

Car Comparisons

2007 Toyota FJ Cruiser	2000 Volkswagen Jetta-Diesel
Cost: \$21,910	Cost: \$7,700
Transmission: Automatic	Transmission: Manual 5-Speed
Engine: DOHC 24-Valve SFI VVt-I V6	Engine: Turbo Direct Injection (TDI)
Size: 4.0 L	Size: 1.9 L
Horsepower: 239	Horsepower: 100
Drive: Four Wheel Drive	Drive: Front Wheel Drive
City Mileage: 16	City Mileage: 42
Highway Mileage: 19	Highway Mileage: 49
EPA Air Pollution Score: 6/10	EPA Air Pollution Score: 0/10
EPA Greenhouse Gas Score: 6/10	Greenhouse Gas Score: 9/10

<http://www.epa.gov/greenvehicles>
<http://www.edmunds.com/?mktcat=edmunds&kw=edmunds&mktid=ga242098search>

Fuel Type: Gasoline is made from crude oil, which was formed from the remains of tiny aquatic plants and animals that lived hundreds of millions of years ago. These remains were covered with layers of sediment, which over millions of years of extreme pressure and high temperatures became the mix of liquid hydrocarbons (an organic chemical compound of hydrogen and carbon) that we know as crude oil. Because crude oil is made up of a mixture of hydrocarbons, refineries break down these hydrocarbons into different products. These "refined products" include gasoline, diesel fuel, heating oil, jet fuel, liquefied petroleum gases, residual fuel oil, and many other products. <http://www.eia.doe.gov/ncic/brochure/gas04/gasoline.htm>

Fuel Type: Biodiesel is a cleaner-burning, renewable fuel made from animal or vegetable fats and oils, and alcohol. The fuel properties of biodiesel are very similar to those of petroleum diesel and biodiesel has the potential for replacing petroleum diesel in many applications. Biodiesel can be readily integrated into the existing petroleum diesel supply, transportation, and distribution infrastructure.

The original diesel engine designed by Rudolph Diesel in the 1890's used peanut oil. Because it was viewed as a waste of food, and because, at the time, petroleum products were less expensive, diesel engines were running on petrodiesel by 1900. However, Diesel had the foresight to state "the use of vegetable oils for engine fuels may seem insignificant today, but such oils may become, in the course of time, as important as petroleum and the coal-tar products of the present time."

Today, biodiesel can be used as a pure fuel or blended with petroleum in any percentage. B20 (a blend of 20 percent by volume biodiesel with 80 percent by volume petroleum diesel) is the most commonly used blend in the US. has demonstrated significant environmental benefits with a minimum increase in cost for fleet operations and other consumers.

<http://www.phillycleancities.org/biodiesel.htm#Q:%20What%20is%20biodiesel>

Emissions Testing: Emissions Testing:

Unburned Hydrocarbons -20%

Carbon Monoxide -12%

Particulate Matter -12%

Nox +2% to

-2%

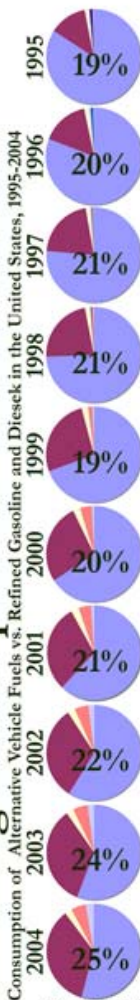
<http://www.biodiesel.org/resources/fuefactsheets/default.shtm>

One Year Comparison																	
Mileage	Miles from Home	Trip Miles	January	February	March	April	May	June	July	August	September	October	November	December	TOTAL TRIPS	TOTAL CITY MILES PER YEAR	TOTAL HIGHWAY MILES PER YEAR
School	5	10	19	19	17	19	22	9			18	21	11	11	166	1660	
Practice	5	10	12	7	6			10	12	12	12	2	5	10	88	880	
Extra-Curr	5	10	8	8	4	12	15	2		5	12	15	14	10	105	1050	
Church	9	18	3	5	3	5	3	8	7	9	3	2	3	5	56		1008
Work	3	6	7	8	8	7	8	10	20	15	8	4	8	9	112		672
Mall	6	12	5	8	7	8	2	9	8	7	5	6	5	5	75		900
Friend #1	3	6	25	26	20	25	18	30	28	24	14	15	12	10	247	1482	
Friend #2	8	16	5	6	7	2	8	10	15	18	2	5	8	4	90	1440	
Misc	25	50	3	5	7	2	8	15	10	5	5	9	10	5	84		4200
TOTALS															1023	6512	6780

2007 FJ Cruiser	MPG	City	16	Gas \$	\$2.85
		HWY	19	\$1,159.95	\$1,017.00
	Total Yearly Fuel Cost			\$2,176.95	
<i>2000 Volkswagen Jetta BioDiesel Conversion</i>	MPG	City	55	Gas \$	\$3.13
		HWY	62	\$385.84	\$342.28
	Total Yearly Fuel Cost			\$728.12	

My fuel research and how I came to the realization that I needed to look into a biodiesel car.

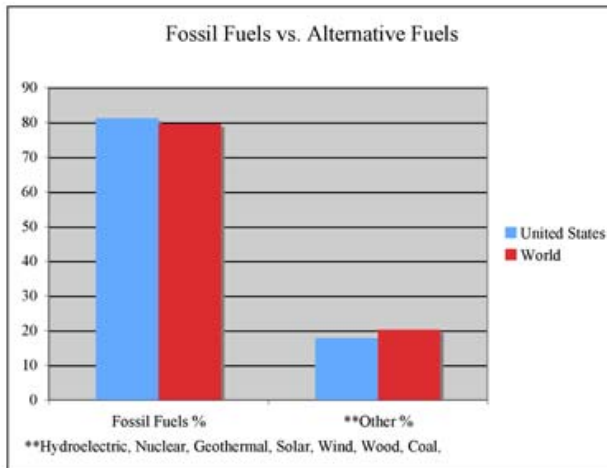
Breaking Our Dependence



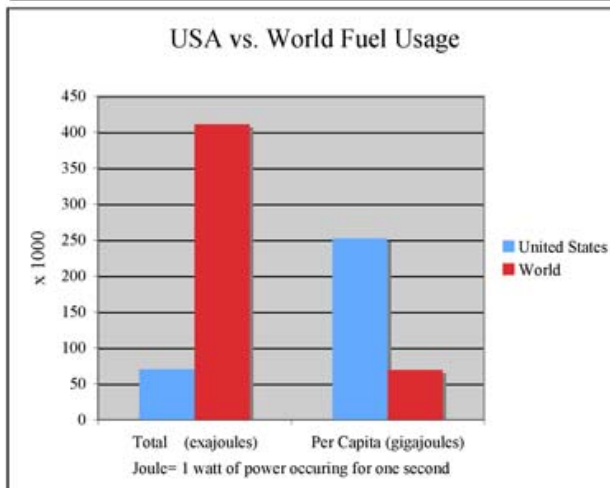
When I was trying to decide what type of car I wanted to buy I began I started with my favorite gasoline powered vehicle, the Toyota FJ Cruiser. It is a four-wheel drive beast that has power and style. But, as I researched the different types of fuels and their impact on the environment it became evident that I needed to look at alternative fuel cars. Looking at the chart to the left you will see that fossil fuels dominate the world market, but over a ten-year period that trend has swung towards other types of fuels. The two main choices for alternative fuel cars were hybrid (gas/electric) or biodiesel. The reason that I chose biodiesel was primarily the cost of the car. When I found that converting a Volkswagen Jetta TDI Diesel only cost \$2000.00 I was convinced that buying a cheaper used Jetta and converting it was my best bet. What you will see in the chart on the bottom of this page that I will save over \$1440.00 just by driving my Jetta instead of the FJ Cruiser. The two bar charts explain how the USA compares to the rest of the world in fuel consumption. After my research I found that I had to do the fiscally and environmentally correct thing and go alternative. The chart clearly explains that Americans use entirely too much fossil fuel per capita and that I can do my small part.



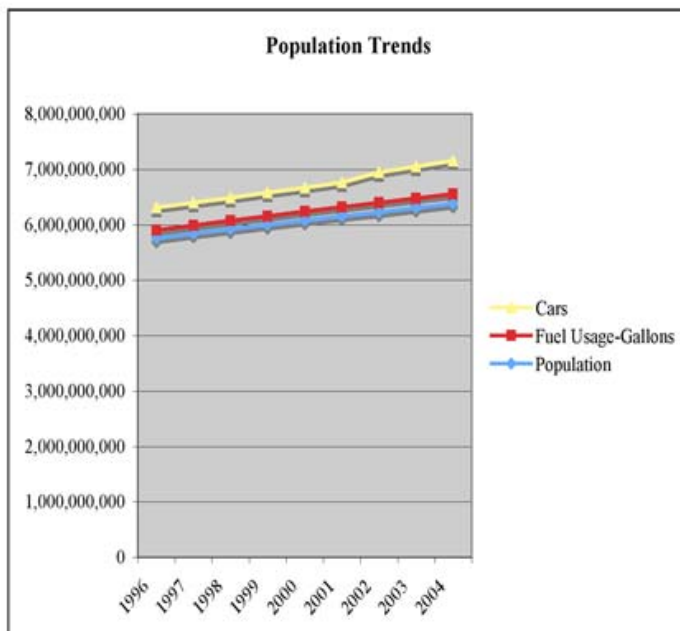
Source: <http://www.eia.doe.gov/fuelrenewable.html>



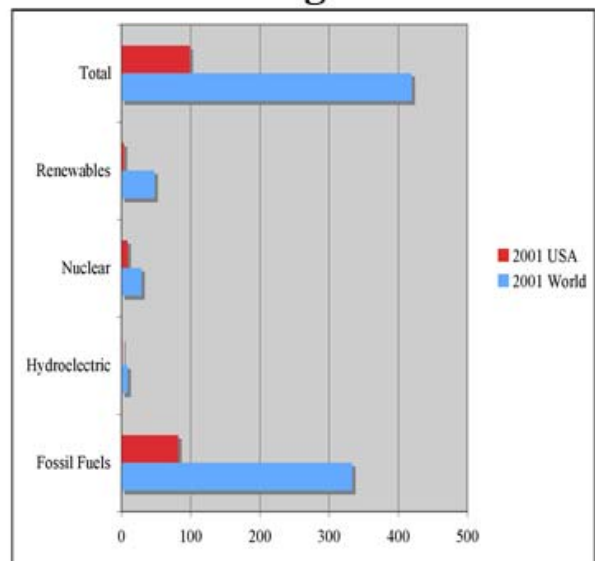
It is amazing that US uses that almost the same amount of fossil fuels as the rest of the world.



Science and Sustainability, Science Education for Public Understanding Program, University of California at Berkeley; 2005



Total Fuel Usage for the World



<http://www.census.gov/ipc/www/world.html>