Internal Combustion Engine Cars Fact Sheet

IC Engine Fuels (HHV)
IC engine cars can operate using a variety of fuels
• Gasoline - regular 87 octane (124,340 Btu/gal)
• Diesel – No.2 (137,380 Btu/gal)
• Biodiesel (127,042 Btu/gal)
• Ethanol – E100 (84,530 Btu/gal)
• Natural Gas (22,453 Btu/lb)
• Propane – LPG (91,410 Btu/gal)

Domestic Energy Consumed by Mode of Transportation

2012 US Car Sales
- Passenger and Commercial Vehicles: 4,976,954
- Hybrid Vehicles: 431,798

Carbon Intensities (CO₂/ kWhr)
- Gasoline: 0.265 kg
- Electric: 0.539
- Diesel: 0.252

Domestic CO₂ Pollution For Highway Vehicles

IC Engine Alternative Fuel Vehicles in Use in the U.S.

Trends and Innovations in Technology
- CAFÉ Standards regulating minimum allowable fuel efficiencies for consumer automobiles are set to steadily increase until 2025
- With Tesla’s mission with its Gigafactory, electric car battery cost might decrease to the point where electric vehicles stand as a viable alternative to internal combustion vehicles
- If half of the passenger vehicles in the US were replaced with 100% electric vehicles, CO₂ emissions produced from passenger vehicles would increase by 60.7%
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**IC Engine Fuels (HHV)**

- Data came from the US Department of Energy

**Domestic Energy Consumed by Mode of Transportation**

Graph from US Department of Transportation


Car Sales from US Department of Transportation


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**Domestic CO₂ Pollution For Highway Vehicles**

- CO₂ pollution was calculated assuming gasoline carbon intensity of 19.56 lbs CO₂ per gallon
- Data from the US Department of Transportation alternative fuel consumption in terms of equivalent gallons of gasoline


**IC Engine Alternative Fuel Vehicles in Use in the U.S.**

- Data from the US Department of Energy Alternative Fuel Data Center

[http://www.afdc.energy.gov/data/10300](http://www.afdc.energy.gov/data/10300)

**2013 Global Car Production**

- Global Car Production from the International Organization of Motor Vehicle Manufacturers (OICA)


- CAFE Standards


**Trends and Innovations in Technology**

- Tesla Gigafactory


- Calculated values assuming that all passenger US vehicles were gasoline internal combustion engine.

- Energy consumption by mode of transportation was taken from the US Department of Transportation