

IOWA STATE UNIVERSITY

The Simple Economics of RINs and RFS Reform

Gabriel E. Lade

Assistant Professor of Economics

Iowa State University and CARD

10th Annual Biofuels: Science and Sustainability Tour

Fraud? Manipulation? Bankruptcy? Reform?

ENERGY & ENVIRONMENT

U.S. Struggles to Rescue Green Program Hit by Fraud

By MATTHEW L. WALD OCT. 11, 2012

BUSINESS DAY | THE HOUSE EDGE

Wall St. Exploits Ethanol Credits, and Prices Spike

By GRETCHEN MORGENSON and ROBERT GEBELOFF SEPT. 14, 2013



Bloomberg Markets Markets Tech Pursuits Politics Opinion Businessweek
Icahn Calls on EPA to Fix 'Mother of All Short Squeezes'
By **Laura Blewitt** and **Zachary Mider**
August 15, 2016, 2:21 PM CDT Updated on August 16, 2016, 2:31 PM CDT



Bloomberg Markets Tech Pursuits Politics Opinion Businessweek
Biggest U.S. East Coast Oil Refinery Files for Bankruptcy
By **Barbara J. Powell** and **Tiffany Kary**
January 22, 2018, 12:26 AM CST Updated on January 22, 2018, 10:45 AM CST
→ Expenses tied to renewable fuels spur Chapter 11 filing

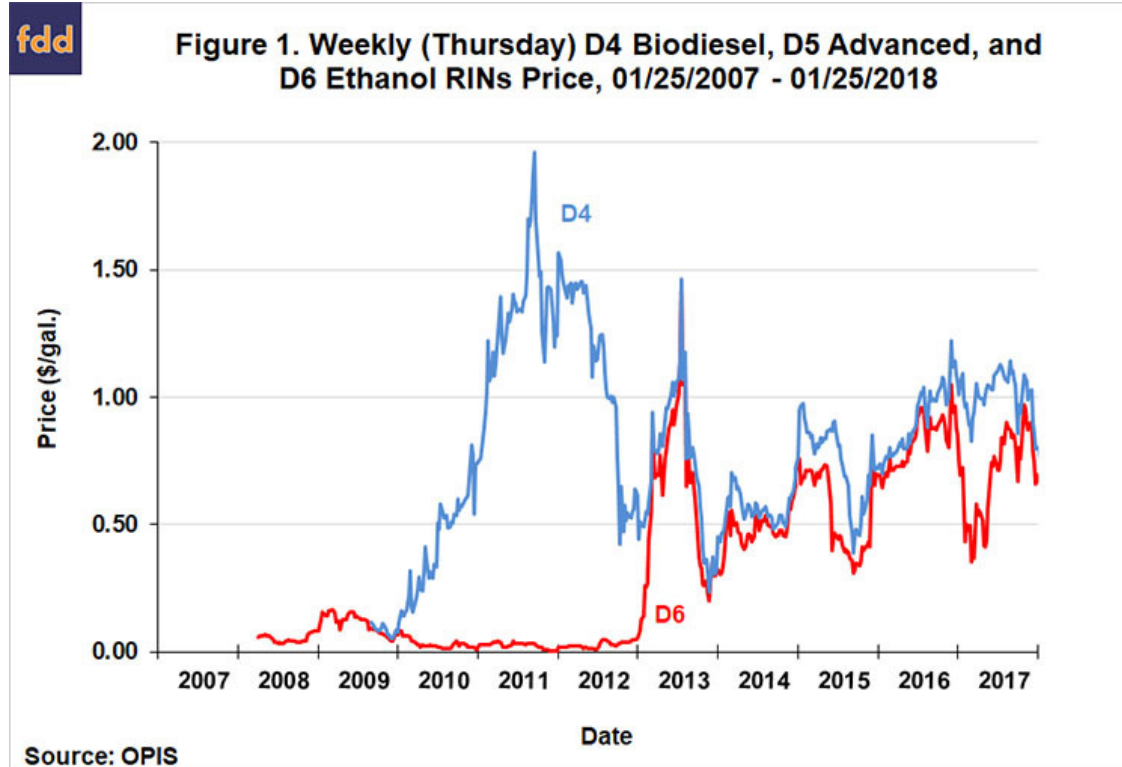
Forbes

Texas Senators Cruz And Cornyn Fight To Push Competing Ethanol RFS Reform Plans

S&P Global
Platts

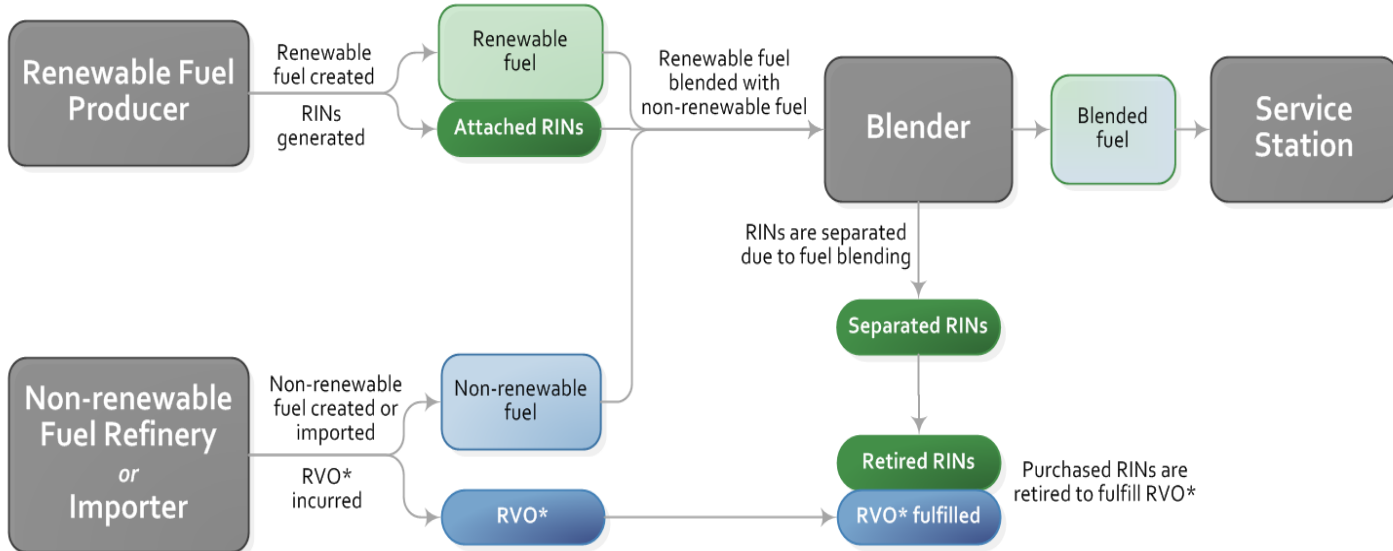
New US EPA chief defends small refinery waivers to biofuel mandate

Why are prices so volatile?



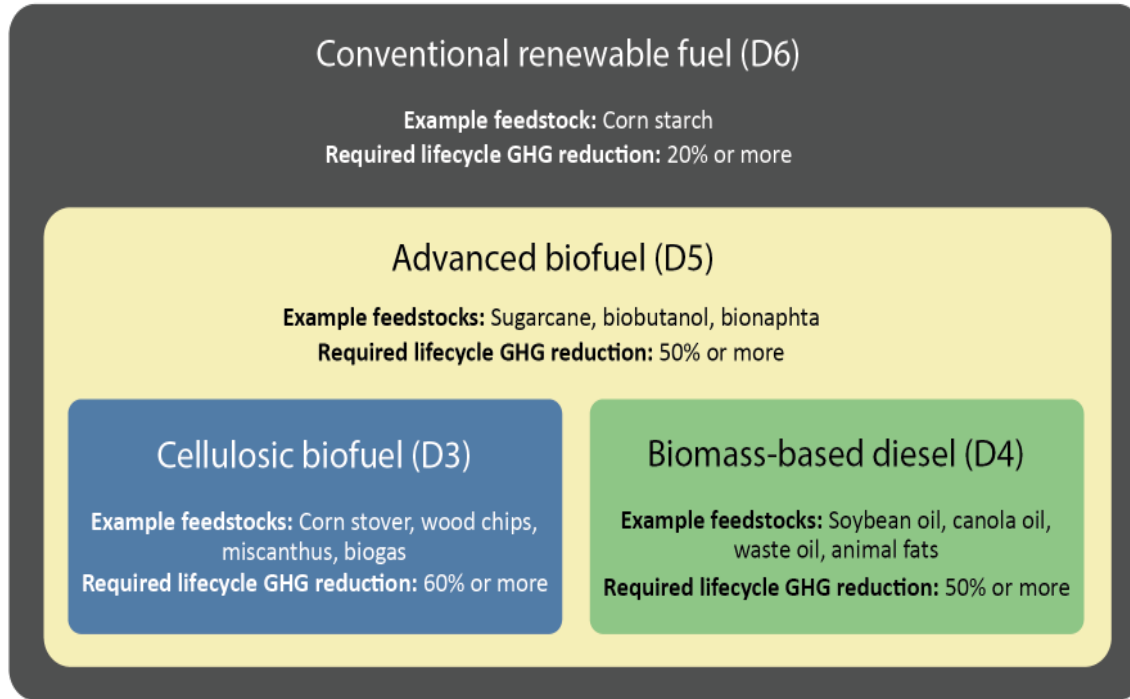
RIN Market Basics

The Lifecycle of a RIN



* RVO = Renewable Volume Obligation

Nesting and RIN Prices



The Simple Economics of RIN Prices: Ethanol Markets

RINs and Ethanol Markets: All about the blend wall



Prices with \$0.00/RIN

RINs and Ethanol Markets: All about the blend wall



Prices with \$0.25/RIN

RINs and Ethanol Markets: All about the blend wall



Prices with \$0.75/RIN

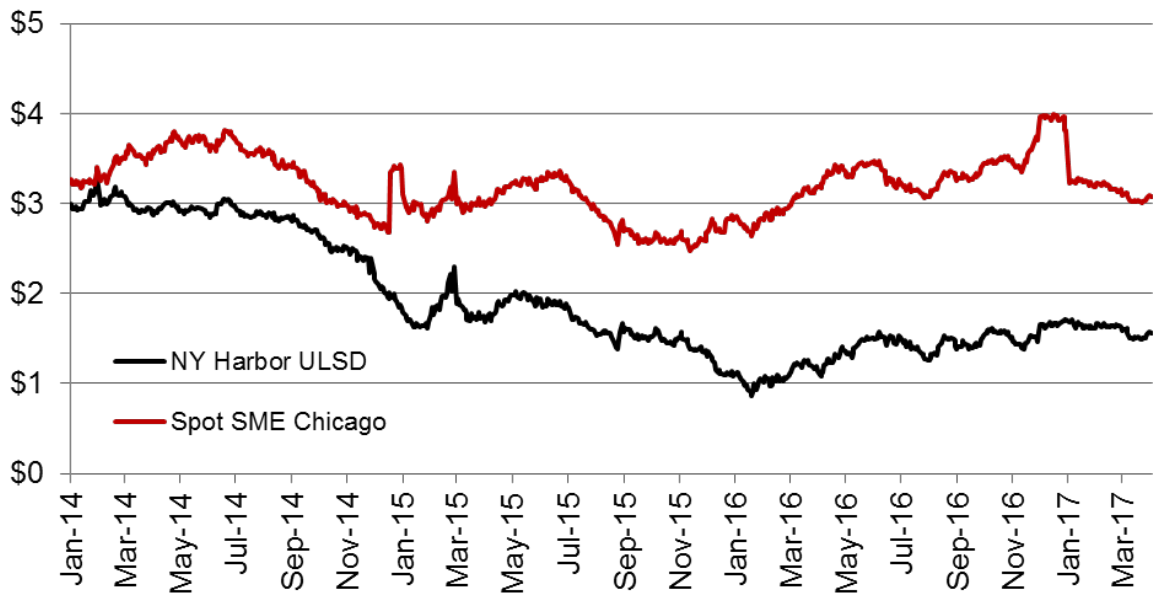
RINs and Ethanol Markets: All about the blend wall



D6 RIN Prices and EPA Announcements

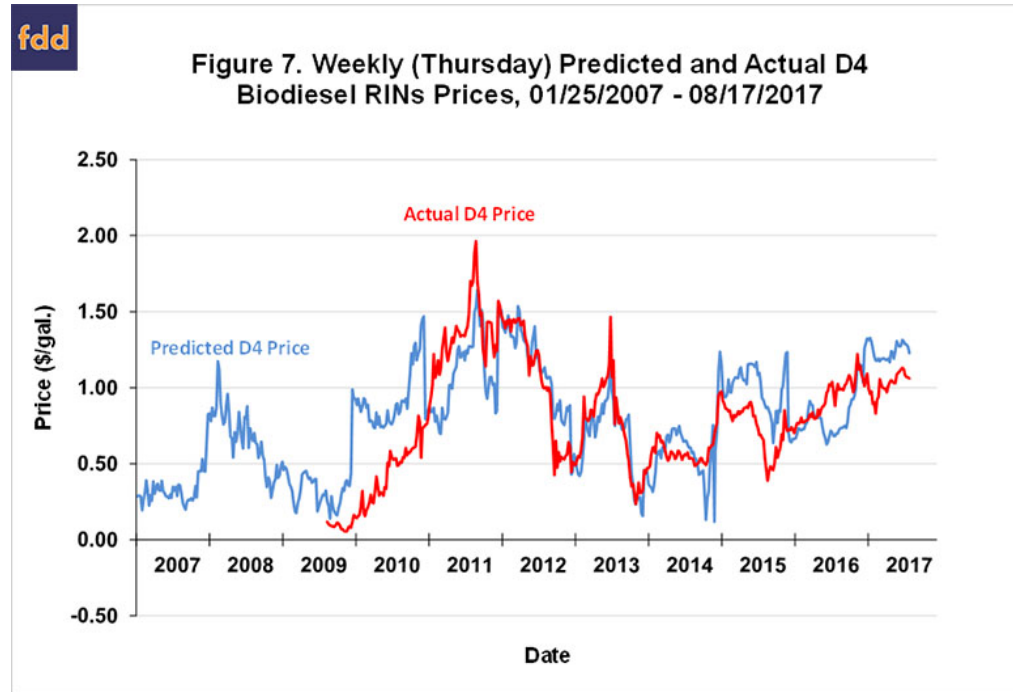
The Simple Economics of RIN Prices: Biodiesel Markets

RINs and Biodiesel Markets: All about production cost



Biodiesel vs. ULSD Wholesale Prices

RINs and Biodiesel Markets: All about production cost



Predicted versus Actual D4 RIN Prices

Key takeaways

Number 1 – RINs serve a vital role in RFS compliance

RINs are the mechanism that ensures that the fuel industry meets Congressional biofuel blending mandates

1. Track biofuel blending and use
2. Stimulate biofuel demand, discourage gasoline/diesel use

High RIN prices signal

1. High compliance costs (blendwall, biodiesel)
2. High investment value in biofuel production and distribution infrastructure

Number 2 – RIN markets are working

Most evidence shows RIN markets are efficient and free of manipulation

1. Prices adjust quickly to changing compliance costs
2. CFTC Senate hearing indicated little evidence of manipulation
3. Better data/transparency would only help!

Fraud has happened, but only affects small number of RINs

1. Tens of *millions* of fraudulent RINs vs. over 135 *billion* RINs generated to date
2. Third-party quality assurance programs have stepped in to help

Number 3 – RIN costs are reflected in downstream prices

Refiners are compensated for RIN costs

1. Wholesale gasoline and diesel prices are higher because of RINs
2. Refiners with blending capacity have no competitive advantage over those that purchase RINs on the market
3. Small refiner exemptions could give a competitive advantage to refiners with exemptions

RFS costs are primarily due to shifting market shares from refiners to biofuel producers

1. Small impact on consumers because most fuel is blended with biofuel

Number 4 – Details matter in any reform proposal

E15 waivers would likely have a small impact on RIN prices

1. Need high RIN prices to stimulate demand, especially in the short-run

RIN price caps could play an important, stabilizing role in RIN markets

1. To date, EPA has limited RIN prices through mandate adjustments, a significant cause of RIN market volatility
2. Tradeoff: If RIN cap binds, biofuel use in U.S. will be below mandated levels

(Other) Academic experts to follow



Scott Irwin
University of Illinois



Bruce Babcock
UC Riverside




Aaron Smith
UC Davis



James Stock
Harvard University

Contact Information

 (515) 294-5619

 gelade@iastate.edu

 gabriellade.com

 @gabelade