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2015

Fertilizer Outlook &  
Technology Conference

**Fiona Boyd**

Principal Consultant  
Argus Media Inc.



**Sulphur Outlook**



*The*  
**Fertilizer Institute**  
Nourish, Replenish, Grow



Fertilizer Industry  
Round Table



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# The Global and North American Sulphur Markets

## Fertilizer Outlook and Technology Conference

Fiona Boyd  
11 November 2015

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# Argus sulphur/sulphuric acid coverage

- North American sulphur and sulphuric acid weekly
- Global sulphur and sulphuric acid weeklies
- Monthly sulphur outlook
- Presentation and consulting services

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**Argus FMB Sulphuric Acid**  
Issue 12-49 | Thursday 6 December 2012

MARKET SUMMARY PRICE GUIDE

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**Argus FMB North American Sulphur and Sulphuric Acid**  
Issue 13-11 | Thursday 14 November 2013

SUMMARY MARKET SNAPSHOT

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**Argus FMB Monthly Sulphur Outlook**  
Prices, trade and inputs  
Issue 13-07 | Tuesday 16 July 2013

*Weakness in the global phosphate market continues to push sulphur prices down*

**OUTLOOK**

**The month ahead:**  
Expected uptick in Indian phosphate demand should result in increased sulphur buying, but stocks of high-cost sulphur and DAP remain ample in China. Sulphur prices to remain under pressure.

**The next 3-6 months:**  
The tone for the fourth quarter will continue to be dictated by the performance of the phosphate market. If phosphate demand does not emerge in India, fertilizer production curtailments and lower sulphur demand will result.

**12 months forward:**  
As sulphur production ramps up, leading to market surplus, suppliers could accept lower prices to hedge against volatility. Prices will strengthen again by the second quarter of 2014 as India steps in for DAP imports.

Forecast sulphur prices 2013-14						
	Jul	Aug	Sep	4Q13	1Q14	2Q14
China cfr	65-97	65-90	60-90	60-90	55-90	65-100
Brazil cfr	75-110	75-100	70-100	70-100	65-100	75-110
Middle East fob	45-85	45-75	40-75	40-75	35-75	45-85
Black Sea fob	55-80	55-75	55-75	55-75	50-75	60-85
Vancouver fob	55-80	55-75	55-75	55-75	50-75	60-85

**FMB**  
An Argus Media company

Welcome to the Argus FMB Monthly Sulphur Outlook, which replaces the quarterly outlook and features enhanced content and design. We are always happy to hear your comments and suggestions. Please contact us at: [fertilizer@argusmedia.com](mailto:fertilizer@argusmedia.com)

**Sulphur China – high-low range, actual and forecast**

# Agenda

- **Global overview**
  - Production
  - Demand
  - Balance
  - To watch moving forward
  - Focus on China
- **North America**
  - Production
  - Demand
  - Trade flow
  - The role of Latin America
  - Changes in strategy/to watch moving forward

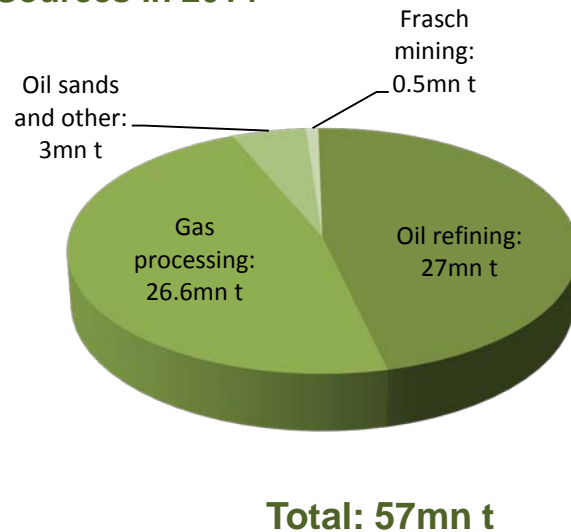
# Global overview

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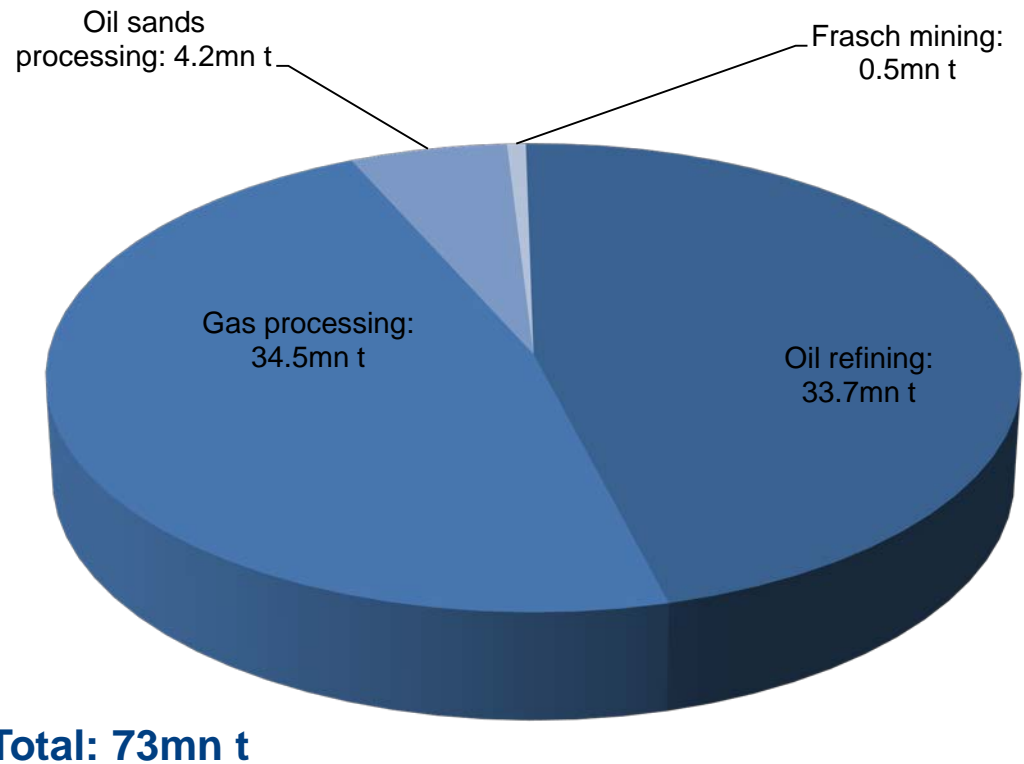
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# Elemental sulphur production

**Sources in 2014**

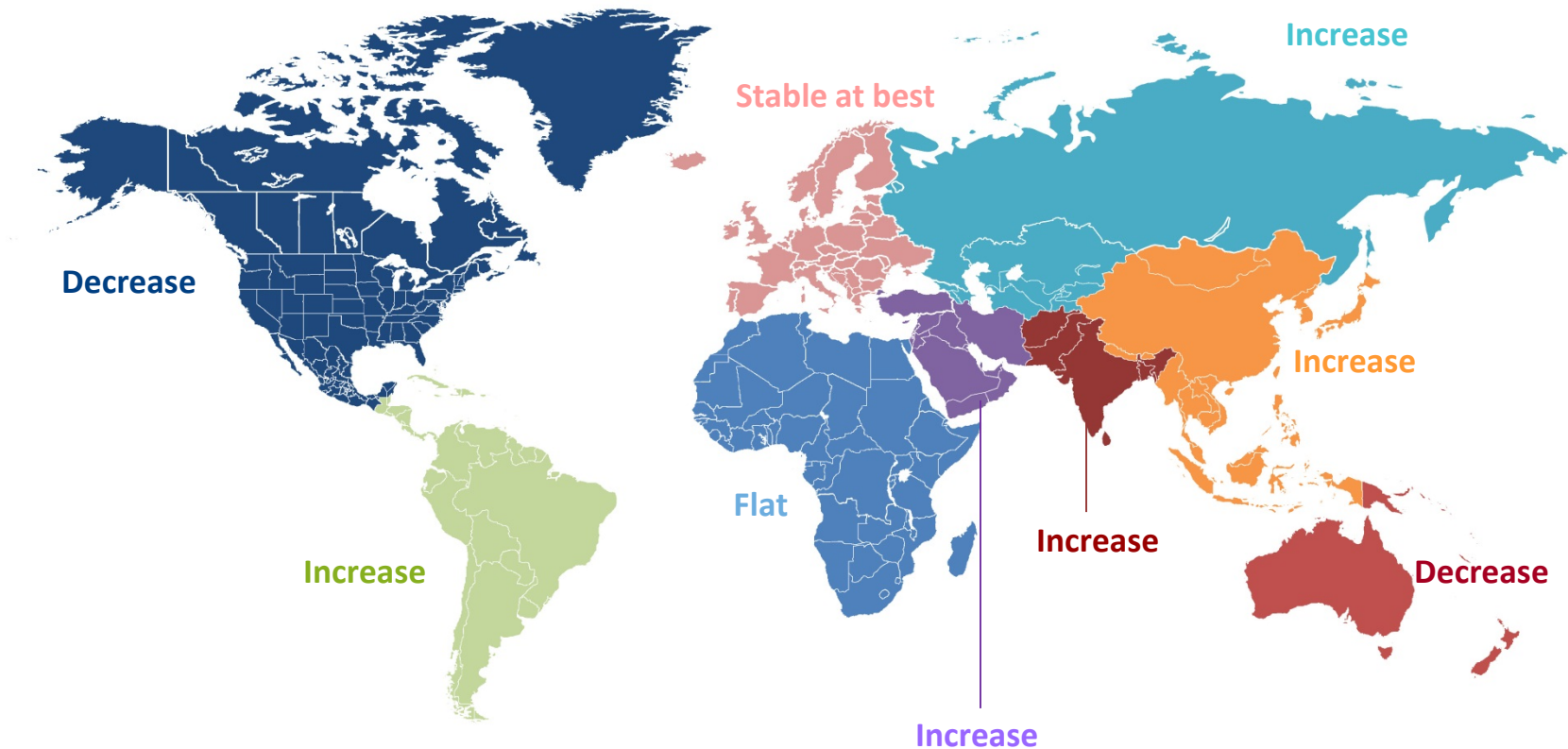


**Sources in 2020 – forecast**





# 2015 and beyond - supply changes

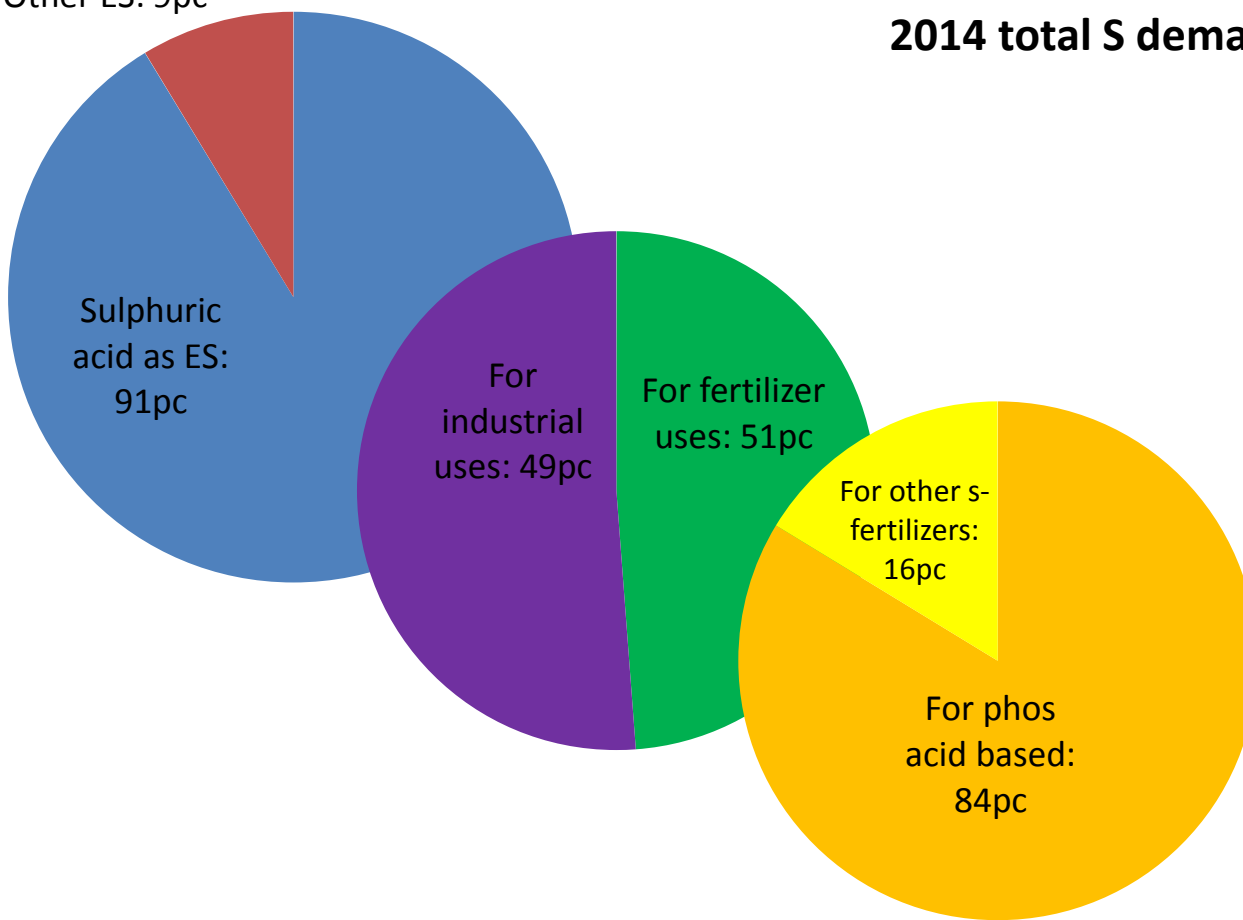


**2015-2020 supply growth: 11.6mn t+**

# Sulphur demand

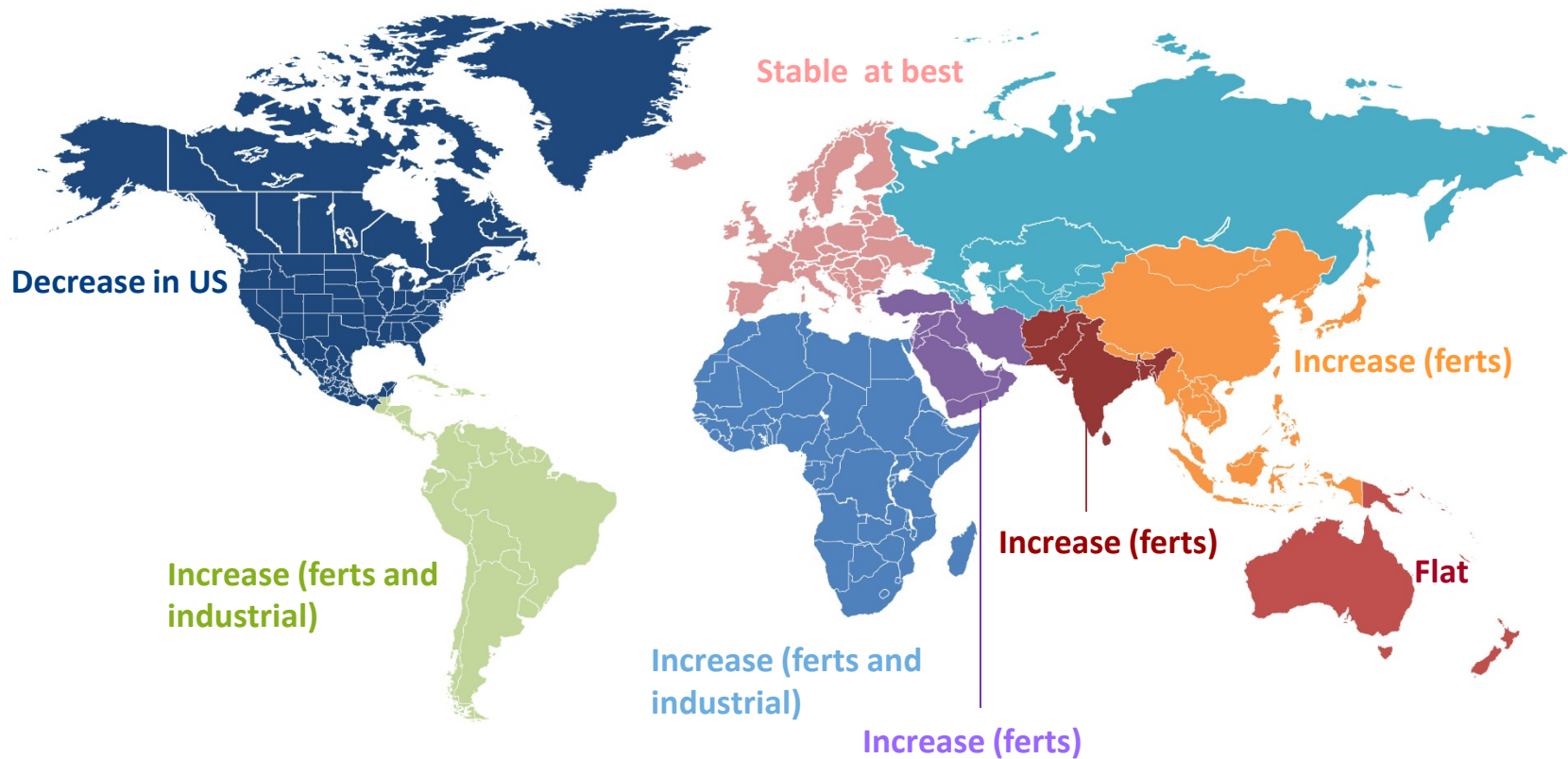
Other ES: 9pc

**2014 total S demand 58.2mn t**





# 2015 and beyond - demand changes



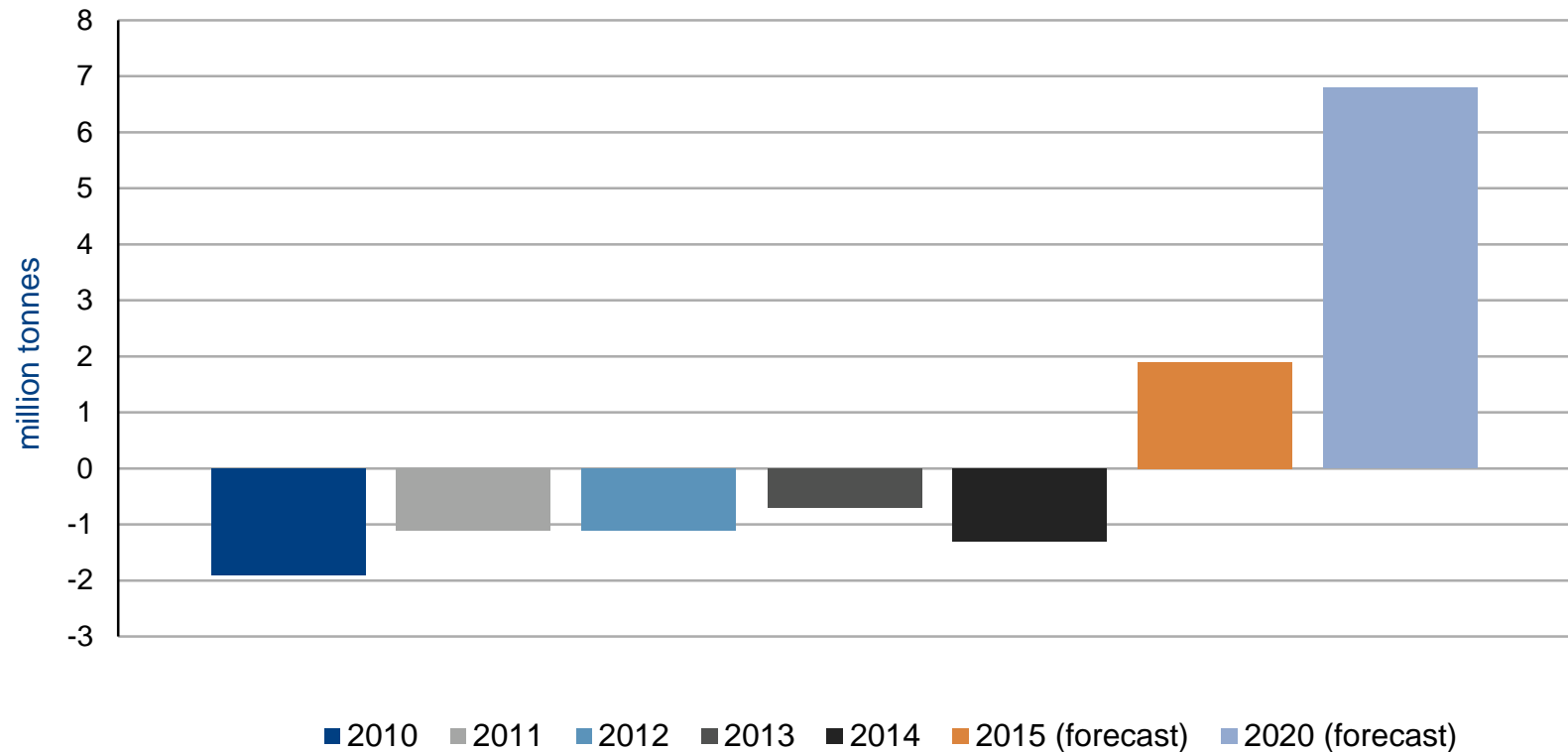
**2015-2020 demand growth: 6.6mn t+**

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# Global sulphur balance

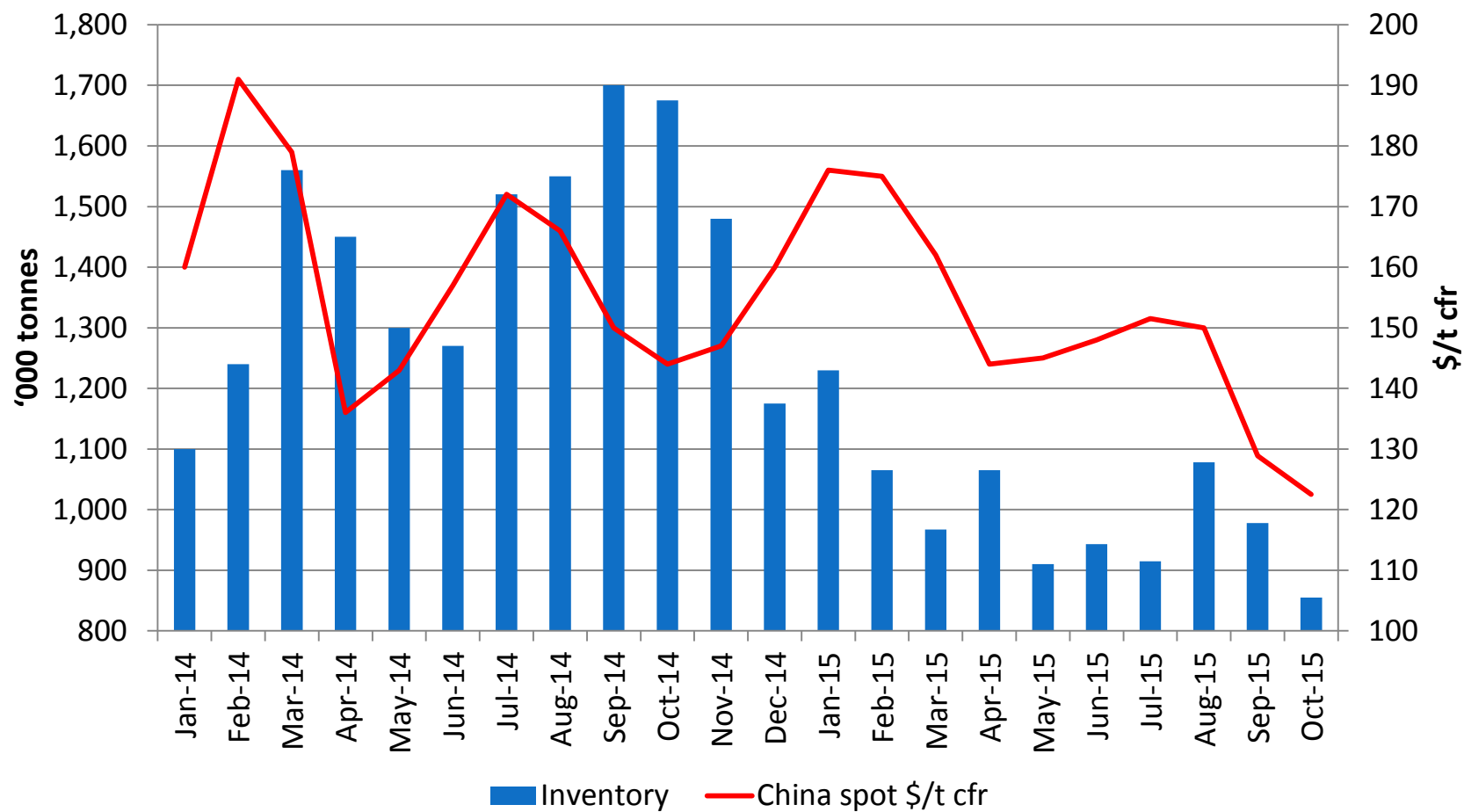


## To watch moving forward

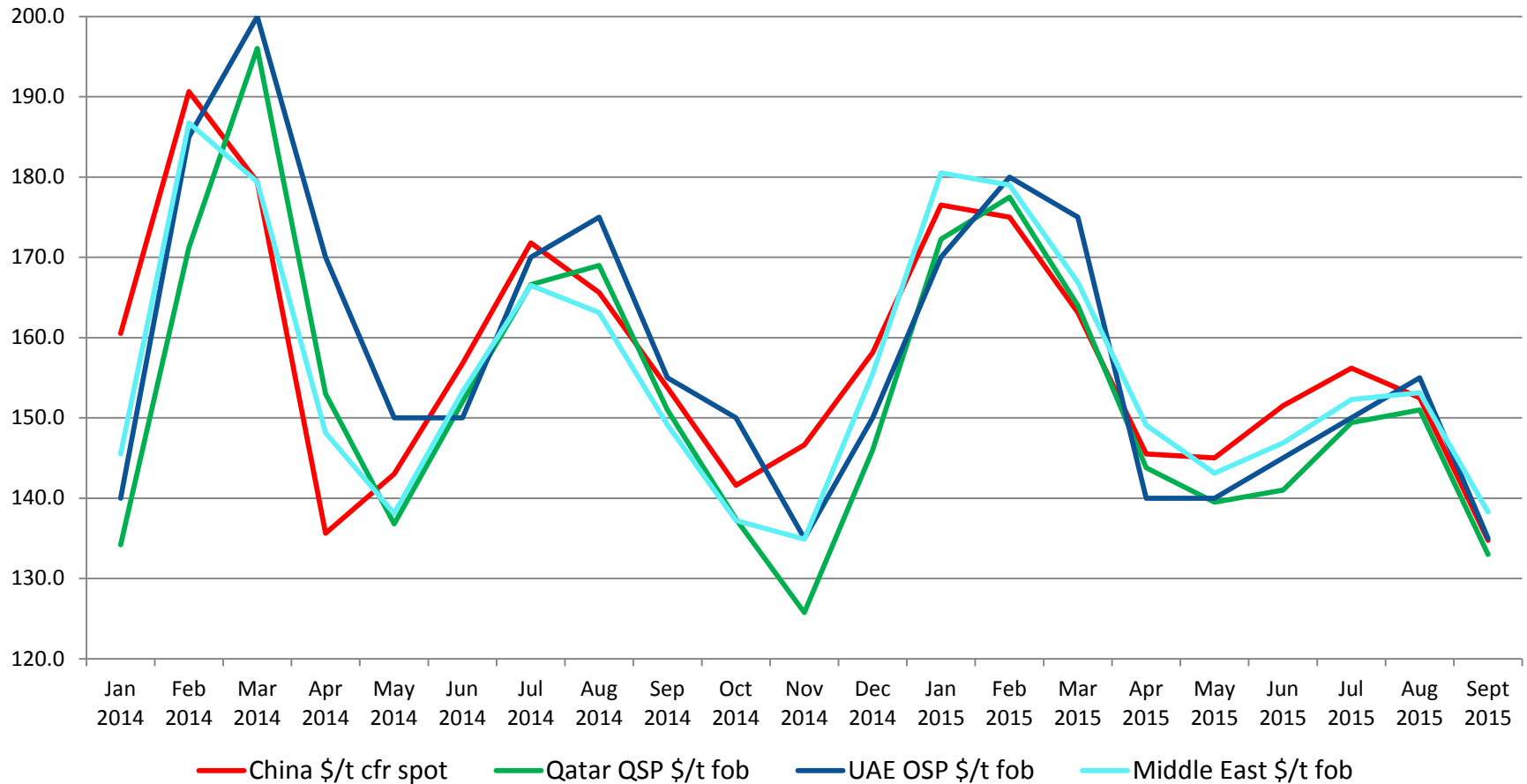
- Ramp up and utilization of new supply projects
- Inventory abilities
- Downward pressure on prices as more supply emerges
- OCP Morocco's progression with its addition of 10 phosphoric acid units
- As always...China's buying behavior

Focus on China

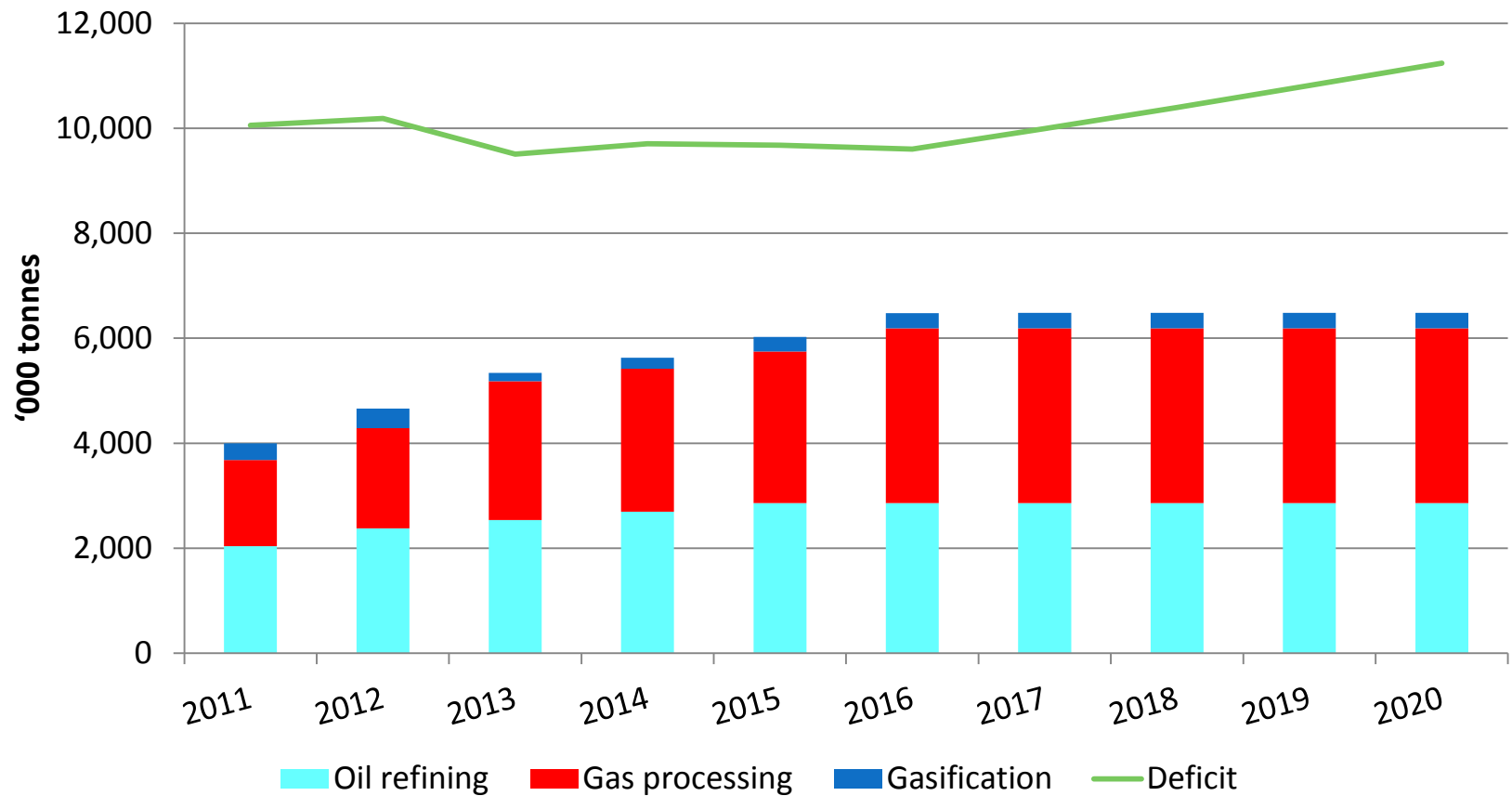
# China monthly spot price vs inventory volume



# China spot \$/t cfr vs Middle East \$/t fob prices



# China sulphur production vs consumption





# Focus on North America

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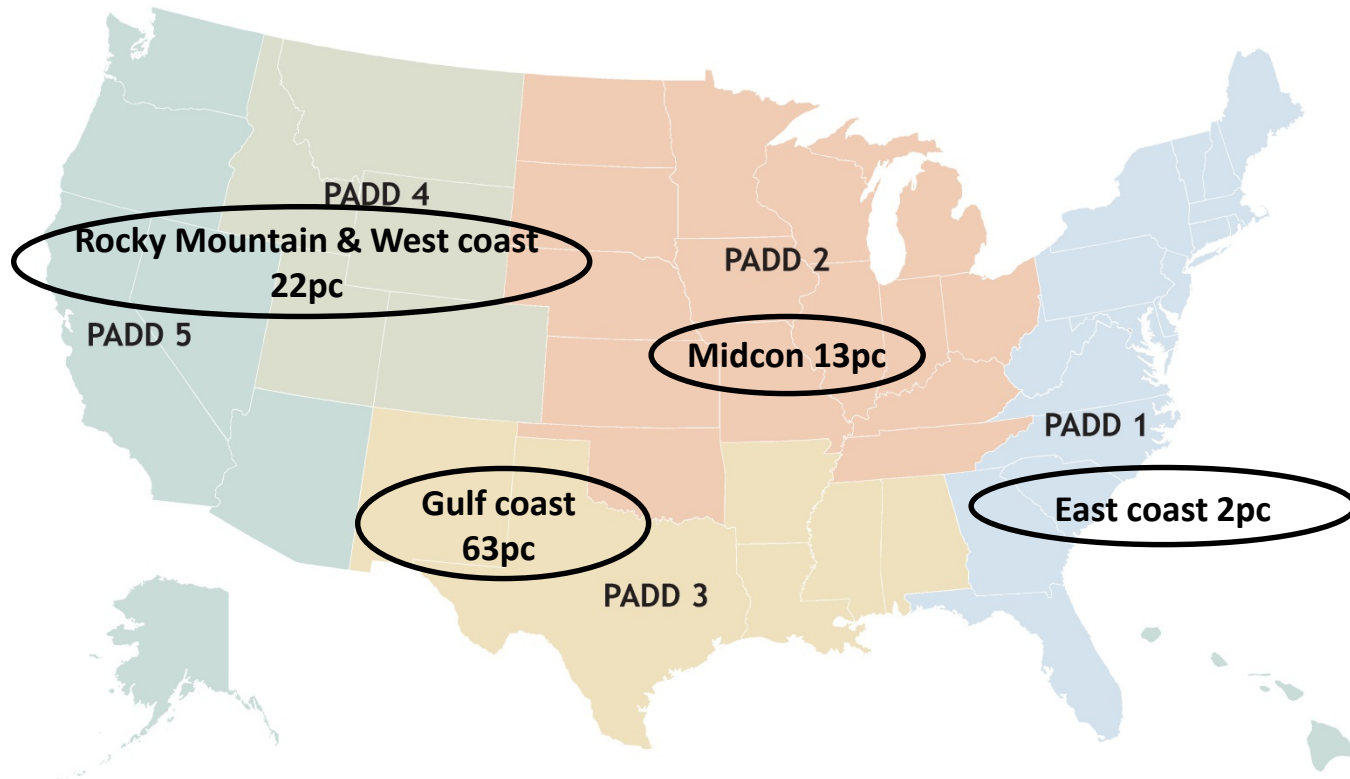
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# US sulphur production

	2011	2012	2013	2014	1H 2014	1H 2015
Natural gas	1,130,000	1,040,000↓	1,020,000↓	1,000,000↓	500,000	487,000↓
Oil Refining	7,100,000	7,370,000↑	7,580,000↑	8,030,000↑	3,950,000	3,820,000↓
<b>TOTAL</b>	<b>8,230,000</b>	<b>8,410,000↑</b>	<b>8,600,000↑</b>	<b>9,030,000↑</b>	<b>4,450,000</b>	<b>4,307,000↓</b>

- Argus five-year outlook
  - Production from natural gas processing to hover around 1mn t/yr
  - Production from crude refining reached 8mn t in 2014 and will stabilize at this level

# US sulphur production by region

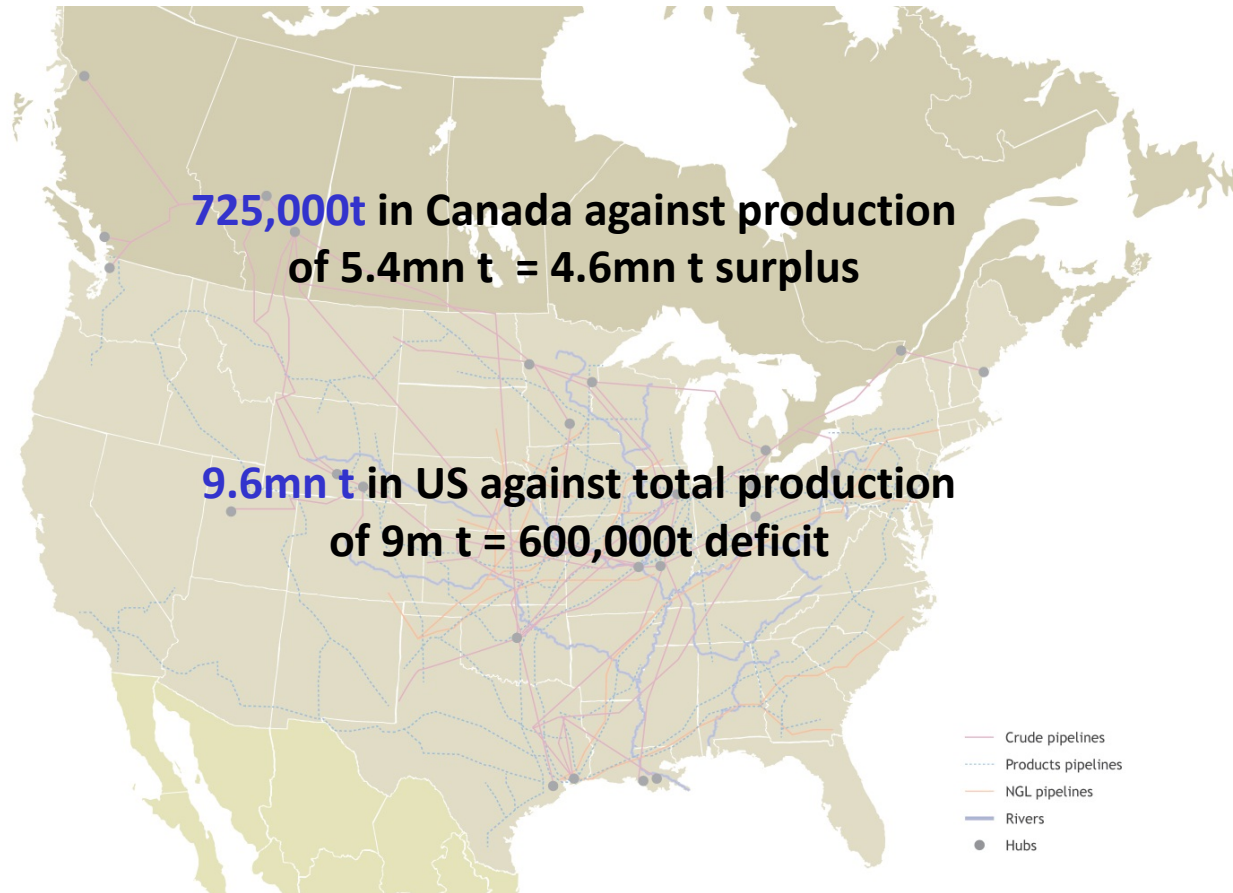


# Canada sulphur production

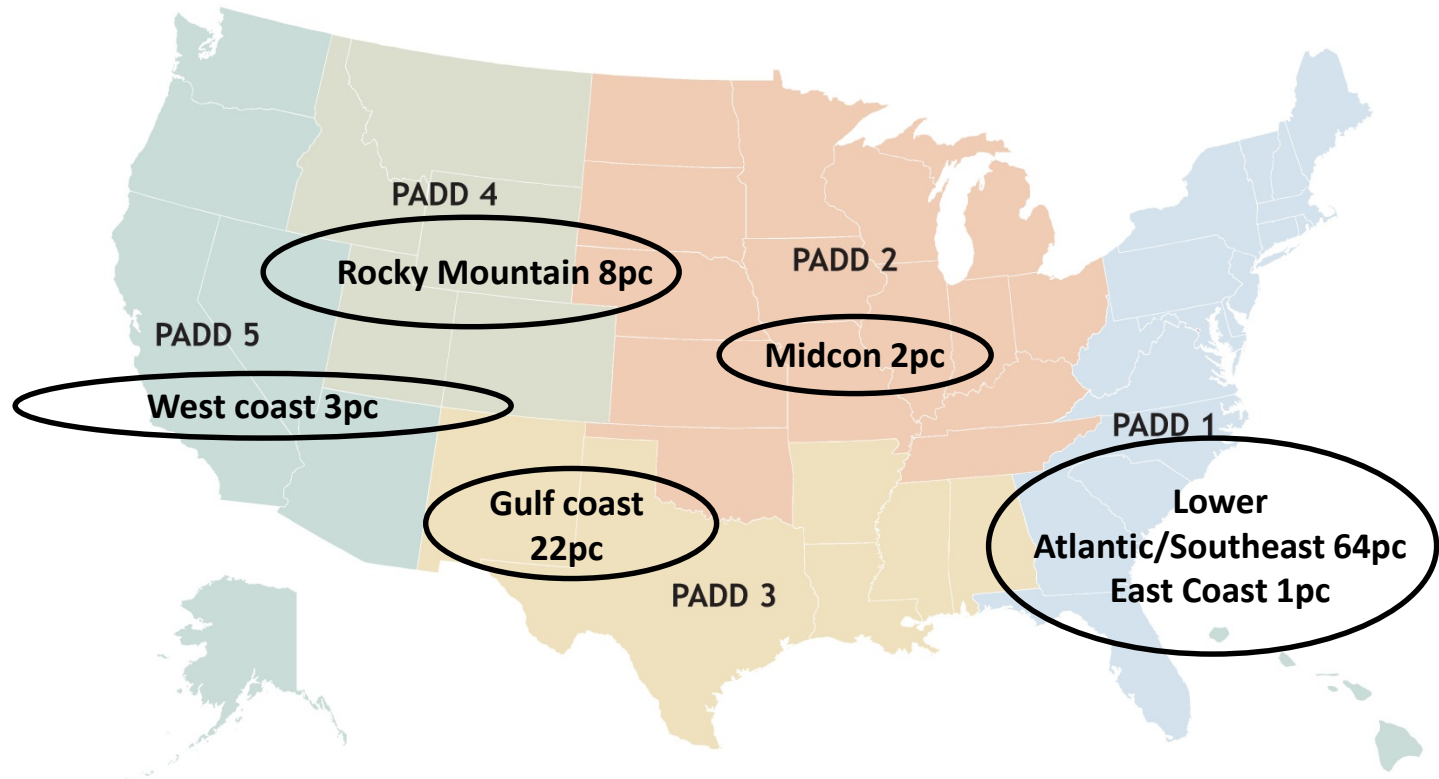
	2011	2012	2013	2014	1H 2014	1H 2015
Natural gas	3,779,059	3,167,480↓	3,109,716↓	2,752,625↓	1,396,000	1,330,000↓
Oil sands/refining	2,364,384	2,592,938↑	2,647,080↑	2,629,556↓	1,006,000	1,060,000↑
<b>TOTAL</b>	<b>6,143,443</b>	<b>5,760,418↓</b>	<b>5,756,796↓</b>	<b>5,382,181↓</b>	<b>2,402,000</b>	<b>2,390,000↓</b>

- Argus five-year outlook
  - Production from natural gas processing to decline to 2.1mn t by 2020
  - Production from oil sands/refining growing and to reach around 3mn t by 2020

# North American consumption 2014



# US sulphur consumption by region



# US imports and exports



\* **Imports** regularly from Canada, Venezuela and Mexico (molten)

\* **Imports** solid when needed - 2010 and 2011 during tight market – **resumed 2014!**



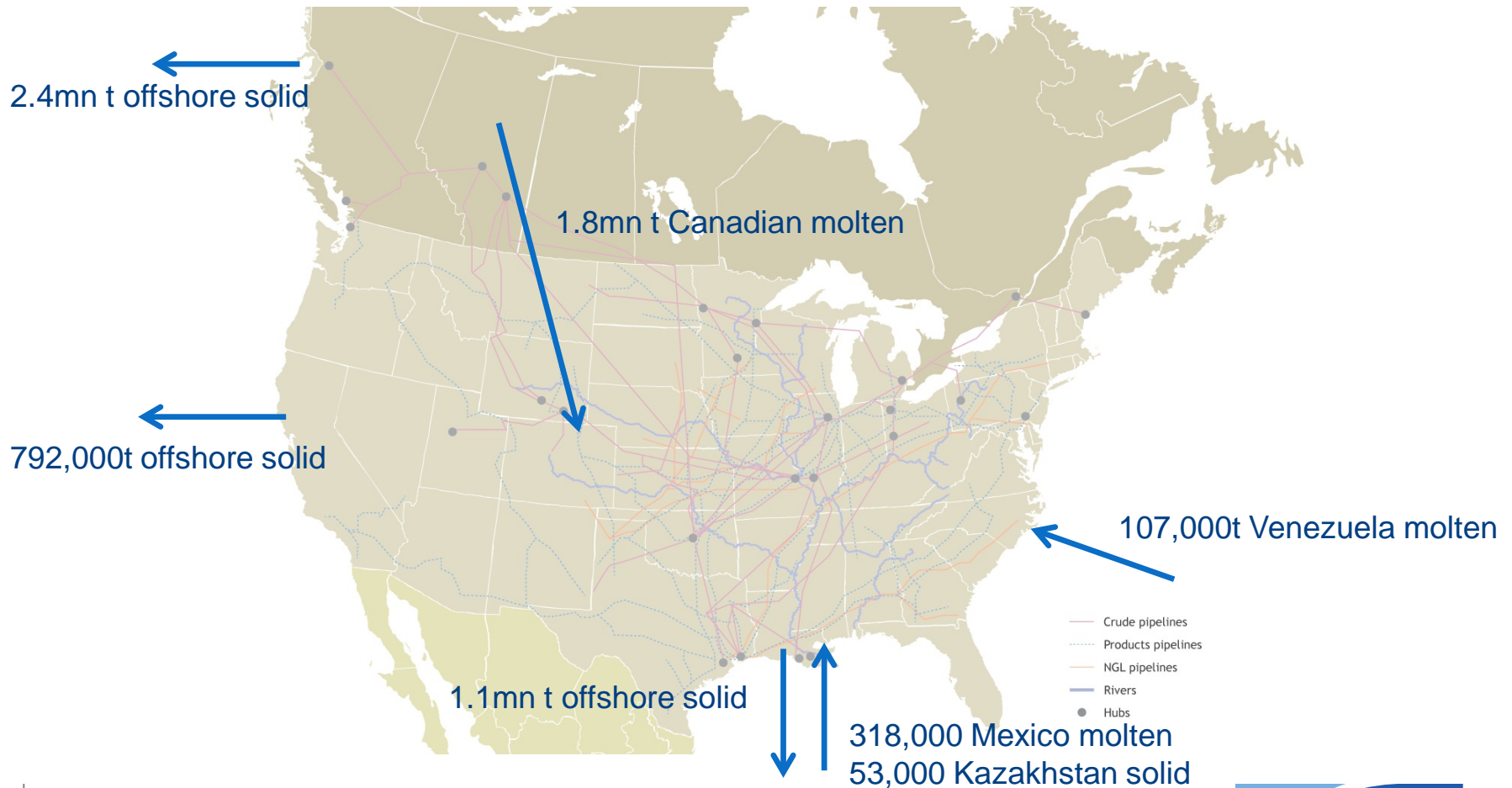
\* **Exports** from US Gulf - Brazil and Morocco primary markets

\* **Exports** from west coast (California and Washington) to similar markets as Vancouver (China, Mexico, etc)





# North American sulphur flow 2014

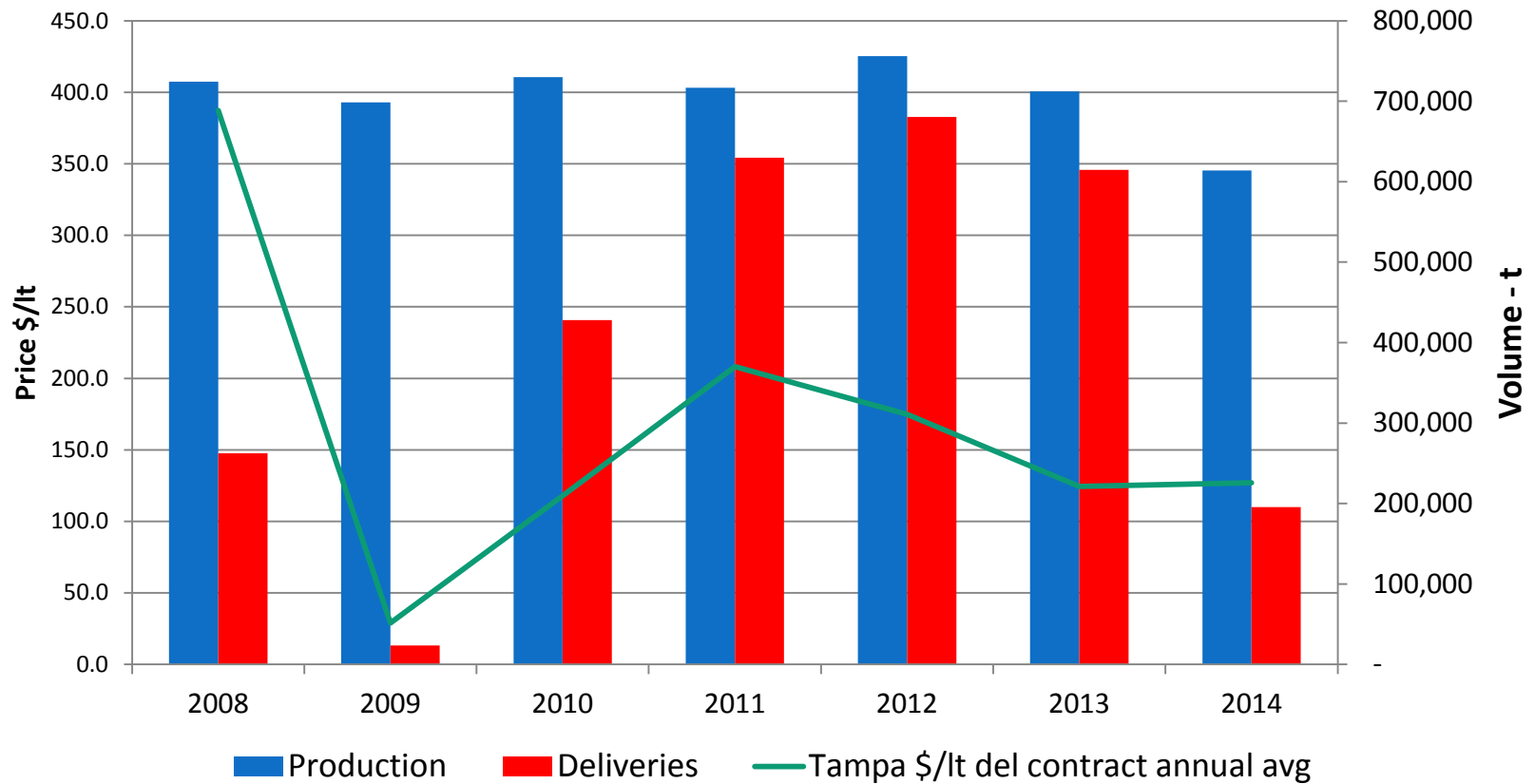


# Canadian inventory augments supply

- Inventory at gas plants depleted
  - 9.1mn t end of 2002
  - 1.4mn t end of 2012
  - 1.2mn t end of 2013
  - 1mn t end of 2014
- Inventory at oil sands grows
  - 10.1mn t end 2014
    - 9.6mn t held at Syncrude
      - Remelt program being studied...



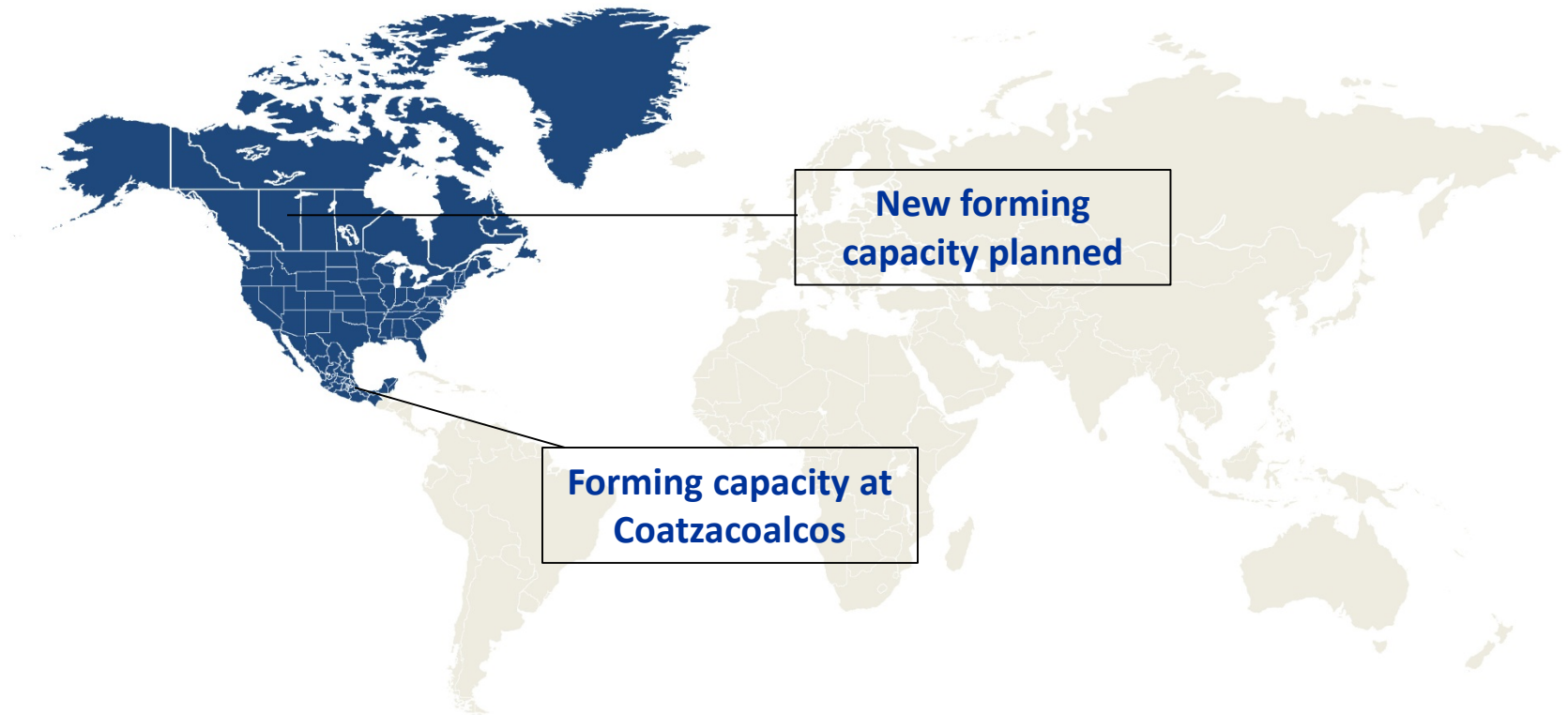
# Syncrude moves away from being swing supply



## What role does Latin America play?

- Mexico imports solid sulphur from Canada and US west coast to western region where consumption is (Santa Rosalia and Lazaro Carednas)
- Mexico exports molten sulphur by vessel to Tampa
- US Gulf coast exports primarily to Brazil, displaced Canada as key supplier after prilling capacity developed
- Brazil's import requirement to stay flat
- Forming capacity in Mexico adds another layer of complexity
- Venezuela exports around 100,000 t/yr molten sulphur to US

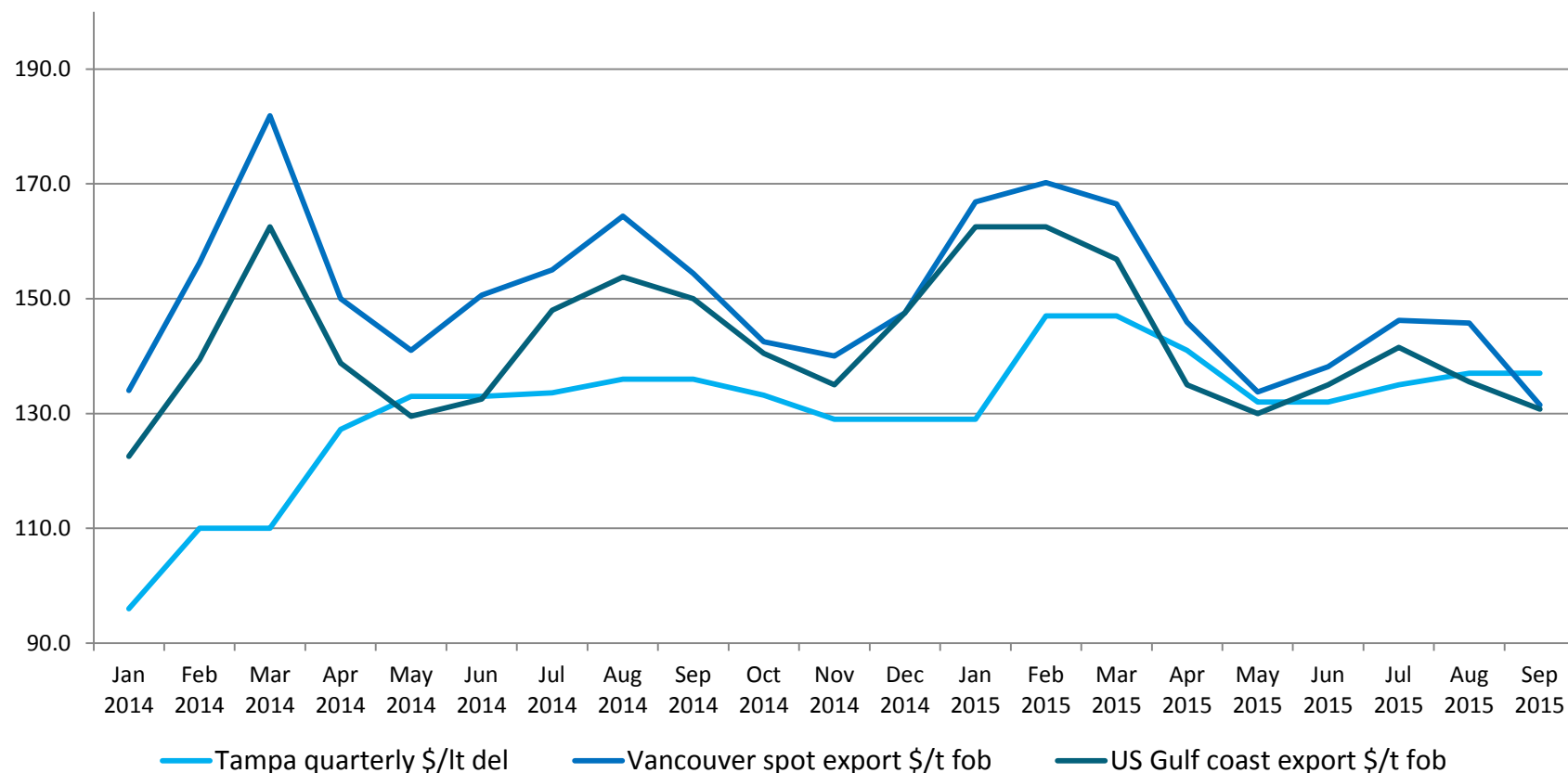
# Changes in strategy - Canada and Mexico



## To watch moving forward

- Mosaic melter
- Mexican forming capacity
- At what level Syncrude moves to market
- New forming capacity in Canada
- Tampa index - relevance and convergence with export prices

# North American price benchmarks







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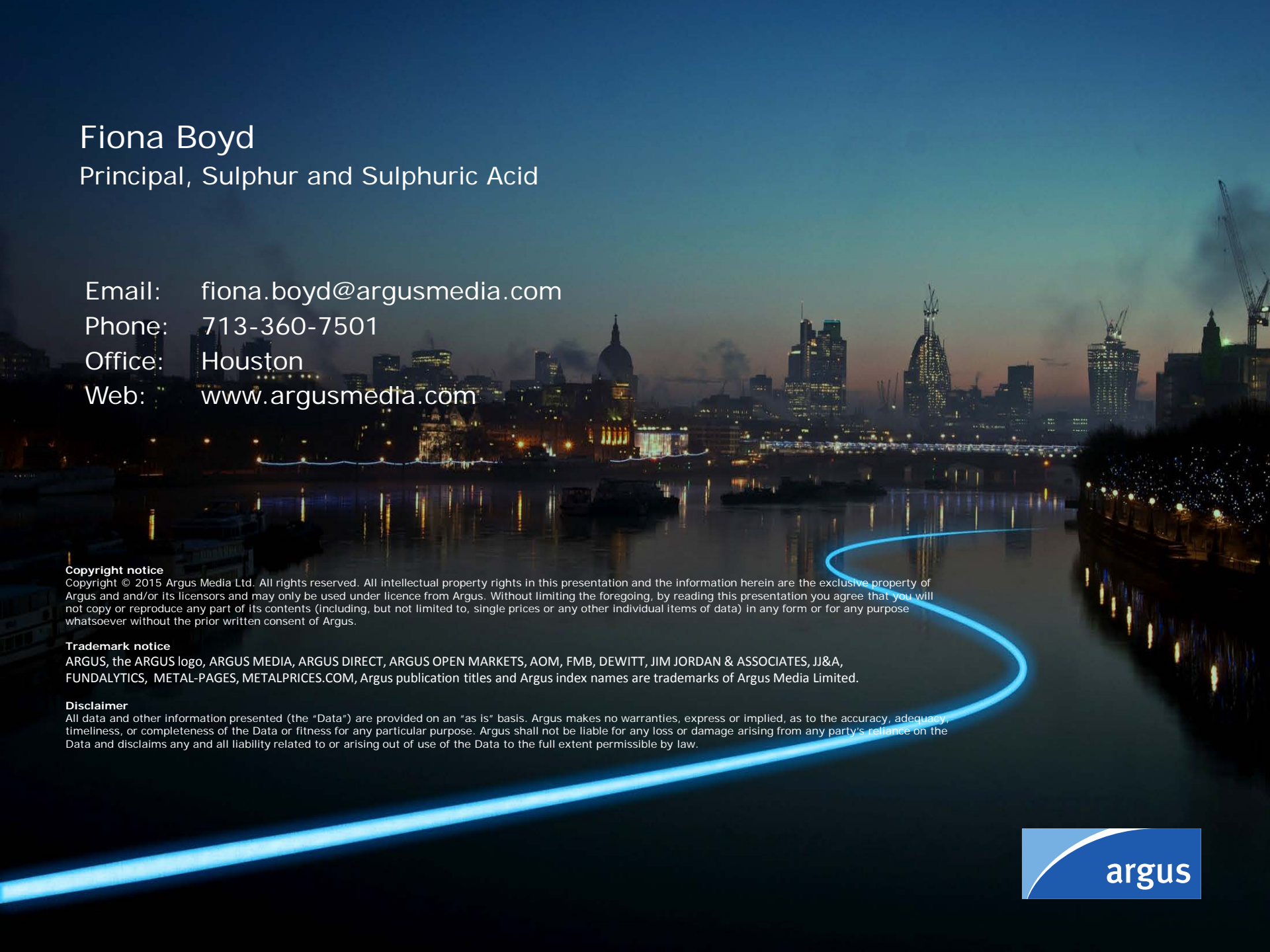
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A night-time photograph of the Houston skyline, featuring the Houston Ship Channel and the city's illuminated buildings. A bright blue light streak curves across the lower half of the image, starting from the bottom left and ending near the center right.

# Fiona Boyd

Principal, Sulphur and Sulphuric Acid

Email: [fiona.boyd@argusmedia.com](mailto:fiona.boyd@argusmedia.com)

Phone: 713-360-7501

Office: Houston

Web: [www.argusmedia.com](http://www.argusmedia.com)

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