



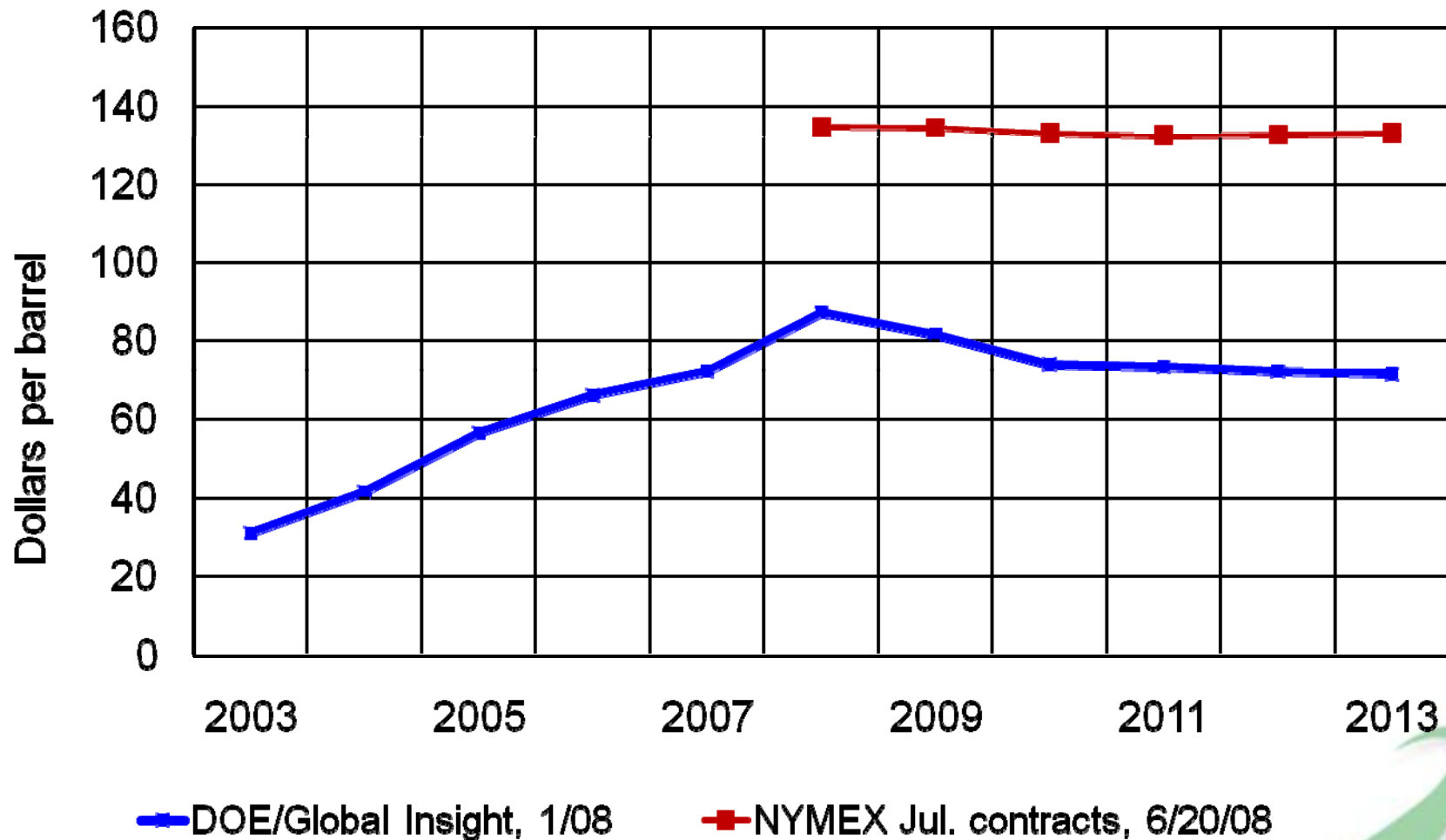
Policy Risks: Potential consequences for the biofuels industry

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June 24, 2008
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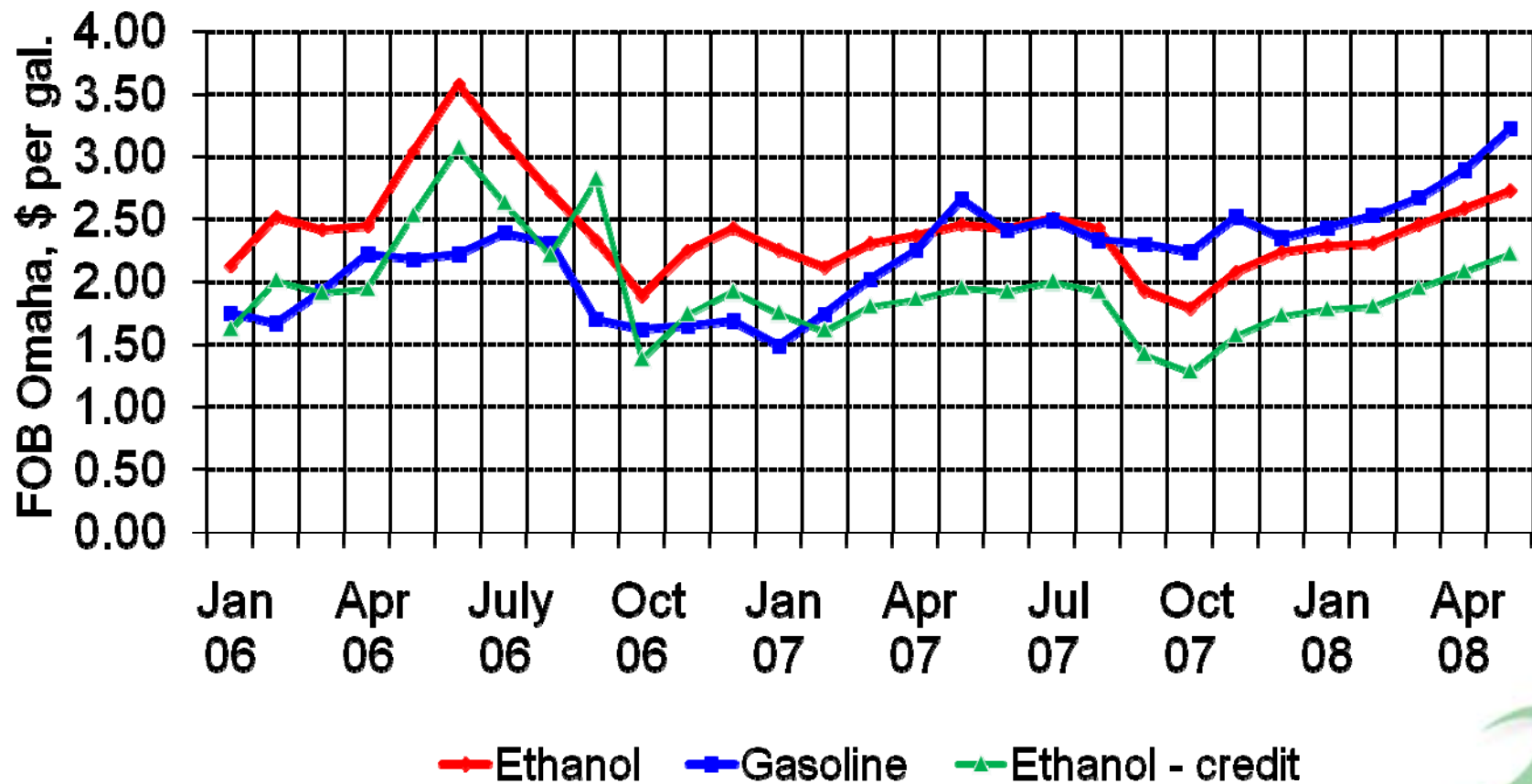
Food and Agricultural
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Petroleum price (West Texas Intermediate)




Rack (wholesale) prices for ethanol and gasoline



Source: Nebraska government website: <http://www.neo.ne.gov/statshtml/66.html>

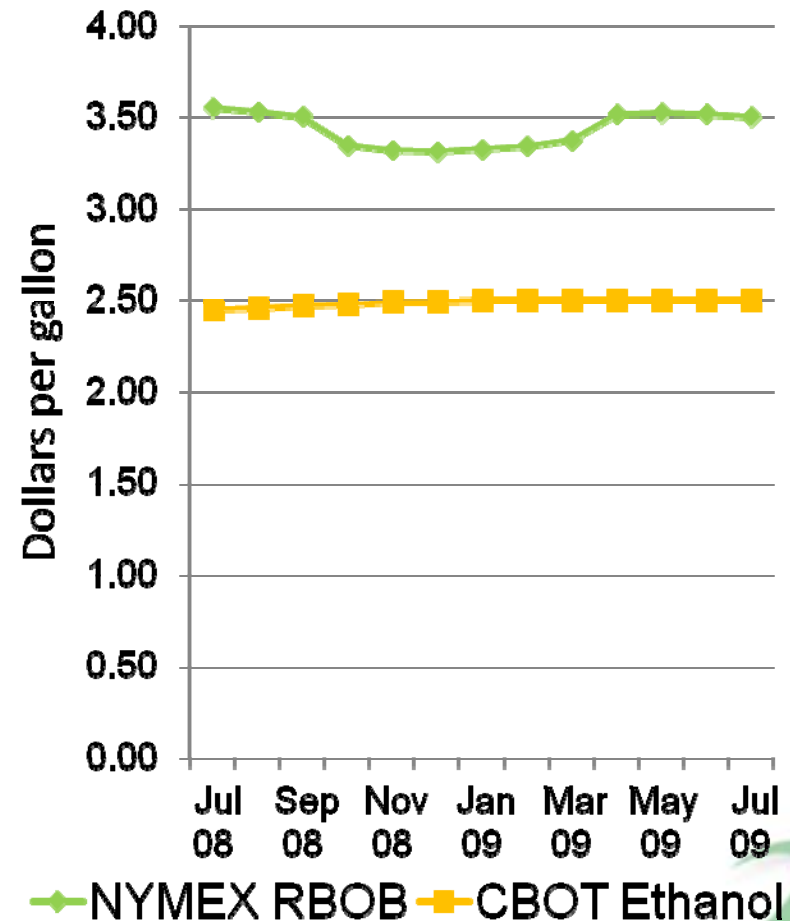


What's happened since January?

- Petroleum and ethanol prices higher
 - Corn supply and use much tighter
 - Not news: ethanol
 - News: 2008 planted acres and yields
 - Very strong non-ethanol demand, low stocks
 - Narrow ethanol plant margins
 - Normally expect higher margins at higher petroleum/ethanol prices
 - But tight corn situation means margins narrow
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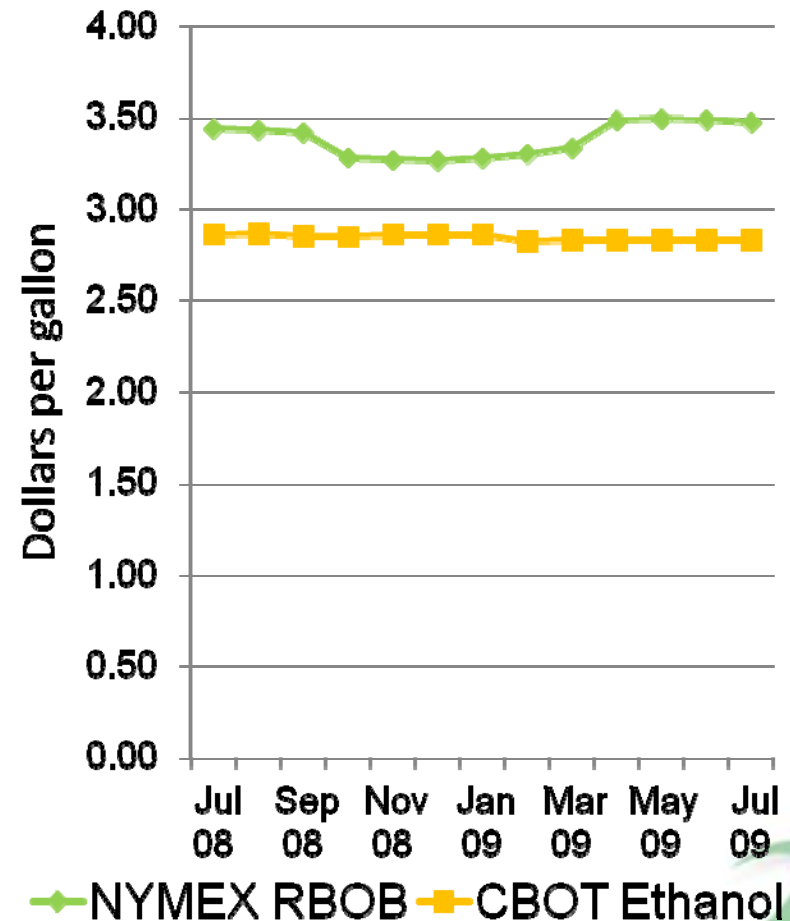
Futures prices for ethanol and gasoline, June 6, 2008

- July 2009 contracts
 - Ethanol: \$2.50
 - Gasoline: \$3.50
- Ratio: $\$2.50/\$3.50 = 71\%$
- To blenders: $(\$2.50 - \$0.45 \text{ tax credit in 2009})/\$3.50 = 58\%$
- To consumers: $(\$2.50 - \$0.45 + \$0.62 \text{ taxes \& markup})/(\$3.50 + \$0.62 \text{ taxes and markup}) = 65\%$
- Ethanol BTU content/gal.: ~67% that of gasoline

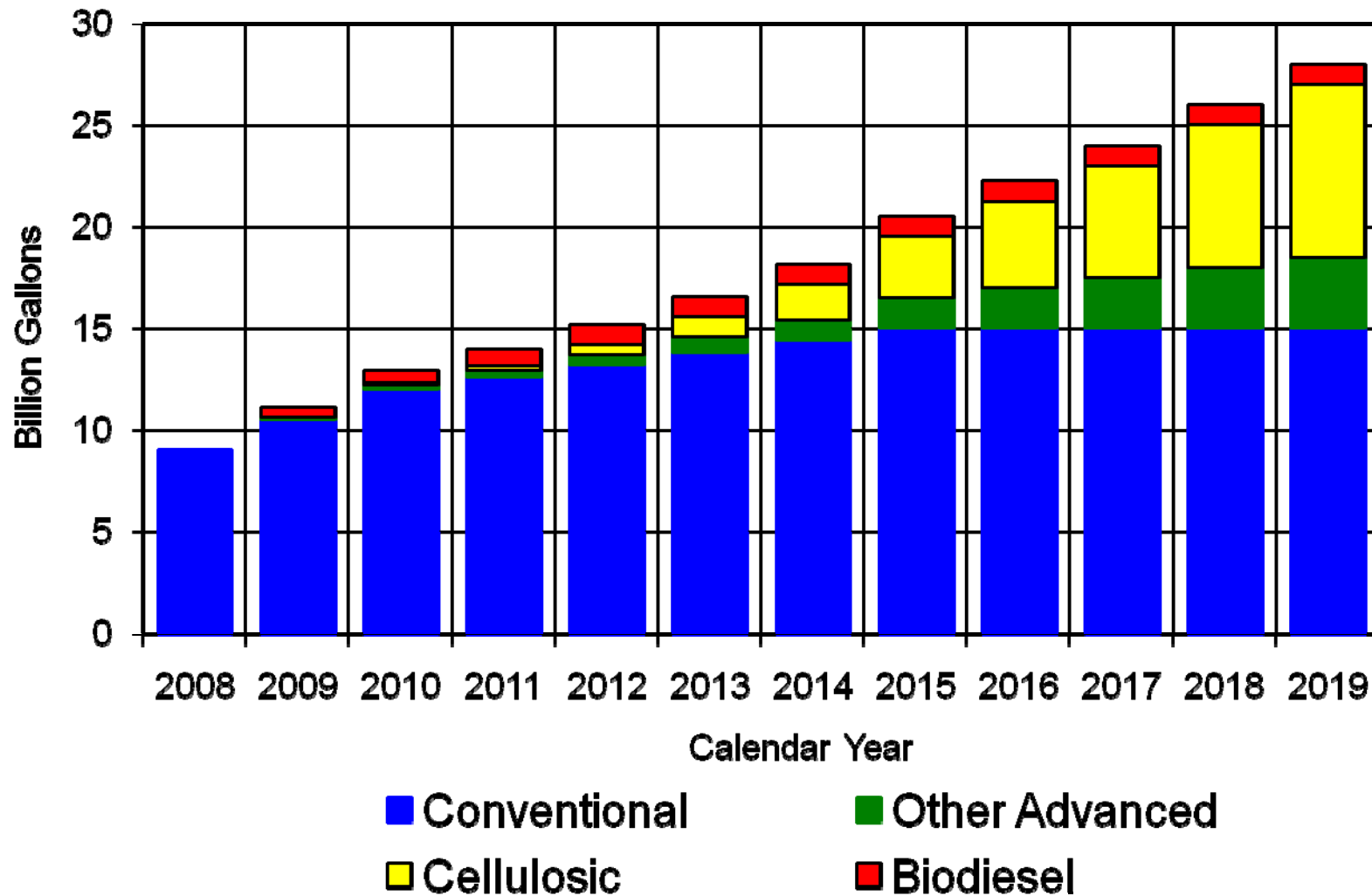


Futures prices for ethanol and gasoline, June 20, 2008

- July 2009 contracts
 - Ethanol: \$2.77
 - Gasoline: \$3.48
- Ratio: $\$2.77/\$3.48 = 80\%$
- To blenders: $(\$2.77 - \$0.45 \text{ tax credit in 2009})/\$3.48 = 67\%$
- To consumers: $(\$2.77 - \$0.45 + \$0.62 \text{ taxes \& markup})/(\$3.47 + \$0.62 \text{ taxes and markup}) = 72\%$
- Ratio moving up: expectation of a binding mandate?




EISA provisions



Source: EISA 2007, Biodiesel RFS assumed constant after 2012




EISA: a few of the complications

- Draft regulations not expected until Fall, final regs in spring.
 - What is an advanced Biofuel?
 - What ever the EPA says it is...
 - “Advanced biofuels” must meet greenhouse gas reductions
 - What about imports?
 - Sub-mandates
 - Biodiesel: 1 billion gallons by 2012
 - Cellulosic ethanol: 1 billion gallons by 2013, 7 billion gallons by 2018
 - If not waived, each mandate must be met
 - Tradable RINs
 - Each class could have a different price and RIN value (conventional, cellulosic, biodiesel and other advanced)
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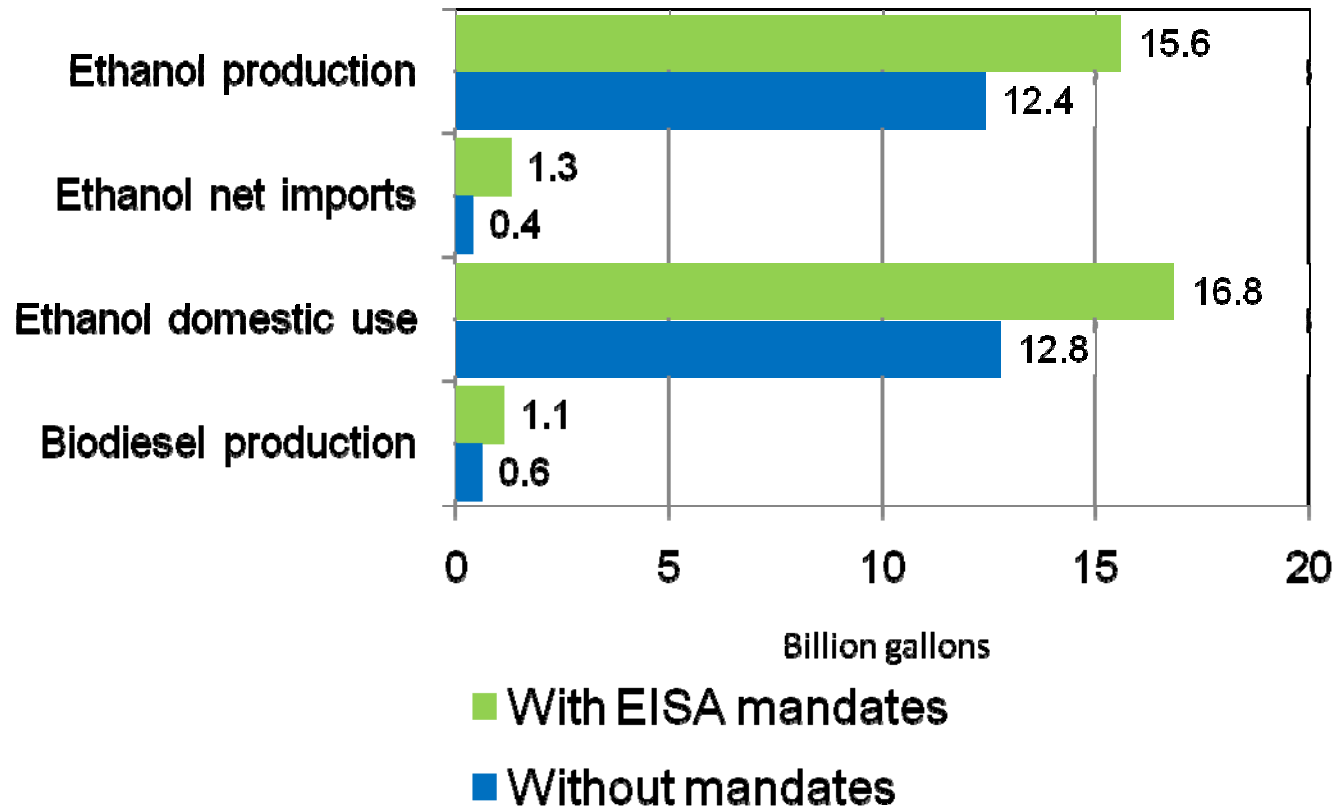


EISA: some of the finer points

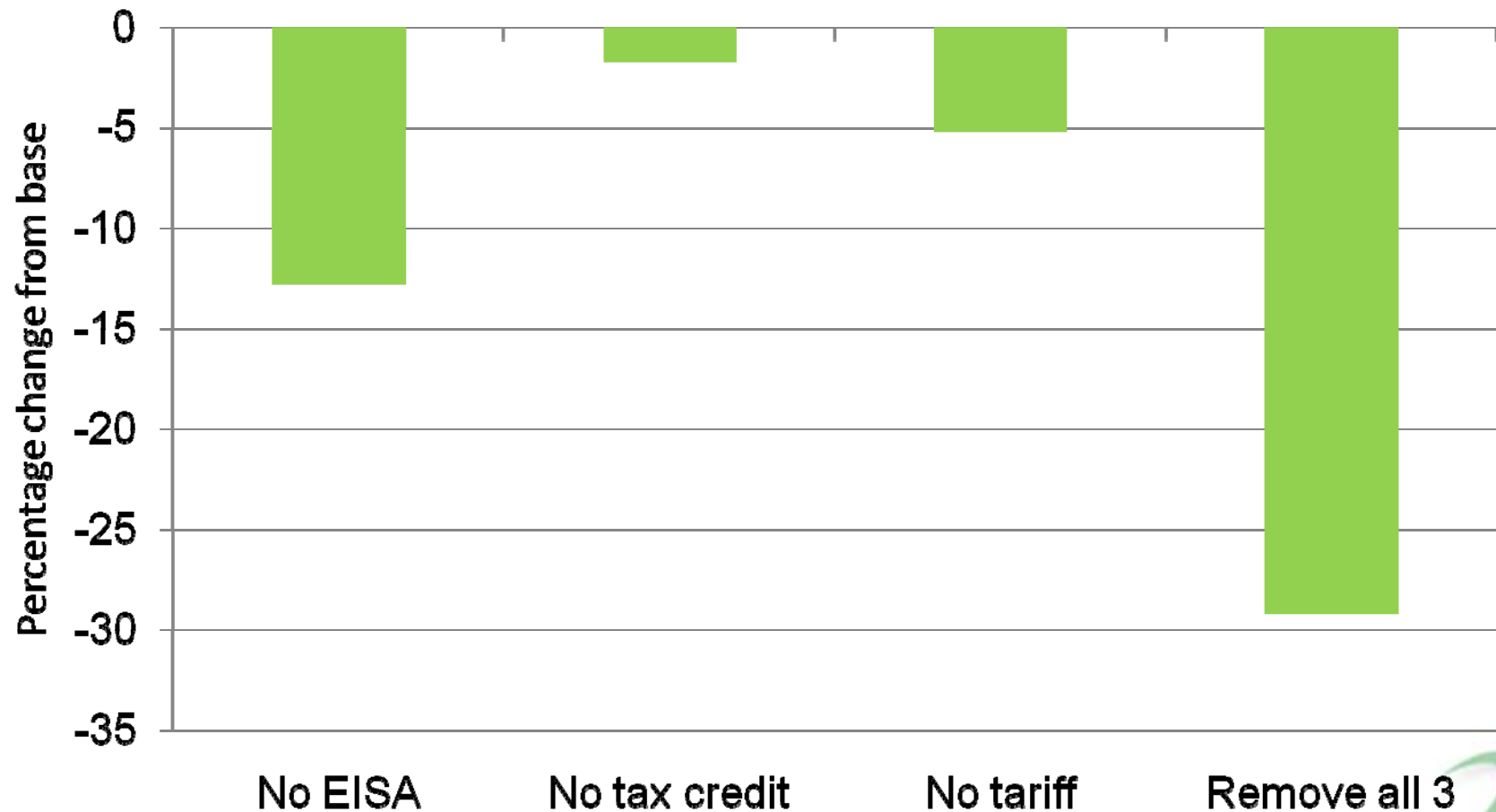
- Rollover provisions
 - If biofuel use more than required in one year, can carry some credits forward to next year
 - Thus if exceed mandate in 2009, may use less than EISA amount in 2010 (incorporated in model)
 - Deficit
 - Could fall short of required biofuel use this year if made up the next (incorporated but turned off in model)
 - Waivers
 - Provisions to waive, some specific, some quite vague
 - Specific provisions for cellulosic and biodiesel, overall waiver more vague
 - Other readings of bill are possible
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Biofuel market results with and without EISA mandates

Biofuel supply and use, 2011-2017 average

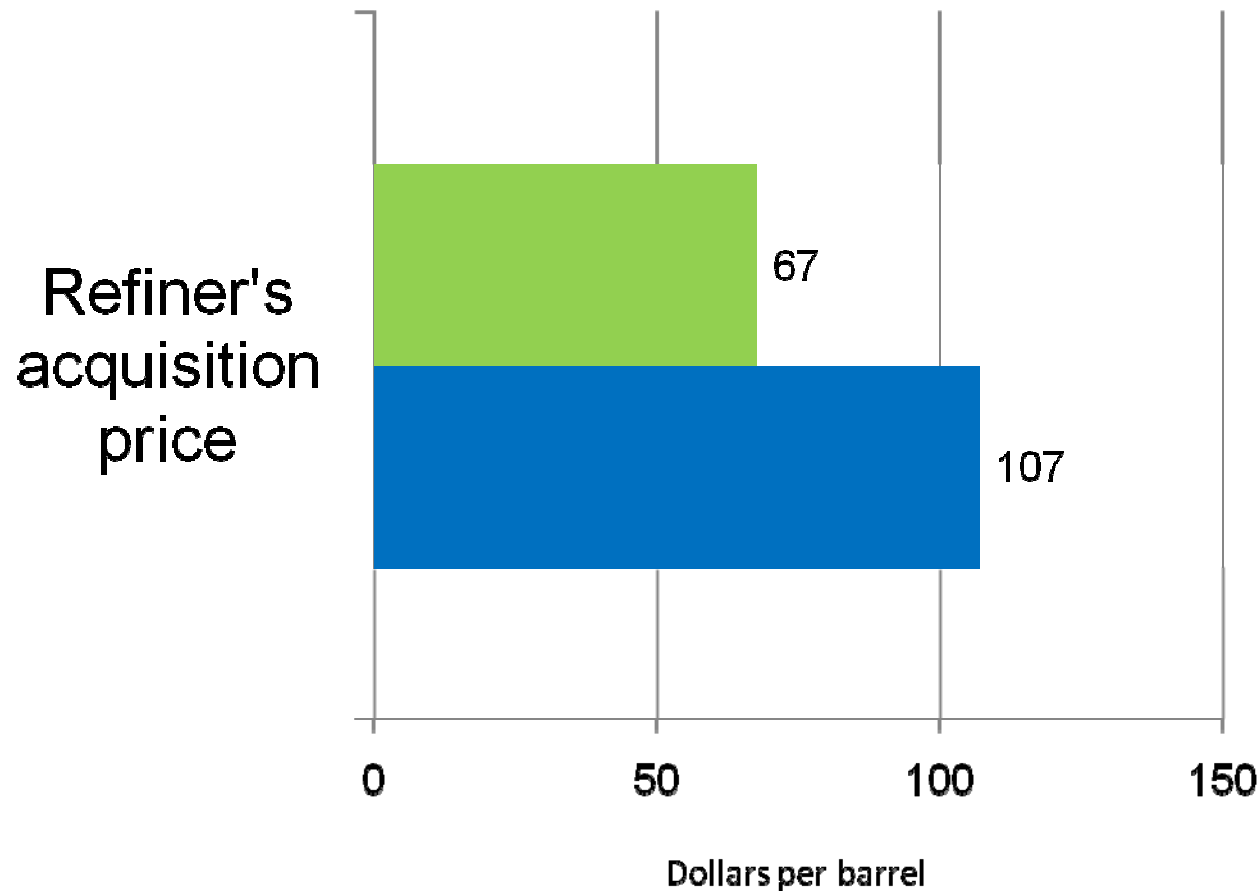


Removing current policies: effect on ethanol prices, 2011-17 avg.



Petroleum price revisited

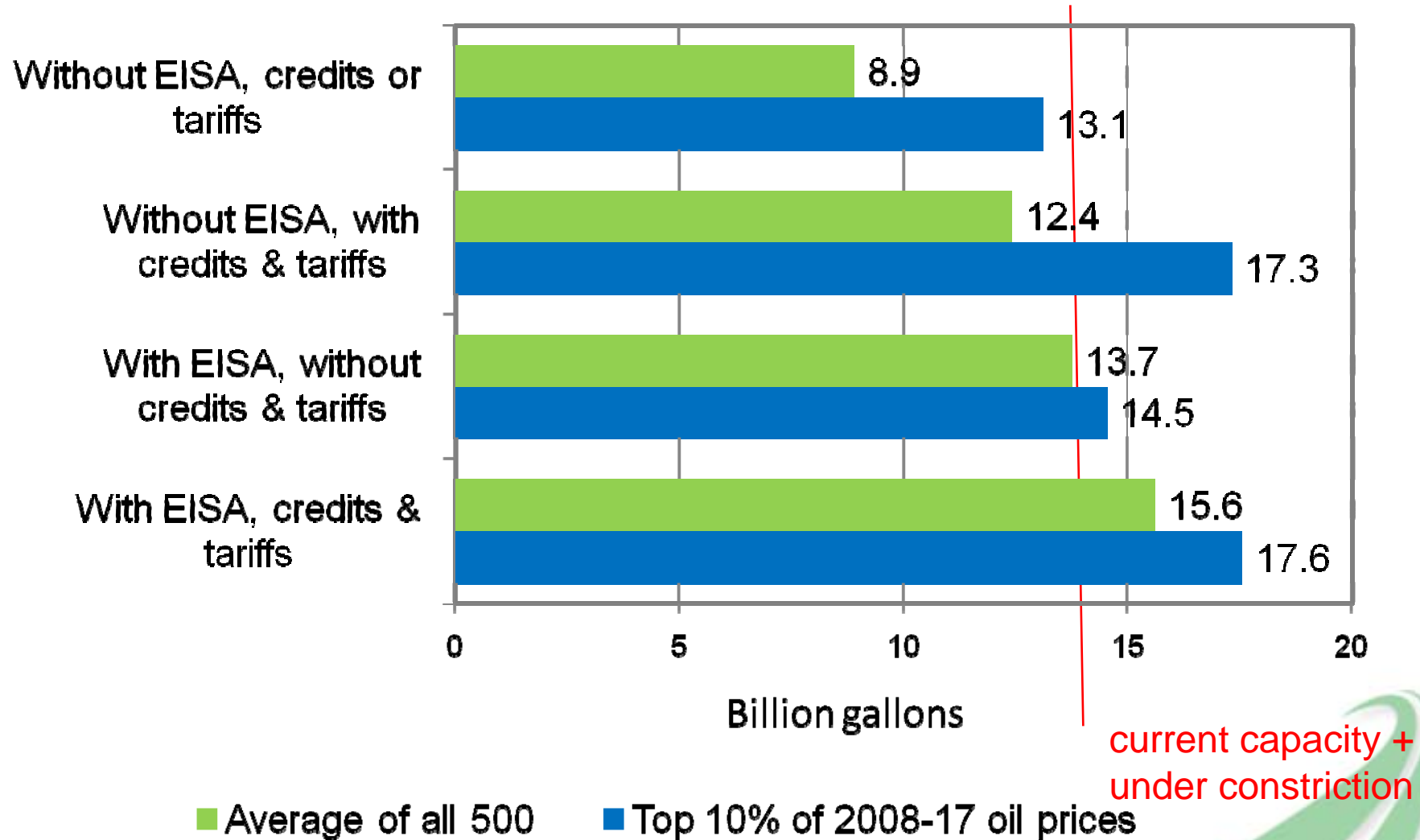
2011-2017 average



■ Average of all 500 ■ Top 10% of 2008-17 oil prices

Ethanol production

2011-2017 average





RIN

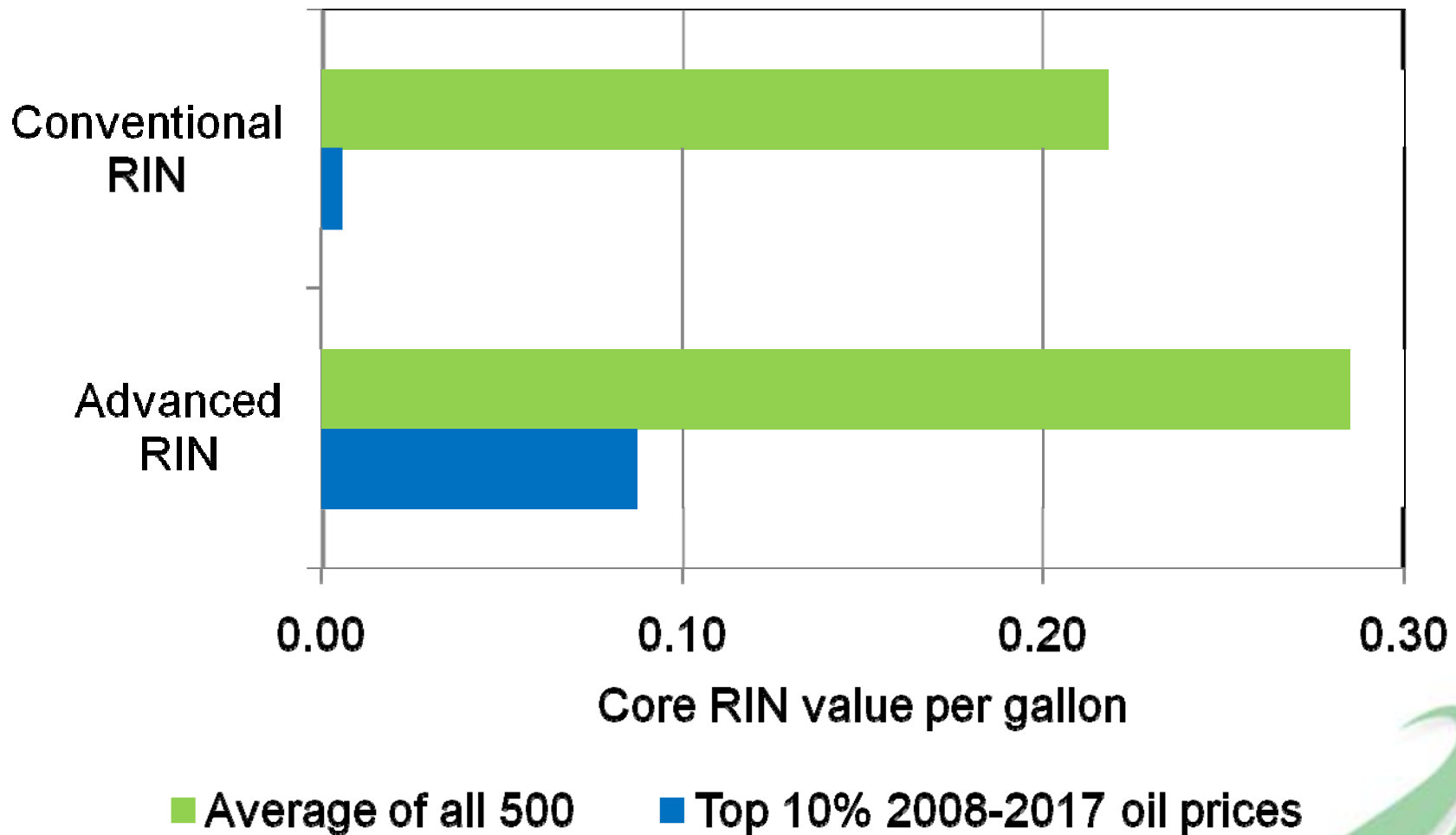
renewable identification number

- Created by biofuel producer
- Tradable
- Elements of RIN value
 - Consumer cost calculation
 - Speculation about how binding mandates may be over the life of the RIN
 - Transaction costs

Could RINs be used as a policy tool?

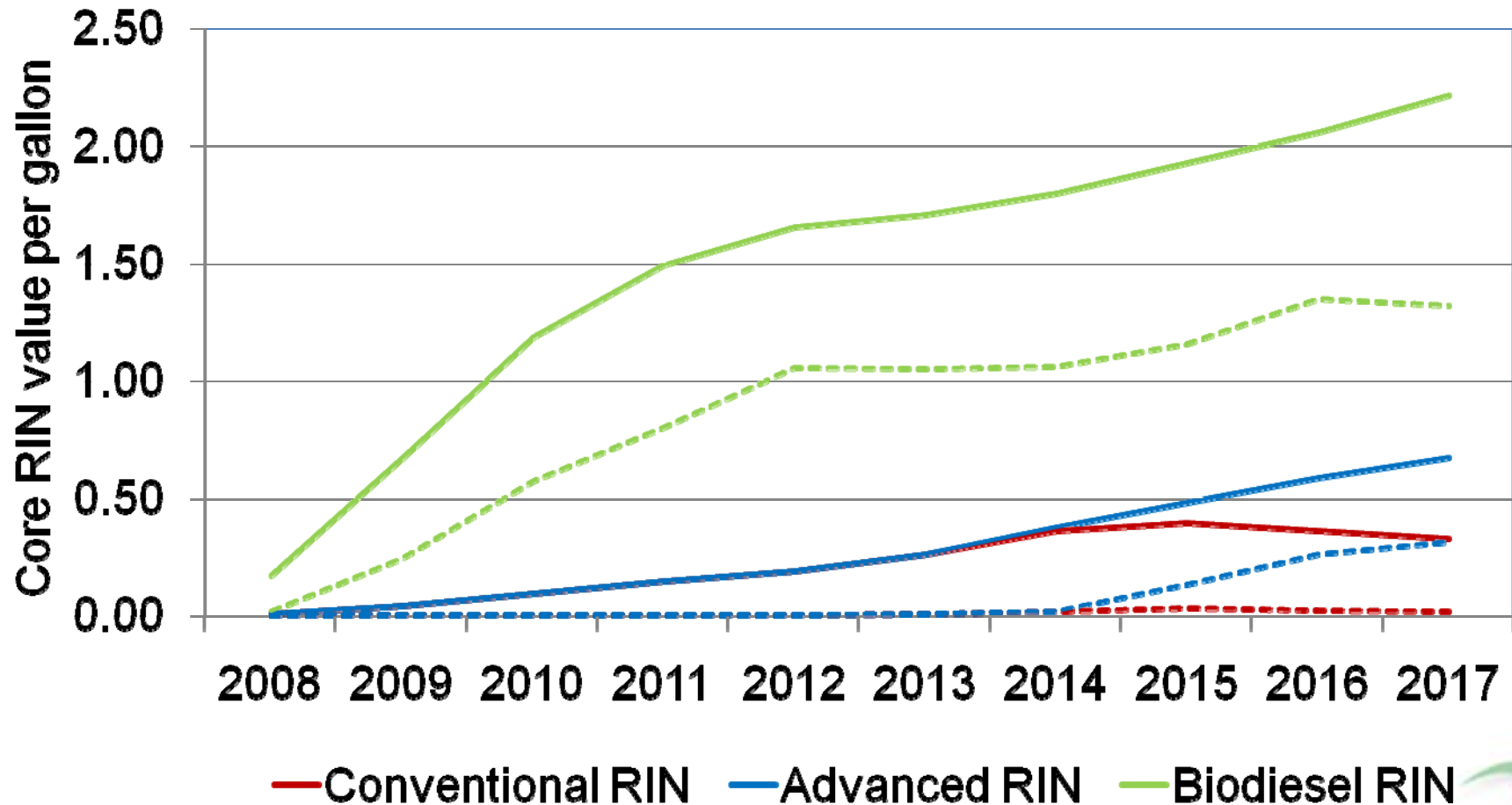


Core RIN values average of 2008-2017



Core RIN value per gallon


— All 500 - - - Top 10% of oil prices for that year



Source: FAPRI stochastic Baseline



RINs as a policy tool

- Could use RINs as a ‘safety value’
 - Targeting biofuel prices or commodity prices?
 - May be effective on biofuel prices, there may be too much noise to target food prices
 - Would have to be set for all RIN categories and respect mandate hierarchy
- 



Additional Policy Risk


- Presidential ability to unilaterally waive import tariff?
- Short run commodity or oil market shocks induce waivers setting precedent
- New administration, new priorities
- 2009 energy bill?

Uncertainty affects markets





Conclusions

- Exact implementation of policies uncertain
 - Current set of policies offer layered support
 - The policy which is ‘most important’ depends on context
 - RINs will provide market signals and could potentially be used as a policy tool
 - Uncertainty about policies may effect future market outcomes
- 



For more information

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Core RIN value per gallon: 2012 corn yields

