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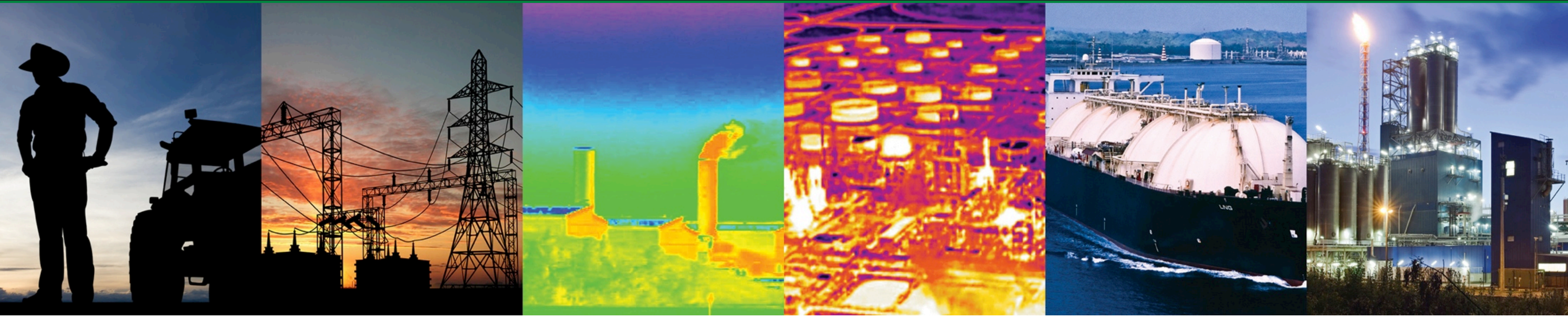

Ethanol Emerging Issues –

Environmental Regulations & Global Landscape

April 2015

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Genscape Inc.

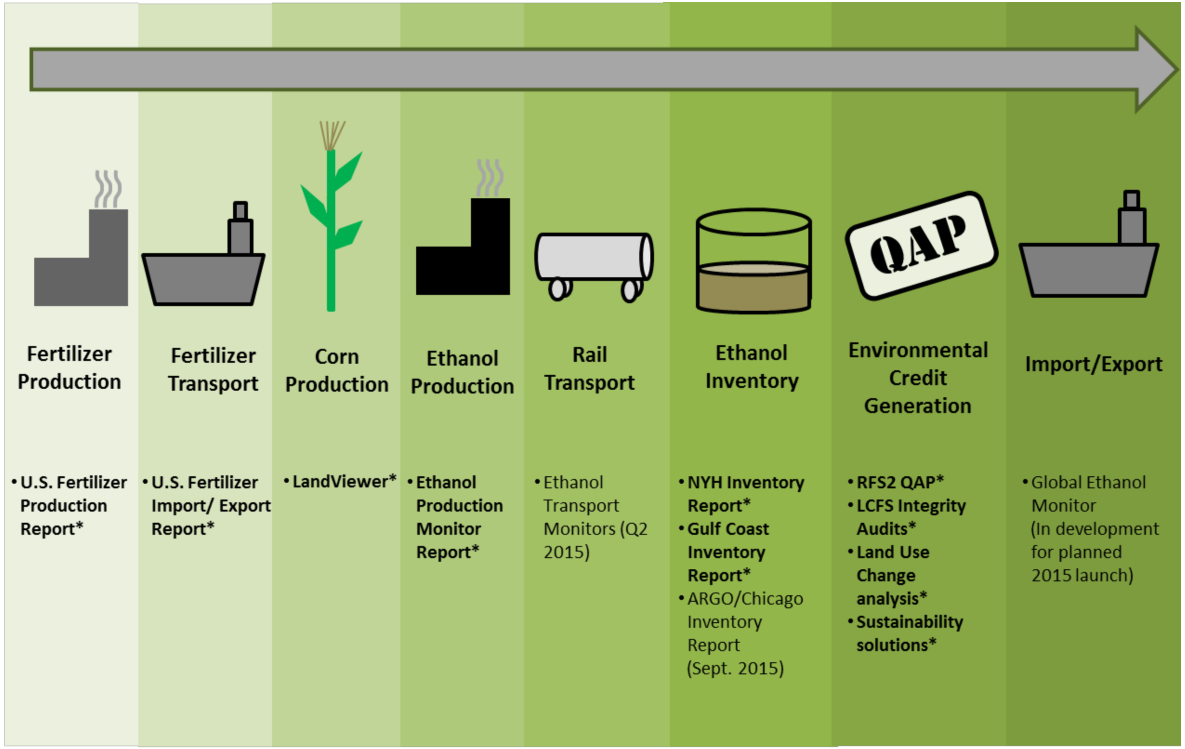
About Genscape

- An international company of more than 300 employees, with headquarters in Louisville, KY, and offices in Boston, Boulder, Houston, Austin, Amsterdam, London and Hamburg
- World's leading provider of real-time, monitored information for the energy industry. Measuring more than 1 billion data points each year
- Privately held by DMG Information, a subsidiary of DMGT
- QAP provider for all renewable fuels – Genscape clients include more than 70 facilities, including more than 40 ethanol facilities.
- Growing information source for the ethanol supply chain, including ethanol storage inventory in Gulf Coast and NYH with Chicago coming September 1

About Genscape Biofuels – Ethanol Supply Chain Information

- Genscape's mission is to ensure greater transparency in the commodities and energy markets by providing the most accurate and complete fundamental data possible.

- Proprietary technology and analytics make this possible.



* Denotes products that are available now

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Example – New York Harbor Ethanol Inventory Report

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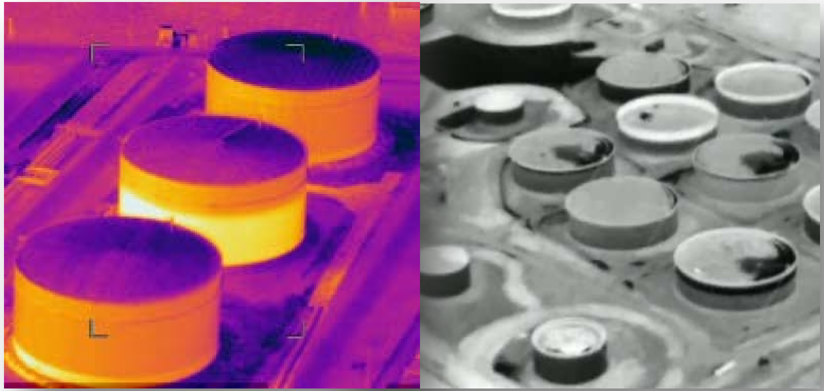
Date: September 16, 2014

New York Harbor Ethanol Inventory Report

Field	8/15/2014	8/22/2014	8/29/2014	9/5/2014	9/12/2014	Capacity Utilization (%)
BP-Carteret	32,466	26,616	24,563	24,054	31,622	41%
Buckeye-Port-Reading	2,692	2,811	2,285	6,434	2,464	13%
Center-Point-Terminal-Newark	3,679	4,112	4,055	20,101	25,006	51%
Citgo-Linden	366,799	451,377	484,965	412,995	240,795	44%
Gulf-Oil-Linden	10,110	11,455	11,173	11,599	11,855	39%
Kinder-Morgan-Carteret	54,189	54,125	49,188	53,490	31,187	15%
Kinder-Morgan-Perth-Amboy	14,367	13,498	14,216	13,919	11,263	9%
Motiva-Sewaren-Terminal	530,857	564,455	604,681	752,552	756,389	71%
Motiva-Terminal-Newark	166,637	174,405	196,324	187,995	219,524	74%
NuStar-Linden	4,072	2,644	2,469	2,032	2,349	39%
Phillips-66-Bayway	10,811	14,692	15,438	13,388	13,915	65%
Phillips-66-Tremley-Point	26,894	48,317	38,923	31,283	47,599	35%
Sunoco-Logistics-Newark	2,290	4,882	3,412	3,039	3,708	37%
Total Storage	**1,225,863**	**1,373,389**	**1,451,692**	**1,532,881**	**1,397,676**	**54%**
Storage Change	**176,622**	**147,526**	**78,303**	**81,189**	**(135,205)**	
Storage Percent Change (%)	**17%**	**12%**	**6%**	**6%**	**-9%**	
EIA PADD 1 Ethanol	6,497,000	6,521,000	6,759,000	7,054,000	-	
EIA PADD 1 Ethanol	420,000	24,000	238,000	295,000	-	
PADD 1 Percent Change (%)	7%	0%	4%	4%	-	

- For its storage reports, Genscape measures individual tank levels at major storage hubs, including New York Harbor for ethanol inventories.



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Today's Presentation Overview

- **Environmental Regulations Update**
  - US EPA RFS2
  - Other countries covered in Global Ethanol Landscape

- **Global Ethanol Landscape**
  - Canada and Brazil
  - Other Trade Partners
  - Information Sources for Transport Transparency – Ship Tracking Example

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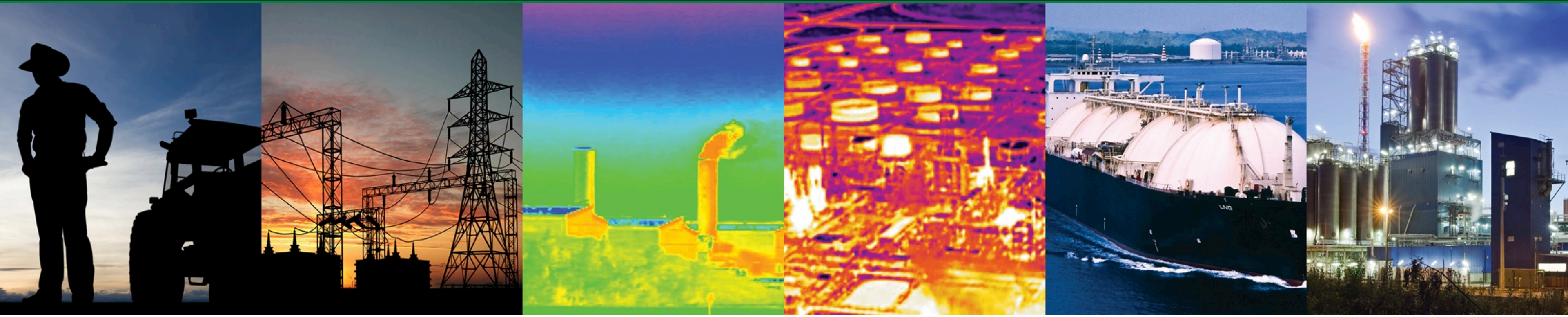

US EPA RFS2 Emerging Issues

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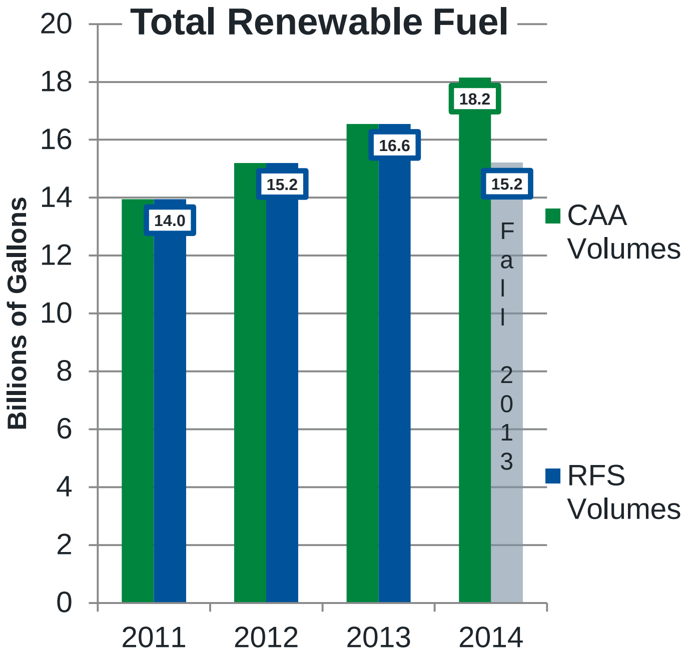
RFS2 Emerging Issues

- **According to a consent decree with some additional pledges, the 2014, 2015 and 2016 RFS2 renewable volume obligations are expected to be proposed by June 1.**
  - EPA is expected to open a public comment period after the proposal.
  - The finalized 2014-16 RVOs will be issued no later than Nov. 30, 2015.
  - 2014 expected to be based on actual production based on EPA statements*
  - Proposed rules would potentially be the only information the market has to act on until the rules are final.
  - Timeline intended to get volumes back-on-track in terms of annual November 30 statutory timing
- **New EPA waiver authority invoked in original 2014 proposal**

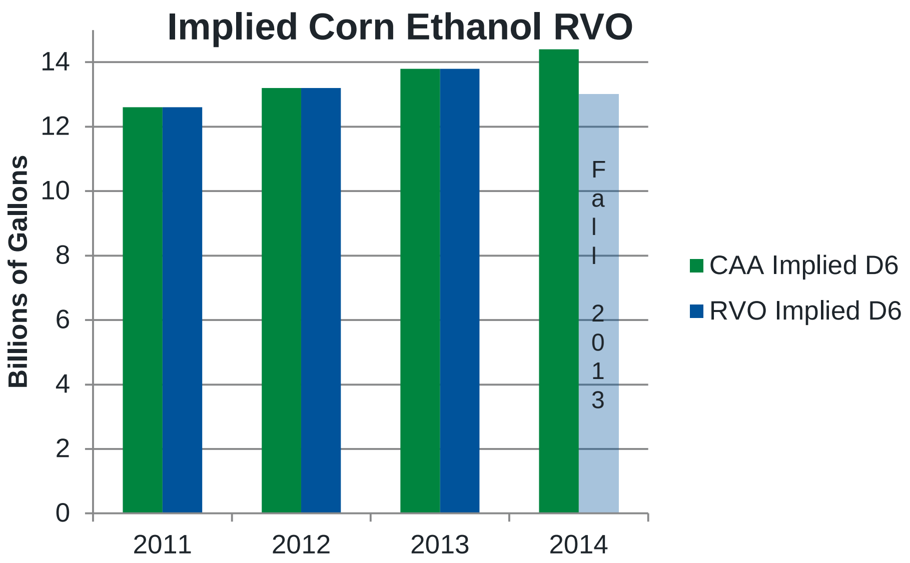


*Source: http://www.platts.com/latest-news/oil/washington/industry-groups-sue-epa-for-missing-renewable-21174373)

Broader Waiver Authority – Big Changes in 2014 and Beyond

CAA Renewable Statutory Volumes Not Preserved in 2014 Proposal

- In addition to cellulosic provision for adjusting the total renewable fuel, the EPA invoked its **general waiver authority.**
- EPA cited two factors for new use of waiver authority in 2014 proposed rule released in Nov. 2013
    - Limitations in the volume of ethanol that can be consumed in gasoline
    - Limitations in production
- Ultimately the 2014 proposal was not finalized and the EPA will re-propose the 2014 RVOs by June 2015.



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EPA Methodology for Proposing Corn Ethanol Volumes - 2014

Three factors considered in the ethanol consumption forecast:

- **The overall demand for gasoline**
    - EIA's 2013 Annual Energy Outlook used as source
- **The consumption of ethanol in E10, E15, and E85 blends**
    - E10 – 10.0% of total estimated gasoline consumption for transportation engines with accountancy for E85
    - E15 – 0 gallons
    - E85 – consumption estimated at between 100-300 million gallons with a Monte Carlo derived mean of 180 million gallons
    - E85 blend rate calculated at 74% denatured alcohol
        - Intermediate blends counted toward E85 gallons
- **The presence of non-oxygenated gasoline (E0)**
    - E0 – 0 gallons
    - No data sources, considered negligible

<u>Defunct 2014 Proposal</u>
Total Denatured Ethanol = 12.95 to 13.09 billion gallons
Total Renewable = 15.00 to 15.52 billion gallons

EIA AEO 2013 → 14.33 Quadrillion Btu (2014) → 129 billion gallons of E10 equiv. → Account 100-300 million gallons of E85 → **12.95 to 13.09 billion gallons of ethanol**

Source: 78 FR 71758ff

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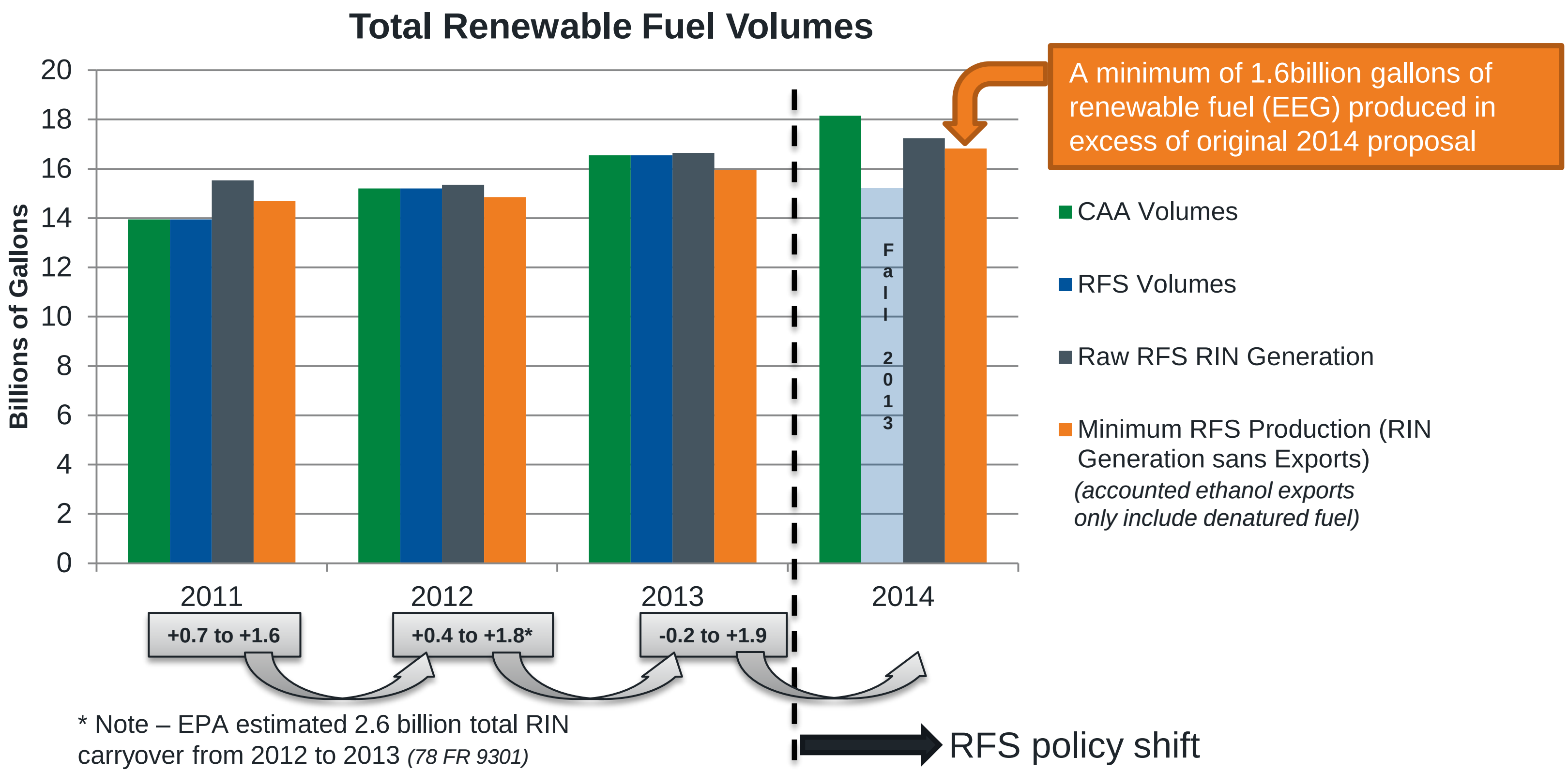
RFS2 2014 Industry Performance



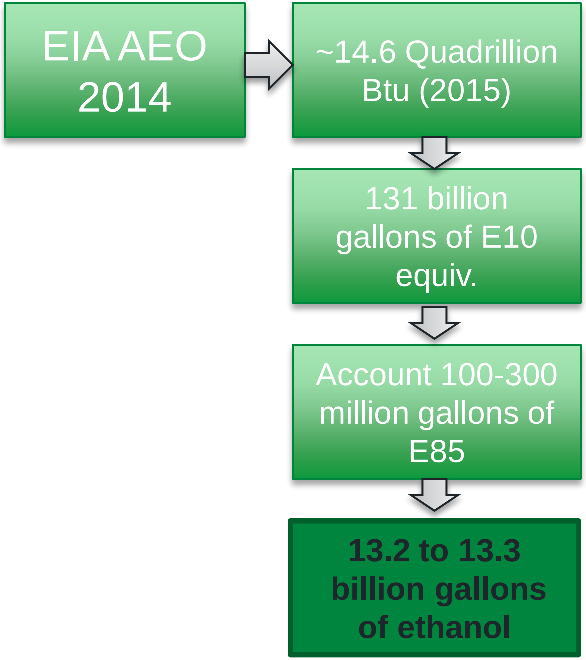
* Note – EPA estimated 2.6 billion total RIN carryover from 2012 to 2013 *(78 FR 9301)*

What 2015 Ethanol RFS Could Look Like Using the EPA's 2014 Methods

IF the EPA uses similar methodology for 2015…

- **The overall RFS demand for gasoline from AEO 2014 is about 130 billion gallons**
    - Note that the AEO 2015 just came out (April 14) and indicates an **0.3% increase** over 2014 projections.
    - E10 – 10.0% of total estimated gasoline consumption is about 13 billion gallons
- **The consumption of ethanol as E0, E15, and E85:**
    - E15 – 0 gallons … no substantial infrastructure changes yet
    - E85 – used the same as 2014 and the same 74% blend rate
    - E0 – 0 gallons
- **What about advanced volumes?**
    - Biodiesel produced about 2.7B gallons in a non-forward-looking tax credit year; cellulosic expected in the range of 0.05-0.2B

<u>2015 Rough Case Study Volumes</u>
Total Denatured Ethanol ~ 13.2 to 13.5 billion gallons
Total Renewable ~ 15.7 to 16.4 billion gallons



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Other Notable RFS2 Regulatory Changes

- **EPA RFS efficient producer petition process**
  - Enables RIN generation over and above the corn or sorghum ethanol plants grandfathered capacity
  - 24 petitions granted so far
- **Biodiesel from Argentina – CARBIO Tracking Methods**
  - Total expected maximum impact on RFS biomass based diesel in 2015 would be on the order of 600 million gallons.*
  - Could create competition for US biodiesel producers
  - May be an accounted RVO factor in BBD expectations for 2016 and out years
  - Impacts price of D5 RINs and value of Brazilian ethanol imports in terms of meeting the total advanced mandate

** Based on National Biodiesel Board statements*

Source: CARBIO website

There is additional domestic and international capacity being added for RFS.

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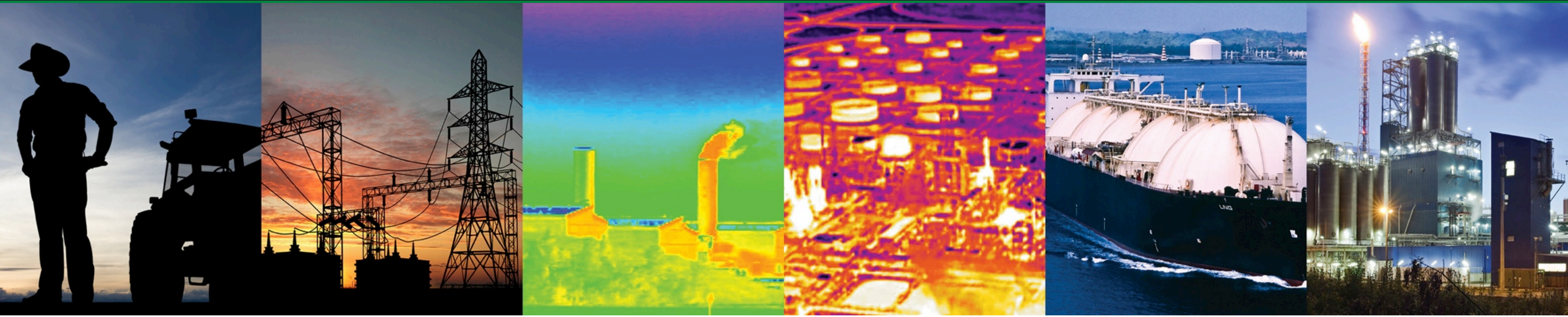

Global Ethanol Landscape –

Overall Picture

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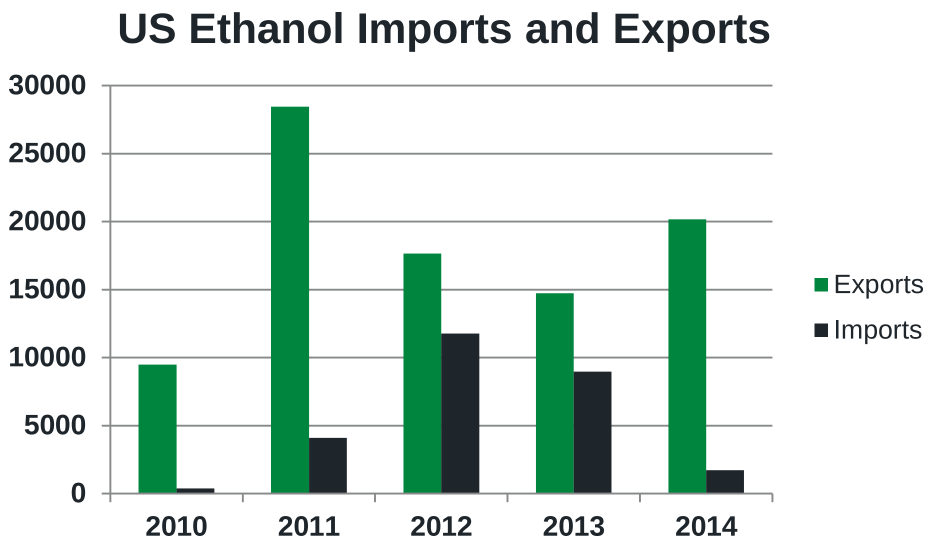
Looking Back: 2014 Export Trends

- 2014 exports increased 16% over 2013 and 11% over the five year average
    - New export trade destinations emerged
    - Averaging over the year, the US ethanol price per gallon fell about $0.23 from 2013 to 2014
    - Very little US import activity



Source: US Energy Information Administration

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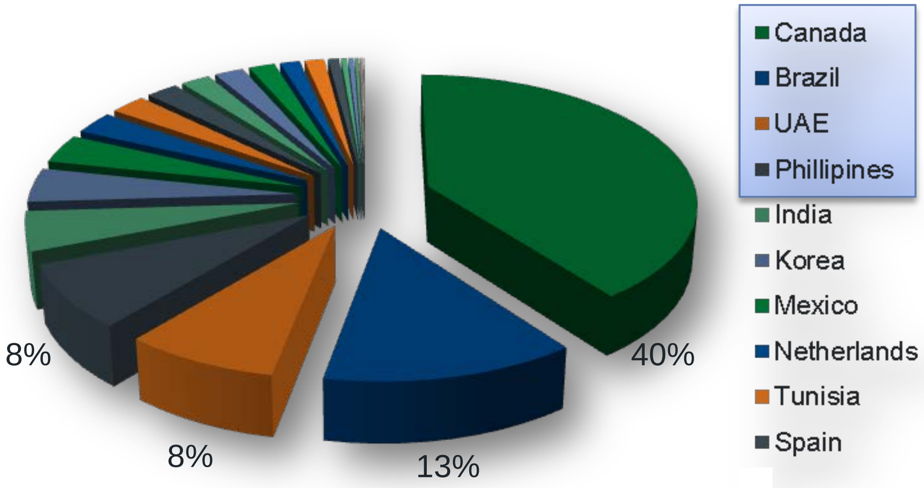
2014 US Export Picture by Country



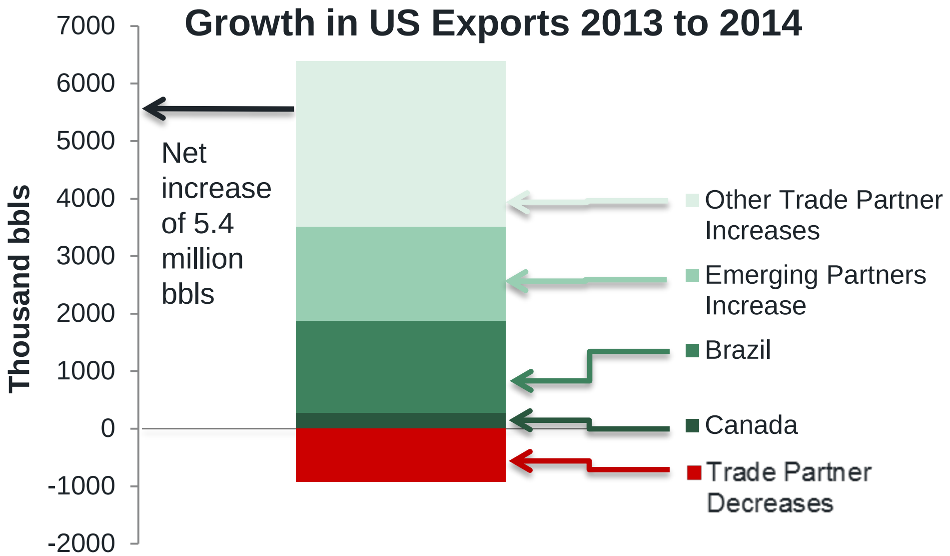
TOTAL
20.1 million barrels
847 million gallons

- Top four export destinations accounted for 69% of total exports
- Remaining 31% was spread out among 28 other trade destinations*

**Includes countries that have imported 40,000bbls or more in total over last 5 years from US Energy Information Administration*

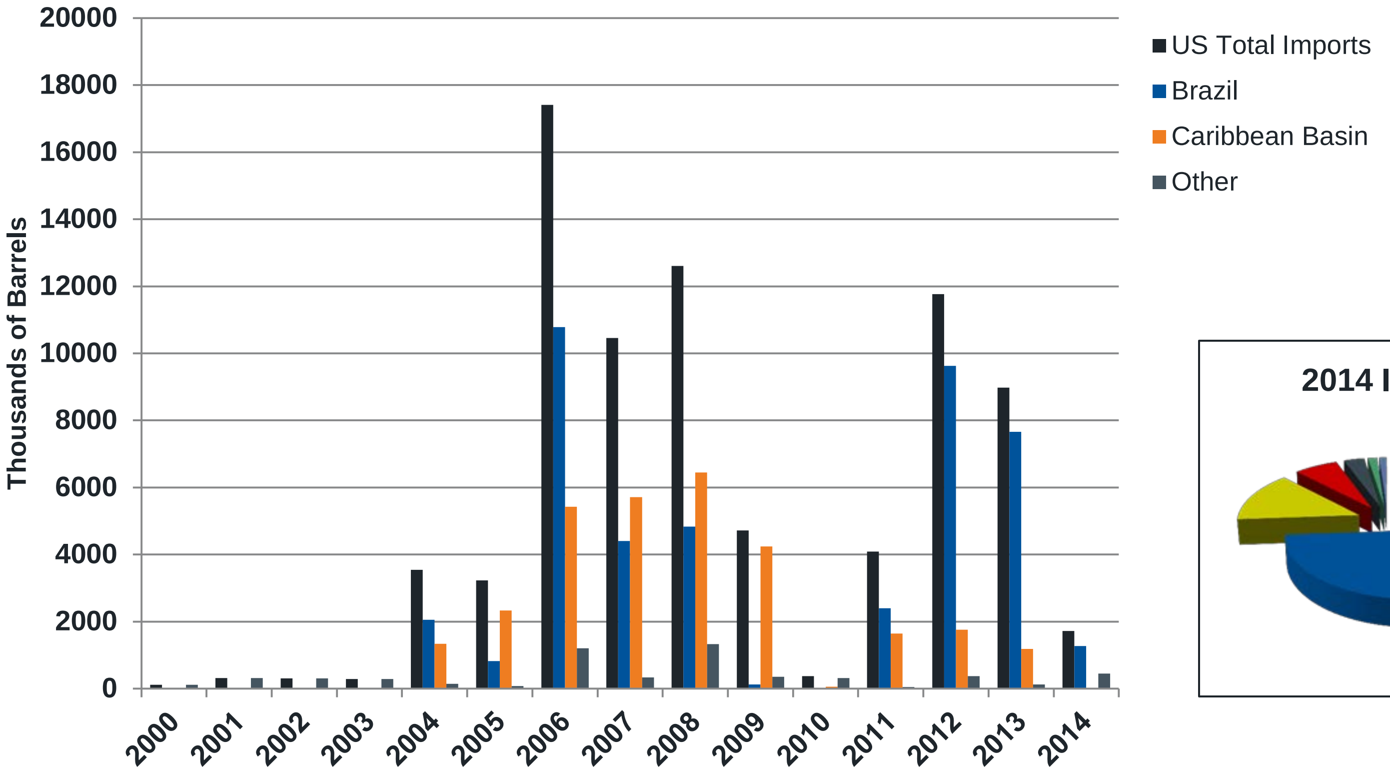
Export Trends – Net Increase from 2013 to 2014

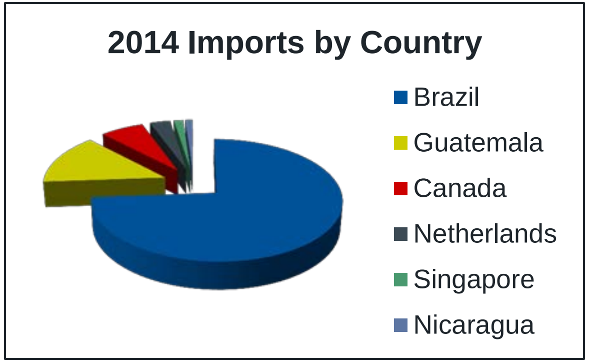
- Canadian exports are stable with some marginal growth.
- There was a substantial increase in exports to Brazil in 2014 – a lot of factors impact this volatile relationship.
- Emerging and existing trade partners outside of Canada and Brazil contributed significantly to the year on year growth.
- Decreases were namely observed in exports to Sweden, Norway and Peru.
- The trade decreases due to the Feb 2013 EU were sustained in 2014.
    - 63.3 Euros/ton ~$9.24/bbl



Source: US Energy Information Administration

What about Imports?





Source: US Energy Information Administration

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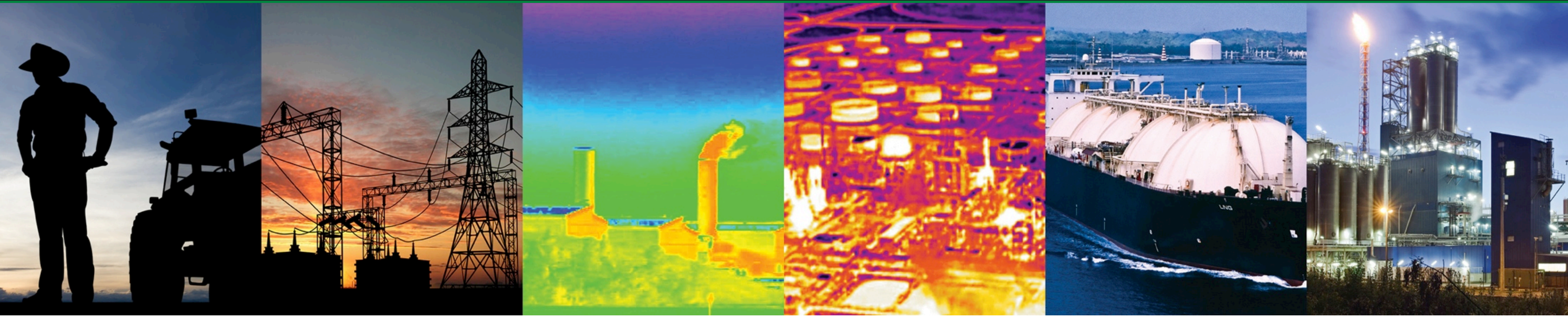

Global Ethanol Landscape – Canada

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Export Trade Trends – Top Two: Canada

- Canadian renewable fuel standard targets drive base imports – 5% federally with Saskatchewan higher
- However, blend rates have been higher than the federal mandate since 2012
    - 7.1% in 2014, similar forecast for 2015*
- No Canadian production increases expected in 2015
- FAS gasoline usage forecast increases very marginally for 2015
    - 352 million liters, fraction of a percent
- **Ultimately, ethanol exports from US to Canada are expected to be very similar in 2015**
- Beyond 2015 …
    - Domestic production incentives sunset in 2017 – could make ethanol imports into Canada more competitive
    - Forecast gasoline demand increases on average 0.6% per year through 2022.

Sources: USDA Foreign Agricultural Service – Global Agricultural Information Network; US Energy Information Administration

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Factors to Watch – US Dollar Inflation Relative to Canadian Dollar

Source: Bloomberg Business
http://www.bloomberg.com/quote/CADUSD:CUR/chart

- US dollar has inflated more than 10% against the Canadian dollar since Sept. 2014
- The exchange rate hasn't been this low since the inception of the Canadian federal mandate in 2010.
- Inflation rate also impacts other imports, so it is not a factor in isolation.

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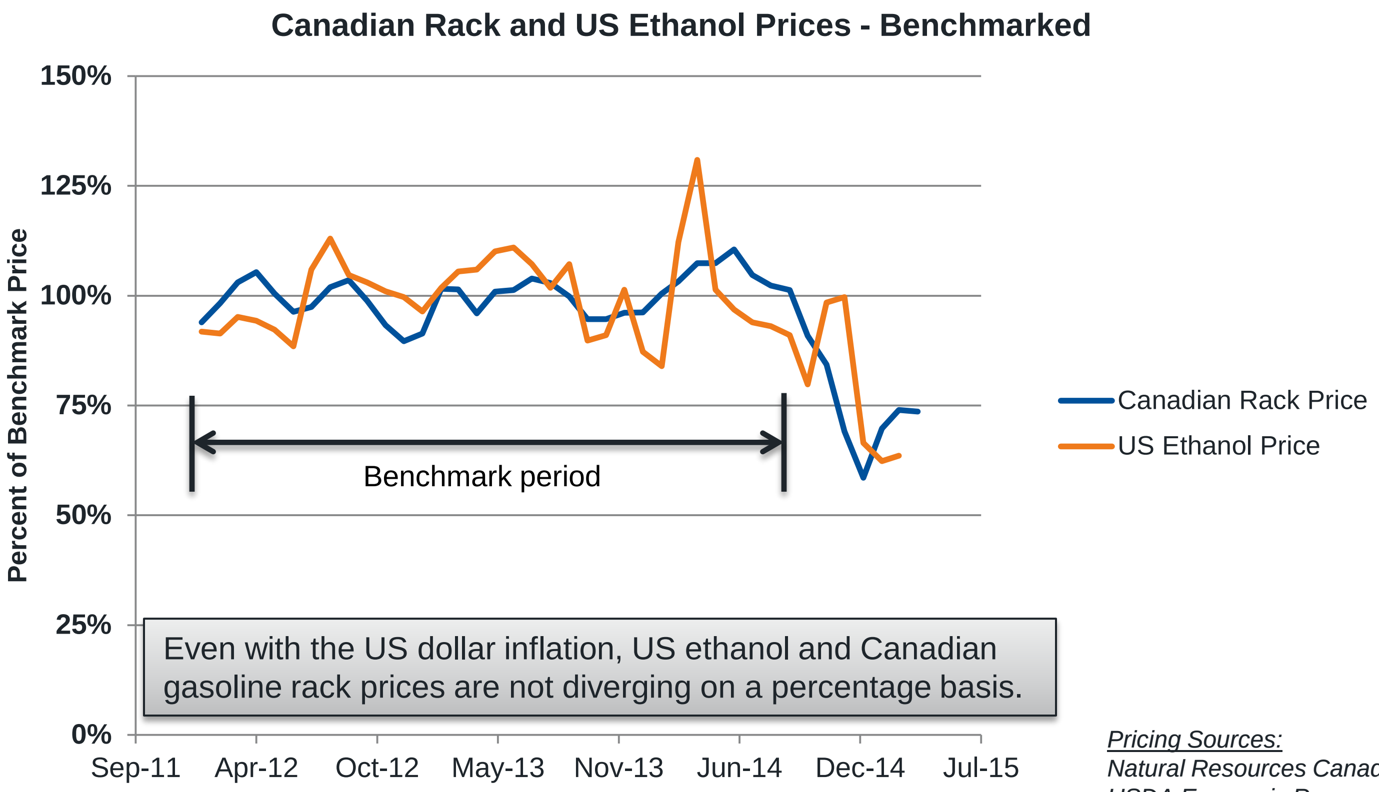
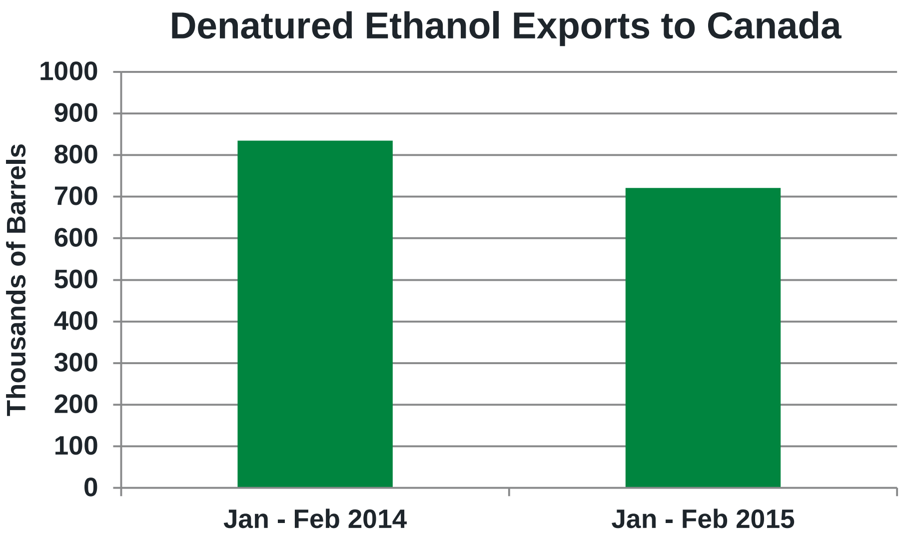
Factors to Watch – Canadian Gasoline Price Relative to Ethanol



Pricing Sources:
Natural Resources Canada
USDA Economic Research Service

YTD 2015 vs. 2014 – Exports to Canada



Source: USDA Foreign Agricultural Service – Global Agricultural Information Network

- This year's exports compared to last year are down 14%, but it's early in the year.
- Historically, the majority of exports to Canada have happened in the last half of the year.
- Almost all exports to Canada YTD have been denatured ethanol

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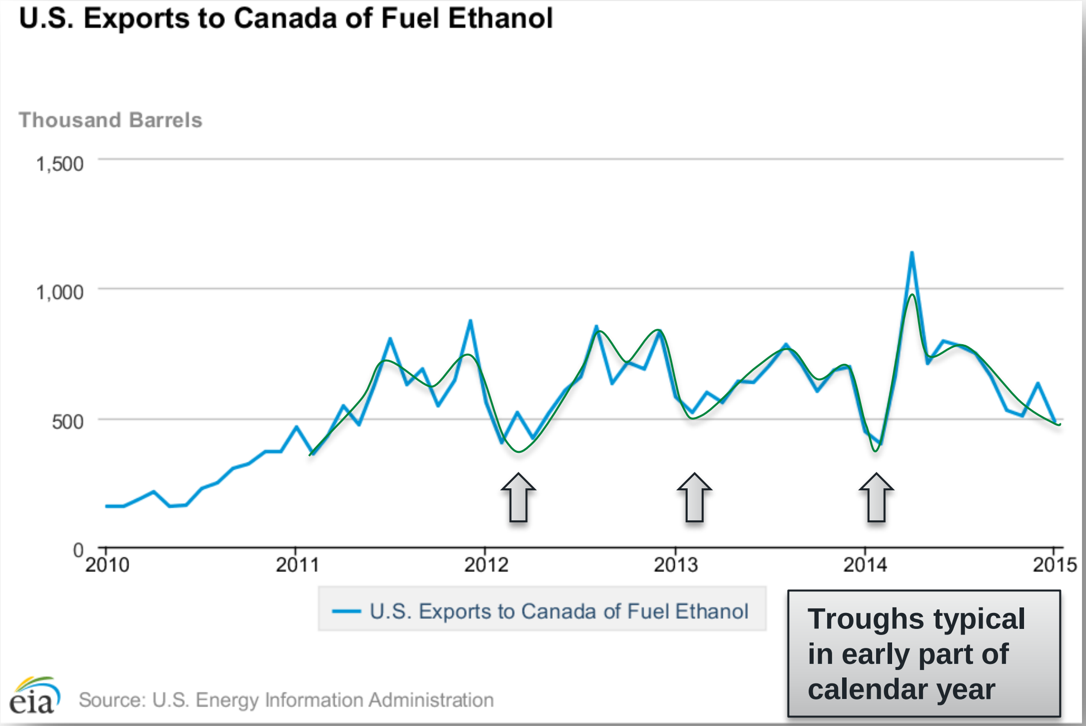
YTD 2015 vs. YTD 2014 – EIA Data on Exports to Canada



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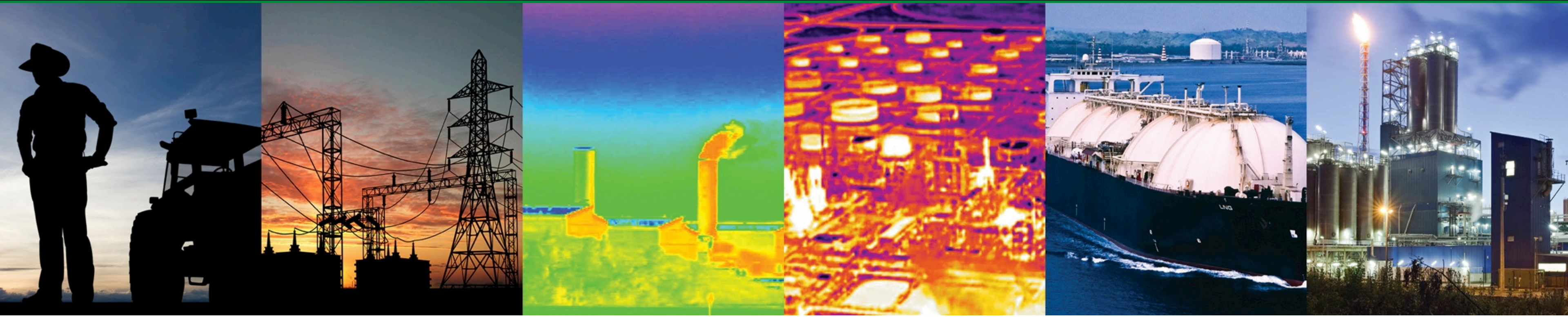

Global Ethanol Landscape –
Brazil

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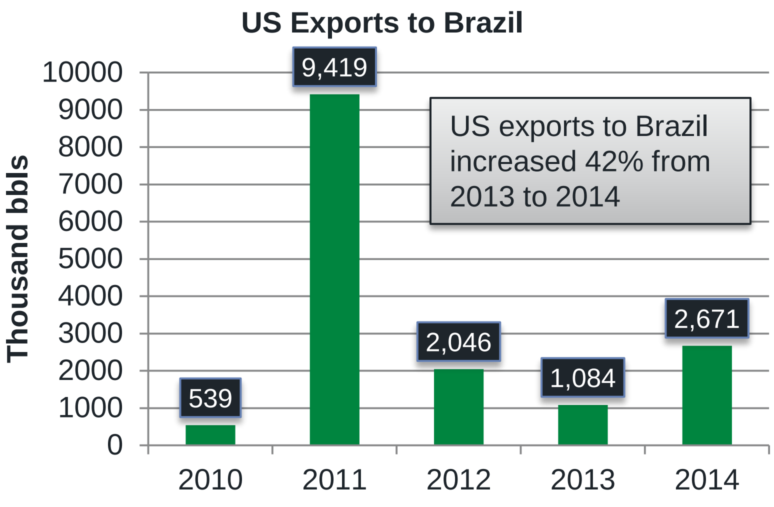
Export Trade Trends – Top Two: Brazil

Several factors have primary influence on the ethanol trade between the US and Brazil in 2015 and beyond – it's a complicated and volatile trade picture

- FX: Brazilian Real falling relative to USD ▼
- Brazilian ethanol price falling compared to US prices ▼
- Increased blending mandate in Brazil from 25% to 27% began in 2015 ▲
- Decreased fuel costs for shipping transport ◀▶
- LCFS mandates favor sugarcane ethanol ▼
- D5 RIN prices for sugarcane ethanol higher than last year▼
- Biodiesel production handled the bulk of the RFS2 advanced fuel mandate in 2014 but production is struggling this year ▼



Source: US Energy Information Administration

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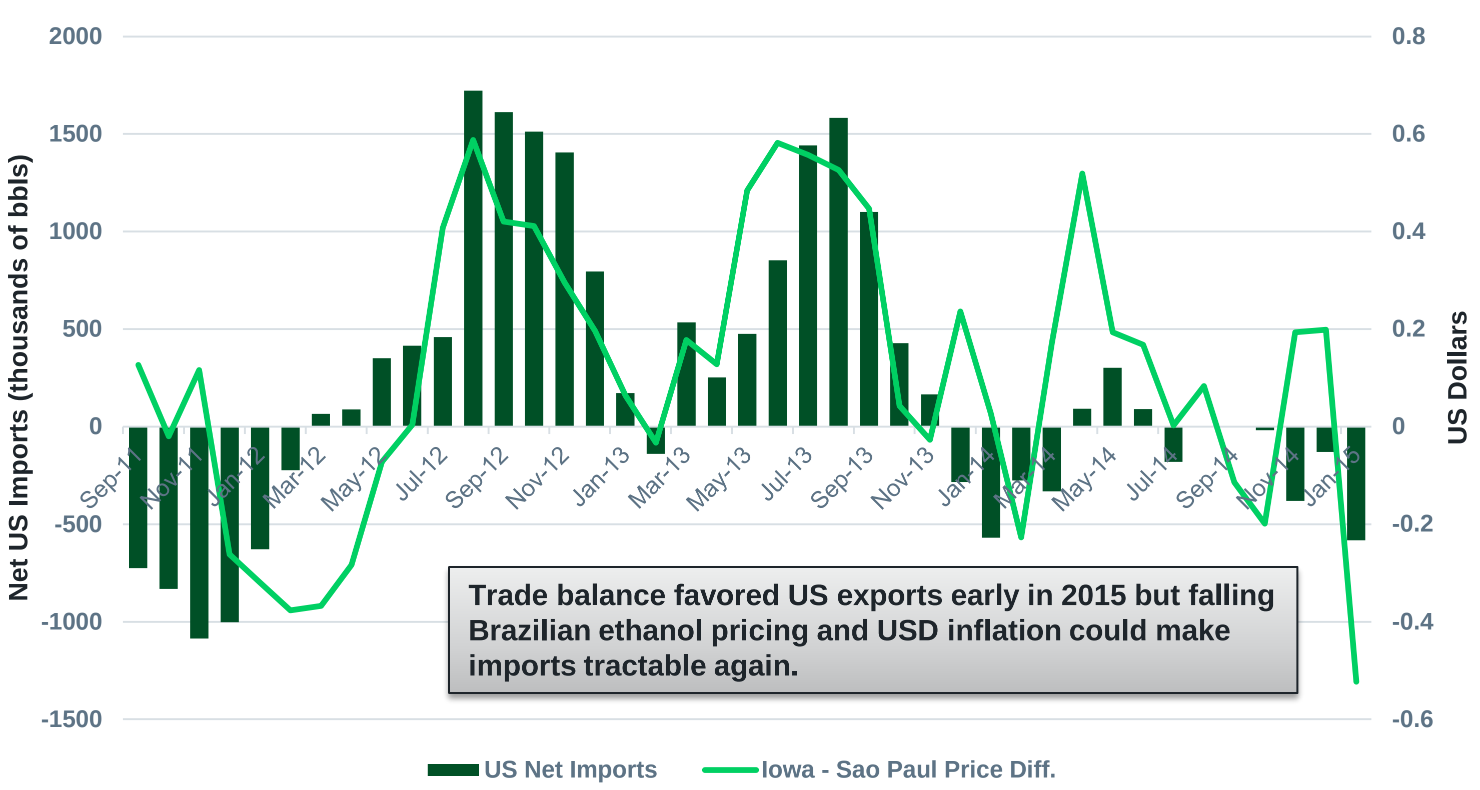
US-Brazil Trade Balance: Net Import Volumes and Pricing



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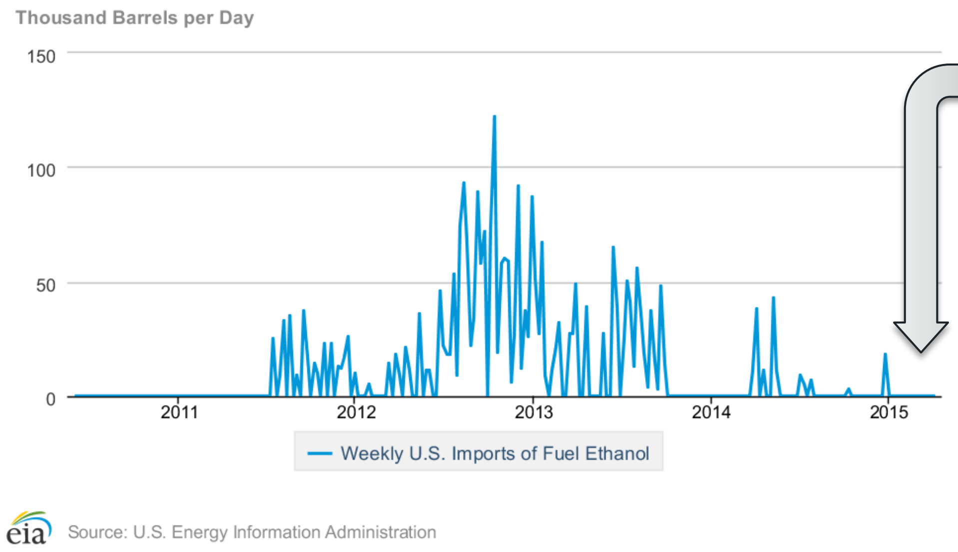
Overall 2015 Import Trends so Far

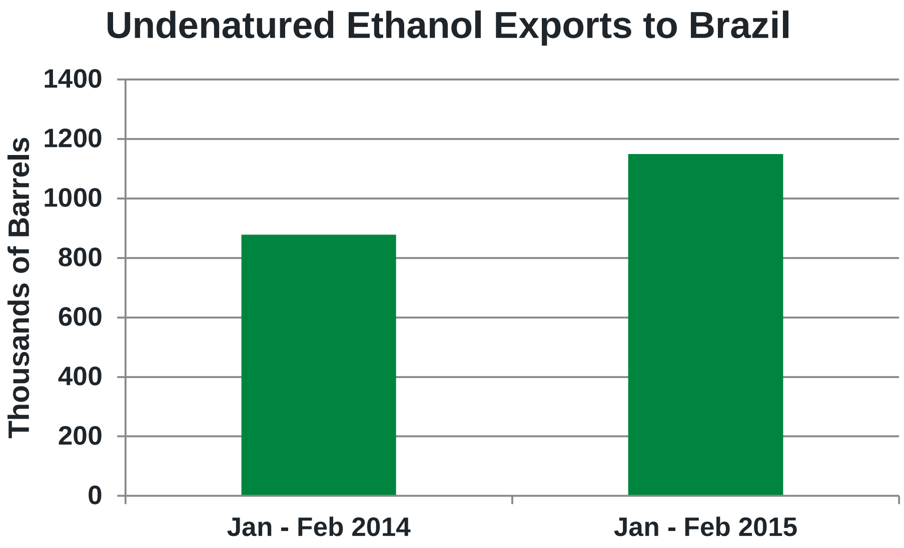
Weekly U.S. Imports of Fuel Ethanol



- Zero imports recorded so far by the EIA through the week ending 4/10/2015.
- Reuters reported on March 18 that Royal Dutch Shell booked a cargo of about 30,000 tons of ethanol headed to Florida from Brazil.*

**Source: Reuters, March 18 2015 (http://www.reuters.com/article/2015/03/18/markets-ethanol-idUSL2N0WJ29220150318)*

YTD 2015 vs. 2014 – GATS Data on Exports to Brazil



Source: USDA Foreign Agricultural Service – Global Agricultural Information Network

- Almost all exports to Brazil so far have been undenatured ethanol
- This year's exports through February compared to last year are up 31%.

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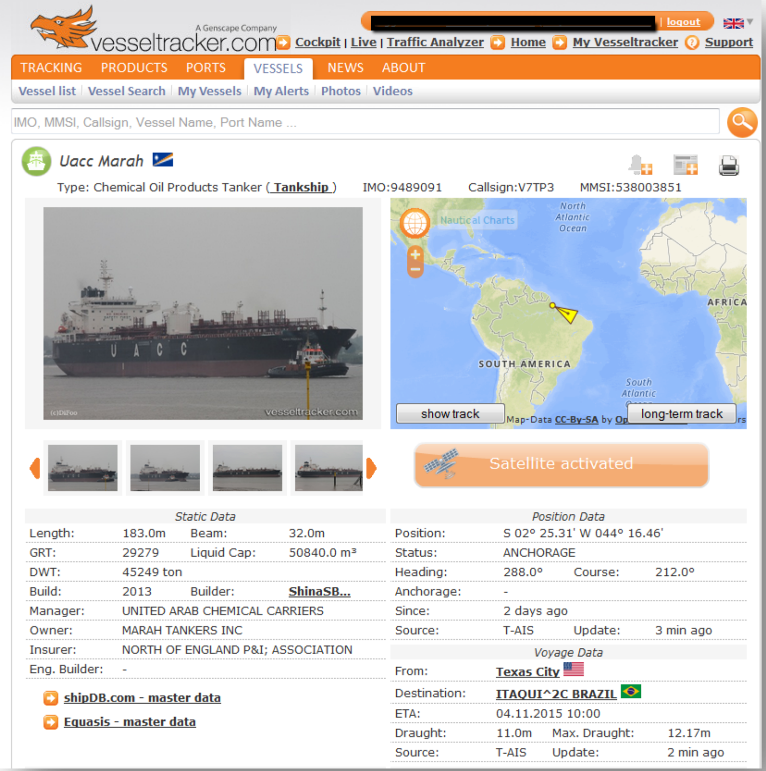
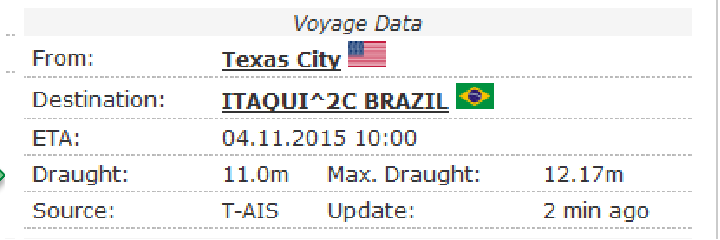
Recent Ethanol Export to Brazil



- Using its storage intelligence, Genscape monitors large draws from Houston area tank terminals.
  - Other terminals also monitored
- Genscape uses its VesselTracker technology to identify ships potentially carrying ethanol from US ports.



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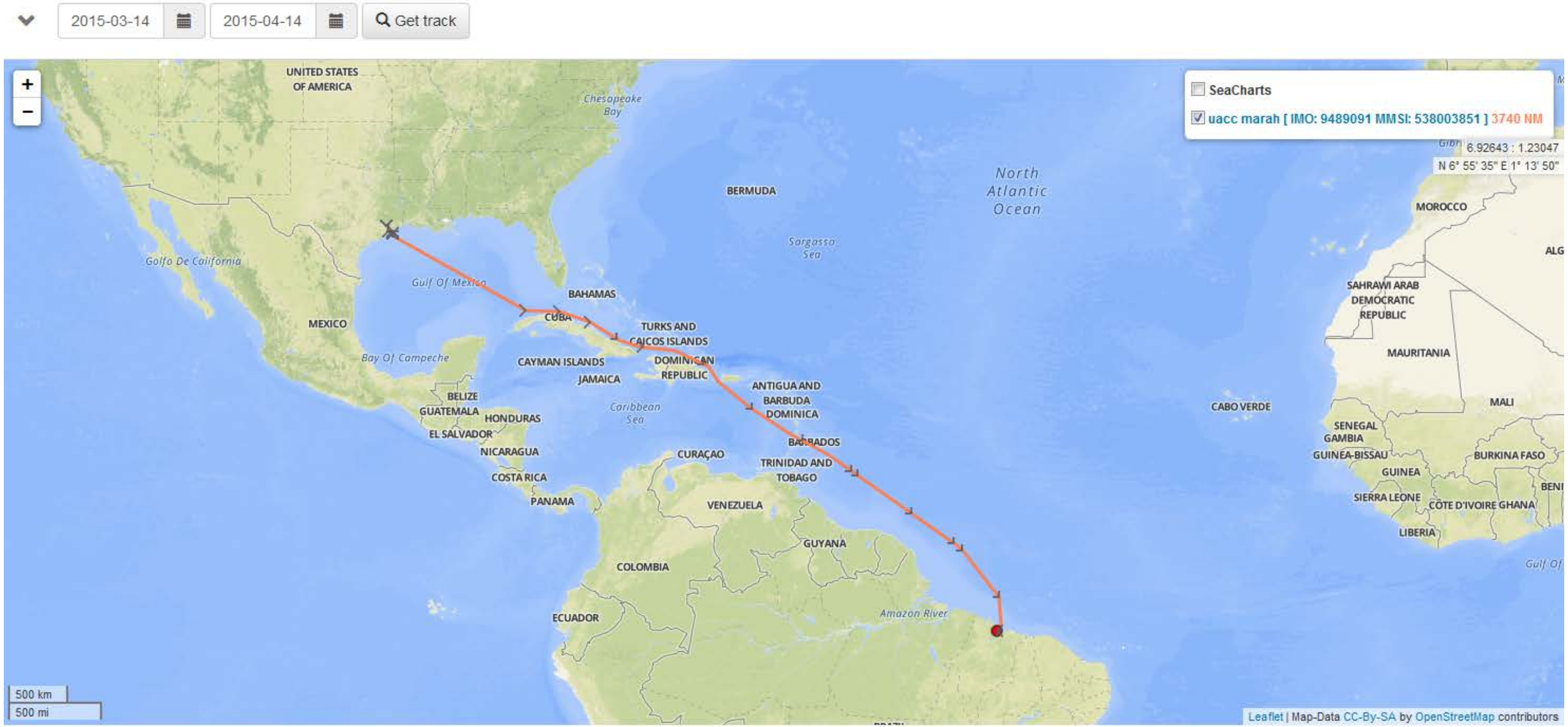
Recent Ethanol Export to Brazil



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Recent Ethanol Export to Brazil

Ships at anchor

CRADLE	SHIP	OPERATION	COMP (M)	DWT	LOAD	QTD.CARGA	DRAFT (M)	AGENCY	PREV ATRAC
100	MARIA L	DISCHARGE	189.99	50338	FERTILIZER	36100	10:33	ALPHAMAR	04/14/2015
100	KAI XUAN	LOAD	199.9	5159850	PULP	31500	8.3	WILSON SONS	04/21/2015
101	CIELO DI MONACO	DISCHARGE	179.99	39202	COAL	40000	10.5	GEM SHIPPING	13/04/2015
102	Normandy	DISCHARGE	189.7	36047	FERTILIZER	9500	10.3	ALPHAMAR	04/16/2015
102	BBC INDIANA	DISCHARGE	138.52	12502	GENERAL CARGO	7938	8	ORION RODOS	04/19/2015
103	BBC GERMANY	DISCHARGE	1198	7380	GENERAL CARGO	4550	7.5	ORION RODOS	04/16/2015
103	KM SHANGHAI	LOAD	225	80545	SOYA BEANS	70000	7:31	HOUSE MARITIME	04/23/2015
103	AMITIE SHIPS	LOAD	225	75,395	SOYA BEANS	60000	7.6	WILSON SONS	04/28/2015
104	UACC Marah	DISCHARGE	183	45249	ALCOHOL	11599	10.9	EVEN KEEL	17/04/2015
105	OCEAN PLATINUM	LOAD	186.4	37194	COPPER	29550	6.64	LBH	22/04/2015
106	TORM EMILIE	DISCHARGE	228	74,999	DERIVED OIL	45000	12.1	MUNIZ	04/11/2015
106	JENNY	DISCHARGE	180	45861	DERIVED OIL	40000	10:15	MUNIZ	04/20/2015

~85,000bbls

- Where available, arrival port data may be used to obtain information about ship contents and volume loaded.

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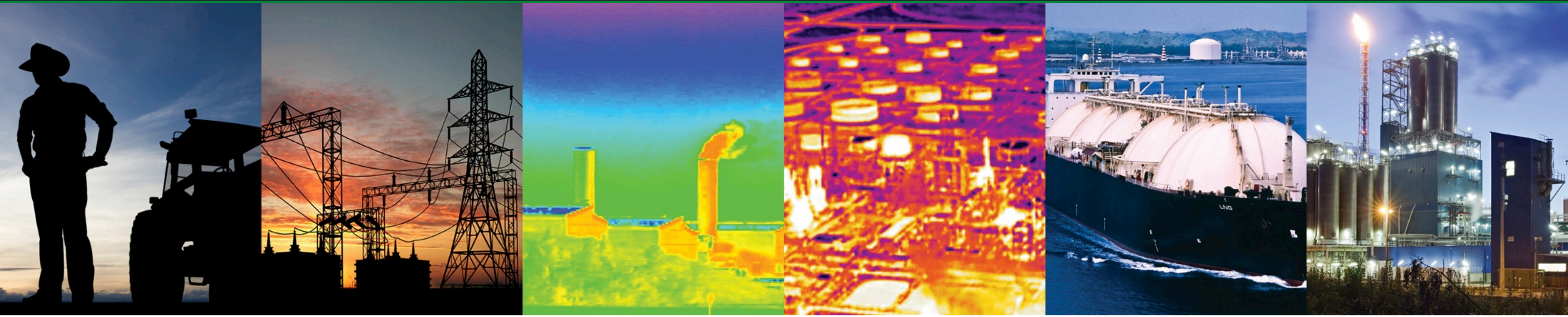

Global Ethanol Landscape –

Other Trade Partners and Wrap-up

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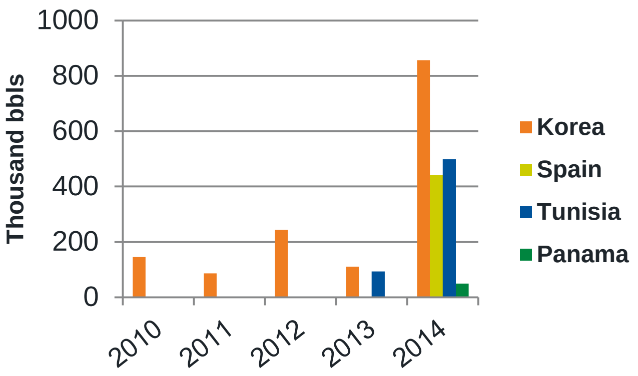
Export Trade Trends – Emerging Partners (2013 to 2014)

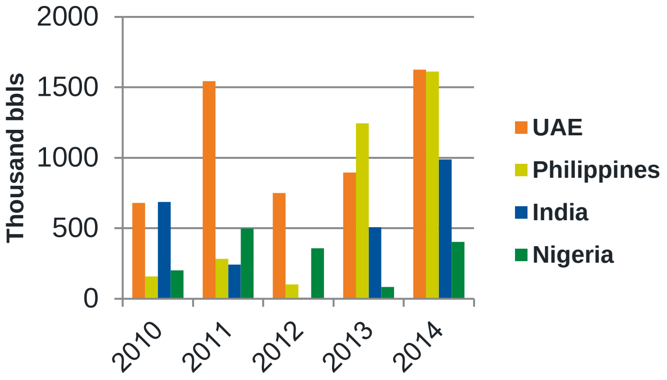
Emerging Partners

- Exports to Korea increased by 746,000bbls, nearly 200% increase over the five year average
- Exported 443,000bbls to Spain in 2014 – no previous export activity
- 405,000bbl increase to Tunisia after exports began in 2013 (68% increase)
- Exported 49,000bbls to Panama in 2014 – no significant previous exports

Notable Increases in Existing Trade Partners

- 730,000bbl increase in UAE (29% increase*) – rebound to 2011 levels
- 482,000bbl increase to India (32% increase)
- 402,000bbl increase to Nigeria (66% increase) – rebound from 2013
- 368,000bbl increase to Philippines (13% increase)
- 292,000bbl increase to the Netherlands (34% increase)
- 232,000bbl increase over 2013 to Puerto Rico (75% increase)





** Percentage increases based on average of 2013 and 2014*
Source: Energy Information Administration

Trade Trends: Selected Partner Details

Philippines

- Philippine DOE National Biofuels Plan creates a blending mandate of 10% moving to 20% in 2020
    - Fuel consumption projections moving upward at 2% annually according to FAS GAIN projections
- USDA FAS forecasts relatively flat Philippines imports between 2014 and 2015 due to increased domestic production with three additional plants coming online
    - GAIN report mentions potential decrease in imports in 2016
- Brazil and Thailand also have market share exporting to the Philippines, where economics could create price competition

Spain and the Netherlands

- There have been reports that the ethanol shipments to Spain may be blended into gasoline and re-exported to North Africa* – may avoid EU tariff because finished product is not consumed in EU (similar intelligence discovered about biodiesel from Argentina)
- Same could be true for the Netherlands although economics could also be driving these exports to EU

	Average Ethanol Prices
Year	Iowa
2012	$2.24
2013	$2.34
2014	$2.11
2015	$1.35

Source: Iowa State University Agricultural Marketing Resource Center

**Source: Platts, August 6 2014 (http://www.platts.com/latest-news/shipping/montreal/us-h1-2014-ethanol-exports-soar-56-census-bureau-21032324)*

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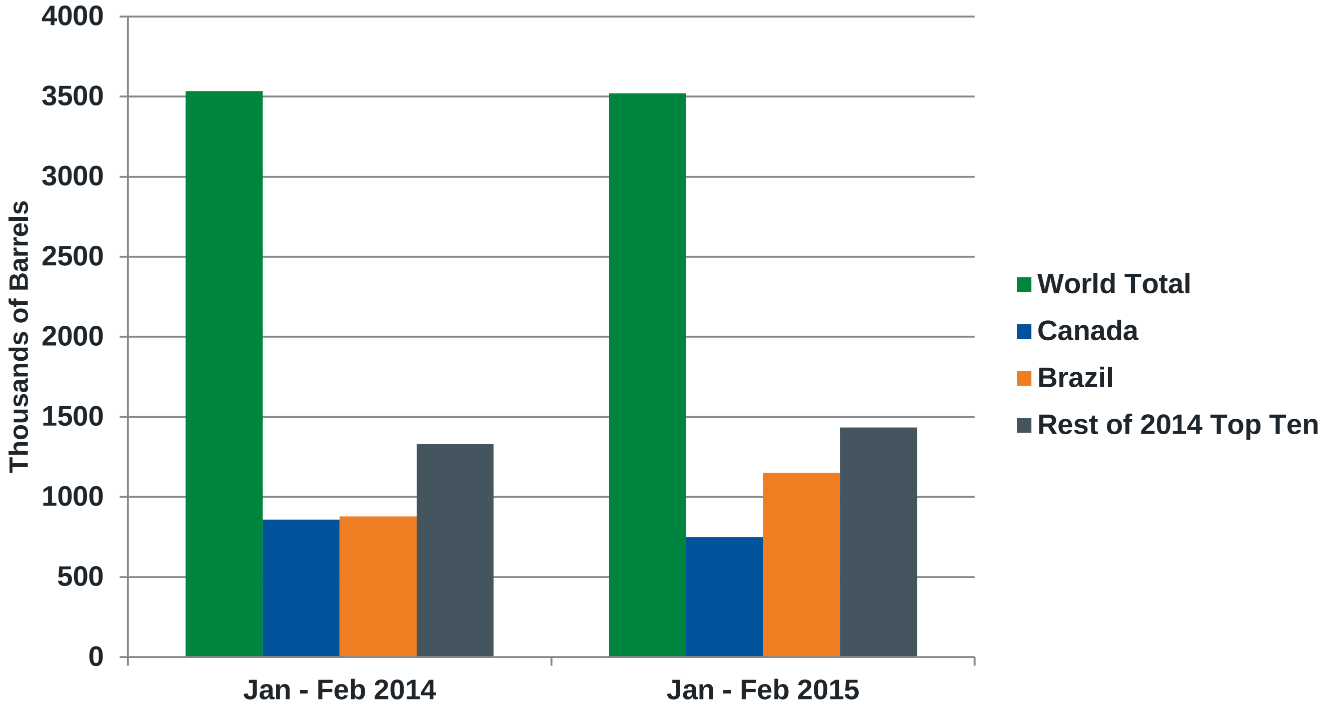
Overall YTD 2015 Export Trends so Far



Source: USDA Foreign Agricultural Service – Global Agricultural Information Network

Emerging Trade Trends – Overall Factors to Watch

- **2015, 2016 USEPA RFS2 mandates in new RVO era**
  - Stronger mandate would tend to reduce export potential, both from a supply and pricing standpoint
  - However, the limits of production capacity are not likely to be tested unless there is a policy shift.
- **US interest rate hikes looming**
  - A rate hike usually strengthens the value of dollar relative to other currencies and negatively affects overall exports.
- **Brazilian currency deflation along with supply trends**
- **Price of US ethanol**
  - US planted acres and crop progress
    - Planting intentions report indicates corn acreage down 2% from 2014 (near 2010 levels)
    - Equivalent to 13.4 billion bushels at a yield projection of 164 bushels/acre – 0.8 billion bushels smaller than last year*
    - CME December corn is +$0.25 to May
  - Gasoline prices
    - Iran oil sanctions may be lifted which could lower oil prices by $5-$15/barrel
    - Summer driving season predictions for retail prices at $2.45 nationwide from EIA (more than a dollar less than last year)

**Source: Farmdoc Daily, March 31 2015 (http://farmdocdaily.illinois.edu/2015/03/usda-stocks-and-acreage-estimates-for-soybeans-and-corn.html)*

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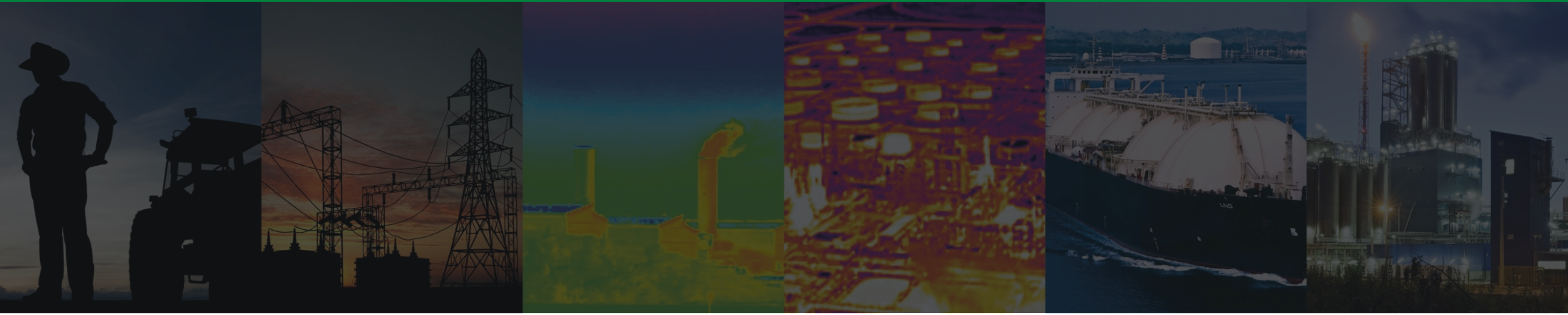

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