RINs: Filling the Landfill Environmental Attribute Value Void

EPA's 17th Annual LMOP Conference
January 22th, 2014

Blue Source Background

- North America's Leading Environmental Attribute Project Developer
  - Oldest & Largest Project Developer in the Voluntary & Compliance Carbon Credit Markets
  - Recently voted Best Project Developer for the North American Market by Environmental Finance
  - #1 in Landfill Gas Projects on the leading carbon registries
  - Established commercial relationships with many oil refiners that produce gas & diesel
  - 3 offices in North America: (San Francisco, CA; Salt Lake City, UT; Calgary, Canada)

San Francisco

Salt Lake City

Calgary, Alberta

Agenda

- Landfill environmental attributes: Carbon, RECs, RINs, LCFS
- RFS2 & RIN Overview
- RIN types/D-Codes
- Meaningful Modifications to RFS2 -Biogas RIN generation
- RIN Value
- LCFS- Value
- Case Study
- Questions??

Landfill Environmental Attributes

- Carbon Credits-
  - Not CARB eligible→ Only voluntary buyers-
  - Oversupplied and current lack of demand
- RECs-
  - RPS state specific with varying demands
  - LFG prices have been weaker vs other types
- RINS- Could be Landfill's white knight?
  - Federal mandate until 2022
  - Significant market demand
- CA-LCFS (Low Carbon Fuel Standard)
  - Performance based state regulation until 2020 (2030+)
    - Reduce Carbon Intensity (10%)

Why should landfills care about RINs/LCFS?

- **Creation of a brand new revenue stream**
  - Infusion of cash when budgets are getting tightened
  - No additional staff time
  - No additional capital
  - Essentially no cost
- **New revenue stream will be around until 2022/2020**
  - Federal Mandate is until 2022 (9 years)
  - CA LCFS is until 2020 (7 years) extension to 2030+?
  - Ease the cost of implementing additional sustainable projects

Blue Source is best positioned to deliver value to both biogas producers & transportation end users based on its market understanding and experience

Renewable Fuel Standard (RFS2) Overview

- The RFS program was created under the Energy Policy Act (EPAct) of 2005, and established the first renewable fuel volume mandate in the United States.
- Energy Independence and Security Act "EISA" (December 2007) expanded the RFS program
  - Significantly increased volumes of renewable fuel {9 bil. Gal 2008 – to 36 bil. Gal 2022}
  - Separation of the volume requirements into four separate categories of renewable fuel:

    cellulosic biofuel, biomass-based diesel, advanced biofuel, renewable fuel
  - Minimum lifecycle GHG reduction thresholds
  - Transitions the focus of renewable fuels to "advanced and cellulosic" biofuels
  - Inclusion of EPA-generated waiver credits for cellulosic biofuel

RFS2 Overview- Definitions

- RIN- (Renewable Identification Number)- RFS2 policy unit to incentivize renewable fuel utilization for the purpose of achieving significant GHG reductions, reducing imported petroleum, and development of our nations renewable fuels sector until 2022
- Obligated Party (OP)- is any refiner that produces or imports gasoline or diesel fuel within the 48 contiguous states or Hawaii during a compliance period {Market Demand}
- Renewable Volume Obligation (RVO) - amount OP's have to purchase based on amount of gasoline and diesel produced and imported multiplied by % requirement
- Biogas- Only biogas that is produced through the conversion of organic matter and used as renewable fuel can generate RINs. Specifically:
  - landfill gas
  - manure digester gas
  - sewage waste treatment gas

RFS2 Overview- Four Separate Standards

- **Renewable Biofuel: D-6**

  Capped at 15 billion in 2015 (Ethanol from corn)

  — Must meet 20% lifecycle GHG threshold - applies to fuel produced in new facilities

- **Advanced Biofuel: D-5**

Total of 21 Bil gal by 2022 (anything except corn ethanol)

  — Includes cellulosic biofuels and biomass-based diesel

  — Must meet a 50% lifecycle GHG threshold

- **Biomass-Based Diesel: D-4**

  — Must meet a 50% lifecycle GHG threshold

  — EPA may increase the volume above 1 bill gal for 2013

- **Cellulosic Biofuel: D-3**

  16 Bil gal by 2022 (annual assessments)

  — E.g., cellulosic ethanol, BTL diesel, green gasoline, etc.

  — Must meet a 60% lifecycle GHG threshold

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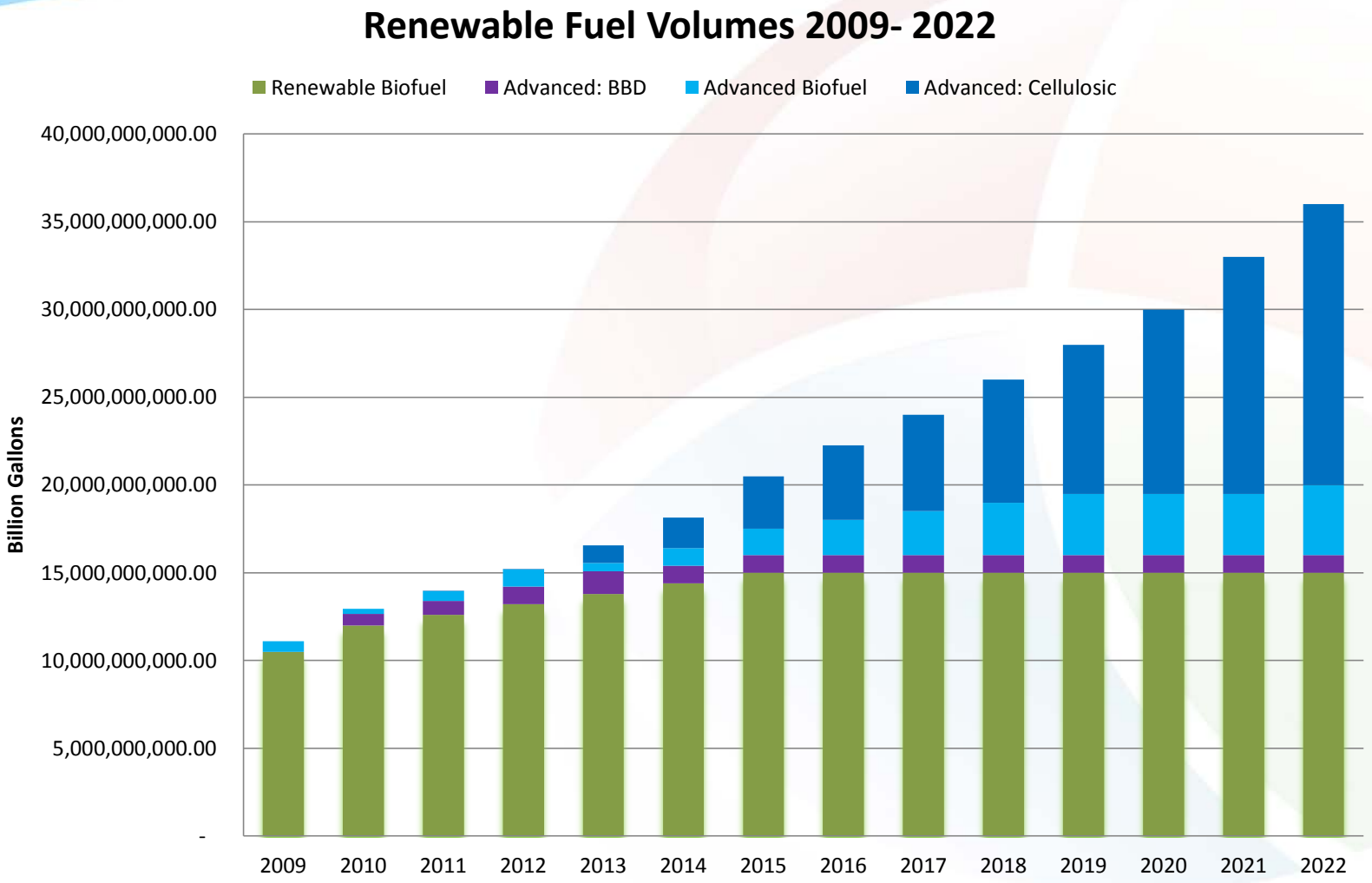
Biogas could qualify for D-5 & D-3 standards

RINs: Renewable Fuel Volumes through 2022



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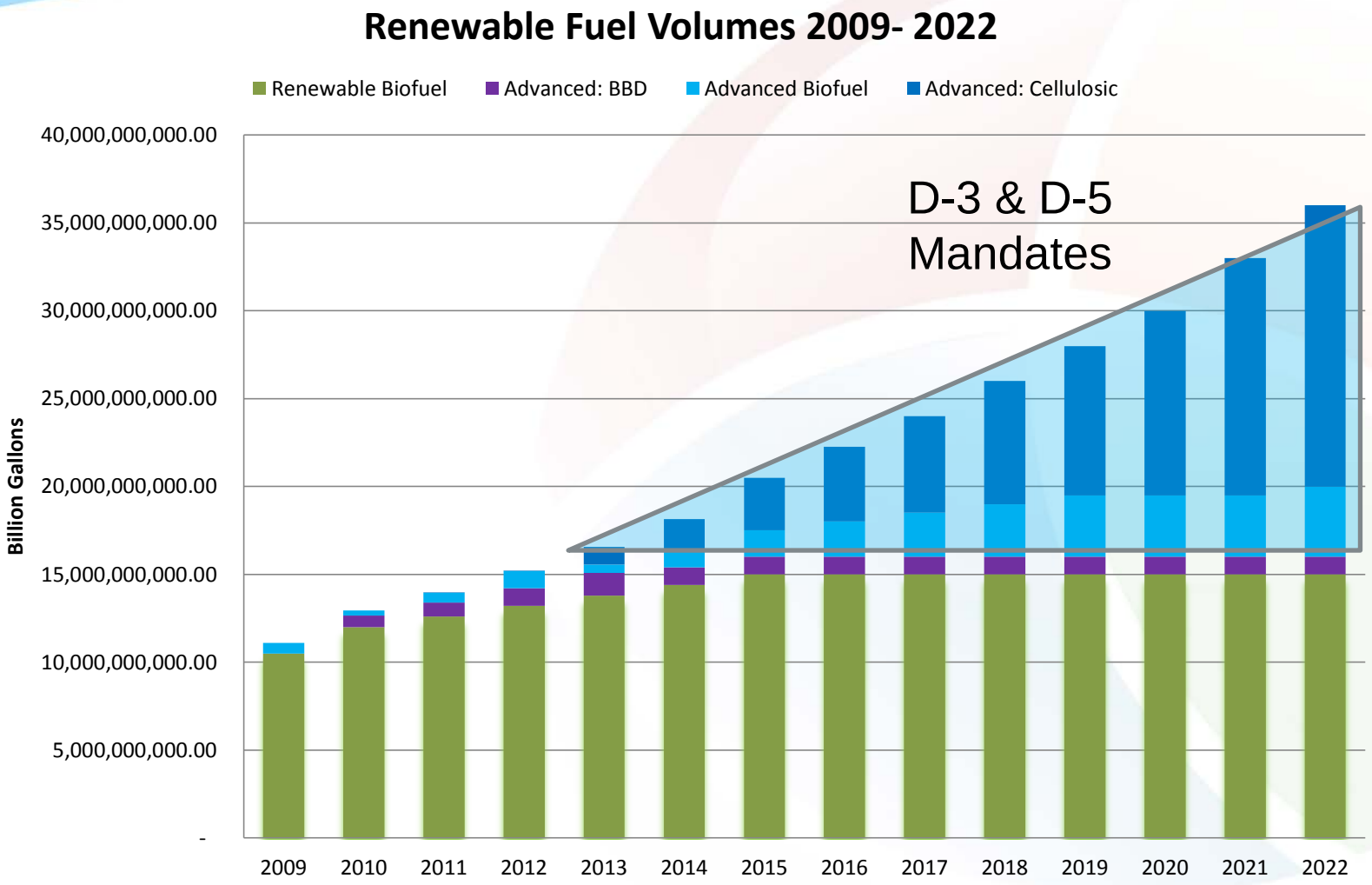


Proposed 2014 RFS2 Standards

	2014 Statutory Volumes	2014 Proposed Volumes	Range of Proposed 2014 Volumes
D3 (Cellulosic)	1.75 billion	17 million	8-30 million *67-73 million
D4 (Biodiesel)	1.5 billion	1.28 billion	1.28 billion
D5 (Advanced)	3.75 billion	2.20 billion	2.01-2.51 billion
Total Renewable	18.15 billion	15.21 billion	15-15.52 billion

* Will increase if Pathways II is approved before 2014 Standards are approved

Public Comment period for Proposed 2014 Standards closes Jan. 28, 2014

RIN Supply: Biogas Opportunities

- EPA modifications (Pathways II) comment period closed but would allow opportunity:
  - Modify Landfill gas from a D5 to a D3 (Cellulosic Biofuel RIN)
  - Waste Digester gas from yard waste (D3); food waste (D5)
  - Allow renewable electricity from LFG to qualify as a pathway

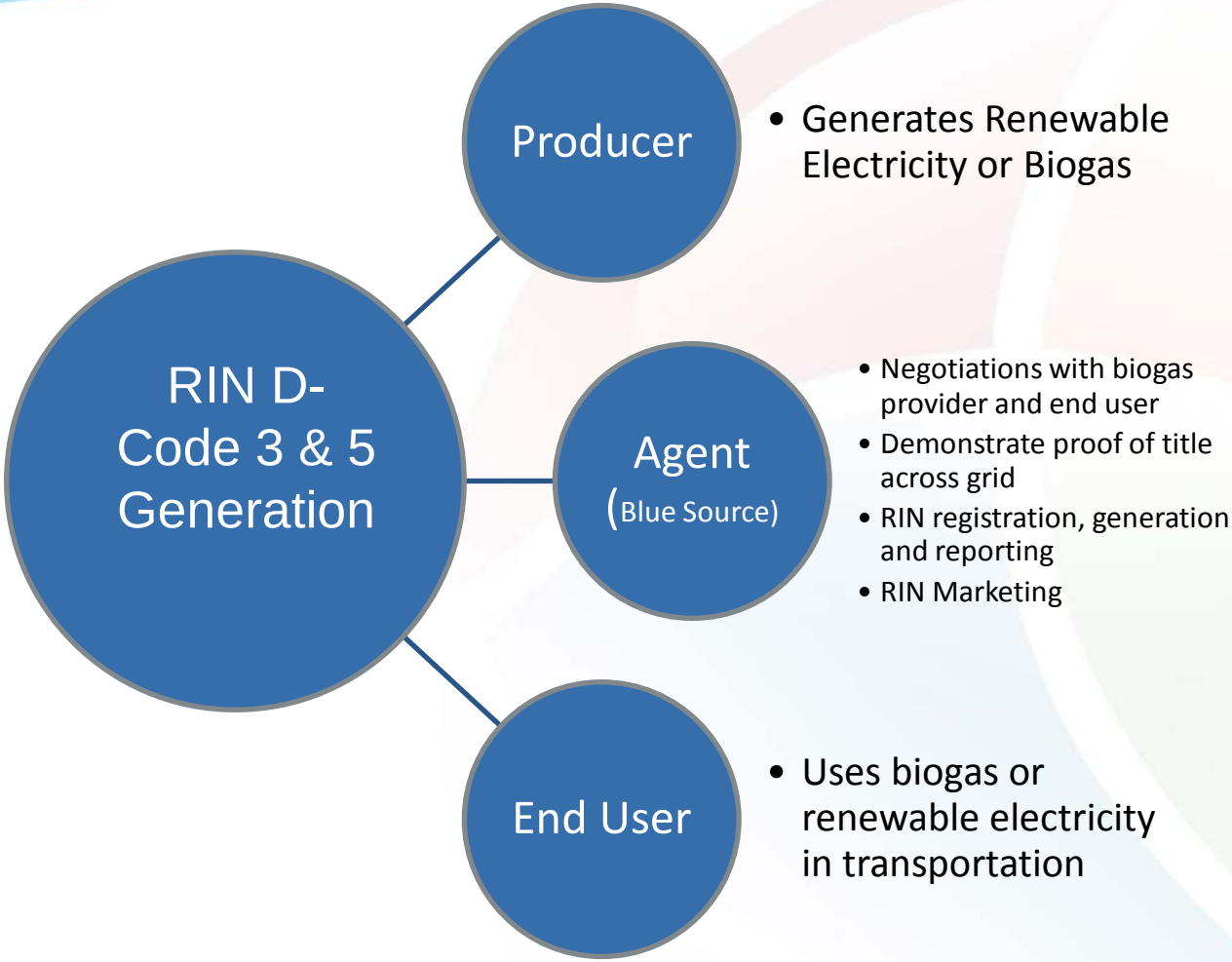
<u>The Opportunity Requires RIN- Biogas Supply and End Use demand:</u>

To generate a RIN, BOTH feedstock (supply) and transportation (end-use demand) are required

- Biogas Producers (Supply):
  - Landfill=D-3 Code (Cellulosic)
  - Sewage Waste Treatment gas= D-5 Code (Advanced Bio)
  - Manure digesters

- CNG/LNG|Electricity Fleets (End-Use Demand):
  - Renewable Electricity- (LFG) used in electric vehicles
  - Upgrade biogas to inject into the Nat. Gas Grid (Off take- CNG)
  - CNG Onsite Production –CNG Filling Station

RIN Supply: Biogas RIN generation



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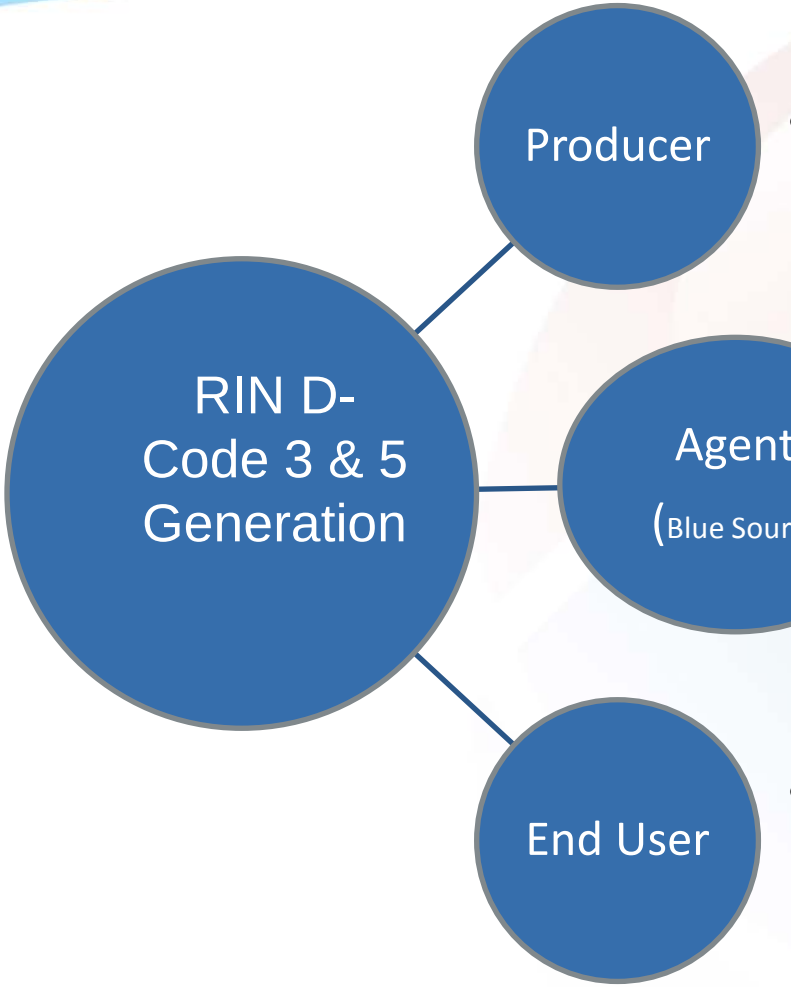


- Generates Renewable Electricity or Biogas

- Negotiations with biogas provider
- Negotiates with End User
- Demonstrate proof of title across grid
- RIN registration, generation and reporting
- RIN Marketing

- Uses biogas or renewable electricity in transportation

Required Steps for RIN Generation

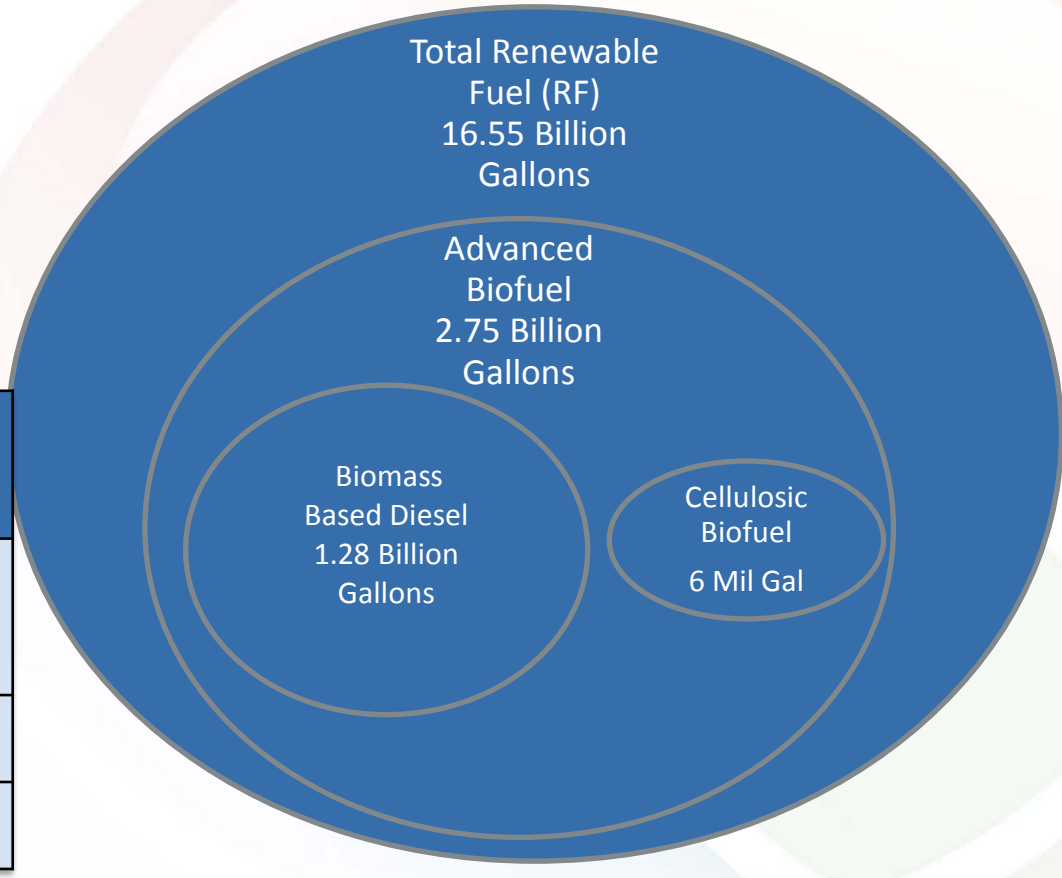
- Register Facility with EPA
  - 3rd Party Engineering Review
  - After EPA receives "completed packet" wait (60 days) prior to RIN generation
  - EPA- Review for Approval (ets. 90 days)
- Generate RINs per EPA Guidelines
  - Title 40, Part 80 Subpart M- Renewable Fuel Standard
- RIN Generator/RIN Owner Reporting Requirements
  - Generation & Transaction Reports
  - Quarterly & Annual Outlook Documentation
- Natural Gas/Electricity Specific:
  - Contracts and documents with Transportation End Use
    - sale of biogas or renewable electricity for use as transportation fuel
    - transfer of title of the biogas or renewable electricity and all associated environmental attributes from the point of generation to the facility which sells or uses the fuel for transportation purposes.
  - maintain records documenting the sale,
  - delivery into the transmissions system,
  - use of the electricity from the transmission system as transportation fuel

RIN: Value & Nesting

- RIN Demand comes from Obligated Party's Renewable Volume Obligation (RVO)
  - RVO % are set by EPA each year
  - Demand = RVO% Requirement x [(gasoline + diesel) produced & imported] + Deficit

Fuel Type/ D-Code	2010	2011	2012	2013
Cellulosic Waiver Credit (CWC)	$1.56/CWC	$1.13/CWC	$0.78/CWC	**$0.42/CWC**
Cellulosic-D3	0.004%	0.003%	0.006%	**0.004%**
Advanced-D5	0.61%	0.78%	1.21%	**1.60%**

2013 Requirements



Cellulosic RIN (D-3):= Discount Price of CWC + D5

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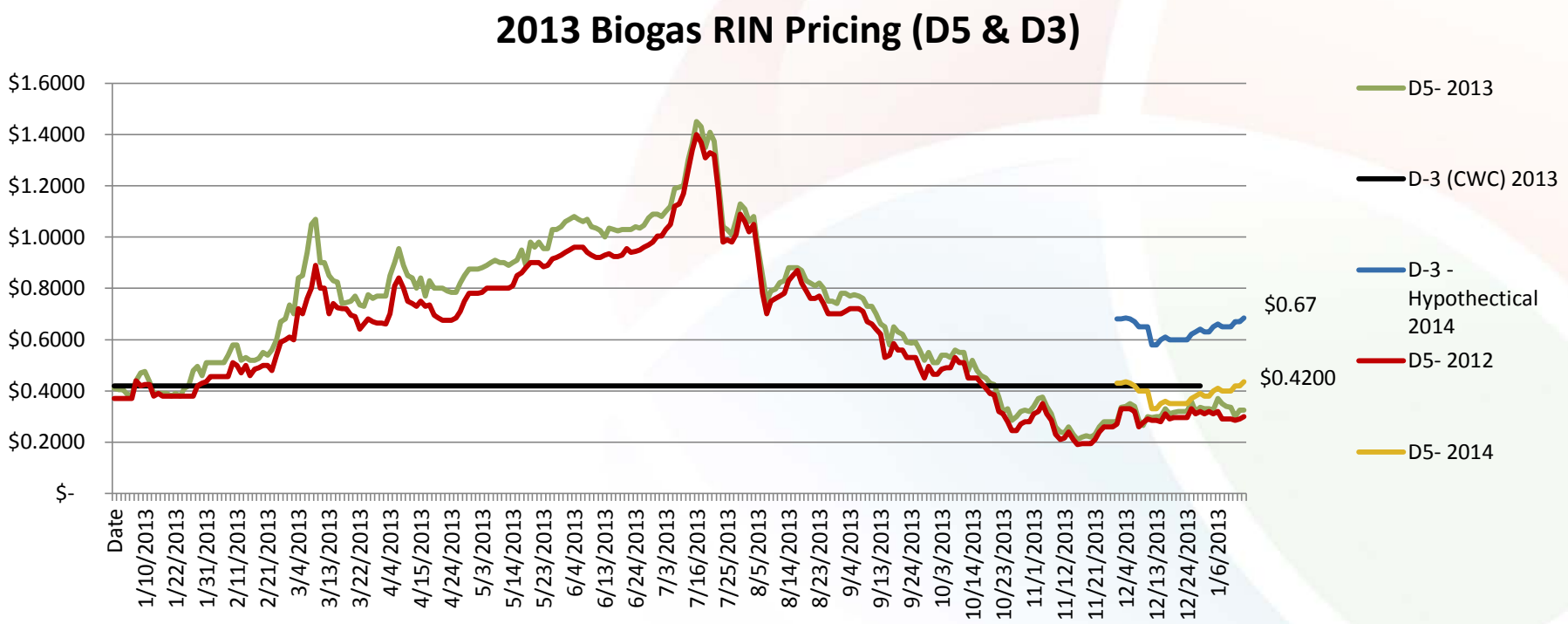
RIN: Pricing Estimates

2013 D-5 (Advance RINs)= D5 = **$0.325 ~ $3.81/MMBTU**

2014 D-5 (Advance RINs)= D5 = **$0.42~ $4.925/MMBTU**

2014 D-3 (Cellulosic RINs)= Discount of {CWC ($0.25) +D5 ($0.42)}= **$0.67~ $7.86/MMBTU**



RIN: Biogas Risk/Rewards

- Hurdles & Risks
  - Pending modifications (delays, major changes, etc.)
    - 2014 Proposed Standards
    - Pathways II- Technical Amendments
  - Drought waiver risks (no change after 2012 drought, but could in future)
  - Cellulosic waiver risks (buyers purchase CWC's) -
  - Industry RIN fraud (buyers timid of smaller projects)
  - Renewable Electricity to generate RINs has never been done before
  - Immature market for Biogas produced RINS
    - 2012- D-Code: 5 from Biogas: 2,410,335 RINs
    - 2013- D-Code: 5 from biogas: 24,293,954 RINs
      - 18 registered biogas producers
- Reward
  - Longer Term Revenue Stream
  - Complete against California end user (LCFS Credit) +$5 per MMBTU

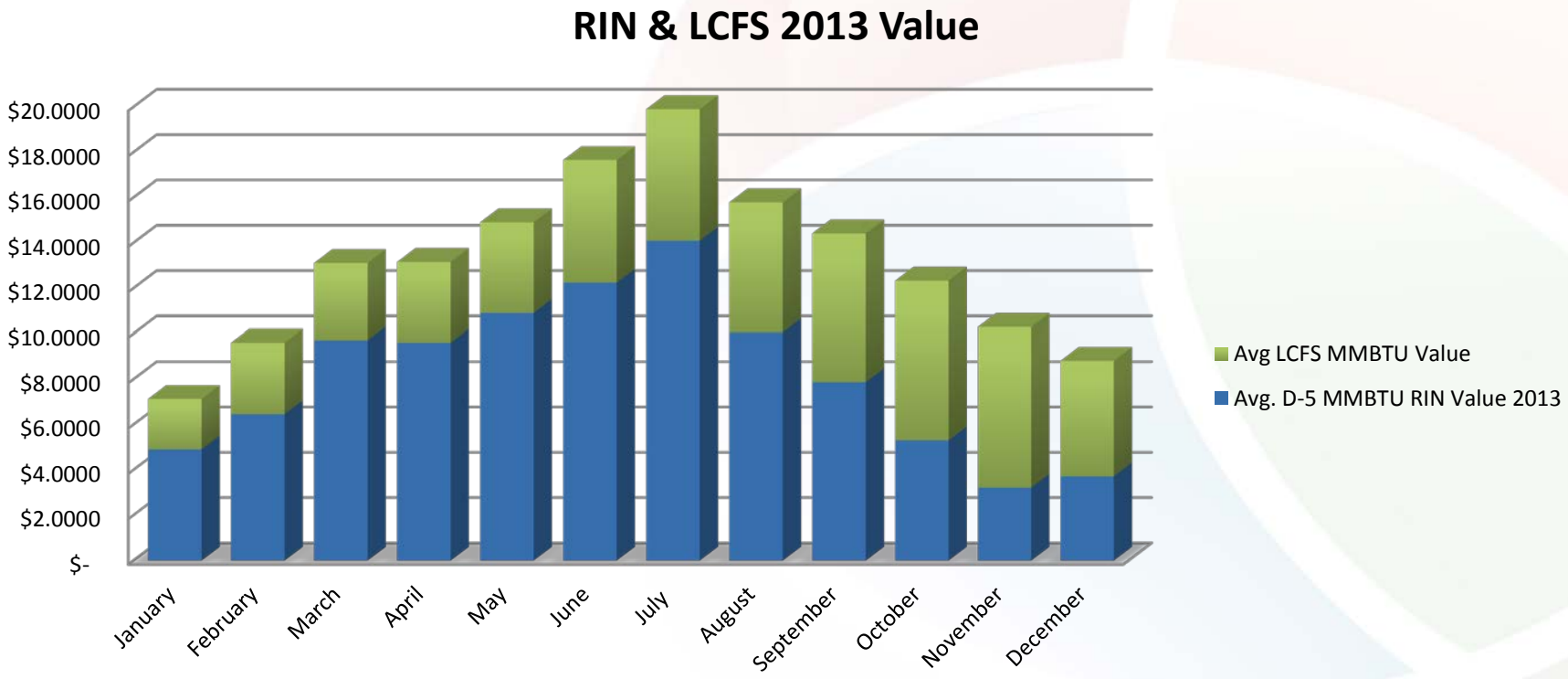
Quality Assurance Programs (A & B) - RIN Fraud

EPA Responses to Biomass-Based Diesel RIN Fraud

- The EPA is developing a proposal for a quality assurance program (QAP) that could be used to verify that RINs generated under the RFS program have been validly generated.
- EPA is providing an early draft of the types of QAP requirements that have been under consideration as we develop the Notice of Proposed Rulemaking (NPRM).
- Industry is already transitioning to using 3rd party assurance providers
  - Blue Source currently works with several firms that are applying to be Assurance providers.
  - Obligated Parties are very wary due to fraud issues; however, Blue Source's existing commercial relationships with these companies have already established trust and history.

CA-Low Carbon Fuel Standard (LCFS)

- LCFS Credit= 1 metric tonne of CO2; 1 MMBTU= 0.08671 tCO2 @**$43.60 ~ $3.81/MMBTU**
  - Based on Carbon Intensity of Fuel~ LFG CI= 11.26 gCO2 e/MJ



City of Riverview- BioCNG Facility

City of Riverview, Michigan
Bio-CNG 100 System
500/gge day
360,000 ethanol gallons equiv.

Partnered with neighboring Municipalities & Businesses
~fueling 50+ vehicles

City of Riverview- BioCNG Facility

Blue Source

City of Riverview- BioCNG Facility

Landfill Manager Bob Bobeck, fueling up a City vehicle with LFG- BioCNG

Questions?

Thank You for your time, interest and participation!

Follow Up Contact Information:

Blue Source™

A Leading Climate Change Portfolio

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  - woverly@bluesource.com

More questions, swing by **Booth 14**