwest | \$2.93 / 0.11 | 192 | \$3.37 / 0.32 | 109 |
| Gulf Coast | \$2.89 / 0.05 | 43 | \$3.30 / 0.07 | 38 |
| Rocky Mountain | \$2.88 / 0.13 | 35 | \$3.26 / 0.23 | 43 |
| West Coast | \$3.09 / 0.21 | 81 | \$3.47 / 0.18 | 67 |
| NATIONAL AVERAGE | \$2.99 / 0.17 | 501 | \$3.40 / 0.24 | 385 | were collected for gasoline and 385 for diesel, with average prices for gasoline ranging from a low of $\$ 2.88$ per gallon in the Rocky Mountain region to a high of $\$ 3.21$ per gallon in New England. Diesel prices ranged from $\$ 3.26$ in the Rocky Mountain region to $\$ 3.60$ in New England. 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/pet roleum.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 matches relatively closely with the averages from the station information collected from Clean Cities stakeholders. Given the relatively good match of averages calculated from EIA and from Clean Cities data, 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 <br> Price from EIA, <br> Week of 1/21/08 | Diesel Average <br> Price from EIA, <br> Week of 1/21/08 |
| :--- | :---: | :---: |
| New England | $\$ 3.09$ | $\$ 3.59$ |
| Central Atlantic | $\$ 3.11$ | $\$ 3.47$ |
| Lower Atlantic | $\$ 3.02$ | $\$ 3.26$ |
| Midwest | $\$ 2.96$ | $\$ 3.23$ |
| Gulf Coast | $\$ 2.90$ | $\$ 3.22$ |
| Rocky Mountain | $\$ 2.93$ | $\$ 3.23$ |
| West Coast | $\$ 3.16$ | $\$ 3.33$ |
| NATIONAL AVERAGE | $\$ 3.02$ | $\$ 3.27$ |



CLEAN CITIES ALTERNATIVE FUEL PRICE REPORT COMPRESSED NATURAL GAS (RELATIVE TO GASOLINE)

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 under three hundred CNG prices were collected in this

Table 5. Compressed Natural Gas Average Prices by Region from Clean Cities Sources
$\left.\begin{array}{lcccc} & \begin{array}{c}\text { Natural Gas (CNG) Information } \\ \text { Reported by Clean Cities (\$/gge) } \\ \text { Average Price } \\ \text { /Standard }\end{array} & \begin{array}{c}\text { Number of Data } \\ \text { Points }\end{array} & \begin{array}{c}\text { Regular Gasoline Information } \\ \text { Reported by Clean Cities (\$/gal) }\end{array} \\ \text { Average Price } \\ \text { / Standard } \\ \text { Deviation of Price }\end{array} \quad \begin{array}{c}\text { Number of Data } \\ \text { Points }\end{array}\right]$ report ${ }^{4}$.

As Table 5 illustrates by region, CNG has a lower price than gasoline for all regions of the country for which prices were obtained, with the largest difference ( $\$ 1.67$ per gge) being in the Rocky Mountain region. On average, CNG costs about $\$ 1.06$ 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 all of the states for which information was collected.


[^1]CLEAN CITIES ALTERNATIVE FUEL PRICE REPORT COMPRESSED NATURAL GAS (RELATIVE TO DIESEL)

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.

As Table 6 illustrates by region, CNG has a lower price than diesel for all regions of the country, with the largest difference ( $\$ 1.90$ per dge) being in the Rocky Mountain region. On average, CNG costs about $\$ 1.25$ 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 generally favorable, as the map shows.



CLEAN CITIES ALTERNATIVE FUEL PRICE REPORT
JANUARY 2008
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

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

|  | $\begin{array}{c}\text { Ethanol (E85) Information } \\ \text { Reported by Clean Cities (\$ per gal) } \\ \text { Average Price } \\ \text { /Standard }\end{array}$ |  | $\begin{array}{c}\text { Number of Data } \\ \text { Points }\end{array}$ | $\begin{array}{c}\text { Regular Gasoline Information } \\ \text { Reported by Clean Cities (\$ per gal) } \\ \text { Average Price } \\ \text { / Standard } \\ \text { Deviation of Price }\end{array}$ |
| :--- | :---: | :---: | :---: | :---: | \(\left.\begin{array}{c}Number of Data <br>

Points\end{array}\right]\) voluntary basis. Over 250 prices for ethanol were collected in this data collection effort. Data collection was not uniform across regions of the country, but as the majority of operational ethanol stations are in the Midwest, data collection generally mirrored the density of refueling.

Note that E85 has a lower average price per gallon than regular gasoline in all regions except New England (see Table 7). On average, E 85 is about 48 cents lower in price than regular gasoline on a per-gallon basis, with the largest average differential ( 60 cents) being found in the Rocky Mountain region. 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 much of the area for which prices were available: the best pricing was in the upper Midwest, as would be generally expected.



CLEAN CITIES ALTERNATIVE FUEL PRICE REPORT

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

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

|  | $\begin{array}{c}\text { Propane Information } \\ \text { Reported by Clean Cities (\$ per gal) } \\ \text { Average Price } \\ \text { /Standard }\end{array}$ |  | $\begin{array}{c}\text { Number of Data } \\ \text { Points }\end{array}$ | $\begin{array}{c}\text { Regular Gasoline Information } \\ \text { Reported by Clean Cities (\$ per gal) } \\ \text { Average Price } \\ \text { / Standard } \\ \text { Deviation of Price }\end{array}$ |
| :--- | :---: | :---: | :---: | :---: | \(\left.\begin{array}{c}Number of Data <br>

Points\end{array}\right]\) 100 propane prices were collected in this reporting period.

As Table 8 illustrates regionally, propane prices are lower in some regions (New England, Gulf Coast, Rocky Mountain, and West Coast) and higher in the remainder. Overall, propane was about 13 cents per gallon more than gasoline. New England had the most favorable price situation in this report, with propane at 22 cents per gallon less than gasoline on average. 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.

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 generally favorable in Texas, California, Utah, and several East Coast states.



CLEAN CITIES ALTERNATIVE FUEL PRICE REPORT
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

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 <br> / Standard <br> Deviation of Price | Approximate Number of Stations | Average Price / Standard Deviation of Price | Approximate Number of Stations |
| New England | \$3.49 / 0.30 | 20 | \$3.60 / 0.12 | 30 |
| Central Atlantic | \$3.31 / 0.24 | 13 | \$3.53 / 0.15 | 38 |
| Lower Atlantic | \$3.36 / 0.14 | 20 | \$3.36 / 0.12 | 60 |
| Midwest | \$3.31 / 0.28 | 24 | \$3.37 / 0.32 | 109 |
| Gulf Coast | \$3.37 / 0.12 | 5 | \$3.30 / 0.07 | 38 |
| Rocky Mountain | \$3.32 / 0.23 | 30 | \$3.26 / 0.23 | 43 |
| West Coast | \$3.45 / 0.24 | 22 | \$3.47 / 0.18 | 67 |
| NATIONAL AVERAGE | \$3.37 / 0.25 | 134 | \$3.40 / 0.24 | 385 | voluntary basis. Just over 100 prices were obtained for B20 across the country.

As Table 9 illustrates, biodiesel in a B20 blend has an average price per gallon that is generally close to conventional diesel fuel (ranging from 8 cents more to 22 cents less per gallon). Based on calculations of standard deviation on B20 prices, variability in B20 prices was relatively close to the variability in price of conventional diesel by region (as would probably be expected, given that $80 \%$ of the B20 blend is regular diesel fuel). On average in the U.S., biodiesel in a B20 blend costs about the same per gallon as 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 Pennsylvania and New York in this time period.



CLEAN CITIES ALTERNATIVE FUEL PRICE REPORT
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

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 | -- / -- | - | \$3.60 / 0.12 | 30 |
| Central Atlantic | \$3.32 / 0.31 | 16 | \$3.53 / 0.15 | 38 |
| Lower Atlantic | \$3.25 / 0.19 | 9 | \$3.36 / 0.12 | 60 |
|  | \$3.30 / 0.11 | 17 | \$3.37 / 0.32 | 109 |
| Gulf Coast | \$3.19 / -- | 1 | \$3.30 / 0.07 | 38 |
| Rocky Mountain | \$3.42 / 0.15 | 4 | \$3.26 / 0.23 | 43 |
| West Coast | \$3.38 / 0.08 | 7 | \$3.47 / 0.18 | 67 |
| NATIONAL AVERAGE | \$3.31 / 0.20 | 54 | \$3.40 / 0.24 | 385 | stakeholders on a voluntary basis. A total of 54 prices were obtained from areas offering low-level biodiesel blends.

As Table 10 illustrates regionally, average prices for low-level blends of biodiesel are relatively close to average diesel prices (from 15 cents more to 21 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. The Central Atlantic region had the most favorable price structure for low-level biodiesel blends during this time period.

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. Pricing appears to be good in Pennsylvania and New York, and also favorable in the Midwest.



CLEAN CITIES ALTERNATIVE FUEL PRICE REPORT
JANUARY 2008
BIODIESEL BLENDS: B100/B99

Average prices for highlevel 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 37 price points were collected from stations offering B99/B100 for sale across the country.

As Table 11 illustrates regionally, the cost of B99/B100 is higher than the cost of diesel fuel per gallon in the regions for which data were collected (except the Gulf Coast), with the highest differential being 58 cents in the Rocky Mountain region. On average across the nation, B99/B100 is about 29 cents 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 generally higher than for diesel in the areas for which prices are available, save for Hawaii, Arizona, Oklahoma, Texas, and Florida.

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 | -- / -- | -- | \$3.60 / 0.12 | 30 |
| Central Atlantic | \$3.94 / 0.66 | 6 | \$3.53 / 0.15 | 38 |
| Lower Atlantic | \$3.64 / 0.31 | 5 | \$3.36 / 0.12 | 60 |
|  | \$3.54 / 0.43 | 4 | \$3.37 / 0.32 | 109 |
| Gulf Coast | \$3.19 / -- | 1 | \$3.30 / 0.07 | 38 |
| Rocky Mountain | \$3.85 / 0.35 | 2 | \$3.26 / 0.23 | 43 |
| West Coast | \$3.66 /0.28 | 19 | \$3.47 / 0.18 | 67 |
| NATIONAL AVERAGE | \$3.69 / 0.39 | 37 | \$3.40 / 0.24 | 385 | aluntary basis. About 37



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

Table 12 below summarizes the average prices collected for this report by region, and compares them to prices collected in the Price Report from October 2007. Virtually all fuels increased in price somewhat in each region between October 2007 and January 2008. 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

|  |  | Price for January 2008 Period | Price for October 2007 Period | Price Differential January vs. October |
| :---: | :---: | :---: | :---: | :---: |
| Gasoline (\$ per gallon) | National Average | \$2.99 | \$2.76 | \$0.23 / 8\% |
|  | New England | \$3.21 | \$2.84 | \$0.37 / 13\% |
|  | Central Atlantic | \$3.11 | \$2.77 | \$0.34 / 12\% |
|  | Lower Atlantic | \$2.97 | \$2.71 | \$0.26 / 9\% |
|  | Midwest | \$2.93 | \$2.72 | \$0.21 / 8\% |
|  | Gulf Coast | \$2.89 | \$2.69 | \$0.20 / 7\% |
|  | Rocky Mountain | \$2.88 | \$2.84 | \$0.04 / 1\% |
|  | West Coast | \$3.09 | \$2.92 | \$0.17 / 6\% |
| Diesel (\$ per gallon) | National Average | \$3.40 | \$3.11 | \$0.29 / 9\% |
|  | New England | \$3.60 | \$3.16 | \$0.44 / 14\% |
|  | Central Atlantic | \$3.53 | \$3.13 | \$0.40 / 13\% |
|  | Lower Atlantic | \$3.36 | \$3.01 | \$0.35 / 11\% |
|  | Midwest | \$3.37 | \$3.09 | \$0.28 / 9\% |
|  | Gulf Coast | \$3.30 | \$2.98 | \$0.32 / 11\% |
|  | Rocky Mountain | \$3.26 | \$3.16 | \$0.10 / 3\% |
|  | West Coast | \$3.47 | \$3.21 | \$0.26 / 8\% |
| Compressed Natural Gas (\$ per GGE) | National Average | \$1.93 | \$1.77 | \$0.16 / 9\% |
|  | New England | \$2.33 | \$2.30 | \$0.03 / 1\% |
|  | Central Atlantic | \$2.41 | \$2.10 | \$0.31 / 15\% |
|  | Lower Atlantic | \$1.86 | \$1.74 | \$0.12 / 7\% |
|  | Midwest | \$1.78 | \$1.81 | (\$0.03) / (2\%) |
|  | Gulf Coast | \$2.20 | \$2.21 | (\$0.01) / (1\%) |
|  | Rocky Mountain | \$1.21 | \$1.06 | \$0.15 / 14\% |
|  | West Coast | \$2.44 | \$2.33 | \$0.11 / 5\% |
| Ethanol (E85) (\$ per gallon) | National Average | \$2.51 | \$2.40 | \$0.11 / 5\% |
|  | New England | \$4.50 | -- | -- |
|  | Central Atlantic | \$2.68 | \$2.49 | \$0.19 / 8\% |
|  | Lower Atlantic | \$2.74 | \$2.49 | \$0.25 / 10\% |
|  | Midwest | \$2.50 | \$2.29 | \$0.21 / 9\% |
|  | Gulf Coast | \$2.61 | \$2.57 | \$0.04 / 2\% |
|  | Rocky Mountain | \$2.27 | \$2.63 | (\$0.36) / (14\%) |
|  | West Coast | \$2.62 | \$2.55 | \$0.07 / 3\% |

CLEAN CITIES ALTERNATIVE FUEL PRICE REPORT
Table 12. Comparison of Prices, Last Price Report versus Current Price Report

|  |  | Price for January 2008 Period | Price for October 2007 Period | Price Differential January vs. October |
| :---: | :---: | :---: | :---: | :---: |
| Propane (\$ per gallon) | National Average | \$3.12 | \$2.75 | \$0.37 / 13\% |
|  | New England | \$2.99 | \$2.43 | \$0.56 / 23\% |
|  | Central Atlantic | \$3.82 | \$3.53 | \$0.29 / 8\% |
|  | Lower Atlantic | \$3.04 | \$2.73 | \$0.31 / 11\% |
|  | Midwest | \$2.99 | \$2.66 | \$0.33 / 12\% |
|  | Gulf Coast | \$2.82 | \$2.35 | \$0.47 / 20\% |
|  | Rocky Mountain | \$2.74 | \$2.26 | \$0.48 / 21\% |
|  | West Coast | \$3.02 | \$2.63 | \$0.39 / 15\% |
| Biodiesel (B20) (\$ per gallon) | National Average | \$3.37 | \$3.08 | \$0.29 / 10\% |
|  | New England | \$3.49 | \$3.10 | \$0.39 / 13\% |
|  | Central Atlantic | \$3.31 | \$2.86 | \$0.45 / 16\% |
|  | Lower Atlantic | \$3.36 | \$3.00 | \$0.36 / 12\% |
|  | Midwest | \$3.31 | \$3.00 | \$0.31 / 10\% |
|  | Gulf Coast | \$3.37 | \$2.96 | \$0.41 / 14\% |
|  | Rocky Mountain | \$3.32 | \$3.30 | \$0.02 / 1\% |
|  | West Coast | \$3.45 | \$3.34 | \$0.11 / 3\% |
| Biodiesel (B2-B5) (\$ per gallon) | National Average | \$3.31 | \$2.99 | \$0.32 / 11\% |
|  | New England | -- | \$3.07 | -- |
|  | Central Atlantic | \$3.32 | \$3.10 | \$0.22 / 7\% |
|  | Lower Atlantic | \$3.25 | \$2.96 | \$0.29 / 10\% |
|  | Midwest | \$3.30 | \$2.99 | \$0.31 / 10\% |
|  | Gulf Coast | \$3.19 | \$2.94 | \$0.25 / 9\% |
|  | Rocky Mountain | \$3.42 | \$3.19 | \$0.23 / 7\% |
|  | West Coast | \$3.38 | \$3.10 | \$0.28 / 9\% |
| Biodiesel (B99-B100) (\$ per gallon) | National Average | \$3.69 | \$3.38 | \$0.31 / 9\% |
|  | New England | -- | -- | -- |
|  | Central Atlantic | \$3.94 | \$3.54 | \$0.40 / 11\% |
|  | Lower Atlantic | \$3.64 | \$3.38 | \$0.26 / 8\% |
|  | Midwest | \$3.54 | \$3.07 | \$0.47 / 15\% |
|  | Gulf Coast | \$3.19 | \$2.94 | \$0.25 / 9\% |
|  | Rocky Mountain | \$3.85 | -- | -- |
|  | West Coast | \$3.66 | \$3.48 | \$0.18 / 5\% |

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.



## 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 | $115,400 \mathrm{BTU} / \mathrm{gal}$ |
| Diesel | $128,700 \mathrm{BTU} / \mathrm{gal}$ |
| Compressed Natural Gas | $960 \mathrm{BTU} / \mathrm{cubic}$ foot |
| Ethanol | $75,670 \mathrm{BTU} / \mathrm{gal}$ |
| Propane | $83,500 \mathrm{BTU} / \mathrm{gal}$ |
| Biodiesel | $117,093 \mathrm{BTU} / \mathrm{gal}$ |

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 <br> 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 <br> 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 |

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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:

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[^0]:    ${ }_{2}^{1}$ A very small sample of hydrogen information was received ( 7 prices total): average price for hydrogen was $\$ 17.69$ per gge in this report.
    ${ }^{2}$ A listing of the conversion factors used appears as an appendix at the end of this report.
    ${ }^{3}$ 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.

[^1]:    ${ }^{\text {4 }}$ 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.

