What is the Renewable Fuel Standard?

The Annual Meeting is the world's premier refining meeting, The Energy Policy Act of 2005 (P.L. 109-58) mandated the use of renewable fuels – primarily corn ethanol – in the nation's gasoline supply. Known as the Renewable Fuel Standard, or RFS, the regulations went into effect in September 2007 and originally required increasing volumes of biofuel to be blended into our nation's fuel supply annually, up to 7.5 billion gallons by 2012. However, before consumers and industry could experience the full impact of this law, Congress dramatically expanded the scope of the mandate in 2007.

How did Congress expand the scope of the RFS?

Congress passed the Energy Independence and Security Act of 2007 (P.L. 110-140, or EISA 07) requiring that 36 billion gallons of biofuel be blended into the fuel supply by 2022. In order to meet this target, EISA dramatically increased the annual volumes of biofuel that needed to be blended into the fuel supply.

It also added three mandates to promote renewable fuels other than corn ethanol. These multiple mandates are "nested" inside of each other so that certain types of biofuel can be used to comply with a specific category (e.g., cellulosic biofuel), as well as other categories in some cases and the overall mandate. In addition, EISA expanded the mandate to include producers and importers of diesel fuel as an obligated party.

What are the specific biofuel mandated?

The advanced biofuel mandate includes a sub-mandate of 16 billion gallons of cellulosic biofuel by 2022, which is produced from feedstocks like woodchips, switchgrass, and the non-edible parts of corn stalks.

The remainder of the advanced biofuel mandate (5 billion gallons in 2022) can be filled by other types of biofuel, including Brazilian sugarcane ethanol and biomass-based diesel.

Finally, there is a mandate for 1 billion gallons of biomass-based diesel by 2012, and at least 1.0 billion gallons of biomass-based diesel 2013-2022. Most biomass-based diesel is produced from soybeans.

Does all biofuel qualify for the RFS?

No. Existing corn ethanol production facilities are exempted from the greenhouse gas reduction requirements. Other biofuels, however, must meet a minimum greenhouse gas emissions reduction threshold, compared to a 2005 gasoline GHG

emissions baseline, to qualify for the RFS. This does not apply to biofuel production facilities that qualified for a grandfathering exemption.

In particular, conventional biofuel must reduce GHGs by 20 percent, advanced biofuel and biomass-based diesel must reduce GHGs by 50 percent, and cellulosic biofuel must reduce GHGs by 60 percent. The EISA 2007 regulations became effective on July 1, 2010.

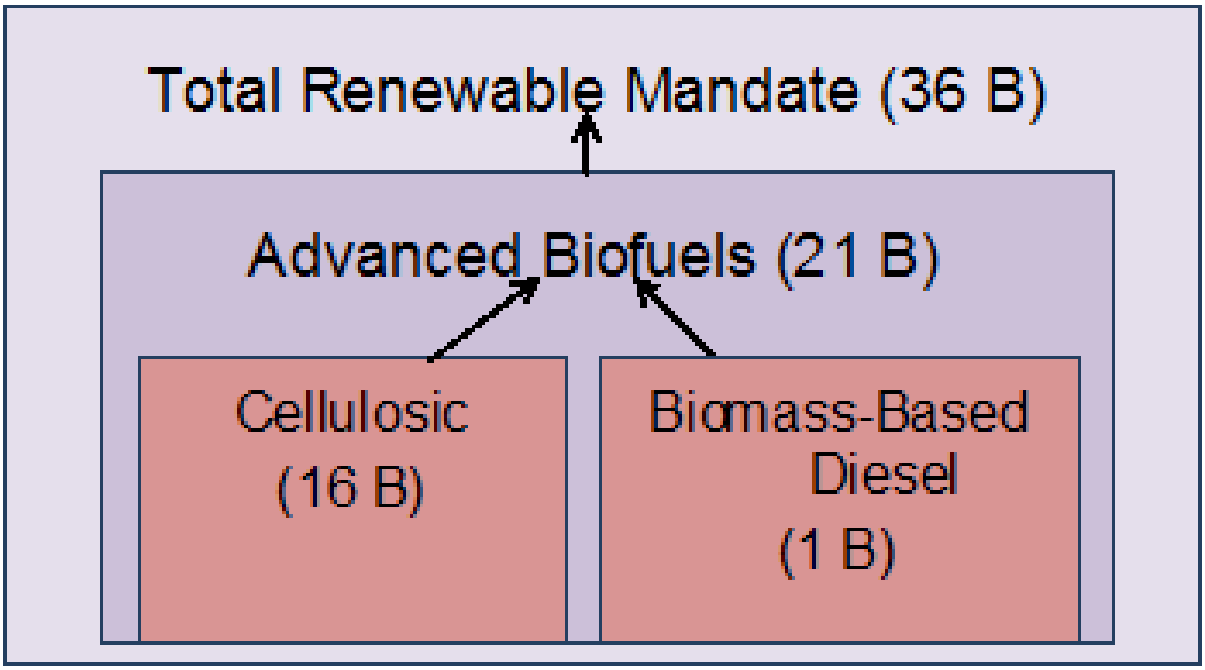
How much biofuel is mandated?

The mandate schedule is as follows:

RFS 2 (billion gallons)				
	RFS	Advanced Biofuel	Cellulosic Biofuel	Biomass-based Diesel*
2012	15.20	2.00	0.50	1.00
2013	16.55	2.75	1.00	≥1.00
2014	18.15	3.75	1.75	≥1.00
2015	20.50	5.50	3.00	≥1.00
2016	22.25	7.25	4.25	≥1.00
2017	24.00	9.00	5.50	≥1.00
2018	26.00	11.00	7.00	≥1.00
2019	28.00	13.00	8.50	≥1.00

2020	30.00	15.00	10.50	≥1.00
2021	33.00	18.00	13.50	≥1.00
2022	36.00	21.00	16.00	≥1.00

Visually, the nested nature of the various mandates appears as follows (with values for 2022 and the "B" standing for billions of gallons):



Does the EISA include a mandate for ethanol only?

The EISA does not include an explicit mandate for only ethanol. Of the total 36 billion gallons mandated, 21 billion come from the advanced biofuel category, which leaves a 15 billion gallon "soft cap" on corn ethanol.

Can biofuel be used for multiple categories?

Certain types of biofuel can be used for various parts of the requirement. For example, a gallon of cellulosic ethanol provides obligated parties with credit for the cellulosic category, the advanced category, AND the total renewable fuel requirement.

Who is responsible for administering the RFS standard?

While the EISA mandates overall, annual biofuel volumes for the entire fuel supply, it is the Environmental Protection Agency's (EPA) responsibility to determine annually how that standard should be applied to individual obligated parties in a manner that meets the requirements of the law.

Who is an obligated party?

An obligated party under the RFS is a producer (refiner) or importer of gasoline or diesel that is consumed in the continental United States (Hawaii also has opted into the RFS). Note that marketers that blend ethanol into gasoline for others and biofuel producers are not obligated parties. Thus, the EISA mandates currently apply to parties that may have little to do with actual biofuel production. Gasoline and diesel fuels produced in the U.S. and exported do not incur an RFS obligation.

How does EPA determine blending obligations?

EPA developed a mathematical formula to determine how obligated parties meet the standards. EPA uses this formula to determine blending obligations of each individual obligated party for the following calendar year, referred to as the renewable volume obligations ("RVO"), which must be finalized by November 30th. The RVO represents a percentage for each sub-mandate of each obligated party's production volume of gasoline and diesel for the U.S. market.

For example, if the RVO for the entire mandate is 10 percent, then a refinery producing 100,000 barrels per day of gasoline and diesel would have to show that 10,000 barrels per day of biofuel were blended into the fuel supply. In addition to refiners, importers are also obligated parties. In line with the previous example, if a company imports 10,000 barrels per day of gasoline and the RVO is 10 percent, that importer will need to show 1,000 barrels per day of biofuel were blended into the fuel supply.

Note that all obligated parties have obligations or RVOs for all of the mandated biofuel, regardless of what fuels they typically produce or blend. Thus, a gasoline importer not only has an obligation to make sure some volume of ethanol is blended into its gasoline, but the company also has an obligation for biomass-based diesel, cellulosic fuel, other advanced fuels, and total renewable fuels.

How does EPA know how much cellulosic biofuel will be commercially available?

The Energy Information Administration (EIA) is required to send EPA a letter by October 31st projecting the volume of cellulosic biofuel that will be commercially

available the following year. This requirement applies to cellulosic biofuel only. EPA must consider, but does not have to adhere to EIA's projection when setting the volumes for the upcoming year. If EPA reduces the volume of cellulosic biofuel required from the amount written in the law, it has the authority to reduce the advanced biofuel and overall mandates accordingly, but it is not required to do so.

How does an obligated party use RINs to demonstrate compliance to EPA?

To track renewable fuels used for RFS compliance, EPA set up a system that assigns each gallon of biofuel produced or imported a Renewable Identification Number, or RIN. A RIN is a unique 38-digit number assigned to each gallon of biofuel. Obligated parties turn in a requisite number of RINS to EPA each year to demonstrate compliance with the renewable mandate. These RINs may have been obtained during the year or be banked RINs from the prior year. Obligated parties can meet up to 20% of their current obligation with banked RINs, and RINs only have a 2-year lifespan.

How are RINs generated?

RINs are generated by the renewable fuel producer when the renewable fuel is produced. They must stay attached to physical gallons of biofuel until an obligated party purchases those gallons or someone mixes that ethanol into gasoline.[1] For example, corn-based ethanol RINs travel with that fuel until it is purchased by an obligated party or blended into gasoline by a non-obligated party. At those times the RINs are detached. They may be sold in the RIN market or transferred/kept by an obligated party. If the renewable fuel is exported, RINs are effectively retired and cannot be used for compliance.

Each type of biofuel generates a different type of RIN. In addition, a RIN from a certain type of biofuel can count as more than one RIN. For example, corn ethanol generates 1 RIN for each gallon, whereas biomass-based diesel generates 1.5 RINs for every gallon produced or imported because of its higher energy value.

Obligated parties must hand in the requisite number of RINs to EPA to show compliance with the RFS.

How does an obligated party obtain RINs to demonstrate compliance to EPA?

Typically, obligated parties manufacture or import gasoline or diesel fuel, but do not produce the biofuel additives required under EISA. An obligated party can comply with the RFS by buying ethanol or other eligible renewable fuels with RINs attached.

Usually, RINs are made available for compliance, or detached from the physical gallon, only when an obligated party buys the biofuel or the biofuel is blended into gasoline.[2]

Once RINs are separated from the biofuel they may be traded. Obligated parties can also buy RINs separately. Such RINs are usually bought from an entity that has purchased more biofuel than it needs to blend for compliance, or from downstream entities, such as marketers that blend ethanol into gasoline for shipment to gasoline stations, but are not obligated parties under the RFS. Last, an obligated party may have banked RINs from the prior year, if they blended more biofuel than was required. The obligated party can meet up to 20% of their current obligation with banked RINs.

How are RINs traded?

RINs are traded through the EPA Moderated Transaction System ("EMTS"), a trading platform administered by EPA. Anyone may register to trade RINs, but only parties who actually are registered can buy and sell RINs. The market is not limited to just biofuel producers, refiners and importers.

Can an obligated party defer submitting RINs?

To demonstrate compliance with the RFS, obligated parties must obtain and turn in the requisite number of RINs (based on the RVOs described above) to EPA by February 28th of the year following the compliance period. An obligated party has the ability to defer its entire obligation for up to a year, but cannot have a deficit for two consecutive years. An obligated party must meet its full requirements in the second year and purchase a sufficient number of RINs to satisfy its deficit.

Do banked RINs have any limitations?

Typically, obligated parties manufacture or import gasoline or diesel fuel, but do not produce the biofuel additives required under EISA. An obligated party can comply with the RFS by buying ethanol or other eligible renewable fuels with RINs attached. Usually, RINs are made available for compliance, or detached from the physical gallon, only when an obligated party buys the biofuel or the biofuel is blended into gasoline.[2]

An obligated party can meet its obligations with RINs generated in the current year or the preceding year. However, only up to 20% of its current obligations can be met with banked RINs generated in the previous year. RINs have a two-year life; they can be used for compliance in the year that the RIN was generated or in the following year.

Isn't gasoline blended with ethanol at the refinery?

Ethanol is not blended at the refinery, because its corrosive properties and propensity to attract moisture prevent the additive from being transported via pipeline. Given this situation, ethanol must be shipped to terminals to be blended with gasoline via truck, barge, or rail.

Why might refiners or importers have to purchase credits?

Many refiners and importers do not own their own terminals, and sell their gasoline blendstocks for ethanol blending to marketers that blend the gasoline with ethanol at terminals close to the consumer. Since the terminals are the ones generally buying the ethanol, the only way for these refiners and importers to comply with the RFS is to buy credits - either through transfer arrangements with the marketers or on the open market. Due to this fact, in practice the RFS mirrors a cap and trade program.

In cap and trade, obligated parties have to obtain or generate enough credits to show their emissions are under a set ceiling. In the RFS, obligated parties have to obtain or generate enough credits to show a certain amount of ethanol is blended above a set floor.

[1] Producers of biomass-based diesel may sell RINs prior to the purchase of the biomass-based diesel by an obligated party, or prior to biomass-based diesel being blended with petroleum diesel.

[2] Ibid.