

E-10 Unleaded

Ethanol is a normal component of today's gasoline.

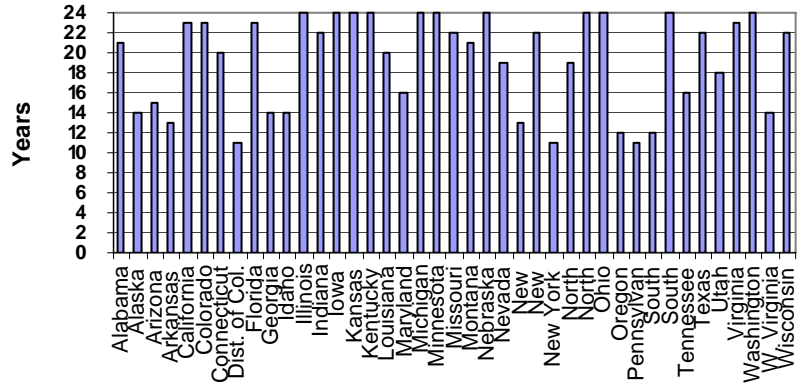
All gasoline-powered cars sold in the United States are designed to use gasoline containing up to 10% ethanol, also known as E-10 Unleaded.

In some states and large metropolitan areas, all of the gasoline contains ethanol, and has for several years.¹

Gasoline containing up to 10% ethanol has been available in over 41 states for more than 10 years.

Today, over 40% of the gasoline in the U.S. contains ethanol, and the percentage is projected to continue to increase.²

States With 10 or More Years of Fuel Ethanol Use



National Energy Policy

The United States' energy policy calls for increased use of alternative fuels for transportation. The national Renewable Fuels Standard requires 7.5 billion gallons of ethanol and biodiesel fuel to be incorporated into the nation's fuel supply by 2012. Current U.S. use of ethanol fuel is about 4 billion gallons per year.

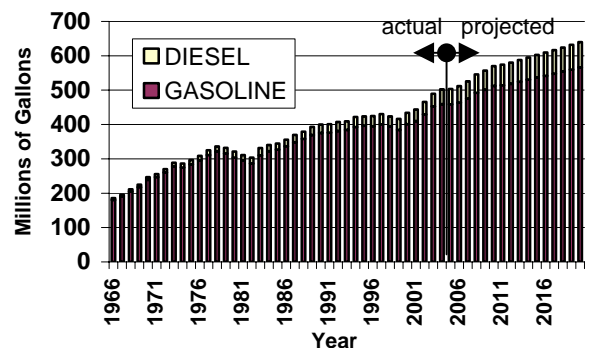
State Energy Policy

Cost-effective, reliable fuel supplies are essential for Hawaii's economy.

Hawaii's need for ground transportation fuels is projected to increase. Renewable fuels can contribute to Hawaii's energy supply, as well as to several of Hawaii's energy objectives.

Diversification of fuel supplies can reduce Hawaii's future dependence on imported fossil fuels and the impacts of oil price increases or supply disruptions.

Hawaii's Ground Transportation Fuel Demand



¹ All of Minnesota, since 1997; Chicago and Milwaukee, since 1999; St. Louis, MO, since 2002; and, since December 2003, all of Connecticut, most of New York, and all of Los Angeles, San Francisco, San Diego, and San Joaquin Valley. Other areas use it every winter: El Paso, TX; Denver, Boulder, and Longmont, CO; Missoula, MT; Provo, UT; Las Vegas and Reno, NV; and Phoenix, AZ.

² Source: Energy Information Administration, 2005.

Since ethanol can be made from many locally available materials, including agricultural products and even yard or wood waste, it can provide long-term energy diversity and energy security, using plentiful renewable resources.

The theory behind energy diversification is similar to the diversification of investments: when some prices increase and others decrease, the net effect is a more resilient portfolio.

State Requirement

Beginning April 2, 2006, gasoline in Hawaii is required to contain 10% ethanol.³ Fuel marketers in Hawaii have already begun preparing for the transition, to ensure that properly-blended E-10 Unleaded gasoline will be available from your favorite service station.

Gasoline Prices

The net effect on Hawaii's consumers is projected to be good in the short term and even more important in the long term.

Federal and State incentives reduce the cost of ethanol in order encourage its use, reduce our dependence on imported fossil fuel, and develop renewable alternatives that can be produced in the U.S. and in Hawaii.

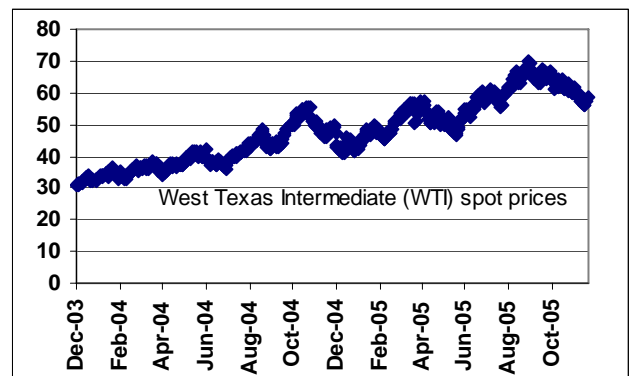
Several studies have concluded that ethanol produced in Hawaii can be competitive with imports, and cost-effective for blending with gasoline.

The Federal incentive is 51 cents per gallon of ethanol. If 40 million gallons of ethanol are blended into Hawaii's gasoline, Federal payments to blenders in Hawaii will be \$20.4 million per year. This can offset startup costs associated with the program.⁴

Last summer, when gasoline the net wholesale cost of ethanol was half as much as gasoline.

Minnesota uses E-10 statewide. Their retail prices tend to be at or below the national average.

Crude Oil Prices, U.S. Dollars Per Barrel



³ The ethanol content law was enacted 1994. The specific requirement is for at least 85% of the gasoline delivered to retail gasoline stations and fleets to be E-10 Unleaded. An exemption is allowed if competitively priced ethanol is not available, or in the case of undue hardship.

⁴ The incentive expires 12/31/2010. 40 million gallons per year @ \$0.51/gallon multiplied by 4.75 years = \$96.9 million. Two separate studies projected an industry-wide investment of about \$10 million to accommodate ethanol blending. Actual investment may be more, due to upgrades or replacement of aging equipment.

Frequently Asked Questions

Can my car use it? All automakers selling cars in the U.S. approve the use of this fuel formulation. Here are some excerpts from owner's manuals:

- Acura** “ You may use gasoline containing up to 10 percent ethanol by volume.”
- Audi** “ You may use unleaded gasoline blended with alcohol... Blend of gasoline and ethanol...must not contain more than 10% ethanol.”
- Chrysler** (Applies to **Chrysler, Dodge, Jeep, and Plymouth**): “Some fuel suppliers blend unleaded gasoline with oxygenates such as 10% ethanol... Fuels blended with these oxygenates may be used in your vehicle. Reformulated gasolines contain oxygenates, and are specifically blended to reduce vehicle emissions and improve air quality. DaimlerChrysler Corporation supports the use of reformulated gasolines. Properly blended reformulated gasolines will provide excellent performance and durability for the engine and fuel system components.”
- Ford** (Applies to all Ford products including **Ford, Lincoln, and Mercury**): “Ford endorses the use of reformulated "cleaner-burning" gasolines to improve air quality...These gasolines may contain oxygenates up to 10% ethanol or 15% MTBE.”
- GM** (Applies to all General Motors products including **Buick, Cadillac, Chevrolet, GMC, Geo, Oldsmobile and Pontiac**): “Gasolines containing oxygenates, such as ethers and ethanol, and reformulated gasolines may be available in your area to contribute to clean air. General Motors recommends that you use these gasolines...”
- Honda** “ You may use gasoline containing up to 10 percent ethanol by volume. Some conventional gasolines are being blended with alcohol or an ether compound. These gasolines are collectively referred to as oxygenated fuels. To meet clean air standards, some areas of the United States and Canada use oxygenated fuels to help reduce emissions.”
- Hyundai** “ Gasohol (a mixture of 90% unleaded gasoline and 10% ethanol)...may be used in your Hyundai.”
- Infiniti** “ Infiniti supports efforts towards cleaner air and suggest that you use reformulated gasolines when available...If an oxygenate-blend...is used, it should contain no more than 10% oxygenate.”
- Isuzu** “ ...gasolines containing oxygenates, such as ethers and ethanol, and reformulated gasolines may be available in your area to help clean the air. Isuzu recommends that you use these gasolines...”
- Jaguar** “ Fuels containing up to 10% ethanol (grain alcohol) may be used.”
- Kia** “ Do not use gasohol containing more than 10% ethanol.”
- Land Rover** “ Gasoline/oxygenated fuel blends...up to 10% of ethanol (Ethyl or grain alcohol) and unleaded fuel mix”
- Lexus** “ Lexus allows the use of oxygenate blended gasoline where the oxygenate content is up to 10% ethanol...Lexus recommends the use of cleaner burning gasoline and appropriately blended reformulated gasoline. These types of gasoline provide excellent vehicle performance, reduce vehicle emissions, and improve air quality.”
- Mazda** “ The common gasoline blend that can be used with your vehicle is ethanol blended at no more than 10%.”
- Mercedes** “ Gasohol, which contains 10% Ethanol and 90% unleaded gasoline, can be used.”
- Mitsubishi** “ A mixture of 10% ethanol and 90% unleaded gasoline may be used in your vehicle...Mitsubishi Motors Corporation strongly supports the use of reformulated gasolines. Properly blended reformulated gasolines should have no adverse effects on vehicle performance or the durability of engine and fuel system components.”
- Nissan** “ If an oxygenate-blend...is used...it should contain no more than 10% oxygenate...NISSAN supports efforts towards cleaner air and suggests that you use reformulated gasoline when available.”
- Saab** “ In recent years, a variety of fuel additives and alcohols or oxygenates have been blended with gasoline. Saab approves the use of such 'reformulated' gasoline in its products, which help in reducing pollution from all motor vehicles, provided that the [blend is] up to 10% ethanol by volume...”
- Subaru** “ Many gasolines are now blended with materials called oxygenates. Use of these fuels can also help keep the air cleaner. Oxygenated blend fuels, such as...ethanol...may be used in your vehicle.”
- Suzuki** “ Blends of unleaded gasoline and ethanol...may be used in your vehicle if the ethanol content is not greater than 10%.”
- Toyota** “ Toyota allows the use of oxygenate blended gasoline where the oxygenate content is up to 10% ethanol...Toyota recommends the use of cleaner burning gasoline and appropriately blended reformulated gasoline. These types of gasoline provide excellent vehicle performance, reduce vehicle emissions, and improve air quality.”
- Volkswagen** “ Blend of gasoline and ethanol [is approved]...blend must not contain more than 10% ethanol.”
- Volvo** “ Volvo allows the use of...oxygenated fuels. Fuels containing up to 10% ethanol by volume may be used.”

What's going to be the impact on fuel prices?

How much the consumer is expected to save, if anything, depends on the assumptions used in the calculations. Unfortunately we don't have a way to predict the price of oil or gasoline.

We can use current numbers to illustrate how the inputs and taxes might contribute to the final price of a gallon of fuel, with and without ethanol.

There is no guarantee that all, or any, potential savings will be passed through to the consumer. There is also no way to accurately predict the price of oil, gasoline, or ethanol.

The table shows results of the comparison, using data for October 2005. When the comparison was run in August (when gasoline prices were higher and ethanol prices were lower), the projected savings were \$0.23 cents per gallon.

REGULAR (87 Octane)						
	100% Gasoline			With 10% Ethanol		
Fuel cost	Gal.	\$/gallon	\$	Gal.	\$/gallon	\$
Gasoline Used	1.00	\$2.221	\$2.221	0.90	\$2.211	\$1.990
Alcohol Used	0.00	n/a		0.10	\$2.650	\$0.265
Federal Blenders Tax Credit				0.10	\$0.510	\$0.051
Net Fuel Cost per gallon			\$2.221			\$2.204
Retailing Cost/Overhead			\$0.120			\$0.120
Cost Before Taxes			\$2.341			\$2.324
Fed Excise Taxes			\$0.184			\$0.184
State Fuel Tax			\$0.160			\$0.160
State Retail Excise Tax			\$0.098			\$0.000
County Fuel Tax (Honolulu)			\$0.165			\$0.165
Cost With All Taxes			\$2.948			\$2.833

Regular (87 octane) gasoline with 10% ethanol could be \$0.11 less per gallon

PREMIUM (91+ octane)						
	100% Gasoline			With 10% Ethanol		
Fuel cost	Gal.	\$/gallon	\$	Gal.	\$/gallon	\$
Gasoline Used	1.00	\$2.311	\$2.311	0.90	\$2.296	\$2.066
Alcohol Used	0.00	n/a		0.10	\$2.650	\$0.265
Federal Blenders Tax Credit				0.10	\$0.510	\$0.051
Net Fuel Cost			\$2.311			\$2.280
Retailing Cost/Overhead			\$0.120			\$0.120
Cost Before Taxes			\$2.431			\$2.400
Fed Excise Taxes			\$0.184			\$0.184
State Fuel Tax			\$0.160			\$0.160
State Retail Excise Tax			\$0.101			\$0.000
County Fuel Tax (Honolulu)			\$0.165			\$0.165
Cost With All Taxes			\$3.041			\$2.909

Premium (91 octane) gasoline with 10% ethanol could be \$0.13 less per gallon

What's the point of all this?

This is the first step towards not being completely dependent on petroleum-based fuels for all our ground transportation fuel needs.

Is anybody in Hawaii going to produce ethanol fuel?

At least six ethanol production facilities are under development in Hawaii. Others are under consideration but have not been announced.

Name	Island	Million GPY	Source*
Maui Ethanol	Maui	10	NCEPF, 3/1/05
Clear Fuels (formerly Worldwide Energy)	Maui	7	EWG, 3/2/05
Clear Fuels (formerly Worldwide Energy)	Kauai	7	NCEPF, 6/23/04
Kauai Ethanol	Kauai	15	NCEPF, 3/3/05
Oahu Ethanol	Oahu	15	NCEPF, 6/13/05
Hamakua Ethanol	Hawaii	10	NCEPF, 12/19/05