

**BACKGROUND ON RENEWABLE IDENTIFICATION
NUMBERS UNDER THE RENEWABLE FUEL
STANDARD**

HEARING
BEFORE THE
SUBCOMMITTEE ON ENVIRONMENT
OF THE
COMMITTEE ON ENERGY AND
COMMERCE
HOUSE OF REPRESENTATIVES
ONE HUNDRED FIFTEENTH CONGRESS
SECOND SESSION

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¹ The information can be found at: <https://docs.house.gov/meetings/IF/IF18/20180725/108610/HHRG-115-IF18-20180725-SD099.pdf>.

BACKGROUND ON RENEWABLE IDENTIFICATION NUMBERS UNDER THE RENEWABLE FUEL STANDARD

WEDNESDAY, JULY 25, 2018

HOUSE OF REPRESENTATIVES,
SUBCOMMITTEE ON ENVIRONMENT,
COMMITTEE ON ENERGY AND COMMERCE
Washington, DC.

The subcommittee met, pursuant to call, at 9:15 a.m., in room 2322 Rayburn House Office Building, Hon. John Shimkus (chairman of the subcommittee) presiding.

Members present: Representatives Shimkus, McKinley, Harper, Olson, Flores, Hudson, Walberg, Carter, Duncan, Walden (ex officio), Tonko, Ruiz, Peters, McNerney, Cardenas, Pallone (ex officio), and Loeb sack.

Staff present: Samantha Bopp, Staff Assistant; Kelly Collins, Legislative Clerk; Jerry Couri, Deputy Chief Counsel, Environment; Wyatt Ellertson, Professional Staff Member; Margaret Tucker Fogarty, Staff Assistant; Adam Fromm, Director of Outreach and Coalitions; Jordan Haverly, Policy Coordinator, Environment; Mary Martin, Chief Counsel, Energy & Environment; Sarah Matthews, Press Secretary, Energy & Environment; Drew McDowell, Executive Assistant; Brannon Rains, Staff Assistant; Austin Stonebraker, Press Assistant; Hamlin Wade, Special Advisor, External Affairs; Everett Winnick, Director of Information Technology; Jean Fruci, Minority Energy and Environment Policy Advisor; Tiffany Guarascio, Minority Deputy Staff Director and Chief Health Advisor; Caitlin Haberman, Minority Professional Staff Member; Rick Kessler, Minority Senior Advisor and Staff Director, Energy and Environment; Alexander Ratner, Minority Policy Analyst; and C.J. Young, Minority Press Secretary.

OPENING STATEMENT OF HON. JOHN SHIMKUS, A REPRESENTATIVE IN CONGRESS FROM THE STATE OF ILLINOIS

Mr. SHIMKUS. I'd like to call the Subcommittee on the Environment hearing to order and recognize myself for 5 minutes for an opening statement.

And, really, before I start going through some prepared text, I want to allow the interested parties that are—oh, is that Whitfield there? Former member of the committee. And I see Kenny Hulshof, former member of the House. Good buddy of mine. So a lot of other friends out there. To interest groups, we plan to legislate and we are about ready to go on an August break and I would encourage

you to educate, especially members of the subcommittee, take the time during the break and visit with them as we try to move forward.

To my colleagues on both sides, I would encourage you to do your homework on your free time so that when we come back we can really have a good discussion. I would like to have a really open process as we go through—actually put down original text and then go through some—a markup that wouldn't be preordained but we would work through some of the processes.

So that's just an editorial comment, and then I will start with my prepared opening statement.

Today's hearing continues this subcommittee's ongoing efforts to examine the future of our nation's transportation fuels. One of the most significant programs that influences transportation fuel in America is the Renewable Fuel Standard, today's topic of discussion. More specifically, the focus on this hearing is to provide members the opportunity to better understand Renewable Identification Numbers, frequently referred to as RINs.

RINs are the main component of the Renewable Fuel Standard's tradable credit system and serve as its compliance mechanism. RINs are attached to renewable fuel gallons at the time of production and they are separated when that renewable fuel is blended into the Nation's nonrenewable fuel supply, at which time the blending party can use the RINs to comply with the RFS or they can trade the RINs to another party. Obligated parties, typically refineries, must submit RINs to the EPA on a yearly basis to demonstrate compliance with annual renewable fuel obligations. So that's a mouthful.

The purpose of today's hearing is very much educational in nature and is intended to promote greater understanding of how RINs fit into the overall Renewable Fuel Standard. In order to chart a legislative path forward, it is critical that the subcommittee first gather the facts and comprehend the various complexities of the RFS program.

With an emphasis on getting clear objective information and answers about RINs, we have invited a panel of witnesses who can provide independent impartial testimony based on their extensive and varied experience working with RINs.

Witnesses that are joining us today include Brent Yacobucci, the Research Manager for the Energy and Minerals Section of the Congressional Research Service, who has analyzed and written on the RFS since the program's inception; Sandra Dunphy, the Director of Energy Compliance at Weaver and Tidwell LLP and a nationally recognized RINs expert who provides RFS-related services to a diverse range of clients; Paul Niznik, an energy consultant with Argus Media who specializes in RINs and will help demystify the factors affecting RINs prices—demystify; Dr. Gabriel Lade, an Assistant Professor of Economics at Iowa State University who has authored multiple academic publications on the RFS, which have been cited by a wide range of RFS-related stakeholders and industries; and Corey Lavinsky, the Director of Global Biofuels with Standard and Poor's, who will explain how the RIN market works in comparison to other commodity and environmental markets.

I'd like to thank these witnesses for their attendance and participation and I look forward to hearing their perspectives on a number of subjects, such as what factors are influencing the RINs market, how the current RINs system impacts various types of stakeholders including consumers, and the prevalence and circumstances of RIN fraud.

While understanding that the topic of this morning's hearing can bring about strong viewpoints, my hope and intent is that this hearing will result in a constructive and productive dialogue that will further this subcommittee's effort to improve the Nation's transportation fuel policies.

And with that, I have 40 seconds remaining. Anybody wishing for that time? Seeing none, I'll yield back the balance of my time and yield to my friend the ranking member of the subcommittee, Mr. Tonko, for 5 minutes.

[The prepared statement of Mr. Shimkus follows:]

PREPARED STATEMENT OF HON. JOHN SHIMKUS

Good morning. Today's hearing continues this Subcommittee's ongoing efforts to examine the future of our nation's transportation fuels. One of the most significant programs that influences transportation fuel in America is the Renewable Fuel Standard (RFS), today's topic of discussion. More specifically, the focus of this hearing is to provide members the opportunity to better understand Renewable Identification Numbers, frequently referred to as RINs.

RINs are the main component of the Renewable Fuel Standard's tradable credit system and serve as its compliance mechanism. RINs are attached to renewable fuel gallons at the time of production and they are separated when that renewable fuel is blended into the nation's non-renewable fuel supply, at which time the blending party can use the RINs to comply with the RFS or they can trade the RINs to another party. Obligated parties, typically refineries, must submit RINs to the EPA on a yearly basis to demonstrate compliance with their annual renewable fuel obligations.

The purpose of today's hearing is very much educational in nature and is intended to promote greater understanding of how RINs fit into the overall Renewable Fuel Standard. In order to chart a legislative path forward, it is critical that the Subcommittee first gather the facts and comprehend the various complexities of the RFS program.

With an emphasis on getting clear, objective information and answers about RINs, we have invited a panel of witnesses who can provide independent, impartial testimony based on their extensive and varied experience working with RINs. Witnesses joining us today include:

- Brent Yacobucci—the Research Manager for the Energy & Minerals Section of the Congressional Research Service who has analyzed and written on the RFS since the program's inception;
- Sandra Dunphy—the director of Energy Compliance at Weaver and Tidwell LLP and a nationally recognized RINS expert who provides RFS-related services to a diverse range of clients;
- Paul Niznik—an energy consultant with Argus Media who specializes in RINs and will help demystify the factors effecting RINs pricing;
- Dr. Gabriel Lade—an Assistant Professor of Economics at Iowa State University who has authored multiple academic publications on the RFS which have been cited by a wide range of RFS related stakeholders and industries; and
- Corey Lavinsky—the Director of Global Biofuels with Standard and Poor's who will explain how the RIN market works in comparison to other commodity and environmental markets.

I'd like to thank these witnesses for their attendance and participation and I look forward to hearing their perspectives on a number of subjects, such as what factors are influencing the RINs market, how the current RINs system impacts various types of stakeholders including consumers, and the prevalence and circumstances of RIN fraud.

While understanding that the topic of this morning's hearing can bring out strong viewpoints, my hope and intent, is that this hearing will result in a constructive

and productive dialogue that will further this Subcommittee's efforts to improve the Nation's transportation fuel policies.

OPENING STATEMENT OF HON. PAUL TONKO, A REPRESENTATIVE IN CONGRESS FROM THE STATE OF NEW YORK

Mr. TONKO. Thank you, Mr. Chair, and thank you to our witnesses for joining us this morning.

This is the latest in this subcommittee's series of hearings on our nation's use of transportation fuels and the renewable fuel standard program.

Today, we will examine renewable identification numbers, or RINs. As you know, RINs are unique 38-digit codes given to each gallon of biofuel produced or imported into the United States. These credits are used to comply with the RFS. At the end of each year each obligated party must have RINs to demonstrate it has met its renewable volume obligation.

RFS compliance can be achieved in two ways—either by purchasing the required volume of biofuel and blending it into the fuel supply to obtain RINs directly or by purchasing the required number of RINs on the open market.

The debate over the future of the RFS cannot be separated from the performance of the RIN marketplace. Earlier this Congress, we received testimony on RIN price volatility and heard some stakeholders support for a RIN price cap. According to press reports, these have been among the issues considered by members working on RFS reform, and while the RIN market certainly has had price spikes, I do not think we should ignore the political figure's ability to impact market stability.

With each White House meeting or EPA announcement, the RIN market can be put into flux. Over the years, the RFS has experienced administrative issues in both Republican and Democratic administrations such as missed RVO deadlines that have impacted its ability to provide for that market certainty.

The latest example, which I have voiced my concerns about in the past, is former EPA Administrator Pruitt's excessive use of small refinery hardship exemptions. In the past 2 years, nearly 50 exemptions, representing approximately 2.25 billion RINs worth of obligation have been granted in virtual secrecy. We still do not fully know whether these exemptions were justified, whether those obligations were reallocated to larger refiners, or how these waivers may have impacted RIN prices in the biofuels market.

Secret exemptions are not good for the sake of a healthy market and the lack of transparency is extremely troubling, although it is reflective of standard operating procedures within the RIN marketplace. While RIN transactions are reported to EPA's moderated transaction system, there are legitimate concerns that the market lacks meaningful transparency.

Very little information on RIN transactions is made public and the market is not subject to scrutiny by regulators similar to other commodity markets. This has led to numerous reported issues of RIN fraud in the past and leaves the door open for potential market manipulation. Publicly available data may not be sufficient to even know if market manipulation is indeed occurring. That is a problem.

I know members of this committee hold a wide range of views on the RFS. But regardless of your position, I hope that we can agree that there should be sufficient transparency and oversight of this marketplace in order to ensure that it is functioning and functioning properly.

Thank you again for being here. I look forward to the discussion. And with that, Mr. Chair, I yield back.

Mr. SHIMKUS. Gentleman yields back his time.

The chair now recognizes the chairman of the full committee, Chairman Walden, for 5 minutes.

OPENING STATEMENT OF HON. GREG WALDEN, A REPRESENTATIVE IN CONGRESS FROM THE STATE OF OREGON

Mr. WALDEN. Thank you, Mr. Chairman. Thanks for holding yet another hearing on this overall topic. We appreciate it.

This is the fifth hearing on the future of transportation fuels and, as we have heard, this morning's topic is Renewable Identification Numbers known as RINs.

And I would argue if we gave a test about what RINs are and how the market works, perhaps within this room but I am sure outside of this room, even our most learned members might not test so well. So that's why we are having this hearing. It's not to pit one side against the other or rip off Band-Aids or anything else. It is to learn, to better inform our work so that we can address the issues before this committee.

So I won't restate how RINs works. We have done that already. But there are nuances. This does affect markets and therefore it affects consumers, and we are going to put consumers first.

So this hearing is intended to be educational, and for those of you of a certain vintage, some of you may remember something called encyclopedias like World Book or Britannica. There are people here who are nodding and people who are scratching and others are going right to Google.

This hearing will help the Environment Subcommittee better fill out its set of books on transportation renewable fuels more generally. Why? Well, as I've said before, it is my desire to move legislation that will pave the future of transportation fuels into the next decades in the United States and in order for this to happen it's important that we understand what RINs are and how they fit into the renewable fuel standard, a program that in 2017 spurred the production of 15.8 billion gallons of ethanol and 1.6 billion gallons of biodiesel in the United States.

That said, this hearing is not meant to drive a preordained policy or to settle scores. It is intended to help members understand the program so they can make informed decisions when the time comes for us to legislate.

So I want to thank our witnesses for being here. We appreciate it. You've been asked to join us not just for your extensive knowledge base on the complicated matter but also for your demonstrated ability to be both informative and objective when it comes to communicating the fundamental elements of the RINs program.

So I look forward to hearing your testimony today. And so we will proceed. I want to thank the chairman and other members of

this committee who have been working overtime on the broad set of issues related to renewable fuels and how this committee can move forward.

So we will move forward. Hearings are part of doing our due diligence in business and we won't be talked out of them and we are here today to hear from all of you.

So thank you very much, and with that, Mr. Chairman, I yield back.

[The prepared statement of Mr. Walden follows:]

PREPARED STATEMENT OF HON. GREG WALDEN

Thank you for yielding to me, Mr. Chairman. I will be brief.

Today, the Environment Subcommittee is holding its fifth hearing on the future of transportation fuels. This morning's topic is Renewable Identification Numbers, also known as RINs.

RIN credits are used for compliance with the Renewable Fuel Standard, but also can be traded, making RINs both a compliance tool and a commodity.

Each gallon of qualifying, produced biofuel is assigned a RIN, a group of 38 digits that identify the fuel producer, the year the fuel was produced, and the type of fuel. RINs are "attached" to the fuel and, once the biofuel has been blended or sold, the RINs are detached. At the end of each year, either the biofuel producer—based on a predetermined compliance obligation formula—submits its required RINs to EPA, purchases RINs from other RIN holders to meet their regulatory obligations, or the biofuel producer sells excess RINs like other commodities.

There is, however, much greater detail and nuance to RINs. Most of these nuances and other issues are foreign to most of us as well as most Americans. That's where this hearing comes into play.

This hearing is intended to be educational in nature. For those of you of a certain vintage, you will remember encyclopedia collections—such as World Book or Britannica. This hearing will help the Environment Subcommittee better fill out its set of books on transportation and renewable fuels more generally.

Why? Well, as I have said before, it is my desire to move legislation that will pave the future of transportation fuels in the United States, and in order for this to happen it is important that we understand what RINs are and how they fit into the Renewable Fuel Standard—a program that in 2017, spurred the production of 15.8 billion gallons of ethanol and 1.6 billion gallons of biodiesel in the United States.

That said, this hearing is not meant to drive a pre-ordained policy or to settle scores. It is intended to help members understand the program so that they can make informed decisions when the time to legislate comes.

I want to thank our witnesses for agreeing to be with us today. You have been asked to join us not just for your extensive knowledge base on this complicated matter, but also for your demonstrated ability to be both informative and objective when it comes to communicating the fundamental elements of the RINs program. I look forward to hearing your testimony and learning from your experience.

Thank you again Mr. Chairman for this time. I yield back the remaining amount of time that I have.

Mr. SHIMKUS. The gentleman yields back his time.

The chair now recognizes the ranking member of the full committee, Congressman Pallone from New Jersey, for 5 minutes.

OPENING STATEMENT OF HON. FRANK PALLONE, JR., A REPRESENTATIVE IN CONGRESS FROM THE STATE OF NEW JERSEY

Mr. PALLONE. Thank you, Mr. Chairman.

Today we are here to talk about the renewable identification number, or RIN. The RIN market provides a mechanism to bridge the gap between biofuel supply and demand created by the renewable fuel standard mandate. And the market allows parties blending more than their required gallons of biofuel to sell their excess RINs to parties that blend less than their required gallons.

When the market functions properly, it lowers the cost of compliance for all participants in the renewable fuels standards program. But it must be fair, transparent, and well regulated.

It should also primarily serve the interests of RFS participants, not the interests of speculators. Well, that's how things are supposed to work. But today, they are not working and I believe much of the recent volatility in the RIN market can be attributed to the way the Trump administration has operated the RFS program.

Press reports of the on again off again RFS negotiations conducted by the White House over the past year or so have driven RIN prices up and down, depending upon the headline of the day.

No new RINs were created or removed from the market in these meetings and no changes to the program were made if the price fluctuated enough to create losses or gains for everyone involved in the program over the course of the last year.

Now, former EPA Administrator Pruitt also nearly doubled the number of small refinery waivers that were granted last year, which lowered the price of RINs. It appears that some of these waivers were granted to refineries not experiencing financial hardship which is required under the law. If that's the case, then former Administrator Pruitt intentionally misused this waiver authority to manipulate the RIN market and undermine the RFS, and the lack of transparency and accountability in the waiver program raises serious questions about how this program is being managed.

Market mechanisms can work well. They can lower compliance costs as long as they are not manipulated, which is what I fear is happening under this administration. And I guess we will find out more about it today. I don't know if anybody else wants the time. Otherwise, I will yield back, Mr. Chairman.

Mr. SHIMKUS. The gentleman yields back his time.

We now conclude members' opening statements. The chair would like to remind members that pursuant to committee rules, all members' opening statements will be made part of the record.

We appreciate you all being here today. I've kind of done the initial formal introduction in my opening statement. So I'll just turn to you. Your full statements are submitted for the record. You'll have 5 minutes.

Again, this is an educational process. So I am not going to be Attila the Hun with the gavel. But as you see the clock tick then kind of know that we should get to the end so that we can get to members' questions.

So with that, I'd like to recognize Mr. Brent Yacobucci from CRS for 5 minutes.

**STATEMENTS OF BRENT YACOBUCCI, ENERGY AND MINERALS
MANAGER, CONGRESSIONAL RESEARCH SERVICE; SANDRA
DUNPHY, DIRECTOR, ENERGY COMPLIANCE SERVICES, WEA-
VER AND TIDWELL, LLP; PAUL NIZNIK, SENIOR CONSULT-
ANT, ARGUS MEDIA INCORPORATED; DR. GABRIEL E. LADE,
ASSISTANT PROFESSOR OF ECONOMICS, IOWA STATE UNI-
VERSITY; COREY LAVINSKY, DIRECTOR OF GLOBAL
BIOFUELS, S&P GLOBAL PLATTS ANALYTICS**

STATEMENT OF BRENT YACOBUCCI

Mr. YACOBUCCI. Good morning, Chairman Shimkus, Ranking Member Tonko, and members of the subcommittee.

My name is Brent Yacobucci. I am the Energy and Mineral Section Research Manager for the Congressional Research Service. Congressional guidelines on objectivity and nonpartisanship require that I confine my testimony to technical, professional, and non-advocate aspects of matters under consideration and that I limit myself to areas within my knowledge and expertise. Although I can discuss policy options and potential ramifications, the service does not take a position on pending or proposed legislation.

I've been with CRS for 19 years, providing analysis on alternative fuels, automotive design, and transportation-related provisions of the Clean Air Act. I have a Bachelor's degree in mechanical engineering from the Georgia Institute of Technology and a Master's degree in public policy from the George Washington University. I am a member of the Society of Mechanical Engineers, the Society of Automotive Engineers, and the Society of Petroleum Engineers, although today I am representing only CRS.

The Federal Renewable Fuel Standard was established by the Energy Policy Act of 2005 and expanded in 2007 by the Energy Independence and Security Act. The RFS requires the use of renewable biofuels in transportation. For 2018, the mandate is, roughly, 19.3 billion gallons. Within the larger mandate, there are sub-mandates for advanced biofuels including biomass-based diesel and cellulosic biofuels.

The RFS is a market-based program in which obligated parties, typically refiners, must submit credits to cover their obligations. These credits, renewable identification numbers, or RINs, can be bought or sold like other commodities. In general, for each gallon of renewable fuel produced, one RIN is generated. A RIN is a 38-character number issued by the biofuel producer or importer at the point of production or import. Each qualifying gallon has its own unique RIN. The characters signify various attributes to the batch of fuel, including the decode, which identifies the category of fuel and which part of the RFS that fuel satisfies—D3 for cellulosic biofuel, D4 for bio-based diesel, D5 for advanced biofuels, and D6 for unspecified biofuel—typically, corn-based ethanol.

From the beginning of the RFS program there have been concerns with RIN generation and the RIN market, in part to address concerns over errors, inaccuracies, and potential fraud, when EPA finalizes rules for the RFS in 2007, sometimes referred to as the RFS 2, EPA also established a new EPA-moderated transaction system, or EMTS. EPA maintains that obligated parties must exercise due diligence, and under their buyer beware system, those pur-

chasing RINs must certify the validity of those RINs on their own. They are generally responsible for any invalid RINs they pass on to others or submit to EPA for compliance. At times, RIN prices have been volatile. Most RINs are initially bought and sold through private contracts. But in the spot market for RINs in 2013 spot prices for conventional ethanol RINs—the D6 RINs—rose dramatically before dropping even more rapidly.

Stakeholders have identified various factors as potentially causing the price increase, including whether submission amounts of ethanol can be blended into gasoline to meet the RFS mandates and the extent to which non-obligated parties are speculating in RIN markets.

Further, some stakeholders have suggested that a few actors could be actively working to manipulate those RIN markets. Concerns have been raised about the volatility of RIN prices on the secondary market and the potential effects on the costs faced by gasoline blenders and oil refiners, particularly those refiners without the infrastructure to blend, as well as the effects on consumer fuel prices.

The complex interactions among the prices for various commodities makes such analysis difficult. Stakeholders who propose various options to address some of these concerns including limiting the participation of non-obligated parties in the markets and in the EMTS, establishing a price cap for RINs, requiring more public real-time reporting for RIN trading data, and granting the Commodity Futures Trading Commission authority to regulate the RIN market similarly to other agricultural commodities.

Each of these options could affect agricultural and biofuel producers, gasoline suppliers, blenders, and consumers. But it is beyond the scope of this testimony to address economic effects.

I thank the subcommittee for its time and I am happy to answer any questions you have.

[The prepared statement of Mr. Yacobucci follows:]

**Summary Statement of Brent D. Yacobucci,
Energy and Minerals Section Research Manager, Congressional Research Service before
Committee on Energy and Commerce, Subcommittee on Environment; U.S. House of
Representatives
Hearing on “Background on Renewable Identification Numbers under the Renewable Fuel
Standard”**

July 25, 2018

Good morning Chairman Shimkus, Ranking Member Tonko, and Members of the Subcommittee. My name is Brent Yacobucci. I am the Energy & Minerals Section Research Manager for the Resources, Science, and Industry Division of the Congressional Research Service. Congressional guidelines on objectivity and non-partisanship require that I confine my testimony to technical, professional, and non-advocate aspects of matters under consideration, and that I limit myself to questions within my field of expertise. Although I can discuss policy options and potential ramifications, the Service does not take a position on pending or proposed legislation.

The federal Renewable Fuel Standard (RFS) was established in the Energy Policy Act of 2005 (EPA) and expanded in the Energy Independence and Security Act of 2007 (EISA). The RFS requires the use of renewable biofuels in transportation fuel—for 2018, the mandate is roughly 19.3 billion gallons. Within the larger mandate, there are sub-mandates for advanced biofuels (e.g., biomass-based diesel).

The RFS is a market-based program in which obligated parties (generally refiners and/or terminal operators) must submit credits to cover their obligations. These credits—Renewable Identification Numbers, or RINs—can be bought or sold like other commodities. In general, for each gallon of renewable fuel in the RFS program, one RIN is generated.

From the beginning of the RFS program, there have been concerns with RIN generation and the RIN market. In part to address concerns over errors and inaccuracies, when EPA finalized rules for the RFS as expanded by EISA (sometimes referred to as the “RFS2”), EPA also established a new transaction system. EPA maintains that obligated parties must exercise due diligence. Under this “buyer beware” system those purchasing RINs must certify their validity on their own. They are responsible for any invalid RINs they pass on to others or submit to EPA for compliance.

At times, RIN prices have been volatile. Most RINs are bought and sold through private contracts. There are also spot markets for RINs, and in 2013, spot prices for conventional ethanol RINs rose dramatically, before dropping even more rapidly. Stakeholders have identified various factors as potentially causing the price increase, including whether sufficient amounts of ethanol can be blended into gasoline to meet the RFS mandates and the extent to which non-obligated parties are speculating in RIN markets. Further, some stakeholders have suggested that a few actors could be actively working to manipulate RIN markets.

Concerns have been raised about the volatility of RIN prices on the secondary market, and the potential effects on the costs faced by blenders and refiners—particularly those without the infrastructure to blend—as well as the effects on consumer fuel prices. The complex interactions among the prices for various commodities makes such analysis difficult. Stakeholders have proposed various options to address some of these concerns, including:

- limiting the participation of non-obligated parties in the markets and the EPA Moderated Transaction System;
- establishing a price cap on RINs;
- requiring more public, real-time reporting of RIN trading data; and
- granting the Commodity Futures Trading Commission (CFTC) authority to regulate the RIN market similarly to agricultural commodities.

Each of these options could affect agricultural and biofuel producers, gasoline suppliers, blenders, and consumers. It is beyond the scope of this testimony to address the economic effects of various proposals.

Statement of Brent D. Yacobucci,
Energy and Minerals Section Research Manager, Congressional Research Service
before
Committee on Energy and Commerce, Subcommittee on Environment; U.S. House
of Representatives
Hearing on “Background on Renewable Identification Numbers under the
Renewable Fuel Standard”
July 25, 2018

Good morning Chairman Shimkus, Ranking Member Tonko, and Members of the Subcommittee. My name is Brent Yacobucci. I am the Energy & Minerals Section Research Manager for the Resources, Science, and Industry Division of the Congressional Research Service. I have been asked to provide a background and overview of issues related to Renewable Identification Numbers, or RINs, the compliance mechanism for the federal Renewable Fuel Standard. Congressional guidelines on objectivity and non-partisanship require that I confine my testimony to technical, professional, and non-advocate aspects of matters under consideration, and that I limit myself to questions within my field of expertise. Although I can discuss policy options and potential ramifications, CRS does not take a position on pending or proposed legislation.

I have been with CRS for 19 years in various positions, providing analysis on alternative and conventional transportation fuels, vehicle design, and vehicle and fuels-related provisions of the Clean Air Act. I have a bachelor’s degree in mechanical engineering from the Georgia Institute of Technology and a master’s degree in public policy from The George Washington University. I am a member of the Society of Mechanical Engineers and the Society of Petroleum Engineers, although today I am representing only CRS.

Summary

The federal Renewable Fuel Standard (RFS) was established in the Energy Policy Act of 2005 (EPAct) and expanded in the Energy Independence and Security Act of 2007 (EISA). The RFS requires

the use of renewable biofuels in transportation fuel—for 2018, the mandate is roughly 19.3 billion gallons. Within the larger mandate, there are sub-mandates (sometimes referred to as “carve-outs”) for advanced biofuels (e.g., biomass-based diesel and cellulosic fuels). In 2022, the RFS is scheduled to require the use of 36 billion gallons of renewable fuels, including 21 billion gallons of advanced biofuels, although it is unclear whether these targets will be adjusted. For example, although the Environmental Protection Agency (EPA) has established a standard of 19.3 billion gallons for 2018, the statute called for 26 billion gallons.

The RFS is a market-based program in which obligated parties (generally refiners and/or terminal operators) must submit credits to cover their obligations. These credits—Renewable Identification Numbers, or RINs—can be bought or sold like other commodities. In general, for each gallon of renewable fuel in the RFS program, one RIN is generated. Each RIN is a 38-digit number, with blocks of digits corresponding to various data, including the year the RIN was generated, the producer of the fuel, and the type of fuel. RINs are valid for use in the year they are generated and the following year.

From the beginning of the RFS program, there have been concerns with RIN generation and the RIN market. In part to address concerns over transposed digits, allegations of double-counting (intentional or unintentional) and other errors and inaccuracies, when EPA finalized rules for the RFS as expanded by EISA (sometimes referred to as the “RFS2”), EPA also established a new transaction system. All RIN transactions, including generation, sale or trade, and retirement, must be cleared through this system, called the EPA Moderated Transaction System (EMTS). From the beginning of the RFS2, EPA has maintained that obligated parties must exercise due diligence. Under this “buyer beware” system those purchasing or receiving RINs must certify their validity on their own, and they are responsible for any invalid RINs they pass on to other buyers or submit to EPA for compliance.

In 2011, EPA began issuing Notices of Violations (NOVs) to companies that the agency alleged fraudulently generated biodiesel RINs. In those cases, EPA and the Department of Justice initiated both civil and criminal proceedings. In part because of these RIN fraud cases, EPA established a system

whereby RINs can be certified by third parties registered with EPA. Under this quality assurance program (QAP), obligated parties have an “affirmative defense” if RINs are later found to be fraudulent—that is, obligated parties would not be liable for penalties under the Clean Air Act for the use of such RINs. However, such parties are required to purchase additional RINs to replace any invalidated RINs.

At times, RIN prices have been volatile. Most RINs are bought and sold through private contracts. However, there are also spot markets for RINs, and in 2013, spot prices for conventional ethanol RINs rose dramatically, before dropping even more rapidly. Stakeholders have identified various factors as potentially causing the price increase, including whether sufficient amounts of ethanol can be blended into gasoline to meet the RFS mandates and the extent to which non-obligated parties are speculating in RIN markets. Further, some stakeholders have suggested that a few actors could be actively working to manipulate RIN markets, although it is unclear how such manipulation would occur.

One complicating factor is that there are effectively two markets for RINs. In what can be thought of as the primary market, biofuel producers sell their products to gasoline refiners and blenders with RINs attached. These transactions are largely based on private contracts, and there may be little or no price discovery with these transactions. In the secondary market, RIN owners, some of which are not obligated parties under the RFS, may buy or sell excess RINs. The Oil Price Information Service (OPIS) and other private entities report secondary market prices, but it is unclear how much those prices reflect the overall market, or whether they present an upper bound to prices on any given day. OPIS data present prices, but do not report trading volumes. There is no “trading floor” or public exchange for RIN trading. EPA’s EMTS requires price reporting, but those data are closely held by EPA because of concerns over the potential release of confidential business information (CBI). Further, it is unclear how useful any price data would be since, as noted before, it is presumed that most initial RIN transactions are part of a contract for renewable fuel with RINs attached. In those cases, there may be no direct way to uncouple the price of RINs from the price of the fuel itself.

Concerns have been raised about the volatility of RIN prices on the secondary market, and the potential effects on the costs faced by blenders and refiners—particularly those without the infrastructure to blend—as well as the effects on consumer fuel prices. The complex interactions among the prices for ethanol, crude oil, wholesale gasoline, RINs, and other commodities makes such analysis difficult.

Stakeholders have proposed various options to address some of these concerns, including:

- limiting the participation of non-obligated parties in the markets and the EMTS;
- establishing a price cap on RINs;
- requiring more public, real-time reporting of RIN trading data; and
- granting the Commodity Futures Trading Commission (CFTC) authority to regulate the RIN market similarly to agricultural commodities.

In addition to RIN-specific proposals, a variety of policy options have been proposed for the RFS more broadly, including:

- limiting or expanding the volumes required under the RFS;
- expanding or limiting the fuel types that qualify; and
- eliminating the RFS entirely.

Each of these options could affect agricultural and biofuel producers, gasoline suppliers, blenders, and consumers. It is beyond the scope of this testimony to address the economic effects of various proposals.

RFS Introduction

The Energy Policy Act of 2005 (EPAct, P.L. 109-58) established the RFS, requiring the use of biofuels such as ethanol and biodiesel in the nation's fuel supply. The Energy Independence and Security Act of 2007 (EISA, P.L. 110-140) expanded this mandate.¹ Within the overall RFS mandate, there are

¹ For more information on the RFS, see CRS Report R43325, *The Renewable Fuel Standard (RFS): An Overview*, by Kelsi Braemort.

sub-mandates for specific types of fuel, such as advanced biofuel, biomass-based diesel and cellulosic biofuels. In the early years of the program, the lion's share of the mandate was unspecified, and the vast majority was supplied by corn-based ethanol largely produced in the Midwest.

Each year, for each class of renewable fuel, EPA determines a percentage standard that all suppliers must meet. The standards are based on projected total U.S. gasoline and diesel demand for the coming year. For example, for 2018, the overall renewable fuel standard is 10.67%, the advanced biofuel standard is 2.37%, the biomass-based diesel standard is 1.74%, and the cellulosic biofuel standard is 0.159%.² For 2018, these percentages translate to roughly 19.3 billion gallons total of renewable fuel; 4.29 billion gallons of advanced biofuel; 2.1 billion gallons of biomass-based diesel; and 288 million gallons of cellulosic biofuel.³ (See **Figure 1**)

The RFS mandate has been a major impetus to the development of U.S. biofuels industries, especially the ethanol and biodiesel industries. In 2005, the United States produced 3.9 billion gallons of ethanol and 0.1 billion gallons of biodiesel.⁴ By 2013, production had increased to roughly 13.3 billion gallons of ethanol and nearly 2 billion gallons of biodiesel and renewable diesel.⁵ In 2018, U.S. production is projected at roughly 16 billion gallons of ethanol and over 2 billion gallons of biomass-based diesel.⁶

² Environmental Protection Agency (EPA), "Renewable Fuel Standard Program: Standards for 2018 and Biomass-Based Diesel Volume for 2019," 82 *Federal Register* 58491, December 12, 2017.

³ Fuels vary by energy content. For example, biodiesel has roughly 1.5 times the energy content of ethanol. For biomass-based diesel, volume requirements are based on biodiesel-equivalent gallons; for all other standards, volumes are based on ethanol-equivalent gallons.

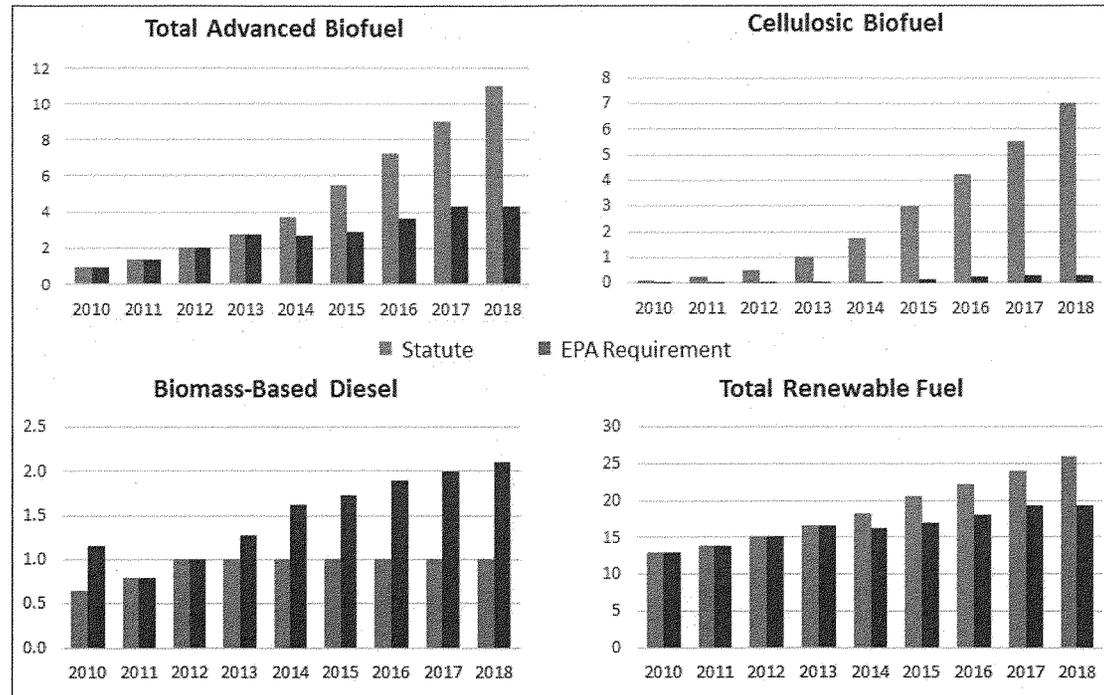
⁴ Renewable Fuels Association (RFA), *Industry Statistics: Annual U.S. Fuel Ethanol Production*, Washington, DC, accessed July 20, 2018, <http://www.ethanolrfa.org/resources/industry/statistics/#1454099788442-e48b2782-ca53>; National Biodiesel Board (NBB), *U.S. Biodiesel Production*, Washington, DC, accessed July 20, 2018, <http://biodiesel.org/docs/files-production/biodiesel-production-estimates-2005-2011.ppt?sfvrsn=10>.

⁵ RFA, op. cit., *Annual U.S. Fuel Ethanol Production*; NBB, *Production Statistics*, Washington, DC, DC, accessed July 20, 2018, <http://biodiesel.org/production/production-statistics>.

⁶ RFA, op. cit., *Monthly Ethanol Production*; EPA, *2018 Renewable Fuel Standard Data*, Washington, DC, July 10, 2018, <https://www.epa.gov/fuels-registration-reporting-and-compliance-help/2018-renewable-fuel-standard-data>.

Figure 1. Annual Biofuel Mandates

Billions of Gallons



Source: P.L. 110-140; EPA annual RFS rulemaking documents.

Note: All volumes are ethanol-equivalent, except for biomass-based diesel, which is biodiesel equivalent.

Despite this growth, however, the biofuel mandate under the RFS has not met the volume targets initially established in EISA. For example, using its authority under the Clean Air Act, for 2018 EPA lowered the overall biofuel mandate from 26 billion gallons to 19.3 billion, and the cellulosic mandate from 7 billion gallons to 288 million.⁷ A range of factors have contributed to this shortfall, including lower than expected commercial-scale production of cellulosic biofuels and limits on the ability of fuel suppliers to deliver—and vehicle owners to use—ethanol-gasoline blends of greater than 10% (E10). This latter limitation is frequently referred to as the “blend wall.”⁸

Renewable Identification Numbers

Compliance with the RFS is measured using RINs. When qualifying biofuels are produced, each gallon is assigned a RIN. Until the biofuels are sold as fuel or blended into conventional fuels, the RINs are “attached” to the fuel. Once the biofuel has been blended or sold, the RINs are detached, and can then be bought and sold like other commodities. At the end of each year, fuel suppliers must multiply the above percentage standards by their total gasoline and diesel sales to calculate their renewable volume obligations (RVO), which indicate the total number of each type of RIN that the suppliers must submit to EPA. To the extent that a supplier has excess RINs, that supplier may sell them to others who may be short, or save them for use in the following year.

A RIN is a unique 38-character number that is issued (in accordance with EPA guidelines)⁹ by the biofuel producer or importer at the point of biofuel production or the port of importation. Each qualifying gallon of renewable fuel has its own unique RIN. RINs are generally assigned by batches of renewable fuel production. (See box below.) Under the RFS2 RIN formulation, Code D identifies which of the four

⁷ EPA, 82 *Federal Register* 58488, December 12, 2017.

⁸ For more information on the blend wall, see CRS Report R40445, *Intermediate-Level Blends of Ethanol in Gasoline, and the Ethanol “Blend Wall”*, by Kelsi Braemert.

⁹ EPA, “Regulation of Fuels and Fuel Additives: Changes to Renewable Fuel Standard Program; Final Rule,” 75 *Federal Register* 14685, March 26, 2010.

RFS categories—total, advanced, cellulosic, or biodiesel—the biofuel satisfies. (For a schematic representation of different fuels’ D codes, see **Figure 2.**)

Any party that owns RINs at any point during the year (including domestic and foreign producers; refiners and blenders; exporters and importers of renewable fuels; and RIN traders) must register with the EPA and follow RIN record-keeping and reporting guidelines. RINs can only

RIN Codes	
RIN=KYYYYCCCCFFFFBBBBRRDSSSSSSSEEEEEEE	
Where	
K	= code distinguishing RINs still assigned to a gallon from RINs already separated
YYYY	= the calendar year of production or import
CCCC	= the company ID
FFFF	= the company plant or facility ID
BBBB	= the batch number
RR	= the biofuel energy equivalence value
D	= the renewable fuel category
SSSSSS	= the start number for this batch of biofuel
EEEEEE	= the end number for this batch of biofuel

be generated if it can be established that the feedstock from which the fuel was made meets EISA’s definitions of renewable biomass (including land-use restrictions), and if the fuel meets EISA’s lifecycle greenhouse gas emission limits. The feedstock affirmation and record-keeping requirements apply to RINs generated by both domestic renewable fuel producers and RIN-generating foreign renewable fuel producers or importers.¹⁰

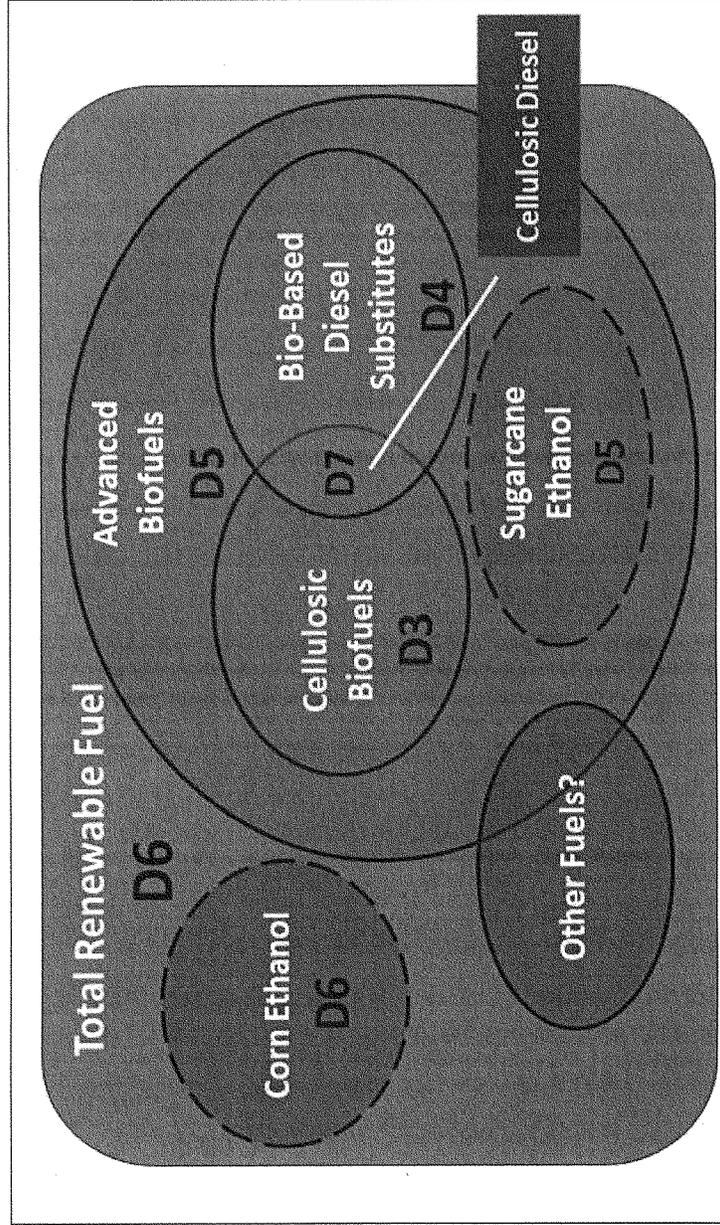
EPA Moderated Transaction System (EMTS) and the Quality Assurance Program (QAP)

All RIN transactions, including generation, trade/sale/transfer, separation, and retirement, must be cleared through the EMTS.¹¹ When biofuels change ownership (e.g., are sold by a producer to a blender), any attached RINs are also transferred. The Code K status of the RIN is changed at separation (generally after the fuel is sold from a biofuel producer to an obligated party).

¹⁰ 40 C.F.R. § 80.1451.

¹¹ 40 C.F.R. § 80.1452.

Figure 2. Renewable Fuel Classification (Not to Scale)



Source: CRS.

As noted by EPA in the rule establishing the RFS2 and the EMTS, EPA views the EMTS solely as a “screening” system, and all due diligence remains the duty of obligated parties.¹² Under this “buyer beware” system those purchasing or receiving RINs must certify their validity on their own, and they are responsible for any fraudulent RINs they pass on to other buyers or submit to EPA for compliance.

Given several cases of fraud in the biodiesel RIN market, in 2014 EPA established a voluntary Quality Assurance Program (QAP), whereby third-party verifiers—certified by EPA—audit the supply and value chains of biofuel/RIN producers. If a verified RIN is later invalidated, obligated parties have an affirmative defense against civil and/or criminal penalties.¹³ However, any invalidated RINs must be replaced, and EPA’s rules specify who is responsible for that replacement.¹⁴

Beyond monitoring the EMTS, EPA generally takes a “hands-off” approach and does not directly regulate the primary or secondary markets for RINs. Further, the Commodity Futures Trading Commission (CFTC), which regulates the trade of other commodities, has no jurisdiction over RINs, although it consults with EPA on RIN-related issues from time-to-time.¹⁵

RIN Markets

As noted above, initial trading of biofuels with attached RINs is generally conducted through private contracts between biofuel producers and gasoline refiners/blenders. After this initial trade, RINs may be detached and sold/traded multiple times. Further, a party who made the initial purchase may choose to sell the batch of biofuel with RINs still attached. Either way, obligated parties, as well as non-

¹² EPA, 75 *Federal Register* 14732, March 26, 2010.

¹³ Title II of the Clean Air Act, which regulates fuels and vehicles, contains no criminal penalties. To the extent that the Justice Department has initiated criminal proceedings for actions related to civil violations of Title II, these have generally been for other fraud-related crimes such as wire fraud.

¹⁴ U.S. Environmental Protection Agency, *EPA Issues Final Rule to Establish a Voluntary Quality Assurance Program for Verifying the Validity of Renewable Identification Numbers Under the RFS Program*, EPA-420-F014-042, Washington, DC, June 2014, <https://nepis.epa.gov/Exec/QueryPDF.cgi?Dockey=P100JPPM.pdf>.

¹⁵ EPA and CFTC, *Memorandum of Understanding Between the Environmental Protection Agency and the Commodity Futures Trading Commission on the Sharing of Information Available to EPA Related to the Functioning of Renewable Fuel and Related Markets*, Washington, DC, March 15, 2016, <https://www.epa.gov/sites/production/files/2016-03/documents/epa-cftc-mou-2016-03-16.pdf>.

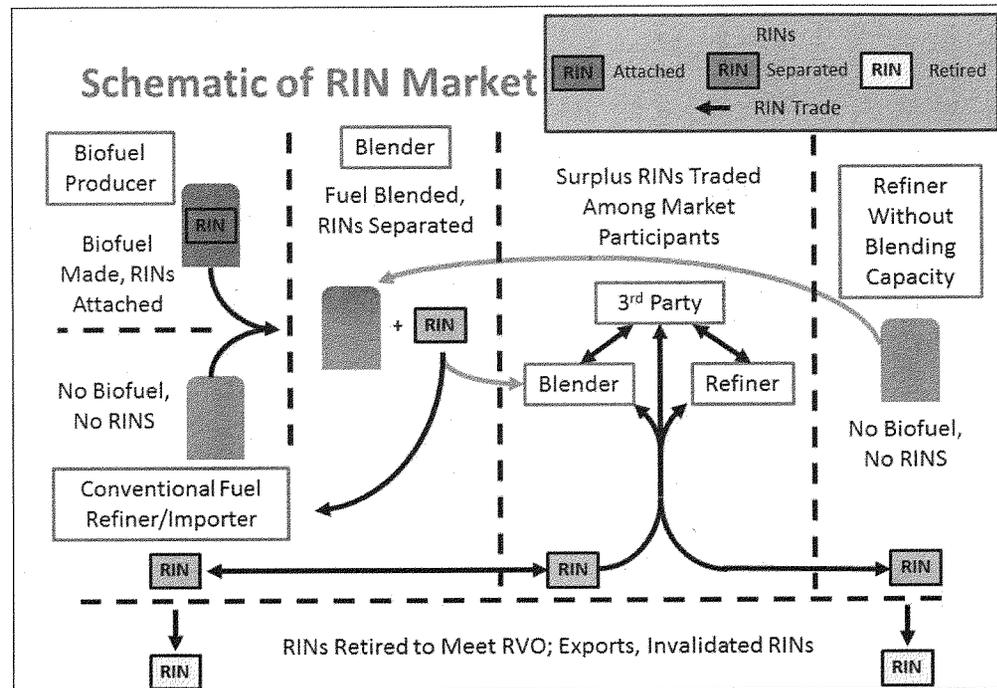
obligated third parties (“traders”) may buy or sell RINs, as long as any such transactions are reported in EMTS. **Figure 3** presents a highly simplified schematic of the primary and secondary market for RINs.

EPA maintains a publicly available spreadsheet of all EMTS participants.¹⁶ This is part of a larger list of all parties that have obligations and/or reporting requirements under the fuels provisions of the Clean Air Act. Non-obligated parties are referred to as “RIN owners.” However, there is no easy way from the spreadsheet to determine whether a RIN owner is a subsidiary of a larger company that may or may not be an obligated party, or whether that RIN owner is solely trading RINs on the secondary market.

Just as there is limited information on the participants in RIN markets, there is little public data on the volume or price of RIN trades. Private companies such as the Oil Price Information Service (OPIS) and Argus Media conduct surveys of traders to acquire price data. However, it is unclear whether these daily prices reflect the entire market or only a segment of it. Further, while OPIS and others report prices, they do not report trading volumes, so there is limited ability for observers to analyze market factors such as the liquidity of the market or its overall value.

¹⁶ EPA, *Registered Companies and Facilities in Part 80 Fuel Programs*, Washington, DC, updated July 20, 2018, <https://www.epa.gov/fuels-registration-reporting-and-compliance-help/registered-companies-and-facilities-part-80-fuel>.

Figure 3. Simplified Schematic of RIN Trading



Source: CRS

Notes: This is a simplification of the operation of RIN transfers and trading. In many cases, different entities are owned by the same company, and the specific arrangements can vary widely based on corporate structure.

Stakeholder Concerns

A variety of concerns related to RINs have been raised by various stakeholders. These include the transparency of the market, potential market manipulation, and the effects of high and/or volatile RIN prices on various stakeholders.

Transparency

As noted above, there is limited public information on RIN markets. EPA maintains that much of the data submitted to the EMTS is confidential business information, and thus not publicly available. Further, it is unclear whether reported spot prices accurately reflect the value of most or all RINs at any given time.

Speculation vs. Manipulation

Some stakeholders have questioned whether third party traders are “manipulating” the RIN markets. However, it is unclear what form that manipulation might take, and whether third party traders are instead speculating on price shifts in order to make a profit. While the latter may be necessary for a dynamic market (if all participants agreed on the trajectory of prices, third parties would have no reason to participate), the former could artificially shift prices and potentially raise costs for some obligated parties. Concerns about manipulation are connected with the above concerns over transparency; it is difficult to ascertain who is participating in the markets and what actions the participants may be taking at any time.

Volatility and High Prices

Over the past few years, RIN spot prices have been volatile, often seeing increases toward the end of a year and drops after the start of a year. Prices have also been responsive to EPA’s release of proposed and final rules, agency actions to expand or shrink annual RIN obligations, and potential congressional action. This volatility may benefit some stakeholders while disadvantaging others—for example, rising prices benefit a refiner with a RIN surplus, while the same rising prices will harm a refiner facing an

annual deficit. However, a surplus in times of falling prices may be detrimental. This is particularly true near the end of a RIN's life—RINs are only valid for the year in which they were generated and the following year. Thus, if a stakeholder has an excess of expiring RINs, it may look to sell those expiring RINs at whatever price it can. Determining how rising and falling prices affect individual stakeholders, and industries as a whole, requires more complex analysis than can be provided here.

Legislative Policy Options

Stakeholders have proposed various options to address their concerns over RINs and RIN prices. Four proposals include: 1) limiting the participation of non-obligated parties in the markets and the EMTS; 2) establishing a price cap on RINs; 3) requiring more public, real-time reporting of RIN trading data; and 4) granting the CFTC authority to regulate the RIN market.

The first proposal, limiting third party participation, could possibly limit the volatility in the system. Third party traders may participate in the market precisely because they are seeking volatility and the opportunity to profit from that volatility. However, these same third parties may also act to make the market more liquid, giving obligated parties more chances to secure the RINs they need for compliance.

The second proposal, a cap on prices, could potentially decrease volatility in the market. It would certainly establish an upper bound on prices, and the lower the cap the less room there would be for prices to move. However, more certainty on price could deter third party traders seeking volatility. A cap on prices would also limit biofuel production if the cap were below the level needed to make biofuels competitive. This may be particularly true for advanced and cellulosic biofuels with limited commercial scale production and currently high production costs.

Requiring more public data would increase the transparency of the RIN market. However, much of the EMTS data currently reported to EPA is considered confidential business information. Policymakers may look to balance the desire for more transparency with the needs of industry to keep some information private.

Currently, the CFTC consults with EPA on issues related to the RIN market. Requiring CFTC to take a more active role in regulating the market could lead to greater transparency, but could also raise compliance costs, depending on the specifics of the policy.

Each of these options could affect agricultural and biofuel producers, gasoline suppliers, blenders, and consumers. It is beyond the scope of this testimony to address the economic effects of various proposals.

Conclusion

The RFS is a complex program with many moving parts. Among them, RINs and the RIN market are particularly complicated. The current system was established to address concerns with the earlier system, but has raised concerns of its own. These include the transparency of the system, the role of third parties, and the economic effects of the system, as well as the goals, structure, and design of the overall program. The RFS affects the entire U.S. motor fuel supply, and any changes to the program could affect consumers, refiners, blenders, biofuel producers, farmers, and others. I thank the Subcommittee for its time, and I am happy to answer any questions you have.

Mr. SHIMKUS. Thank you very much.
The chair now recognizes Ms. Dunphy for 5 minutes. Thanks for being here.

STATEMENT OF SANDERS DUNPHY

Ms. DUNPHY. Thank you very much, and good morning.

Mr. Chairman, Mr. Ranking Member, and members of the subcommittee, my name is Sandra Dunphy and I am a Director in the Energy Compliance Services Group of Weaver and Tidwell, a certified public accounting firm ranked among the 40 largest CPA firms in the U.S. My area of expertise is the RFS program.

Weaver is the largest provider of attestation services under the EPA's gasoline and diesel programs and Weaver was the first auditor that the EPA approved under the RFS quality assurance plan program. In 2017, we verified more than 1.1 billion RINs and we are currently auditing about 50 renewable fuel producers. Weaver has a diverse client base for these RFS-related services—renewable fuel producers, importers, exporters, blenders, and consumers.

Our clients also include gasoline and diesel refiners and importers. These companies are classified as obligated parties under the RFS program because they must acquire RINs to comply with the renewable fuel blending targets set annually by the EPA.

Because of this diverse base of customers, Weaver takes a neutral position on the RFS regulations. My comments to you today are intended to provide useful information as you explore potential revisions and updates to the RFS regulations, not to advocate for any particular position or provision.

Today, I've been asked to describe some of the nuances or inconsistencies that exist in the regulations so that that will be focus on my remarks today.

In order for companies to make the necessary investments in new technologies and renewable fuel production facilities, they need clear consistent long-term policies and regulations and, of course, they need financial incentives. Under the RFS program, that financial incentive comes primarily from RINs. If new technologies and fuels can meet the stringent feedstock production process and finished fuel requirements of the RFS, then RINs are the reward. But if any part of those feedstocks, processes, or fuels fails to meet the requirements, no RINs can be generated and facilities cannot acquire the funding needed to get built.

Let me provide just a few examples of things that are currently either not allowed or where the regulations are so stringent that few if any facilities can comply. Some of the things currently not allowed, fuels that require two separate facilities to be produced—for example, one facility converts wood, straw, grasses, or municipal solid waste, feed stock into some type of liquid, and another facility, such as a petroleum refinery, turns that liquid into a finished fuel, then fuel cannot generate RINs.

Bio gas used to produce electricity that is then used to power motor vehicles, here the pathway exists in the regulations but has not yet been implemented. Renewable fuels used in ocean-going vessels is not available for RINs. By comparison, renewable fuel used in jet planes that leave the U.S. are eligible for RINs.

Here are examples of some feed stocks with stringent requirements that often disqualify their fuels from earning RINs: sawdust and wood chips from a lumber mill, waste wood pulled from construction and demolition debris, old railroad ties, and disease and insect-infected trees generally don't qualify.

Tree thinning and forest floor logging residues are also very difficult to use, even if sustainably harvested. Bio gas from digesters located at farms or wastewater treatment facilities that take in a variety of wastes, some cellulosic and some non, are only allowed to make noncellulosic RINs if they could process any amount of non-cellulosic material. Being able to make only noncellulosic RINs often kills a project.

The fuels of the future depend on a renewable fuels producers' ability not only to generate RINs but on the type and quantity of RINs that can be made for each gallon of fuel. This dependency holds true for both standalone renewable fuel production facilities and for petroleum refineries wanting to co-process renewable feed stocks in their facilities.

The RFS regulations, by their very nature, dictate winners and losers in the renewable fuel market. Whatever changes you may propose to the RFS regulations, I encourage you to seek clear, predictable, practical standards and take advantage of RINs as a powerful market incentive toward change.

Again, thank you for the opportunity to testify today and for your work in reviewing how RINs can help incentivize production of the best fuels for the environment and the American consumer.

Weaver stands ready to assist your committee in any way possible as you consider different options for accomplishing these goals.

Thank you.

[The prepared statement of Ms. Dunphy follows:]

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Testimony of Sandra Dunphy
Director, Energy Compliance Services
Weaver and Tidwell, L.L.P.

to the
House Committee on Energy and Commerce
Subcommittee on Environment

**Oversight Hearing on “Examining Renewable Identification Numbers
Under the Renewable Fuel Standard”**

Wednesday, July 25, 2018

For more information, contact:

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Executive Summary

In order for companies to make investments in new technologies and renewable fuel production facilities, they need clear, consistent, long-term policies and regulations — and of course, they need financial incentives. The Subcommittee on Environment has the opportunity to bring the old standards current with new technologies and a changing marketplace.

First, before considering the allowable methods for producing renewable fuel, the subcommittee should review volume targets. Since the RFS regulations were originally enacted, demand for fuel has been lower than projected, and it is expected to decline in the future. Total fuel demand caps the potential for renewables, because such fuels are usually blended into petroleum fuels at low percentages.

Next, you should be aware that there are currently inconsistencies and barriers that limit or even prevent some renewable fuel generation. In 2016, EPA proposed revisions to address some of those barriers; however, the regulations were never enacted, leaving in place several problematic requirements.

Some renewable fuels are prohibited from qualifying for Renewable Identification Numbers (RINs), such as fuels that require two separate facilities to be produced, biogas used to produce electricity that powers motor vehicles, and renewable fuel to be used in an ocean-going vessel.

Other activities have such stringent (or outdated) requirements that few generators can qualify: for example, waste wood or logging residues as feedstocks, and biogas or fuels from mixed cellulosic and non-cellulosic feedstock.

The fuels of the future depend on a renewable fuel producer's ability not only to generate RINs, but on the type and quantity of RINs that can be made for each gallon of fuel. This dependency holds true for both stand-alone production facilities and for petroleum refineries wanting to co-process renewable feedstocks in their facilities.

**Testimony on Examining Renewable Identification Numbers
Under the Renewable Fuel Standard**

My name is Sandra Dunphy and I am a director in the Energy Compliance Services group of Weaver and Tidwell, L.L.P. (Weaver). Weaver is a certified public accounting firm ranked among the 40 largest CPA firms in the U.S. , with nine offices nationwide. Founded in Texas, Weaver has always focused on providing services to energy companies; the Energy Compliance Services group helps companies of all sizes understand regulatory requirements, maintain compliance, and identify and maximize benefits available under applicable programs. My specific area of expertise is the Renewable Fuel Standard (RFS) program.

Weaver is the largest provider of attestation services under the EPA’s gasoline and RFS programs and was the first auditor approved by the EPA under the RFS Quality Assurance Plan. Weaver verified more than 1.1 billion RINs in 2017, and we are currently auditing about 50 renewable fuel production facilities.

Our client base for these RFS-related services is very diverse: renewable fuel producers, importers, exporters, blenders and consumers. Our clients also include gasoline and diesel refiners and importers – those companies classified as “Obligated Parties” under the RFS program because they must acquire Renewable Identification Numbers (RINs) to comply with the renewable fuel blending targets set annually by EPA. With our diverse customer base, Weaver takes a neutral position on the RFS regulations. My comments to you today are intended to provide useful information as you explore potential revisions and updates to the RFS regulations, not to advocate for any particular position or provision.

My testimony will address the future of transportation fuels and the possible roles that the RFS program and RINs could play. I've been asked to describe some of the nuances or inconsistencies that exist in the current regulations, so that will be my area of focus.

The RFS program is probably one of the most complex set of regulations that EPA has ever implemented. The goal of the program — to encourage the expansion of opportunities for renewable fuels to be used in the transportation fuel market — is straightforward; its complexity lies in the myriad details involved in the actual production and use of renewable fuels and the generation and use of RINs. The work Weaver does for our clients is to help bring clarity to the requirements that affect them, and I can assure you, it's a full time job. The observations I will share have been gleaned from our work with project and technology developers and with Obligated Parties.

Just to clarify, Obligated Parties are companies that produce or import gasoline or diesel fuel into the U.S. in any given year. They are the entities that need to acquire RINs and use them for compliance at the end of the year, and they are subject to penalties for noncompliance or for the use of any invalid RINs. Whether they only import gasoline or only produce diesel fuel, each obligated party must own RINs to cover all four compliance categories: cellulosic, biomass-based diesel, advanced and renewable fuel RINs.

Projected vs. Actual Fuel Demand and Effects of Demand on Renewable Fuel Production

When the annual Congressional mandates for the RFS program were established under the Energy Independence and Security Act of 2007 (EISA), the target volume of total renewable fuels was set to increase year after year through 2022. Gasoline demand had increased steadily in the years leading up to 2007, and it was expected to continue increasing through about 2015.

The objective of EISA was to transition, beginning in 2015, from “conventional” to “second generation” or “advanced” biofuels — that is, from fuels that achieve a 20% greenhouse gas reduction compared to the petroleum fuels they displace to fuels that achieve a 50–60% reduction.

Volume Standards as Set Forth in EISA					
Year	Cellulosic Biofuel (60% GHG ↓)	Biomass-Based Diesel (50% GHG ↓)	Advanced Biofuel (50% GHG ↓)	Total Renewable Fuel	"Conventional" Biofuel (20% GHG ↓)
2009	NA	0.5	0.6	11.1	10.5
2010	0.1	0.65	0.95	12.95	12
2011	0.25	0.8	1.35	13.95	12.6
2012	0.5	1	2	15.2	13.2
2013	1	*	2.75	16.55	13.8
2014	1.75	*	3.75	18.15	14.4
2015	3	*	5.5	20.5	15
2016	4.25	*	7.25	22.25	15
2017	5.5	*	9	24	15
2018	7	*	11	26	15
2019	8.5	*	13	28	15
o2020	10.5	*	15	30	15
2021	13.5	*	18	33	15
2022	16	*	21	36	15

*statute sets 1 billion gallons minimum, but EPA may raise requirement

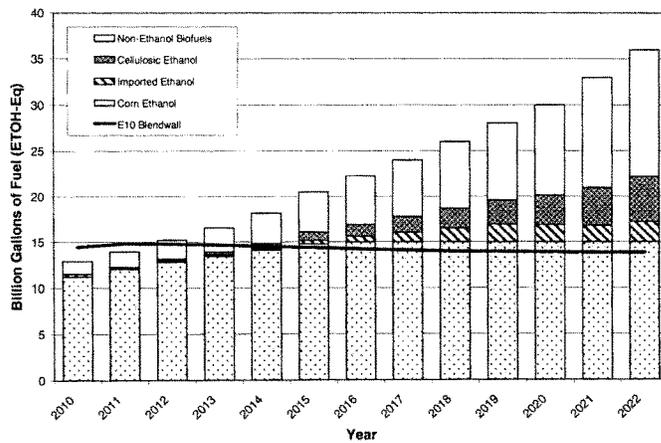
Note: There is no statutory volume requirement for "conventional" biofuel. The conventional volumes in the table are calculated (total – advanced), and are biofuels that do not qualify as advanced.

When the RFS2 regulations were published in early 2010, the expectation was that gasoline demand would continue to grow until about 2013, then taper off. The preamble to the RFS2 regulations stated, “Based on the primary ethanol growth scenario we’re forecasting under today’s RFS2 program, the nation is expected to hit the 14–15 billion gallon blend wall by

around 2014 (refer ahead to Figure IV.D.2-1), although it could be sooner if gasoline demand is lower than expected. It [the blend wall] could also be lower if projected volumes of non-ethanol renewables do not materialize and ethanol usage is higher than expected.”

Figure IV.D.2-1

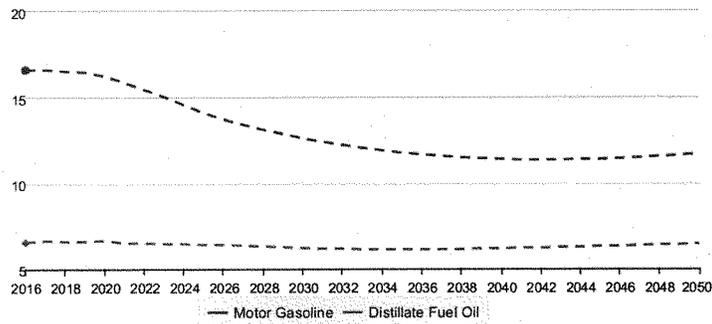
RFS2 Primary Control Case Compared to E10 Blend Wall



As we now know, gasoline demand from 2010 to 2013 was lower than expected, and the U.S. did indeed hit the blend wall in 2013. Gasoline demand then increased from 2014 through 2017, another peak; the current 2018 EIA Annual Energy Outlook is now indicating that gasoline demand will begin to decrease in 2018 or 2019 and continue to decline until around 2045 (see chart below). Diesel demand is expected to stay relatively constant over this period.

Energy Use: Transportation

Case: Reference case | Region: United States
quads



Source: U.S. Energy Information Administration

Since liquid renewable fuels are generally blended into gasoline and diesel fuel at relatively low percentages, this demand outlook greatly impacts the ability to blend ever-increasing volumes of renewable fuels into petroleum fuels, in the absence of new internal combustion engine technologies or the greater availability and use of higher ethanol blends. (The subject of higher ethanol blends is not addressed in this testimony, but EPA has recently issued supporting documents related to the 2019 proposed standards, including “Market Impacts of Biofuels in 2019” by David Korotney, which discusses market constraints.) It should be noted that there are some renewable fuels that are “drop-in” fuels (such as hydrotreated renewable diesel fuel) displacing the entire gallon of petroleum fuel. Several municipal truck fleets in California have already switched to using 100% renewable diesel and reported achieving significant GHG reductions and improved vehicle performance versus petroleum diesel fuel.

Highly Restrictive or Inconsistent RFS Requirements in Current Law

To encourage companies — whether petroleum refiners or new renewable fuel producers — to make the necessary investments in new technologies and renewable fuel production facilities, they need clear, consistent, long-term policies and regulations, and of course, they need financial incentives. Under the RFS program, that financial incentive comes primarily from RINs. If new technologies and fuels are able to meet the stringent criteria for feedstock, production processes and finished fuel requirements under the RFS, then RINs are the reward. Likewise, if certain feedstocks, processes or fuels fail to meet the RFS requirements, then no RINs can be generated and facilities cannot acquire the funding needed to get built, or they have no incentive to expand.

Let me provide a few examples of things that are currently either not allowed under either the law or the regulations, or where the regulations are so stringent that few, if any, facilities can comply. These issues impact the availability and viability of renewable fuels and therefore RINs.

1. **Fuels that are produced using two separate facilities** are not allowed. For example, if it requires one facility to convert wood/straw/grasses or municipal solid waste (MSW) feedstock into liquid and a separate facility, such as a petroleum refinery, to turn that liquid into a finished vehicle fuel, then the resulting fuel does not meet the definition of “renewable fuel” under the regulations.

- This is often called the “biointermediate” or “co-location” issue, and it applies to feedstock that is “substantially altered” from its original renewable biomass form (i.e., converted at one location into an altered product that can then be made into renewable fuel at a second location). As one would expect, new technologies have

emerged to ameliorate feedstocks high in lignin content or impurities so that they can then undergo a more traditional fuel production process such as catalytic cracking, hydrotreating or transesterification. However, the cost for building these feedstock treatment facilities often precludes that same facility from having the capital to build another treatment facility to utilize these altered feedstocks for producing high-quality motor vehicle fuel. The definition of “facility” under the RFS regulations is “all of the activities and equipment associated with the production of renewable fuel starting from the point of delivery of feedstock material to the point of final storage of the end product, which are located *on one property, and are under the control of the same person (or persons under common control)*” (emphasis added). Therefore, the facility must not only receive renewable biomass but also produce a renewable fuel at a single location.

- EPA addressed this issue under the proposed Renewable Enhancement and Growth Support regulations in late 2016 by adding new rules related to the accepted use of biointermediate feedstocks by renewable fuel producers. These new rules have not yet been enacted.

2. Biogas used to produce electricity that then is used to power electric vehicles is also disallowed.

- The biogas-to-electricity-for-vehicles pathway has been in place since 2014. However, EPA has had concerns over the potential for double-counting of RINs, since several entities in the chain of title of either the gas or the electricity may want to generate RINs on the same electrons.

- EPA proposed and sought comment on four potential solutions for managing RIN generation for this pathway under the proposed Renewable Enhancement and Growth Support regulations in late 2016. These new rules have not yet been enacted.

3. **Municipal Solid Waste as a qualifying feedstock** is difficult to get approved.

- The definition of “renewable biomass” includes only “separated yard or food waste” and not simply MSW. The objective of the separation process is to remove non-biogenic materials. EPA therefore requires companies wanting to use MSW as a feedstock to file and get approved a “Separated MSW Plan.” That approval can take as long as two years.
- Facilities using MSW as a feedstock to produce a renewable fuel still must test their finished fuel’s biogenic content through Carbon-14 testing, which is very expensive.

4. **Renewable fuel that is used in an ocean-going vessel** requires RIN retirement.

- Currently, RINs associated with renewable fuel that gets used in an ocean-going vessel must be retired, or made unavailable for compliance use by an Obligated Party. Fuels used in such vessels are usually higher sulfur fuels and are not motor vehicle quality. Renewable diesel and biodiesel could be blended into these fuels, but that does not happen today because of the need to retire RINs.
- Interestingly, renewable fuel used to displace jet fuel, which is also high in sulfur content, that is loaded onto jets leaving the U.S., does not require RIN retirement.

5. **Sawdust and wood chip wastes from a lumber mill, waste wood pulled from construction and demolition debris, old railroad ties, and diseased or insect-infested trees** generally don't qualify for use as feedstocks for renewable fuel production.
- These wastes are described as either whole trees or tree residue. EPA requires that these trees come from man- or machine-planted tree farms on non-federal land that was cleared at any time prior to December 19, 2007, and actively managed on that date.
 - Wood debris and piles of railroad ties or diseased trees are virtually impossible to trace back to the land on which the trees they derived from were grown.
 - Despite being included in the definition of "renewable biomass," whole trees are not listed as a qualifying feedstock under any cellulosic pathway.
 - Tree residues generated during the processing of planted trees cannot be mixed with similar residue from trees that do not originate in tree farms. So any sawmill that receives a single tree from federal land, or from land that was not man- or machine-planted, disqualifies all of the other qualifying woody residues produced from that mill for use as feedstock.
 - In order to buy only qualifying saw dust or wood chips from a mill, the mill would have to change its wood procurement methods, thereby making all of the wood products they produce and the woody residues they generate more expensive.
6. **Tree thinnings and forest floor logging residues** from non-federal lands are also very difficult to use, even if sustainably harvested.

- EPA describes these woody biomass feedstocks as “Slash” and “Pre-commercial thinnings.” Generally, Slash includes treetops, branches and bark that result from logging activity, storms, fires, delimiting or other similar disturbances. Pre-commercial thinnings are trees that are removed to reduce stocking and concentrate growth on more desirable healthy trees.
- Due to the downturn in demand for paper products, the demand for pulpwood has declined. In sustainably managed forests, pulpwood trees and underbrush are often removed to make room for hardwoods to grow. These pulpwood trees can be chipped onsite for ease of transportation and are usually burned for power generation or compressed into pellets for domestic use or export. Further guidance is needed from EPA to help potential feedstock suppliers determine whether such sustainable harvesting practices can allow for qualification as pre-commercially thinned trees.

7. **Biogas from digesters located at farms or wastewater treatment facilities** that take in a variety of wastes — some cellulosic and some non-cellulosic — are only allowed to make non-cellulosic RINs if they co-process any amount of non-cellulosic material. Being able to make only non-cellulosic RINs often kills a new project.

- EPA classifies all digester feedstocks based on their cellulosic content. Feedstocks with a cellulosic content $\geq 75\%$ are able to generate D3 RINs on 100% of the output biogas. As of July 19, 2018, D3 digesters’ RIN value is ~\$27/MMBtu of pipeline quality gas.

- However, if a digester takes in any feedstock that does not meet the minimum cellulosic content level, all of the pipeline-quality biogas produced by the digester is relegated to generating D5 RINs at a present value of ~\$5/MMBtu.
- EPA has been studying this issue, but as of this writing, has not published guidance on using both cellulosic and non-cellulosic feedstocks to generate different types of RINs for the same digester project.

8. **Corn kernel fiber (cellulosic) and corn starch (non-cellulosic) processed at a single facility** to produce ethanol are very difficult to qualify for RINs.

- The issue for these materials is similar to the general issue with cellulosic vs. non-cellulosic materials described above.
- EPA has not yet offered guidance on how to generate two types of RINs from a single ethanol production facility. In the EPA document that supports the proposed 2019 standards, “Cellulosic Biofuel Producer Company Descriptions (May 2018)” by Dallas Burkholder, EPA describes this issue as follows: *“A significant issue that must be resolved to register a facility to generate cellulosic biofuel RINs for ethanol produced from corn kernel fiber at an existing ethanol production facility is the quantification of the volume of ethanol produced from cellulosic feedstocks rather than non-cellulosic feedstocks such as starch. This quantification is easier for processes that sequentially convert the starch components of the corn kernel, followed by a conversion of the cellulosic components in a subsequent process. However, it can be especially challenging for technologies that hydrolyze both the starch and cellulosic portions of the corn kernel fiber in the same process step. We*

do not believe it would be appropriate to include potential production of cellulosic biofuel from companies that have not successfully addressed the quantification of the volume of ethanol produced from cellulosic vs. non-cellulosic feedstocks until these companies develop a methodology for quantifying cellulosic biofuel production that is approved by EPA."

9. **Renewable fuel produced at a petroleum refinery** through co-processing cannot currently use the Feedstock Energy equations included in the regulations as the basis for generating RINs.
- This issue is quite similar to the previous two issues in that EPA has not yet approved any co-processing refiner to determine the quantity of RINs they should generate using the Feedstock Energy equations in 40 CFR 80.1426(f)(4)(i)(A). But these refiners are being allowed to test their finished fuel for its biogenic content using Carbon-14 testing. Unfortunately, this test's results round to the nearest integer. Therefore, a refiner processing 0.5% renewable content or less would not actually generate any RINs, despite making a partially renewable fuel.
 - Refiners who elect to co-process generate a D5 RIN on the renewable portion of their fuel. Stand-alone renewable diesel producers generate D4 RINs, which are more valuable. (Co-processors are also unable to claim the Blender's Tax Credit of \$1.00/gallon, which is available to stand-alone facilities, when in effect).

10. **Exports of petroleum diesel fuel** – segregation requirements are outdated.

- Refiners are allowed to exclude exports of gasoline or diesel from their annual volume obligations, but only if each volume of exported fuel is segregated from other fuel from the time it leaves the refinery gate to the U.S. border. In other words, the fuel cannot be commingled in a tank with other like product along the way.
- Because gasoline specifications can vary from batch to batch, the segregation requirement is reasonable. However, because all motor vehicle diesel fuel contains ≤ 15 ppm sulfur, there should be no requirement to keep diesel fuel segregated from refinery to border.

Conclusion

The fuels of the future depend on a renewable fuel producer's ability not only to generate RINs but on the type and quantity of RINs that can be made for each gallon of fuel. This holds true both for stand-alone renewable fuel production facilities and for petroleum refineries wanting to co-process renewable feedstocks in their facilities. In fact, petroleum refiners are more interested than ever in producing partially renewable fuels, especially if offered a level playing field with stand-alone facilities.

The RFS regulations, by their very nature, dictate winners and losers in the renewable fuel market. Whatever changes you may propose to make to the RFS regulations, I encourage you to seek clear predictable, practical standards and consider utilizing RINs to help effectuate the desired changes.

Thank you for your work in reviewing how RINs can help incentivize production of the best fuels for the environment and the American consumer. Weaver stands ready to assist your subcommittee in any way possible as you consider different options for accomplishing these goals. Please feel free to contact me if you have any questions about the potential impact of proposals you are considering.

Mr. SHIMKUS. Thank you very much.
Now, next I'll turn to Mr. Niznik. You're recognized for 5 minutes.

STATEMENT OF PAUL NIZNIK

Mr. NIZNIK. Mr. Chairman, Mr. Ranking Member, and members of the subcommittee, my name is Paul Niznik. I am a Senior Consultant for Argus Media Incorporated.

I would like to thank you for the opportunity to testify this morning on RINs prices and fuels markets.

Argus Media is a global commodity price reporting agency with over 40 years of experience providing a broad range of industries with objective and independent market assessments. Billions of dollars of commodity prices are based on Argus published indices which are produced in over 20 offices spread across global market hubs.

Argus provides its services to entities within the petroleum, biofuel, and power markets, among others. In my role as a consultant, I provide strategic planning services, investment due diligence and market research specifically in biofuels and RINs markets.

Research on historic price data demonstrates that most RINs price behavior can be explained in the context of four main factors: the RFS rules, commodities prices, fuel quality regulations, and other incentives on the national and state level.

Historically, changes seen in any of these areas can have quantifiable effects on RIN prices. In my experience with clients, at every level of participation in the market, understanding the logic of RINs price behavior creates opportunities for investment and opens chances to optimize business efficiency.

Uncertainty around potential changes to the RFS or the policies disrupts the logic of the market and creates RINs price movements and volatility not normally seen under similar market conditions.

Likewise, policy clarification and long-term guidance have decreased RINs price volatility and returned the markets to logical behavior in the past, such as the issuance of guidance by EPA on the intention for annual RFS rulemaking in 2015 after a multiple year lapse.

RFS price volatility, driven by policy news, as well as policy uncertainty, are the two largest complaints about the RFS that I hear from my clients, both RIN buyers such as petroleum refiners, and RINs generators such as biofuels producers.

Thank you for the opportunity to testify. I look forward to answering questions from members of the committee.

[The prepared statement of Mr. Niznik follows:]

Testimony of Paul Niznik

Senior Consultant, Argus Media, Inc.

Before the House Energy & Commerce Committee, Environment Subcommittee Hearing on:
“Background on Renewable Identification Numbers under the Renewable Fuel Standard”

July 25, 2018

Mr. Chairman, Mr. Ranking Member, and Members of the Subcommittee:

My name is Paul Niznik, I am a Senior Consultant for Argus Media, Inc. I would like to thank you for the opportunity to testify this morning on Renewable Identification Numbers (RINs) prices and fuels markets.

Argus Media is a global commodity price reporting agency with over 40 years of experience providing a broad range of industries with objective, independent market assessment. Billions of dollars of commodity prices are based on Argus-published indices, which are produced in over 20 offices spread across global market hubs. Argus provides its services to entities within petroleum, biofuel and power markets, among many others. In my role as a consultant, I provide strategic planning services, investment due diligence, and market research specifically in biofuels and RINs markets.

Research on historic price data demonstrates that most RINs price behavior can be explained in the context of four main factors: the RFS rules, commodities prices, fuel quality regulations, and other incentives at the national and state level. Historically, changes seen in any of these areas can have quantifiable effects on the RINs price market. In my experience with clients at every level of participation in the market, understanding the “logic” of RINs price behavior creates opportunities for investment and opens chances to optimize business efficiency. Uncertainty around potential changes to the Renewable Fuel Standard (RFS), or other policies, disrupts the logic of the market and creates RINs price movements and volatility not normally seen under similar market conditions.

Likewise, policy clarification and long-term guidance have decreased RINs price volatility and returned the market to “logical” behavior in the past, such as the issuance of guidance by EPA on the intention for annual RFS rulemaking in 2015 after a multi-year lapse.

RINs price volatility driven by policy news, as well as long-term policy uncertainty, are the two largest complaints about the RFS that I hear from my clients, both RINs buyers, such as refiners, and RINs generators, such as biofuels producers.

Thank you for the opportunity to testify today and I look forward to answering questions from Members of the Committee.

Mr. SHIMKUS. Well, you get a gold star for short 5 minutes there. So thank you very much.

I will now turn to Dr. Lade. You're recognized for 5 minutes.

STATEMENT OF GABRIEL LADE

Mr. LADE. Chairman Shimkus, Ranking Member Tonko, and other members of the committee, thank you for the opportunity to participate in today's hearing.

I am an Assistant Professor of Economics at Iowa State University, a Visiting Assistant Professor in the Dyson School of Applied Economics and Management at Cornell University, and a Faculty Affiliate at the Center for Agricultural and Rural Development, a public policy and economic research institute at Iowa State University.

To these roles, I bring my expertise in environmental economics and policy analysis. In recent years, I have particularly focused on state and Federal policies that increase the production and use of renewable transportation fuels including the renewable fuel standard.

I published several peer reviewed and outreach articles on RIN price determinants and their impacts on downstream consumer markets, and this is the topic on which I will speak today, though I will note that all my views expressed are my own and do not reflect those of the entities that I am associated with.

RIN markets serve a vital role in enforcing the renewable fuel standard. Key questions have arisen around the operation and integrity of RIN markets, particularly since 2013, due to observed volatility. These include have RIN markets operated as intended by the enacting legislation, what changes can improve the RIN market and limit volatility, and what impact would administrative or legislative changes to the RFS have on RIN markets and biofuel demand in the United States.

In the written testimony that I submitted to this committee, I summarized RINs' accounting and economic purpose as well as review the empirical evidence on RIN price determinants and their impacts on downstream market prices. I also address potential effects of proposed changes to the RFS program, their likely impacts on RINs, and their implications for biofuel demand in the United States.

I want to emphasize four points from my testimony here. First, RINs serve a vital accounting role in RFS compliance. However, their economic role is even more important. RIN prices adjust to ensure that congressional biofuel blending mandates are met each year and are a key market signal about the value of investing in biofuel production and distribution infrastructure.

Second, several features of RIN markets suggest that they are efficient. Prices adjust quickly to changing compliance cost expectations and market fundamentals, and most RIN price volatility since 2013 can readily be attributed to ever changing biofuel blending targets and uncertainty around future mandates. However, publicly available data is insufficient to fully determine whether the market is efficient or free of manipulation. Greater transparency would allow researchers and regulators to study these issues, and further

transparency would make attempt to manipulate the market more difficult and costly.

Third, we all know that fuel retailers and refiners are not driven out of business every time states raise their fuel taxes. Instead, consumer prices at the pump increase typically by the full amount of the tax. Fuel providers pay the tax bill but consumers ultimately bear the tax cost. The same situation arises in RIN markets. The empirical economics literature continues to show that wholesale fuel prices on average rise one for one with refiners' RIN costs. This means that so long as refiners offset their RFS compliance obligations as they accrue them, on average, they're fully compensated for their RIN costs through higher wholesale gasoline and diesel prices.

Finally, recent actions by the Environmental Protection Agency likely undermined RIN markets. RIN markets are designed to provide a signal about the value of biofuel production and distribution in the United States. That signal becomes unreliable when EPA decisions are unpredictable and lack transparency.

Thank you, and I look forward to your questions.

[The prepared statement of Mr. Lade follows:]

**TESTIMONY BEFORE THE U.S. HOUSE COMMITTEE ON ENERGY AND COMMERCE
SUBCOMMITTEE ON ENVIRONMENT**

**Background on Renewable Identification Numbers under the Renewable Fuel Standard
Wednesday, July 25, 2018**

**Gabriel E. Lade
Center for Agricultural and Rural Development
Iowa State University**

Chairman Shimkus, Ranking Member Tonko, and members of the Committee: Thank you for the opportunity to participate in today's hearing.

My testimony focuses on the purpose and operation of Renewable Identification Numbers, better known as RINs, as the compliance mechanism for meeting the Renewable Fuel Standard (RFS) mandates. In particular, my remarks emphasize RINs' accounting and economic role under the RFS, as well as summarize the empirical evidence on RIN price determinants and their impact on downstream fuel prices. I also address the potential effects of certain proposed changes to the RFS on RIN prices, and their implications for future biofuel use in the United States.

My testimony can be summarized as follows:

- First, RINs serve a vital accounting role in RFS compliance. However, their economic role is even more critical. RIN prices adjust to ensure that Congressional biofuel blending mandates are met. High RIN prices effectively tax gasoline and diesel, discouraging their use, and subsidize biofuels, stimulating their demand.
- Second, several features of RIN markets suggest that they are efficient. Prices adjust quickly to changing compliance cost expectations, and most RIN price volatility since 2013 can be attributed to ever-changing blending targets and uncertainty regarding future mandate volumes. However, publicly available data is insufficient to determine whether the market is fully efficient or free of manipulation. Greater transparency would allow researchers and regulators to study these issues. Further, transparency would make attempts to manipulate the market more difficult and costly.
- Third, the empirical economics literature continues to show that, on average, downstream prices fully reflect upstream RIN costs. This means that so long as refiners offset their RFS compliance obligations as they accrue them, on average, they are fully compensated for their RIN costs through higher wholesale gasoline and diesel prices.
- Fourth, recent actions by the Environmental Protection Agency likely undermine RIN markets and may drive away market participants. This would be detrimental to market liquidity and inhibit price-discovery. RIN markets are designed to provide a signal about the value of

biofuel production and distribution. That signal becomes unreliable when EPA decisions are unpredictable and lack transparency.

- Finally, details matter in any proposed changes to the Renewable Fuel Standard. A leading administrative reform proposal involves capping RIN prices and waiving RVP requirements for E15 so that the fuel can be sold year-round. Absent significant small refiner exemptions, and assuming other aspects of the RFS regulation remain the same, a D6 RIN price cap below \$0.40/ RIN is likely to bind. A binding price cap necessarily means that domestic ethanol blending will be below mandated volumes. Nonetheless, RIN price caps could serve an important, stabilizing role in RIN markets, particularly if EPA continues to adjust mandate levels in response to high RIN prices. However, the impacts of any reform depend critically on the details. RIN price caps could make sense as part of a broader reform, but whether they have the intended effects on RIN markets or national biofuel use depends on whether and how other aspects of the program also change.

I. The Accounting and Economic Role of RINs

The Renewable Fuel Standard (RFS) was established in its current form in 2007 by the Energy Independence and Security Act of 2007 (EISA). The program set ambitious long-run minimum volumetric domestic renewable fuel use targets for the United States transportation fuel industry. The purpose of the program is to (i) enhance energy security by promoting domestic fuel production and reducing U.S. reliance on oil imports; (ii) support rural economies; and (iii) lower greenhouse gas emissions from transportation fuels. To satisfy objective (iii), the EISA mandates set separate volumetric targets for four biofuel categories (i) conventional renewable fuel; (ii) advanced biofuel; (iii) biodiesel; and (iv) cellulosic biofuel. Each category has different lifecycle greenhouse gas (GHG) reduction requirements.¹

The EPA could enforce the RFS mandates in many ways. Rather than more prescriptive means, the Agency uses tradeable credits to implement the mandates. This "market-based" enforcement mechanism is similar to those used by other policies such as the U.S. lead phasedown program and the U.S. sulfur dioxide allowance trading program. These types of policies leverage the insight that well-functioning markets can allocate compliance in a 'least-cost' way. Under the Renewable Identification Number (RIN) system, inefficient biofuel producers are unlikely to be able to sustain a substantive market share. It is because of this that economists have touted these enforcement mechanisms for well over 30 years as an efficient way to implement policies like the RFS (Schmalensee and Stavins, 2017).

RINs accounting role: RIN serve first-and-foremost as an accounting system, tracking biofuel use throughout the United States. Every gallon of qualifying biofuel produced in or imported into the United States generates a unique RIN in EPA's Moderated Transaction System (EMTS). RINs are 'attached' to biofuels until they are blended at wholesale terminals for final consumption, after which they are 'separated' from the physical fuel and can be transferred to any party registered under the EMTS (Figure 1). Different types of biofuels generate different RINs that correspond to the mandate categories described above.

¹ Bracmort (2018) provides a more detailed description of these requirements.

Example lifecycle of a Renewable Identification Number (RIN)

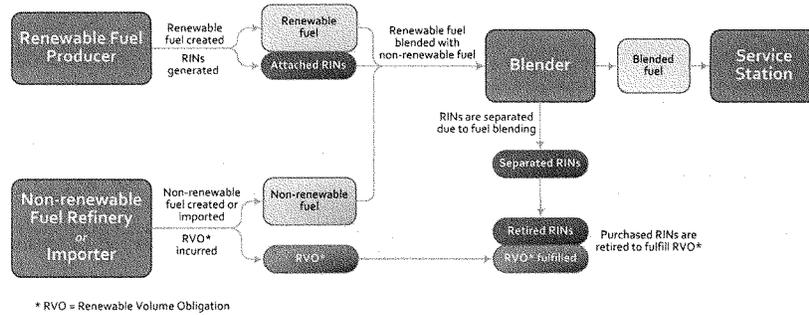


Figure 1- Lifecycle of a RIN. (Source: Environmental Protection Agency)

Every year, the EPA sets obligated parties' renewable volume obligations (RVOs). Obligated parties are defined as under the law as U.S. oil refiners and fuel importers. RVOs come in the form of percentage standards. At the end of every compliance period, obligated parties must turn in a number of RINs equal to their RVO. Only separated RINs can be turned in, or 'retired' per Figure 1, for compliance. This system ensures that only domestically blended biofuels count towards obligated parties' RVOs.

EPA sets separate RVOs for each biofuel category, and these requirements are nested. Cellulosic (D3) RINs can be used by obligated parties to comply with their cellulosic biofuel, advanced biofuel, and conventional biofuel RVOs. Biomass-based diesel RINs (D4) count towards parties' biomass-based diesel, advanced biofuel, and conventional biofuel RVOs. Advanced RINs (D5) count towards parties' advanced and conventional biofuel RVOs. Conventional renewable fuel RINs (D6) count only towards conventional biofuel RVOs.

Figure 2 illustrates the nesting structure. Most corn-starch ethanol generates "D6" RINs that count towards the conventional renewable fuel mandate. Fuels whose lifecycle greenhouse gas (GHG) emissions are at least 50% lower than gasoline or diesel generate "D5" RINs that can count towards the advanced biofuel mandate. Biomass-based diesel that achieves at least a 50% GHG

reduction generates “D4” RINs. Last, cellulosic biofuels that achieve a 60% or greater GHG reduction generates “D3” RINs.

Fuel nesting scheme for Renewable Fuel Standard (RFS)

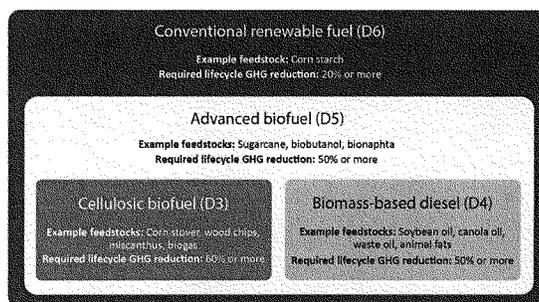


Figure 2- Nesting structure of RINs (Source: Environmental Protection Agency)

An example may help clarify how the RVOs work. Suppose the EPA sets a 10% total biofuel percentage standard; a 4% advanced biofuel standard; and a 1% cellulosic biofuel and biomass-based diesel standard. For every one hundred gallons of gasoline or diesel sales, obligated parties must purchase ten RINs. Of those, at least four RINs must be D5, D4, or D3. Further, at least one of the four advanced RINs must be a D3 RIN and one a D4 RIN. The ‘undifferentiated’ six RINs can be D6 RINs.

RINs economic importance: More important than its accounting purpose is the economic incentive that RINs provide for biofuel use. Every gallon of gasoline or diesel sales creates a proportional RIN obligation for obligated parties, ten RINs for every one hundred gallons in the example above. At the same time, every gallon of biofuel generates a RIN that can be sold. So long as RIN prices are positive, this mechanism acts as an implicit tax on gasoline and diesel sales and a subsidy for biofuels. As RIN prices rise, the tax and subsidy values increase. In turn, the

value of blending biofuels increases and fuels with higher biofuel blends become more attractively priced to consumers.

Table 1 provides an example of the fuel price impacts of RINs. The table presents prices for E0 (100% gasoline), E10 (90% gasoline, 10% ethanol), E15 (85% gasoline, 15% ethanol), and E85 (25% gasoline, 75% ethanol) using wholesale gasoline and ethanol prices reported by the Nebraska Energy Office, but artificially varying RIN prices. Ignore the values in parentheses for now.

Table 1 – RIN price impacts on retail fuel prices

RIN Price	E0 Price	E10 Price	E15 Price	E85 Price
\$0.00	\$2.70	\$2.62	\$2.58	\$2.10
	<i>(\$2.70)</i>	<i>(\$2.69)</i>	<i>(\$2.69)</i>	<i>(\$2.62)</i>
\$0.25	\$2.73	\$2.62	\$2.57	\$1.92
	<i>(\$2.73)</i>	<i>(\$2.69)</i>	<i>(\$2.67)</i>	<i>(\$2.44)</i>
\$0.50	\$2.75	\$2.62	\$2.55	\$1.73
	<i>(\$2.75)</i>	<i>(\$2.69)</i>	<i>(\$2.66)</i>	<i>(\$2.26)</i>
\$0.75	\$2.78	\$2.62	\$2.53	\$1.55
	<i>(\$2.78)</i>	<i>(\$2.69)</i>	<i>(\$2.64)</i>	<i>(\$2.08)</i>

Notes: All examples use a \$2.21/gal unleaded gasoline (87 octane) price and \$1.40/gal wholesale fuel ethanol price based on average rack prices reported by the Nebraska Energy Office for June 2018. All prices include a \$0.184/gal federal and \$0.30/gal state fuel tax. All examples assume a 10% biofuel mandate and that all RIN prices are equal. Italic values in parentheses inflate ethanol costs to \$2.10 to reflect the fuel's lower energy content relative to gasoline. Prices do not include any retail station markup. E10 prices remain the same regardless of RIN price because the implicit RIN tax is nearly exactly offset by the implicit RIN subsidy across the prices considered. (Source: Nebraska Energy Office; Author's calculations.)

E0 is the most expensive fuel in all cases due to gasoline's higher wholesale cost. Suppose that total U.S. ethanol demand is not sufficiently high at a \$0 RIN price to meet the RFS mandates. As described in Section II, RIN prices will increase in response to this RVO deficit. As RIN prices increase, fuels with higher-ethanol blends become more attractively priced. This adjustment will lead to consumers who own non-flex fuel vehicles to switch from E0 to E10 and incentivize consumers with FFVs to switch from E10 to E15 or E85.²

² Flex fuel vehicles are vehicles with engines that are capable of fueling with any ethanol-gasoline blend up to 85%. In 2016, it was estimated that there were as many as 20 million FFVs in the U.S., around a 7% market share. See https://www.afdc.energy.gov/vehicles/flexible_fuel.html.

The table demonstrates another important impact of the RFS. Most fuel sold today in the United States is E10, a 10% ethanol-gasoline blend. As RIN prices rise, E10 prices are virtually unaffected because the implicit subsidy for ethanol in E10 almost entirely offsets the implicit tax on gasoline in E10. For fuel with ethanol blends exceeding a 10% volume, higher RIN prices decrease retail prices. Thus, most U.S. consumers are unaffected by high RIN prices at the pump, and those who use high-ethanol blend fuels likely benefit from high RIN prices. The cost of the RFS mostly lies upstream of consumers - the mandates shift market shares from petroleum to biofuel producers.

II. RIN Market Efficiency

An efficient RIN market is critical to a successful, least-cost implementation of the RFS. Before discussing the market's performance, a digression on RIN price determinants may be useful.

RIN price determinants: In a competitive market, RIN prices are only positive if RFS mandates require more ethanol or biomass-based diesel use than the market would deliver in the absence of the mandates. In most cases, RINs increase ethanol blending in gasoline and biomass-based diesel blending in diesel. The determinants of RIN prices in these two markets are distinct, though the markets for RINs generated by ethanol and biomass-based diesel are linked due to the nesting structure of the mandates.

There are many reasons for the fuel industry to blend ethanol in gasoline even in the absence of the RFS mandates, particularly given the large, industry-wide investments in blending infrastructure across the U.S. in the last decade. First, ethanol is an EPA-approved fuel oxygenate. Oxygenate blending is required in many U.S. regions under the Clean Air Act because they reduce tailpipe emissions.³ Second, ethanol has a higher octane rating than gasoline. Octane is a measure of a fuel's combustion resistance, and higher performance vehicles typically require higher-octane fuel to operate efficiently. Ethanol's higher octane allows refiners to decrease octane production at the refinery, reducing costs.

Figure 3 illustrates how RINs impact ethanol markets. Ignore the red curve for now. Given the benefits of ethanol blending, and so long as ethanol costs are competitive with gasoline, ethanol

³ See <https://www.eia.gov/outlooks/steo/special/pdf/mtbe.pdf>.

blending is positive even with no mandate. Ethanol price and quantity with no mandate will be determined at the intersection of the fuel's supply and demand curve. RIN prices equal zero if the mandate is set at or below this level because the market needs no extra incentive to meet the mandate.

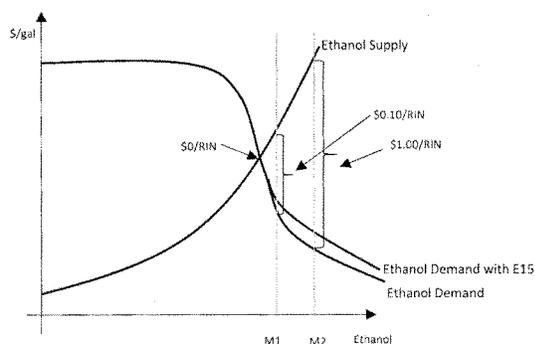


Figure 3 – Ethanol demand and RIN pricing

RIN prices are positive when the RFS requires greater ethanol consumption than the market would provide in the absence of the program. In Figure 3, RIN prices are \$0.10/RIN to meet the mandate M1 and rise sharply to \$1.00/RIN if the mandate is set at M2. The sharp decline in the ethanol demand curve reflects a fundamental constraint on ethanol-gasoline blending in the U.S. – most vehicles are only approved to use up to 10% ethanol blends. After E10 saturate the conventional gasoline vehicle market, the only way to increase ethanol use is by increasing E15 or E85 demand. For several reasons, including limited FFV and E15/E85 fueling station capacity as well as FFVs consumers' hesitancy to switch to E85, increasing E15/E85 demand requires low ethanol prices. As shown in Table 1, this is achieved through higher RIN prices.

Biomass-based diesel does not face the same blending constraints as ethanol. It does, however, have higher production costs. This is illustrated in Figure 4. In this example, the fuel industry demands any amount of biodiesel so long as it is price-competitive with diesel. Because it has high production costs, the market demands little biodiesel in the absence of the RFS. As biodiesel blending requirements increase, RIN prices rise sharply, reflecting the additional cost of supplying each extra gallon of biodiesel to the market.

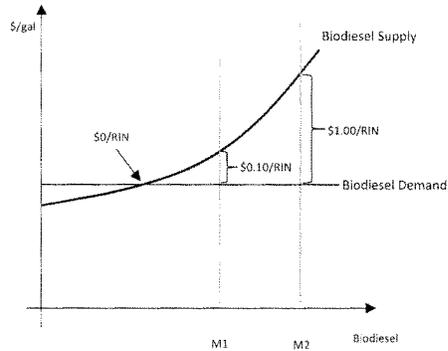


Figure 4 – Ethanol demand and RIN pricing

RIN market efficiency. Fama (1970) famously defined an efficient market as one in which “prices always fully reflect available information.” For RINs, this requires that prices reflect all costs of meeting the RFS. These costs are affected by (i) current and future mandate levels; (ii) the required discount that consumers need to fuel with E15 and E85; (iii) current and future gasoline, diesel, and biofuel prices; and (iv) current and future biofuel production costs. All of these are subject to substantial uncertainty. Just a few academic studies estimate E85 demand (Pouliot and Babcock, 2017; Pouliot, Liao, and Babcock, 2018), and there are no such studies of E15 demand. This means that little is known about the shape of the demand curve in Figure 5, especially as ethanol use rises above the blend wall. Future agricultural feedstock and oil prices are also notoriously difficult to predict. Last, since at least 2013, EPA rulemaking has continued to shift industry expectations of current and future mandates. Figures 3 and 4 illustrate why shifting mandates cause volatility. Small mandate increases, from M1 to M2 in both Figures, sharply increase RIN prices due to the large discounts that FFV owners require to consume fuel and sharply rising biodiesel production costs.

Determining whether RIN markets are efficient is challenging. One metric is to study how quickly RIN prices adjust to new information. My colleagues and I studied this in a recent peer-reviewed publication (Lade, Lin-Lawell, and Smith, 2018). We found that RIN prices quickly responded to

EPA announcements shifting industry expectations of future mandates. Figure 5 shows D6 RIN prices from 2012 to mid-2016 overlaid with EPA announcements. Prices promptly increased or decreased depending on whether the announcement increased or reduced expected mandate levels. The finding is encouraging as it suggests that the market is liquid.

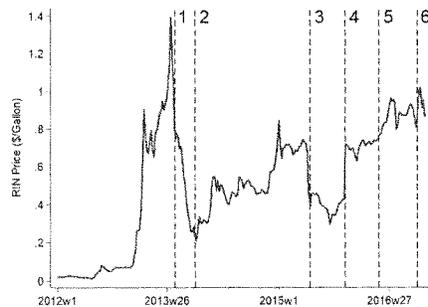


Figure 5 - D6 RIN prices after the release of EPA's (1) 2013 Final Rule, (2) 2014 Proposed Rule, (3) 2014-2016 Proposed Rule; (4) 2014-2016 Final Rule; (5) 2017 Proposed Rule; and (6) 2017 Final Rule. (Source: Oil Price Information Service)

Manipulation of RIN markets. A related concern to market efficiency is whether there is an opportunity for parties to manipulate RIN prices. The issue has been raised by several journalists, particularly after RIN prices increased so suddenly in 2013.⁴ Publicly available RIN transaction data are insufficient to determine whether the market has been manipulated.⁵ As a result, no academic study speaks directly to this question. Commodity and Futures Trading Commission (CFTC) Chairman Giancarlo testified earlier this year that, using detailed RIN transaction data from EPA, CFTC staff were unable to find obvious manipulation in RIN markets. However, the Chairman cautioned that available data was insufficient to draw definitive conclusions.⁶

⁴ See <https://www.nytimes.com/2013/09/15/business/wall-st-exploits-ethanol-credits-and-prices-spike.html>.

⁵ Daily RIN prices are available through several subscription services like Oil Price Information Service, Bloomberg, and EcoEngineers. EPA posts aggregate RIN generation, separation, and retirement data at <https://www.epa.gov/fuels-registration-reporting-and-compliance-help/public-data-renewable-fuel-standard>.

⁶ See <https://www.dtnpf.com/agriculture/web/ag/news/business-inputs/article/2018/02/15/cftc-draw-conclusion-rin-market-epa-2>.

Similar concerns have been raised in other tradeable credit markets. In 2013, researchers at the University of California, Berkeley, University of California, Davis, and Stanford University considered the potential for manipulation in California's Cap and Trade allowance program.⁷ The authors recommended that the California Air Resources Board (ARB) release timely and accurate data on state emissions levels as well as data on firms' allowance holdings. They argued that greater transparency makes it more difficult for firms to acquire large enough positions to manipulate prices. The authors recommend that the ARB could, for example, disclose firms' holdings when their net long positions exceed certain thresholds or publish the distribution of net-holdings of market participants.

Similar concerns also arose in California's market for Low Carbon Fuel Standard credits. To address this, the California ARB posts quarterly histograms of parties' net positions.⁸ For example, April 2018 data show that three firms currently hold upwards of 40% of banked LCFS credits. A few issues are worth considering when debating the speculators' role in RIN markets. First, as shown in Figure 5, much of the observed RIN market volatility can be explained by shifting signals from EPA. Second, correlation does not imply causation. The entrance of speculators into RIN markets when volatility increases does not mean that speculators cause price volatility. In fact, volatility makes markets more attractive to speculators. Third, speculators can serve a crucial role in increasing market liquidity. Last, even if a market actor were to acquire a large position in RIN markets, their ability to manipulate prices is limited by a key feature of RINs - biofuel producers can always generate more RINs by increasing production. This would undercut efforts to manipulate RIN prices through withholding.

III. Impacts of RINs on Downstream Market Prices

RIN price impacts on bulk, wholesale, and retail fuel prices have been a key point of contention. The debate can be segmented into two questions. First, are RIN costs reflected in wholesale gasoline and diesel prices? Second, do high-ethanol blend fuels (E15 and E85) reflect RIN subsidies?

⁷ See <https://www.arb.ca.gov/cc/capandtrade/emissionsmarketassessment/informationrelease.pdf>.

⁸ See <https://www.arb.ca.gov/fuels/lcfs/dashboard/dashboard.htm>.

An important distinction is necessary on the statutory versus economic incidence of taxes. Statutory tax incidence lies with the party that has to pay a tax bill. Economic incidence refers to the burden of the tax after market prices adjust. For example, depending on the state, either fuel stations, wholesale distributors, or refiners pay state fuel taxes (Kopczuk et al., 2016). However, we all know that gas prices rise when fuel taxes increase. A naïve analysis would suggest that consumers do not pay the tax since they do not receive a bill from the state government, i.e., their statutory incidence is zero. However, the economic incidence lies almost entirely with consumers – upstream parties are typically fully compensated for their tax bill through higher prices at the pump.

A similar distinction arises in the RIN context. The statutory RIN tax lies with refiners and fuel importers – they pay the RVO ‘tax bill’ to the EPA every year. However, whether refiners bear the economic burden of the tax depends on whether wholesale gasoline and diesel prices rise with RIN prices. Knittel, Meiselman, and Stock (2016, 2017) find that, on average, bulk petroleum fuel prices rise and fall one-to-one with RIN costs.⁹ This means that when RIN prices increase, wholesale gasoline and diesel prices typically increase to exactly offset refiners’ RIN costs. So while the statutory incidence lies with refiners, they bear none of the economic incidence.¹⁰ Several parties have questioned these results. Nonetheless, EPA’s analysis agreed with Knittel, Meiselman, and Stock and the agency strongly argued that RIN costs are reflected in downstream fuel prices in its denial of petitions to change the RFS point of obligation (EPA, 2016).

Several caveats are in order. First, while pass-through is complete on average, it may not always be the case that refiners are always fully compensated for their RIN costs. Second, the result holds for bulk petroleum prices. While wholesale terminal prices closely follow bulk prices, some wholesale terminal prices may not fully reflect RIN costs. Pouliot, Smith, and Stock (2017) study RIN pass-through at gasoline distribution terminals at 57 U.S. cities and find that pass-through varies across regions and depends on whether they study branded or unbranded prices. Last, while bulk fuel prices compensate refiners for their RIN costs, RIN price volatility creates risk for

⁹ Bulk petroleum fuels considered by the authors include Gulf diesel, New York Harbor diesel, New York Harbor RBOB and CBOB, and Los Angeles RBOB. Wholesale terminal prices in the U.S. are typically set in relation to these market prices.

¹⁰ See Babcock, Lade, and Pouliot (2016) for more discussion on the impacts of the RFS on merchant refiners.

refiners that do not purchase RINs as they accrue their RVO. Overall, while the academic literature to date suggests that the economic incidence of RINs lies with downstream parties, more work is needed to understand how RINs affect fuel prices better.

Table 1 illustrates the importance of the second question, whether the RIN subsidy for high-ethanol blend fuels is reflected in consumer prices. I assumed that this was true in Table 1 and my discussion in Section I. Pass-through of the RIN subsidy is critical to increase ethanol demand, particularly for E15 and E85. Market participants and the EPA questioned whether retail E85 prices reflected the upstream RIN subsidy. For example, the EPA included the following language in its proposed rule for the 2017 biofuel standards:

“RIN prices can continue to provide additional subsidies that help to reduce the price of E85 relative to E10 at retail, but the propensity for retail station owners and wholesalers to retain a substantial portion of the RIN value substantially reduces the effectiveness of this aspect of the RIN mechanism.”

I studied this issue in a recently published, peer-reviewed paper (Lade and Bushnell, Forthcoming). Using data from over 450 retail fuel stations in Iowa, Illinois, and Minnesota, we found that half to three-quarters of the RIN subsidy for E85 was passed-through to consumers, with even higher pass-through rates since 2015. Complementary work supports these findings (Li and Stock, 2017). This suggests that the economic mechanisms described in Section I are working – when RIN price increases, E15 and E85 prices decrease.

IV. Small Refiner Exemptions and RIN Prices

EISA allows the EPA to provide RVO exemptions to small refiners that would experience disproportionate hardships from complying with the RFS. However, in the past exempted volumes were reallocated to other refiners, leaving mandate volumes unaffected. Recent reports suggest that EPA granted substantially more ‘small refiner exemptions’ (SREs) in 2017 than in previous years, increasing SREs from 790 million RINs in 2016 to 1.46 billion RINs in 2017.¹¹

¹¹ See <https://www.reuters.com/article/us-usa-biofuels-epa/biofuel-groups-ask-u-s-government-to-slow-small-refinery-waiver-program-idUSKBN1K82UL> and <http://biomassmagazine.com/articles/15445/epa-provides-data-on-2016-2017-rfs-waivers-in-letter-to-grassley>.

Further, reports suggest that at least some portion of these exemptions were not reallocated to larger refiners, breaking with past precedent, and that EPA issued RINs that were not generated by biofuel productions to some refiners to retroactively offset previous RVOs.¹²

These actions have two impacts on RIN markets. First, SREs act as a mandate cut to the RFS if EPA does not reallocate the exempted RVOs to larger refiners. Second, the secrecy surrounding SREs undermines the integrity of RIN markets, especially if only the firms receiving the exemptions know of their existence. Lack of transparency increases market participants' uncertainty of mandate levels. In the long-run, uncertainty delays investments in the very biofuel infrastructure that the RFS is designed to incentivize.

V. RFS Reform Proposals: RIN Price Caps and RVP Waivers

Several RFS reforms have been proposed, particularly over the last year. I will highlight the potential impacts of one prominent administrative reform proposal on RIN markets - a D6 RIN price cap with an E15 Reid Vapor Pressure (RVP) waiver. Lade, Pouliot, and Babcock (2018) provide a more in-depth discussion on this topic.

The EPA could implement a D6 RIN price cap by offering "waiver credits" much as they do for the cellulosic biofuel mandate. EPA would allow parties to purchase RINs at a fixed price from the Agency instead of on the market. Biofuel production would not generate these waiver credits. Thus, biofuel use will be lower than the mandated volumes whenever obligated parties use the credit window.

RIN price caps have many merits. High RIN prices since 2013 have led to extensive RFS lobbying by both the biofuels and oil industries. EPA has responded by adjusting the statutory mandates. The ensuing RIN market volatility from this approach is evident in Figure 5. If EPA or Congress intend to meet legislative RFS mandates only if compliance costs are below a certain level, a RIN price cap is the most effective way to signal this intent to fuel markets. With a RIN price cap, investors, producers, and other market participants know that they must produce and sell biofuels at or below the cap, reducing uncertainty caused by policy gyrations. However, the level

¹²See <https://www.reuters.com/article/us-usa-biofuels-waivers-exclusive/exclusive-epa-grants-refiners-biofuel-credits-to-remedy-obama-era-waiver-denials-idUSKCN1IW1DW>

of a RIN price cap is crucial. A low cap signals to markets that only low-cost compliance options can be used to meet the mandates and that remaining compliance will be met through waiver credits purchases. A low RIN price cap also reduces the incentive to blend biofuels into motor fuel and increase biofuel fueling infrastructure.

RIN prices over the last two years suggest that, absent significant SREs and other changes to the RFS program, a D6 RIN price cap at or below around \$0.40/RIN is likely to bind. That is, setting a D6 RIN price cap below \$0.40/RIN will effectively reduce biofuel use below current EPA mandates. A price cap below \$0.20/RIN would reduce price discounts for E15 and E85, and decrease demand for the fuels.

An E15 RVP waiver would allow year-round sales of the fuel. The current lack of a waiver that retailers in many U.S. regions are not only allowed to sell E15 in the summertime. This necessarily decreases the value of investing in E15 fueling infrastructure. Granting a waiver would likely increase investment in E15 pumps, making the fuel more available across the United States. Figure 3 illustrates the likely effect that an E15 RVP waiver would have on RIN prices. More E15 stations increase demand for ethanol in the U.S., shifting the demand curve for ethanol outward. If this shift is large, RIN prices will decrease.

It is difficult to determine how large of an impact an E15 waiver would have on RIN prices. E15 is a new fuel, and consumer uncertainty about whether E15 is appropriate to use in their vehicles will make them less likely to use the fuel even when it is priced competitively with E10. E15 pumps include warnings that the fuel is only appropriate for use in passenger vehicles manufactured after 2001 or in FFVs. Further, many manufacturers include warnings to consumers not to use E15 in some newer vehicle models.

Also, because ethanol has a lower energy content than gasoline, E15 needs to be priced several cents below E10 to be competitive. E15 contains around 1.75% less energy per gallon than E10, which means consumers' fuel economy decreases when they use the fuel. For illustration purposes, I inflate the ethanol price used to calculate retail fuel prices in Table 1 to account for its lower energy content. Results are in parentheses. Ethanol blends are less attractive from this 'gasoline-gallon equivalent' pricing perspective. When RIN prices are \$0.25/RIN, E15 is priced \$0.05/gal lower than E10. However, the discount is just \$0.02 when the energy content

differences are accounted for. In recent work, my co-authors and I found that RIN prices below \$0.20/gal are unlikely to provide consumers with a large enough discount to substantially increase demand for E15 for a wide range of gasoline and ethanol wholesale prices, especially if consumers require a larger price discount than the energy content value.

All of the discussion above assumes other features of the RFS program would be unchanged. The discussion is meant to demonstrate the policy trade-offs inherent in reform proposals. Ultimately, details matter a great deal in understanding the potential implications of any reform proposal. Price caps and RVP waivers may have very different impacts on RIN costs and biofuel blending if other aspects of the regulation also change.¹³ As with other issues addressed in my testimony, more research is needed to understand the implications of any proposal.

¹³ See Stock (2018) for a detailed analysis of other RFS reform proposals.

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Mr. SHIMKUS. Thank you very much.
Now I will turn to Mr. Lavinsky. You're recognized for 5 minutes.
Thanks for being here.

STATEMENT OF COREY LAVINSKY

Mr. LAVINSKY. OK. Good morning, Chairman Shimkus, Ranking Member Tonko, and other members of the subcommittee.

Thank you for inviting me to speak today. I am grateful for the opportunity to share information for this hearing.

My name is Corey Lavinsky and I am with S&P Global Platts handling global biofuels analytics. S&P Global Platts is a leading provider of energy and commodity market data. We provide news, market commentary, fundamental data and analysis, thousands of daily price assessments, and analytical tools to help customers spot and seize opportunities with confidence.

I've been analyzing biofuels markets for nearly 10 years during which I have seen conventional biofuel RINs rise from pennies apiece to as much as \$1.40.

RINs, which are currently hovering around five-year lows, are of great interest to our clients and to the agricultural biofuels and petroleum industries in general.

RINs are the currency of the renewable fuel standard—the RFS. Refiners and importers that are subject to the RFS prove compliance with their renewable volume obligations by retiring RINs at the end of each compliance year.

Obligated parties can obtain RINs by physical blending or by purchasing them on the open market. RINs are typically traded on a bilateral basis and off exchange. Independent pricing organizations like S&P Global Platts have shined a light on the opaque markets by publishing RIN price assessments.

Some RINs are more versatile than others and can be used to satisfy multiple mandates. For instance, a D4 RIN with the production of biodiesel can be used to satisfy three of the four mandates. The most common RIN, a D6 RIN, generated from corn ethanol, can only be used toward the total renewable fuel mandate.

Adding to flexibility, all RINs have a two calendar year lifespan. Unused RINs can be carried over to the next year with some limitations.

The government publishes extensive aggregated monthly data on RIN generation and renewable fuel production. It's also responsible for making decisions on small refinery hardship exemptions.

Exemptions lower the number of RINs needed to satisfy the annual mandates. Currently, small refinery hardship exemption decisions are not made public. This makes analyzing RIN supply and demand challenging.

Earlier this month, S&P Global Platts and other news organizations broke news as to how many small refinery exemptions were issued.

In a letter to Senator Grassley, the government confirmed that it had granted 19 out of 20 waivers for 2016. Further, for 2017, 29 of 33 petitioners were granted exemptions with the four remaining still pending.

In total, 48 exemptions have been granted over the past two years with a total exempted renewable fuel volume obligation of approximately 2.25 billion RINs.

Recent court decisions have also had an effect on RIN supply. A few cases including one that was decided by the Fourth Circuit Court of Appeals last Friday have overturned denials of waiver petitions.

In *Ergon-West Virginia vs. EPA*, the court vacated a denial of the small refinery exemption, saying that it was arbitrary and capricious. If this decision opens the door to more litigation that leads to restatement of retired RINs, supply demand in prices would be affected.

When compared to other policy-driven environmental commodity markets, a key distinguishing characteristic of the RINs market is that it is a floor and trade system rather than a cap and trade system.

This ensures that a minimum volume of biofuels is blended into the transportation pool. Cap and trade sets a cap for behavior that the government seeks to limit and penalizes companies that exceed the cap.

On the other hand, under the RFS, the government sets the floor and companies are penalized if they don't blend enough to meet their RVOs or do not acquire a sufficient amount of RINs in lieu of blending.

RINs of the same year and category are priced the same anywhere in the country. RINs do not have the same complications across state lines that renewable energy certificates often have.

Unlike the RINs market, renewable energy certificate policies are set by individual states and require electricity suppliers to account for a certain percentage of the final sales customers with particular kinds of renewable power.

Renewable energy generation creates certificates which are regional tracking systems. Individual states decide targets and which types of certificates can be used for compliance.

Thank you for the opportunity to provide the statement at such an important time. I welcome any questions you might have.

[The prepared statement of Mr. Lavinsky follows:]

**U.S. House of Representatives Energy and
Commerce Committee, Subcommittee on
Environment Hearing**

**“Background on Renewable Identification
Numbers under the Renewable Fuel Standard.”**

Testimony of
Corey Lavinsky
Global Biofuels Analytics
S&P Global Platts

July 25, 2018

Chairman Shimkus and Ranking Member Tonko, thank you for inviting me to speak today. I'm grateful for the opportunity to share information for this hearing: "Background on Renewable Identification Numbers under the Renewable Fuel Standard."

S&P Global is a leading provider of ratings, benchmarks, analytics and data to the capital and commodities markets worldwide. S&P Global's insights and commitment to transparency, integrity, and superior analytics have been at the forefront of U.S. economic growth since the company's founding over 150 years ago. Two of our flagship products, the S&P 500® and the Dow Jones Industrial Average®, are widely accepted as the leading measures of U.S. equity market performance.

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Since 2016, I have been the Director of Global Biofuels Analytics at S&P Global Platts, following its acquisition of PIRA Energy Group. I have been analyzing biofuels markets for nearly ten years, during which I have seen conventional biofuel RINs rise from pennies a piece to as much as \$1.40. RINs, which are currently hovering around five-year lows, are of great interest to our clients and to the agricultural, biofuels and petroleum industries in general.

RINs are the currency of the federally-mandated Renewable Fuel Standard (RFS). Refiners and importers that are subject to the RFS prove compliance with their Renewable Volume Obligations (RVOs) by retiring RINs at the end of each compliance year. Obligated parties can obtain RINs by physical blending or by purchasing them on the open market.

Each obligated party must comply with four mandates: total renewable fuels, advanced biofuels, biomass-based diesel and cellulosic biofuels. Some RINs are more versatile than others and can be used to satisfy multiple mandates. For instance, a D4 RIN generated with the production of biodiesel can be used to satisfy three of the four mandates (total renewable fuels, advanced biofuels, and biomass-based diesel). The most common RIN, a D6 RIN generated from corn ethanol, can only be used toward the total renewable fuel mandate. Adding to flexibility, all RINs have a two calendar-year lifespan. Unused RINs can be carried over to the next year, with some limitations.

RINs That Can Be Used To Meet Each Mandate	
<u>Mandate</u>	<u>Allowable D codes</u>
Cellulosic biofuels	D3 and D7
Biomass-based diesel	D4 and D7
Advanced biofuels	D3, D4, D5, and D7
Total renewable fuels	D3, D4, D5, D6, and D7

Over time, RINs have become tradeable instruments, typically traded on a bilateral basis and off exchange. Independent price reporting organizations, like S&P Global Platts and other entities have shined lights on the opaque markets by publishing RINs price assessments.

As in most commodity markets, RINs prices are generated by the interaction between RINs' supply and demand. However, some specific characteristics make the RINs price mechanism slightly more complicated to analyze: for instance, RINs may be subject to exemptions, are vulnerable to court cases, are typically traded Over-the-Counter, i.e. off the Commodity Exchanges, and present variances. As a result, RINs lack the degree of transparency typical of other commodities such as oil and gas futures contracts.

While data is available, it isn't as complete as some would prefer. The Environmental Protection Agency (EPA) publishes extensive aggregated monthly data on RIN transactions and renewable fuel production. The EPA is also responsible for making decisions on Exemptions. Exemptions lower the number of RINs needed to satisfy the annual mandates. Currently, the EPA's small-refinery-hardship exemptions are not currently public information, but fall under 'confidential' business information. This makes analyzing RIN supply and demand more challenging for the marketplace.

Also, in the Exemption process, upon deciding that a waiver is warranted, the EPA has the power to reinstate previously-retired RINs, which allows the obligated party to use them or sell them.

Earlier this year, S&P Global Platts and other news organizations broke news as to how many EPA small-refinery exemptions were issued. In a letter to Senator Grassley, the EPA confirmed that it granted 19 out of 20 waivers from small refineries for 2016. Further, for 2017, 29 of 33

petitioners were granted exemptions, with the remaining 4 still pending. In total, 48 exemptions have been granted over the past two years, with a total exempted renewable fuel volume obligation of approximately 2.25 billion RINs. Only 1 waiver request was denied.

Recent court decisions have also had an effect on RIN supply. A few cases, including one that was decided by the 4th Circuit Court of Appeals last Friday, have overturned denials of waiver petitions. In *Ergon-West Virginia v. EPA*, issued last week, the Court vacated the EPA's denial of a small refinery exemption, saying it was "arbitrary and capricious." If this decision were to open the door to future lawsuits that lead to reinstatement of retired RINs, supply, demand and prices would be affected.

Policymakers, including Secretary of Agriculture Sonny Perdue, have called on the CME Group and ICE exchanges for ideas as to how to make the market more transparent. Policymakers also put emphasis on market safeguards. While the Commodity Exchange Act authorizes the U.S. Commodities Futures Trading Commission to set speculative position limits, RINs are not currently subject to such speculative position restrictions.

The RINs market shares both similarities and differences with other policy-driven environmental commodity markets (i.e. for SO₂, CO₂ emissions, for renewable electricity generation). A key distinguishing characteristic of the Renewable Fuel Standard (RFS) is a "floor and trade" system, rather than a "cap and trade" system. This ensures that a minimum volume of biofuels is blended into the transportation pool. Cap and trade sets a cap for behavior that the government seeks to limit, and penalizes companies that exceed the cap. On the other hand, under the RFS, the government sets the floor and companies are penalized if they do not blend enough to meet their RVOs or do not acquire a sufficient amount of RINs in lieu of blending.

The federal SO₂ Title IV Acid Rain program, established by the 1990 Clean Air Act amendments, was the first national cap and trade market, covering emissions from power plants. Covered emitters are required to submit an allowance for every ton of SO₂ emitted, and the fixed supply of allowances (the cap) limits total emissions. Quarterly data releases from the EPA indicate detailed emissions (and thus compliance obligations) of every covered power plant. Public reports in the program's Allowance Tracking System include snapshots of allowance holdings by individual account, allowance transfers between accounts and compliance and banking. Helping with pricing, formation, the EPA holds annual auctions of SO₂ allowances, both spot and 7-year advance, and publishes auction results and resulting clearing prices.

Among the key current U.S. environmental commodity markets are two cap-and-trade programs to regulate greenhouse gas emissions: 1) the California/WCI economy-wide cap and trade program (linked to Quebec) and 2) the nine-state power sector Regional Greenhouse Gas Initiative (RGGI). Both have been designed and administered at regional rather than federal level. Both include quarterly allowance auctions and have policy design elements to provide both a floor and various ceilings to allowance prices. The California program has implemented allowance holding limits on market entities.

RINs are mostly traded in bilateral transactions through brokers. In June, the EPA reported that around 1.6 billion RINs were generated, even as the ICE Exchange reported only 10 lots. By comparison, 68 thousand lots of California Carbon Allowances (CCA), 34 thousand lots of Renewable Energy Certificates (RECs) and 23 thousand lots of RGGI allowances were traded. While RINs are not available at auction, California cap and trade as well as RGGI allowances are regularly made available at quarterly auctions as part of the programs' designs.

RINs of the same year and category are priced the same anywhere in the country. RINs do not have the same complications across state lines that RECs often have. Unlike the RINs market, Renewable Energy Certificates policies are set by individual states and require electricity suppliers to account for a certain percentage of their final sales to customers with particular kinds of renewable power. Renewable electricity generation creates RECs, which are tracked through regional tracking systems. Individual states decide targets and which types of RECs can be used for compliance.

As with any commodity, transparency goes a long way to properly functioning markets – be it policy transparency, pricing transparency and or policy application and exemptions transparency. RIN fraud was a headline-grabber several years ago when several individuals and companies were charged with fraud for claiming credits for biodiesel they never produced. However, since then safeguards, such as the third-party quality assurance program, have been put in place to underpin proper functioning of the marketplace and market participants.

Thank you for the opportunity to provide this statement at such an important time. I welcome any questions you might have.

Mr. SHIMKUS. Thank you very much and I thank you all for your testimony and we'll now move to the question asking portion of the hearing. I will begin the questioning and recognize myself for 5 minutes.

I understand RINs are used by obligated parties to demonstrate compliance with the renewable volume obligations set by the EPA and that those volumes are based upon energy information and administrative numbers and projections.

Ms. Dunphy, are those Energy Information Administration projections and, by extension, the RVOs based solely on past biofuel production levels or do they reflect realistic growth in biofuel production capacity?

Ms. DUNPHY. Thank you, Mr. Chairman.

The annual RVOs are set by EPA using the EIA forecast for gasoline and diesel demand for the coming year, and if you think of the way the allocations work among the refineries, the EPA's job is to come up with a percentage that each refinery can use to calculate their obligation and there's a percentage for each of the four compliance categories that they multiply how much gasoline and diesel they may buy.

To come up with that, they forecast what renewable fuel is going to be available for introduction into the U.S. market. That becomes the numerator of the fraction. The denominator is gasoline and diesel. You come up with a percentage for all four categories.

So it actually is a forward looking fraction, if you will, that creates this percentage that the oil companies use in the next year.

Mr. SHIMKUS. Thank you.

Mr. Lavinsky, in your testimony you note that in your 10 years of analyzing biofuels you have seen RIN prices go from pennies to as much as \$1.40.

What usually causes such changes to the price? Is it market related or more affected by regulations and policy actions?

Mr. LAVINSKY. Thank you for your question.

Historically, large movements in RIN prices can be tied to spikes in ethanol prices due to higher feedstock costs. Higher mandates also contribute. In 2013 when RIN prices reached their peak, corn prices were over \$7 per bushel and they're currently only around \$3.25 now, and while ethanol prices were about \$1.18 per gallon more than they are now. There are usually small policy bumps in prices each year as new mandates are proposed in the spring and finalized around November. But they're not comparable in size to the spike 5 years ago.

Currently, the low RIN prices now are the result of a record domestic ethanol production and consumption and this abnormally high RIN bank.

Mr. SHIMKUS. Thank you. Some stakeholders had expressed frustration with the transparency of the RIN market—I think we've heard that today from some of you all—including what information is available to the public, when it's available, and what information is deemed confidential business information and who is trading in the market, among other concerns.

Is there a RIN market transparency issue and, if so, quickly, what would be some of the benefits of a more transparent market?

And this is for the whole table. So Mr. Yacobucci, if you would start and then we'll just go down the table.

Mr. YACOBUCCI. Certainly, there is limited information that's available. For example, EPA maintains a spreadsheet of literally thousands of companies that are required to comply with various fuel requirements under the Clean Air Act.

It is difficult from that current database to figure out which RIN participants are individual trading companies versus subsidiaries of a large company and so being able to suss out who is performing, trading, and participating in the MTS as an independent third party versus a subsidiary of a biofuel company or an oil company with refining. Those sorts of information are very difficult to suss out currently.

Mr. SHIMKUS. OK. Let me go to Ms. Dunphy.

Ms. DUNPHY. Yes. The other—

Mr. SHIMKUS. And I only have a minute left so try to be real—

Ms. DUNPHY. Yes. Other panelists are probably more expert on this—

Mr. SHIMKUS. OK.

Ms. DUNPHY [continuing]. But there are private contracts where the RINs transact on the intraday basis. So it's not public information.

Mr. SHIMKUS. OK. Mr. Niznik.

Mr. NIZNIK. Yes. Argus Media is a price reporting agency that tracks data and marketplace transactions.

We track RINs transactions from real market participants' reporting of actual trades. So that's how we gather data on pricing.

Mr. SHIMKUS. OK.

Mr. NIZNIK. And still, even at that level, we can't have the understanding of full volumes of the marketplace at any one given time that would be able to elucidate any issues on market manipulation.

Mr. SHIMKUS. Dr. Lade.

Mr. LADE. I echo a lot of the other participants' statements here. However, I would say, more on the transparency side it's really the policy signal that has been driving much of the volatility recently.

Mr. SHIMKUS. Mr. Lavinsky.

Mr. LAVINSKY. Some companies occasionally report that they received a waiver in the public filings. So sometimes we get additional information through the public filings that wouldn't otherwise be available.

Mr. SHIMKUS. That's awesome. Thank you very much.

I yield back my time and turn to the ranking member, Mr. Tonko, for 5 minutes.

Mr. TONKO. Thank you, Mr. Chair, and Mr. Yacobucci, thank you for your work with CRS.

EPA signed a memorandum of understanding with the Commodity Futures Trading Commission in 2016. As I understand it, only EPA has the authority over the RIN market. Is that true?

Mr. YACOBUCCI. Currently that is the case that EPA has the only regulatory authority. Congress has not granted CFTC specific authority to regulate that market.

Mr. TONKO. Thank you. So rules that govern other markets—regulations prohibiting speculative practices like spoofing where a

buyer initiates an order for a commodity they do not intend to complete for the purposes of influencing the price of that commodity—do not apply to the RIN market. Is that correct?

Mr. YACOBUCCI. As I understand it, but this is more out of my area of expertise. I am not as familiar with CFTC regulations.

Mr. TONKO. Is there any way to track this type of thing with EPA's monitoring system?

Mr. YACOBUCCI. Certainly that has been one of the criticisms is because there is such limited data publicly available that it's hard to tell, again, who's participating and what actions they might be taking.

Mr. TONKO. Thank you. And if Congress were to subject this market to a regulator, would the CFTC be the most appropriate regulator?

Mr. YACOBUCCI. I would defer to Congress on their decisions on that.

Mr. TONKO. Thank you. Proper functioning of markets requires transparency and market participants need to have reliable information about prices and supplies.

You point out in your testimony there is little public information on the volume or price of RIN trades. This doesn't sound very transparent to me.

How can buyers and sellers be sure they are trading at a fair price?

Mr. YACOBUCCI. I would defer to some of the other witnesses on that question.

Mr. TONKO. OK. Anyone on the panel want to take a stab at a comment there?

Mr. NIZNIK. Well, the price-reporting agencies do have the ability to do price discovery and most of the transactions that occur, both from buyer and seller, are usually benchmarked to RINs prices published by either my company or, if I am being generous, Mr. Lavinsky's company also, and those are private price discovery agencies, though, requiring subscriptions.

Mr. TONKO. Anyone else want to comment on that?

Mr. LAVINSKY. I am part of the analytics team, not the pricing team, but I can discuss it with them and provide you with an answer for the record after the hearing.

Mr. TONKO. Thank you. And Dr. Lade?

Mr. LADE. I would argue that most of the uncertainty is around trading volumes rather than the price.

Mr. TONKO. Thank you.

RINs are created and sold within a compliance year with some limited ability to carry over some RINs into the next compliance year.

What effect does a delay in the release of the annual RVO have on the RIN markets? Anyone?

Ms. DUNPHY. I will go ahead and try to answer that, sir.

Mr. TONKO. Thank you.

Ms. DUNPHY. So the RVO, more recently in the last couple of years, have come out on a timely basis—by November the 30th is what's required by law.

Mr. TONKO. Thank you. And we are referring to the RIN market as if there is only one type of RIN. But, of course, that's not the case.

RINs attach to biodiesel or advanced biofuels trade at different prices than RINs or conventional ethanol. What is the effect of RIN prices on the development and production of advanced biofuels?

Mr. NIZNIK. I will answer that. I work on due diligence for people who are investing particularly in advanced biofuel projects.

For advanced biofuel projects that might use an advanced RIN or a D4 RIN or a cellulosic RIN—those are the top three category RINs, the advanced biofuel RINs—the variability in that area and, more importantly, on certainty of the policy moving forward are critical because none of those projects can go forward without the RFS RINs price incentive making those fuels possible to be blended in the marketplace economically.

Mr. TONKO. Thank you. Has RIN market volatility affected all biofuel markets to the same degree?

Mr. NIZNIK. No, it has not, sir. The biofuel markets for D4 RINs from biodiesel are more stable than the biofuel markets for D6 RINs from ethanol primarily because of D4's ability within the rules to replace the costs of a D6. They are a market setter.

When the D6 RIN is short, you replace them with a D4 RIN so that if it's a short D6 marketplace, the D6 RIN is now suddenly at the D4 price. But the D6 marketplace is long and oversupplied, then it can drift downward to another level and so volatility can be higher in that space.

It almost has a binary value. Essentially, under current market conditions if you had more than enough D6 RINs, the D6 RINs would be essentially around 3 cents or zero because it's very, very economical to blend ethanol to gasoline.

But when that marketplace is short because of the regulations or otherwise, it will jump up to the D4 price.

Mr. TONKO. Thank you, and I yield back, Mr. Chairman.

Mr. SHIMKUS. Clear as mud, right? Clear as mud. You got that. [Laughter.]

Mr. NIZNIK. That's how it is. Sorry.

Mr. SHIMKUS. The chair recognizes the chairman of the full committee, Chairman Walden, for 5 minutes.

Mr. WALDEN. Yes. Thank you for this enlightening discussion.

I am sitting here wondering what all this costs consumers but we'll get to that at another time.

As an Oregonian, we've had a lot of talk about biomass and what we can do with the wastes from the forests and all—and I know, Ms. Dunphy, in your testimony you talked about the inconsistencies and barriers that prevent some renewable fuels from qualifying for RINs.

Do you think we are missing out on some opportunities to better integrate woody biomass into the fuel supply due to the way the RFS regulations are written?

Ms. DUNPHY. Yes, and I think history has proven that. We only have one company today in the U.S. after all these years of the program using woody biomass as a feedstock to produce a renewable fuel that makes RINs.

Mr. WALDEN. Well, that is something we'll look at, I guess. Probably have to change it congressionally, right? Is that something—

Ms. DUNPHY. I think we need clarification in the current regulatory language to enable EPA to determine which of the woody biomass feedstocks falls under the existing categories.

So the pathways exist today but they need clarification.

Mr. WALDEN. OK.

Mr. YACOBUCCI. And I would just add that there is a much more complex definition of what qualifies as qualified biomass under the 2007 law than was in the original 2005 law and that has added to that complexity. So there are regulatory definition issues but there's also the statutory definition as well.

Mr. WALDEN. I remember those debates on this committee when some of the advocates for this tried to argue that woody biomass of a Federal forest was somehow not renewable energy but if it was on the other side of the line—the same trees falling different sides—then it would be and it had no scientific basis. It was all political and results in this complicated mess.

Mr. Lavinsky and Yacobucci, what are the key challenges you see facing this RINs market now and what do we need to do here, if anything, from your perspectives.

Some may not want to suggest policy so I will ask it in the other way. What are the challenges facing the RINs market?

Mr. LAVINSKY. I would say one challenge is managing the opposing opinions as to whether RIN obligations need to be reallocated from the granting of small refinery waivers.

Small refinery waivers are mostly issued after the year has ended and obligated parties have already submitted their RINs and compliance.

So, to date, waivers have been issued retroactively. Retired RINs have been reinstated. But RIN obligations have not been reallocated.

Mr. YACOBUCCI. And I would just add to that, it's not just the small refinery exemptions. It is the timeline for rulemakings.

It is the level that EPA sets because under the statute the EPA has the authority to lower the targets from what they were—the targets set in law. All of these different pieces, whether it's the specific waivers against the overall caps, individual waivers for companies, whether you're talking about refiners, you're talking about biofuel producers, all the participants in the market have raised issues in one form or other about uncertainty and that's what drives a lot of this, and Mr. Niznik has talked about how that's affected the markets and there's just all these questions about what is the current demand for fuel, given the different levels as they change.

Mr. WALDEN. So for any of you, what's your assessment with how well the EPA has overseen the RINs market and implementation and where is there room for improvement there?

Ms. DUNPHY. So I think the EPA does a pretty good job at administering the regulations as they were written. But the RIN market oversight is missing. There's really not any oversight of the trading activity of RINs by the—

Mr. WALDEN. Anywhere? Is there anywhere?

Ms. DUNPHY. Not to my knowledge.

Mr. WALDEN. Should there be?

Ms. DUNPHY. That's your call.

Mr. WALDEN. Oh, I see how this works. Yes.

Anybody else want to weigh in on that topic, about the EPA's oversight and what we should or shouldn't do?

Mr. NIZNIK. There's some hardworking folks down there and they are administering—

Mr. WALDEN. Oh, yes.

Mr. NIZNIK [continuing]. And they're administering very well. If you look at the public record on the rulemakings you can see a lot of input from multiple departments, some of which I've worked with under consulting before and there's a broad base of information being put into the decision making from both the USDA and EIA at every step.

So the ability to make a good decision as best as humanly possible is there, in my opinion, based on the regulations and the review process necessary to do so. Whether or not the ultimate human decision at the end is qualifiably good is up to this body, Mr. Chairman.

Mr. WALDEN. Well said. Thank you. All right. That's my time. Thank you, Mr. Chair.

Mr. SHIMKUS. The chairman yields back his time.

The chair now recognizes the gentleman from California, Mr. McNerney for 5 minutes.

You don't want to go?

Mr. MCNERNEY. I do. I just thought that the ranking member of the full committee was here. Thank you.

Well, I hear from the testimony this morning that the RINs volatility is due to three factors. One is commodity prices, one is uncertainty in the market, and the other is fraud. Is there anything I am missing in that list?

Mr. NIZNIK. There are other fuel quality regulations and state and local incentives for biofuels usage or petroleum usage that can weigh in onto the RINs price.

Mr. MCNERNEY. So it might be good then to have Federal standards that override state rules?

Mr. NIZNIK. If you want another civil war.

[Laughter.]

Mr. SHIMKUS. Would the gentleman yield?

Mr. MCNERNEY. Sure.

Mr. SHIMKUS. But isn't that like when a state might provide an incentive through a local percentage or tax incentive or something that—it's not just a fuel incentive. It could be just in a policy incentive?

Mr. NIZNIK. Yes, sir. That's what I am talking about. Either a tax that is for production, taxes that are for sales can weigh very heavily and on the national level one of the most important factors on RINs price is the biodiesel blenders' tax credit, which can come back retroactively or can come back actively in any given year, depending on the actions of this body.

Mr. MCNERNEY. OK. Thanks. Reclaiming my time.

Some of the solutions I hear are transparency, rational consistency, referring to Ms. Dunphy's list of items, and clear, predictable simple rules.

Are there other factors that would be helpful?

Ms. DUNPHY. If you can do clear concise long-term rules that would make everyone in the market very happy.

Mr. MCNERNEY. So how has the volatility of the past 3 years compared to prior years before that?

Mr. NIZNIK. Are you saying price volatility, sir?

Mr. MCNERNEY. Right. RINs price volatility.

Mr. NIZNIK. Actually, RINs price volatility was relatively calm, I would say, during 2016 and 2015. But at the end of 2016, with the administrative change, there's been a large amount of policy uncertainty-driven price behavior.

Mr. MCNERNEY. But you mentioned that the EPA's guidance helped stabilize the market.

Mr. NIZNIK. In 2015. Yes, sir.

Mr. MCNERNEY. Oh, so that's—

Mr. NIZNIK. That's the last time things got kind of rational for a while. Yes, sir.

Mr. MCNERNEY. OK. Thank you. I didn't understand that.

So how much have the small refinery waivers contributed to the volatility?

Ms. Dunphy.

Ms. DUNPHY. So small refinery waivers, as has already been said, are given retrospectively. So they are granted after the compliance year is over with.

So to some extent the news of the waivers did impact the market, which—because they weren't aware of the waivers prior to those most recent announcements. But the waivers themselves are retrospective. So individual waivers don't have an impact on the market when they're granted.

Mr. MCNERNEY. OK. Thank you.

Dr. Lade, you testified that the consumer prices go one to one—consumer price impacts—but are all refineries impacted similarly or do some refineries impacted more drastically by RINs' market than others?

Mr. LADE. The empirical evidence to date is that all refiners are—in the economics literature all refiners are affected similarly and I've looked at—again, more data and more research is necessary, particularly looking at markets and there are members of the academic community looking at that.

But by and large, there's been a consistent consensus that on average these wholesale prices are adjusting to compensate for refiner costs.

Mr. MCNERNEY. Aren't the large refineries able to produce their own RINs? Aren't they affected less, or even make a profit off RINs?

Mr. LADE. Correct. However, you're either going to produce your own RINs in house if that is the most cost-effective way to comply with this or you—if it's not cost-effective for you to comply then you will purchase RINs from those who can produce RINs even cheaper than this.

And so this is the beauty behind the market-based mechanism here that it allows parties to decide whether it's more cost-effective to get into the biofuel business or to just purchase RINs from people who are better at producing biofuel.

And so either way, that cost is borne. It's just whether it's borne through biofuel production or through RIN purchases.

Mr. MCNERNEY. Yes, but the problem in my mind is that the large producers are producing RINs and selling them so they're getting a double benefit whereas the small refiners are having to buy RINs. So they're paying for it.

Mr. LADE. That's a great point. Similar as to the side where when you're having to pay for these RINs and you then are compensated for that through higher wholesale gasoline prices.

Whether or not these oil refiners who are producing RINs upstream through biofuel production, whether they actually get to keep that depends on what happens to downstream consumer prices and work of my own has shown that ethanol prices are actually being—this incentive is being passed through to consumers.

Therefore, it wouldn't actually be impacting those refiners. The consumers are benefiting from the RINs on the ethanol side.

Mr. MCNERNEY. OK. I don't quite follow that, but I will yield back my time.

[Laughter.]

Mr. SHIMKUS. I love this hearing. So the gentleman yields back his time.

The chair now recognizes the gentleman from West Virginia for 5 minutes.

Mr. MCKINLEY. Thank you, Mr. Chairman. Just a point of personal privilege. I would like to recognize in the audience—he was my mentor when I joined the Energy and Commerce Committee—Ed Whitfield back there. Thank you. Thanks, and you have showed you have not deviated one bit from your interest in energy. So thank you for coming.

Mr. Lavinsky, you kind of took the wind out of my sales. I wanted to talk about that Fourth Circuit—the ruling on Friday, because it overturned the previous denial from the EPA for Ergon, which is just a boutique refinery in West Virginia, and they've been burdened with this. Think about for all of us to understand this, here we have a boutique refinery, 23,000 barrels a day, and they're faced with the same issues that, like, Marathon is. Marathon refinery. It's a hundred times larger.

That doesn't seem right. We should be able to differentiate between these and provide these hardship grants, waivers, for some of these small—think, a hundred times larger, because we know that for Ergon in West Virginia it's the third biggest expense they have behind raw materials and labor, and what they—the biofuels industry has argued that granting these small refineries like the one at Ergon this hardship exemption was going to result in demand destruction.

So I want to go to Ms. Dunphy and say in a kind of a yes or no, if you could, please, do you believe that granting these small refinery hardship exemptions result in less renewable fuel being included?

Ms. DUNPHY. So as I mentioned earlier, the small refinery waivers are granted retrospectively. So the compliance year has already passed.

But every refiner assumes that they're going to be an obligated party during that year and they will continue to blend renewable

fuels and buy RINs as needed because they don't know that they're going to get the exemption at the 12th hour when they go to report to the EPA by March the 31st of the following year.

So I suggest that you all definitely talk to the small refineries in the U.S. and ask them if they have changed their blending policies because they think they're going to be exempted for the year and I think you will find that they have not changed their blending policy. They continue to blend. They continue to purchase RINs. What they do is focus on current year RINs rather than the 20 percent prior year.

So if they get the exemption they still will be able to use the current year RINs in the next year. So that puts more RINs into the market. We understand that. But does it destruct the demand of the current year?

I would say that if you look at the RIN data through June we are at the same production level that we were in 2017 and we are halfway toward meeting the 2018 compliance RVOs. So whether that will hold true for the entire year I don't know.

Mr. MCKINLEY. The EIA had come out—I saw some information yesterday on the EIA that said that actually the blending over the first part of this year—there was 6 months, 7 months—we are actually up over last year—that actually we are increasing.

So despite having all of these small refinery exemptions, is this a confirmation that small refinery exemptions do not destroy the demand for renewable fuel?

Ms. DUNPHY. We should remember that refiners would probably blend ethanol regardless of whether there was an RFS or not because ethanol represents a very good source of octane. It helps them meet their gasoline, sulfur, and benzene requirements.

So they have an incentive to blend ethanol and they're going to do that. So I would say that the data through 6 months for the EMTS data that's published that anyone can see—it's public information—shows that we are on track with last year.

Whether that will continue through the rest of the year, I can't predict.

Mr. MCKINLEY. Thank you.

Mr. Yacobucci.

Mr. YACOBUCCI. Just one open question is whether or not a prior year's waiver creates a supply, potentially—and increased supply of carry forward RINs that a refiner can use, because a refiner can use either this year or last year's RIN to meet this year's obligation and that's the question going forward is if there's more of last year's RINs available what does that do to the market?

I think that's still an open question.

Mr. MCKINLEY. Let's stay with you just for a minute.

With the original intent of this RFS and RIN program, have we achieved that objective that we set out on that or have we created a confusing and costly commodity system? What would be your opinion?

Mr. YACOBUCCI. In terms of congressional intent, I wouldn't speculate. I will say that there are no congressional findings or specific stated goals in the statute.

And so various players have attributed various goals to the program, whether that is increasing agricultural production, raising

farm incomes, reducing imports of fuel. Certainly, increased biofuel use has displaced petroleum use. There have been economic benefits to agricultural states from the program.

If you consider those to be the goals of the RFS, then yes, they have been successful. Is the program complicated? Certainly.

Mr. SHIMKUS. The gentleman's time is expired.

Mr. MCKINLEY. My time has expired. I yield back.

Mr. SHIMKUS. The gentleman yields back his time.

The chair now recognizes the gentleman from Mississippi, Mr. Harper, for 5 minutes.

Mr. HARPER. Thank you, Mr. Chairman, and thank you each for being here. It is a topic every time I read it I think I come away and study it—I come away more confused than when I started that study. So thank you very much.

Mr. Yacobucci, if I could ask you and I certainly agree with what Mr. McKinley has said. But I wanted you to just try to educate me as best you can.

Give me a brief explanation of the terms RIN long and RIN short so I can understand that.

Mr. YACOBUCCI. I would defer to Mr. Niznik on that. It's his term.

Mr. HARPER. OK. Mr. Niznik.

Mr. NIZNIK. I apologize for confusing the committee. I come from the trading world, which has got its own language.

Mr. HARPER. Yes.

Mr. NIZNIK. When we say long, we mean over supplied.

Mr. HARPER. OK.

Mr. NIZNIK. And when we say short, we mean under supplied. So to apply that to Ms. Dunphy's statement from before, if previous year obligations got waived under a small refinery exception and those RINs were suddenly dumped back into the market, it could cause a case of long or over supply of RINs that weren't expected to be in the market.

Mr. HARPER. OK. So explain why some companies are RIN long and some are RIN short a little further so that—if they have an over supply—

Mr. NIZNIK. Yes. You would say they're over supplied for what they might need for their obligation for this year.

Mr. HARPER. OK.

Mr. NIZNIK. So they may say oh—or if they perceive they will be long—and this is more important is the perception—if they perceive they're going to be over supplied then they're not willing to pay a certain price. They're going to depress the market price because they're less interested in a purchase.

Mr. HARPER. And certainly when you're looking at some of the smaller refineries, for instance, and all of these waivers are done retrospectively, as Ms. Dunphy pointed out—the way that it's set up—what would happen if all of a sudden they were done prospectively.

You have been getting them each year and you just planned ahead. You knew, hey, you have done that—probably going to be like that next year—we are going to go ahead and tell you now on the front end. How would that impact it, Ms. Dunphy?

Ms. DUNPHY. According to the regulations today, the EPA would take that into consideration. In the fraction I mentioned earlier where the renewable fuels are the numerator and gasoline and diesel demand is the denominator.

Today, those small refineries are in there because the EPA doesn't know that they're not going to be exempted.

Mr. HARPER. OK.

Ms. DUNPHY. If they get exempted, they come out of the denominator. That makes the overall fraction greater for all of the other obligated parties who don't qualify under that small refinery.

So, obviously, Mr. Niznik, jumping back to that, companies that are RIN long obviously have a competitive advantage over the those that are RIN short?

Mr. NIZNIK. Yes. So that's a business strategy that they may employ to be—to take advantage of the rules as they're written, just like someone might take advantage of the tax code or any other code. Yes.

Mr. HARPER. Sure. All right. Well, let's talk for a minute regarding RIN fraud, and I know that's an issue. What instances are unreported and what other types of fraud are possible in the future and what are the implications of this fraud? Who would like to answer that?

Ms. Dunphy.

Ms. DUNPHY. I will go ahead and answer that.

So the RIN fraud cases have decreased in number over the years and many of the RIN fraud cases involve a period of time when the RFS was relatively new to the market, so 2010, 2011, 2012.

I would say the current instances of potential RIN invalidity relate to exports of renewable fuel for which RINs are not retired because remember that renewable fuel can be blended into petroleum, gasoline, or diesel and that blend can be exported from the United States and calculating how much renewable fuel is in that blend is difficult.

But yet, it's required under the regulations that a certain amount of renewable fuel RINs be retired.

I would say RIN fraud of the future it's all about feedstock and use of the fuel.

Mr. HARPER. OK. Explain that a little further.

Ms. DUNPHY. OK. So RIN fraud, basically, doesn't happen on the use side. It happens at the generated side. So if I use a feedstock that does not qualify, I shouldn't be making RINs.

If I take the feedstock that qualifies and I use a process and I produce a fuel but I put it into an ocean-going vessel, for example, I am supposed to retire those RINs or I shouldn't have made them in the first place.

So I see the RIN fraud potential of the future being feedstock or use, but it's much less today than it was in the past.

Mr. SHIMKUS. Gregg—

Mr. HARPER. Thank you.

Mr. SHIMKUS [continuing]. Mr. Lavinsky wanted to respond to that question.

Mr. HARPER. Yes.

Mr. LAVINSKY. Thank you very much.

Now, one other thing—when you asked for what occurrences occurred in the past, is that a few years back—a handful of individuals and companies would generate and sell RINs for biodiesel that they did not produce—

Mr. HARPER. OK.

Mr. LAVINSKY [continuing]. And that's how they got the RINs in their hands and sold them off and put them into the market.

Mr. HARPER. Thank you. Now I yield back.

Mr. SHIMKUS. The gentleman yields back his time.

The chair now recognizes the gentleman from Texas, Mr. Olson, for 5 minutes.

Mr. OLSON. I thank the chair, and welcome to our five witnesses. A special howdy to the one Texan on the panel, Sandra Dunphy. She lives in Kingwood, Texas, where Ted Poe is her congressman, and my colleagues worry about me bragging about the Houston Astros, World Series champions. Rest assured—

Mr. SHIMKUS. Who? Who?

Mr. OLSON [continuing]. I can't brag about them. Ms. Dunphy can brag for me and she will, she will, she will.

Ms. DUNPHY. Happy to.

Mr. OLSON. An Astros repeat aside, over the years we've heard stories about fraud in the RIN markets. One story I read was titled, "The Fake Factory that Pumped Out Real Money," about a company that made out of thin air 60 million gallons of biodiesel. Wow.

Ms. Dunphy, you said that RINs fraud is much less than today, to Mr. Harper's question. Can you talk about the steps that have been taken to prevent RINs fraud and whether you think more is needed like you talked about with Mr. Harper, please?

Ms. DUNPHY. Yes.

Mr. OLSON. Also you're on deck too, Mr. Yacobucci.

Ms. DUNPHY. Yes, sir. Happy to.

So the making RINs out of thin air, there's two things that really transformed the marketplace since the time that all of this happened.

The first was the EPA initiated a quality assurance plan program, which is optimal for producers to participate and they hire a company like mine to come in and audit what they're doing to make sure they're complying with the rules and we probably have the most stringent quality assurance plan out there in the marketplace today.

The second thing that happened was because the obligated parties had to replace RINs and pay penalties, they do today and started doing even then a much better job at due diligence. So they will research all of the producers of the RINs who they are going to use for compliance.

Mr. OLSON. Thank you.

Comments, Mr. Yacobucci?

Mr. YACOBUCCI. One thing I would just note is there's necessarily a time lag when the fraud occurs to when we necessarily even know about it.

EPA is doing its various inspections, looking at their data. State inspectors may be going out to these different facilities. And then EPA needs to make a decision with the Justice Department wheth-

er or not this is simply a civil violation of the Clean Air Act because Title 2 of the Clean Air Act where the RFS exists only employs civil violations or whether there is criminal action, in which case there's a whole additional amount of time where the Justice Department needs to do their own investigation.

And so as I said, there's necessarily this time lag and so in some of the cases that we are hearing about most recently still go back to that earlier time because they involve wire fraud, tax fraud, and other sorts of things that are outside of EPA's purview and rest with the Justice Department.

Mr. OLSON. Thank you. The next question is for you, Mr. Lavinsky. This is no news, but there has been some serious volatility in RINs prices in recent years.

What sticks out in my mind January of 2013 to March of that same year RINs prices were about 1 to 2 cents in January, spiked up to almost over \$1 2 months later in March. A local refiner back home, on paper, lost \$600 million in value just because of the RINs issue.

But now the price is low and that's great. But can you talk about the swings and what drives these RINs swings and how we could prevent them or moderate them?

Mr. LAVINSKY. I could talk about historically. Like I said earlier, historically the big spike that occurred in 2013 was associated with super high ethanol prices and feedstock costs. Corn was \$7 per bushel, more than twice as much as it is now.

So having the really high ethanol and having an increase in the mandate that year—I believe there was a 9 percent increase in the mandate from 2012 to 2013.

So there was a combination of an increase in the mandate coupled with sky-high ethanol prices and feedstock costs and that's what drove that huge spike in RINs, which is incomparable.

It has not repeated itself. There has been volatility over the last 3 years but nothing like it was in 2013.

Mr. OLSON. Another question—do you think market transparency can add the clarity to what happens in a few years when EPA takes over the settling the mandates? Do you think that market transparency helps EPA out or hurts them? How can we prepare for EPA taking over in a couple of years?

Mr. LAVINSKY. Just speaking generally without speaking about the EPA, speaking generally, transparency helps everybody out because it's easy to determine how many RINs are out there, what the true supply and demand are, and if everybody knows what the RIN bank is and how many RINs are on the market then it's easier to pick a price that's fair for everybody.

Mr. OLSON. Thank you.

And one final question, Ms. Dunphy—will the Astros repeat World Series champions?

Ms. DUNPHY. Absolutely.

Mr. SHIMKUS. The gentleman's time has expired.

[Laughter.]

The chair now recognizes the other gentleman from Texas, who's been deep diving on this issue with me all this Congress, so Mr. Flores for 5 minutes.

Mr. FLORES. Mr. Chairman, thanks for holding this hearing. As has been said before, this is the fifth in a series of hearings that we've had as we look at our nation's transportation fuel system.

I think that America needs to be a world leader when it comes to producing efficient vehicles and also having the fuel system that will properly power those as we move forward, and I appreciate this subcommittee's work as we look forward to examine the market and regulatory environments that impact our nation's fuels as we move further into the 21st century.

Some of the reflections that I've had that I've learned so far that were interesting, coming out of this hearing, Ms. Dunphy's comment that even though we've had the small refinery exemptions with the—the EIA numbers show that ethanol demand has still been higher than—or at least equal to last year—than even with that small refinery exemption. So that's been interesting.

Ms. Dunphy, as we all know, many of the statutory provisions and requirements of the RFS programmers sunsetted after 2022. In your view, what does the RIN ecosystem look like after 2022?

Ms. DUNPHY. I think that's a really good question. Certainly, Congress gave EPA more latitude at that point in time for how they structure the program, going forward.

But they do need to take into the consideration the things you ask them to look at—the RFS impact on the economy, on infrastructure, on air quality, water quality, employment, et cetera, et cetera, and to be honest with you, I think that the EPA, in setting standards year after year after year, it's quite burdensome to the staff and it takes a lot of their resources to do that—that they otherwise are not helping their constituents to try to register and do things correctly under the program.

So somehow make it a more simple program and easier to administer.

Mr. FLORES. Would you agree that the ecosystem becomes much less transparent and much cloudier? There's no certainty whatsoever after 2022 for pretty much every player in this market, whether you're a farmer growing the corn or whether you're a refiner, even an automaker, because you don't know what kind of fuels you're going to have. Would you agree that—

Ms. DUNPHY. I would tend to agree that there's a lot of concern as to what will happen to the program after that point in time.

Mr. FLORES. All right. Since uncertainty is bad for the market, to the extent that Congress can help create that certainty we are better off, I would think.

Does anybody disagree with that?

OK. Second question—Mr. Lavinsky, as you pointed out, government policy—and Mr. Niznik said the same thing is that government policy impacts RIN prices.

Can you give me examples of how government policy has impacted RINs prices versus how government policies impacted any other energy commodity? You can pick the one that you're most comfortable with.

Mr. LAVINSKY. OK. Well, policy, I guess, with biofuels, with, certainly, the mandates of government policy and they—according to the RFS they're supposed to go up every year and as they go up it requires companies to do more blending.

Mr. FLORES. OK.

Mr. LAVINSKY. And that has an impact on RIN prices. With regard to the other types of programs, I am part of a larger group that includes a team on emissions. I probably would refer that question to them and provide you with a full answer.

Mr. FLORES. OK. Yes, if you can answer that supplementally that would be great.

Mr. Yacobucci, what impact, if any, has the RIN market and RIN prices had on advanced biofuel production?

Mr. YACOBUCCI. I think it's probably worth turning that question around a little bit and I think it's more important to say that the RIN market for cellulosic fuels has responded to EPA's repeated reductions in that part of the mandate.

So you have these different subcategories—the cellulosic biofuel category, which was originally scheduled in the statute to be the lion's share—16 billion gallons out of the 36 billion gallons that would be required in 2022. But each successive year EPA has made very drastic reductions in—

Mr. FLORES. And that's because we don't have a way to produce it. Yes, I mean—

Mr. YACOBUCCI. Because—

Mr. FLORES [continuing]. The technology is not there. But have RIN prices helped to encourage advanced biofuel production?

Mr. YACOBUCCI. I would refer to my colleagues, if they may comment.

Mr. FLORES. OK.

Mr. NIZNIK. Yes.

Mr. FLORES. Mr. Niznik, they have? OK. All right.

It looks like I am down to 3 seconds so I am going to yield back the balance of my time. Thank you.

Mr. SHIMKUS. The chair thanks the gentleman.

The chair now recognizes the gentleman from Michigan, Mr. Walberg, for 5 minutes.

Mr. WALBERG. Thank you, Mr. Chairman, and thanks to the panel for being here.

And Ms. Dunphy, I refuse to ask you the question that Representative Olson left for me to ask you about Verlander and Cy Young.

[Laughter.]

It just goes on and on, the discussion today. As a theologian, thinking through the Creation story I don't remember that in any of the 7 days that the RIN was created. I will have to go back to the fall of man and see if that was the forbidden fruit. We'll see what happens.

But Ms. Dunphy—

Ms. DUNPHY. The RIN was right after the mosquito.

[Laughter.]

Mr. WALBERG. Right after the mosquito. OK. I will check that out, too.

According to EPA, since December of 2010 it has issued 37 notices of violations regarding RIN fraud. A couple of years ago, EPA issued regulations creating a quality assurance program aimed at cleaning up some of the RIN fraud problems.

Do you believe that the quality assurance program has done a good job of eliminating the problems?

Ms. DUNPHY. I think it's done a very good job. But it is a voluntary program. A producer has to be willing to participate in the program as an auditor.

We are available to producers but they contact us to say hey, I want to participate in the program. It's not an across the board program.

As much as Weaver would love that, because we'd get more work, but it's on a case by case basis, basically, and I think the QAP has helped reduce RIN fraud, yes.

Mr. WALBERG. Well, are there then other areas of RIN fraud that need to be addressed that are missing now? What might you propose to address this?

Ms. DUNPHY. I think that probably the easiest is the export of renewable fuels for which RINs are not retired and I know that EPA is working hard with Homeland Security to look closer at exports to determine if they contain renewable fuel.

Mr. WALBERG. OK. The RIN market is different than any other commodity trading markets. Some have suggested that installing a governing structure to oversee it would help increase transparency and decrease fraud.

How much buyer beware still exists in the RINs marketplace?

Ms. DUNPHY. I think there's still quite a bit, especially for the advanced biofuels. As those transactions are being negotiated, it's the only transactions where the seller must tell the buyer who the renewable fuel producers are of the RINs, whereas on D6 or corn ethanol RINs it's pretty much everyone will accept them.

So the companies have blocked lists in EMTS. This is probably something we haven't talked about. But refiners doing their due diligence have the option to block certain producers and so therefore RINs from those producers can't come into their EMTS account and they use this feature of EMTS after doing due diligence on the marketplace on the producers.

Mr. WALBERG. Added to that, would a governing body be helpful and why?

Ms. DUNPHY. I do believe it probably would be helpful. But it would be an enormous task to set up a RIN trading platform that was administered by either EPA or another body because there are different vintages of RINs. There's the different producers of RINs and there's different RIN codes themselves. So it would be somewhat complex, but it's possible, I guess, and it would be helpful.

Mr. WALBERG. Mr. Niznik, I saw you respond to that. Would you like to add something here?

Mr. NIZNIK. I would like to add, for the record, since this is a public record and it should be true, that I am a member of the State of Texas also and please pass on a note to Mr. Olson to that effect, that he had more representation here than he thought before.

I would agree that there have been multiple attempts, I must say, to put RINs on trading boards, both the Chicago Mercantile Exchange and its previous incarnations and then the International Commodity Exchange—ICE.

Both Argus and, I believe, Platts have participated in trying to be paper benchmarks—to try to be a benchmarkable RIN that you could trade as a future and I would say, without speaking for Mr. Lavinsky's company, that it hasn't been particularly successful in the private sector to attempt to do something that would assure some sort of broader transparency on a board-traded commodity level.

Mr. WALBERG. OK.

Ms. Dunphy, I see I have 8 seconds left. So I would probably better not open it up. But I thank you.

I yield back.

Mr. SHIMKUS. The gentleman yields back his time.

The chair now recognizes the gentleman from Georgia, Mr. Carter, for 5 minutes.

Mr. CARTER. Well, thank you, Mr. Chairman, and thank all of you for being here today. I appreciate it, although I will have to admit it is as clear as mud. It's pretty tough sitting here trying to figure out is this really necessary.

Seriously. Ms. Dunphy, you look like you want to answer that. [Laughter.]

Ms. DUNPHY. Trying to figure out how to answer that question fairly diplomatically, and keep my job—yes.

Mr. NIZNIK. We make a lot of money because of this complex—

Mr. CARTER. Yes, I know. It's just—

Mr. NIZNIK. Thank you. By the way—

Mr. CARTER [continuing]. If we created something just to—

Ms. DUNPHY. Yes.

Mr. CARTER [continuing]. Just to create something.

Ms. DUNPHY. The more complex the regulations the more work we have.

Mr. NIZNIK. Yes, my kids are going to go to college because of you all. Thank you.

Mr. CARTER. I think at the end of the day I think Thoreau is just turning over in his grave right now, just—yes. Simplify, simplify, simplify, and I am just trying to figure out.

But in all seriousness, I will ask questions about it. I am just interested, Mr. Yacobucci, you mentioned in your testimony that there's been concerns with RIN generation since the program's inception and that there's duplicate counting and fraudulent RINs on the market.

How can it be manipulated? I don't really understand how you can manipulate it.

Mr. YACOBUCCI. To the first question, I will say yes, there have been concerns going forward. EPA's stated goal of when they came out with the RFS 2 and the EMTS was to address some of those questions.

Whether or not the current system has succeeded, it's still an open question. To your original question, is it necessary, if you want a market-based system you do need a market. There are simpler systems you could come up with. But they may not provide the flexibility that a market does. So that's a trade-off.

In terms of your question about how fraud can occur, I think Ms. Dunphy has gone through a list of some of those topics. I wouldn't speculate on ways going forward folks could do it.

But, certainly, the ways that EPA has listed are production that has not actually happened where basically a company has just on paper said they have produced fuel that they haven't produced, companies that have produced fuel that doesn't actually qualify because of the feedstock requirements but they've attested that it has, and companies that have exported fuel that's otherwise not eligible because in any case where a fuel isn't eligible those RINs need to be retired and if they're not retired then, those RINs are invalid.

Mr. CARTER. OK. Well, you mention in your testimony also that there are two markets. There's a primary market and there's also a secondary market, and that secondary market, as I understand it, that's where the owners buy and sell the excess RINs.

Mr. YACOBUCCI. Correct.

Mr. CARTER. Can the secondary market impact the primary market?

Mr. YACOBUCCI. I would believe so but I will refer to my market folks.

Mr. NIZNIK. We don't tend to look at it as primary and secondary markets. The RINs are all traded sort of evenly. They don't have any distinguishing characteristics that would attach them to other markets.

So from a price reporting agency standpoint, they're the same market.

Mr. CARTER. Can they have an impact on the price of fuel?

Mr. NIZNIK. They do, yes. So, in fact, we report an aggregate cost of RINs as it would be affecting any gallons sold in the United States. We call it the RVO per gallon cost. Currently, that's around 4 cents per gallon of petroleum and fuel sold.

Mr. CARTER. Hmm. OK. Yes, sir.

Mr. LADE. However, if I could speak to that—

Mr. CARTER. Please.

Mr. LADE. So that is the cost on the gasoline blended into fuel. However, almost all fuel in the United States contains 10 percent ethanol and RIN is actually reducing the cost of that ethanol.

So as RIN prices rise, that tax or the RVO cost on the gasoline is nearly exactly offset by the reduction in the costs on the ethanol side. And so consumer prices for almost all fuel that's consumed in the United States, which is 10 percent ethanol, 90 percent gasoline, remains by and large, unaffected.

Mr. CARTER. OK. Good. Well, thank you. I appreciate that.

Ms. Dunphy, I want to ask you because I represent the entire coast of Georgia. So ocean-going vessels are of interest to me and you—I know you had a discussion with another member about ocean-going vessels and about the renewable fuel that's used in those.

And I just wanted to ask you, can you explain to me why it's necessary to retire RINs when it comes to fuel for an ocean-going vessel?

Ms. DUNPHY. It's a bit of a mystery to all of us, to be honest with you. But transportation fuel is gasoline or diesel. It's motor vehicle, locomotive, marine fuel in the U.S.

If you put it in an ocean-going vessel, that's usually going to be a higher sulfur fuel like a bunker fuel, and that was not a trans-

portation fuel. So, therefore, even though you put in a renewable fuel and it's displacing a high-sulfur product, the RINs were to be retired. That was part of the regulations.

Mr. YACOBUCCI. Which were driven by the statutory definitions in the—

Ms. DUNPHY. Right. It's in the law. It's in the law.

Mr. CARTER. Do we need to change the statutory definition?

Ms. DUNPHY. It's in the law.

Mr. YACOBUCCI. Basically, you have three categories of fuel that qualify. Highway transportation fuel, heating oil, and jet fuel are basically the three fuel components or three fuel categories that qualify to generate RINs. All other fuel categories are exempted by the statute.

Mr. CARTER. Brilliant.

Mr. Chairman, I yield.

[Laughter.]

Mr. SHIMKUS. Just yield, not surrender, right?

The chair now recognizes the very committed, patient, and long-suffering Mr. Loeb sack. If he was on a good subcommittee, he could have spoken an hour ago. But he's waiving on, has great interest in this. You're recognized for 5 minutes.

Mr. LOEBSACK. Well, thank you, Mr. Chair, and thank you for letting me waive on, and quite honestly, as a former professor, I would have loved the testimony.

I've been trying to read as much as I can but, unfortunately, as a political science professor, not an economics professor.

But I am an alumnus of Iowa State so I am actually going to pick on you today. How do you pronounce your last name again?

Mr. LADE. Lade.

Mr. LOEBSACK. Lade. OK. Thank you so much.

This is an incredibly complex subject. There's no doubt about it. As I said, I was a political science professor, not an economics professor. So this stuff is not easy for me, I have to say.

But I do want to say at the outset that recent comments by EPA Administrator Wheeler the last couple days have been pretty disheartening and were not reassuring to those of us from biofuels country, if you will. Some of the things that he said continue the policy of Administrator Pruitt, whether it has to do with waivers or on the E15 issue or whatever the case may be.

I just want to say that for the record at the outset that I am not very encouraged by the new administrator when it comes to biofuels production. But I think I will talk to Mr. Carter later. He had a good point—do we really need all this, in some ways.

Actually, I could be wrong but I think the quickest and easiest way to address RIN prices would be if the obligated parties simply would blend more biofuels and I think that the RIN system was created in the first place because there are going to be folks who didn't want to blend biofuels.

Is that correct, basically? Create a market for RINs? If we just simply blended more biofuels we wouldn't have to worry about RINs. Is that correct, Professor Lade?

Mr. LADE. The entire purpose of the market is—or of the policy is to get the market to do something that it would not do without the policy. And so yes, whenever RIN prices are high that signals

that the market would not do or would not blend as much biofuels as it would without the policy.

Mr. LOEBSACK. Right. Thank you.

Also we could remove current EPA restrictions on the Reid vapor pressure. I think we could do that and get more biofuels into the system.

And I did look at your testimony, Professor Lade. I was a little bit confused with the final part of it there when you talked about what effect E15 might have on all of this. Can you sort of elaborate on that a little bit?

Mr. LADE. Absolutely.

So it's really difficult to say what an E15 and RVP waiver would do to RIN prices because we are not quite sure of what it would do to overall biofuel demand.

If consumers begin to switch over to E15 quite a bit, then it would absolutely put downward pressure on RIN prices. However, this is a new fuel. Consumers are uncertain about whether they can even put it in a lot of their vehicles.

And so there are a lot of reasons to believe that there would maybe be some limited—even with year round offering at some fuel stations there would be limited consumer demand on that side, which means not that much extra biofuels or ethanol is going into the system, which would not resolve this RIN price problem.

Mr. LOEBSACK. Right.

Mr. LADE. And so while it's certainly, potentially, over the long run and if E15 infrastructure were to roll out and consumers, as they learned that this was a viable fuel—that it's something that they could put into all of their cars if it's priced competitively, that could certainly have that intent.

In the short run, I have my doubts. But, again, this is in uncertain territory because this is a new fuel that we really don't know much about.

Mr. LOEBSACK. Well, I am going to ask you to project on—a little bit more with respect to E15 because when you were talking about RIN prices and their effects on gas prices, you were talking about E10.

Can you speculate at least some with respect to E15?

Mr. LADE. Correct. So when RIN prices rise, like I said, the higher cost on gasoline is nearly fully offset by the lower cost on ethanol as RIN prices are increasing.

As you increase the percentage of ethanol in that gasoline, that lower cost on ethanol actually starts to drive the retail prices down. This is exactly how the market-based mechanism is going to put more biofuel blending into the system.

And so you will see, as RIN prices rise, greater and greater discounts on E15 relative to E10 and that's exactly how you get consumers to move their hand over about 15 inches and fill it with E15 instead.

Mr. LOEBSACK. Right. Right.

Mr. LADE. And so RINs are vital to stimulating that demand and so that's where it's kind of difficult to predict that. It depends how responsive consumers are and how quick they are to switch over.

Mr. LOEBSACK. Got it.

And then one last question—as we all know, in response to refiner complaints about RINs, EPA has secretly issued 48 small refinery waivers, and I know there's some question about this. I am glad I came when that was being addressed by Ms. Dunphy.

And some of the refiners are neither small nor experiencing economic hardship. These secret waivers, one can argue about what the effects of them but some would argue up at 2 billion gallons of demand destruction and cutting the consumption by over 2 billion gallons.

What do you think the impact of all this might have on RIN prices then?

Mr. LADE. I think we've seen the impact that it's decreased RIN prices as it necessarily—if these allocations are not reallocated it necessarily means that less biofuels are needed to meet the requirements from EPA.

Mr. LOEBSACK. Well, I want to thank all of you and thank you, again, Mr. Chair, for letting me waive on.

Mr. SHIMKUS. Well, next time get on a better committee and you can question earlier.

Mr. LOEBSACK. I will do the best I can. It'll help me for November.

Mr. SHIMKUS. So we've been asked to do a second round of questions. I hope you don't mind that. I think the folks who are here, obviously, are interested in addressing that.

So with your permission, the folks here would go a second round. We don't think it'll take that long. So I want to thank Mr. Tonko for agreeing to that.

So I will recognize myself for 5 minutes for a second round. I want to make sure we clarify this small refinery exemption, because what I am hearing is that they're blending already at 10 percent. This exemption comes at the end.

So my question is—maybe Ms. Dunphy—what's the remedy? Is there a remedy for these small refiners? If they've been blending most of the year, they get the exemption, what do they do? Throw a party? What do they get for that?

Ms. DUNPHY. Well, if they've already retired RINs then they'll seek EPA's permission to get those RINs back again, and as we've talked about, that does come back into the market.

It has replenished the RIN bank, OK. So remember, as Mr. Yacobucci pointed out, the oil companies can use 20 percent prior year RINs to satisfy their current year compliance.

The RIN bank had declined. It got down to as low as 9 percent. So that means there's more pressure on current year to have the RINs and get them in your hand.

As the RIN bank has been replenished, because these small refinery exemptions have been granted, the number of prior year RINs comes back into the market and replenishes the RIN bank overall, reducing the concerns that we won't be able to meet this year's compliance.

Mr. SHIMKUS. All right. Thanks.

The spike that was talked about—we talked about high prices, high volumes. But I think another factor was in the EPA there was increased regulation in that year also and increased regulation in-

creases higher prices. So there was three variables that I just wanted to make sure we put on the table.

There's proposals floating out there on a RIN cap. What would that do to this market? Anyone want to address that?

Mr. NIZNIK. It would cause Senator Chuck Grassley to explode.

[Laughter.]

Mr. LOEBSACK. And Congressman Loeb sack as well.

[Laughter.]

Mr. NIZNIK. But also it would just end the market functionality that Professor Lade talked about and it would, certainly, impair the ability of RINs to do some of the functioning that they've been talking about doing in terms of stimulating production and having the marketplace respond to the volumetric requirements that the EPA would put out each year.

If it just was kept at 5 percent, it wouldn't matter whether EPA asked for more or less.

Mr. SHIMKUS. Right. Dr. Lade.

Mr. LADE. So I would—

Mr. SHIMKUS. Quickly.

Mr. LADE. Quickly, I would push back a little bit on that. It depends critically what the RIN price cap is because that then determines how much of a discount you can give to biofuels and how much of an incentive you can give to biofuel consumption.

So if a RIN price cap is 10 cents, then absolutely no one's going to use E85 or E15 most likely, given market prices.

Mr. SHIMKUS. Right.

Mr. LADE. However, if a RIN price cap is set 60 cents to a dollar, all else being held equal in this regulation, that could serve a very stabilizing role because what we've seen is that EPA has responded to high RIN prices by adjusting mandates and that's led to a lot of this volatility.

If, instead, EPA said no, we will cap RIN prices at this level and you can come to us to buy paper credits after RINs on the private market have reached above this level, they no longer need to use that option to adjust RIN prices through mandates, which has led to a lot of volatility. So—

Mr. SHIMKUS. Thank you. Let me go, because I've got 2 minutes or a minute and a half. I've got three questions.

Mr. Yacobucci, you talk about engines and that's a part of your world. What is the most efficient engine as far as octane? Do you know?

Mr. YACOBUCCI. So, there's a lot of discussion about this right now. To get to your question, if one were to increase the compression of engines, you could squeeze out more efficiency from that engine.

Mr. SHIMKUS. What would be Iran?

Mr. YACOBUCCI. There's a lot of discussion for that but, certainly, a higher octane number fuel would allow for greater efficiency if you tuned the engine to do so. If you just put higher octane fuel in—

Mr. SHIMKUS. Right. No. No. We are talking about—part of our debate—and Mr. Flores with me—as you get your best engine engineers, you get your best petrochemical engineers, and you create

the most efficient engine for a next-generation vehicle, because I think that's kind of what we are—

Mr. YACOBUCCI. But there's a trade-off between the energy content. For example, ethanol has a lower energy content. So even if you're burning it more efficiently you may be getting fewer miles per gallon versus the cost to the engine.

Mr. SHIMKUS. I am not—you're the smart guy—but that's not what we were being told with the engineers and the engineering of a high-compression high-octane engine.

I wanted to address, in my 7 seconds remaining—there is also a proposal out there that talks about a D8 RIN, which would be above the blend wall.

Anyone hear that and what's your thoughts on that? Mr. Niznik.

Mr. NIZNIK. Yes, I investigated that for a company that asked me to research the concept, and it would change the current shape of the RFS but it would overcome one of the internal hurdles of the RFS—blocking expanded ethanol usage.

So right now, I confused the group before talking about how the RIN from ethanol right now is essentially capped at the price of the next category up RIN because of the replaceability.

If you took it out from underneath that umbrella and that cap and gave it its own category the RINs price mechanism has proven very efficient in other categories, forcing those fuels into the marketplace.

So if you wanted to provide an opportunity specifically for one type of fuel and you made a new RIN category just for that type of fuel and put a mandate on it, I am convinced that, based on market history, you could get the amount blended you wished.

Mr. SHIMKUS. And my time is way expired. I appreciate my colleagues. The chair recognizes the gentleman from Texas, Mr. Flores, for 5 minutes.

Mr. FLORES. I am assuming the ranking member doesn't—

Mr. SHIMKUS. I am sorry.

Mr. TONKO. Dr. Lade, yes.

Dr. Lade, in your written testimony you state that volatility isn't always caused by speculators and that volatility in a market can attract speculators, presumably, because all the fluctuations present opportunities for profit.

You also indicate that EPA's management of the program including delays in setting RVOs are sources of volatility in the RIN market.

Is that accurate? Is that—

Mr. LADE. Correct.

Mr. TONKO. OK. What about the changing headlines following the efforts of the White House, several senators, and some RFS stakeholder discussions about reforming the RFS?

Would those headlines have any effect on RIN prices?

Mr. LADE. Likely, if they believe that that could lead to credible changes in the mandates coming out of EPA. And so what really the market is trying to do is figure out how much extra biofuel they need to push in, particularly beyond the E10 blend wall because that's where all the real costs come into this.

It's much more expensive to push ethanol and biodiesel and be on this E10 blend wall and that's where the market is trying to

guess is how much they need extra beyond that. So to the extent that some news organization reports that the mandate may be increasing or decreasing that would certainly have that impact as you're trying to guess what's going to come out.

Mr. TONKO. OK. Thank you.

In your testimony, you discuss several studies that looked at the potential effect of RIN prices on bulk wholesale and retail prices for fuel.

Refiners claim they cannot pass high RIN prices on to their consumers. But these studies suggest that they can.

Mr. LADE. Correct.

Mr. TONKO. The discussions in your written testimony seems to conclude they often can but it isn't a certainty. Would you please explain the potential reasons why a refiner might not be able to pass on high RIN costs?

Mr. LADE. So the studies that speak to this look particularly at bulk wholesale fuel prices. So those that are on large traded commodities markets and a lot of those serve as benchmark prices throughout the entire wholesale system.

However, there could certainly be differences in, say, at blending stations and wholesalers when you're blending in Illinois, Iowa, New York, et cetera.

And so there are certainly studies beginning to look at RIN pass through to those to see if the same thing that you see on these larger tradeable market are really translating down to the markets that refiners may be selling into and so far it's still inconclusive on that.

However, so far, the academic literature has continue to find these prices being reflected in wholesale prices.

Mr. TONKO. OK. Thank you.

With that, I yield back. Thank you, Mr. Chair.

Mr. SHIMKUS. The gentleman yields back his time. The chair now recognizes the gentleman from Texas, Mr. Flores, 5 minutes.

Mr. FLORES. Thank you, Mr. Chairman. Thank you for the second round of questions.

One of the other takeaways that I didn't mention in my first round of questions was that I think each of you agree that ethanol has a place to play in the fuel markets of the future, primarily because of the octane and some of the environmental characteristics that it has, and that's the reason that Mr. Shimkus, Mr. Welch, and I are working on legislation that doesn't adversely impact the ethanol markets.

One of the things that I've heard from different constituent groups is that there are some disruptions in the biodiesel market because of the way the D4 ran as embedded in the nesting structure.

This is somewhat subjective on your part but I would like to know what feedback you all have in terms of the market impact on D6 prices if we were to de-nest D4s and have D4s trade totally—be useable only for the biodiesel market.

If you feel comfortable commenting on that I would like to know what your thoughts are.

Mr. NIZNIK. I am an old biodieseler myself so I can—

Mr. FLORES. I am glad you're from Texas, too.

[Laughter.]

Mr. NIZNIK. Thank you, sir. So the D4 RIN really isn't a victim to any other RIN. It's the 500-pound gorilla RIN right now.

Mr. FLORES. Right. Right.

Mr. NIZNIK. So its behavior right now is unfettered and the historical record shows that it does a really great job. In fact, if there's one RIN that's working in the RFS, it's the D4 RIN.

Mr. FLORES. Right.

Mr. NIZNIK. So when it goes up just a little bit, the market signals blend more and producers produce more and it works great.

But when you have the nested structure, if you have a particular interest in other fuels working and they're underneath there, then no, it's not as good.

So I would suspect that if you designed a system of separate unnested RINs that—

Mr. FLORES. Just D4, though.

Mr. NIZNIK. Yes.

Mr. FLORES. I am just talking about D4.

Mr. NIZNIK. You're just talking about D4s. I don't think it would change at all for the D4s. I think they would continue.

Under the current circumstances, they move very freely with the exception of worrying about the recurring dollar a gallon biodiesel tax credit, which is outside of the RFS system but, again, a policy thing.

Mr. FLORES. How would the D6 RIN change if we de-nested the D4?

Mr. NIZNIK. Well, then perhaps it could rise to the occasion that it needs to incentivize infrastructure, usage in fuels.

We don't really know how high a D6 RIN needs to be to, for instance, inspire more E15 use or even E85 use because under the time of the program it's always been butting heads against the D4 price, right. So we've never seen a free shot at it.

I've done research, for instance, on E85 usage, which has a lot of ethanol in it. But every time I did it, again, I couldn't say hey, what would happen to this. I didn't have any market data on where the customers needed to be incentivized.

Mr. FLORES. Mr. Lavinsky, do you have any thoughts on this issue?

Mr. LAVINSKY. Not that has—

Mr. FLORES. OK.

Mr. LAVINSKY. He's covered it well.

Mr. YACOBUCCI. I would just add that, and Mr. Niznik can correct me if I am wrong, but that the biodiesel RIN drives—because it's the majority of the advanced biofuel RINs, the D5 RINs, that it drives that market.

If you took it outside of the advanced biofuel pool then there would certainly be some effects there because that is the primary supply for the advanced biofuel as well.

So it depends on whether you mean de-nesting it from the overall mandate, the D6 mandate, or whether you mean taking it out of the advanced biofuel pool.

Mr. FLORES. OK. That's a good point. OK. That's something we as policymakers need to keep in mind.

Ms. Dunphy, any thoughts on that?

Ms. DUNPHY. Well, today, because of the nesting, when there's a shortage of D6 RINs versus the mandate, that his fulfilled with higher—other types of advanced biofuel RINs.

So if you look at it from that perspective, that total renewable fuel category is dominated by corn ethanol.

Mr. FLORES. Yes.

Ms. DUNPHY. But if there's not enough D6 RINs to fulfill it then that category gets filled with advanced biofuel RINs, which are greater greenhouse gas-reducing fuels—

Mr. FLORES. Yes.

Ms. DUNPHY [continuing]. Which is kind of the overall objective of the law is to have greater greenhouse gas-reducing fuels.

So you would lose that added volume that the biodiesel—the D4 RINs fulfil in that D6 space. So there's some demand loss there if they don't have that space to grow into.

Mr. FLORES. Dr. Lade.

Mr. LADE. Yes. I would just like to reiterate that was my main point was that you would have demand loss on the biodiesel side because you wouldn't be producing more of it to compensate for the lack of D6 RINs.

So that you're over meeting these mandates for the D4 in order to fill in what you can't push through with E85 or E15 right now. Taking that out would remove that option and make the market meet—pass the blend law with E85 or E15 instead.

Mr. FLORES. And, again, hypothetically, what would happen to diesel prices if you de-nested the D4 and set it aside by itself?

Mr. NIZNIK. The RFS is borne—the price of the RFS compliance of RINs is borne equally in the marketplace by either gasoline or diesel.

Even if they do, for instance, pay more to blend one particular biofuel and one type of petroleum versus another—let's say ethanol biodiesel—they tend to, on the petroleum cost side, aggregate all the costs and pass it through evenly. That's what the historic price data shows.

Mr. FLORES. OK. Thank you. My time is expired.

I yield back.

Mr. SHIMKUS. The gentleman yields back his time.

The chair thanks the gentleman. Before we conclude, my wife's family farm is in South Dakota.

So I was up there for 4th of July—a family reunion—and then took a drive to North Dakota and then back through South Dakota and probably one of the weirdest guys that would take a picture of every retail location that I filled up with gas.

And what's instructive there is that they have—yes, I know, it's sad—

[Laughter.]

And I have them. I can show them to you. They're right on here. But, and we always got to remember retailers, too. This is the whole debate and there are pumps in the Dakotas that have E0 because of motorcycle riders and boaters and stuff.

But the delta price difference for the same level is, like, 30 cents cheaper because of the ethanol—the depression of prices because it's a cheaper mix.

But there's just so many things that we got to think about. I will show you those pictures, if anybody wants to see them.

Mr. NIZNIK. I do the same thing. I have the same hobby.

Mr. SHIMKUS. You are sick.

Ms. DUNPHY. And I did the same thing last weekend on the way to San Antonio and took a picture of the Buc-ee's pumps.

Mr. SHIMKUS. There you go. Thank you.

[Laughter.]

Seeing there are no further members wishing to ask questions or make stupid statements for the panel, I would like to thank all of our witnesses again for being here today.

Before we conclude, I would like to remind members interested in the RIN fraud issue that I would point you to letter two, the Subcommittee on Oversight Investigations hearing transcript on RIN fraud. 2012? Thank you.

And I also would like to ask for unanimous consent to submit the following documents for the record: the letter from Renewable Fuels Association and then the Subcommittee on Oversight and Investigation hearings on the transcript on RIN fraud*.

[The information appears at the conclusion of the hearing.]

Mr. SHIMKUS. And pursuant to committee rules, I remind members that they have 10 business days to submit additional questions for the record. I ask that witnesses submit their responses within 10 business days upon receipt of the questions.

Without objection, this subcommittee is adjourned.

Thank you very much.

[Whereupon, at 11:13 a.m., the subcommittee was adjourned.]

[Material submitted for inclusion in the record follows:]

*The information has been retained in committee files and can be found at: <https://docs.house.gov/meetings/IF/IF18/20180725/108610/HHRG-115-IF18-20180725-SD099.pdf>.



July 24, 2018

The Honorable John Shimkus
Chairman
Subcommittee on the Environment
Committee on Energy and Commerce
U.S. House of Representatives

The Honorable Paul Tonko
Ranking Member
Subcommittee on the Environment
Committee on Energy and Commerce
U.S. House of Representatives

Dear Chairman Shimkus and Ranking Member Tonko:

The Renewable Fuels Association (RFA) is the leading trade association for America's ethanol industry. Its mission is to advance the development, production, and use of fuel ethanol by strengthening America's ethanol industry and raising awareness about the benefits of renewable fuels. Founded in 1981, RFA serves as the premier meeting ground for industry leaders and supporters. RFA's 300-plus members are working to help America become cleaner, safer, more energy secure, and economically vibrant. In advance of the Energy and Commerce Subcommittee on the Environment's hearing this week on "Background on Renewable Identification Numbers (RINs) under the Renewable Fuel Standard (RFS)," we wanted to be sure the Subcommittee was provided the perspective of American ethanol producers.

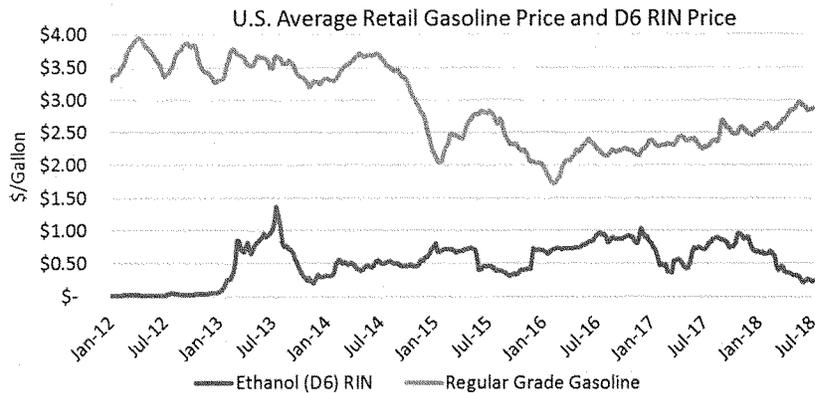
RIN credits are the engine that drives the RFS. Not only are RINs used to demonstrate compliance with annual RFS blending obligations, but they also serve as a critical economic incentive to expand the production and use of renewable fuels. The value of RIN credits is primarily determined by market fundamentals. If the supply of RINs is perceived as being tight relative to the RFS blending obligations, then RIN prices will be relatively high. Conversely, if the supply of RINs is abundant relative to the obligation, then RIN prices will be low. In short, RIN prices reflect the market's understanding of the relative ease or difficulty in meeting annual RFS standards.

Studies show that higher RIN prices facilitate deeper discounting of ethanol-blended fuels (such as E15 and E85) relative to gasoline, and that wider discounts lead to greater consumption of these blends. In turn, greater demand for E15 and E85 stimulates increased production of ethanol, which leads to increased RIN generation and larger supplies. Thus, the most direct and effective way to reduce RIN prices is to let RINs do their job of stimulating increased ethanol production and blending.

It is well understood that merchant refiners who do not blend ethanol **recoup their RIN costs** by slightly marking up their selling price of gasoline blendstock. Thus, RINs are not negatively affecting the financial performance of refining companies, both large and small.

- Petroleum industry consultants at **Turner, Mason & Company** agree that RINs are not affecting margins for refiners, stating, “*RFS compliance costs are substantially passed from refiners*” to wholesale purchasers of gasoline blendstock.
- Under former Administrator Scott Pruitt, the **Environmental Protection Agency** concluded that RINs are not negatively affecting profit margins for oil refiners like PES. According to EPA, “*...obligated parties, including small entities, are generally recovering the cost of acquiring the credits necessary for compliance with the RFS standards through higher sales prices of the petroleum products they sell.*”
- Economists from **Harvard University, MIT, and the University of Michigan** also determined that refiners recover the cost of RINs, and thus there is no net impact on margins: “*RIN prices were passed through one-for-one in the prices of bulk petroleum fuels.*”
- Economists from **Iowa State University** found “*...added refiner costs from complying with the RFS are passed on to blenders through higher gasoline prices. We show that high RIN prices...have no impact on profits of refiners, blenders, or integrated oil companies.*”
- Refiner **Andeavor**, which will become the nation’s largest refining company following a planned merger with Marathon, has stated “*RIN costs are passed through at the bulk finished product sales points and provide refiners with coverage of their exposure to them.*”
- Even the **API** agrees that “*...RIN costs are largely recovered by refineries, both large and small, through the increased value of gasoline and diesel fuel they supply to the market.*”

Importantly, there is no evidence to support the notion that RINs push retail gas prices higher. In fact, RINs and retail E10 gas prices tend to be negatively correlated, with periods of high gas prices occurring during periods of low RIN prices and vice versa. According to an **Iowa State study**, “...the net effect on the [retail] price of E10 of high RIN prices is zero: higher gasoline prices are offset by lower ethanol blending costs and the price of E10 remains constant.”

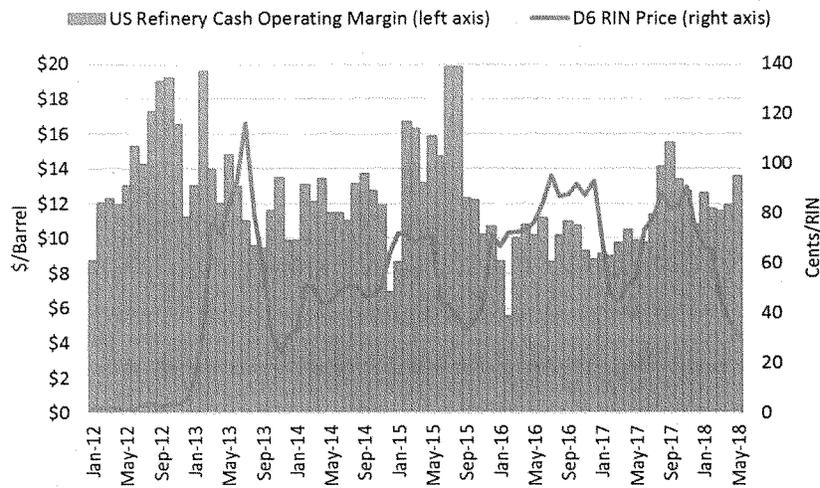


Source: OPIS and Energy Information Administration

Moreover, contrary to the rhetoric coming from some in the refining industry, there is **no statistical evidence to support the argument that higher RIN prices negatively affect refiner margins**. In fact, monthly average margins for East Coast refineries have shown a positive correlation with RIN prices in recent years (coefficient=0.71 since January 2017), meaning margins are highest when RIN prices are highest and vice versa (this lends support to the argument that RINs are embedded in the refinery “crack spread”).

Wells Fargo Securities recently released an [analysis](#) to subscribers that examined the potential impacts of RFS compliance costs on merchant refiners, finding that *“Most independent refiners now enjoy a net benefit from RINs, based on our analysis.”* The analysis also found that *“RINs costs are being passed along”* and *“investors should not spend much time and effort”* worrying about RINs.

U.S. Average Refinery Cash Operating Margin vs. RIN Prices

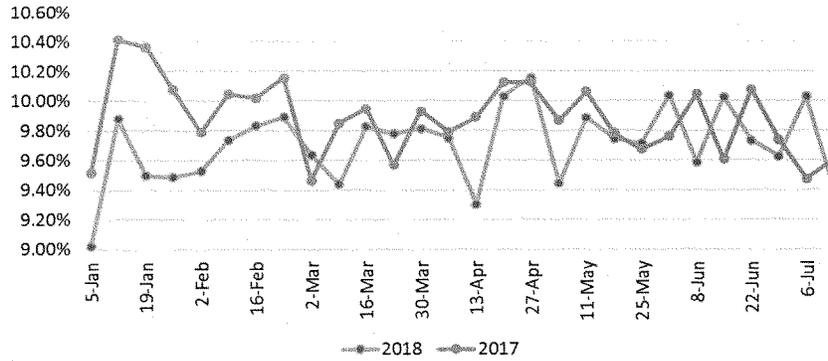


Source: Muse Stancil and OPIS

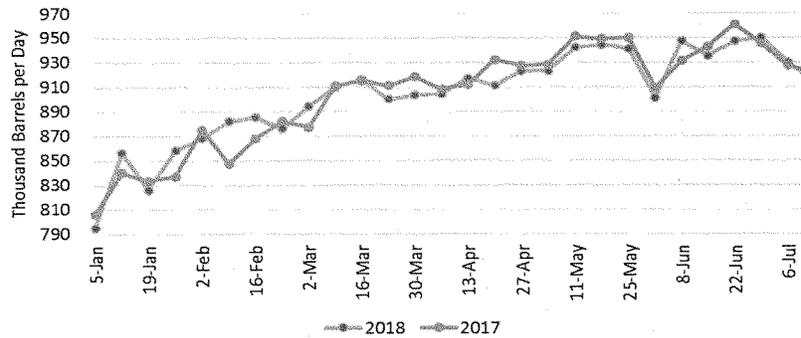
EPA’s recent issuance of approximately 50 small refinery compliance exemptions from 2016 and 2017 RFS requirements has ballooned RIN stocks to nearly 3.1 billion RINs. That is more than double the level of RIN stocks just two years ago. Consequently, RIN prices have plummeted from 95 cents in late November 2017 to just 25 cents today, decreasing the incentive for blenders and refiners to increase volumes of E15 and flex fuels like E85 to push past the so-called E10 “blend wall.”

The escalation of RIN stocks and associated collapse of RIN prices has caused demand destruction in the ethanol market. Despite very favorable blending economics (i.e., ethanol is priced 70 cents per gallon below gasoline at the wholesale level), ethanol blending activity has slowed in 2018. Both the absolute volume of ethanol blended and ethanol’s share of finished gasoline consumption are lower than year-ago levels. The 2018 weekly ethanol blend rate has been **below year-ago levels in 21 of 28 weeks so far**. Meanwhile absolute blending volumes have lagged year-ago volumes in 18 of 28 weeks, **including 16 of the past 20 weeks**.

Weekly Average Ethanol Blend Rate, 2018 vs. 2017



Weekly Ethanol Input by Refiners and Blenders, 2018 vs. 2017



Source: Energy Information Administration

U.S. ethanol producers and farmers across the country who have invested in this important value-added market opportunity are extraordinarily concerned by EPA's recent intrusion into the RIN market, and believe it irreparably undermines the integrity of the RFS. The RIN mechanism must remain a market driven instrument for investors. EPA must not be allowed to manipulate the RIN market with specious interpretations of its waiver authorities that arbitrarily and significantly distort RIN supply and demand. Providing waivers from RIN obligations to wealthy oil companies that are recovering RIN costs in the crack spread, creating new RINs not tied to a specific gallon of biofuel to accommodate the retroactive granting of a small refinery waiver, and forgiving the RIN obligations of a certain refinery in bankruptcy proceedings when the source of that refinery's financial distress was well understood to be unrelated to its RFS obligations, are all examples of EPA's wanton disregard for the statute and its biofuel demand destruction campaign. All of this must end. EPA must allow RIN markets to work.

Thank you for the opportunity to comment and I look forward to continuing to work with you on issues related to the RFS.

Sincerely,

A handwritten signature in black ink, appearing to read "Bob Dinneen", with a long horizontal flourish extending to the right.

Bob Dinneen
President & CEO