



EISA 2007: Renewable Fuels Standard Program

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Presentation Overview

- **Reflection on Current Renewable Fuel Standard (RFS Program) as Established under EPOct 2005**
- **Overview of Renewable Fuels Standard Provisions In EISA 2007**
- **Highlights - Energy Independence and Security Act of 2007**
 - **The New RFS (RFS2) – What’s New and Important**
 - **Overview of other Key Related Studies, Reports and Processes**
- **Status and Next Steps**

Renewable Fuels: Reflection on EPA Act 2005 RFS Program

- **Default Rule Applied for 2006**
- **Final Renewable Fuel Standard (RFS)**
 - Final Rule Published May 2nd 2007
 - Official Program Start - Sept 1, 2007
- **EPA converts RFS into percent of gasoline production**
 - Obligation Applies to refiners, importers, gasoline blenders
 - 4.0 billion gallons/yr in 2006 -- growing to 7.5 bgy in 2012
- **Major Compliance Element - Trading and Banking Provisions**
 - Flexible Program - Based on a RIN – Renewable Identification Number (i.e. credits)
 - Allows for compliance when, where, and how it makes the most sense
- **Renewable values based on volumetric energy content compared to corn ethanol**

□ Corn-ethanol:	1.0
□ Biodiesel (alkyl esters):	1.5
□ Cellulosic biomass ethanol:	2.5
(As specified in EPA Act)	



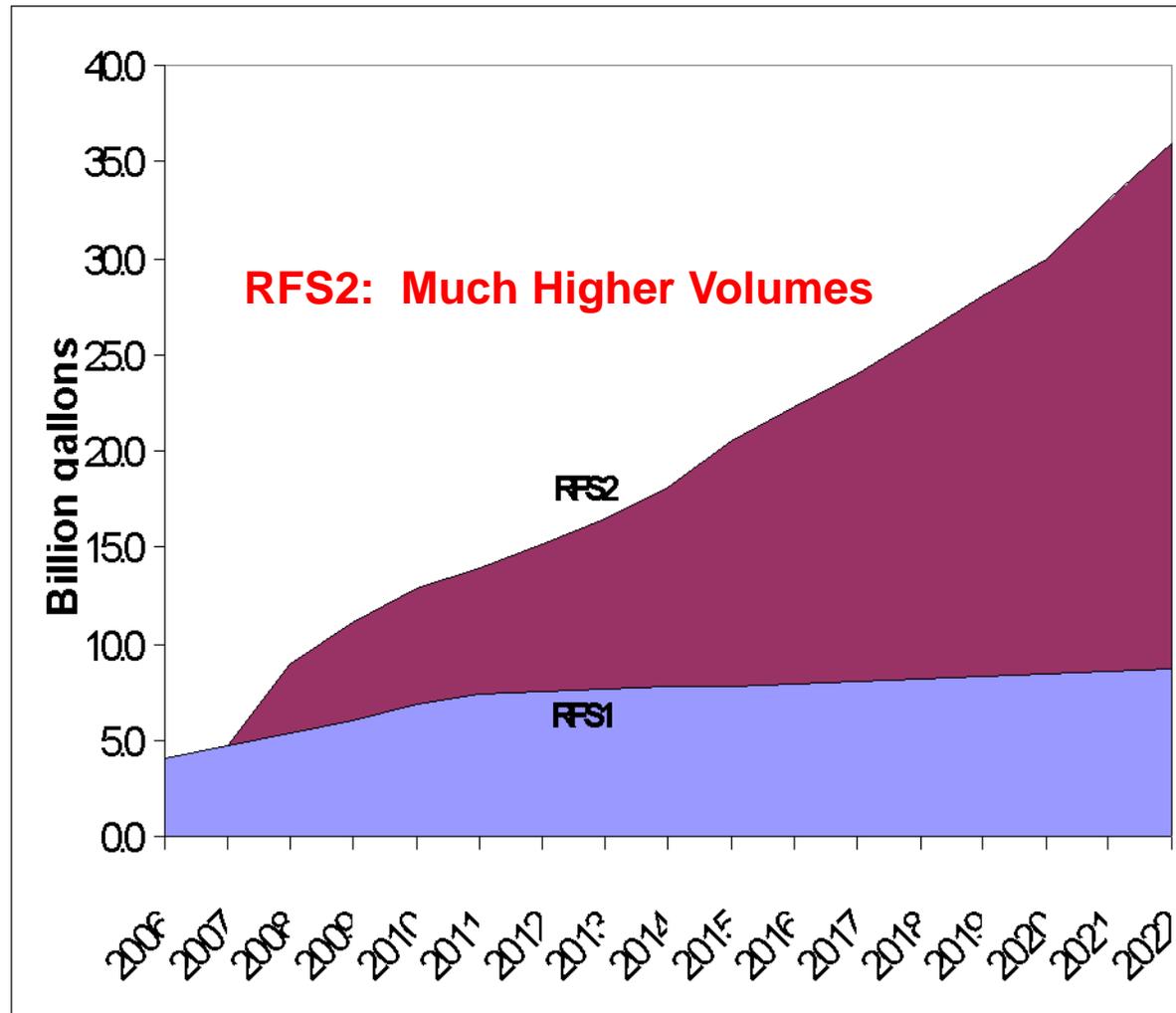
Energy Independence & Security Act - RFS 2

A General Timeline and Process

- **EISA signed by the President December 19, 2007**
- **EISA - Final RFS 2 Rule required by December 19, 2008**
- **Major modifications to the current RFS program beginning in 2009**
- **RFS 2 – Plan to build off of the foundation of RFS1**
 - Rule development process similar to RFS 1
 - Engage early / often with stakeholders throughout the process
 - Continue w/close consultation – DOE, USDA, Other federal partners

One Important Giant Step?: Energy Independence & Security Act – Renewable Fuels Standard

- **Modifies Current RFS program beginning in 2008**
 - Volumes increase to 9 Bgal/yr in 2008 – escalating to 36 Bgal/year by 2022
- **Establishes new renewable fuel categories and eligibility requirements, including GHG reduction thresholds!**
- **Provides new waivers and paper credit provisions**
- **Includes new obligation for fuels**
- **Includes new studies and reports**



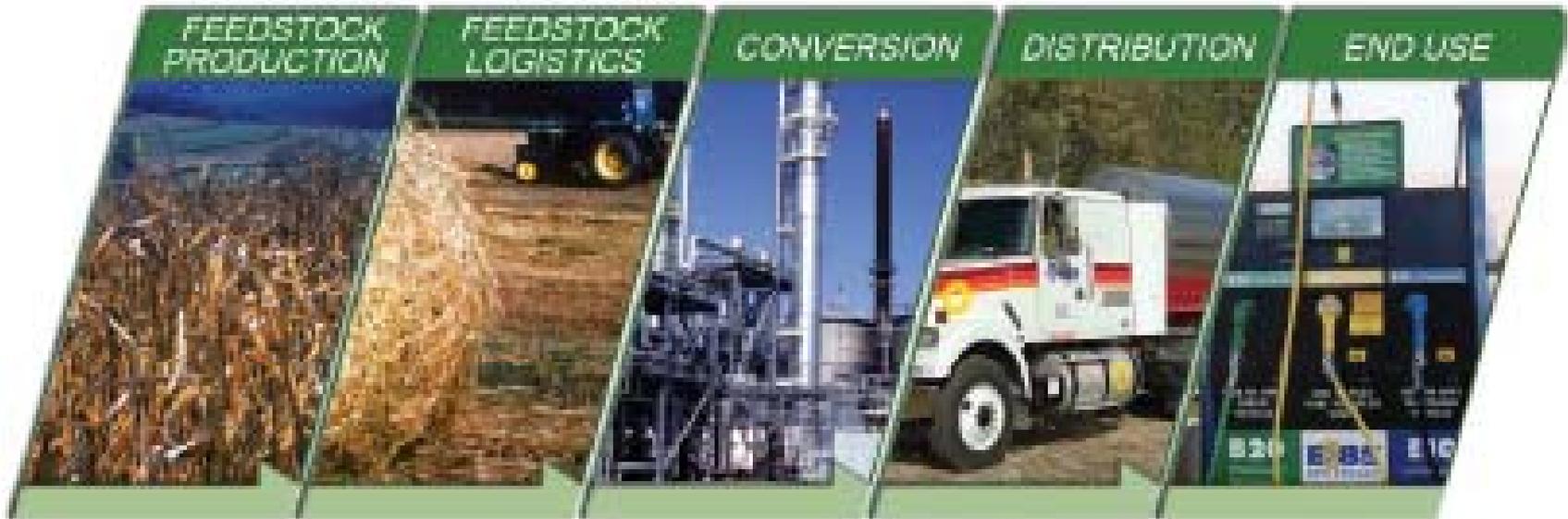
RFS2: 4 Nested Standards (bill gal)

Year	Conventional Biofuels (Grandfathered or 20% Reduction)	Advanced Biofuel				Total Renewable Fuel
		Biomass-Based Diesel (50% Reduction)	Non Cellulosic Advanced (50% Reduction)	Cellulosic Biofuel (60% Reduction)	Total Advanced Biofuel	
2006	4.00					4.0
2007	7.70					4.7
2008	9.00					9.0
2009	10.50	0.5	0.1		0.6	11.1
2010	12.00	0.65	0.2	0.1	0.95	12.95
2011	12.60	0.80	0.3	0.25	1.35	13.95
2012	13.20	1.0	0.5	0.5	2.0	15.2
2013	13.80	1.0	0.75	1.0	2.75	16.55
2014	14.50	1.0	1.00	1.75	3.75	18.15
2015	15.00	1.0	1.50	3.0	5.5	20.5
2016	15.00	1.0	2.00	4.25	7.25	22.25
2017	15.00	1.0	2.50	5.5	9.0	24.0
2018	15.00	1.0	3.00	7.0	11.0	26.0
2019	15.00	1.0	3.50	8.5	13.0	28.0
2020	15.00	1.0	3.50	10.5	15.0	30.0
2021	15.00	1.0	3.50	13.5	18.0	33.0
2022	15.00	1.0	4.00	16.0	21.0	36.0

Key New Obligations and Definitions

- Standard extended from On-highway gasoline to **gasoline and diesel - non-road fuel in addition to highway**
- Jet fuel and heating oil aren't covered, but renewable fuel sold into these markets can generate RINs
- Definitions significantly changed from RFS1 and / or now include new elements
 - Lifecycle Defined and Thresholds Established
 - Facility Grandfathering Provisions
 - New Renewable Biomass Definition / Land Restrictions
- Creates new categories of renewable fuel with green house gas thresholds

RFS 2 – Expanded Program Considerations Throughout the Supply Chain



A Critical Element of EISA: Lifecycle Assessment

- Each fuel category required to meet mandated GHG performance thresholds (**reduction compared to 2005 baseline petroleum fuel replaced**)
 - **Conventional Biofuel** (ethanol derived from corn starch)
 - Must meet 20% lifecycle GHG threshold
 - Only applies to fuel produced in new facilities
 - **Advanced Biofuel**
 - Essentially anything but corn starch ethanol
 - Includes cellulosic biofuels and biomass-based diesel
 - Must meet a 50% lifecycle GHG threshold
 - **Biomass-Based Diesel**
 - E.g., Biodiesel, “renewable diesel” if fats and oils not co-processed with petroleum
 - Must meet a 50% lifecycle GHG threshold
 - **Cellulosic Biofuel**
 - Renewable fuel produced from cellulose, hemicellulose, or lignin
 - E.g., cellulosic ethanol, BTL diesel, green gasoline
 - Must meet a 60% lifecycle GHG threshold
- EISA language permits EPA to adjust the lifecycle GHG thresholds by as much as 10%

Definition of Lifecycle GHG Emissions

“(H) LIFECYCLE GREENHOUSE GAS EMISSIONS.—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 Analysis – What's Considered?

- **Domestic and International agricultural sector**
 - **Direct GHG emissions from producing feedstock, indirect impacts on other crops (e.g., less rice production), animals (fewer cattle), land use change**
- **Fuel production**
 - **Energy use and GHG emissions at production facility**
- **Fuel / feedstock distribution**
 - **Transporting feedstock to plant**
 - **Transporting fuel to end use**
- **Tailpipe emissions**
 - **Vehicle GHG emissions**
- **Baseline petroleum fuel**
 - **GHG emissions associated with producing gasoline and diesel fuel**



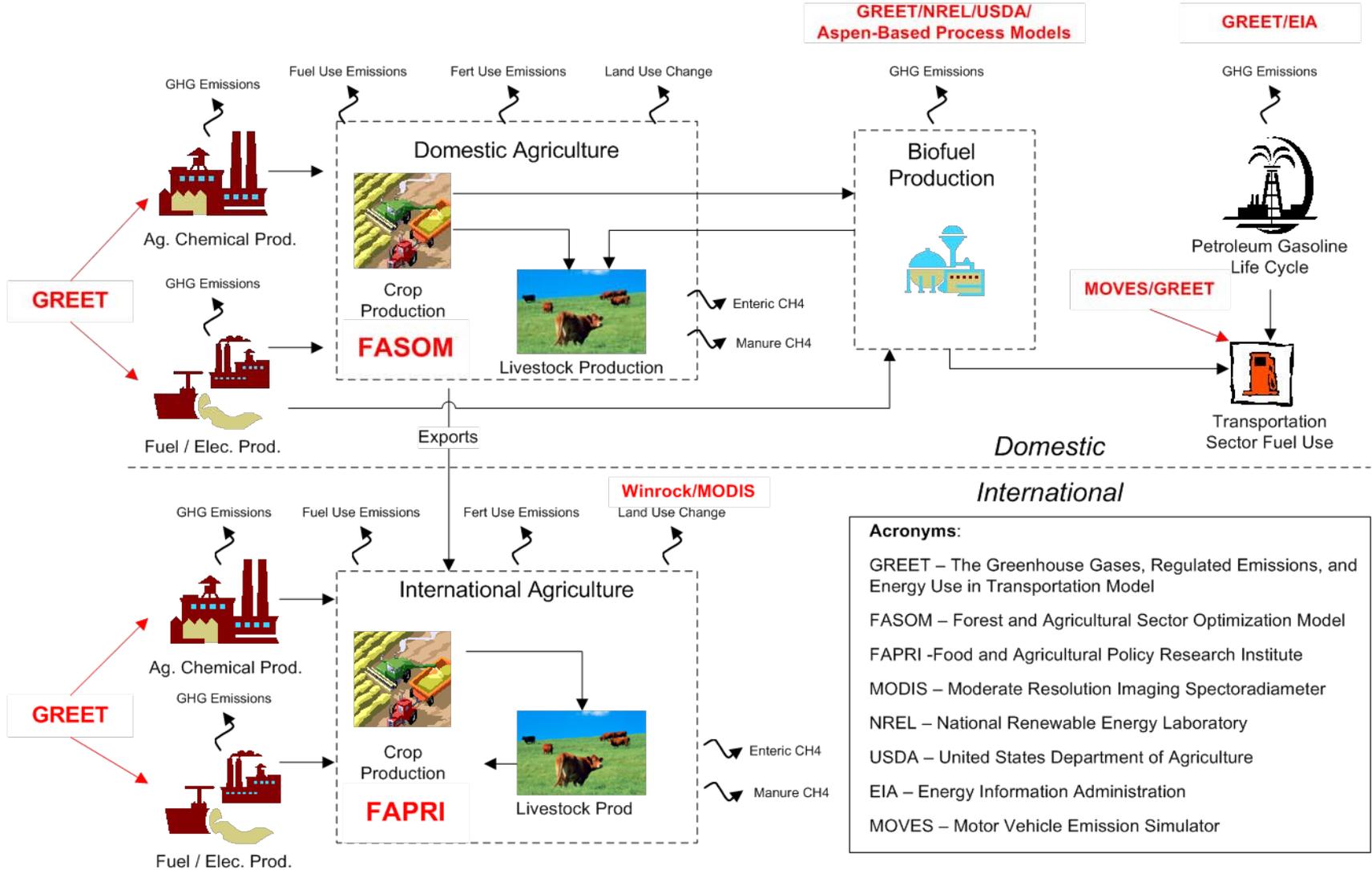
Key Models and Data Sources

- Emission factors (GREET, Winrock, Woods Hole)
- Agricultural sector models (FASOM, FAPRI, GTAP, BESS)
- Land use changes (FASOM, FAPRI, Winrock, GTAP)
- Fertilizer N₂O modeling (CSU DAYCENT/CENTURY)
- Fuel production process models (GREET, USDA & NREL ASPEN models, BESS)
- Tailpipe emissions (MOVES)
- Energy sector modeling (NEMS)

Biomass Production

Fuel Production

Fuel Use



Analyses for Rulemaking

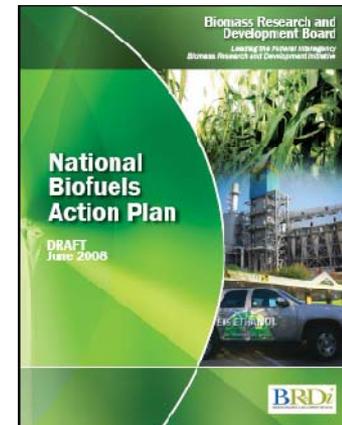
- **Renewable fuel production and use projections, technology and cost assessments**
- **GHG Lifecycle Modeling, Inventory, and Benefits**
- **Other Pollutant Inventory, Air Quality and Benefits**
- **Agricultural Sector Impacts**
- **Water and Soil Impacts**
- **Macroeconomic Impacts**
- **Energy Security**

Status of Proposed Rulemaking

- Package is in “inter-agency review” process
- Next steps
 - Revise per comments from interagency process
 - Signature by EPA Administrator
 - Package to be Published in Federal Register
 - Public Comment Process
- Issuance of Final?
- Implementation Intended for 2010

Other Issues and Activity

- RFS Future Program Waiver Request/s?
- The Blend Wall - Gasoline Pool - Ethanol Blending Restrictions and Evaluation of Intermediate Blends
- International Discussions
 - Lifecycle Modeling Framework
 - Food versus Fuel
 - Sustainability Stds
- EPA Intra Agency Biofuels Coordination
- US Biomass Research and Development Board
 - National Biofuels Action Plan
 - Working Groups
- Farm, Ranch and Rural Communities Federal Advisory Committee
- National Advisory Council for Energy Policy and Technology



Two Key Air / Environmental Impact Studies/Reports in EISA

Authority / Section	Action (Reg, Research or Report)	Title	Overview of Requirement	Lead / Timing
Sec. 204 (Primary)	Study/ Report	Env. and Resource Conservation Impacts	EPA shall assess and report to Congress on the impacts to date and likely future impacts of Section 211(o) of CAA.	EPA - Within 3 years and every 3 years after.
Sec. 209 (Primary)	Study/ Report/ Potential for Regulatory Action	Anti-backsliding	Study whether renewable fuel volumes adversely affect air quality as result of changes in vehicle emissions. Includes study of different blend levels. Requires promulgation of fuel regs to mitigate to greatest extent possible any adverse impacts.	EPA - Study within 18 months. Promulgate regulations within 3 years.

Questions



Thank you