

## FUEL PROPERTIES COMPARISON CHART<sup>1</sup>

	Gasoline	No. 2 Diesel	Compressed and Liquified Natural Gas	Electricity	Ethanol (E85)	Hydrogen
Main Fuel Source	Crude Oil	Crude Oil	Underground reserves	Coal, nuclear, natural gas, hydroelectric, wind, and solar	Corn, grains, or agricultural waste (cellulose)	Natural gas, methanol, and electrolysis of water
Energy Content as Compared to One Gallon of Gasoline	100%	One gallon of diesel has 113% of the energy of one gallon of gasoline.	5.66 lbs or 126.7 ft <sup>3</sup> of CNG has 100% of the energy of one gallon of gasoline. One gallon of LNG has 64%.	33.7 kWh has 100% of the energy of one gallon of gasoline.	One gallon of E85 has 77% of the energy of one gallon of gasoline.	One kg or 2.2 lbs of H <sup>2</sup> has 100% of the energy of one gallon of gasoline.
Energy Security Impacts	Manufactured using oil, of which nearly ⅔ is imported.	Manufactured using oil, of which nearly ⅔ is imported.	Produced domestically. The US has vast natural gas reserves.	Generation is 8% coal, 11% large hydroelectric, 42% natural gas, 14% nuclear, 14% renewable, and 11% other sources. <sup>2</sup>	Produced domestically. E85 reduces lifecycle petroleum use by 70%, and E10 reduces it by 6.3%.	Produced domestically, primarily from natural gas, but can be produced from renewable sources.
Number of Light-Duty Vehicles in California (2009) <sup>3</sup>	25,240,074 <sup>4</sup>	462,936	24,819	15,031 <sup>5</sup>	409,636 (Flex Fuel)	178 <sup>6</sup>
Number of Alternative Fueling Stations in California	N/A	N/A	CNG: 224; LNG: 35	992 (excludes home stations)	62	22
Price per Gallon (unless otherwise denoted) <sup>7</sup>	\$3.77	\$4.14	\$2.45/gasoline gallon equivalent		\$3.36	\$7/kg <sup>6</sup>
Vehicular Maintenance Issues			High-pressure tanks require periodic inspection and certification.	Fewer than with gasoline or diesel; however, it is likely that the battery will need replacement before the vehicle is retired.	Special lubricants may be required. Practices are similar to those for conventionally-fueled operations.	When hydrogen is used in fuel cell applications, maintenance should be minimal.

<sup>1</sup>Chart modified from: US Department of Energy (DOE): <http://www.afdc.energy.gov/afdc/fuels/properties.html>.

<sup>2</sup>Data sourced for California from California Energy Commission: [http://www.energyalmanac.ca.gov/electricity/total\\_system\\_power.html](http://www.energyalmanac.ca.gov/electricity/total_system_power.html).

<sup>3</sup>Data sourced from: Schremp, G.; M. Weng-Gutierrez, R. Eggers, A. Bahreinian, J. Gage, Y. van der Werf, G. Zipay, B. McBride, L. Lawson, G. Yowell. 2011. Transportation Energy Forecasts and Analyses for the 2011 Integrated Energy Policy Report. California Energy Commission. CEC-600-2011-007-SD.

<sup>4</sup>Hybrid vehicles account for an additional 384,567 vehicles.

<sup>5</sup>Includes Neighborhood Electric Vehicles.

<sup>6</sup>Data sourced from the California Fuel Cell Partnership.

<sup>7</sup>Data sourced for West Coast from: US DOE. July 2011. Clean Cities Alternative Fuel Price Report. [http://www.afdc.energy.gov/afdc/pdfs/afpr\\_jul\\_11.pdf](http://www.afdc.energy.gov/afdc/pdfs/afpr_jul_11.pdf)