# Ethanol – Frequently Asked Questions

## Ethanol Basics

***Q. What is ethanol?***
A. Ethanol is an alcohol-based fuel made by fermenting and distilling crops that have been broken down into simple sugars. In the United States, ethanol is generally made from starch crops such as corn or sorghum.

***Q. Why blend ethanol with gasoline?***
A. The Clean Air Act Amendments of 1990 (CAA) require the use of oxygenated gasoline in areas with unhealthy levels of air pollution. Oxygen helps gasoline burn more completely, reducing harmful tailpipe emissions. MTBE (methyl tertiary-butyl ether) was used to satisfy this oxygenate requirement until 2002, when California and New York banned it due to ground water contamination (MTBE is now banned in 27 states). Ethanol, which biodegrades rapidly in surface water, ground water, and soil, has replaced MTBE as an oxygenate in areas with elevated levels of air pollution.

***Q. Will ethanol harm my car?***
A. Every major automobile maker in the world approves the use of ethanol at blends up to 10%, meaning a blend of 90% gasoline and 10% ethanol. You are likely using ethanol now – check the gas pump at your next fill-up for a sticker that indicates fuel may contain up to 10% ethanol.

***Q. Can I use E-85 in my car?***
A. E-85 is a blend of 85% ethanol and 15% gasoline. You will need a flex fuel vehicle to run this mixture.

***Q. How will ethanol affect my gas mileage?***
A. The energy (Btu) content of ethanol is slightly less than gasoline. Using E-10, you will experience approximately a 2% drop in gas mileage. At 25 mpg, this translates into a 0.5 mpg decrease. .

***Q. Will ethanol lower gas prices?***
A. A March 2008 study by Merrill Lynch commodity analyst Francisco Blanch concluded that gasoline prices would be 15% higher without the use of biofuels. Similarly, an April 2008 study by the Center for Agriculture and Rural Development at Iowa State University found that ethanol is saving consumers between 29 and 40 cents per gallon.

***Q. Is ethanol more eco-friendly than gasoline?***
A. According to the Renewable Fuels Association (RFA), using ethanol in place of gasoline helps to reduce carbon dioxide (CO2) emissions by up to 29%. Because ethanol is made from renewable, plant-based feedstocks, the CO2 released during a vehicle's fuel combustion is "recycled" by the plant as it grows (photosynthesis). New technologies, additional feedstocks, and higher blends of ethanol including E-85 all promise greater C02 reductions. In 2007, ethanol use in the U.S. reduced C02-equivalent greenhouse gas emissions by approximately 10.1 million tons, equal to removing more than 1.5 million cars from America's roadways (Source - US Department of Energy, GREET 1.7 Model).

***Q. How much gasoline is consumed annually in the United States?***
A. According to the Energy Information Administration, 2007 US motor gasoline consumption was 142.4 billion gallons (or 7.5 billion barrels of oil annually). The US imports 66% of this oil (34% from OPEC nations) or 5 billion barrels. At the August 2008 crude price of $120 per barrel, this equates to $600 billion of US wealth transferred offshore. OPEC members are benefiting to the tune of $306 billion annually.

***Q. What kind of federal government support does ethanol receive?***
A. The 2005 Energy Policy Act established the Renewable Fuel Standard (RFS). Initially, the RFS called for the use of 7.5 billion gallons of ethanol and biodiesel annually by 2012. The 2007 Energy Independence and Security Act amended the RFS to 36 billion gallons annually by 2022. This revised RFS mandates that 15 billion gallons of corn ethanol be used annually in the US fuel supply starting in 2015. In addition, under the Volumetric Ethanol Excise Tax Credit (VEETC), or "blender's credit", companies that blend ethanol with gasoline receive a $0.45 per gallon tax credit. The US imposes a $0.54 per gallon tariff on imported ethanol to avoid subsidizing foreign-made ethanol.

***Q. How much corn is used to make ethanol in the United States?***
A. One bushel of corn will make approximately 2.8 gallons of ethanol. In 2007, the USDA announced that US farmers produced a record 13.1 billion bushels of corn. Three billion bushels (or 23%) was used to make 8.3 billion gallons of ethanol in the US (source – Pro Exporters).

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***Q. Can the US grow enough corn to feed everyone and make ethanol?***
A. According to the National Corn Growers Association, corn yields have increased by an average of 3.5 bushels per acre per year since 1995. Based on this historical trend, yields are expected to reach 180 bushels per acre in 2015 (compared to 151 bushels per acre in 2007). At 180 bushels per acre, ethanol production could increase to 20 billion gallons (from 8.3 billion gallons in 2007) without adding another acre to corn production.

***Q. Is ethanol causing food riots and starvation around the world?***
A. The numbers simply don't support this theory. Despite a 42% increase in ethanol production over 2006, US corn exports in 2007 actually rose 13% to 2.4 billion bushels (source – Pro Exporters). American farmers responded to increased worldwide demand by planting the highest acreage since 1944 (source – USDA).

***Q. Is ethanol driving up food prices?***
A. According to a report released by the UN's Food and Agricultural Organization in May 2008, several factors have conspired to drive up food prices around the world. These include weather-related production shortages, a doubling of freight rates from February 2006 to February 2007, commodity speculation, price controls and export restrictions, and increased demand from developing countries (for example, China's per capita meat consumption has risen from 41lbs in 1980 to 110lbs in 2008 - resulting in a large increase in feed use for cattle and poultry). In the United States, according to a briefing by the White House Council of Economic Advisors in May 2008, food price inflation was 4.5% for the year ending in March. The Council attributed only 5.5% of this food price inflation to increased ethanol production.

***Q. Is ethanol consuming too much water?***
A. When compared to the gasoline refining process, the production of ethanol results in a significant reduction in the use of water. According to "Water Trivia Facts" published by the EPA, it takes 1851 gallons of water to refine one barrel of oil, resulting in 19.6 gallons of gasoline (or 94 gallons of water per gallon of gasoline). In contrast, a modern ethanol plant uses 3-4 gallons of water to produce one gallon of ethanol. If we assume that each gallon of ethanol used in the United States offsets the use of one gallon of gasoline, we have a net gain of 90 gallons of water per gallon of ethanol.

***Q. Does ethanol have a positive energy balance?***
A. Of the 11 studies conducted since 1995, only 2 (both produced by Prof. David Pimentel of Cornell University) have shown a negative energy balance for ethanol. In July 2002, the USDA provided some clarity on this issue with the release of "The Energy Balance of Corn Ethanol: An Update". The USDA found that corn ethanol has a positive energy value of 1.34 and attributed Pimentel's negative findings to the use of outdated models for corn yields, fertilizer application rates, and ethanol energy conversion rates. Pimentel was also the only author to include energy values for the steel, cement, and other materials used in the production of equipment, farm vehicles, and the ethanol plant.

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## East Coast Ethanol

***Q. How many plants does East Coast Ethanol plan to build?***
A. East Coast Ethanol (ECE) plans to construct and operate four 110 million gallon per year grain ethanol plants in the Southeast. Plant locations include Jesup, Georgia, Campbellton, Florida, Chester, South Carolina, and Seaboard, North Carolina. With 440 million gallons of capacity, ECE will become the 6th largest ethanol producer in the United States.

***Q. Is there a market for all of this ethanol?***
A. Yes. At a 10% blend, Florida (871MM), Georgia (513MM), North Carolina (444MM), and South Carolina (249MM) comprise a market of 2.1 billion gallons of ethanol. (Source - Energy Information Administration).

***Q. Since most US corn is grown in the Midwest, won't the ECE plants be at a disadvantage in the South?***
A. Since the majority of the US population lives on the east and west coasts, Midwestern plants have to rail their ethanol long distances to be blended with gasoline. ECE plants will be able to truck their ethanol to local terminals around the Southeast for blending. It is less expensive to rail corn than to rail ethanol, so ECE will gain a pricing advantage over Midwestern competitors. In addition, Southeastern ports give ECE quick access to export markets around the world.

***Q. I keep hearing about cellulosic ethanol made from switchgrass, trees, and other biomass. Why doesn't ECE build plants that can utilize these non-food feedstocks?***
A. As of mid-2008, cellulosic ethanol is not a commercially scalable technology. Various pilot projects have received heavy government subsidies and are beginning to pop up around the country, but these plants are extremely small, prohibitively expensive, and have not attracted widespread private financial support. ECE's plants will generate positive cash flow and position ECE as the leading ethanol producer on the east coast. ECE will enter the cellulosic ethanol business once that technology becomes economically viable.

***Q. Who will build the four East Coast Ethanol plants?***
A. Fagen Inc. (Granite Falls, Minnesota) has been hired to design and build all four ECE plants. Fagen is a family owned business headed by Ron Fagen. With 65 plants completed and 28 more under construction, Fagen is the industry's leading design/build firm with a 100% track record of building successful plants. Fagen uses industry leading technology from ICM and carefully selects the projects they accept.

***Q. Will these plants be eco-friendly?***
A. Yes. All plants built by ECE will use state of the art technology to reduce both harmful emissions and energy usage. Wood-fried boilers will provide up to 50% of each plant's energy needs, eliminating half of the natural gas consumed at a typical plant and reducing CO2 emissions by over 100,000 tons per year. Methane will be utilized for electric power generation when available. And new technologies like corn oil extraction and algae cultivation for biodiesel production are being studied.

***Q. Are there any co-products produced by the plants?***
A. Yes. In addition to 110 million gallons of ethanol, each plant will produce 385,000 tons of Dried Distillers Grains with Solubles (DDGS) and 264,000 tons of CO2 per year. DDGS are a valuable, low-fat source of protein that can be blended with animal feed (rations vary by species). And CO2 will be captured and sold to the beverage and packaging industries.

***Q. How can I invest in East Coast Ethanol?***
A. ECE is currently accepting funds from local investors. The minimum investment is $15,000 (equals one share). After meeting this minimum, shares can be purchased in blocks of $5,000 (or one-third share increments). A full prospectus is available on our website (www.eastcoastethanol.us) . Interested investors should review the prospectus carefully and mail a subscription agreement along with a 10% deposit to East Coast Ethanol LLC, P.O. Box 2226, Columbia, South Carolina 29202.