

# ETHANOL - THE US NATIONAL SCENE

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The ethanol industry contributes positively to the U.S. economy, particularly rural communities where ethanol production is based. The economy is increased by providing direct and indirect jobs, and increasing corn prices and rural income. The U.S. Department of Agriculture has concluded that a 100 million gallon ethanol facility could create 2,250 local jobs for a single community.

A report by the Renewable Fuel Association about the economic outlook of the U.S. ethanol industry over a seven-year period, 1996 to 2002, concluded:

- ◆ Ethanol will add \$51 billion (1996 dollars) to the entire U.S. economy. The goods and services purchased by ethanol producers represent increased demand for other industries. These include purchases of grain, natural gas, electricity, water, telephone, and accounting and legal services. Farm income for crop producers will be \$2.2 billion, or nearly 3% higher, each year because of ethanol production. Increased demand for grain grown by American farmers provides market support for prices and incomes.
- ◆ Ethanol supports 55,000 jobs. Ethanol production directly accounts for over 5,800 jobs in the food/fuel processing industry in 17 states. Additionally, the spending by ethanol manufacturers on goods and services indirectly supports an average of 48,900 jobs annually throughout all other industries in the entire economy. Increases in ethanol production offer enormous potential for overall economic growth and additional employment in rural communities where ethanol production is often based.
- ◆ Ethanol production will increase total household income by \$12.5 billion over the next seven years. The ethanol industry directly pays \$277 million in wages to employees. These employees and their families spend this income, thereby creating demand. The indirect impact of ethanol production adds another \$1.8 billion to household income annually.
- ◆ Ethanol generates \$555 million of net tax revenue for the Federal treasury annually through personal and business income tax collections. Additional revenues, provided by taxes on household and farm income that are generated and supported by the ethanol industry, offset the cost of the partial ethanol excise tax exemption for ethanol-blended gasoline.
- ◆ Ethanol contributes over \$2 billion annually to the U.S. trade balance. The U.S. currently imports 54% of its petroleum demand. Use of ethanol reduces the trade deficit by about \$1.3 billion annually by replacing imported MTBE. Another \$800 million is gained annually due to export of the by-products of ethanol, corn gluten feed and gluten meal.

According to the American Coalition for Ethanol, more than \$3 billion has been invested in 60 ethanol production facilities operating in 20 different states across the country.

## IOWA

Ethanol, a home-grown fuel, is made from corn, which is grown in abundance in Iowa. Iowa produces about 440 million gallons of ethanol annually, making it the second largest ethanol producer in the nation. This industry uses 175 million bushels of corn each year, or about 8% of Iowa's corn crop. Farmers benefit because ethanol production provides consistent demand for surplus corn and improves corn prices. Iowa's general economy benefits because the ethanol industry creates 2,550 jobs and nearly 10,700 indirect jobs in related industry and services.

## AGRICULTURE

Ethanol is made from farm-produced raw products, which are usually in surplus. Corn is preferred in ethanol production and supplies most of the raw material needed.

Ethanol production creates domestic markets for corn and adds four to six cents a bushel for each 100 million bushels used. Better prices mean less reliance on government subsidy programs and more income and independence for farmers. Ethanol production consumed 535 million bushels of corn in 1994. (*5.3% of the record 10 billion bushel corn crop*)

In a report by the Midwestern Governors' Conference, an association of 21 mid-western governors joined to foster regional development, the ethanol industry has become an important value-added market for agriculture. Ethanol production is the third largest user of corn, behind feed and export uses. Ethanol production uses about 7 percent of the nation's corn crop. The conclusions of the report verify that the federal ethanol program is cost effective. The partial excise tax exemption for ethanol blends creates jobs, stimulates economic activity, and reduces our trade imbalance.

This February 1997 report concludes that the ethanol industry:

- ◆ Increases net farm income more than \$4.5 billion
- ◆ Boosts total employment by 192,000 jobs
- ◆ Improves the balance of trade by over \$2 billion
- ◆ Adds over \$450 million to state tax receipts, *and*
- ◆ Results in net federal budget savings of over \$3.5 billion

The report also states that the impact of the demand for ethanol can have the following effects. The projected 1997 demand for ethanol was estimated at 1.52 billion gallons, or 0.6 billion bushels. Corn production would increase by 0.42 billion bushels and raise the corn price by 45 cents per bushel. The increase in production and price would raise gross farm income by \$5.0 billion and net farm income by \$4.5 billion in 1997. The increase in farm expenditures and employment opportunities in the ethanol industry in 1997 due to the demand for ethanol will be 192,000 jobs.

As the domestic ethanol industry continues to grow, it is witnessing a surge in the construction of farmer owned ethanol production facilities. Farmers are realizing the added benefits to the ethanol industry through ownership of manufacturing plants.

Over the past 15 years, more than 12 billion gallons of high quality, high performance ethanol fuel has been produced using about 5 billion bushels of corn. Ethanol's importance to agriculture includes:

- ◆ Ethanol creates value-added markets for America's farmers, stimulating rural economies by increasing corn prices and rural income.
- ◆ Each 100 million bushel increase in the demand for corn results in a corn price increase of 4 to 6 cents per bushel.
- ◆ Ethanol accounts for 14 cents of the value of every bushel of corn marketed by American farmers. Price response will vary according to crop prospects, carryover levels, and global supply and demand.
- ◆ Ethanol accounts for 6.2 percent of the total corn utilization in the U.S. and is the third largest individual use of corn, behind only feed and exports.
- ◆ Each 100 million bushels of corn used in increased ethanol production effects the price of other commodities adding 2 cents per bushel to the wheat price and 10 to 13 cents to the price of soybeans.

The production of ethanol does not mean less corn is available for food. Instead, ethanol production produces many valuable high protein food and feed co-products. An acre of corn (125 bushels) produces 313 gallons of ethanol, 1,362 pounds of 21% distiller's grains, 325 pounds of 60% gluten meal, and 189 pounds of corn oil.

Distillers grain can be used for feed in most every type of animal system and are used as a cost efficient, nutritional, digestible, and palatable protein feed for cattle, swine, and sheep. Approximately 1.4 billion tons of distiller's grain is produced annually.

## **PRODUCTION & PRICE**

Advances in technology in ethanol production process have substantially reduced costs. A shift to larger production plants along with improved yeast strains and enzymes have reduced cost by more than 50 percent. These innovations have lowered production costs from \$1.40 per gallon in 1980 to less than \$1.00 in 2001.

Still newer plants and improved technologies have further reduced costs to an approximate current average of \$1.09 to produce one gallon of ethanol. This trend is expected to continue. Corn yields; corn costs, and markets for co-products will also affect the cost of producing ethanol.

Consumer prices at the service station pump for E-10 ethanol blend is usually the same price per gallon as unblended fuel. This is also true for E-85 blends. The price at the retail gas pump reflects federal and state tax exemptions, loan guarantees, and other government subsidies.

Offsetting the cost of these tax incentives is a reduction in farm subsidies and the increase of tax revenues. According to the U.S. Department of Agriculture, if ethanol use does not continue to grow, "deficiency payments for corn and other program crops will increase by \$580 million for crop year 1998 and \$740 million by the year 2000"- more than the cost of the tax incentives.

The economic activity attributable to the ethanol industry will generate \$3.5 billion in additional income tax revenue over the next five years - \$1 billion more than the cost of tax exemptions. The U.S. ethanol industry will create a net gain to the taxpayers of almost \$4 billion over the next five years.

The oil industry began receiving federal subsidies as early as 1916 to promote development of an energy industry. As the oil industry became more profitable, the subsidy payments continued.

In 1984, the oil industry received over \$8.5 billion from the federal government.

During the same time period, renewable fuel industries -solar, wind, geothermal, hydropower, and alcohol fuels - received only \$1.7 billion.