BEAST Bioenergy / Biofuels Environmental Assets Strategies and Tactics

Powered by The Prasino Group

Caitlin Sparks

SVP Strategic Development, The Prasino Group



We Make Sustainability Real

- Consulting, product development, project development, project finance
- Agriculture, energy and food
- Bioenergy/Biofuels practice in US/CA: BEAST™ and Bioenergy Association of CA (BAC)





50+ years international experience in environmental asset development









The Gold Standard Premium quality carbon credits

Vision and Big Picture

- Regulatory drivers behind bioenergy and biofuels asset development
- The assets in play: RFS2 RINs, LCFS credits vs. energy
- **BEAST™**: Prasino practice for environmental asset development





Why ? Regulatory Drivers

RFS2	LCFS	RPS/REC
 Created in 2005, expanded in 2007 under Energy Independence and Security Act (EISA) 	 Schwarzenegger Exec Order in 2007 to enact LCFS 10 percent reduction in CI of CA transportation fuels by 2020 Eligibility criteria defined by CARB in 2009 LCFS took effect Jan. 	 Renewable Portfolio Standard established 2002 Utilities must procure increasing percentages of retail power from renewables –wind, solar and biomass
 New categories of fuel/ new targets 		
 Lifecycle GHG performance standard 		• 33% overall by 2020
 Final rulemaking for RFS2 published in the Federal Register on March 26, 2010 	 2011 California LCFS considers full life cycle emissions (well to wheel) 	 Can comply through purchase of RECs

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Value Proposition on the Totem Pole







RFS2 -- EPA RIN Codes and Fuel Types

D Code RIN	Fuel Type	Fuel	GHG Reduction Requirement
D3	Cellulosic Biofuels	Cellulosic ethanol, RCNG!	60%
D4	Biomass-based Diesel	Biodiesel, renewable diesel	50%
D5	Advanced Biofuels	Sugarcane ethanol, Sorghum/biogas ethanol, RCNG	50%
D6	Renewable Fuel	Corn ethanol	20%
D7	Cellulosic Diesel	Cellulosic diesel	60%

Pricing between .25 and .50 USD, was over 1.00 USD





Working with RFS2 -- Pathways

69628 Federal Register/Vol. 78. No. 224/Wednesday, November 20, 2013/Proposed Rules

Judith A. Enck,

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that complies with the provisions of the Intergovernmental relations, Oxides of the EPA Docket Center, located at 1301 Act and applicable federal regulations. 42 U.S.C. 7410[k]: 40 CFR 52.02[a]. 42 U.S.C. 7410(b): 40 CFR 52.023(a). Thus, in review gills shall be state chalces, BPA nois is to approve state chalces, BPA nois is to approve state chalces, the the state of the state of the state of the the CAA. According with the strength action merely approves state law as meeting feederal requirements and does not impose additional requirements meeting feederal proposed action: • Is not a "significant regulatory action" subject to review by the Offler Executive Order 12266 (5P R 51735, October 4. 1920):

AGENCY

Executive Order 12666 (58 FR 51735, October 4, 1993); • does not impose an information collection burden under the provisions of the Paperwork Reduction Act (44 U.S.C. 3501 et eq.); • is contilied as not having a significant scoomnic impact on a significant scoomnic initiation under the Regulatory Flexibility Act (5 U.S.C. 501 et ex.); RIN 2060-AR76

AGENCY: Environ Agency (EPA). U.S.C. 601 et seq.); U.S.C. 601 et seq.); • does not contain any unfunded mandate or significantly or uniquely affect small governments, as described in the Unfunded Mandates Reform Act hearing. of 1995 (Pub. L. 104–4); • does not have Federalism

implications as specified in Executive Order 13132 (64 FR 43255, August 10,

 does not have Federalism pipelications as specified in Xecuttie torsp: 2008 (PR 2025), Argont 2018 (PR 2018) (PR 1008), Provide Technology Transfer and Advancement Act of 1995 (15 U.S.C. 272) because

has, and a set of the set of the

List of Subjects in 40 CFR Part 52 Environmental protection, Air pollution control, Hydrocarbons, Incorporation by reference,

nitrogen, Ozone, Reporting and recordkeeping requirements, Volatile organic compounds. Constitution Avenue NW., Room 33.34, Washington, DC between 8:30 a.m. and 4:30 p.m., Monday through Friday, excluding legal holidays. A reasonable fee may be charged for copying. Dated: November 8, 2013. Regional Administrator, Region 2. [FR Doc. 2013-27679 Filed 11-19-13; 8:45 am] Documents will also be available through the electronic docket system at http://www.regulations.gov. FOR FURTHER INFORMATION CONTACT: Julia MacAllister, Office of Transportation ENVIRONMENTAL PROTECTION 40 CFR Part 80 Protection Agency, 2000 Traverwood [EPA-HQ-OAR-2013-0479; FRL-9903-10-OAR] (724) 214-4131; Fax number: (724) 214-4131; Fax number: (734) 214-4816; Email address: macallister.julia@epa.gov Public Hearing for the 2014 Standards for the Renewable Fuel Standard SUPPLEMENTARY INFORMATION: The proposal for which EPA is holding ACTION: Announcement of public will provide in SUMMARY: The EPA is announcing a public hearing to be held for the proposed rule 2014 Standards for the Renewable Fuel Standard Processor vable Fuel Standard Program,

to the presentations at that time. Writher statements and supporting information submitted during the comment period will be considered with the same weight as any oral comments and supporting information presented at the public hearing. Written comments must be received by the last day of the comment

How can I get copies of this document the proposed rule, and other related information?

this action under Docket ID No. EPA-HO-OAR-2013-0479. The EPA has also HQ-OAK-2013-0479. The EPA has also developed a Web site for the Renewable Fuel Standard (RFS) program, including the notice of proposed rulemaking, at the address given above. Please refer to the notice of proposed rulemaking for detailed information on accessing information related to the proposal Dated: November 14, 2013 Christopher Grundler,

the following location: Hyatt Regency Crystal City, 2799 Jefferson Davis Highway, Arlington, VA 22202 (phone number 703–413–6718). A complete set of documents related to the proposal will be available for public inspection a BILLING CODE 6560-50-P

and Air Quality, Assessment and Standards Division, Environmental proposal for which EPA is holding the public hearing has been published separately in the Federal Register. Public Hearing: The public hearing will provide interested parties the opportunity to present data, views, or arguments concerning the proposal (which can be found at http:// www.epa.gov/otaq/fuels/ renewablefuels/index.htm). The EPA may ask clarifying questions during the oral presentations but will not respond to the presentations at that time. Written

Constitution Avenue NW., Room 3334

The EPA has established a docket for

ADDRESSES: The hearing will be held at the following location: Hyatt Regency Crystal City, 2790 Inferenn Davis [FR Doc. 2013-27827 Filed 11-19-13; 8:45 am]

period, as specified in the notice of proposed rulemaking.

(1) To the extent permitted under paragraphs (b) and (c) of this section, producers and importers of renewable fuel must generate RINs to represent that fuel if the fuel: (i) Qualifies for a D-code pursuant to § 80.1426(f), or EPA has approved a petition for use of a D-code pursuant to §°80.1416; and

importers?

(ii) Is demonstrated to be produced from renewable biomass pursuant to the reporting requirements of §°80.1451 and the recordkeeping requirements of §°80.1454; and ¶

§%0.1426[∞]How are RINs generated and assigned to batches of renewable fuel by renewable fuel producers or

(A) Feedstocks meeting the requirements of renewable biomass through the aggregate compliance provision at § 80.1454(g) are deemed to be renewable biomass.

(B) [Reserved]¶

(iii) Was produced in compliance with the registration requirements of § 80.1450, the reporting requirements of § 80.1451, the record keeping requirements of § 80.1454, and all other applicable regulations of this subpart M.¶

(2) To generate RINs for imported renewable fuel, including any renewable fuel contained in imported transportation fuel, heating oil, or jet fuel, importers must obtain information from a foreign producer that is registered pursuant to § 80.1450 sufficient to make the appropriate determination regarding the applicable D code and compliance with the renewable biomass definition for each imported batch for which RINs are generated.





Working with LCFS

- **GREET: G**reenhouse gases, **R**egulated **E**missions, and **E**nergy use in Transportation model.
- Method 1, 2A and 2B
- Re-adopted as Tier 1 and Tier 2
 - Tier 1: conventional biofuels starch, sugar ethanols, biodiesel.
 - **Tier 2:** Next generation fuels, conventional biofuels w innovative process. Producer-specific CI.
 - **GREET 2.0:** More exacting. Upstream and plant-specific.
- Current Price: \$35 USD / tonne







LCFS Carbon Intensities

CARBON INTENSITY OF FUELS



Bioenergy Environmental Asset Strategies and Tactics (BEAST™)

Consulting and Development

Services

understand, develop and maximize the value of environmental assets

Workshops

lessons learned and best-practices

ongoing policy requirements

asset prices/market understanding

sharing project types or technologies





Service Range

Cost/benefit analysis of asset development per project

Funding potential / grants Targeted asset development assistance and project/asset documentation/a pplication submission

Assistance with asset stacking Broader asset strategy / asset marketing / contract structuring

Data management system integration for multiple sites

Buyer identification and commercial assistance





LCFS and RIN Scorecard

RIN Category	Annual Generation Capacity	\$ @ 30 cents/RIN
D3	2M	0.6M
D4	46M	13.8M
D5	432M	129.6M
D6	78M	23.4M
Annual Tonnage Generati	on Capacity	\$ @ \$40/MT
LCFS Credits	625,000	25M
	Total:	\$ 192.4M





LCFS and RINs: What's Needed

- Fuel + LCFS + RINs = very attractive BUT
- Legal resolution and re-adoption
- More CIs and movement through resource bottlenecks – RVO?
- Additional verification and enforcement standards – will come
- Finance and price assurance





Biogas development: Issues to consider

- + Combined returns very attractive
- + Pathways fairly straightforward
- + Shift to **natural gas economy**
- + People profit planet
- Financing with assets difficult, no future price certainty
- **Permits** and site specific regulatory issues AD in CA?
- Infrastructure costs pipeline, tube trailers
- Injecting into pipeline = utilities
- Selling fuel/credits = dealing with traders





Lessons Learned

- 1. From preliminary assessment to asset delivery it can take a **few months** to a **few years** to develop and realize these assets
- The regulations are constantly evolving and new pathways are being created – navigating the regulatory documents is complicated
- 3. Projects outside of the US are eligible to generate RINS; projects outside CA are eligible to generate LCFS credits
- 4. LCFS credits and RINs can be stacked
- 5. Relationships with regulators help a lot
- 6. These markets are **real!**



Questions? csparks@prasinogroup.com AND blively@prasinogroup.com 510-908-1210



EPIC – Electricity Program Incentive Charge

- \$163 million per year in clean electricity funding
 - -80% administered by CEC and 20% by IOU's
 - -\$55 million per year for applied R&D
 - \$45 million per year for Technology Deployment
 & Demonstration
 - at least 20% of which must go to bioenergy
 - -\$15 million for market facilitation

For more info: www.energy.ca.gov





Working with RFS2



Clean Fuels and Alternative Transportation – AB118





- Includes \$20 million per year for biofuels
- \$9 million for natural gas vehicle deployment
 - \$15 million for medium and heavy duty advanced vehicle demonstration
 - \$1.5 million for natural gas fueling infrastructure





RFS2 -- Engineering Reviews



Engineering Reviews are required by regulation under RFS2 for a facility to generate RINs



Independent third party opinion by certified engineer that the facility is capable of producing a transportation fuel of sufficient quality and quantity to meet the requirements and objectives of the RFS2 program



