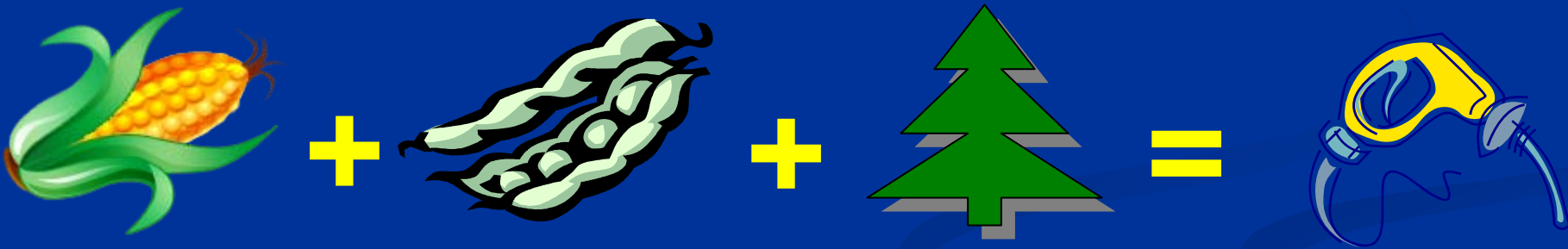




# The Challenge of Managing the Renewable Fuel Standard



Ethanol 2008: Emerging Issues Forum  
March 13, 2008

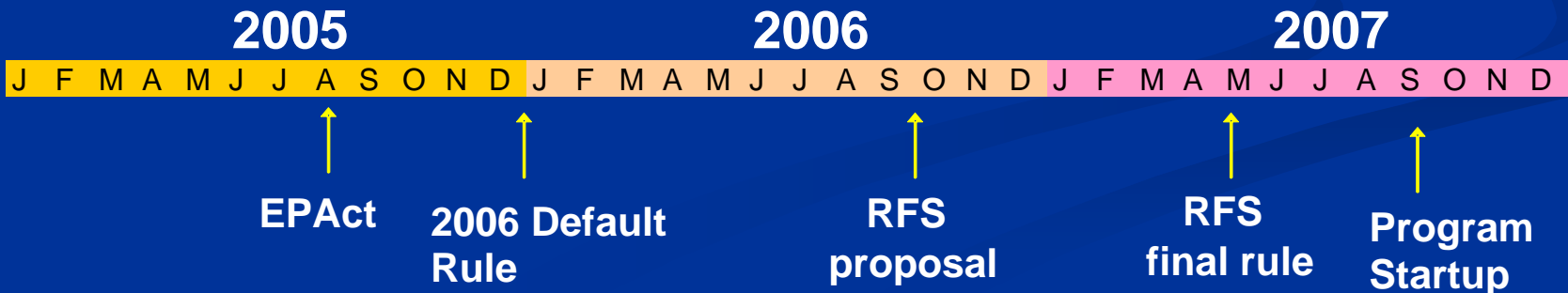
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# Presentation Overview

- RFS1
  - What's been done?
- RFS2
  - What will be the same?
  - What will be different?

# RFS1

- A rule on a rapid schedule
  - Required by EPO Act 2005
  - EPA final regulations published May 1, 2007
  - Start of the program Sept 1, 2007 – 2 years after enactment
- Designed a whole new regulatory program, in particular the RIN system, from the ground up
- Accomplished through extensive collaboration with a wide range of stakeholders
  - RFA, ACE, NBB, API, NPRA, SIGMA, NACS, PMAA, DOE, USDA, States, Enviros, etc.



# RFS1 – The Program Basics

## ■ Ethanol Equivalent Volumes Required

- 2006: 4.0 billion gallons/yr



- 2012: 7.5
- 2013+: Constant %, 0.25 bill gal cellulosic requirement

## ■ “Equivalence Value” for various renewables based on volumetric energy content in comparison to ethanol:

- Corn-ethanol: 1.0
- Biodiesel (alkyl esters): 1.5
- Renewable diesel: 1.7
- Butanol: 1.3
- Cellulosic biomass ethanol: 2.5 (Mandated by EPA Act thru 2012)

# RIN Compliance/Trading System

- 38 digit RIN serial numbers are assigned
  - By renewable fuel producers and importers
  - To each gallon/batch of renewable fuel produced
- Contains
  - Company registration ID
  - Facility registration ID
  - Year of production
  - Batch serial number
  - Batch volume
  - Equivalence Value
  - Toggle for cellulosic ethanol

# RIN Compliance/Trading System

- These RINs are the currency for the credit trading program
- Obligated parties acquire RINs in order to show compliance with the standard
- Compliance is assured thru reporting to EPA's Central Data Exchange

# RIN Compliance/Trading System

- RINs must be transferred along with renewable fuel through the distribution system
  - RINs cannot be “separated” from the renewable fuel by marketers
  - RINs can only be “separated” by obligated parties or renewable fuel blenders
- Once separated, no restrictions on who can buy, sell, or trade RINs or how many times
- RINs are valid for compliance in the calendar year generated, or the following year up to a cap of 20% of that year's volume requirement

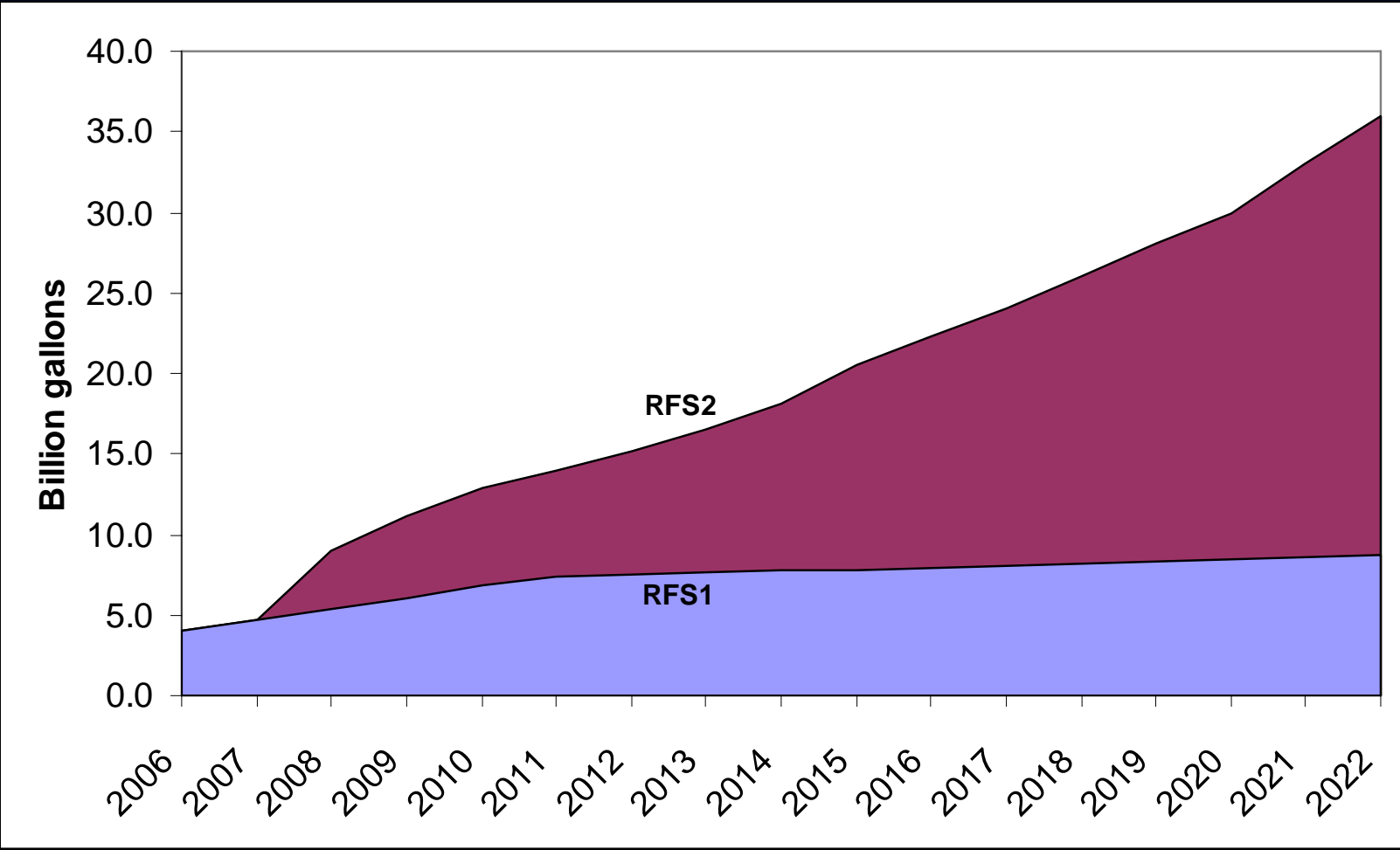
# RFS2: Deja Vu

- Another rule required on an even shorter schedule
  - Required by EISA December 19, 2007
  - Final Rule required by December 19, 2008
  - Required to be effective January 1, 2009
    - Currently evaluating options
- EISA also increases volume under RFS1 for 2008
  - Volume changed from 5.4 to 9.0 bill gal
    - Federal Register notice published Feb. 13

# RFS2

- Can build off of the foundation of RFS1
  - RIN system should be able to remain virtually intact
  - Still 38 digits
- But still working through what EISA will really mean
  - Several new challenging provisions
  - High volumes make every key issue very serious
- Picking up where we left off from RFS1 with our stakeholders
  - Want a proposal with broad stakeholder support

# RFS2: Much Higher Volumes



# RFS2: 4 Nested Standards

Year	Total Renewable Fuel		
	Total Advanced Biofuel		
	Biomass-Based Diesel	Cellulosic Biofuel	
2007			4.7
2008			9.0
2009	0.5		11.1
2010	0.65	0.1	12.95
2011	0.80	0.25	13.95
2012	1.0	0.5	15.2
2013	1.0	1.0	16.55
2014	1.0	1.75	18.15
2015	1.0	3.0	20.5
2016	1.0	4.25	22.25
2017	1.0	5.5	24.0
2018	1.0	7.0	26.0
2019	1.0	8.5	28.0
2020	1.0	10.5	30.0
2021	1.0	13.5	33.0
2022	1.0	16.0	36.0

# How Many Different Types of Ethanol Will There Be?

- While there may be many different feedstocks and/or processes...for example
  - Corn-ethanol from dry mill plant with dried DGs
  - Corn-ethanol from wet mill plant
  - Cellulosic ethanol from corn stover
  - Cellulosic ethanol from forestry residue
- ...there are only three possible categories of ethanol under RFS2
  - "Cellulosic biofuel"
  - "Advanced biofuel"
  - "Renewable fuel"

# New Renewable Fuel Definitions

- EISA creates new categories
- Eliminates the 2.5:1 credit for cellulosic biomass ethanol and waste-derived ethanol
- Definitions now include new elements
  - “Existing cropland” criterion
  - Lifecycle GHG reduction thresholds

# New “Existing Cropland” Criteria

- Renewable fuels must now be produced from renewable biomass harvested from “agricultural land cleared or cultivated” “at any time” prior to EISA
  - Active or fallow
  - For crops, non-forested lands
  - For trees, not from Federal lands
- Development of this provision will require extensive stakeholder interaction
  - How do renewable fuel producers track and certify their feedstocks – how enforce?
  - How far back could it have been cleared or cultivated – the Anasazi?
  - How apply/enforce internationally?
  - How prevent a shell game?

# New Lifecycle GHG Criteria

- Lifecycle greenhouse gases now play an explicit role in the RFS2 program
- But only as a means of categorizing each renewable fuel type/feedstock/process into one of the four standards
- Lifecycle analyses require a consideration of land use changes, including internationally

# New Renewable Fuel Definitions

## ■ Cellulosic Biofuel

- Renewable fuel produced from cellulose, hemicellulose, or lignin
- May include cellulosic ethanol, biomass-to-liquids diesel
- Lifecycle threshold: 60% reduction in GHGs w.r.t gasoline/diesel

## ■ Biomass-Based Diesel

- May include biodiesel (FAME), “renewable diesel” if fats/oils not co-processed with petroleum
- Lifecycle threshold: 50% reduction in GHGs w.r.t gasoline/diesel

# New Renewable Fuel Definitions

## ■ Advanced Biofuel

- Essentially anything but corn starch ethanol
- Includes "Cellulosic Biofuel" and "Biomass-Based Diesel"
- Lifecycle threshold: 50% reduction in GHGs w.r.t gasoline/diesel

## ■ (other) Renewable fuel

- Corn-starch ethanol and other fuels not meeting the criteria for the other categories
- Lifecycle threshold: 20% reduction in GHGs w.r.t gasoline/diesel

# Facility Grandfathering

- Facilities that “commenced construction” prior to EISA are grandfathered
  - Means they are automatically deemed to meet the 20% GHG threshold for “renewable fuel”
- Development of this provision will require extensive stakeholder interaction
  - How define “commenced construction”?
  - How apply to future expansions, changes in feedstock, changes in energy source?
  - How apply internationally?

# Waivers

- There are three basic types of waivers that could result in the required volumes being reduced
- General waivers
- Cellulosic biofuel waivers
- Biomass-based diesel waivers

# General Waiver Authority

- Anyone subject to the requirements (not just States) can now petition for a waiver or relaxation of any of the four standards, including the Administrator
  - Severe harm to the economy or environment
  - Inadequate supply
- EPA must approve or disapprove a petition within 90 days
- But requires opportunity for notice and comment
- Any approved waiver is limited to one year, but can be renewed

# Cellulosic Biofuel “Waiver”

- Irrespective of the volumes required in the Act
  - The Administrator must set the cellulosic standard
  - Each November for the following year
  - “Based on” volume projections from EIA
- If the cellulosic standard is set less than the volume required in the Act,
  - EPA may reduce the standards for advanced biofuel and total renewable fuel accordingly
  - EPA must make EPA-credits (RINs) available for sale at the greater of
    - 25 ¢/gallon
    - \$3.00 per gallon less the wholesale price of gasoline (at today’s prices this equates to ~70 ¢/gal)
- Anticipate extensive interaction with stakeholders

# Biomass-Based Diesel Waivers

- EPA can lower the standard in the Act
  - If significant supply or other market circumstances lead to high prices
- Up to 15%
  - 30% if renewed
- May reduce advanced biofuel and total renewable fuel standards accordingly

# Next Steps

- 2008 standard is in place
- Turning focus to the 2009+ regulations
- Stakeholder outreach is already underway

# For More Information..



Web page:

[www.epa.gov/otaq/renewablefuels](http://www.epa.gov/otaq/renewablefuels)

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