



Proposed Changes to the U.S. Renewable Fuel Standard

**U.S. Environmental Protection Agency
Office of Transportation & Air Quality**

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Agenda

- Background and statutory requirements
- Lifecycle impacts and GHG thresholds
- Other important provisions
- Impacts
- Next Steps



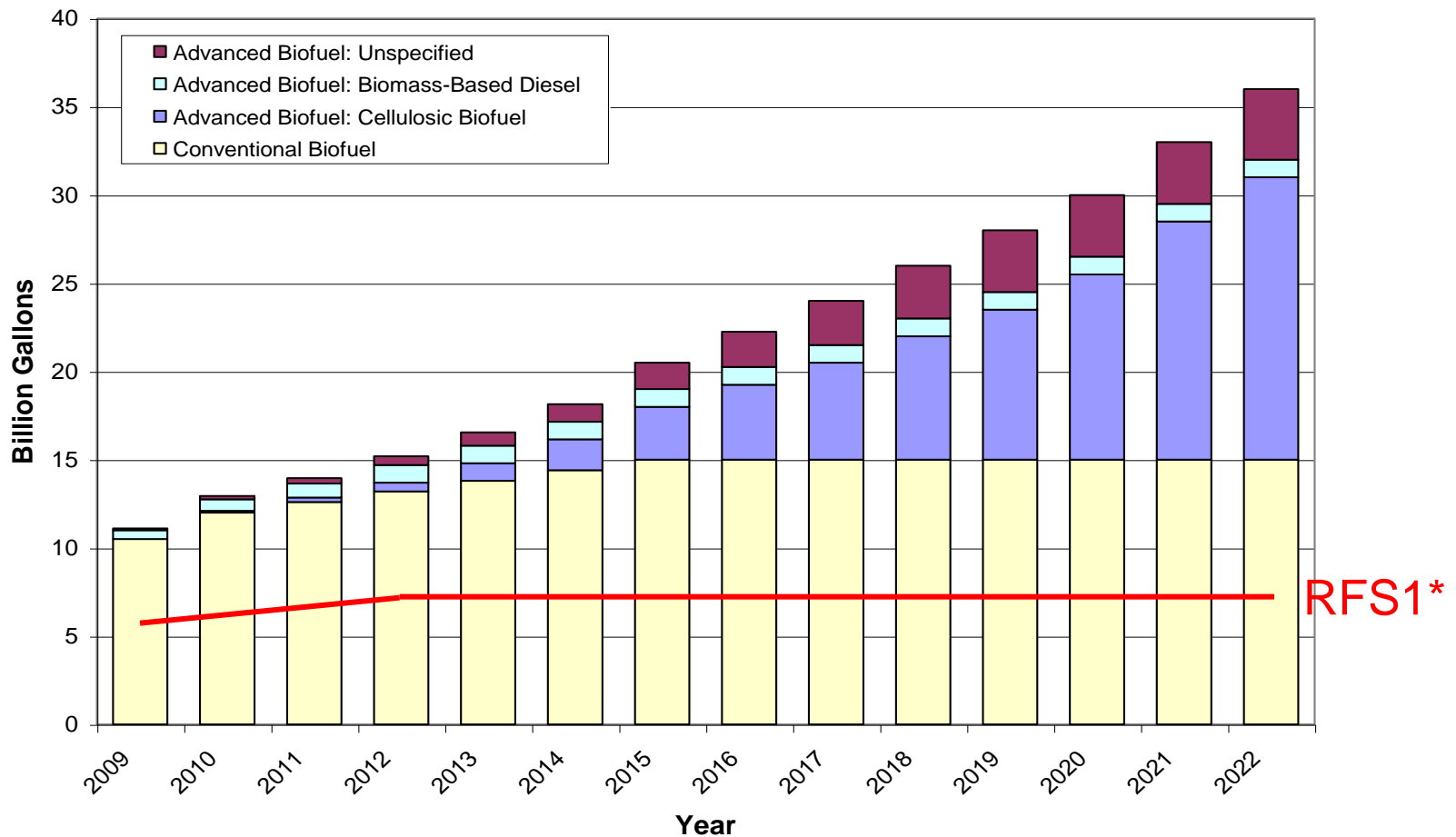
A Short History

- **On May 5, Administrator Jackson signed the Renewable Fuel Standard (RFS2) proposal**
 - Proposal interprets revisions to the original EPA Act RFS program, as included in the Energy Independence and Security Act (passed in December 2007)
 - Lays out these proposed changes, including alternative options, for public comment

- **Some of the revisions that are interpreted and discussed in the proposal include:**
 - Significantly increased volumes of renewable fuel
 - Separation of the volume requirements into four separate categories of renewable fuel: cellulosic biofuel, biomass-based diesel, advanced biofuel, total renewable fuel
 - Changes to the definition of renewable fuels to include minimum lifecycle GHG reduction thresholds
 - Restrictions on the types of feedstocks that can be used to make renewable fuel, and the types of land that can be used to grow feedstocks
 - Inclusion of specific types of waivers and EPA-generated credits for cellulosic biofuel



Increase Mainly From Cellulosic/ Advanced Biofuel



* RFS1 – As established by Energy Policy Act of 2005



New Standards

Four Separate Standards

- **Cellulosic Biofuel: 16 billion gallons by 2022**
 - Renewable fuel produced from cellulose, hemicellulose, or lignin
 - E.g., cellulosic ethanol, BTL diesel, green gasoline, etc.
 - Must meet a 60% lifecycle GHG threshold
- **Biomass-Based Diesel: 1 billion gallons by 2012 and beyond**
 - E.g., Biodiesel, “renewable diesel” if fats and oils not co-processed with petroleum
 - Must meet a 50% lifecycle GHG threshold
- **Advanced Biofuel: Minimum of 4 billion additional gallons by 2022**
 - Essentially anything but corn starch ethanol
 - Includes cellulosic biofuels and biomass-based diesel
 - Must meet a 50% lifecycle GHG threshold
- **Renewable Biofuel: Up to 15 billion gallons**
 - Any qualifying renewable fuel , including ethanol derived from corn starch
 - Must meet 20% lifecycle GHG threshold
 - Only applies to fuel produced in new facilities

Existing biofuel facilities not required to meet general renewable biofuel GHG threshold

EISA language permits EPA to adjust the lifecycle GHG thresholds by as much as 10 percentage points

- Based on the market availability of fuels that could count as advanced biofuel, we have proposed that the GHG threshold for advanced biofuel be adjusted to as low as 40%



Lifecycle Methodology and Results



Lifecycle GHG Emissions

- **Lifecycle GHG analysis is integral to the new RFS2 Standards**
 - Without a determination of whether a fuel does or does not comply with the thresholds, the program cannot be implemented

“**The term ‘lifecycle greenhouse gas emissions’ means** the aggregate quantity of greenhouse gas emissions (**including direct emissions and significant indirect emissions such as significant emissions from land use changes**), as determined by the Administrator, related to the full fuel lifecycle, including all stages of fuel and feedstock production and distribution, from feedstock generation or extraction through the distribution and delivery and use of the finished fuel to the ultimate consumer, where the mass values for all greenhouse gases are adjusted to account for their relative global warming potential.”



Lifecycle GHG Thresholds

- **GHG thresholds are defined as the % reduction in lifecycle GHGs for a renewable fuel in comparison to the 2005 baseline gasoline or diesel that it displaces**
 - Lifecycle GHG estimates are only used to categorize renewable fuels into the four standards, not to value them

- **We have conducted lifecycle analysis for a variety of renewable fuel pathways**
 - Additional analysis for final rule is expected to expand the list of pathways and revise input assumptions based on new information
 - Also proposing a "default" mechanism that would allow some renewable fuels to temporarily generate RINs even if we did not explicitly analyze their lifecycle GHG impacts

- **While each renewable fuel pathway has a unique lifecycle GHG emissions impact in grams/mmBtu, for RFS2 regulatory purposes these lifecycle emissions are used only to compare each pathway to the applicable threshold and assign it to one of the four renewable fuel categories**



Proposal Presentation of LCA Results

- **Thorough description of our new methodology and results**
- **Acknowledges uncertainty, particularly for land-use change impacts**
- **Presents the results, along with various sensitivity runs**
 - Corn ethanol assessments for different volumes, different years
 - Different assumptions for land use impacts
 - Bracketing pasture replacement (zero to 100%)
 - Type of land converted (assume 100% grassland)
 - Impact of foregone sequestration over time
- **Likewise we present several options for valuing the impacts over time**



Other Key Provisions



Grandfathering

- **All biofuel facilities that “commenced construction” prior to EISA are grandfathered**
 - They are not required to meet the minimum 20% GHG threshold
 - Does not apply to other thresholds

- **We seek comment on a range of options based on input from stakeholders**
 - Protective of pre-EISA investments
 - Level playing field for future investments
 - Practical implementation (avoid NSR-like issues)

- **Main proposal is to grandfather a baseline volume for each facility**
 - Baseline volume would be grandfathered forever
 - Expansions would be tracked like new facilities

- **We expect at least 15 bill gal will be grandfathered**
 - All current corn-ethanol production volume
 - All current biodiesel production volume
 - All current sugarcane ethanol production volume



Renewable Biomass Provision

- **EISA restricts the types of renewable fuel feedstocks and land that feedstocks can come from. For example:**
 - Agricultural land must have been cleared or cultivated prior to Dec 19, 2007 and actively managed or fallow, and non-forested
 - Woody biomass from federal land is not allowed, except from wildfire areas
- **EISA language does not prohibit a “shell game” in which food crops are moved to new ag land while existing ag land is used for fuel feedstocks**
- **Requires new tracking of feedstocks from point of production to renewable fuel producers**
 - Applies to both domestic and foreign producers
- **Proposes that renewable fuel producers be required to maintain records to support their decision to generate or not to generate RINs for a given batch of renewable fuel**
 - Renewable fuel producers would be expected to work out a system with their feedstock supplier(s) to ensure they generate RINs only for fuel produced from feedstock that meets the definition of “renewable biomass
 - The practical implication is that producers would establish tracking systems up through their supply chain
 - Other options include relying on third-party verification and use of satellite imagery



RINs –Credit Trading & Compliance

- Renewable Identification Numbers (RINs) = currency for credit trading and compliance
- RINs must be transferred with renewable fuel through distribution system
 - NPRM seeks comment on alternatives (e.g., allow RINs to be transferred separately from renewable fuel)
- Refiners and importers have the responsibility of acquiring sufficient RINs each year to meet their obligations
 - We're seeking comment on alternatives on who is an obligated party
- Recordkeeping and reporting requirements would be based upon RIN ownership, not ownership or custody of fuel volume
- Obligated parties producers and importers of gasoline and diesel (for both nonroad and highway)
 - We also take comment on an alternative approach in which blenders are the obligated parties rather than producers and importers



Next Steps



Comment Period and Workshop

- **60-day public comment period will commence following publication of proposal in the Federal Register**

- **Public hearing on proposal planned for June 9 in Washington, DC**

- **Two-day lifecycle workshop (June 10-11 in Washington, DC)**
 - The intent of this workshop is to help ensure a full understanding of our lifecycle analysis, the major issues identified, and the options discussed

- **Planned peer reviews of lifecycle methodology**



RFS Notice of Proposed Rulemaking Documents and Fact Sheets

<http://www.epa.gov/OMS/renewablefuels/#regulations>