

H O U R G L A S S



F O U N D A T I O N

**A Look at Ethanol
and
The Proposed Ethanol Plant
in Lancaster County**

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Foreword

A facility to produce 50 million gallons of ethanol per year, with a construction cost of \$80 million is proposed for a 65-acre parcel of land in Conoy Township. The land is adjacent to the Lancaster County Solid Waste Recovery Facility - the county incinerator.

The group hoping to build the facility, Penn-Mar Ethanol, LLC, is comprised of 48 farmers and agri-businesses from South Central Pennsylvania and Northern Maryland.

However, whether the plant gets built depends on whether Conoy Township supervisors grant a conditional use approval for the farmland along the Susquehanna River to accommodate the project.

The plant, if approved would be the state's first ethanol plant. As the planning is moving forward, members of the planning community have raised concerns about the impact on the area.

Many questions and concerns are being raised by others; however, what is known about the production of ethanol and how does it impact an area?

What we know about the proposed Ethanol Plant for Lancaster County -

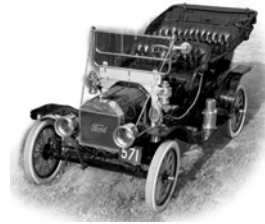
Township:	Conoy Township ¹
Land area:	65 acres ¹
Zoning:	Agricultural ²
Owners/Operators:	Penn-Mar Ethanol LLC – York County ¹ based Project Manager – Scott Welsh ¹
Cost:	\$80 million ¹
Construction period:	12-15 months ¹
Projected construction Start date:	Early 2004 ¹
Operation start date:	Early 2005 ¹
Jobs created:	30 to 35 ⁵
Operation hours:	24 hours/day – 7 days/week
Projected economic impact:	\$85 million in gross revenue/year for the state ¹
Lifespan:	20 to 25 years ¹
Projected production:	50 million gallons of ethanol/year ⁵
Projected by-products:	<u>Distillers grain</u> – a high protein food ingredient commonly fed to livestock And <u>Carbon Dioxide</u> – used for food processing and by the soft drink industry

Corn requirements:	20 million bushels/year - Est. 66% to be imported from the Midwest ¹⁴ - Est. 34% to be purchased from farmers in South Central Pennsylvania and Northern Maryland ¹⁴
Water requirements:	653,235 gallons/day ¹³
Energy source:	Natural gas – possibly supplemented with steam purchased from the adjacent Lancaster County Solid Waste Management incinerator ¹¹
Transportation Needs:	75 rail cars/week – corn delivery from the Midwest ¹¹ 50-70 trucks/day in and out of the plant ⁵

Overview

Ethanol's primary purpose is to serve as an octane extender for gasoline, a clean air additive in the form of an oxygenate and as an aid in the reduction of America's dependence on imported oil, thereby reducing our balance of trade.⁷

Ethanol is an alcohol fuel that provides octane when blended with gasoline, improving a car's engine performance. In fact, Henry Ford designed his 1908 Model T to run on alcohol, proclaiming it the "fuel of the future."



The majority of the support for ethanol production is to replace MTBE (Methyl tertiary butyl ether) a petroleum-based gasoline additive found in gasoline. MTBE contributes to harmful carbon monoxide emissions and recently it has been discovered that it causes ground water contamination in wells. The contamination has been found in groundwater from California to New England.³⁷

On Monday, October 6, 2003 the State of New Hampshire sued 22 major oil companies because of the gasoline additive MTBE. New Hampshire wants the companies to pay millions of dollars to track down the water pollution and pay to clean it up.²³

Ethanol is considered to be a fully bio-degradable product.³⁷

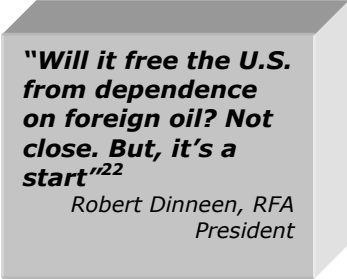
However, MTBE manufacturers want to be protected from any lawsuits from the chemical leaking into water supplies.³⁷

This industry is pushing very hard for legal protection from any lawsuits. Environmentalists and many senators from states where there has been MTBE contamination fear a waiver would let the MTBE makers

off the hook.³⁷

The MTBE provisions are part of a package of automobile fuel proposals that also includes a requirement to double the use of corn-based ethanol. This measure is widely popular with both Republicans and Democrats and enjoys unqualified support.

In addition to the use of ethanol as an additive to gasoline, it is gaining popularity as a road and power-line de-icer.



"Will it free the U.S. from dependence on foreign oil? Not close. But, it's a start"²²

*Robert Dinneen, RFA
President*

A new generation of both stationary and mobile fuel cells powered by ethanol is also beginning to emerge.⁷

How many ethanol plants are there in the U.S? And, where are they located?

As reported by the Renewable Fuels Association, the national trade association for the U.S. ethanol fuel industry, in October 2003, 73 plants are producing 2,914 million gallons of ethanol per year and 13 plants are under construction with a projected additional production capacity of 527 million gallons per year.

Ethanol plants are located in 20 of the 50 states -

California	2
Colorado	1
Florida	1
Idaho	2
Illinois*	7
Indiana*	1
Iowa*	16
Kansas	6
Kentucky	2
Minnesota	14
Michigan	1
Missouri*	2
Nebraska	10
New Mexico	1
North Dakota	2
South Dakota	11
Tennessee	1
Washington	1
Wisconsin	4
Wyoming	1

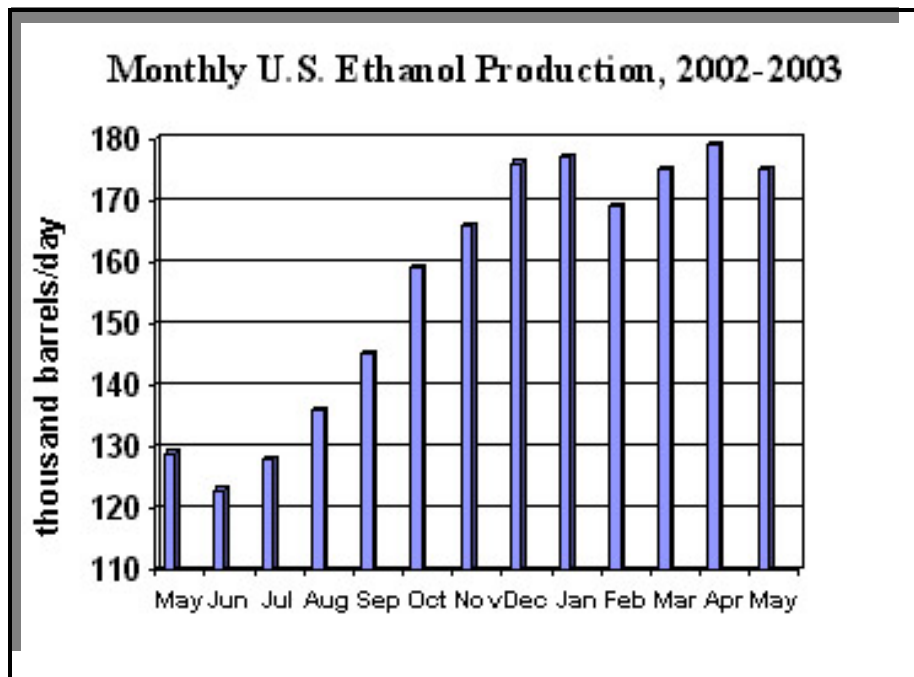
** Denotes Corn Belt state as defined by the U.S. Department of Agriculture (USDA)*

Source: Renewable Fuels Association (RFA) October 2003

Monthly Ethanol Production Record Set in May

The U.S. ethanol industry set a production record for May 2003 of 175,000 barrels per day (b/d), according to data released by the U.S. Energy Information Administration (EIA). Production was up 36 percent compared to May 2002 when 129,000 b/d of ethanol were produced.

The ethanol industry is expected to produce approximately 2.7 billion gallons in 2003, up from a record annual production of 2.13 billion gallons in 2002. Currently, 73 ethanol plants have the capacity to produce 2.9 billion gallons annually. Thirteen additional plants are under construction.



On 11/5/03 the House and Senate agreed to nearly double the use of ethanol fuel from corn by 2012. If passed, the Energy Bill would require the U.S. gasoline industry to blend at least 5 billion gallons of ethanol annually in fuel mixes, up from 2.7 billion gallons now. The increase will guarantee a market for Midwestern farmers who have invested in local ethanol plants.⁴¹

Source: Renewable Fuels Association (RFA) June 2003⁷

Why is this plant being built here, when the majority of the ethanol plants are located in the West or the Midwest?

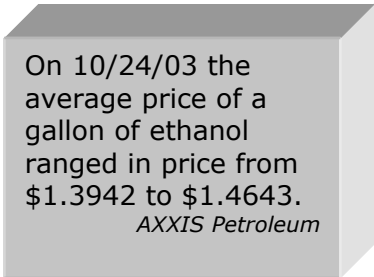
In December 2001, a small group of regional grain farmers teamed up with the York County Economic Development Corporation to help offset low commodity corn prices by proposing the building of an ethanol plant in South Central Pennsylvania. York, Adams and Lancaster counties were considered as possible sites.

The criterion for a good site encompasses numerous factors: good drainage, sufficient road and rail access, utility availability and adequate on-site space to allow unfettered movement of trucks and other equipment. Other considerations include a qualified or trainable labor force, an airport and good medical facilities.⁷

Ethanol demand in the Northeast was catapulted when on June 18, 2003 Connecticut Governor John Rowland signed legislation aligning his state's MTBE ban with New York. The same week, New York state legislators ignored last-ditch efforts by MTBE industry lobbyists to delay the state's MTBE ban. Both states now have MTBE bans effective January 1, 2004.

The Renewable Fuels Association (RFA) predicts a large role for ethanol in the Northeast starting next year. Bob Dinneen, RFA president states, "Ethanol demand in New York and Connecticut alone could exceed 400 million gallons in 2004. The ethanol industry is ready to meet the demand for a safe, clean replacement for MTBE."¹⁹

Ethanol is politically popular but, environmentally controversial. If Congress passes its energy bill this year, within nine years every gas station will be pumping this fuel. States from



On 10/24/03 the average price of a gallon of ethanol ranged in price from \$1.3942 to \$1.4643.
AXXIS Petroleum

North Carolina to New York are developing business plans to cash in on the new market for the alcohol, which has always been the Corn Belt's domain.⁸

The energy bill if passed would double the country's use of renewable fuels such as ethanol by 2012. If the bill becomes law, demand for the gasoline additive could increase for years to come.

The bill could increase the minimum amount of renewable fuel the country uses each year to 5 billion gallons, which would lessen the price volatility of ethanol.

The bill would also allow an ethanol plant to produce up to 60 million gallons of ethanol annually and still be considered a "small ethanol producer." The current limit is 30 million gallons. (Small ethanol producers are eligible for federal tax credits or rebates.)³⁶



Pennsylvania's Sunnyside Ethanol plant will incorporate the environmental advances, like 100% recycling of process wastewater.
Photo © 2003 Delta-T Corp. Williamsburg, VA

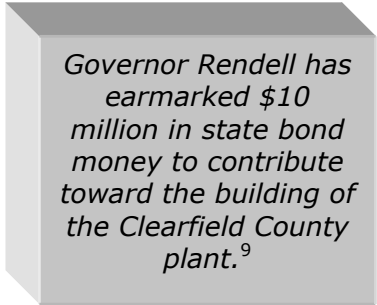
However, the Conoy Township plant is not the only plant being proposed in the Northeast.

Sunnyside Ethanol LLC in Clearfield County, Pennsylvania is planning on building a state-of-the-art 40 million gallons per year ethanol plant and a 15 megawatt waste-coal powered cogeneration facility.

The Sunnyside plant will use only half the energy of other currently designed plants, in part to a

distillation/dehydration system that produces a dryer ethanol at lower overall production cost. Using low pressure steam in the fermentation process takes less energy and increases plant safety. The facility will be fueled by waste coal, making up to 15 megawatts of electricity and producing the steam needed to turn the corn into ethanol and dry the distiller's grains at the back end of the plant.

This plant will consume approximately 15 million bushels of corn annually and produce by-products such as livestock feed and food-grade carbon dioxide for the beverage companies.⁹



Governor Rendell has earmarked \$10 million in state bond money to contribute toward the building of the Clearfield County plant.⁹

The Clearfield County plant configuration is similar to the plant proposed for Conoy Township.

A third plant is planned by Garden State Ethanol of Gloucester County, New Jersey. The 12 farmers who make up the board of Garden State Ethanol are planning on building a \$71 million plant to distill 40 million gallons a year. The proposed plant is to be built on a 292-acre site in South Jersey. The plant location will be at the Former West Deptford Chemical Plant situated between the Valero and Coastal oil refineries. The Delaware River and Bay Authority is planning on purchasing the property and then leasing it to Garden State Ethanol. Due to the proximity to the oil refineries, this location will guarantee a much reduced delivery cost for the product.⁸

Why is the proposed plant being located in Conoy Township?

The proposed site location is ideally situated for a number of reasons; however the zoning on the land is currently zoned agricultural.

The Conoy Township site is bounded by the Susquehanna River, Route 441, the Lancaster County solid waste incinerator and a farm.⁵

The plant's location along Norfolk-Southern rail lines would enable corn from the Midwest to be delivered to the facility by train.⁵ And, the fuel ethanol to be shipped to the refineries.

The complex will have about 20 acres of buildings. The grain storage tanks and elevator would be the tallest structures at 150 to 175 feet.⁵ (The height of the smokestack at the adjacent Resource Recovery Facility is 305 feet.)

A renewable fuel, ethanol, will be generated using trash in lieu of a non-renewable fuel such as natural gas; thus reducing the impact on the environment.

*Herb Flosdorf
Lancaster Environmental
Foundation*

Water and electricity generated at the incinerator might possibly be sold to the ethanol plant thus minimizing withdrawals of water from the Susquehanna River and reducing related energy production costs.

The incinerator currently uses wastewater after it is treated by Elizabethtown Borough. The ethanol plant would reuse this water in the production process and also as steam heat to cook the corn.³ (There will be no wastewater discharge. Any wastewater generated during the production process will be recycled back to the incinerator.)

As a result of this proposed operating design the ethanol plant would not require a boiler and a large smokestack will not be necessary.

Why is it necessary to change the zoning on the land?

The proposed site consists of 65 acres – twice as much as originally sought by Penn-Mar – represents the unused portion of a farm the Lancaster County Solid Waste Authority purchased when it built the incinerator.⁵

The zoning for the 65 acres is agricultural. In September, Penn-Mar proposed that the township create a brand new zone, “agricultural-industrial” for the land. (Currently, no other municipality in Lancaster County has an agriculture-industrial (AI) zoning designation.)

According to Ron Bailey, Executive Director of the Lancaster County Planning Commission, “The fact that corn is an ingredient in the process and distillers grain a by-product that will be used by farmers does not change the fact that the plant would be an industrial use. This is strictly and solely an industrial use. What we’re talking about is a distillery, a refinery to generate an additive to gasoline.”¹⁵

Advantages and Disadvantages of Agricultural Zoning

One **advantage** of agricultural zoning is it can be used to protect large tracts of land within a township that discourages non-farm development.

A **disadvantage** to such zoning is that it can be easily “un-done.” Even the most effective agricultural zoning system is merely a policy statement of the current township board of supervisors. A change in the political climate of the municipality or even of the point of view of one of the supervisors can lead to that zoning system being repealed and replaced by a significantly weaker system.

Supervisors need not repeal the entire ordinance to weaken the zoning scheme in a particular township. Simply by changing the zoning on a particular parcel, township supervisors can weaken the integrity of an agricultural zoning system. Compared to conservation easements, which protect farmland in perpetuity, agricultural zoning can be weakened significantly.²⁰

***“Planning for Agriculture”
– PA Governor’s Center for Local
Government Services.***

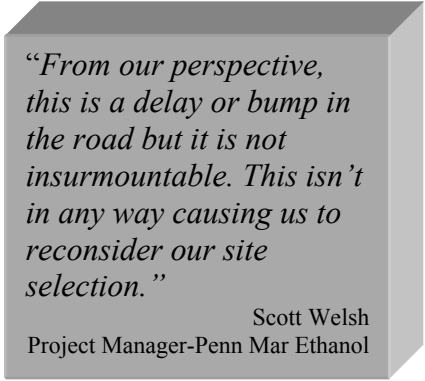
Robert Strickland, Conoy Township Supervisor states that it is slightly closer to our industrial zone in its requirements; however it is not a big thing.¹⁵

In October, the Lancaster County Planning Commission examined the proposed re-zoning request. The Commission cited five specific areas that required additional information and recommended to Penn-Mar Ethanol, LLC that the amendment be withdrawn.

On October 15th the Intelligencer Journal reported that about 50 township property owners and residents sent a letter to the township's supervisors and the Lancaster County Planning Commission decrying the company's request for the re-zoning, stating that it was a veiled attempt to dismiss the public. They also cited the concern that the amendment strips township officials of their ability to regulate any objectionable effects that may result from the operations of the proposed ethanol refinery.

On October 24th, the re-zoning request was withdrawn by Penn-Mar Ethanol.

As a result of the withdrawal, Penn-Mar Ethanol will file a conditional use application that will be considered in November.



"From our perspective, this is a delay or bump in the road but it is not insurmountable. This isn't in any way causing us to reconsider our site selection."

Scott Welsh
Project Manager-Penn Mar Ethanol

Ten years ago the Lancaster County Solid Waste Authority was faced with a similar situation when it sought permission to build the Resource Recovery Facility in Conoy Township. The land was zoned agriculture – so the Township re-zoned the land to Industrial and added a section to the ordinance that allowed the Resource Recovery Facility as a conditional use.

A conditional use is nothing more than a special exception that falls within the jurisdiction of the governing body rather than the zoning hearing board. Conditional uses are optional; that is, conditional uses may be

provided for in the zoning ordinance if desired. The governing body must adhere to the express standards and criteria set forth in the ordinance, or else the conditional use approval or denial could be overturned in court.³⁰

Uses, which could be provided as conditional uses rather than as special exceptions, are often those uses that could have a direct effect upon the lives of all persons within the community. The governing body would have the opportunity to thoroughly examine the proposal and to impose any reasonable safeguards necessary to implement the purposes of the ordinance and to protect the public's general welfare.³⁰

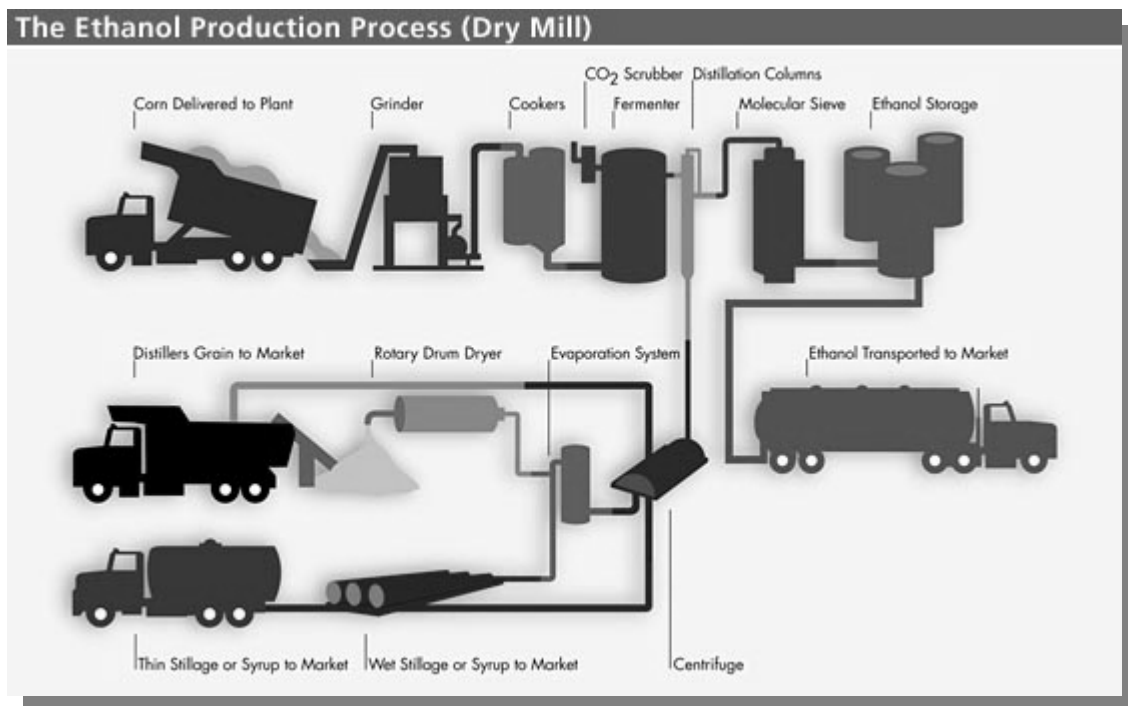
The governing body, Conoy Township, is required to hold a hearing pursuant to public notice and recommendations by the planning agency. (The procedures for conditional use approvals can be found in the Pennsylvania Municipal Planning Code.)

How will an ethanol plant impact our quality of life in Lancaster County?

The answer to this question is not a matter of black and white. However, before we can begin to formulate an opinion on this, it is important to understand how ethanol is produced.

How is ethanol produced?

The production of ethanol or ethyl alcohol from starch or sugar-based feed stocks is among man's earliest ventures into value-added processing. While the basic steps remain the same, the process has been considerably refined in recent years, leading to a very efficient process. There are two production processes: wet milling and dry milling. The main difference between the two is in the initial treatment of the grain.



The dry-milling process will be utilized at the proposed Conoy Township plant.

In dry milling, the entire corn kernel or other starchy grain is first ground into flour, which is referred to in the industry as "meal" and processed without separating out the various component parts of the grain. The meal is slurried with water to form a "mash." Enzymes are added to the mash to convert the starch to dextrose, a simple sugar. Ammonia is added for pH control and as a nutrient to the yeast.

The mash is processed in a high-temperature cooker to reduce bacteria levels ahead of fermentation. The mash is cooled and transferred to fermenters where yeast is added and the conversion of sugar to ethanol and carbon dioxide (CO₂) begins.

The fermentation process generally takes about 40 to 50 hours. During this part of the process, the mash is agitated and kept cool to facilitate the activity of the yeast. After fermentation, the resulting "beer" is transferred to distillation columns where the ethanol is separated from the remaining "stillage." The ethanol is concentrated to 190 proof using conventional distillation and then is dehydrated to approximately 200 proof in a molecular sieve system.

The anhydrous ethanol is then blended with about 5% denaturant (such as natural gasoline) to render it undrinkable and thus not subject to beverage alcohol tax. It is then ready for shipment to gasoline terminals or retailers.

The stillage is sent through a centrifuge that separates the coarse grain from the solubles. The solubles are then concentrated to about 30% solids by evaporation, resulting in Condensed Distillers Solubles (CDS) or "syrup." The coarse grain and the syrup are then dried together to produce dried distillers grains with solubles (DDGS), a high quality, and nutritious livestock feed. The CO₂ released during fermentation is captured and sold for use in carbonating soft drinks and beverages and the manufacture of dry ice.

Source: Renewable Fuels Association (RFA) June 2003

Where will all of the corn come from? How will this impact farmers in Lancaster County? Will the price of Lancaster corn rise?

The facility will require approximately 20 million bushels per year for the production of 54 million gallons of ethanol. At the current time, Penn Mar is anticipating the need to import an estimated 66% or 13 million bushels from the Midwest and obtaining the 34% balance or 7 million bushels from farmers in South Central Pennsylvania and Northern Maryland.¹⁴

As reported in the April 21st edition of the Penn State News, a persistent drought in the Midwest and high transportation costs resulting from soaring gasoline prices have combined to boost the price of corn to more than \$3 a bushel. Although the drought is over in Pennsylvania, continued dry conditions are forecast for the Midwest. And oil prices remain extremely volatile due to war and political unrest in the Middle East and South America.²¹

No independent studies have been conducted to determine an ethanol plant's effect on corn prices here.²

"Pennsylvania is the 18th most important agricultural state in the country. So when we have a severe drought like last year, it hurts livestock producers most because they have to buy more feed," Lou Moore of Penn State News explains. "Even though there is a lot of corn grown in the state, Pennsylvania's corn production represents just 2 percent of the national corn crop."²¹

According to the USDA 2002 Corn Crop Report for Lancaster County, 5,207,400 bushels of corn for grain was produced. Only 59 million bushels of corn were harvested in Pennsylvania last year, down from 97 million in 2001 because of a drought. That figure does not include corn grown for silage.

Nearly all of the corn grown in Pennsylvania is used to feed animals, and the state's livestock growers buy additional corn from Delaware, Maryland, Virginia, New York and the Midwest to meet their needs.²

Pennsylvania imported 100 million bushels of corn last year, much of it from the Midwest, because drought slashed corn production in the eastern states.²

The Lancaster New Era reported that significantly higher corn prices could nudge some farmers with small profit margins a little closer to losing the farm altogether.²

"What makes this go is politics, not economics," Pennfield's Fidler said. "If you take out government subsidies and support of this kind, it just doesn't work." ²

"A 50-cent increase in the price of a bushel of corn generally raises the price of a ton of feed from about \$130 to \$150. The opening of an ethanol plant here would mean all buyers would be more dependent on Midwest corn than they want to be."²

***George Kishbaugh
Wenger's Feed Mill, Inc.***

Two local feed mills say the ethanol plant will raise the price of corn here, through they differ on how much.²

"Anything that increases demand on the market is going to increase price," said John Fidler, vice president of technical services and procurement at Pennfield Corporation, 711 Rohrerstown Road. "I don't know how much. I would guess 10 to 25 cents a bushel."²

George Kishbaugh, head of purchasing at Wenger's Feed Mill Inc. in Rheems, does not expect a hike that big. He speculates it could be 3 to 5 cents a bushel at certain times of the year. "The ethanol plant will have a minimal impact," he said, except in years of drought when a smaller corn crop would likely push prices up.²

During 1995 and 1996 when corn prices reached as high as \$5.00 per bushel, eleven out of 42 ethanol plants (26 percent) either ceased production or dramatically curtailed production.⁷

Historically, ethanol production is reduced when corn prices increase.

In the spring of 2003, the increased price of fertilizer caused farmers in the Corn Belt to consider planting alternative crops. The fertilizer prices increased because of higher natural gas prices and tight supplies. (Natural gas is a key component in making nitrogen-based fertilizer.)¹⁶

The higher fertilizer price is expected to add \$2 billion to the expense of planting corn across the United States for the 2003 planting year.¹⁶

According to the U.S. Department of Agriculture, American farmers planted 79 million acres of corn in 2002, up from 76 million in 2001. Only nine-states – including Colorado, Indiana, Kansas, Kentucky, Ohio, Pennsylvania among the top 20 corn-producing states – decreased the number of acres of corn cultivated in 2002.¹⁶

A new web site is now available to help farmers assess potential price impacts of a new ethanol plant.

The Ethanol Plant Analyzer allows farmers to run what-if scenarios on how the size and location of an ethanol plant might impact local corn prices.

The site has been developed by two Montana State University professors, with funding support from Farm Foundation, Oak Brook, IL.

The Ethanol Plant Analyzer is available on the web at:
<http://www.extensionecon.montana.edu/eplantanalyzer/>

BBI International

In an interview with the York Daily record, Leon Ressler, Extension Director for Lancaster County stated, "If you're a farmer who buys corn for feed, this will bump up the price a bit and that's a negative; however, if you sell corn, that's a positive. I don't see this project being price neutral."¹¹

Lancaster County Corn Consumption

	Animal Census	Consumption			
		Grain Corn		Silage Corn	
		Lbs/day	Bushels/year	Lbs/day	Tons/year
Cattle					
Dairy					
Adults	95,000	15	9,287,946	40	693,500
Heifers	95,000	5	3,095,982	8	138,700
Beef	48,000	4	1,251,429	15	131,400
Poultry					
Layers	10,700,000	0.25	10,461,161		
Broilers	7,000,000	0.33	9,033,750		
Turkeys ¹	180,000	40	77,143		
Hogs & Pigs	325,000	5.5	6,990,402		
Sheep	4,600	1	29,982		
Horses	20,500	3	400,848		
Totals			40,628,643		963,600

Lancaster County Corn Production

	Bushels of Grain Corn	% of Consumption	Tons of Silage	% of Consumption
2000²	12,403,200	31%	1,797,840	187%
2002³	5,207,400	13%	1,357,000	141%

¹Represents annual production of turkeys in Lancaster County and represents the corn consumption over the life of the turkey

²Average rainfall year

³Year of extended drought



A bushel of corn, which weighs 56 pounds, produces 2.7 or 2.8 gallons of ethanol and 17-18 pounds of dry distiller's grain and 13 pounds of carbon dioxide.⁴

Distiller's grain, a by-product of the ethanol production process, will be sold to farmers as a high-protein food ingredient that is commonly fed to cattle.

Penn-Mar envisions that the sale of this by-product will be within a 100 mile radius of the plant.



Note - Due to the availability of distiller's grain, some farmers may choose to augment their livestock feed - up to 30 %.

The blended feed is primarily fed to cattle.

In Lancaster County this would represent approximately 4 million bushels of grain.

It is predicted that as the ethanol industry continues to grow, the use of waste products and alternative crops will expand. Already, agricultural crops such as sorghum and food processing waste materials are used to produce ethanol. And new research is proving that biomass products such as pulpwood, rice straw, switch grass, corn stover, and municipal solid wastes, will be used for ethanol feed stocks.

How will the corn from the Midwest be delivered to the plant?

The Conoy Township site was chosen because it offers main line rail service that can carry 75 train cars of corn grain – roughly 300,000 bushels of corn – to the plant every eight days. York County could offer only about 15 to 20 cars every eight days. Because of the accessibility to main line rail service, Penn Mar Ethanol estimates they are saving about \$1 million a year – money that they don't have to earn.¹¹

Norfolk Southern Corporation, which took over sections of the Conrail system in 1999, including many of the railroad's tracks and facilities in Pennsylvania, is immersed in improvement work that reflects the importance of Harrisburg to the company as a rail hub.¹²

The work is focused on the historic Enola Yard, which has been a rail-car classification facility since 1905 for the former Pennsylvania Railroad, Conrail and now Norfolk Southern. Conrail severely downgraded Enola in the 1990s, and the current work won't restore it to its former glory, but it will be bigger than it was.¹²

According to Roger Barrett, Director of industrial development for Norfolk Southern, the upcoming Penn Mar ethanol plant in Lancaster County will provide a new source of revenue for the rail company.¹²

What is the tax incentive that we keep hearing about for the production of ethanol? And, who receives it?

In order to reduce our dependence on imported oil and in the face of resistance from the oil industry, Congress established an incentive in the form of a tax credit during the mid-70's designed to encourage the oil industry to blend ethanol. (The tax credit is an exemption from the Federal gasoline Excise Tax paid by gasoline marketers.⁷)

The ethanol tax credit is provided to gasoline marketers and oil companies, not ethanol producers, as an incentive to blend their gasoline with clean, domestic, renewable ethanol.

Some lawmakers view the tax credit to be a cost-effective program that actually returns more revenue to the U.S. Treasury than it costs, due to increased wages and taxes and reduced unemployment benefits and farm deficiency payments, while at the same time holding down the price of gasoline and helping the American farmer.

The tax incentive continues today and will do so until at least 2007. Although these tax provisions include "sunset" clauses that limit their duration, they have been extended historically.⁷

Ethanol-blended fuels (gasohol) are partially exempt from the standard excise tax on gasoline (18.4 cents). The proportion of ethanol contained in each gallon of fuel determines the size of the partial exemption. The most common ethanol blend contains 90 percent gasoline and 10 percent ethanol and is currently taxed at 13.1 cents per gallon – an exemption of 5.3 cents.²⁵

While Penn-Mar is not dependent on state funding for the project, a chance does exist that the company could be eligible for business tax credits related to the clean air act."

*Senator Mike Waugh(R)
Shrewsbury*

Presently, 16 states have their own incentives, ranging from direct subsidies to tax incentives, e.g. Nebraska.⁷

However, as of this writing, the ethanol tax dispute has stalled the House-Senate energy talks for more than two weeks, prompting direct intervention by the White House, which does not want to see the energy legislation derailed.

Senator Charles Grassley, R-Iowa, a champion of ethanol and the Senate's lead tax writer, has insisted that the energy bill change the taxation of ethanol, so that the increased use of ethanol, mandated by the bill, would not jeopardize federal highway funds.

The changes would end the current 5.2 cents a gallon tax break for ethanol-blended gasoline, adding \$2 billion a year to the federal highway fund. In return, refiners or blenders using ethanol would receive a tax credit from the U.S. Treasury for the additional payments into the trust fund.

"This puts the tax incentive for ethanol on equal footing with every other energy tax incentive. It guarantees that purchasers of ethanol will pay the whole gas tax, making the highway trust fund whole."

Senator Charles Grassley

Without such a tax change, Farm Belt senators' support for the energy bill would disappear. Democratic leader Tom Daschle of South Dakota, a leading supporter of ethanol, said he would not vote for an energy bill unless the highway funding issue was resolved.

How does the use of ethanol reduce the amount of money states receive to build roads from the Federal Highway Trust Fund?

The highway trust fund is the principal mechanism for funding federal highway programs authorized by the Transportation Equity Act for the 21st Century (TEA-21) that was enacted in 1998.

In testimony to the U.S. Senate Finance Committee in May 2002, the General Accounting Office (GAO) outlined the factors that were affecting the Highway Trust Fund Revenues.²⁵

One of the factors specifically identified was the increased use of ethanol-blended fuel (gasohol) and the corresponding reductions in gasoline use.

TEA-21 changed the funding formulas for two of the eleven federal highway accounts. As a result, for the first time there may be a limited number of states whose federal highway dollars may be impacted if a large volume of ethanol-blended gasoline is sold.³⁸

A targeted, technical correction to the formula is being sought to correct this unintended consequence.

Pennsylvania does not require ethanol as an additive to gasoline. Pennsylvania also does not ban MTBE.

The only state requirement for fuel is in the seven-county Pittsburgh area which requires gasoline with a lower evaporability than conventional gasoline. The 1psi waiver for RVP that applies for ethanol in conventional gasoline does NOT apply in this area.

In addition, the five-county Philadelphia area has a federal requirement for reformulated gasoline. Both of these regulations are performance-based, not specific to any substance.

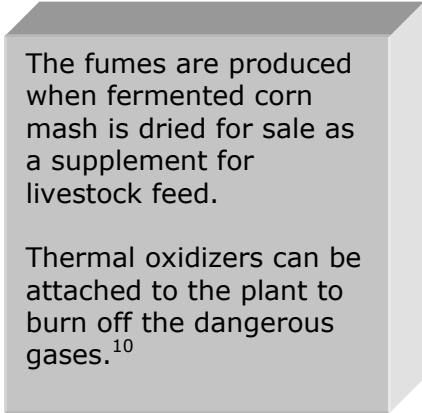
Arleen Shulman
Chief, Mobile Sources
DEP Bureau of Air Quality

How will this affect the air in Lancaster County

Ethanol's benefits are "a mixed bag," says Blake Early, a lobbyist for the American Lung Association. Ethanol's clearest air quality benefit is that it significantly cuts carbon monoxide, but ethanol also releases more nitrogen oxide, a key element of smog, and evaporates more easily than gasoline, causing still other air pollution problems. Early says, "On balance, ethanol certainly isn't worse than gasoline, but it's not that helpful from a smog perspective."⁶

According to the Environmental Protection Agency (EPA), factories that convert corn into ethanol release carbon monoxide, methanol and some carcinogens at levels "many times greater" than originally promised.¹⁰ The EPA said the problem is common to "most, if not all, ethanol facilities."

Volatile organic compounds (VOCs) being released by the ethanol plants include formaldehyde and acetic acid, both carcinogens. Methanol, although not known to cause cancer, is also classified as a hazardous pollutant.¹⁰



The fumes are produced when fermented corn mash is dried for sale as a supplement for livestock feed.

Thermal oxidizers can be attached to the plant to burn off the dangerous gases.¹⁰

"Ethanol production, as it's been done in the past, is a pretty dirty process," said Frank O'Donnell, executive Director of the Clean Air Trust, a Washington, D.C. based environmental group. "Regulators may have been lenient with ethanol plants because their product lowered air pollution."⁴

Health experts say ground-level ozone boosts the long-term change of respiratory illness for healthy adults. Dirty air poses even more serious risks for children and the elderly as well as anyone who works or exercises

outdoors or suffers from chronic lung disorders like asthmas or emphysema.¹⁷

The U.S. Environmental Protection Agency (EPA) works closely with the ethanol manufacturing industry. In 2002 the Agency found twelve ethanol production facilities in Minnesota to be in violation of the Clean Air Act New Source Review (NSR) provisions. The Clean Air Act NSR program requires a source to install pollution controls and undertake pre-construction obligations to control air pollution emissions.

"EPA's reversal of long-standing environmental policy will lead to more pollution, poorer air quality and dirtier skies, increasing public health risks and putting Pennsylvania at a competitive disadvantage as businesses here have to should the burden of increased emissions from upwind states." ⁴³

Kathleen McGinty,
Secretary
Pennsylvania Dept. of
Environmental Protection

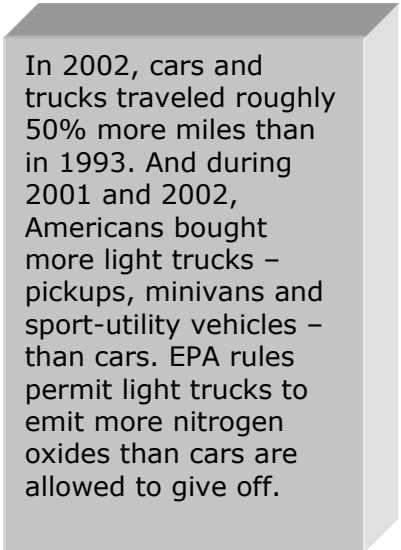
However, in February 2003, the EPA granted exemption to thousands of polluters from air quality requirements by changing the rules provided under the Clean Air Act NSR program. This is not the first time EPA has attempted to roll back or eliminate NSR. On Dec. 31, 2002, EPA finalized NSR rule changes creating other loopholes that allow plants to increase their emissions without having to install clean technology.

These changes primarily apply to older power plants, but this same program mandates the air quality standards for the ethanol industry.

Don't we already have an air problem?

In September the Department of Environmental Protection reported that the ozone levels in the Susquehanna Valley were below average due to the cool and damp weather; however the county still does not meet federal clean air requirements.¹⁸

Air quality here was the 27th worst in the nation, according to the American Lung Association's 2003 "State of the Air" report released in May. According to Kevin Stewart, the Association's Executive Director, pollution has not significantly lessened during four years of reporting.¹⁷



In 2002, cars and trucks traveled roughly 50% more miles than in 1993. And during 2001 and 2002, Americans bought more light trucks – pickups, minivans and sport-utility vehicles – than cars. EPA rules permit light trucks to emit more nitrogen oxides than cars are allowed to give off.

The EPA reports that the amount of smog over the USA failed to decline during the past decade despite a nationwide effort to improve air quality. America's love of driving helps explain why levels remain high. Vehicles contribute to smog by emitting nitrogen oxides from their tailpipes.²⁶

Kurt Knaus, a spokesman for the Pennsylvania Department of Environmental Protection, said the agency wants to promote alternative energy. But, he said, it is too early to discuss the Penn-Mar plant.⁴

What measures can be taken to assure there will be no harmful effects on our air?

According to an April 25, 2003 Central Penn Business Journal article, equipment to curb air pollution would tack more than \$1 million to the cost of the proposed plant. The extra equipment is necessary because plants that make the pollution-busting chemical have themselves become the target of pollution regulations.⁴

Since October the U.S. Environmental Protection Agency has struck deals with 16 ethanol plants, including four plants owned by agricultural giant Archer Daniels Midland Co. The deals require the plants to add new pollution controls and pay penalties.⁴

Ethanol evaporates at approximately 100 degrees Fahrenheit, adding to the ozone problem in hotter areas of the country.⁸

The cleanup at ethanol plants began in 2001 after Minnesota regulators discovered that plants in their state were spewing up to 10 times more pollution than anyone realized. The pollutants contributed to smog and acid rain.

The settlement reached with the ethanol producers in Minnesota was a success story for everyone involved and a sign of continued progress with the ethanol industry. The EPA commended the facilities for working cooperatively with state and federal officials to achieve compliance with the new requirements.

Thermal oxidizers were installed that reduce VOC emissions by 95 percent from the feed dryers. In addition other hazardous pollutants are greatly reduced such as nitrous oxide and carbon monoxide. However, thermal oxidizers reduce but do not completely eliminate the odor of the manufacturing process.³³

Today, new plants incorporate thermal oxidizers in to the initial plant designs. Because of the extra heat, plants can use a smaller boiler, offsetting the extra expense.⁴

How will the changes announced in August to the Clean Air Act impact the plans for the building of future plants in Pennsylvania? At this point in time it is unknown what the requirements will be. A court decision is pending on the suit filed by Pennsylvania before the U.S. Court of Appeals on EPA's decision to reconsider portions of the NSR rule.

However, Scott Welsh, Project Manager at Penn-Mar, said his company would buy the necessary equipment to reduce air emissions and spend more than \$1 million.⁴

How will the ethanol plant affect the Susquehanna River?

The development of new and innovative technologies has reduced water consumption in an ethanol plant from 25 gallons per bushel of corn processed in the early 1980s to less than seven gallons per bushel today.

Much of the water used in an ethanol plant is recycled back into the process. In certain areas of production fresh water is needed.

Penn-Mar Ethanol has filed an application with the Susquehanna River Basin Commission (SRBC) for permission to withdraw water from the river at a rate of up to 623,235 gallons per day. (Permit request is pending approval.)

As previously mentioned, one of the benefits of the Conoy Township site is the proximity to the incinerator. As it is now proposed the ethanol plant will utilize the treated wastewater from Elizabethtown Borough in the production process and also as steam heat to dry the corn, thus reducing the amount of withdrawals from the river.



**Lancaster County Solid Waste
Recovery Facility - Conoy Township**
(The ethanol plant is proposed to be built on the
adjacent farmland)

However, for some they feel the plant would forever affect the landscape along the Susquehanna.

Others would argue that it makes perfect sense to place the facility adjacent to the county incinerator, by eliminating the possibility that a much more undesirable site might be chosen along the river.

Does ethanol harm our water supply?

Some scientists now say that ethanol, while not as troublesome as a methanol-based additive (MTBE), also may complicate cleaning up gasoline spills into waterways and groundwater.⁶

***“It certainly is
not all that
benign.”***

***Tom Curtis
American Water
Works Association***

Tom Curtis, an official of the American Water Works Association, which represents professionals involved in the drinking water supply business, cites research indicating that gasoline plumes containing ethanol degrade more slowly in groundwater than plumes of only gasoline. Toxic chemicals such as benzene in ethanol-blended gasoline disperse more widely and take longer to degrade, the studies found.⁶

Monte Shaw, a spokesman for the Renewable Fuels Association, which represents the ethanol industry states, “These studies are far from conclusive. He maintains that because ethanol replaces 10 percent of the gasoline, there is also less benzene and other toxic chemicals – normally found in gasoline – going into the water in the first place. He further states that refiners can blend their gasoline in ways to counter the air pollution concerns caused by ethanol’s evaporation.”⁶

In discussing the issue of possible water contamination, the planners of the project at the proposed site in Conoy Township confirmed that precautionary measures have been included. The tanks containing the ethanol will be housed within containment tanks to reduce the possibility of groundwater contamination in the event of a leak. Both tanks would have to degrade for an event to occur.

In addition, any wastewater from the production of the ethanol will be routed back to the incinerator, not in to the aquifer. As a result of this measure, there will be effectively no wastewater discharge.

What is the potential economic impact for the County?

The Lancaster Chamber of Commerce and Industry endorsed the building of the Penn-Mar Ethanol plant in Conoy Township.

The Chamber cited studies which have shown that ethanol production has a significant positive impact on local economies, generating \$5 of local economic impact for every one dollar of plant revenue. The projected plant revenue is \$85 million, so conceivably the local¹ impact could be \$425 million.

¹ Local denotes state, county and the local municipality.

Observation

The issue of whether or not an ethanol producing facility should be built in Conoy Township is being debated throughout Lancaster County.

What we do know, is that the use of ethanol as a replacement for harmful MTBE is a given. Connecticut and New York have banned the use of MTBE in gasoline as of January 1, 2004. Will this make our air quality better? Not likely, but more importantly, the air quality must not further degrade over Lancaster County. The necessary steps must be taken by Penn-Mar Ethanol to install the appropriate air cleaning equipment. And, the Conoy Township Supervisors and the Pennsylvania Department of Environmental Protection are charged with making certain that this occurs.

Sometime later this year, the Energy Bill will be passed by Congress. The Bill will contain a provision that the U.S. gasoline industry will be required to blend 5 billion gallons of ethanol annually, up from 2.7 billion gallons. This expanded use will guarantee that ethanol production must be increased throughout this country. The ethanol industry has seen a 45 percent growth over the last three years and is one of the few economic sectors that is posting a gain. Should Lancaster County take advantage of this economic benefit?

Won't farmers in Lancaster County realize a benefit by this plant being located here by the demand for more corn? Perhaps. We know that Lancaster County already imports corn from the Midwest to feed the livestock. In fact, Lancaster County produces one-third of its needs. No one is certain how the plant will impact farming in Lancaster County.

The decision to re-zone 65 acres of farmland to an industrial zone would be a difficult decision for any municipality in Lancaster County. We lead the nation in farmland preservation; how could this possibly be justified?

Some would say, location is everything. Penn-Mar Ethanol has proposed building the plant adjacent to the Lancaster County Solid Waste Management Authority Resource Recovery Facility (RRF).

Is this an opportunity for Lancaster County? By siting the plant adjacent to the RRF, the ethanol plant will have the benefit of reusing wastewater from the RRF, thus reducing the amount of fresh water that needs to be withdrawn from the Susquehanna River. Not only will wastewater be recycled, but the power to produce the ethanol will be supplied by steam generated by the waste incinerator. Doesn't this provide an added economic and environmental benefit to the County? Does this justify the re-zoning of agricultural land?

The debate will continue until the date and time that the Conoy Township Supervisors make this difficult decision. The Lancaster County Planning Commission has raised a number of issues that need to be addressed and the Supervisors should respect their concerns.

However, Can Lancaster County afford to discourage new industry? Should we find a way to discuss difficult decisions such as this in a civil and informed manner? Perhaps then, when all of the questions have been answered, we can be assured informed decisions are being made.

GLOSSARY

Benzene – A clear, flammable, poisonous, aromatic liquid. It is used as a solvent and in making a vast number of derivatives used in plastics, insecticides, detergents, paints, dyes, etc.

Conditional-use approval - A conditional use is nothing more than a special exception that falls within the jurisdiction of the governing body rather than the zoning hearing board. Conditional uses are optional; that is, conditional uses may be provided for in the zoning ordinance if desired. The governing body must adhere to the express standards and criteria set forth in the ordinance, or else the conditional use approval or denial could be overturned in court

Corn Belt - The states of Ohio, Indiana, Illinois, Iowa and Missouri as defined by the U.S. Dept. of Agriculture. (USDA)

Distiller's dried grains & solubles (DDGS) – After the starch portion of corn is converted to ethanol and carbon dioxide, the remaining components – proteins, fat, fiber, vitamins and minerals are concentrated and dried to produce this product which is commonly marketed to the dairy, beef and poultry industry as feedstock.

EPA – Environmental Protection Agency of the United States.

Ethanol – A fuel additive derived from the fermentation of starch or sugar-based feedstock.

Food-grade carbon dioxide – used for food processing and by the soft drink industry.

Fuel Ethanol – Contains approximately 95% ethanol and 5% unleaded gasoline as a denaturant to render it unfit for human consumption. The resulting product is sold to gasoline retailers who blend it with unleaded gasoline to produce a blended fuel typically containing 10% ethanol.

Groundwater – Water found underground in porous rock strata and soils, as in a spring.

MTBE – Methyl tertiary butyl ether – A petroleum-based gasoline additive.

Oxygenate – To mix, treat or combine with oxygen.

Subsidy – a government grant to a private enterprise considered a benefit of the public.

Thermal oxidizer – Equipment installed at ethanol plants to reduce the VOC emissions by 95 percent from the feed dryers and to restrict emission limits of other hazardous air pollutants.

VOCs – Volatile organic compounds that evaporate easily into the air.

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American Corn Growers Association – www.acga.org

American Lung Association – www.lungusa.org

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