National Renewable Fuel Standard Program – 2010 Compliance

April 14 - 15, 2010

Office of Transportation and Air Quality
US Environmental Protection Agency

Topics

- **RIN Generation**

- **Calculating Renewable Volume Obligation (RVOs)**
  - Producers and Importers of Gasoline and Diesel
  - Exporters

- **Complying with the RVOs**
  - D codes that are valid for each standard
  - Use of previous-year RINs
  - Rollover cap
  - RFS1/RFS2 transition
  - Biomass-based diesel standard
  - Cellulosic biofuel standard

RIN Generation

- Basic approach (1 feedstock, 1 fuel): 80.1426(f)(2)

$$V_{RIN} = EV \times V_s$$

Number of gal-RINs generated

Equivalence Value
80.1415

Standardized volume
80.1426(f)(8)
(updated for biodiesel)

- Multiple types of renewable fuel with same D code
  - 80.1426(f)(3)(iii)
- Multiple types of renewable fuel with different D codes
  - 80.1426(f)(3)(v)
- One type of renewable fuel from multiple feedstocks
  - 80.1426(f)(3)(vi)
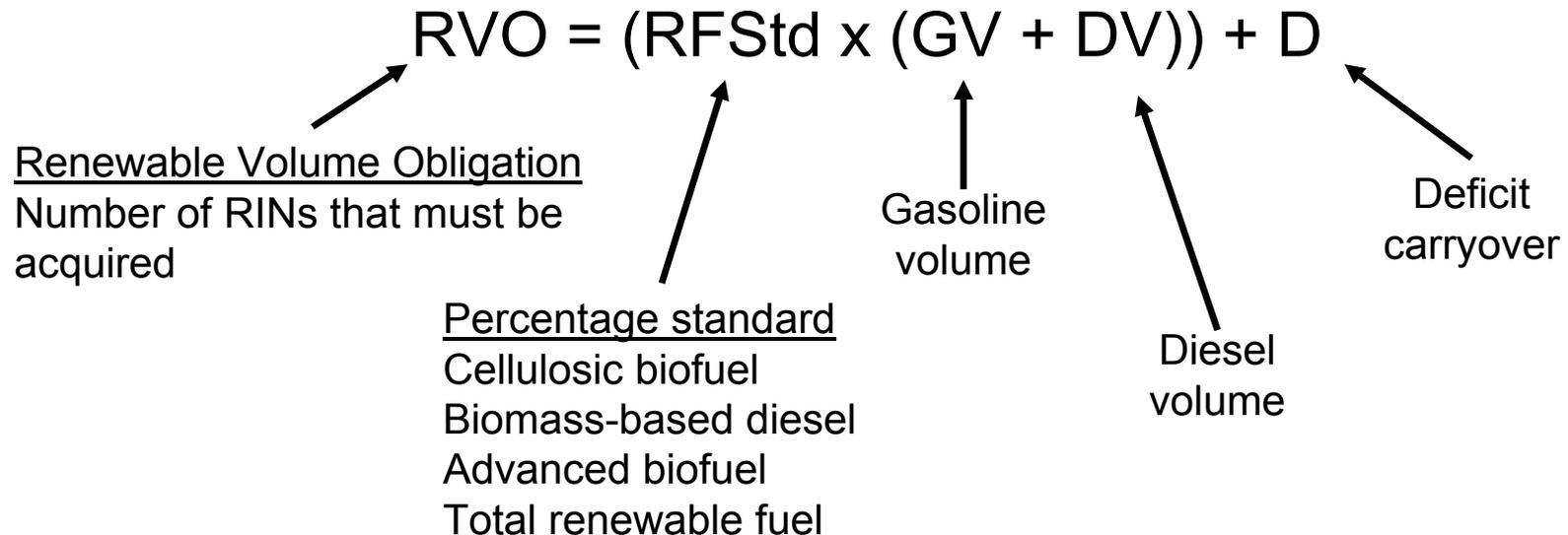
RIN Generation

- Co-processing of renewable biomass and non-renewable feedstocks (petroleum, coal, plastics, etc)
  - 80.1426(f)(4)

- Renewable fuel from separated municipal solid waste (MSW), separated yard waste, separated food waste
  - 80.1426(f)(5)

- Grandfathered renewable fuel
  - 80.1426(f)(6)

- Renewable electricity and biogas
  - 80.1426(f)(10) and (11)
  - These provisions allow renewable electricity and biogas to generate RINs, but they have yet to be modeled and a D code assigned

Calculating the RVOs

- Obligated parties now include producers and importers of diesel in addition to gasoline, and nonroad in addition to highway
  - Petroleum-based jet fuel and heating oil are not subject to the standards even though RINs can be generated for renewable fuels that can be bended into heating oil and jet fuel

- There are now four standards instead of just one

- Thus, obligated parties now have four RVOs, and must acquire a sufficient number of each type of RIN to meet each RVO
  - Exporters of renewable fuel will have up to four RVOs, but could be less
  - Exporters of gasoline and diesel have no RVO and no other requirements

Calculating the RVOs – Producers and Importers of Gasoline and Diesel

$$RVO = (RFStd \times (GV + DV)) + D$$

<u>Renewable Volume Obligation</u>
Number of RINs that must be acquired

<u>Percentage standard</u>
Cellulosic biofuel
Biomass-based diesel
Advanced biofuel
Total renewable fuel

Gasoline volume

Diesel volume

Deficit carryover

- Deficit carryovers can be any amount, but cannot occur two years in a row
  - 80.1427(b)

Calculating the RVOs - Exporters

- Exporters base their RVOs on exported volumes of renewable fuel, not on the standards

$$RVO = \sum(Vol \times EV) + D$$

Renewable Volume Obligation
Number of RINs that must be acquired

Renewable fuel volume

Equivalence Value

Deficit carryover

- Since RINs are fungible, the RIN assigned to a volume of exported renewable fuel may not actually represent that renewable fuel
  - For example, biodiesel RINs could be assigned to ethanol

- Therefore, exporters must determine the appropriate category for each exported batch based on either:
  - Composition of the fuel, or
  - Other information that the exporter may have received from his supplier

Calculating the RVOs - Exporters

	Exporter has an RVO for…			
	Cellulosic Biofuel	Biomass-Based Diesel	Advanced Biofuel	Renewable Fuel
Biodiesel or renewable diesel*		X	X	X
Exporter knows or has reason to know that the exported fuel is **cellulosic biofuel**	X		X	X
Exporter knows or has reason to know that the exported fuel is **advanced biofuel**			X	X
Any other renewable fuel				X

* All biomass-based diesel is either biodiesel or renewable diesel

Complying with the RVOs - General

- Obligated parties and exporters must acquire sufficient RINs of the proper type to meet each of the four RVOs

$$\sum(RINNUM)_i + \sum(RINNUM)_{i-1} = RVO_i$$

SUM of RINs from year i

SUM of RINs from year i-1

Renewable Volume Obligation
Number of RINs that must be acquired

- No more than 20% of an RVO can be met with previous-year RINs (rollover cap)

Complying with the RVOs - General

	Applicable D Codes
Cellulosic biofuel RVO	3 or 7
Biomass-based diesel RVO	4 or 7
Advanced biofuel RVO	3, 4, 5, or 7
Total renewable fuel RVO	3, 4, 5, 6, or 7

- The same RIN can be used to meet multiple RVOs in the same year due to the nested nature of the standards

- Cellulosic diesel RINs (D code of 7) can be used to meet either the cellulosic biofuel RVO or the biomass-based diesel RVO, but not both

Complying with the RVOs – RFS1/RFS2 Transition Provisions

- RFS1 RINs can be used to meet RFS2 standards

| RFS1 RINs with…	…are equivalent to RFS2 RINs with
D code of 2 and RR code of 15 or 17	D code of 4
All other RINs with D code of 2	D code of 6
D code of 1	D code of 3

Complying with the RVOs – RFS1/RFS2 Transition Provisions

- There is no mechanism for treating any RFS1 RINs as equivalent to an RFS2 advanced biofuel RIN with a D code of 5
  - But RFS1 RINs that can be treated as cellulosic biofuel or biomass-based diesel under RFS2 can also be used to meet the advanced biofuel standard

- RFS1 RINs that were retired due to renewable fuel use in nonroad, heating oil, or jet fuel can be reinstated for use in compliance with the RFS2 standards
  - However, if a producer did not generate RINs for nonroad renewable fuel in 2009, there is no provision for allowing that producer to generate RINs now so that those RINs can be reinstated under RFS2

Complying with the RVOs – Biomass-Based Diesel in 2010

- 2010 standard is based on the combined statutory volumes from 2009 (0.5 bill gal) and 2010 (0.65 bill gal) for a total of 1.15 bill gal

- RFS1 regs applied in 2009, so the rollover cap of 20% applied only to total renewable fuel in 2009, not biodiesel
  - No limit on number of 2008 biodiesel RINs used for compliance in 2009

- All biodiesel RINs used for compliance in 2009 can be credited towards the 2010 obligation for biomass-based diesel
  - All biodiesel RINs used for compliance in 2009 would have been applicable to the 0.5 bill gal standard if RFS2 had been in place in 2009
  - Applies equally to 2008 RINs or 2009 RINs used for compliance in 2009

- Other excess RINs (RINs not used for compliance prior to 2010) are limited by the rollover caps
  - Sum of all 2008 and 2009 excess RINs cannot exceed 20% of the 2010 RVO
  - 2008 excess RINs cannot exceed 8.7% of the 2010 RVO
    - 8.7% = (20% of 0.5 bill gal) / 1.15 bill gal

Compliance with the 2010 Biomass-Based Diesel RVO

2008 biodiesel RINs used for compliance in 2009

2009 biodiesel RINs used for compliance in 2009

Excess 2008 biodiesel RINs

Cannot exceed 8.7% of RVO

Excess 2009 biodiesel RINs

2010 biomass-based diesel RINs

Cannot exceed 20% of RVO
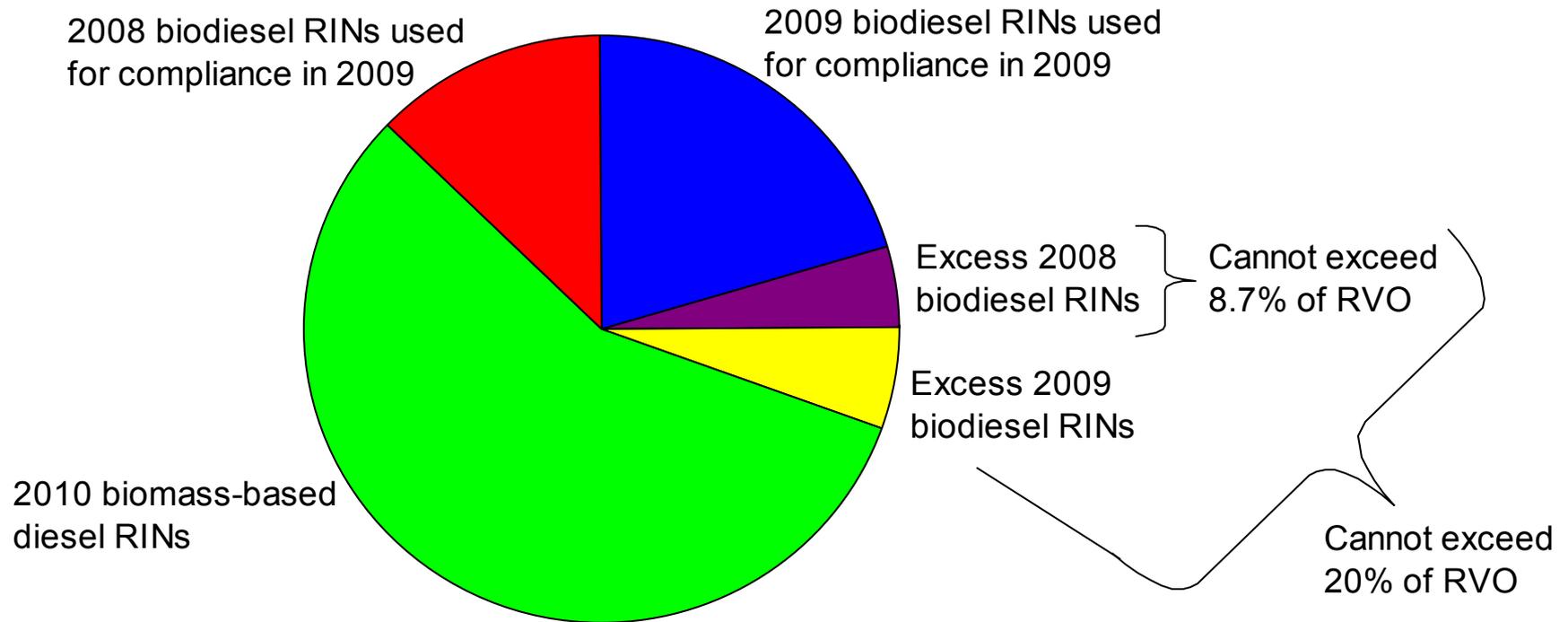
- Proportions are for illustration purposes only

Complying with the RVOs – Cellulosic Biofuel in 2010

- Cellulosic biofuel percentage standard was based on 6.5 mill gallons
  - Reduced from the statutory volume of 100 mill gallons

- RVO for cellulosic biofuel can be met with RFS1 RINs with a D code of 1 ("cellulosic biomass ethanol") and/or RFS2 RINs with a D code of 3 or 7
  - RFS1 RINs generated in 2009 limited to 20% of 6.5 mill gal
  - All RFS1 RINs generated in the first half of 2010 can be used

Questions?

- For Additional information:
  http://www.epa.gov/otaq/fuels/renewablefuels/index.htm
  - Includes Factsheets
  - RFS2 Rulemaking Package
    - Preamble
    - Regulations
    - Regulatory Impact Analysis
  - Links to Other Information
  - Frequently Asked Questions

- Send new questions to: EPAFuelsPrograms@epa.gov