Zacks Small-Cap Research

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Ian Gilson, PhD; MBA; CFA
312-265-9496
igilson@zacks.com
scr.zacks.com
111 North Canal Street, Chicago, IL 60606

Pacific Ethanol Inc (PEIX-NASDAQ)

PEIX: Second quarter results were impacted by lower ethanol pricing and higher corn costs.

Current Recommendation	**Outperform**
Prior Recommendation	N/A
Date of Last Change	06/05/2011
Current Price (08/13/12)	$0.31
Six- Month Target Price	**$2.00**

OUTLOOK

Pacific Ethanol is a major producer and marketer of ethanol in the Western United States. The company produces and sells Wet Distillers Grains, a co-product of the starch to ethanol process, which is used as a feed and feed additive for cattle in dairies and feedlots.
The company also markets ethanol from third party producers through its subsidiary marketing company, Kinergy Marketing LLC.
The stock is rated as OUTPERFORM with a price target of $2.00 a share.

SUMMARY DATA

52-Week High	**$1.61**
52-Week Low	**$0.27**
One-Year Return (%)	**-24.33**
Beta	**1.86**
Average Daily Volume (sh)	**2,849,783**
Shares Outstanding (mil)	**86.8**
Market Capitalization ($mil)	**$25.9**
Short Interest Ratio (days)	**1.2**
Institutional Ownership (%)	**5**
Insider Ownership (%)	**7**
Annual Cash Dividend	**$0.00**
Dividend Yield (%)	**0.00**
5-Yr. Historical Growth Rates	
Sales (%)	**5.8**
Earnings Per Share (%)	**N/A**
Dividend (%)	**N/A**
P/E using TTM EPS	**N/M**
P/E using 2013 Estimate	**18.1**
P/E using N4Q Estimate	**N/M**

Risk Level	**High,**
Type of Stock	**Small-Value**
Industry	**Biofuels**

ZACKS ESTIMATES

Revenue
(in millions of $)

	Q1 (Mar)	Q2 (Jun)	Q3 (Sep)	Q4 (Dec)	Year (Dec)
2010	**71.3 A**	**76.8 A**	**46.0 A**	**134.3 A**	**328.3 A**
2011	**173.1 A**	**214.6 A**	**271.6 A**	**$241.8 A**	**$901.2 A**
2012	**197.7 A**	**205.4 A**	**198.0 E**	**200.0 E**	**801.2 E**
2013	**227.4 E**	**236.3 E**	**217.8 E**	**220.0 E**	**901.4 E**

Earnings per Share
(EPS is operating earnings before non recurring items)

	Q1 (Mar)	Q2 (Jun)	Q3 (Sep)	Q4 (Dec)	Year (Dec)
2010	**-$1.04E**	**-$0.36E**	**-$1.10E**	**-$0.83E**	**-$2.48E**
2011	**-$0.09A**	**-$0.09A**	**$0.00A**	**-$0.04A**	**-$0.17A**
2012	**-$0.06A**	**-$0.02A**	**-$0.06E**	**-$0.02E**	**-$0.16E**
2013	**$0.00E**	**-$0.01E**	**$0.02E**	**$0.01E**	**$0.01E**

Zacks Projected EPS Growth Rate - Next 5 Years % **35%**

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RECENT NEWS

Pacific Ethanol reported its second quarter revenue on August 14, 2012. Due to a decline in ethanol prices as compared to last year, revenue was below year ago levels despite a significant increase in total gallons sold. Internal production was flat and third party sourced ethanol increased by 27%. We had expected an increase in gallons and flat pricing so results were below our expectations.

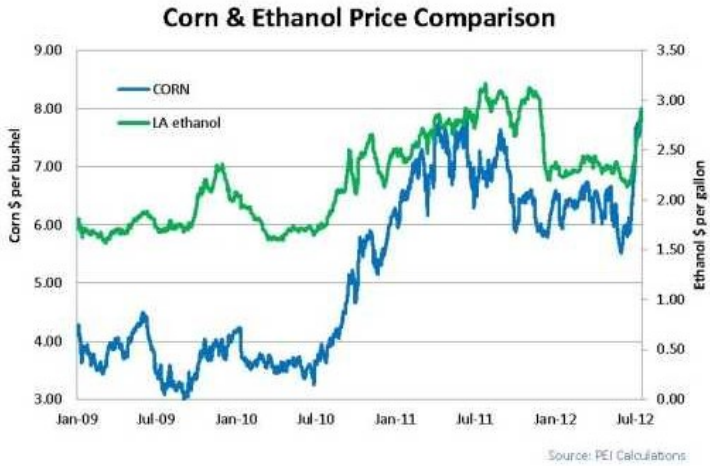
	Revenue	Op. Income	Pretax	Net as reported	Net as Adj.*	Gallons sold
3Q10	$46.0	$1.25	($12.12)	($12.88)	($12.88)	71.5
4Q10	$134.3	($2.90)	($11.64)	($12.14)	($8.70)	76.0
1Q11	$173.1	($1.6)	($4.7)	($0.3)	($1.2)	84.6
2Q11	$214.6	($2.8)	($4.7)	$0.4	($1.5)	100.6
3Q11	$271.6	$4.7	$4.6	$4.0	($0.1)	122.6
4Q11	$241.8	$3.7	$0.8	($2.4)	($3.0)	116.3
1Q12	$197.7	($10.9)	($14.0)	($5.0)	($5.2)	114.8
2Q12	$205.4	($8.0)	($10.0)	($2.6)	($1.7)	116.6
	* before fair value adjustment, after pref. div.					
	$ in millions	gallons in millions				

As a result of the minimal (or negative) spread between corn and ethanol prices the company is reducing the production of ethanol and, depending on market conditions and availability, will increase the third party sales. The conversion of the ethanol plants to separate the corn oil proceeds as expected and the first plant will be selling corn oil in the first quarter of 2013 and all the operating plants will have been converted by year-end 2013.

Pacific Ethanol expects the second half of 2012 to be better than the first half. We think that ethanol prices will increase as a shortage develops in the fall.

Corn supply in the west, the major supply area for the company, has not been as severely affected by the drought as has the mid west. However the price of corn still at record levels.

The pronounced and continued drought in the corn belt has driven corn prices to record levels over the past month. Crop forecasts are based on acres planted and expected yields per acre. Acres have increased from last year but the USDA has cut its yield estimates resulting in a reduction in the estimates of corn production. The price of corn has increased by 40% over the last month



However, ethanol producers are being squeezed due the decline in the spread between corn and gasoline prices. Each bushel (56 pounds) of corn produces 2.75 gallons of ethanol, 18 pounds of dried distillers grains plus solubles, about half a pound of corn oil and 18 pounds of carbon dioxide. The selling price of ethanol depends on both the price of corn and the price of gasoline. There are seasonal factors that influence the price of gasoline, and therefore the price of ethanol. However, corn prices are well above the peaks of 2011 but ethanol prices are not. The loss of the subsidies and credits on blending ethanol has also impacted prices. The co-product revenue from distillers grains is not enough to offset the high price of corn.

In a related announcement the EPA has refused to reduce the mandated level of ethanol in gasoline for 2012 based on the expectations that corn production plus current inventories will still be sufficient to meet all demands. The current ethanol mandate is for 13.2 billion gallons in 2012. Current production levels barely meet that level. However, inventory and the use of RIN certificates could take up the slack unless corn remains at over $7 a bushel and ethanol prices are below $2.50 a gallon. In that case more ethanol plants will close and the available supply will not meet the mandate.

Pacific Ethanol has closed the acquisition of the additional 33% of the stock of New PEW Holdco LLC that was announced on June 27, 2012 as outlined below.

The company has announced a proposed offering of stock and warrants registered under a prior shelf offering. The offering was priced at $0.43 for 28.0 million units prior to the market opening on June 28, 2012. Lazard Capital Markets is the sole manager. Each unit is one common share of stock, one Series II warrants for 1/2 a share of common stock at $0.53 with a term of 18-months and a Series I warrant for one share at $0.63 with a term of 5 years. The warrants will be certified and are separable and traded immediately on closing. The offering is expected to close on or about June 3, 2012. The stock closed at $0.35 on June 28, 2012. We have reduced our price target from $3 a share to $2 a share.

Pacific Ethanol should receive about $10.8 million in net proceeds. We have adjusted our forecasts to reflect the increase in shares outstanding. Before any warrant conversion there will be close to 114 million shares before any warrant conversion.

Pacific Ethanol announced on June 27, 2012 that it has increased its ownership of New PE Holdco, LLC from 34% to 67% at a cost of $20 million. At the same time the company has amended the Pacific Ethanol credit agreement with certain lenders and announced a proposed offering of common stock and warrants.

The $20 million purchase will be at least $10 in cash and the balance in Senior Unsecured Notes issued to the current owners of New PE Holdco at a 5% annual rate which will be due nine months after the closing date of the transaction. The purchase price is at an attractive valuation that is less than the last purchase, below current market valuations and is well below current replacement cost. The increase in ownership is in line with the stated desire on the part of management to gain control of the strategic direction of the assets.

The changes in the plant credit agreement extends the maturity date of $46.7 million of debt and credit revolver from June 25, 2013 to June 30, 2016 and increases the amount of the $35 million revolver to $40 million, adding $5 million in liquidity to the plant's operations.

As expected the (seasonal) demand for gasoline is increasing. This is reducing the inventory that built up during the winter and prices are firming. The decline in gasoline prices would normally increase the miles driven which should increase the demand for ethanol. Profits will depend of the spread between the price of gasoline and the price of corn.

Pacific Ethanol has awarded a turn-key contract to ICM Inc. for the installation of a corn oil separation plant at the Magic Valley ethanol plant. This is one of the two largest ethanol plants with capacity of 15 million gallons a year. ICM Inc. will use its patented Advanced Oil Separation System and the unit should be installed by year-end 2012. The plant will produce 6,000 metric tons of corn oil, which sells for between $780 and $820 a metric ton. Revenue from corn oil could add $4 million to $5 million a year in 2013, most of which would be profit.

If this is successful the other two operating plants will be fitted with separation units in early 2013 with a total of $12.8 million a year in additional income.

As part of the production of ethanol the company produces and sells Wet Distillers Grains (WDG). At this time the corn oil is mixed with the WDG. The separation of the corn oil will have negligible impact on the production of WDG. There is also the potential of a slight increase in selling prices of WDG since a number of farmers do not want WDG mixed with corn oil.

The company reported its first quarter earnings on May 10, 2012. Due to the seasonal decline in volumes of gasoline sold in California, excess inventory of ethanol statewide and some ethanol pulled into 4Q11 to take advantage of the tax credit, the price of ethanol declined significantly in the start of 2012.. However, the cost of corn, the major raw material, did not decline as farmers held back on selling some of their inventory. Ethanol producers did not reduce production rates and the combined effect of excess production and declining demand continued to have a very negative impact on ethanol prices.

Due to the increase in the USDA forecast of the 2012 corn crop to a new record the price of corn has declined slightly from the highs earlier in the year. However, the USDA is also forecasting an increase in the

volume of ethanol produced in the USA, despite a decline in US production of about 15% in the first six months due to plant closures.

	Ethanol	#2 yellow corn	Rolled corn	DDG, 10%	Crude Oil
May 2011	$2.57	$232.0	$295.0	$200.0	$2.21
Nov. 2011	$2.73	$224.0	$291.0	$214.0	$2.25
Jan. 2012	$2.07	$224.0	$286.0	$199.0	$2.50
May 2012	$2.14	$223.0	$291.0	$211.0	$2.24
Source: The Hoyt Report, Inc.			Crude Oil NY Futures		
Ethanol	$/gallon.	FOB Iowa.			
Corn, #2	$/Ton	FOB Iowa.	Corn, Rolled	$/Ton	Central CA
			DDG, 10% moisture, $/Ton		FOB Iowa.

The California Low Carbon initiative that was found to discriminate against out of state ethanol and crude oil has been appealed by the State of California. As such the initiative may be enforced until the appeal is heard.

Refineries are currently blending ethanol into gasoline at below the mandated level and are using their RINs to maintain profitability. In 2013 the E15 (gasoline with 15% ethanol) blend should be introduced into the market and this could have a positive impact on ethanol demand in the second half of 2012 if the spread between corn and ethanol becomes profitable.

The excess ethanol inventory continues into the second quarter of 2012. We expect a decline in ethanol production by Pacific Ethanol in the third quarter and then increasing sales for the rest of the year. If the excess ethanol inventory is consumed if E15 is introduced and gasoline consumption increases on a seasonal basis we would expect the company to restart the (currently idled) Madera plant.

Pacific Ethanol will probably continue to increase its ownership New PE Holdco LLC as a low cost way of adding to its owned ethanol capacity.

We have adjusted our estimates to reflect lower than anticipated ethanol prices.

We continue to rate the stock as Outperform with a price target of $2 a share

Pacific Ethanol closes two transactions:

On December 20, 2011 the company closed the purchase of 7% of the New PE Holdco LLC for $4.6 million, increasing its ownership to 34%. The price is well below the replacement cost of new capacity. The increase in ownership bolsters our opinion that the company can operate the plants profitably.

On the same day Pacific Ethanol closed the sale of non-registered stock, 7.625 million shares at $1.049 a share for a total of $8 million. The transaction included 4.95625 million warrants that can be exercised for a share of stock at $1.50 each. The warrants expire after five years.

The mandated level of ethanol in gasoline moves from 12.6 billion gallons in 2011 to 13.2 billion gallons in 2012 (and 15 billion gallons in 2015)

The price of ethanol is more closely related to the price of gasoline than to the price of corn. At this point in time corn has peaked and the price has dropped. This has a slight but positive effect on gross margins.

California is the largest gasoline consuming state in the Union and there is a shortage of ethanol production in California. Pacific Ethanol has a very strong presence in the Western United States and markets 100% of the ethanol produced in California. In the past about one third of the company's sales are from internal production, one third under contract and one third from other sources. This is moving to a smaller proportion of internal and contract ethanol, even if the Madera plant is re-opened. We would expect Pacific Ethanol to announce more contracts in 2012.

Pacific Ethanol has announced an agreement with ZeaChem to maintain the plant, produce and sell the ethanol produced from cellulosic material (no corn) feedstock. This is a small plant with capacity of 250,000 gallons a year and it is situated very close the Boardman, OR, plant.

AE Keys marketing agreement extended:

Pacific Ethanol's marketing subsidiary, Kinergy Marketing LLC and Advanced Fuels Keyes Inc. (AE Keyes) have extended their marketing agreement for another two years. The Keyes plant has an annual capacity of 55 million gallons currently using corn as a feedstock. AE Keyes is owned by AE Biofuels Inc. which is also working on cellulosic based ethanol production (which currently has a $1.01 per gallon subsidy)

As well as AE Keyes Kinergy markets ethanol from Calgren Renewables, Pixley, California and Front Range Energy, Windsor, Colorado. Currently Kinergy has marketing agreements for 80 million gallons per quarter.

Senate vote:

On June 14, 2011 the US Senate voted against an elimination of the ethanol subsidy (by 59 to 40) on procedural grounds. This was followed on June 16, 2011 by a vote of 73 to 27 to eliminate the subsidy, which was attached to a bill that is not expected to pass. President Obama is reported as saying that he will veto the bill with the elimination amendment. The ultimate outcome of the VEETC is uncertain given the Renewable Fuel Standard requirements of 13.5 billion gallons in 2012 and that the credit is directed to the gasoline blenders and not to the producers of ethanol.

Notice from NASDAQ:

On September 13, 2011, Pacific Ethanol, Inc. (the "Company") received a letter from The NASDAQ Stock Market ("Nasdaq") indicating that the bid price of the Company's common stock for the last 30 consecutive business days had closed below the minimum $1.00 per share required for continued listing under Nasdaq Listing Rule 5550(a)(2). Under Nasdaq Listing Rule 5810(c)(3)(A), the Company has been provided an initial period of 180 calendar days, or until March 12, 2012, to regain compliance. The letter states that the Nasdaq staff will provide written notification that the Company has achieved compliance with Rule 5550(a)(2) if at any time before March 12, 2012, the bid price of the Company's common stock closes at $1.00 per share or more for a minimum of 10 consecutive business days. Notwithstanding the minimum 10 consecutive business day requirement, the Nasdaq staff may exercise its discretion to extend the 10 day period as discussed in Nasdaq Listing Rule 5810(c)(3)(F).

KEY POINTS

- Western US localization a positive.

  Pacific Ethanol has positioned its plants to minimize transportation costs for corn, ethanol and wet distillers grains, WDG. Production and Marketing are well integrated into local markets where demand is greatest

- Subsidies:

  The potential loss of the current subsidies and tariffs will change the market dynamics, allow imports of ethanol and open the door to petroleum based ethanol. In our opinion the subsidy will be reduced but not eliminated and a tariff will remain on imports.

- Capacity:

  Current bio-ethanol capacity (from all sources) exceeds the Federal mandated requirements for 2015. This long term excess capacity could have a significant impact on ethanol and ethanol prices. However, the current world wide high price of sugar, if continued, will open the export markets to US produced ethanol. Brazil needs to modernize and expand its sugar industry to meet its expected demand for ethanol.

- The Economy:

  The current economic climate and high unemployment reduces the demand for gasoline and gasoline blends. However, implementation of higher levels of ethanol, such as E15, which has been approved by the Federal EPA for vehicles built in 2001 and later.

- The potential of cellulose:

  There are a large number of companies looking for other enzymes and yeasts that will convert cellulose to sugars, possibly not d-Glucose that can then be converted to ethanol and other organic molecules.

COMPANY BACKGROUND

Pacific Ethanol was formed in 2003 and marketed ethanol produced by third parties through a subsidiary Kinergy Marketing LLC. The company went public in 2005. The company started construction of its first ethanol production plant in 2006 and subsequently built three more between 2006 and 2008. The plants were set up as wholly owned subsidiaries, the plant owners. Revenue grew rapidly, from $88 million in 2005 to $704 million in 2008, with gross margins of 11% in 2006. However, ethanol prices declined and corn prices (the major raw material) increased and revenue declined as unprofitable facilities were placed on standby, causing negative gross margins in 2007. The company had financed the plants, and acquired a 42% interest in another plant, with debt and equity. In 2008 and 2009 adverse market conditions and inadequate working capital caused the company to idle three of the four plants and the plant subsidiaries to file for Chapter 11 of the Bankruptcy Code on May 17, 2009. The plan of reorganization was approved by

the Court on June 8, 2010 and became effective on June 29, 2010. Much of the bank debt was converted to equity in the production plants and was restructured into a new company New PE Holdco LLC.

Under the plan Pacific Ethanol continued as an operator and manager of the four plants on behalf of the plant owners. Subsequently the 42% part ownership of the fifth plant, located in Windsor, Colorado was sold and a 20% minority ownership of New PE Holdco was acquired, making Pacific Ethanol the largest ownership interest in New PE Holdco. Kinergy Marketing LLC and Pacific Ag Products LLC remain wholly owned subsidiaries of Pacific Ethanol.

Under the terms of an asset management agreement with the plant owners, Pacific Ethanol manages buying the grain, plant operations and marketing of ethanol and wet distillers grains (WDG) and other co-products produced at the four plants.

In November, 2010 Kinergy and AE Keyes (AE Biofuels, AEBF) signed an exclusive marketing agreement to market the ethanol from a plant in Keyes, CA. The plant became operational in the second quarter of 2011 at a rated capacity of 55 million gallons a year.

Pacific Ethanol currently operates three plants and the fourth is on stand-by. These are:

Plant:	Quarterly Capacity million gallons.	Status
Magic Valley, Burley, ID	15	Operating
Columbia, Boardman, OR	10	Operating
Stockton, Stockton, CA	15	Operating
Madera, Madera, CA	10	Idle

Captive capacity is 40 million gallons per quarter from three plants. In the first and second quarters of 2011 sales from the three operating plants aggregated 37 and 38 million gallons, essentially these plants are at capacity.

AE Keys, Keys, CA	13.75	Operating.

Currently third party sales in the first and second quarters were 47 and 63 million gallons.

The two largest customers currently are Chevron (19% of ethanol purchases) and Valero (5%)

Corn is the basic raw material and is purchased under contracts, mainly from Midwest US growers and shipped to the ethanol plants.

OVERVIEW

Ethanol and Corn

Ethanol (Ethyl Alcohol) has been produced by the fermentation of starch for at least 10,000 years. The origin of Mead (honey wine) is lost in antiquity but the first scientific evidence dates back to 7,000 BC. The production of fortified wines, (such as Brandy) where ethanol (produced by the distillation of wine) is added to wine, dates back to early Greece and Rome.

Starch is a polysaccharide, as is cellulose. They are polymers, many units of simple saccharides linked together, of carbohydrates (COH_2) such as D-glucose (also called dextrose) and fructose. Starch is present in corn, rice, beans, wheat, potatoes, fruits and barley and other grains. The breakdown of starch is catalyzed by enzymes (such as Amylase) producing sugars such as fructose and glucose. There are other sugars, such as sucrose, lactose (from milk) and maltose (from barley, used to make Bourbon).

Amylase is present in human saliva and starts the digestive process. Some foods contain starch but not sugar and the presence of amylase convert the starch into sugars in the mouth so that they taste sweet. Amylase was isolated in 1833. There are other enzymes that work on different carbohydrates, such as cellulose, that are present in ruminants, most of which have four stomachs. However, humans cannot digest cellulose.

There is a great deal of research on enzymes that can convert carbohydrates other than starch directly into sugars since cellulosic waste is an abundant source of raw material.

After the starch is converted to sugars it is treated with yeast to convert the glucose sugar to ethanol. Yeast are fungi and there are many different types, the most well known being brewer's yeast. Not all yeasts are suitable for converting sugars to alcohol

Corn contains approximately 61 percent starch, 3.8 percent oil, 8 percent protein, 11.2 percent fiber and 16 percent moisture. During ethanol production, starch is converted to ethanol and the other constituents of the corn kernel become co-products. Each bushel (56 pounds) of corn produces 2.75 gallons of ethanol, 18 pounds of dried distillers grains plus solubles and 18 pounds of carbon dioxide.

There are three types of corn produced for food, feed and seed. Food corn, white corn or sweet corn, is grown for human consumption, feed corn is for animal consumption and seed corn is grown in a manner that keeps the genetic varieties separate from other hybrid varieties and are sold to farmers as seeds (popcorn is a varietal that explodes on heating). In 2009 the United States was the largest producer of corn at 333,010,910 tonnes (a tonne is 1,000 kilograms or 2204.62 pounds) or 5,250 million bushels (bu), China second at 163,118,097 and Brazil third at 51,232,447 tonnes. The US grows 40.75% of the world's total of 817,110,509 tonnes. In 2008 the US produced 12.1 billion bu. Of this 5,250 million bu was for animal feed, 3,350 million bu went to ethanol production, 1,850 million bu was exported, 943 million bu was used to produce corn products such as starch (much of it used as chemicals), corn oil and sweeteners (HFCS) and 327 million bu was for human consumption.

On Monday, September 12, 2011 at 10:39 UTC the Financial Times reported that the US government fell into line with private forecasters and cut its outlook for the domestic corn crop after a summer hot spell crimped yields. [see: US cuts domestic corn crop outlook - FT.com]

This year's (2011) harvest in the world's largest corn producer and exporter will total 12.5bn bushels, the US Department of Agriculture said on Monday, down 417m bushels, or 3.2 per cent, from an estimate made last month. The agency said the average corn field would produce 148.1 bushels per acre, 4.9 bushels less than its previous estimate.

The crop would still be the third largest in US history. But with consumers from hog farms to ethanol producers driving record global demand, stocks are expected to fall to extremely low levels by next summer.

"The corn market continues to remain incredibly tight," said Chad Hart, an economist at Iowa State University. "Typically, when corn's tight, all the other grains feel it."

The government's reappraisal of corn prospects slightly undershot private estimates. CBOT December corn rose 1.2 per cent to $7.45½ a bushel, after rising 60 per cent in the past year. The precarious balance of supply and demand drove corn to a record near $8 a bushel in June. High prices have put the brakes on consumption, prompting livestock and poultry farmers to switch to comparably priced wheat as a feed, or forcing them out of business. The US cut sharply its estimate of domestic feed use by 200m bushels.

Weak gasoline markets led the USDA to cut ethanol fuel refiners' estimated corn use by 100m bushels to 5bn, leaving the industry the largest US corn consumer.

Since feed corn and not food corn is used to produce ethanol there is little direct impact on food prices via corn prices. Studies have suggested that there has been very little, if any, transfer of acreage for food corn over to feed corn. The price of food is more directly tied to oil costs rather than the cost of corn. Farmers in certain areas will switch between corn and soybeans in a crop rotation program or on a profit per acre basis. However, feed corn is used to fatten pigs and cattle and increased demand from the ethanol sector could cause the price of hogs and beef to increase.

The current US utilization of corn (marketing year ending August 31, 2010, source USDA, in thousand metric tonnes) is as follows:

Feed and other :	131,045.5	39.4%
Food, seed & industrial (excluding Ethanol)	34,799.8	10.5%
Ethanol	116,033.4	34.9%
Exports	50,472.5	15.2%

Total for 2010 332,351.1 thousand metric tonnes.

In July 2011 the USDA World Agriculture Supply and Demand Estimate report projected that for the first time more corn would be used for ethanol than feed. That report suggested that 5 billion bushels of the 2010-'11 corn crop will go for feed while 5.05 billion bushels will be used for ethanol production. For 2011-2012, the numbers are projected at 5.15 billion bushels of corn for ethanol and 5.05 billion bushels for feed.

Those numbers only tell part of the story and when viewed only on the surface, can be misleading, Rick Tolman, CEO of the NCGA cautions. It ignores the fact that corn going into ethanol production isn't completely consumed. About one third of the corn destined for ethanol production comes out the back end as distillers grains, not to mention multiple co-products from wet mills. It's a message the NCGA and, indeed, the entire ethanol industry has declared repeatedly. "Ethanol may be processing more, but basically one-third of what is being processed is coming right back into the livestock ration," says Paul Bertels, NCGA's vice president for production and utilization.

In fact, the NCGA asserts, when corn co-products from ethanol production are taken into account, domestic and international livestock is still the No. 1 use for U.S. corn. In all, 1.2 billion bushels of corn are displaced by distillers grains and corn gluten feed, according to the ProExporter Network, or PRX, which tracks the usage of corn and other crops. Adding that to the 5 billion bushels of corn consumed by U.S. livestock brings the total to 6.2 billion bushels of corn for domestic feed. In addition, another 1.5 billion bushels of corn was exported in the past year. In all, that means about 7.7 billion bushels per year of U.S. corn goes for feed use in the U.S. and overseas—a much higher number than the 5.15 billion bushels the USDA projects will be used for ethanol. Looking at it this way, 43 percent of the corn supply, including ethanol coproduces, becomes feed for livestock, 16 percent of corn and distillers grains is exported and 26 percent is used to produce ethanol. "Ethanol is certainly is important growing market for us, but it is not the largest consumer, livestock still is," Tolman says.

The key message that needs to be communicated, he tells EPM, is that the U.S. corn supply is growing, thanks to increased yield. According to the USDA, corn farmers produced an average yield of 152.8 bushels of corn per acre in 2010, up 30 percent from the average 20 years ago. Most markets for corn, such as feed, exports, food and industrial, have remained relatively flat during the past decade. Corn use for ethanol, on the other hand, has grown dramatically. "Ethanol has taken up that surplus," he says. "Otherwise it would have been a burden on farmer's income, because we'd driven prices down, and we would have had a reduction in acres, because there would be no end use for it."

The percentage of corn converted to ethanol is shown below (all in million metric tonnes) as well as the distillers grains that are produced as feed (DW or dry weight):

	Corn production	Used for Ethanol	As % of grain Crop	DWG Produced for feed
2003	256	29.7	10.1	10
2004	300	33.6	9.7	11.2
2005	282	40.7	10.6	13.5
2006	268	53.8	14.8	17.9
2007	331	76.9	22.9	25.6
2008	307	92.7	22.5	30.9
2009	312	104.1	26.0	34.7
2010	316	138.0	43.0	46.0

The WDG produced should be used as an offset to the grain used to make ethanol for a better representation of the corn lost to cattle.

Gasoline:

Gasoline consumption, excluding the ethanol component, has declined since the peak in 2002 Total gasoline consumption peaked in 2007 and then declined. This is probably due to the economy and declines in employment. The data is shown below (in billion US gallons):

	Gasoline from from petroleum	Ethanol*	Total Motor Gasoline	%Ethanol in Gasoline
2015		15.0		
2014		14.4		
2013		13.8		
2012		13.2		
2011		12.6		
2010	125.65208	12.844096	138.496176	9.274
2009	126.77388	11.143272	137.916660	8.080
2008	128.34402	9.838374	138.182394	7.120
2007	135.38906	6.960240	142.349298	4.890
2006	136.22582	5.615484	141.841308	3.959
2005	136.37131	4.040190	140.411502	2.877
2004	136.41718	3.551142	139.968318	2.537
2003	134.15527	2.816688	136.971954	2.056
2002	133.48427	2.153004	135.637280	1.587

* Data for 2011 to 2015 is the New Renewable Fuels Standard Schedule

The impact of legislation passed in 2007 on the gallons of ethanol added to the gasoline pool is obvious.

The Renewable Fuels Association reports 204 ethanol distilleries in operation and another 10 under construction or expansion as of January 2011, that when completed, will bring U.S. total installed capacity to 14.6 bg. There are another 16 plants in Canada, some of these use wheat as a feedstock. The Energy Independence and Security Act of 2007 require 36 billion gallons of annual renewable fuel use by 2022. This includes 16 billion gallons a year from cellulosic feed-stocks. The minimum contribution from corn ethanol is set to 15 billion gallons by 2015 and remains at that level.

Exports:

Brazil is the second largest producer of ethanol and is probably the most efficient. Its ethanol industry is based on sugarcane and does not need the initial enzyme process. The bagasse (the cane waste) is used as a fuel thereby saving energy costs. In 2010 Brazil produced 6.92 billion US gallons of ethanol. As the price of sugar increased ethanol exports from Brazil dropped from 600 million gallons in 2008 to an estimated 190 million gallons in 2009 and currently the US is an exporter of ethanol to Brazil since the profit from selling sugar exceeds that from selling ethanol.

Distillers Grains:

Distillers grains are a byproduct of whiskey and fuel ethanol production. Studies date back to the early 1900s on the use of distillers grains as a food supplement for cattle. When yeasts feed on the sugars they multiply rapidly. There are non-starch materials in corn, including proteins and fibers, some fats and some phosphorus. A bushel of corn (0.0254 metric ton) produces 2.75 gallons of ethanol and 17 pounds of distillers grains (dry matter basis). After the ethanol is distilled off and some of the remaining water is removed the residue is wet distillers grains (WDG) and it contains about 30 to 35% dry matter (DM). The liquid spun off can be further condensed and becomes condensed distiller solubles, which can be added back to the WDG. The WDG with solubles can be heat dried and is called dried distillers grain with solubles (DDGS). Since these products are fed to cattle they partially offset the feed corn that is used to make ethanol.
DDGS sold for about $250 metric tonne in May 2011. Pacific Ethanol produces WDG. This is sold in markets close to the ethanol plants.

INDUSTRY OUTLOOK

The big question is the fate of the subsidy on fuel ethanol. On June 14, 2011 the US Senate voted against an elimination of the ethanol subsidy (by 59 to 40) on procedural grounds. This was followed on June 16, 2011 by a vote of 73 to 27 to eliminate the subsidy, which was attached to a bill that is not expected to pass. President Obama is reported as saying that he will veto the bill with the elimination amendment.

In our opinion the subsidy will be reduced but not eliminated. There are many members of Congress in the corn belt and a compromise may be forged between those espousing elimination and those that would like to keep the status quo.

The future of the subsidy will influence the growth of the bio-ethanol industry. Currently ethanol can be produced from oil at a lower cost than that made from corn. The current bio ethanol plant capacity exceeds the mandated fuel use (see the New Renewable Fuels Standard Schedule posted above) for 2012, and more capacity could be built. In the US there are 220 plants operating, including a number of small plants that do not use corn as a raw material, and 7 under construction, for a total capacity of 15,085.60 million gallons plus 16 in Canada (and one under construction) with a total capacity of 1,824 million gallons. Although Canadian mandated demand is higher than the current capacity, a change in relative currencies and the elimination of the tariff would open up the US market to the Canadian plants, many of which are close to the US border and many of these use other grains as a feedstock. At this time Canada is an export market for ethanol.

Data from http://www.ethanolproducer.com/plants/listplants/USA/ as of September 16, 2011

There remains a much larger subsidy on ethanol, over $1.00 a gallon, for the use of cellulose as a raw material. This requires a new (to be developed) enzyme that is as efficient as amylase and converts cellulose to sugars and, in some cases. a new fungi (yeast) that works in converting other sugars than D-glucose into ethanol.

The use of new enzymes and fungi is a long term goal of Pacific Ethanol.

The largest cost in making bio ethanol is the cost of corn and the cost of natural gas (which is used by most plants where natural gas is available and is used in all of the PEIX plants) About one third of a bushel of corn will produce one gallon of ethanol. If corn costs $2 a bushel experts state that it costs about $1.10 to produce a gallon of ethanol and for every $1 increase in corn the cost of ethanol goes up $0.35. If corn is $6 a bushel the cost of bio ethanol rises to $2.50 a gallon. At $2 a bushel the equivalent cost of crude oil is $30 a barrel (42 gallons) if the subsidy is included or $50 a barrel on a direct energy equivalent. With corn at $6 the crude cost would be close to $90 a barrel, close to the current cost of WTI oil.

On that basis, bio ethanol is cost competitive with crude oil at the current price of crude.

INDUSTRY POSITION

There a few very large ethanol plants. Most of them have capacities between 40 and 100 million gallons a year. The economies of scale are reached at about 50 million gallon/year. On that basis the three plants Pacific Ethanol is operating are not at a disadvantage to larger companies. The costs of corn, is common to all and its cost of shipment depends on the distance shipped. Pacific Ethanol's plants are located as close to the source of corn as is possible considering customer requirements. It is cheaper to move corn in bulk than it is to transport ethanol. The same applies to WDG. Being close to the point of demand reduces the cost of shipping to the customer.

In our opinion the company's "Destination" model is working.

VALUATION

The valuations of the ethanol producing companies are depressed, especially the smaller ones, because of the elimination of the ethanol subsidy. With the current Federal deficit there is pressure on the obvious targets such as agricultural based products. Until the subsidy question is resolved (lack of capacity may drop production below the mandated volume) the prices of the stocks will remain under pressure. Ethanol producers like Pacific Ethanol do not get the subsidy, it goes to the blenders.

Given the extremely low valuation on future earnings of Pacific Ethanol we are rating the stock as Outperform with a price target of $2.00 a share.

COMPARISON TABLE	Ticker	Price	Mkt	ROE	P/E	P/E	P/B	P/S	EV/Sales	EV/EBITDA	PEG	Inst.
(Source: Yahoo Finance)		8/14/12	Cap	(%)	L4Q	N4Q	LQ	L4Q	L4Q	L4Q		Owned %
			(in million)									
Pacific Ethanol	**PEIX**	**$0.31**	**$27**	**NM**	**NM**	**-5.8**	**0.22**	**0.03**	**-0.1**	**0.37**	**-0.09**	**4.9**
Aemetis Inc.	AMTX	$0.70	$63	N/A	N/A	N/A	N/A	9.2	12.0	N/A	N/A	0.4
Archer Daniels Midland Co.	ADM	$25.85	$17,120	6.71	14.10	9.02	0.94	0.19	0.29	9.06	1.05	8.1
Biofuel Energy Corp.	BIOF	$3.05	$16	N/A	N/A	N/A	0.19	0.02	0.29	8.93	N/A	4.4
Bunge Ltd.	BG	$64.60	$9,480	5.84	13.19	8.85	0.90	0.16	0.29	11.40	0.92	33.7
Cereplast Inc.	CERP	$0.23	$4	N/A	N/A	N/A	0.64	0.38	1.95	N/A	N/A	12.1
Codexis Inc.	CDXS	$2.46	$90	N/A	N/A	N/A	0.91	0.70	0.27	N/A	N/A	33.8
Ingredian Inc. (was CPO)	INGR	$52.93	$4,030	17.10	10.67	9.43	1.78	0.63	0.85	7.07	0.99	N/A
Cosan Ltd. Class A	CZZ	$13.69	$3,690	3.42	42.86	9.80	1.31	0.29	0.43	5.84	0.28	88.0
Future Fuels Corp	FF	$9.58	$397	13.71	10.28	9.62	1.35	1.08	0.60	3.24	N/A	34.3
Green Pln Renew. Energy Inc	GPRE	$4.19	$125	1.12	25.15	7.24	0.28	0.04	0.19	6.72	8.44	71.2
Rentech Inc	RTK	$2.17	$477	N/A	N/A	54.25	2.28	2.20	1.56	5.11	5.89	46.0
Solazyme Inc.	SZYM	$13.02	$7,893	N/A	N/A	N/A	3.39	14.74	11.23	N/A	N/A	24.3
Viral Genetics Inc.	VRAL	$0.10	$3	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Data from Yahoo.com and Zacks Investment Research.												
Mean				7.98	19.38	12.80	1.18	2.28	2.30	6.42	2.50	
Median				6.28	13.65	9.23	0.93	0.38	0.43	6.72	0.99	

RISKS

- Ethanol has a lower energy content than gasoline and delivers fewer miles per gallon. Public acceptance of blends with higher concentrations of ethanol may not occur. This would limit the demand for blends such as E85.

- The results of operations of the Pacific Ethanol Plants and their ability to operate at a profit is largely dependent on managing the spreads among the prices of corn, natural gas, ethanol and WDG, the prices of which are subject to significant volatility and uncertainty.

- The United States ethanol industry is highly dependent upon myriad federal and state legislation and regulation and any changes in legislation or regulation could have a material adverse effect on our results of operations and financial condition.

- The company has received a delisting notice from The NASDAQ Stock Market. Its common stock may be involuntarily delisted from trading on The NASDAQ Capital Market if we fail to regain compliance with the minimum closing bid price requirement of $1.00 per share. A delisting of the common stock is likely to reduce the liquidity of the common stock and may inhibit or preclude the company's ability to raise additional financing and may also materially and adversely impact the credit terms with its vendors.

INSIDER TRADING AND OWNERSHIP

Over the past six months insiders purchased 325,000 shares and sold 18,113 shares. Net institutional transactions were sales of 863,393 shares.

PROJECTED INCOME STATEMENT & BALANCE SHEET

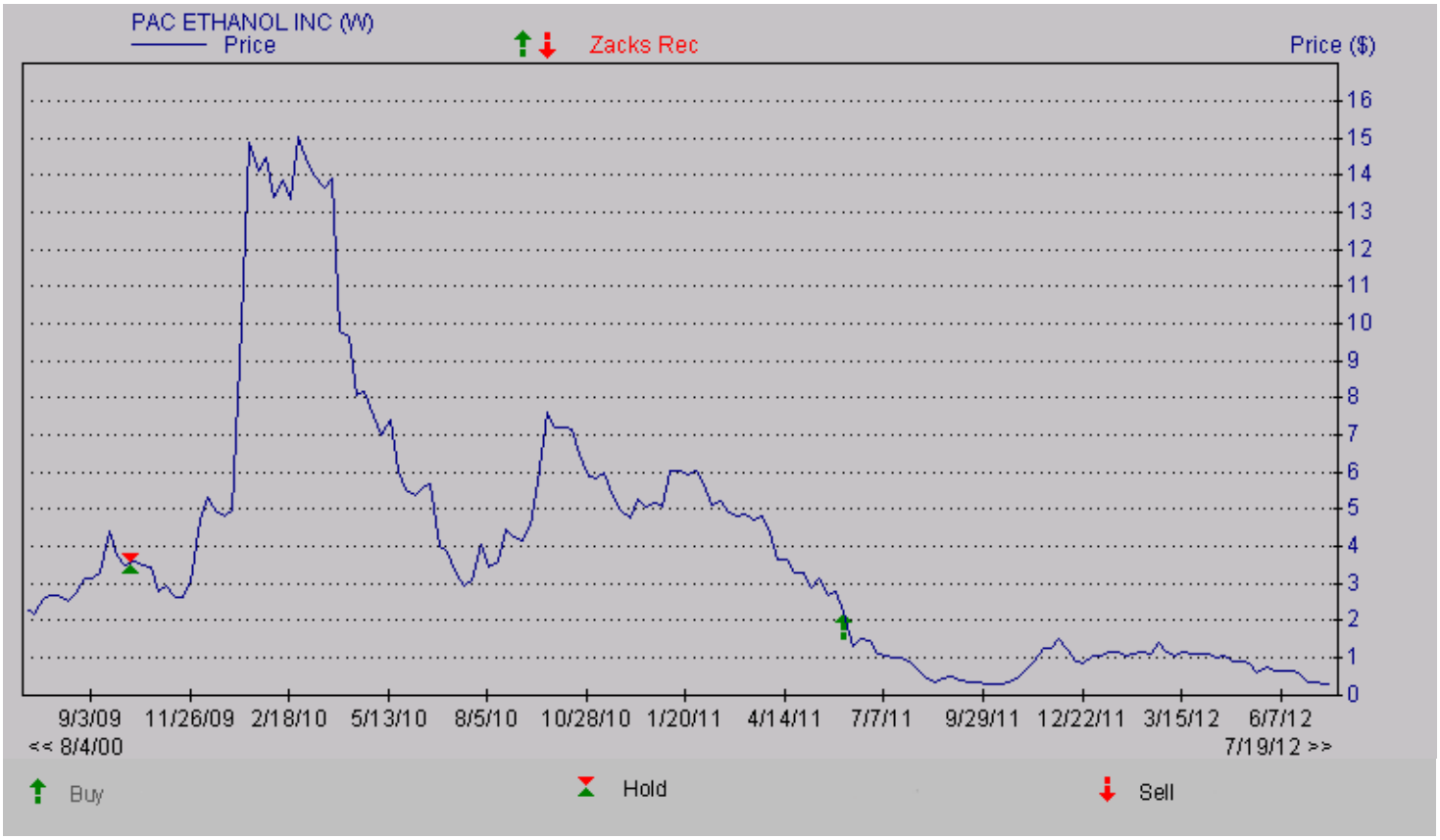
Pacific Ethanol Inc.												
PEIX												
Consolidated Statements of Operations												
(Dollars in millions except per share data)												
Fiscal Year Dec 31.	**2010**	**1Q11**	**2Q11**	**3Q11**	**4Q11**	**2011A**	**1Q12**	**2Q12**	**3Q12.**	**4Q12**	**2012 E**	**2013 E**
							Act.	Est.				
Net sales	**$328.34**	**$173.15**	**$214.59**	**$271.65**	**$241.80**	**$901.19**	**$197.72**	**$235.00**	**$285.00**	**$255.00**	**$972.72**	**$1,091.63**
% Change							14.19	9.51	4.91	5.46	7.94	12.22
Cost Goods	329.15	170.58	213.31	263.46	234.43	881.79	205.20	232.00	282.00	252.00	971.20	1077.00
G & A	12.95	4.19	4.06	3.50	3.69		3.38	3.50	3.60	5.00	14.08	15.60
R&D	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Op Income GAAP	(13.76)	(1.62)	(2.78)	4.69	3.68	3.97	(10.86)	(0.50)	(0.60)	(0.60)	(12.56)	(0.97)
Interest Expenses	2.86	3.64	3.63	4.07	3.48	14.81	2.91	0.00	0.00	0.00	2.91	0.00
Interest Income	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	8.00
Non Op Income	(4.53)	(0.34)	1.93	(0.17)	0.59	2.01	(0.19)	0.00	0.00	0.00	(0.19)	0.00
Other	95.05	0.93	(0.20)	4.11	(0.03)	4.81	(0.03)	0.00	0.00	0.00	(0.03)	0.00
Calc.Pretax	73.89	(4.68)	(4.68)	4.57	0.76	(4.02)	(13.99)	(0.50)	(0.60)	(0.60)	(15.69)	7.03
Taxes	0.00	0.00	0.00	0.00	0.00	0.00	0.00	(0.08)	(0.10)	(0.10)	(2.51)	1.12
Tax Rate	0.00	0.00	0.00	0.00	0.00	0.00	0.00	16.00	16.00	16.00	16.00	16.00
Other Income	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Pro-forma adj.	(104.77)	(0.93)	(1.93)	(4.11)	(0.59)	(7.56)	0.03	0.00	0.00	0.00	0.03	0.00
Net Income	73.89	0.02	0.75	4.35	(2.05)	3.07	(4.95)	(1.92)	(1.50)	(1.50)	(9.88)	1.90
Costs and expenses are on a pro-forma basis												
Net For Common	71.05	(0.29)	0.43	4.03	(2.37)	1.81	(5.27)	(1.92)	(1.50)	(1.50)	(10.20)	1.90
Shares Used, millions	13.60	13.58	16.77	33.20	70.95	33.73	86.22	86.30	114.00	115.00	100.50	115.00
Earnings Per Share												
EPS	**$5.22**	**($0.02)**	**$0.07**	**$0.12**	**($0.03)**	**$0.05**	**($0.06)**	**($0.02)**	**($0.01)**	**($0.01)**	**($0.10)**	**$0.02**
Pro Forma EPS	**($2.48)**	**($0.09)**	**($0.09)**	**($0.00)**	**($0.04)**	**($0.17)**	**($0.06)**	**($0.02)**	**($0.01)**	**($0.01)**	**($0.10)**	**$0.02**

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Pacific Ethanol Inc.								
Consolidated Balance Sheet (in $ millions)								
Fiscal Year Dec 31.								
		4Q09	**4Q10**	**1Q11**	**2Q11**	**3Q11**	**4Q11**	**1Q12**
ASSETS								
Cash & Equiv.		17.55	8.74	8.45	9.83	16.81	8.91	4.98
A/R		12.77	25.86	32.34	34.28	28.24	28.14	29.12
Inventories		15.32	17.31	18.48	26.99	22.43	16.13	14.44
Other		3.14	5.43	4.64	2.06	9.82	13.56	9.67
Total current assets		48.78	57.32	63.92	73.16	77.30	66.75	58.21
Gross Plant		243.73	168.98	166.35	164.48	161.64	159.62	157.61
Acc. Deprn		0.00	0.00	0.00	0.00	0.00	0.00	0.00
Investments		0.00	0.00	0.00	0.00	0.00	0.00	0.00
Intangibles		5.16	5.38	5.15	4.92	4.69	4.46	4.23
Other		1.15	2.40	2.24	2.14	1.82	1.65	1.60
All Assets		298.82	234.08	237.66	244.70	245.44	232.48	221.65
LIABILITIES AND NET WORTH								
Debt Due 1 Yr		77.36	38.11	32.17	26.38	12.15	0.75	0.75
Notes Payable		0.00	0.00	0.00	0.00	0.00	0.00	0.00
A/P		8.18	6.47	8.18	9.85	9.23	5.52	8.50
Taxes		0.00	0.00	0.00	0.00	0.00	0.00	0.00
Other		10.89	3.25	2.69	2.78	2.24	2.71	2.85
Total current liabilities		96.43	47.83	43.05	39.02	23.62	8.98	12.10
Conv. Debt		0.00	0.00	0.00	0.00	0.00	0.00	0.00
L.T.Debt		12.74	84.98	89.63	100.19	101.11	93.69	93.72
Other LT		5.03	0.00	0.00	0.00	0.00	0.00	0.00
Def. Taxes & ITC		0.00	0.00	6.36	6.68	7.00	7.32	7.32
Other		242.42	13.46	6.60	2.72	1.59	3.23	3.15
All Liabilities		356.62	146.27	145.64	148.61	133.31	113.21	116.28
Pref.Stock		0.00	0.00	0.00	0.00	0.00	0.00	0.00
Common Stock		0.06	0.09	0.11	0.02	0.05	0.09	0.09
Surplus		480.95	504.55	513.72	522.87	534.63	556.87	557.28
Retained Earnings		-581.08	-511.79	-512.09	-511.65	-507.62	-509.99	-515.25
Other		42.27	94.97	90.28	84.85	85.07	72.29	63.25
Treasury Stock		0.00	0.00	0.00	0.00	0.00	0.00	0.00
Net Worth		-57.80	87.82	92.02	96.09	112.13	119.26	105.37
Total liabilities & stockholders' equity		298.819	234.083	237.660	244.700	245.443	232.476	221.648

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