DEPARTMENT OF AGRICULTURE

Report to the Legislature

Annual Report on Biodiesel

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January 15, 2018

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Pursuant to Minnesota Statutes, section 3.197, the cost of preparing this report was approximately $1,800.

Executive Summary

As required by the Biodiesel Content Mandate statute, Minnesota Statutes, section 239.77, subdivision 5(a), this report contains information on:

- Implementation of the minimum content requirements of the statute;
- The price and supply of biodiesel fuel; and
- The impacts of the biodiesel mandate on:
    - The development of biodiesel production capacity in the state; and
    - The use of feedstock grown or raised in the state for biodiesel production.

Biodiesel is defined in Minnesota Statutes, section 239.77, Subdivision 1(b) as:

> …a renewable, biodegradable, mono alkyl ester combustible fuel that is derived from agricultural and other plant oils or animal fats that meets American Society of Testing and Materials (ASTM) specification D6751-11b for Biodiesel Fuel (B100) Blend Stock for Distillate Fuels...

Biodiesel in Minnesota is produced from soybeans, corn, and recycled fats, oils, and greases. In practice, biodiesel is generally blended with diesel fuel.

Through its Biodiesel Content Mandate statute, Minnesota has a requirement for all diesel fuel sold or offered for sale to have a certain minimum biodiesel content. The initial mandate, passed in 2002 and implemented in 2005, was two-percent biodiesel (B2). The statute was amended in 2008 to add provisions for moving the blending requirement to 5, 10, and 20 percent (B5, B10, and B20).

The B10 and B20 mandated content levels are effective only during the warm-weather months of April through September. The content level reverts to B5 during cold-weather months of October through March, when changes in viscosity of diesel fuels (known as “gelling” or “waxing”) can cause performance problems in engines.

The statute provides that, before the B10 or B20 content levels can be implemented, the Commissioners of the Minnesota Department of Agriculture (MDA), Minnesota Department of Commerce (Commerce), and the Minnesota Pollution Control Agency (MPCA) must determine whether four statutory conditions have been met. These conditions involve federal standards for blend specifications, the production capacity of biodiesel in Minnesota, the amount of infrastructure and regulatory protocol for biodiesel blending, and the source of feedstocks.

B5 was implemented in 2009, and B10 was implemented in 2014.

In July 2017, after an interagency review and in consultation with the Minnesota Biodiesel Task Force, stakeholders, and technical experts, the three agency commissioners determined that the four conditions had been met, and that Minnesota was prepared to move to the next scheduled minimum content level of 20 percent (B20) on May 1, 2018.

The price of diesel fuel offered for sale in Minnesota is affected by multiple factors, including the price of components (petroleum diesel and biodiesel), and state and federal policies. Most important among federal policies are the Renewable Fuel Standard and the Biodiesel Blenders Tax Credit. This

report describes the pricing of petroleum diesel and biodiesel components of diesel fuel, and the net wholesale price of diesel as affected by federal policies.

The supply of biodiesel is affected by blending requirements, federal policy, and the demand for biodiesel from retailers, driven in part by the state mandate. This report describes the policy effects and the resulting estimated supply.

Current production capacity and feedstock use are summarized in the Minnesota Department of Agriculture's May 2017 report, *Economic Impact of the Minnesota Biodiesel Industry*.[1] According to the report:

- Production has increased from the amount represented by the initial B2 mandate—16 million gallons per year (mgy)—to 74 mgy in 2016.
- Production is from diverse feedstocks: soybeans are the feedstock of 45 percent of biodiesel in the state, while other oils, fats and greases comprise the remaining 55 percent of the feedstock.
- Of the 1 billion gallons per year of diesel consumption in Minnesota, 77 mgy (nearly 8 percent) comes from biodiesel.
- Of the 77 mgy of biodiesel consumption in Minnesota in 2016, 96 percent (74 mgy) was produced in Minnesota, while 4 percent (3 mgy) was imported from outside Minnesota.

[1] *Economic Impact of the Minnesota Biodiesel Industry*, Minnesota Department of Agriculture, May 2017 (find on the MDA Biodiesel webpage at: www.mda.state.mn.us/renewable/biodiesel).

Introduction

This report is submitted pursuant to Minnesota Statutes, section 239.77, subd. 5(a):

> Beginning in 2009, the commissioner of agriculture must report by January 15 of each year to the chairs and ranking minority members of the legislative committees and divisions with jurisdiction over agriculture policy and finance regarding the implementation of the minimum content requirements in subdivision 2, including information about the price and supply of biodiesel fuel. The report shall include information about the impacts of the biodiesel mandate on the development of biodiesel production capacity in the state, and on the use of feedstock grown or raised in the state for biodiesel production. The report must include any written comments received from members of the biodiesel fuel task force by January 1 of that year designated by them for inclusion in the report.

Background

Minnesota has a requirement for all diesel fuel sold or offered for sale to have a certain minimum biodiesel content. The minimum content percentages are specified in law (Minnesota Statutes, section 239.77, subd. 2):

(1)	September 29, 2005	2 percent
(2)	May 1, 2009	5 percent
(3)	May 1, 2012	10 percent
(4)	May 1, 2018	20 percent

The 10 percent and 20 percent (B10 and B20) minimum content levels can go into effect only after the Commissioners of the Minnesota Department of Agriculture (MDA), Minnesota Pollution Control Agency (MPCA) and Minnesota Department of Commerce (Commerce) have consulted with the Biodiesel Task Force and determined that four conditions specified in the law are met, notice is published in the State Register, and notice is provided to certain specified legislative chairs. These conditions are:

> (1) an American Society for Testing and Materials specification or equivalent federal standard exists for the next minimum diesel-biodiesel blend;
>
> (2) a sufficient supply of biodiesel is available and the amount of biodiesel produced in this state from feedstock with at least 75 percent that is produced in the United States and Canada is equal to at least 50 percent of anticipated demand at the next minimum content level;
>
> (3) adequate blending infrastructure and regulatory protocol are in place in order to promote biodiesel quality and avoid any potential economic disruption; and
>
> (4) at least 5 percent of the amount of biodiesel necessary for that minimum content level will be produced from a biological resource other than an agricultural resource traditionally grown or raised in the state, including, but not limited to, algae cultivated for biofuels production, waste oils, and tallow.

Minnesota Statutes section 239.77, subdivision 2(b)(1) to (4).

The Biodiesel Task Force was established by the MDA in 2003 to help the state carry out its biodiesel mandate. Since then, the Task Force has met on an ad-hoc basis to discuss issues related to biodiesel production and its use. Subteams have been formed to address more specific issues such as cold weather operability.

The Biodiesel Task Force members are appointed by the Commissioner of Agriculture. Current membership was appointed September 2017, and expires June 30, 2019. Task Force members apply through the Minnesota Secretary of State's Open Appointments process which is now conducted entirely online.

The current members include:

- Ralph Groschen (At Large Member)
- Dustin Haaland, CHS Inc. (Petroleum Industry Representative)
- John Hausladen, Minnesota Trucking Association (Fuel User Group Representative)
- Scott Hedderich, REG Company, Chairperson (Processing Industry Representative)
- Bruce Heine, Magellan Midstream Partners, LP (Petroleum Industry Representative)
- Chris Hill, Minnesota Soybean Growers Association (Grower's Organization Representative)
- Jon Hunter, American Lung Association in Minnesota (Environmental Organization Representative)
- Ronald Marr, Minnesota Soybean Processors (Processing Industry Representative)
- Kevin Paap, Minnesota Farm Bureau (Farm Organization Representative)
- Steve Rupp, Ever Cat Fuels (Processing Industry Representative)
- Michael W. Stutelberg, AURI (Research Institution Representative)
- Kevin Thoma, Minnesota Petroleum Marketers Association (Petroleum Industry Representative)
- Brett Webb, Flint Hills Resources, LP (Petroleum Industry Representative)
- Gary Wertish, Minnesota Farmers Union (Farm Organization Representative)
- Darrick Zarling, University of Minnesota (Research Institution Representative)

Comments of the Biodiesel Task Force on this report are included in Appendix A.

Background on Biodiesel

Biodiesel is defined in Minnesota Statutes, section 239.77, subdivision 1(b) as:

> …a renewable, biodegradable, mono alkyl ester combustible fuel that is derived from agricultural and other plant oils or animal fats that meets American Society of Testing and Materials (ASTM) specification D6751-11b for Biodiesel Fuel (B100) Blend Stock for Distillate Fuels...

In practice, biodiesel is generally blended with diesel fuel. The ASTM[2] specification of diesel fuel can contain up to 5 percent biodiesel; a separate standard exists for blends of B6 to B20 (ASTM D7467).

[2] ASTM International, formerly known as the American Society of Testing and Materials, is an international standards organization.

Biodiesel in Minnesota is produced from soybeans, corn, and recycled fats, oils and greases. Biodiesel production adds value to all these commodities.

Biodiesel is considered an advanced biofuel as well as "biomass-based diesel" in the Renewable Fuel Standard's classification of renewable fuels. Advanced biofuels under that classification must demonstrate at least a 50 percent greenhouse gas benefit over the fossil fuel that it replaces. Biodiesel has a positive energy balance, producing 5.54 units of energy for every unit of fossil energy consumed over its lifecycle.[3] Biodiesel produced from waste and recycled oils has some of the lowest carbon intensity ratings in the California Air Resources Board (CARB) system because of its ability to reduce greenhouse gas emissions.

The MDA's 2017 study, *Economic Impact of the Minnesota Biodiesel Industry,* determined that the economic impact of Minnesota's 2016 biodiesel production, including direct, indirect, and induced impacts, was $1.7 billion. The total employment impact was estimated as 5,397 jobs. Every 1 million gallons of biodiesel production was found to contribute $2.8 million in statewide economic output, supporting 73 jobs.[4]

According to the study, Minnesota currently ranks tenth among U.S. states in biodiesel production. Due to improved efficiencies at the plants, total Minnesota biodiesel plant capacity has increased from an original nameplate capacity of 63 mgy to 74 mgy.[5]

According to the National Soybean Board, biodiesel increased the value of a bushel of soybeans by 63 cents between 2006 and 2015. This increased the value of soybeans to U.S. farmers by $18.8 billion and decreased the price of soybean meal by $21 per ton.[6]

The use of biodiesel and biodiesel/diesel blends reduces almost all forms of air pollution compared to petroleum diesel, with the most important reductions being air toxics and cancer-causing compounds. Biodiesel also reduces greenhouse gas emissions due to its production from recently-grown plant materials, in contrast to fossil fuels that have been sequestered in the earth for millions to billions of years.[7]

Performance of Biodiesel in Vehicles

B5 has been used in winter months since it was first implemented in Minnesota in 2009. The current standard for diesel fuel, ASTM D975, specifies up to 5 percent biodiesel content.

The current blending requirement for B10 was implemented on July 1, 2014. It is in effect for the warm-weather months of April through September, and then reverts to B5 for the cold-weather months of October through March, when changes in viscosity of diesel fuels (known as "gelling" or "waxing") can cause performance problems in engines.

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[3] A. Pradhan et al. *Energy Life-Cycle Assessment of Soybean Biodiesel Revisited.* Transactions of the ASABE, Vol. 54(3), pages 1031-1039.
[4] *Economic Impact of the Minnesota Biodiesel Industry*, Minnesota Department of Agriculture, May 2017 (find on the MDA Biodiesel webpage at: www.mda.state.mn.us/renewable/biodiesel).
[5] Ibid.
[6] United Soybean Board website (https://unitedsoybean.org/media-center/issue-briefs/biodiesel/).
[7] Biodiesel-Clean, Green Diesel Fuel. U.S. DOE by the National Renewable Energy Laboratory. July, 2015 (https://www.afdc.energy.gov/fuels/biodiesel.html).

The Diesel Help Line is a service available to Minnesotans who experience problems with diesel fuel of any type. An August 2017 summary of calls received, problems addressed, and fuel and filter sample analysis results is included as Appendix B.

Anyone experiencing a problem with diesel fuel is encouraged to call and, if needed, arrange to submit samples to the Help Line. Diesel fuel problems are analyzed to determine the root cause, and, when possible, are traced to a specific fueling source.

The MDA publishes a brochure entitled "Understanding Minnesota's Biodiesel Requirement: A user's guide for biodiesel blends from B5—B20." Available in paper copy and on the MDA's website (www.mda.state.mn.us/renewable/biodiesel), the brochure provides information to consumers on use of higher biodiesel blends.

Implementation of the Biodiesel Mandate

The original Biodiesel Content Mandate, adopted in 2002,[8] specified blending of at least 2 percent biodiesel fuel oil with all diesel transportation fuel sold or offered for sale in Minnesota. The implementation date was September 29, 2005.

In 2008, the Minnesota Legislature amended Minnesota Statutes, 239.77 to add provisions for moving the blending requirement to 5, 10, and 20 percent. All three dates were set to May 1: 2009 for B5, 2012 for B10, and 2015 for B20. B5 was implemented on May 1, 2009.

B10 and B20 Mandates

As stated previously, before a new mandate can be implemented, the Biodiesel Content Mandate statute (Minnesota Statutes section 239.77, subdivision 2 (b)), requires the commissioners of MDA, Commerce, and the MPCA to determine whether four statutory conditions have been met. These conditions involve federal standards for blend specifications, the production capacity of biodiesel in Minnesota, the adequacy of infrastructure and regulatory protocol for biodiesel blending, and the source of feedstocks.

The B10 blending date was postponed in 2011 due to inadequate blending infrastructure, specifically in the southwest region of the state, and also due to inadequate regulatory protocol. The opening of a biodiesel blending site in Sioux Falls, SD, in late 2012, and the institution of new regulatory protocol that tracked the biodiesel content in all shipments of fuel, cleared the way for the B10 blending level to be approved. B10 was implemented on July 1, 2014.

In July 2017, after an interagency review, and in consultation with the Minnesota Biodiesel Task Force, stakeholders, and technical experts, the three agency commissioners (MDA, Commerce, and MPCA) determined that the four conditions had been met, and that Minnesota was prepared to move to the next scheduled minimum content level of 20 percent (B20) on May 1, 2018. The Commissioners' findings, conclusions, and determination are included in Appendix C. Additional information may be found on the MDA webpage at www.mda.state.mn.us/en/renewable/biodiesel/movetob20.

As previously mentioned, one of the four statutory conditions that must be met before a new mandate can be implemented pertains to the adequacy of infrastructure and regulatory protocol for biodiesel

[8] Laws of Minnesota 2002, Chapter 244

blending. In his written comment for this report, Biodiesel Task Force Member Bruce Heine, of Magellan Midstream Partners, LP (Petroleum Industry Representative), requested that we include an update on Magellan Pipeline's distribution capacity in this report. Mr. Heine's full comments are included in Appendix A, and the update is as follows:

> Since the announcement of the B20 enforcement date which begins May 2018, Magellan has invested over $10 million dollars in capital to update all Minnesota terminals to allow the ability to accommodate the biodiesel demand that will accompany the mandate. Magellan is dedicated to the safety and compliance of all fuel that leaves its terminals, and therefore, took immediate steps to invest in our assets. It was in the spirit of that dedication that Magellan urged the legislation to postpone the enactment date of the mandate; to allow adequate time to design and implement the optimal enhancements. Though that time was denied, Magellan was able to find creative and effective solutions, at a great capital cost, to bring the highest quality ratio-blended biodiesel fuel to its customers and provide the market with the confidence that quality guarantee provides.

Price and Supply of Biodiesel

The price of diesel fuel offered for sale in Minnesota is affected by multiple factors, including the price of components (petroleum diesel and biodiesel), and state and federal policies. Most important among federal policies are the Renewable Fuel Standard and the Biodiesel Blenders Tax Credit. This section describes the pricing of petroleum diesel and biodiesel components of diesel fuel, and the net wholesale price of diesel as affected by federal policies.

The supply of biodiesel is affected by blending requirements, federal policy, and the demand for biodiesel from retailers, driven in part by the state mandate. This section describes the policy effects and the resulting estimated supply.

Federal Policy and Its Influence on Biodiesel Price and Supply

As stated above, the most important federal policies affecting price are the Renewable Fuel Standard and the Biodiesel Blenders Tax Credit.

The Renewable Fuel Standard (RFS), Renewable Identification Numbers (RINS), and Renewable Volume Obligations (RVOs)

In 2007 the federal Energy Independence and Security Act (EISA) was passed by Congress and signed by President George W. Bush, revising the Renewable Fuel Standard (RFS, now RFS2) that was already in place. This law requires refiners and/or importers of petroleum (also known as obligated parties) to blend increasing volumes of biofuels on an annual basis. Volumes (Renewable Volume Obligations or RVOs), set by Congress and modified by the USEPA, are divided proportionally among all obligated parties, giving each obligated party a total amount of biofuel that they will need to show compliance for blending.

Every gallon of biofuel produced that qualifies for RFS2 carries with it a Renewable Identification Number, or RIN. The RIN is used by the obligated party to show compliance with RFS2. RINs can be used (or "retired") by an obligated party in two ways:

1. Gallons of biofuel are blended with petroleum fuels. Once biofuel is blended, the RIN can be "separated" from the fuel with which it is associated, and retired.
2. RINs can be purchased in the RIN market. Obligated parties that blend more fuel than their obligation requires, or fuel distributors that are not refiners and/or importers of petroleum (also referred to as "third party blenders"), can sell RINs into the market after fuel is blended.

In the second case above, the value obtained by selling the RIN represents another income stream for the obligated party who has met their obligation, or a third party blender who has no obligation under RFS2.

In December, the USEPA finalized RVOs for 2018 and set the RVO for biomass-based diesel for 2019. Table 1 shows the upward trend through 2018.

Table 1 Renewable Volume Obligations (RVOs) for biodiesel.

Year	RVO (in billions of gallons)
2012	1.00
2013	1.28
2014	1.63
2015	1.73
2016	1.90
2017	2.00
2018	2.10
2019	2.10

Biodiesel can also be used to satisfy an obligated party's requirement in the advanced biofuel category. The advanced biofuel blending volume under RFS2 also continued to rise modestly through 2017, with a total of 1.969 billion gallons set for non-cellulosic advanced biofuel. It is, however, reduced to 1.902 billion gallons for 2018.

Federal Biodiesel Blenders Tax Credit

The federal Biodiesel Blenders Tax Credit was first implemented in 2005. This allowed blenders of biodiesel and renewable diesel (renewable diesel being ASTM D975 specification renewable fuel) to claim $1 per gallon against their federal tax liability. The tax credit expired at the ends of 2009, 2011, 2013, and 2016. In each of 2009, 2011, and 2013, the tax credit was reinstated late in the next year (or very early in the succeeding year) and made retroactive, such that all years from 2005 through 2016 were covered by the credit. At this writing, the fate of the tax credit for 2017 and beyond is unknown.

Table 2 details the year, legislation, and active dates for each year the Biodiesel Blender Tax Credit was in effect. Those approved in 2010, 2013, 2014, and 2015 are years where the credit was available retroactively.

Table 2 History of legislation of the Biodiesel Blender's tax credit

Year	Legislation	Citation	Approved Date	Expiration	Reinstatement Date
2004	American Jobs Creation Act of 2004	PL 108-357	10/22/2004		
2005	Energy Policy Act of 2005	PL 109-58	8/8/2005		
2008	Energy Improvement and Extension Act of 2008	PL 110-343, Division B	10/3/2008	12/31/2009	
2010	Tax Relief, Unemployment Insurance Reauthorization, and Job Creation Act of 2010	PL 111-312	12/17/2010	12/31/2011	1/1/2010
2012	American Taxpayer Relief Act of 2012	PL 112-240	1/2/2013	12/31/2013	1/1/2012
2014	Tax Increase Prevention Act of 2014	PL 113-295	12/19/2014	12/31/2014	1/1/2014
2015	Protecting Americans from Tax Hikes Act of 2015	PL 114-113	12/18/2015	12/31/2016	1/1/2015

Rack Pricing

Fuel terminals often exist at refineries or at points along oil pipelines. Information in this section on diesel and biodiesel blend pricing is based on fuel terminal prices, also known as "rack pricing" or prices "at the rack."

Since initial implementation of the Biodiesel Content Mandate in 2005, the price difference of the blended product from #2 diesel fuel has been as high as a 10-cent difference (in 2011) and as low as 0.006 cents in 2017 (where the blend was cheaper than diesel fuel without biodiesel). Detailed information on rack pricing is contained in Appendix D.

Third Party Blending and Impact of RINs

The Biodiesel Blenders Tax Credit and RIN effectively lower the net price of unblended biodiesel fuel (B100), and consequently lower costs for the third-party blender. Figure 1 shows the 2017 trend for the price of the mandated blend at the rack (B5 in cold weather months/B10 in warm weather months) and calculated costs for blends of B5/B10/B20.

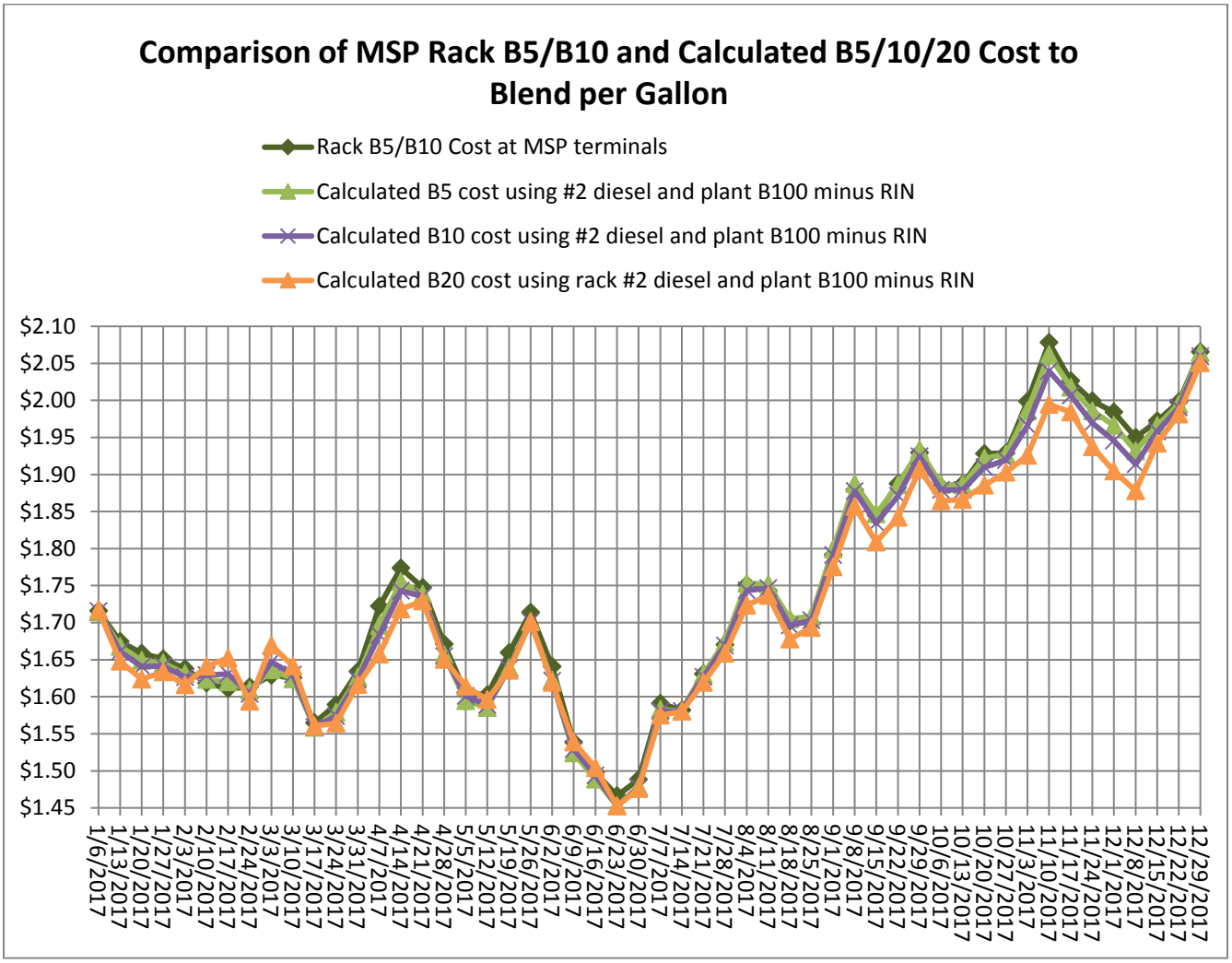

Figure 1 Week-by-week profit potential: MSP rack B5 price, and calculated B5, B10, and B20 price using rack #2 diesel and plant average B100 with the retroactive $1 tax credit and RIN subtracted.

Figure 2 shows the pricing trends for #2 diesel and B100. The B100 price is the net Iowa average price from the biodiesel plants.

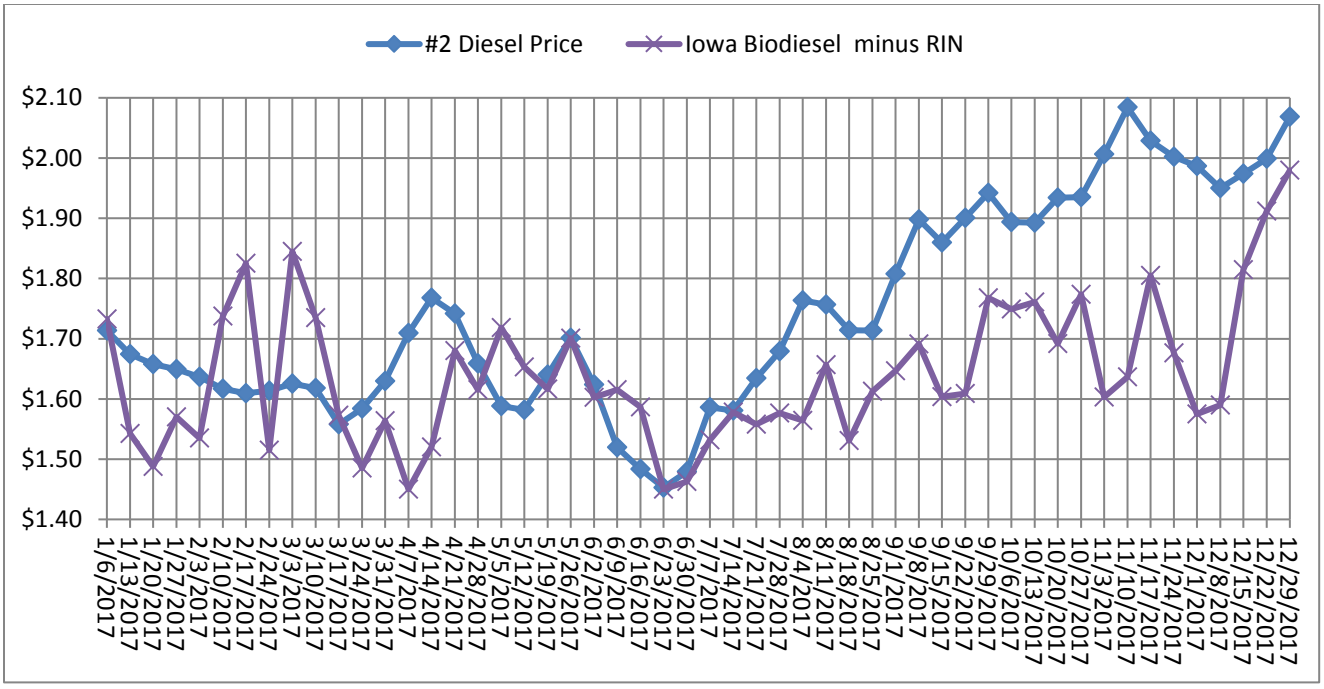

Figure 2 #2 Diesel price (MSP Rack), and the Iowa B100 price (as reported by the biodiesel plants to AMS) with the RIN subtracted.

The net cost of biodiesel to the blender is dependent on a number of variables. This section is intended to show some of the relevant market dynamics, but does not represent the only cost consideration for those blenders.

Biodiesel Supply

Total biodiesel outages at terminals are rare, and are typically related to equipment or tank maintenance, rather than supply shortages. Low biodiesel supplies at terminals can cause outages for individual distributers, which can cause distributors to purchase biodiesel outside the terminal distribution system by going directly to the biodiesel plants.

The nameplate capacity (the capacity that the three Minnesota biodiesel plants were constructed to originally produce) is 63 mgy. Recent expansion and efficiency improvements have allowed the plants to increase production levels. Production for 2016 was at 74 mgy.[9] The plants are permitted by the Minnesota Pollution Control Agency to produce a total of 85.5 mgy in 2017.

[9] Ibid.

Table 3 shows a breakdown of these capacities by plant. The overall trend is increased production capacities for Minnesota facilities.

Table 3 Minnesota biodiesel plant permitted production capacities.

Plant – Location	2017 Permitted Production Capacity (mgy)
Ever Cat Fuels – Isanti	3.0
Minnesota Soybean Processors – Brewster	40.5
Renewable Energy Group (REG) – Glenville	42.0
Total	85.5

Where the majority of biodiesel was produced from soybeans in the early days of Minnesota's minimum biodiesel blending requirement, production now uses a variety of feedstocks. Minnesota Soybean Producers is a full-crush soybean processing facility and uses soybean oil exclusively for its biodiesel production. Ever Cat Fuels' 3 mgy plant uses a high temperature, high pressure catalytic transesterification process, and uses alternative feedstocks such as recycled oils. REG upgraded its plant to process a wide variety of oil feedstocks. Figure 3 shows a breakdown of REG's feedstock used for 2016. The overall trend for Minnesota facilities has been increased diversification of feedstocks.

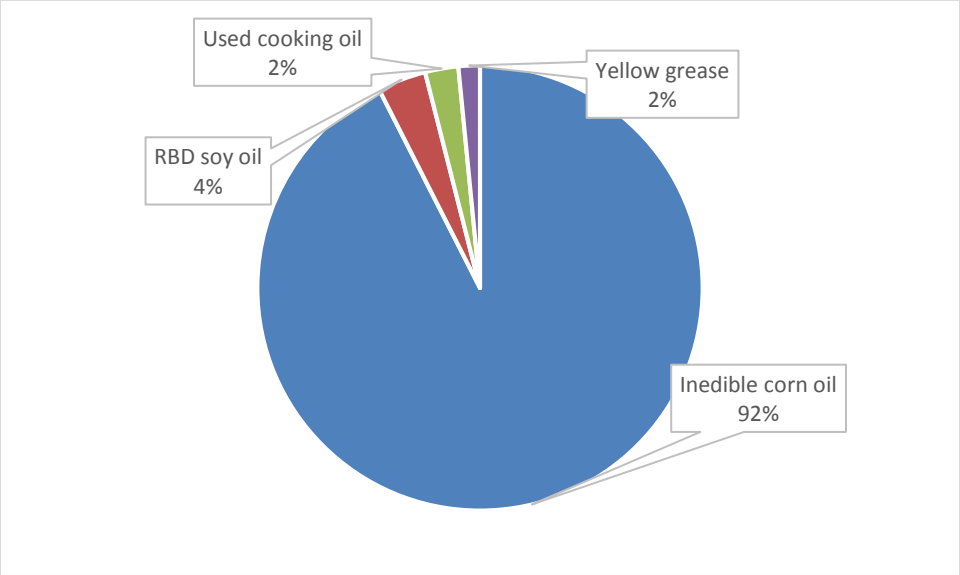

Figure 3 REG feedstock usage breakdown for 2016.

Conclusion: Impacts of Biodiesel Mandate on Production Capacity and Feedstocks

Current production capacity and feedstock use are summarized in the Minnesota Department of Agriculture's May 2017 report, *Economic Impact of the Minnesota Biodiesel Industry*. According to the report:

- Production has increased from the amount represented by the initial B2 mandate (16 mgy) to 74 mgy in 2016.

- Production is from diverse feedstocks: soybeans are the feedstock of 45 percent of biodiesel in the state, while other oils, fats and greases comprise the remaining 55 percent of the feedstock.
- Of the 1 billion gallons per year of diesel consumption in Minnesota, 77 mgy (nearly 8 percent) comes from biodiesel.
- Of the 77 mgy of biodiesel consumption in Minnesota in 2016, 96 percent (74 mgy) was produced in Minnesota, while 4 percent (3 mgy) was imported from outside Minnesota.[10]

[10] Ibid.

Appendix A: Comments from Biodiesel Task Force Members

Comments of Bruce Heine, Magellan Midstream Partners, LP (Petroleum Industry Representative)

January 10, 2018

Mr. Kevin Hennessy
Biofuel Specialist
Minnesota Department of Agriculture
625 Robert Street
St Paul, MN 55155

RE: 2018 Annual Report on Biodiesel / Findings of Fact, Conclusions and Determination

Mr. Hennessy:

Thank you for the opportunity to provide comments on the important reports referenced above. As a significant stakeholder in the liquid fuels industry in Minnesota, Magellan is directly affected by legislation, rulemaking and determinations referenced in the reports. We are offering the following comment to address the implementation of the upcoming increase in biodiesel content up to 20 volume percent during the spring and summer months of 2018 and beyond.

Magellan Infrastructure

Since the announcement of the B20 enforcement date which begins May 2018, Magellan has invested over $10 million dollars in capital to update all Minnesota terminals to allow the ability to accommodate the biodiesel demand that will accompany the mandate. Magellan is dedicated to the safety and compliance of all fuel that leaves its terminals, and therefore, took immediate steps to invest in our assets. It was in the spirit of that dedication that Magellan urged the legislation to postpone the enactment date of the mandate; to allow adequate time to design and implement the optimal enhancements. Though that time was denied, Magellan was able to find creative and effective solutions, at a great capital cost, to bring the highest quality ratio-blended biodiesel fuel to its customers and provide the market with the confidence that quality guarantee provides.

With the update above, Magellan is asking that the *Annual Report on Biodiesel* reflect these full capabilities to distribute B20 biodiesel blends from Magellan's in-state terminals.

The Need for a Transition Period

Minnesota statute 239.77(2)(a) states "…all diesel fuel sold or offered for sale in Minnesota for use in internal combustion engines must contain at least the stated percentage of biodiesel fuel oil by volume on and after the following dates…." In other words, the biodiesel content is required to meet a specified volume when offered for sale at retail truck stops, service stations, convenience stores, commercial applications and other locations when sold to a consumer for use in an internal combustion engine.

For enforcement purposes, the Minnesota Department of Commerce (the Department) uses two methods to determine compliance with the biodiesel content mandate. First, the Department will

audit delivery records which includes a bill of lading highlighting the diesel and biodiesel content if loaded at a terminal. If the diesel is loaded at a terminal and the biodiesel is loaded at an off-site bulk plant, the Department will typically have two separate bills of ladings for audit purposes. Second, the Department will test samples collected at locations by infrared spectroscopy.

The biodiesel content mandate in #2 diesel fuel increases from 5 volume percent to 10 volume percent on April 1, 2018 and then to 20 volume percent on May 1, 2018. In 2019, the biodiesel content requirement jumps from 5 volume percent to 20 volume percent on April 1. While the Department can rely on the bills of lading for enforcement, the significant increase in the biodiesel content mandate on May 1, 2018 from 10 to 20 volume percent will make it difficult for the Department to rely on test results from samples collected at locations offering B20 biodiesel shortly after the implementation date. With such a large increase in the biodiesel content mandate on May 1, we believe it will be difficult for locations offering B20 for sale to actually turn their biodiesel blend inventories from B10 to B20 overnight. This will leave non-compliant storage tanks in service until the tank is turned.

The alternative would be to use a blend percentage greater than 20 volume percent to turn the locations underground storage tanks. There are problems inherent with creating biodiesel blends in excess of 20 percent. If this practice was to be adopted then this would necessarily introduce biodiesel blends into commerce which is neither compliant with the Minnesota regulations nor conforms to an industry specifications. ASTM International's specifications, that are supported by fit-for-use data, have an upper limit of 20 percent. If biodiesel blends with concentrations greater than 20 percent are produced at terminals or bulk plants, it is virtually inevitable that non-compliant fuel will be distributed to the consumer.

Industry data that have been generated across an array of fuels clearly demonstrate that several tank turns are needed at retail to convert tanks to a more restrictive control limit. For example, this reality is captured in the EPA's RVP conversion schedule, where terminals must be at the control limit (typically 9.0#) on May 1 and the retail outlets need to be converted by June 1.

To address this issue, we would suggest that the Department consider and implement a transition period after the biodiesel content mandate increases to 20% volume on May 1, 2018 before using the test results from samples collected from locations for enforcement purposes.

Thank you for the opportunity to provide Magellan's perspective on this important program.

Sincerely,

Signed copy on file

Bruce Heine
Member, Minnesota Biodiesel Task Force

Comments of Jon Hunter, American Lung Association in Minnesota (Environmental Organization Representative)

Commissioner Frederickson
Minnesota Department of Agriculture

Commissioner Frederickson:

As a member of the Biodiesel Task Force, I want to thank you for the opportunity to review and comment on the annual biodiesel report to the legislature. Minnesota has been working toward the move to B20 since the legislature approved the policy ten years ago. I appreciate the work that the Minnesota Departments of Agriculture and Commerce and the Minnesota Pollution Control Agency have done in recent years to recognize and demonstrate that all the obligations under the law have been met and our state is prepared to move to B20 on May 1st

In addition to the economic and energy independence benefits detailed in the annual biodiesel report, I would also like to underscore the health benefits that using B20 will bring to Minnesotans. Vehicle exhaust remains a leading source of air emissions in Minnesota and biodiesel helps reduce key pollutants that threaten the health of Minnesota residents and the health of our economy. The Minnesota Pollution Control Agency estimates the economic impact of current levels of air pollution – from all sources – to be near $30 billion per year.

Biodiesel helps reduce particulate matter, hydrocarbons, sulfur dioxide, and other air toxins, all of which can impact human health. Fine particulate matter is the air pollutant most associated with premature death. It has the ability to travel deep into lungs, where it can exacerbate issues with asthma and chronic obstructive pulmonary disease (COPD). Some particulate matter is small enough to pass through into the bloodstream, where it can also trigger cardiovascular issues. Particulate matter, and especially diesel particulate matter, can be carcinogenic and lead to cancer. Minnesota's air quality is fairly good, but it is not as clean as it needs to be. Our annual air emissions hover close to the limits set under the federal Clean Air Act for both particulates and ozone, indicating there are health benefits to be gained by reducing pollution.

Newer diesel engines include equipment to reduce emission levels, but we estimate almost half of Minnesota's diesel vehicles were on the road before this control technology was required. Minnesota's use of biodiesel in 2018 is expected to reduce particulate matter emissions in older diesel vehicles by almost 130 tons[11].

Biodiesel also offers lifecycle greenhouse gas emissions reductions, regardless of the age of the diesel engine it is used in. Minnesota's estimated use of biodiesel in 2018 will reduce lifecycle carbon dioxide emissions by more than 950,000 tons – the equivalent of eliminating more than 2 billion miles driven by passenger vehicles or burning 900 million pounds of coal. Our state is already experiencing health effects from global warming, with longer, more potent allergy seasons, spread of vector-borne disease carriers, and other consequences, which biodiesel use can help reduce.

[11] Estimate assumes 904,500,000 gallons of diesel will be used in Minnesota, beginning with B20 May 1, 2018 for warm months and B5 (5%) the remainder of the year. http://biodiesel.org/using-biodiesel/handling-use/emissions-calculator

In short, biodiesel helps reduce air pollution in Minnesota and finally implementing our B20 law this year will further expand on those benefits.

Sincerely,

Signed copy on file

Jon Hunter

Director, Clean Air, American Lung Association in Minnesota

Comments of Brett Webb, Flint Hills Resources, LP (Petroleum Industry Representative)

Kevin – attached are FHR's comments which were provided last summer to the task force and

Commissioners. Also attached is the op-ed we submitted to the Star Tribune.

We'd like to submit the attached as FHR's comments to the 2018 annual report.

Best Regards,

Brett

Brett Webb
Director, Commercial Development
Flint Hills Resources, LP

January 10, 2018

Kevin Hennessy
Minnesota Department of Agriculture
Agricultural Marketing and Development
625 Robert Street North
Saint Paul, MN 55155
Minnesota Department of Agriculture Commissioner Dave Frederickson
Minnesota Department of Commerce Commissioner Mike Rothman
Minnesota Pollution Control Agency Commissioner John Linc Stine

Flint Hills Resources supplemental comments regarding B20

Dear Commissioners:

Flint Hills Resources owns and operates the Pine Bend refinery in Rosemount, MN, which supplies roughly 50% of Minnesota's transportation fuels and a significant portion of the fuels used in the surrounding states. We also are a major producer of biofuels, including both ethanol and biodiesel with operations primarily in Iowa and Nebraska.

Flint Hills Resources previously submitted a letter detailing a variety of concerns we have about moving forward with the B20 mandate by May 1, 2018. We respectfully offer these comments to expand on one concern that we believe is perhaps the most pressing, which is the lack of infrastructure needed to reliably distribute B20 throughout the state of Minnesota.

B20 is uncharted territory. No other state has mandated the use of biodiesel anywhere near this level. At B10, Minnesota was and is already an outlier in the regional marketplace. Doubling the requirement to B20 presents new challenges and exposes the state to a greater degree of risk when it comes to the reliability of the fuels Minnesotans depend on and the movement of these fuels in the marketplace.

Very few, if any, of the fuel terminals that serve Minnesota are expected to have the tanks and blending infrastructure in place that are needed for B20.

Unlike the move from B2 to B5 and B10, the jump to B20 presents a problem with both the physical size of the current tanks and the blending equipment needed to deliver the appropriate biodiesel volumes. It's a math problem that cannot be solved without a significant investment in new infrastructure.

Absent this investment, Minnesota could see more product outages during peak demand, longer wait times for loading and delivery of fuel, and higher costs for trucking in order to satisfy the mandate.

Without adequate storage, fuel terminals will also be more dependent on "just in time" deliveries of biodiesel. If those biodiesel deliveries – which will often be coming from out of state – are delayed, the terminal will not be able to sell fuel until adequate supplies arrive. This creates an inherent inefficiency in the fuel delivery system, which could be felt by all fuel consumers – especially during periods of peak demand. It is the equivalent of suddenly removing a lane of traffic on 494 during rush hour.

This type of disruption can have a cascading effect across the fuel delivery system. If a terminal can't move its fuel because it doesn't have sufficient biodiesel to blend, this can result in fuel supplies being diverted to other markets, forcing the terminal to play catch up or to go dry until product becomes available again.

As we've stated previously, higher biodiesel blends, including B20, are already available in the marketplace and being chosen freely by consumers when cost and seasonal factors make it a competitive and practical option. However, mandating B20 across Minnesota is another matter. Infrastructure is a critical pathway to accommodating higher biodiesel blends on a consistent or required basis, and that infrastructure is not inexpensive.

It's difficult to justify this type of investment – which provides no return – and is needed just six months out of the year – especially when currently there is so much uncertainty around the federal policies that subsidize the cost of producing biodiesel.

The $1 per gallon federal tax credit has already expired and may not be restored. The federal Renewable Fuels Standard also may undergo changes under the new administration, which could affect the cost of biodiesel. Today, biodiesel (B100) typically costs anywhere from $1.75 to $2.00 per gallon more than diesel fuel and, at times, the difference has exceeded $3.00 per gallon. At B20, Minnesota would be more exposed than the rest of the country to possible changes in federal law that could result in dramatically higher B100 prices and biodiesel prices at the pump.

Finally, related to infrastructure, we continue to question whether there is adequate supply of locally produced biodiesel to meet the statutory requirement needed to justify increasing the mandate. Public data suggests there would be only enough biodiesel capacity in Minnesota to meet roughly 33 percent of the average daily demand required for B20. Some of this current production also goes to other states.

Without the necessary infrastructure in place and sufficient locally produced biodiesel that's also sold locally, the B20 mandate effectively forces Minnesotans to consume biodiesel from other states while potentially having to pay more for their fuel than people who live in those same states. This certainly wasn't the intent of the original law nor do we think it's consistent with statutory conditions that would justify increasing the mandate at this time.

Respectfully,

Signed copy on file

Brett Webb
Director of Commercial Development

Flint Hills Resources

Opinion-Editorial published in the Star Tribune

August 10, 2017

The Star Tribune editorial published August 6, "Stick with Minnesota's biodiesel mandate," applauded a recent decision by state officials to double the current biodiesel blending mandate to 20% (B20) for half the year – from April through September – making Minnesota the only state in the country and one of the few places in the world to dictate biodiesel blending at such a high level.

As a member of the Minnesota Biodiesel Task Force and producer of both diesel fuel and biodiesel, we have concerns about the practical application of increasing the mandate to such unprecedented levels.

Biodiesel is a very capable fuel but it has limitations. Although it's improving, most high-level biodiesel blends do not perform well in cold weather. Even with its sophisticated quality control program and heated storage, Metro Transit has reported engine filters clogging at biodiesel blends as low as 2.5 percent when temperatures drop below 35 degrees. At B20, clogging has been reported at fuel temperatures as warm as 50 degrees, leading Metro Transit to caution requiring the use of B20 during transitional months such as April when temperatures tend to range widely from day to day and vary dramatically across the state.

While B20 is a sound consumer choice under the right conditions, the fact remains not all diesel engine manufacturers cover higher blends in their engine warranties. Forcing consumers to purchase B20 could void warranties for some Minnesota consumers who own light duty diesel vehicles.

The B20 mandate also presents a number of practical challenges. Very few of the fuel loading terminals that serve Minnesota are expected to have the necessary tanks and blending infrastructure in place to accommodate B20. Unlike Minnesota's previous transitions from B2 to B5 and B10, the

jump to B20 presents a problem with both the physical size of the current tanks and the blending equipment needed to deliver the appropriate biodiesel volumes. It's a math problem that cannot be solved without a significant investment in new infrastructure. Absent this investment, Minnesota could see more product outages during peak demand, longer wait times for loading and delivery of fuel, and higher costs for trucking.

Finally, increasing the mandate so far beyond what any other state requires ignores the role the regional marketplace and the federal government play in influencing the cost and use of biodiesel. Today, biodiesel (B100) typically costs $1.75 to $2.00 per gallon more than diesel fuel and, at times, the difference has exceeded $3.00 per gallon. Traditionally, these costs are either passed on to consumers or partially absorbed by taxpayers. By mandating B20, the state is forcing consumers to purchase the fuel regardless of cost, making Minnesota susceptible to sudden market variations or potential changes in federal law that could result in dramatically higher biodiesel prices at the pump.

The Star Tribune and others who support doubling Minnesota's biodiesel mandate dismiss these concerns out of a belief that the risk is worth the reward and the assumption that more is always better. However, the benefits of mandating biodiesel have never been validated. Claims that the B20 mandate will increase soybean values for farmers and promote in-state biodiesel production lack merit when you compare Minnesota to states that do not mandate the use of biodiesel. Many of these states produce more biodiesel than Minnesota and their farmers earn more for growing soybeans.

Biodiesel is an excellent product under the right conditions but those conditions matter. The law requiring B20 was passed nearly a decade ago with the best intentions but without some reforms its implementation next year could harm consumers and undermine confidence in the fuels people depend on.

Brett Webb
Director of Commercial Development
Flint Hills Resources

Flint Hills Resources is a refining, chemicals and biofuels company based in Wichita, Kansas. It operates the Pine Bend refinery in Rosemount, Minn., which supplies most of Minnesota's gasoline and diesel fuel. Flint Hills Resources is also the nation's 5th largest producer of biofuels, including biodiesel, and recently started producing a new high-quality, cold-weather tolerant form of biodiesel at its facility in Beatrice, Nebraska.

Appendix B: Diesel Help Line August 2017 Summary

Minnesota Diesel Helpline Report: September 2016 – August 2017

Summary of Calls and Samples Received by Month

	Calls	Minor Inquiries	Problems Addressed	Fuel Samples Received	Filter Samples Received
September	8	7	1	2	2
October	6	4	2	6	2
November	6	3	3	2	2
December	10	7	3	4	5
January	8	8	0	1	3
February	7	3	4	3	0
March	4	1	2	11	2
April	6	4	2	10	0
May	7	4	3	19	0
June	9	5	3	5	0
July	8	4	4	5	1
August	8	5	3	5	3
Total	**87**	**55**	**30**	**73**	**20**

Summary of Problems Addressed

	Sept	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Total	
Microbial		1							2		1		4	13.3%
High Water			1			1					1		3	10%
Biodiesel Contaminants													0	0%
Oxidation	1						1					2	4	13.3%
Other		1	1			2							4	13.3%
Fuel not blended for Winter													0	0%
No problem with fuel*				2		1	1	2	1	2	2	1	12	40%
Paraffin													0	0%
Sediment			1	1						1			3	10%
													30	

*Fuel is often the first thing blamed for engine stalling. Testing proved that the cause was not fuel related and that the caller should look at mechanical causes.

MINNESOTA

Department of Agriculture
Department of Commerce
Pollution Control Agency

Regarding the Written Notice by the Commissioners of Agriculture, Commerce and Pollution Control Specified in Minnesota Statutes, section 239.77, subdivision 2(b) that Conditions of Statute Have Been Met, and that the State is Prepared to Move to the 20% Biodiesel Content Level (B20)

FINDINGS OF FACT, CONCLUSIONS, AND DETERMINATION

FINDINGS OF FACT

Legal Background

1. Minnesota Statutes section 239.77 requires, as of May 1, 2018, that diesel fuel offered for sale from April through September contain a minimum 20% biodiesel ("B20")("B20 Mandate"). However, the B20 Mandate can go into effect only after the Commissioners of the Minnesota Department of Agriculture (MDA), Minnesota Pollution Control Agency (MPCA) and Minnesota Department of Commerce (Commerce)("Commissioners") have consulted with the Biodiesel Task Force and determined that four conditions, contained in Minnesota Statutes, section 239.77, subdivision 2(b)(1) to (4), are met, notice is published in the State Register and notice is provided to certain specified legislative chairs.

2. The conditions that the Commissioners must find have been met are as follows:

> (1) an American Society for Testing and Materials specification or equivalent federal standard exists for the next minimum diesel-biodiesel blend;
>
> (2) a sufficient supply of biodiesel is available and the amount of biodiesel produced in this state from feedstock with at least 75 percent that is produced in the United States and Canada is equal to at least 50 percent of anticipated demand at the next minimum content level;
>
> (3) adequate blending infrastructure and regulatory protocol are in place in order to promote biodiesel quality and avoid any potential economic disruption; and
>
> (4) at least five percent of the amount of biodiesel necessary for that minimum content level will be produced from a biological resource other than an agricultural resource traditionally grown or raised in the state, including, but not limited to, algae cultivated for biofuels production, waste oils, and tallow.

Minnesota Statutes section 239.77, subdivision 2(b)(1) to (4).

3. Minnesota Statutes section 239.77, subdivision 2(b) provides that "[the] condition in clause (2) may be waived if the commissioner [of Commerce] finds that, due to weather-related conditions, the necessary feed stock is unavailable."

4. Minnesota Statutes section 239.77, subdivision 2(b) provides that "[the] condition in clause (4) may be waived if the commissioners [of MDA, MPCA, and Commerce] find that the use of these nontraditional feedstocks would be uneconomic under market conditions existing at the time notice is given under this paragraph."

5. Minnesota Statutes section 239.75, subdivision 1(11) provides that the Weights and Measures Director may "after consulting with the commissioner [of Commerce], grant a temporary exemption from the diesel-biodiesel blending requirements in section 239.77, if the supply of biodiesel is insufficient to produce diesel-biodiesel blends."

6. Minnesota Statutes section 239.77, subdivision 2(d) provides that "[d]uring a period of biodiesel fuel shortage or a problem with biodiesel quality that negatively affects the availability of biodiesel fuel, the commissioner of Commerce may temporarily suspend the minimum content requirement in subdivision 2 until there is sufficient biodiesel fuel, as defined in subdivision 1, available to fulfill the minimum content requirement."

7. Minnesota Statutes section 239.77, subdivision 2(e) provides that "[b]y February 1, 2012, and periodically thereafter, the commissioner of Commerce shall determine the wholesale diesel price at various pipeline and refinery terminals in the region, and the biodiesel price determined after credits and incentives are subtracted at biodiesel plants in the region. The commissioner shall report wholesale price differences to the governor who, after consultation with the commissioners of commerce and agriculture, may by executive order adjust the biodiesel mandate if a price disparity reported by the commissioner will cause economic hardship to retailers of diesel fuel in this state. Any adjustment must be for a specified period of time, after which the percentage of biodiesel fuel to be blended into diesel fuel returns to the amount required in subdivision 2. The biodiesel mandate must not be adjusted to less than five percent."

8. Minnesota Statutes section 239.80, subdivision 1(b) provides that "[t]he director or any delegated employee may waive a penalty for a violation under section 239.77 or 239.791 on a retailer when ethanol or biodiesel are not available at a pipeline or refinery to meet the blending requirements of this chapter, and the terminal has had ethanol or biodiesel blended products available to the licensed distributor for 20 of the previous 30 days. The director or delegated employee shall use the reports required in section 239.754 or other available information in making a determination under this paragraph."

Procedural History

9. In November 2011, the Commissioners notified the state legislature that the transition to B10 would be delayed past its scheduled implementation date of May 1, 2012 because they could not yet find that all four required conditions had been met. In September of 2013, the Commissioners found that all four conditions had been met and the B10 mandate became effective as of July 1, 2014.

10. On April 17, 2015, a number of parties challenged the B10 mandate decision alleging that the mandate conflicted with the Renewable Fuel Standard (Energy Policy Act of 2005) and was preempted by the Supremacy Clause, Article VI of the U.S. Constitution. They also challenged the mandate alleging that the Commissioners violated the Minnesota Administrative Procedures Act by making findings without adhering to administrative rulemaking requirements.

11. On September 29, 2016, the U.S. District Court ruled in favor of the State of Minnesota and dismissed the challenges on various grounds. This decision was not appealed.

12. On April 24, 2017, the MDA provided notice via e-mail to Biodiesel Task Force members and an e-mail list of interested parties that a Biodiesel Task Force meeting would be held on June 9, 2017. Notice of the June 9, 2017 meeting was also published in the State Register on May 1, 2017 (Volume 41, Number 44, page 1255).

13. On May 9, 2017 the MDA sent an e-mail to Biodiesel Task Force members that included a statement of the purpose of the meeting, "to discuss whether the statutory conditions are met in order to move to the B20 level on May 1, 2018, as provided in M.S. 239.77", and that the Commissioners of MDA, Commerce, and the MPCA would be in attendance. An agenda was attached.

14. Notice and an agenda for the Biodiesel Task Force Meeting was published on the MDA website on or about May 18, 2017.

15. The Biodiesel Task Force and the Commissioners met together on Friday, June 9, 2017, at the MDA offices.

16. At the June 9, 2017 meeting, members of the Biodiesel Task Force present and on the phone provided statements regarding the four conditions required for implementation of the B20 Mandate pursuant to Minnesota Statutes section 239.77, subdivision 2(b). After each member was given the opportunity to speak to the four conditions, there was a period of question and answer and further discussion.

17. On June 14, 2017, an e-mail was sent to the Biodiesel Task Force members notifying them that the Commissioners would continue to take comments through Saturday, July 15, 2017.

18. Comments were subsequently received from Scott Hedderich of REG, Michael Petefish of the Minnesota Soybean Growers Association, Joseph Sullivan of the Center for Energy and Environment, Brett Webb of Flint Hills Resources, Mike Youngerberg of the Minnesota Biodiesel Council, and representatives of Magellan Midstream Partners, Alliance of Automobile Manufacturers, BP Products North America, Flint Hills Resources, Minnesota Petroleum Council, Minnesota Trucking Association, and Tesoro Corporation.

19. On July 19, 2017 the Commissioners met to consider whether the conditions necessary to proceed with the B20 Mandate were present.

Condition 1: an American Society for Testing and Materials ("ASTM") specification or equivalent federal standard exists for the next minimum diesel-biodiesel blend

20. The Commissioners find that the American Society for Testing and Materials ("ASTM") has promulgated a "Standard Specification for Diesel Fuel Oil, Biodiesel Blend (B6 to B20)." This Standard Specification was approved by ASTM in 2008 as D7467. The standard establishes specifications for biodiesel blends including B10 and B20. The current version is D7467-17. Therefore, the Commissioners find that the first condition contained in Minnesota Statutes section 239.77, subdivision 2 (b)(1) that is necessary for the B20 minimum content level to become effective, has been met.

Condition 2: a sufficient supply of biodiesel is available and the amount of biodiesel produced in this state from feedstock with at least 75 percent that is produced in the United States and Canada is equal to at least 50 percent of anticipated demand at the next minimum content level

21. The Commissioners have been presented evidence that, using Minnesota Department of Revenue's diesel sales data for 2016 B20 mandate months, along with current MN biodiesel monthly production maximums, approximately 53% of the biodiesel needed from April through September can be met by Minnesota production if the mandate goes into effect in 2018. The data for 2016 B20 mandate months are listed in the table below:

Month	Diesel Demand	Biodiesel gallons needed	Current Production maximums	Production vs Need
APR-16	66,030,138	13,206,028	7,467,869	56.5%
MAY-16	69,702,065	13,940,413	7,716,798	55.4%
JUNE-16	74,534,388	14,906,878	7,467,869	50.1%
JULY-16	71,951,164	14,390,233	7,716,798	53.6%
AUG-16	66,708,664	13,341,733	7,716,798	57.8%
SEPT-16	81,724,976	16,344,995	7,467,869	45.7%
Total	430,651,395	86,130,280	45,554,001	52.9%

22. Based on the information summarized above, the Commissioners find that the second condition for the B20 minimum content level to become effective, contained in Minnesota Statutes section 239.77, subdivision 2(b)(2), has been met.

Condition 3: adequate blending infrastructure and regulatory protocol are in place in order to promote biodiesel quality and avoid any potential economic disruption

23. A representative of Magellan Pipeline provided the following information at the June 9, 2017 Biodiesel Task Force meeting regarding the Roseville terminal, which was stated to be representative of Magellan's other terminals in Minnesota:

Number of terminal loading bays in use simultaneously	**Diesel/biodiesel pumping capacity (in gallons per minute)**
One	650
Two	400
Three	200
Four	100

Based on this data, the Magellan representative asserted that there would be delays in fueling if the B20 mandate was implemented, due to lack of blending infrastructure.

24. Following the Biodiesel Task Force Meeting, MDA staff sought additional information on the blending capacity issue from Magellan Pipeline. In response to this request, on July 7, 2017, the MDA received a response that stated, in part, that approximately 50% of the total trucks loaded at Magellan's Roseville terminal include diesel and biodiesel blends.

25. Following the Biodiesel Task Force Meeting, MDA staff sought additional information on the blending capacity issue from MEG Corp. a company that provides diesel fuel consulting services and operates the Minnesota Diesel Helpline, and whose staff has experience in the petroleum industry. In response to this request, on July 7, 2017, the MDA received a summary of Minnesota biodiesel blending capacity and a map showing diesel terminals, facilities where blending is done outside the rack, and biodiesel plants.

26. Based on the information collected and knowledge of the Commerce Weights and Measures staff, the agency staff concluded that other fuels, including gasoline, jet fuel, and diesel without biodiesel, are also loaded at the Magellan terminals, and therefore instances where all four bays would be loading B20 are likely to be unusual.

27. MDA and Commerce staff also concluded that instances of simultaneous use of all bays for B20 will likely occur only at limited times of the year, such as spring planting and fall harvest, and in hours immediately preceding announced B20 price increases.

28. MDA and Commerce staff also concluded that there are options for fuel distributors to obtain diesel/biodiesel outside of Magellan's terminals, including terminals other than Magellan's, and fuel distributor locations where blending can be done outside of terminals ("outside the rack"). The agency staff found these options included:
    - Greater Twin Cities Metro Area

  - Additional terminals: NuStar, St. Paul Park and Flint Hills
  - Blending outside the rack: at least 6 options
- Southeastern MN
  - Additional terminals: KinderMorgan – Spring Valley
  - Blending outside the rack: Kwik Trip + 3 options
- Central MN
  - Additional terminals: NuStar Sauk Centre
  - Blending outside the rack: at least 11 options
- Fargo/Moorhead
  - Additional terminals: NuStar Moorhead
  - Blending outside the rack: at least 3 options
- Southwestern MN
  - Blending outside the rack: at least 7 options
- Duluth MN
  - Additional terminals: Calumet (2)
  - Blending outside the rack: Kwik Trip
- Northern MN
  - Blending outside the rack: at least 4 options

29. Additionally, the MDA and Commerce staff concluded that Minnesota's largest retail chains can obtain B20 outside of the Magellan terminals as follows:
    - Holiday – Flint Hills, Rosemount
    - Kwik Trip – added blending infrastructure in Eyota and Superior
    - SuperAmerica - majority is provided by St. Paul Park terminal and likely NuStar in the future, both of which have infrastructure to provide B20.
    - CHS - uses Magellan terminals, however many Cenex locations utilize distributors that blend outside the rack

30. Further information in support of the existence of adequate infrastructure and regulatory protocol to ensure fuel quality at B20 blend levels was provided by the Commerce Weights & Measures Division staff. This information included:
    - Based on the Weights and Measures Division's experience with B10 blending, "splash blending" in the truck is an adequate way to blend biodiesel during warm weather months.
    - The only time splash blending is of concern is during winter months when the B20 Mandate would not be in effect.
    - The two methods which the Weights and Measures Division currently uses to enforce the B10 Mandate (auditing delivery records and testing samples by infrared spectroscopy) will work at the B20 level.
    - The only change needed would be for the Weights and Measures Division's fuel lab to build B20 models for the lab's spectrometers. The Commerce staff expects this to be completed by the end of the year.
    - All current sources of biodiesel should remain available. Terminals which currently blend B10 should be able to blend B20, albeit at a slower rate.

31. The Commerce staff indicated that the staffing and equipment needed to enforce a B20 mandate are the same as those needed to enforce the B10 mandate and can be met with current Commerce resources.

32. Based on the information above, the Commissioners find that blending infrastructure and regulatory protocol are in place to promote biodiesel quality and avoid any economic disruption, and thus that the third condition contained in Minnesota Statutes section 239.77, subdivision 2(b)(3) for the B20 minimum content level to become effective has been met.

Condition 4: at least five percent of the amount of biodiesel necessary for that minimum content level will be produced from a biological resource other than an agricultural resource traditionally grown or raised in the state, including, but not limited to, algae cultivated for biofuels production, waste oils, and tallow.

33. Staff obtained information via e-mail from REG and Ever Cat Fuels, which produce fuel from "a biological resource other than an agricultural resource traditionally grown or raised in the state."

34. Based on the information above, staff determined that, taken together, REG and Ever Cat Fuels produced 4.6 million gallons of biodiesel in 2016, and 4.2 million gallons of biodiesel in 2017; all from feedstocks other than those traditionally grown or raised in the state.

35. The REG and Ever Cat Fuels production represents 6.2% of total biodiesel production in 2016, and 5.7% of total biodiesel production in 2017.

36. Based on this information, the Commissioners find that production of biodiesel from non-traditional feedstock exceeds the 5% threshold, and this requirement of Minnesota Statutes section 239.77, subdivision 2(b)(4) has been met.

CONCLUSIONS OF LAW

Based on the above findings, the Commissioners make the following conclusions of law:

1. The Commissioners have jurisdiction to determine whether the state should move to the next biodiesel content level based on the statutory conditions established in Minnesota Statutes section 239.77, subdivision 2(b).

2. The Commissioners provided adequate public notice of the Biodiesel Task Force Meeting and consulted with the Biodiesel Task Force as required by statute.

3. The conditions in Minnesota Statutes section 239.77, subdivision 2(b) have been met for that statutory requirement that diesel fuel sold or offered for sale in Minnesota for use in internal combustion engines contain at least 20 percent biodiesel fuel by volume by May 1, 2018.

4. Notice shall be published in the State Register, and written notice to the chairs of the house of representatives and senate committees with jurisdiction over agriculture, commerce, and transportation policy and finance shall be given as required by Minnesota Statutes section 239.77, subdivision 2(b) at least 270 days prior to the date of the scheduled B20 increase.

5. Any findings that might properly be termed conclusions and any conclusions that might properly be termed findings are hereby adopted as such.

DETERMINATION

The Commissioners find that the conditions in Minnesota Statutes, section 239.77, subdivision 2(b)(1) to (4) have been met, the state is prepared to move to the next scheduled minimum biodiesel content of 20% (B20), and the staff of MDA is directed to publish notice in the State Register and provide notice to the legislative committee chairs as directed by Minnesota Statutes section 239.77, subdivision 2(b).

Signed copy on file

David J. Frederickson, Commissioner
Minnesota Department of Agriculture

Signed copy on file

Mike Rothman, Commissioner
Minnesota Department of Commerce

Signed copy on file

John L. Stine, Commissioner
Minnesota Pollution Control Agency

July 25, 2017

Appendix D: Rack Pricing

Diesel prices at terminals statewide and across Minnesota's borders—to the south (Omaha, Nebraska) and west (Denver, Colorado)—have shown remarkably close pricing historically. Table 4 compares average yearly prices for ultra-low sulfur diesel and displays the yearly ranges over the past eight year period.

Table 4 Diesel pricing by city (average of terminals reporting), 2009-2017

City/Region, State	2009	2010	2011	2012	2013	2014	2015	2016	2017
Alexandria, MN	1.7600	2.2860	3.1357	3.1954	3.1503	2.9433	1.7246	1.4461	1.7546
Denver, CO	1.7377	2.2975	3.1170	3.1985	3.1201	2.9420	1.7002	1.4229	1.8021
Duluth, MN	1.7532	2.3006	3.1639	3.2095	3.1617	2.9719	1.7318	1.4784	1.7752
Fargo, ND	1.7660	2.2941	3.1459	3.2117	3.1614	2.9619	1.7372	1.4542	1.7716
Grand Forks, ND	1.7628	2.2899	3.1424	3.2086	3.1591	2.9593	1.7364	1.4516	1.7613
Mankato, MN	1.7515	2.2740	3.1190	3.1843	3.1437	2.9271	1.7130	1.4381	1.7451
Marshall, MN	1.7538	2.2811	3.1223	3.1874	3.1407	2.9334	1.7134	1.4369	1.7429
Omaha, NE	1.7268	2.2513	3.0991	3.1711	3.1069	2.8957	1.7047	1.4250	1.7439
Rochester, MN	1.7437	2.2714	3.1198	3.1795	3.1388	2.9259	1.7097	1.4321	1.7367
Sioux Falls, SD	1.7375	2.2617	3.1084	3.1776	3.1204	2.9100	1.7071	1.4173	1.7339
Superior, WI	1.7616	2.3087	3.1755	3.2040	3.1565	2.9707	1.7197	1.4730	1.7780
Minneapolis-St. Paul, MN	1.7456	2.2741	3.1236	3.1832	3.1298	2.9357	1.7116	1.4480	1.7459
Low	1.7268	2.2513	3.0991	3.1711	3.1069	2.8957	1.7002	1.4173	1.7339
High	1.7660	2.3087	3.1755	3.2117	3.1617	2.9719	1.7372	1.4784	1.8021
Difference-Range	0.0391	0.0574	0.0764	0.0405	0.0548	0.0762	0.0370	0.0611	0.0683

Source: Minnesota Department of Agriculture summary of Axxis pricing data through December 31, 2017.

Table 5 shows rack pricing of #2 diesel and biodiesel blends at the Minneapolis-St. Paul (MSP) terminals since 2009. 2009 is the year when the first step-up in the state mandate occurred with the move from B2 to B5 on May 1, 2009. These are the average of prices reported through the MDA's subscription to AXXIS.

Table 5 MSP rack diesel and biodiesel average prices with net price impact of blends.

Year (Blend Mandate)	Average Rack Diesel Price	Rack B2 Price	Rack B5 Price	Rack B10 Price	Rack Average Mandate Blend Price	Net Impact Price of Biodiesel Blend
2009(B2/B5)	$1.7456				$1.7891	$0.0435
2009 (1-4 to 4-30) B2)	$1.4120	$1.4421				$0.0302
2009 (5-1 to 12-31)(B5)	$1.9176		$1.9679			$0.0503
2010 (B5)	$2.2741		$2.3372			$0.0631
2011(B5)	$3.1236		$3.2266			$0.1030
2012(B5)	$3.1832		$3.2488			$0.0656
2013(B5)	$3.1298		$3.1703			$0.0405
2014(B5/B10)	$2.9357				$2.9539	$0.0181
2014 (1-2 to 6-30, 10-1 to 12-31) (B5)	$2.9300		$2.9476			$0.0176
2014 (7-1 to 9-30) (B10)	$2.9529			$2.9724		$0.0195
2015 B5/B10)	$1.7138				$1.7433	$0.0294
2015 (1-2 to 3-30, 10-1 to 12-31) (B5)	$1.6227		$1.6473			$0.0246
2015 (4-1 to 9-30) (B10)	$1.8042			$1.8384		$0.0342
2016 B5/B10)	$1.4480				$1.4517	$0.0037
2016 (1-2 to 3-30, 10-1 to 12-31) (B5)	$1.3833		$1.3876			$0.0043
2016 (4-1 to 9-30) (B10)	$1.5122			$1.5152		$0.0031
2017 (B5/B10)	$1.7459				$1.7463	$0.0004
2017 (1-4 to 3/31, 10-2 to 12-29) (B5)	$1.8061		$1.8054			-$0.0007
2017 (4-3 to 9/29) (B10)	$1.6852			$1.6867		$0.0015