Company Name: Green Plains
Company Ticker: GPRE US
Date: 2020-02-11
Event Description: Q4 2019 Earnings Call

Market Cap: 469.496077368
Current PX: 13.029999733
YTD Change($): -2.40000026703
YTD Change(%): -15.554

Bloomberg Estimates - EPS
Current Quarter: -0.79
Current Year: -1.083
Bloomberg Estimates - Sales
Current Quarter: 640
Current Year: 2668.714

# Q4 2019 Earnings Call

## Company Participants

- Phil Boggs, Senior Vice President - Investor Relations and Treasurer
- Todd Becker, President, Chief Executive Officer and Director
- Patrich Simpkins, Chief Financial Officer

## Other Participants

- Adam Samuelson
- Pavel Molchanov
- Ben Bienvenu
- Craig Irwin
- Analyst
- Lawrence Alexander
- Eric Stine

## Presentation

### Operator

Good morning, and welcome to the Green Plains Incorporated and Green Plains Partners Fourth Quarter and Full Year 2019 Earnings Conference Call. Following the company's prepared remarks instructions will be provided for Q&A. At this time, all participants are in listen-only mode. I will now turn the conference call over to your host Phil Boggs, Senior Vice President Investor Relations and Treasurer. Mr.Boggs, please go ahead.

### Phil Boggs, Senior Vice President - Investor Relations and Treasurer

Thanks, Daniel. Welcome to Green Plains and Green Plains partners fourth quarter 2019 earnings call. Participants on today's call are Todd Becker, President and Chief Executive Officer; Patrick Simpkins, our Chief Financial Officer and Walter Cronin, our Chief Commercial Officer.

There is a Slide presentation available and you can find the presentation on the investor page under the events and presentations link on both corporate websites. During this call, we will be making forward-looking statements which are projections or other statements about future events. These statements are are based on current expectations and assumptions that are subject to risks and uncertainties. Actual results could materially differ because of factors discussing yesterday's press releases in the comments made during this conference call and in the risk factors section of our Form 10-K, Form 10-Q and other reports and filings with the Securities and Exchange Commission. We do not undertake any duty to update a forward-looking statement. Now, I'd like to turn the call over to Todd Becker.

### Todd Becker, President, Chief Executive Officer and Director

Good morning and thank you for joining our call today. For the quarter we're reporting an adjusted net loss of $14.4 million or $0.41 a diluted share. Which excludes are a reversal of a deferred tax assets of $25 million that affected EPS negatively. This was a non-cash adjustment had no impact on our financial strength, as expected to financial results were improved from the prior quarter due to the ethanol margin environment at the beginning of the fourth quarter.

We reported $16 million in adjusted EBITDA for the quarter and we we were free cash flow positive as well. We remain net debt zero against our convertible debt, as debt at GPP is non recourse to the parent and the revolvers at Green Plains Inc are secured against receivables and inventories.

We are in a position -- we are in this position as an outcome of our Portfolio Optimization Plan. We are now embarking on a total transformation plan, which we'll discuss later in the call as well. Our quarter was also impacted negatively by the shutdown of Wood River for our Project 24 upgrade and the final stages of the Madison shut down as these occurred during a positive margin environment and we believe this affected our quarter negatively by $0.02 to $0.03 a gallon.

Both plants came back to full rates during December and we expect them to continue to operate well during 2020. We produce approximately 239 million gallons of ethanol, which put us at an 84.5% utilization rate for the quarter. Well, this was lower than our stated goal of 90%. It was the highest utilization rate in two years.

More importantly in December we ran at 94% once Wood River fully came up to speed after our Project 24 upgrades and the repairs that our Madison plant were completely lined out, which is also the highest single month in over two years.

With these projects now complete and running well, we expect to achieve 90% or above for each quarter in 2020. Our goal has been to run maximum production levels in order to maximize the benefit of our cost initiatives and we believe we will finally be able to demonstrate what this platform can do.

The consolidated Crush margin for the fourth quarter was $0.02 per gallon, but the spot crush continued to decline during the quarter as industry production edged tier.

The weekly EIA data printed the fourth highest production on record earlier this year. While the production levels have dropped since then this industry continues to be over supplied. We will continue to focus on our things within our control reducing operating expenses through our Project 24 initiative and driving additional value through our protein roll out.

Our first Project 24 modification at our Wood River Nebraska location continues to exceed our expectations and leave us excited about completing the rollout across the remaining non ICM plans in our platform.

In December and January our OpEx with an average of $0.21 a gallon at Wood River. Let me explain one more time how we look at this so you can do a like-for-like comparison of other companies and plants, as there seems to be continued confusion on the math and how it works.

First, we take the five commodities we buy and sell to get a gross margin our corn cost, natural gas ethanol revenues, distillers revenues and corn oil revenues are converted into a gross margin. From there, we take the cost of plant operation to get the EBITDA per gallon. Inclusive in this is the nature--and Railcar cost, chemical use and enzymes elect repair and maintenance production and admin payrolls related to the plant supplies and G&A and finally corn purchase commissions of $0.01 per gallon.

For your reference an illustration of these points are shown on page 6 of the conference call presentation. In addition what is not included in OpEx per gallon calculation is the fact that natural gas usage is reduced by 25% with the Project 24 upgrade further improving the returns on this project. We're expecting all plans to reduce natural gas usage which helps overall CI scores on sustainability scores.

Wood River operated at a similar cost structure to all of our ICM plants of similar size and achieved the second lowest operating cost level in our platform in December. Showing that these modifications can make our non ICM Delta-T and Vogelbusch plants, competitive with our best ICM plants in our fleet and even across the industry.

Our operators are being retrained to operate these fleck in ICM plant and think very differently as a retrofit is basically making these ICM as a front and back ends are similar already.

Lastly, we were told by ICM that these modifications are even better than what is in many legacy plans. We're obviously very excited about the outcome. With the improved December results, we believe we are on track to achieve our overall goal before the end of the third quarter. We are making progress on the next three Project 24 upgrades and they should be running in March or April and we should complete the remaining non-ICM plants during the second and third quarters.

Upon completion, and once the plants are fully lined out. We anticipate the entire platform to be below $0.24 a gallon, as originally expected, we believed we could likely achieve $0.23 a gallon overall and we are starting to think about the next step to drive our platform costs even lower in the future.

The key here is that in order to be successful in our transformation to protein, we must continue to reduce our operating costs so we can run in any environment. I'll get further into protein in my closing comments of to spend most of the time discussing this initiative.

During the quarter, we completed the sale of our 50% interest in Jefferson Energy Companies to our joint venture partner for $29 million. This largely completes the Portfolio Optimization Plan that we embarked on two years ago, all told we have sold approximately $780 million in assets and paid off or deconsolidated nearly $1 billion of debt.

Green Plains partners reported $13.3 million of adjusted EBITDA and a coverage ratio of 0.99 times for the fourth quarter and a 1.0 times for the trailing 12 months. We anticipate that as Green Plant production level hits the target laid out during 2020 a greater than 90% these coverage ratios will improve.

We will continue to look for opportunities to grow the partnership through accretive acquisition and will be on the offensive during 2020. Ideally, these would be in multi-product terminals back by multiple long-term customers. Lastly our Cattle business had a record quarter and we expect this to be continued in 2020 with strong returns as well.

Now I will turn the call over to Patrich to review both Green Plains Inc and Green Plains Partners financial performance and I'll come back and discuss the outlook for 2020 give a bit of a policy update, provide more details on our protein initiatives.

## Patrich Simpkins, Chief Financial Officer

Thank you, Todd. Green Plains Inc consolidated revenues were $715.7 million in the fourth quarter up $132.2 million or 23% from a year-ago. Increase in revenue was driven primarily by higher ethanol production rates as compared to the fourth quarter of 2018.

Our production run rate was 84.5% of capacity in Q4 2019, compared to a 71.1% run-rate for the prior-year fourth quarter. Our consolidated net loss for the quarter was $39.7 million including a non-cash tax valuation allowance adjustment of $25.3 million compared to the net income of $53.5 million in the fourth quarter of 2018 where we recognize a $150 million gain on the sale of assets.

Adjusted EBITDA for the fourth quarter total $16 million, compared to adjusted EBITDA of $128 million for the full year ago, which also included the impact of the gain on asset sales mentioned earlier.

For 2019 adjusted EBITDA was a negative $35.1 million versus $225.8 million in 2018. For the quarter our SG&A cost for all segments was $20.6 million down $11.9 million or 37% from $32.5 million dollars in Q4 of 2018 driven primarily from the reduction of controllable expenses and the asset sales completed last year.

This change does not include an additional $2.6 million dollar reduction to SG&A from discontinued operations they had in business. The full year 2019 our SG&A costs was $77.1 million all segments as compared to a $108.3 million for 2015.

Interest expense decrease $20.4 million to $8.7 million in quarter due to lower debt balances, lower interest cost and the write-off of unamortized debt expense in 2018 due to the retirement of our term loan B.

CapEx for 2019 was about $75 million with approximately $24 million of maintenance CapEx for ethanol production, an additional $49 million of growth CapEx, primarily for Project 24 and the high protein feed project in Shenandoah Iowa.

For 2020 we will focus CapEx spending primarily on the completion of our prep 24 initiative and expansion of our high-protein development plan along with normal maintenance CapEx. Opportunities to deploy Capital can always be impacted by the overall margin environment. But as of now, we are targeting approximately a $120 million in CapEx spending on -- based on our operating and financing plans.

On Slide 9 of the Investor deck you will see our balance sheet highlights. We had $275 million of cash and working capital, net working capital financing at the end of the fourth quarter compared to $428 million at the end of 2018. The balances for 2019 numbers excluded balances from our Cattle business, that was de-consolidated in September.

Our Liquidity position at the end of the quarter remain solid with $269.9 million in total cash along with approximately $221.8 million available under our working capital revolvers. This amount does not include availability of $67.9 million into the credit facility of our partnership.

For Green Plains Partners, we had 240.1 million gallons of throughput volume that our ethanol storage assets during the quarter, which was up 32 million gallons or 15% from the fourth quarter of 2018, as a result of higher production rates at Green Plains plants.

The partnership reported adjusted EBITDA $14.3 million for the quarter, which was $1.9 million lower than the fourth quarter of 2018, as a result of the sale of the three plants. Distributable cash flow is $11.2 million to quarter $1.9 million lower than the same quarter of 2018, again reflecting the sale of the previously mentioned plants.

The distribution of $47.5 per unit declared on January 16th resulted in the coverage ratio 0.99 for the fourth quarter. On a last 12 month basis adjusted EBITDA was $54 million distributable cash flow was $45.3 million and declared distributions were $45.1 million resulting in a one times coverage ratio for 2019.

Now I'd like to turn the call back over to Todd.

## Todd Becker, President, Chief Executive Officer and Director

Thanks, Patrich. Let me discuss the industry briefly. Last year, we faced numerous industry headwinds. However, there are a number of positive opportunities, as we begin 2020 even as margins remain under pressure, as we've continued to remind everyone the solution remains the same the industry remains oversupplied it needs to rationalize supply.

At this point undercapitalized players continue to find a way to survive. In the past, it was the Green Plains flow down there the main driver for reduce supply of because of Project 24 and the fact we lose more money slowing down. Our strategy is to run full out and drive our cost per gallon lower.

The last time we slow down all that happened was the industry sped up. We have positive net income Martin's begin to appear in October as supply was below 970,000 barrels per day and since then the last five weeks average was 1.65 million barrels a day with some weeks even higher.

We believe some of the slowdowns never happen that were announced by other players. Our carrying capacity as an industry to the best of our knowledge is 1.15 million barrels per day when everyone is running and some of the good Eastern plants come back online -- the good closed Eastern plants come back online, which is over 17.6 billion gallons per year.

I am not saying we will run consistently there, but we can take care of any demand that shows up. I would say our average estimate going forward is 1.10 million barrels day or 16.8 billion gallons annually. So where's the demand going to come from? Well, we know that 10% of the fuel supply is 14.3 billion gallons and exports are 1.5 billion gallons. So our baseline demand is 15.8 billion gallons, can try to take a billion gallons.

Yes. Will they? We will find out. Can E15 grow fast enough to help? Yes, will it? We are working hard to get there. Currently have 2070 station selling E15 and are projecting we will be at 3,000 by the end of 2020, would demand of 200 million incremental gallons, and we can achieve our 2021 goal of over 10,000 stations, it will increase incremental demand to over 800 million gallons per year.

Now, we could blow past this number in the event USDA comes through with a $100 million for infrastructure, which they are moving quickly on. It was in the President's budget proposal to Congress, when added to the base demand, it starts have a real impact on margins and excess supplies.

We also believe that other countries will continue to increase demand, as well. So regarding the 10th Circuit ruling EPA administrator indicated 10th Circuit ruling would have an impact on the way they handle small refinery exemptions and they would be announcing soon how they intend to move forward on it.

But they do have 45 days to appeal the decision, should they choose to go that route our guess is that they don't rock the boat either way in an election year, but find a way to adhere to the deal so that 15 billion means 15 billion. If these things happen, we may finally see the law in the IRFS work as intended, as I had said before our story was hijacked by the oil industry and we must take it back.

This is the most successful low-carbon program ever implemented globally as we continue to reduce tailpipe emissions by 40% to 45% and even more importantly the industry's footprint continually -- continuously gets better with reduced natural gas usage and reduce water use per gallon of production, which is not even calculated in the emissions yet.

We remain focused on controlling what we can control, which is reducing our costs through Project 24 and extracting value through new sustainable feed ingredients by capitalizing on our investments and protein technology. This is what we are referring to as a total transformation plan for Green Plains.

If you refer to the last Slide of the presentation before the appendix it illustrates what our year would have looked like if all of our plants had this technology deployed at very reasonable expected protein levels of 50% and 53%. You can see the results are impressive which is why we are headed to become a true biorefinery that is maximizing value of each kernel corn for the application of technology and new yeast and enzymes.

All while not being dependent on government policy, and this is why our partnership with Novozymes as well as our joint venture with Optimal Aquafeed are so important. I'm happy to report that Shenandoah has begun commissioning our first high protein production field facility last week and we expect the dryer to come online 30 days later to achieve maximum production shortly after.

We have recently increased the volumes of the off take agreement and for all intents and purposes Shenandoah production is spoken for. Additionally, we have begun the engineering for our second and third high-protein location and expect one more unit to be fully constructed before the end of the year.

We are discussing off take agreements for our second and third facility as well. We will make the final decisions on the location and announce that shortly. We continue to focus on the current technology running successfully and available in the market, which is Fluid Quip technologies.

Thus far we have not seen another technology that gives us the base quality we need from solely mechanical separation, which gives us a baseline 50% protein product. We have seen some chemical and flocculent processes, but our aquaculture and pet food customers have indicated, they do not want a product produced like this and more importantly, we don't believe we can get those products accepted globally from those processes.

So we continue to focus on the technology we have chosen and is operating at scale today producing product that is being used around the world. This technology is another step in the transformation of Green Plains to a world-class protein provider. In addition partnering with Novozymes we believe we will be able to increase the value of the products we produce every day and together provide solutions for our nutritional partners in the aquaculture animal feed and companion animal food markets worldwide utilizing advanced biology with potential pathways up to 60% protein.

So, let's talk about the margin potential in front of us, which is much higher than the $0.12 to $0.15 per gallon we talked about in the past on protein. This was based on our 50% protein product. Let me walk you through what we have been calling the J curve of protein profitability. At 53% pro the potential margin contribution rises to about $0.21 a gallon and at 56% pro the potential is approximately $0.36 a gallon. The North star for us to achieve is a 60% protein product combined with novel feed ingredients, that could add as much as $0.57 a gallon, at prices near $1200 a ton for the product.

This illustrates why we are so excited about the direction we are headed. We are currently in aquaculture trials to validate novel ingredients that will be used in combination with our high protein products as either a complete feed or premix further enhancing the probability of this product. We aren't a path to transform this company to be a agg tag focused company maps and by the value of the assets in coming years and it begins now.

In combination with our transformation to sustainable ingredients, we are also launching our ESG initiatives, as much of what we do already gets us close to what the market is looking for in this investment thesis.

We just haven't articulated all of what makes this company an industry, right for a new round of investment from investors and capital looking for ESG opportunities. We will begin to highlight things like carbon intensity, greenhouse gas emissions and carbon reductions, natural gas and water reductions, land use efficiency gains, protein increases to help conversion efficiencies in aquaculture, which reduces land use to feed ourselves.

Finally, we were just awarded a patent for the novel process of using thin stillage from an ethanol plant to produce algae oil in protein-rich biomass, which we have been quietly and successfully scaling in York, Nebraska pilot and research facility, which is now in full trials for use in aquaculture feeds.

This is a bolt on technology that can be applied to any corn based ethanol plant. This is different from the other novel ingredients mentioned earlier but most don't know is York, Nebraska has a full-scale world-class pilot fermentation facility, that we acquired along with the ethanol facility not many of these exist in the world today. This has helped accelerate the ability to prove out and get this technology patented.

Lastly, another aspect of our ESG initiative is our corn oil production. This is one of the base feedstock used in a renewable diesel process, a benefit of our protein initiative is the fact that corn oil production goes up between 50% and a 100% depending on the facility.

We have a very constructive price view on vegetable oils and gas pricing with the expansion globally of renewable diesel production and we will benefit from this in our ESG strategy overall. We have already been exporting our oil for this purpose even before the U.S. has scaled up. This is a low CI score oil that helps plant achieve their targets more to come in our overall ESG strategy but we believe we are already a very environmentally sustainable company.

When we combine these new protein initiatives with what is going on in Optimal Aqua and the early results from Project 24, we truly believe that 2020 will be looked upon as an inflection point in Green Plains history. Now, we are firmly on the path to more predictable and sustainable margins and cash flows.

The challenges in this industry have numerous over the past year and couple of years, we will continue to do our best and to be transparent with you. We believe we have positioned ourselves through our Portfolio Optimization Plan and to our cost reductions that you cannot transform unless your generation one platform is efficient and low cost in addition to the protein strategy we have outline, which puts us in the best possible position to succeed as we continue to transform ourselves into Green Plains 2.0.

What is important as well ethanol margins have been under pressure the last 18 months. We have a very dynamic plan to reinvent the company, while it may take a while. We are set up very well to succeed. Thanks for joining the call today. And now I'll ask our moderators to start the Q&A session.

# Questions And Answers

## Operator

(Question And Answer)

## Operator

(Operator Instructions) Our first question comes from Adam Samuelson with Goldman Sachs. Your line is now open.

## Adam Samuelson

Yes. Thanks, good morning, everyone.

## Todd Becker, President, Chief Executive Officer and Director

Hi, Adam.

## Adam Samuelson

So Todd you just went through a lot of details on the high pro initiatives and I guess first in the CapEx that you outlined. I mean I presume this is cash on hand and any cash from operations, but talk about the financing plan both for the capital spending this year and also to get the whole prop, to get the whole fleet converted to high pro. I think you talked about $350 million to $400 million opportunity in the slides. Just any pathway on the financing of getting there and timing and maybe how do we accelerate some of these investments to get to this end state?

## Todd Becker, President, Chief Executive Officer and Director

Yes. So that's the keys. We want to accelerate this project and go as fast as we can to roll this out. So, we've been talking with several different financial partners on from the debt side in terms of banking and other lenders and we believe that our goal is to get somewhere between a $100 million to $150 million of debt for these projects to get them kick started. In addition, we have also been talking with other partners around accessing partnership in terms of equity investments into some of these ventures to accelerate them. So we're kind of being we're going to look at is to be very creative. The first though is if we can get to $150 million line, to start we believe we can build three or four of these very quickly, those three or four would add to Shenandoah which gets us to five of these projects. They start to self-finance each other very quickly.

So five projects would sell finance another two to three that gets us up to eight sell finances, sell finances the rest. Now in terms of cash balance sheet. We also want to make sure we always retain a strong cash position. We still believe we have some liquidity available through other levers that we can pull as well to finance another one of these with equities. So, it's a little bit of everything. We're going to look at everything across our platform as well to make sure that we are optimizing and where we can also find other sources of liquidity but our goal is to now really begin to think about more aggressively funding this plan because of what we're finding out in terms of off take agreements, Shenandoah starting up we already know there's a plant -- two plants operating that are doing very well. The product is being very widely accepted globally in the market and so our goal is to move as quickly as we can and we're developing that plan right now, but we are in talks right now to potentially use debt financing to move quicker.

## Adam Samuelson

All right. That's helpful color. And then just on the Shenandoah, I mean, I know the, base investment plan here was predicated on a 50% protein content I mean any sense at this point kind of where you think your initial product will be from protein content perspective and timeline to get that higher towards the upper bound of your hopes on the 56% to 60% range.

## Todd Becker, President, Chief Executive Officer and Director

Yes. So our goal initially is obviously the whole thesis was based off of 50% protein, but we already know that mechanically -- just mechanically we can get a little bit higher than that and then we'll kick off our partnership with Novozymes to continue to work with them to move up the J curve and we believe quickly we can get to the 53 type pro within, six to eight months and then from there start to move up as we laid out 53 would be the first stop 56 is the next stop. We think that's a year to 18 month development program and then from there move up the J curve which is a two to three-year development program to get to 60 pro with novel ingredient. I think, the key is that it's a combination of not just the high pro but also some ingredients that we've been using in our aqua trials and in our aqua feeds that we've been producing for some of our customers already through the optimal venture and so from that standpoint, I think we'll move very quickly to 53 and then from there step by step as we move up the J curve.

## Adam Samuelson

Okay, and then just finally for me. Just on the base ethanol outlook and any comments on exports and I know I mean the Phase One trade deal did include ethanol in the language in the document any signs of any product inquiries from Chinese customers. Any sense that they're getting the tariff waivers to really make that ARB make more sense of the current fuel prices just comments on that demand outlook for -- a little bit.

## Todd Becker, President, Chief Executive Officer and Director

There is some discussion We're going to learn a lot more later this week, but we're going to have to wait and see on that. I don't think anybody has seen much inquiry on the phase one trade deal yet, as we're just obviously we got a trade deal but we also got we got a virus at the same time. So as we work through that and as the administration said they've talked to their counterparts in China that, they're going to continue on with their idea that they're going to purchase these products. So our view is constructive. I think we'll learn a lot more potentially later this week. We have been told that ethanol and DDG are included in the trade deal and we're hopeful that will learn more soon, but in terms of enquiries, I'm not sure anybody had seen very much at all on any of these products yet as I think, the virus put it off just a bit.

## Adam Samuelson

Okay. I appreciate that color. I'll pass it on thanks.

## Todd Becker, President, Chief Executive Officer and Director

Thank you.

## Operator

Thank you. Our next question comes from Pavel Molchanov with Raymond James. Your line is now open.

## Pavel Molchanov

Thanks for taking the question. Actually going back to the previous one regarding China. Have you gotten any clarity from your kind of traditional Chinese counterparts if the tariff, 70% tariff on U.S. ethanol will be lifted at any point in the foreseeable future as part of phase one?

## Todd Becker, President, Chief Executive Officer and Director

Well, yes, I mean, I think we're going we know that from what we've been told is the 70 will go down to their more traditional level. And then from there what we're hearing is positive development in terms of it could go lower than what it was before we started, so but thus far all we've been told is the 70 was the level that was put on as punitive when they incur tariffs on many products during the trade war. And I think we'll go back to our normal, I think it was 20% to 30% tariff. I don't know the exact number off top my head but it was 20% to 30% tariff originally and then the potential for that to even go down further. So, yeah, I think we're going to come off the high one. But again what happens after that, we don't know yet.

## Pavel Molchanov

Okay, and in that context China's decision, this was actually before the virus to suspend its E10 mandate for 2020. Do you have any sense of when they may restore kind of revive the E10 target?

## Todd Becker, President, Chief Executive Officer and Director

Plus, I think there's some confusion in that, as well. I mean when you look at the announcement E10 is already being has been accepted and being used in many provinces and many large provinces. And so while that came out it doesn't necessarily affect the fact that they still blend ethanol and still want to blend ethanol. I think what they realize is that internally it's going to be hard to hit some of these mandates because they haven't built plants and they don't have those plants, but that doesn't mean they're not going to buy ethanol at all. In fact, we remain very constructive on a Chinese ethanol demand going forward even without that because I don't think that was really that impactful to what our program will be because even if they use E5 or E6 it still is a significant amount, but some provinces have already made the switch fully to E10 and we believe they will continue to buy that even more aggressively as these trade barriers are lifted.

## Pavel Molchanov

That's very helpful. Thank you.

## Todd Becker, President, Chief Executive Officer and Director

Thank you.

## Operator

Thank you. Our next question comes from Ben Bienvenu with Stephens, your line is now open.

## Ben Bienvenu

Hey, good morning.

## Todd Becker, President, Chief Executive Officer and Director

Good morning.

## Ben Bienvenu

I wanted to ask, so you guys sold 230 million gallons of ethanol in the quarter, which is just shy of 80% of the capacity. I assume that's because of Wood River and Madison being down for project 24 petition and then some improvements in Madison. Is that right?

## Todd Becker, President, Chief Executive Officer and Director

That's correct. So, if you take a Wood River plant, which produces about 9 million gallons a month and Madison about 8 million gallons a month that'd be 17 million gallons a month times approximately a couple months of production overall. And so yeah that wouldn't -- that negatively affected our quarter and negatively affected our EBITDA per gallon because those plants both had positive EBITDA margins During some of the highest margins experience and they were down and they were offline. So we weren't able to take advantage of that two large plants, which we think overall affected our quarter by $0.02 to $0.03 a gallon on our ethanol gallon but look that's a short-term investment for a long-term solution and so we knew that the risk is when any of our plants go down for these transformations that we would be potentially giving up margin opportunity that's what happened in the fourth quarter.

## Ben Bienvenu

Got it. Okay. So as you guys work through project 24 implementations in 2020 what percentage of your capacity would you expect to be offline in the midst of that?

## Todd Becker, President, Chief Executive Officer and Director

So we're probably going to take offline one plant a month for and it'll just be for two to three weeks is the switch over time depending on the size of the project at each plant. So potentially it's one plant per month for at least two-thirds of the month that would be down starting with the first three that are going down right now. There's two small ones and one big one and then after that another small one goes down and then two large ones and then a small one. So it's basically going to be every couple plants become one of our bigger plants, but that's going to be over a seven month period where it's not all down during the same time.

## Ben Bienvenu

Perfect helpful. Thank you. And then I wanted to ask in the agri-business segment had a nice quarter and still and total segment EBITDA down relative to years past. So just be curious to hear kind of what happened in the quarter, help us to understand mechanically what drove that nice result and then how should we be thinking about that segment as it relates to kind of your full year EBITDA contribution to the overall business?

## Todd Becker, President, Chief Executive Officer and Director

Yeah, that segment had good earnings from storage returns on grains that we had in storage that bases went up and we were able to achieve a much better sales levels in -- as our grind went up as well. They achieved little more service revenues and then finally in our AGID energy or in the energy side, we just didn't have the same fourth quarter opportunities in our natural grass merchant businesses that we've seen in the past, just because of reduced volatility, reduce prices and weather. And so sometimes that sometimes supercharges our quarter, still very committed to that program, but it just wasn't a year that it was a big contribution where in prior years past that was often their strongest quarter in our Merchants businesses, so we still think we'll still hit 2020 is much -- will return back to normal where that segment has been running for the last several years, but just not as much opportunities in our merchant energy businesses this quarter.

## Ben Bienvenu

Okay, great. Thanks. Best of luck

## Todd Becker, President, Chief Executive Officer and Director

Thank you.

## Operator

Thank you. Our next question comes from Craig Irwin with Ross Capital Partners. Your line is now open.

## Craig Irwin

Thanks. Good morning and thanks for taking my questions. So Todd your comments on project 24 both today and on previous calls have been really clear and I should say congratulations on the progress there, last call you discussed a side benefit of project 24 that you uncovered an opportunity to address natural gas usage at Wood River the opportunity to save maybe as much as $0.08 a gallon. Can you maybe share with us whether or not you're uncovering similar side benefits as you execute project 24 the plants that are in the pipeline for the next couple of months, are there potential projects that you're in planning to execute that could deliver similar returns?

## Todd Becker, President, Chief Executive Officer and Director

Yes. So I think if you take a history lesson on Wood River, which is really the best one to look at when we bought that plant in 2014. It was running at $0.35 a gallon and that's while a similar Obion plant was probably running in the low 20s, at the time, cents per gallon. And so that was the Delta, that we needed to overcome and a lot of it was driven by difference in distillation and energy use and other inconsistencies that were in those plants. Fast forward to today, we still we were reducing overall our cost at wood River but never could get much below $0.30 a gallon. We ran at sub $0.21 a gallon below $0.21 a gallon in December and a little bit above $0.21 a gallon in January. And so you can see the impact of this transformation in project 24. That's just operating costs. That's basically just straight in operating costs that we outline for you.

In the Slide in our presentation not inclusive of energy reductions that we're finding out as well as, so what will happen is it's not just a function of reducing 2019 operating cost per gallon of Wood River was $0.30 a gallon 2020 should be in that $0.21 to $0.22 a gallon, so we're going to pick up the whole $0.08 a gallon reduction and it'll run very similar to an ICM plant. Now, there are definitely a handful of ICM plants that run below $0.20 a gallon and sometimes ours do even so we believe in relative terms that gets us very close to much of the rest of anything that I see them out there. But beyond that is the fact that our cost of goods sold are going to go down as well as we use about 20% to 25% less natural gas because of this project 24 upgrade and that's not in our cost reductions is just in a reduction of COGS from commodity procurement. And so If you look at a plant, now the thing is that depending on that gas prices are $2 today.

So the benefit is not significant at low gas prices, but if a plant uses three BCF and it's $2 you've bought $6 million in gas, maybe it saves us another $1.5 million, $1 million to $1.5 million in overall costs which is just about another $0.01 a gallon, $0.015 a gallon. But we did -- even without that take another $0.01 to $0.015 a gallon across all of the project 24 plants And now you're talking about another $6 million to $8 million of savings just on our cogs. So, that's what we discovered now beyond that once we complete this, we're not done yet. I mean, we still actually believe there are other things we could do. Once we start to operate like an ICM plant there is still another step after this then now you can start to debottleneck even further your cost structure because you are much like an ICM plant. And as I said ICM has made it very well known to us that what we did to improve that middle part of the plant is actually a bigger and more robust than a lot of legacy ICM plants out there because their technology has changed over the years as well. So we're very happy about it. I think, the interesting next step will be Superior and Fergus Falls and those are 260 million gallon plants. So we'll see what the impact on a 60 million gallon plant is next. Now, we don't expect them to operate like a hundred but overall Craig what we believe is we will be below $0.24 a gallon trending towards $0.23 a gallon across the whole platform and then we'll take it from there and see how much lower we can get it.

## Craig Irwin

Great. Thank you for that. So then on high pro, I guess we've been hearing that the pricing is may be in the range -- pricing for the off take agreements just may be in the range of roughly $100 over soymeal. Can you maybe discuss that and whether or not there's opportunity for this to achieve a greater premium, as maybe some of the things you're working on with Novozymes and greater customer experience out there accumulates over time.

## Todd Becker, President, Chief Executive Officer and Director

Yes, so our first contract was not quite a hundred but was not far from that in terms of just value for 50% protein, being put into aqua and into pet and so that was the first step and it's really a function of getting it in more aggressively and consistently into products where it gets on the label or gets into the diet. And once it's in we believe it'll stay in and so that's why our initial customer came back and up -- and up sized the original off take agreement because it's working so well for them and they like the product so much. So, with that said though, most interesting is the question being will aqua loose this product to pet or will pet lose this product to aqua or will be enough for both today. It's a bit of a competition starting at the 50 pro because it does have other quality amino acids around other factors in terms of certain things in the diet and certain things that happen in the process.

So they like the product a lot. It's already being included in all veg diets and poultry producers as well, and so we're starting to see that coming because the way that they like the product as well, but I think going forward as we move up the protein curve. It's not a linear curve in terms of value of protein, where soybean, high-protein soybean meal has been at 47% on high-pro forever. We and not really going much higher are -- the great thing about high-pro coming out of an ethanol plant. Is the fact that starts are using the fluid clip system. It starts at 50 pro mechanically before you even do anything else and then you can start to move up the curve and I gave you those numbers. So we believe there's another $100 to $150 a ton if you can get the 53 pro and then we believe there's another $300 of tonnes to get to 56 pro and each $100 a tonne is worth about $0.06 to $0.07 a gallon of uplift in the ethanol margin. So we're very excited about it and we know it works because the off takes have been increased because we've been delivering the product to our customer from alternative sources, that are producing today as the industry does not have a lot of redundancy and we're helping each other out. But more so we're very excited to start delivering them our first product next month and start to include those. So we have a plenty of interest for off take agreements, from multiple different species. And we believe that when we announced as we get close to announce the second location, our goal is to have an off take agreement very close or behind that or at the same time.

## Craig Irwin

Thanks again for taking my questions.

## Todd Becker, President, Chief Executive Officer and Director

Thank you.

## Operator

Thank you. Our next question comes from elvir Escoto with RBC Capital markets, your line is now open.

## Analyst

Okay, good morning everyone. This question is on the MLP. So given all the transformation at GPRE can you talk about how Green Plains Partners fits in the broader Green Plains strategy.

## Todd Becker, President, Chief Executive Officer and Director

Actually the great thing about, what we're doing at Green Plains, is the fact that in order to be very successful in Green Plains 2.0 and their total transformation plan. Our generation one platform has to operate continually at high levels and at low cost, which is very beneficial we believe for the MLP going forward as we have stated publicly. We want to run higher than 90% we were on a 94% in December and we want to continue to run as hard as we can going forward which then increases the volumes, at least or stabilizes and potentially increases the volumes at the MLP for everything that goes through there which keeps the dividend and the distribution very-very stable and potentially growing, so our view is that it's very constructive for GPP to have Green Plains transform reduce our costs and run more consistently than we have in the past in addition the way that we used to be the governor of supply and reduce our supplies during low margin environments. We don't really have to do that anymore as we lose more money reducing them -- running so overall -- and then we take into consideration things like China E15, our terminal in Birmingham, which is very well -- terms -- is running very well with lots of capacity that goes through it. So overall we think it's very beneficial to Green Plains partners for us to do everything we're doing to invest behind it in our original generation one platform.

## Analyst

Okay, and then just as a follow-up, I think you've said that you want to grow Green Plains and maybe diversify the asset mix beyond ethanol. So when we think about Green Plains Partners, sorry, I was talking about GPP, what -- do you have any sort of targets terms of what's the target for third parties as a percent of GPP's customer base or what kind of diversification across products you're thinking of.

## Todd Becker, President, Chief Executive Officer and Director

Yes, we have targets to reduce the dependence on Green Plains as a parent organization to GPP and get it to be more independent in terms of volumes that go through and so. I think as we've been fixing Green Plains and getting it to a point where it can operate more consistently in any environment and drive more volumes to Green Plains Partners assets our goal now is to start to refocus on what we originally have put in place at Green Plains Partners to expand it as a vehicle to find third-party terminals that we believe we can help in terms of our own volume going through there as a base volume, but having a multi-product terminal because ethanol is always a very important part of a lot of terminals that we see or that we go through and so overall we are starting to then reassess how to grow Green Plains Partners in the future and use it as a vehicle was originally intended for and reduce the dependence on sponsor volumes.

## Analyst

Great. Thank you very much.

## Todd Becker, President, Chief Executive Officer and Director

Thank you.

## Operator

Thank you. And our next question comes from Lawrence Alexander with Jefferies, your line is now open.

## Lawrence Alexander

Good morning. Two questions. One is can you speak a little bit about how you see your competitive mode evolving and thinking in terms of which of your competitors have the knowledge of the agriculture markets to follow you along this past and then which assets can follow you along this path of optimization and are the assets that can be upgraded in the wrong hands actually be upgraded. And then second question is, can you speak a little bit about it's been a very long time since I've heard you this enthusiastic about a platform. Can you speak a little bit about how you see the guardrails? That is what would have to go wrong for you to pivot and say it's time to look for something else.

## Todd Becker, President, Chief Executive Officer and Director

But something competitive mode. We know that the customers we deal with, will not buy and not depend on a single location high protein production facility because if that one location goes down, there's no redundancy and they are very dependent on a high level of quality assurance and quality controls to make sure that product causes no damage to their diet or there what they're using it for and so we believe that alone is a potential competitive mode, which is why we are -- we have to work together with those who have also been to their locations. There's only a few so that we can provide some initial redundancy. But our goal to roll it out to all 13 facilities, provides an aqua customer -- aquaculture customer globally or domestically with redundancies, which is extremely important. And it's not just redundancies in volume, its redundancies in quality and quality control. And so while certainly there will be more of these built we all the key to building these protein operation is to maintain quality but also to main price -- maintain price discipline on this product because it would be the dream of many for us to produce a lot of high protein and commoditise it and reduce the price but I don't think that we're on any type of path as an industry to do that and anybody that's looked at high protein understands and our view when you get into the 50s and the 60s that added a very unique special product that needs to be protected at all costs.

And so, I think that those that are interested in high protein around the industry understand some of that and believe that if there -- because it's not a cheap investment. We were talking about $35 million to $50 million. You can't start these up and immediately cheapen the value of your product you've got to increase the value of the product and everything we're doing with our customers on aqua trials at Shenandoah and Shenandoah, we will open up a world-class aqua-lab that is now doing trials of these and other novel ingredients for customers globally, as well as other areas other customers that are using our high protein in other aqua trials as well and seeing the benefit of that. So I think there's a good competitive mode that we will have, as a company but also around others that or want to participate in protein and understand that they have to maintain value because the investment is very big. Now the second thing our Project 24 optimization. Yes, we have developed this alongside of with ICM on rolling this out across our platform. Now one thing we do is that when we're done with it. We do have a bit of a non-compete time that gets us mostly through 2021 and then other plants obviously could always look at spending the money to roll this out as well later on after late '21 and potentially into '22, but we feel like we'll be at a good competitive advantage by then and we'll roll it out throughout our whole platform, but we did get a head start. It doesn't mean that we're going to be the only ones that ever do that, but at least we know that we have protected a head start for a little while and then at that point others can do this, but again capital is going to be the key for any of this you want invest in 24, you want to invest in protein, these are -- we're talking about lots of capital needed at individual plants and the way that this industry has shaped up over the last eight months capital has become very tight.

In terms of guardrails with everything that we're doing. Obviously, we can only do what we can do from the standpoint of others and what and how they participate and how they behave. But in terms of the guardrail of capital to start and there's not a wide availability of capital to anybody that wants to do this, we believe because of that what we've done around Project 24 and what we've done around our portfolio optimization plan, delevering this balance sheet significantly where we really have no all of our assets are unencumbered at this point. We have the ability then based on off take agreements to get we believe access cheap financing -- cheaper financing not cheap financing, but low-cost financing to build it out again. We don't want to lever up the balance sheet. But when you have the opportunity to earn $0.16, $0.18, $0.21, $0.28, $0.35 a gallon on off take agreements. We believe you can pay those back very quickly because our goal is never to get into a position again where we have a term debt maturity facing us as a company.

## Lawrence Alexander

Thank you.

## Operator

Thank you. (Operator Instructions ) Our next question comes from Eric Stine with Craig-Hallum. Your line is now open.

## Eric Stine

Good morning. I was wondering if you could just talk a little bit on kind of your updated thinking on marginal production in the industry. I know if you went -- if we went back a couple quarters, it kind of looked like given the financial troubles, given the market conditions that there was actually a structural change, underway and now your commentary today would suggest that some of those, didn't even happen. Some of those plants didn't even come down. I mean, how long do you think that these marginal plants can hang on in this current environment. Just updated thoughts would be great.

## Todd Becker, President, Chief Executive Officer and Director

Yes. I think I mean we are very surprised by the EIA data. We're actually not sure if it's correct or not, but that's all we have. Okay. This is obviously first quarter is always a weak quarter, cyclically it's weak and we're living up to our expectations this quarter as well, but during the fourth quarter we did see reductions down to the 960 a day and we saw that evidence of that, I think -- if we didn't reach a breaking point of these lower quartile plants then I do believe now we are in this 30-day period where people are going to have to make decisions on what they want to do in terms of cash burn and whether they should be running or not. I think some want to try to make it through the first quarter to see if they can get the driving season. But I'm not sure, I think the banks have reached their breaking point as well in terms of allowing plants to term out their revolvers and that happened last year as Margins got better. So I think we're at that point. It kind of feels like we're at that point, where the bottom 10% - 20% of this industry, is does not have a lot of capital left to continue. If any to continue to support running look, we just needed to get back to 960 a day and we'd be in a very different margin situation. And 960 a day, we have margins throughout 2020 along the whole curve in high single digits and we hadn't seen that for a while.

So we're going to have to watch production closely, it's a combination of production and stocks. And the stocks right now at 23 million barrels are high and we need those to come down as well, but overall, I think it feels like we are starting to reach some breaking points on some of the industry players out there and we'll see how the reaction is, but overall it does we're not. It doesn't take much of a Chinese program and some E15 to kick in but we have shown that we could also make a lot of ethanol very fast. So our view is that let's continue to build out protein. Let's continue to do the things with Project 24 and if we had all those in line today, you would see the results of 2020 on the last page of our slide deck.

## Eric Stine

Yes. Okay, and then last one for me in the release you mentioned being complete with the portfolio optimization plan. I mean should we take that as the plant sales that you're done with those or is that something that you still would consider if you're able to accelerate project 24 and the high-protein initiatives?

## Todd Becker, President, Chief Executive Officer and Director

Yes. I mean look at -- I don't think today the market is very deep for people that want ethanol plants at this moment. I can never say that we wouldn't continue on with the program with -- right? If there was something there that would help us accelerate Project 24, but at this point we don't have very active processes going on just because of the last three to four months and ethanol has put some people on the sidelines. I do believe overall, there's still demand for good plants. Our goal is to get all of our plants to look like and feel like the best plants in the industry because I think there's a misconception that a Delta-T is not an ICM or a bulk of which is not an ICM and really it comes down to the middle of the plant which is what we've worked with an ICM to basically transform all our plants. The prime end is the same where you grind the corn and add the yeast and -- or the chemicals to an enzyme to transform it into sugar. The middle of the plant and fermentation and distillation obviously is where the money's made and that's why we're putting basically full ICM systems into the middle of our plant, in the back end of the plant and loadout distribution. That's all the same.

So we didn't want to just sell plants to sell plants when we knew we can invest. Yes under about $0.10 a gallon for upgrade there pays us back about $0.10 a gallon and so we believe when we come out of Project 24 you will not be able to differentiate, our technology from the best technology in the industry and that we believe alone in any margin recovery environment increases the value of our assets aggressively and then from there put protein on top of that and then you start to be able to really start to predict cash flows over and above ethanol margins and even after if ethanol margins are 0 because of what we've done in project 24 utilizing the protein in our transformation plan, we could be earning $0.15 to $0.30 a gallon just on protein alone. And that's really the transformation that is run very -- run the very plant very best you can, low-cost drive your cost down your generation one assets, buying it better, and selling it better, and making it better is extremely important and I'm moving into the protein which just basically stabilizes and cash flows to be very predictable and you'll be able to see that most of we probably will not just build a protein production facility and without significant off take agreements and we believe that for every protein facility. We will build. We will have an off take agreement if we want one.

## Eric Stine

Got it, very helpful. Thanks.

## Todd Becker, President, Chief Executive Officer and Director

Thank you.

## Operator

Thank you. And our next question comes from Ken Zaslow with BMO Capital markets your line is now open.

## Analyst

Hi everybody. This is Ashlay Ben may you on for Ken. I just have one question for you today. Just wondering about the domestic demand environment. And what is assumed in your 15.8 billion gallon sort of base case assumption? And does RFS have any upside to that given the recent court ruling? Thanks.

## Todd Becker, President, Chief Executive Officer and Director

Yes. So that -- we use that as a we use the 14.3 as the base demand but we also know that any waiver issued will be added to 15 and then reduced back to 15 from the standpoint of that the base demand and in the United States. Now, you can buy a Rim and get out of the blending requirement if you are blender and not blend 15, or you can blend it and make $0.20 to $0.30 a gallon in the blend and not by the ring[ph] so our view is that while I outlined to you at 14.3 billion gallons is 10% of the fuel supply today 15 does equal 15 one way or the other. So we're either going to reduce the Rim Bank through the 15 equals 15 program and people at the buyer in the get out of there blending or with this recent Court ruling people will just blend 15 and it'll come through a little bit of E15 uplift and potentially the rest have just increased blends overall as we are working very hard with EPA on re-labeling and labeling concerns that we've had around E15 from the beginning, but more importantly is what the president put in his budget around E15 infrastructure. And we think that could even move very-very fast to start to roll out E15 on a much bigger platform nationwide. In fact, New York, obviously, they've approved it. So while I use 14-3 if you use 15 and use 700 million gallons, all of a sudden you are 10 million, 15 million, 20 million barrels more of demand and you could take care of that supply overhang very quickly. So it's really hard to say what the blender will do because I think they're nervous about the outcome of this ruling and our view is the 10th Circuit is the law that EPA must comply with them and they probably won't do much with that there probably won't be much to feel that.

## Analyst

Got it. Thank you so much.

## Todd Becker, President, Chief Executive Officer and Director

Thank you so much.

## Operator

Thank you. I'm not showing any further questions at this time. I'll now like to turn the call back over to Chief Executive Officer, Todd Becker for any closing remarks.

## Todd Becker, President, Chief Executive Officer and Director

Yes. Thanks for coming on the call today. We are embarking, we've left portfolio optimization behind and in our barking on total transformation, we think we have a great plan, and we're going to figure out how we finance this plan. It's transformational to the way Green Plains looks in the future. It helps out all of our ESG initiatives, that we're embarking on and we believe that it will put Green Plains into a very good position in the future, to give you predictable cash flows and predictable earning streams while reducing the volatility of the original generation one environment. So thanks for supporting us, coming on the call and we'll talk to you next quarter.

## Operator

Ladies and gentlemen, this concludes today's conference call. Thank you for participating. You may now disconnect.