FOTC 2015

Fertilizer Outlook & Technology Conference

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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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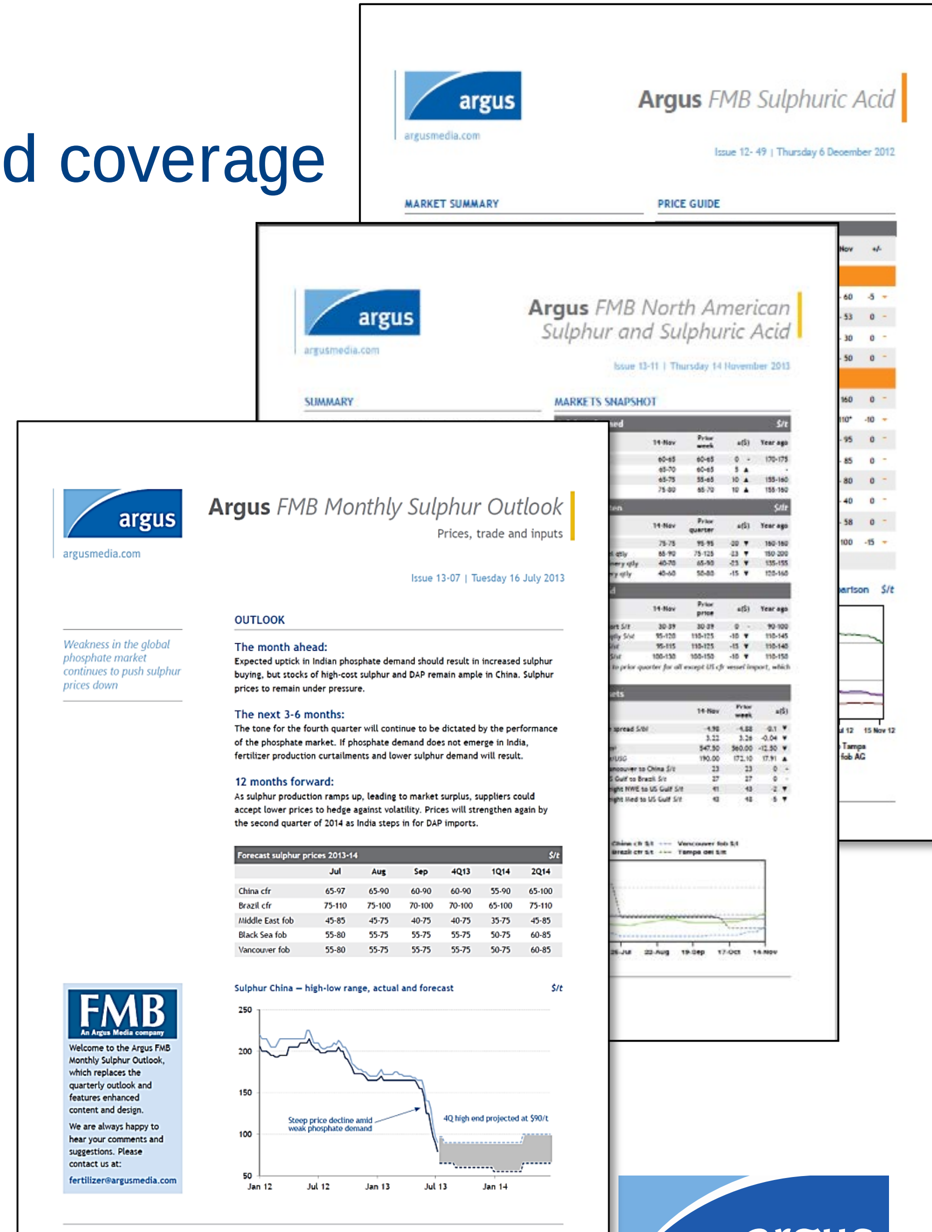
Argus sulphur/sulphuric acid coverage

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



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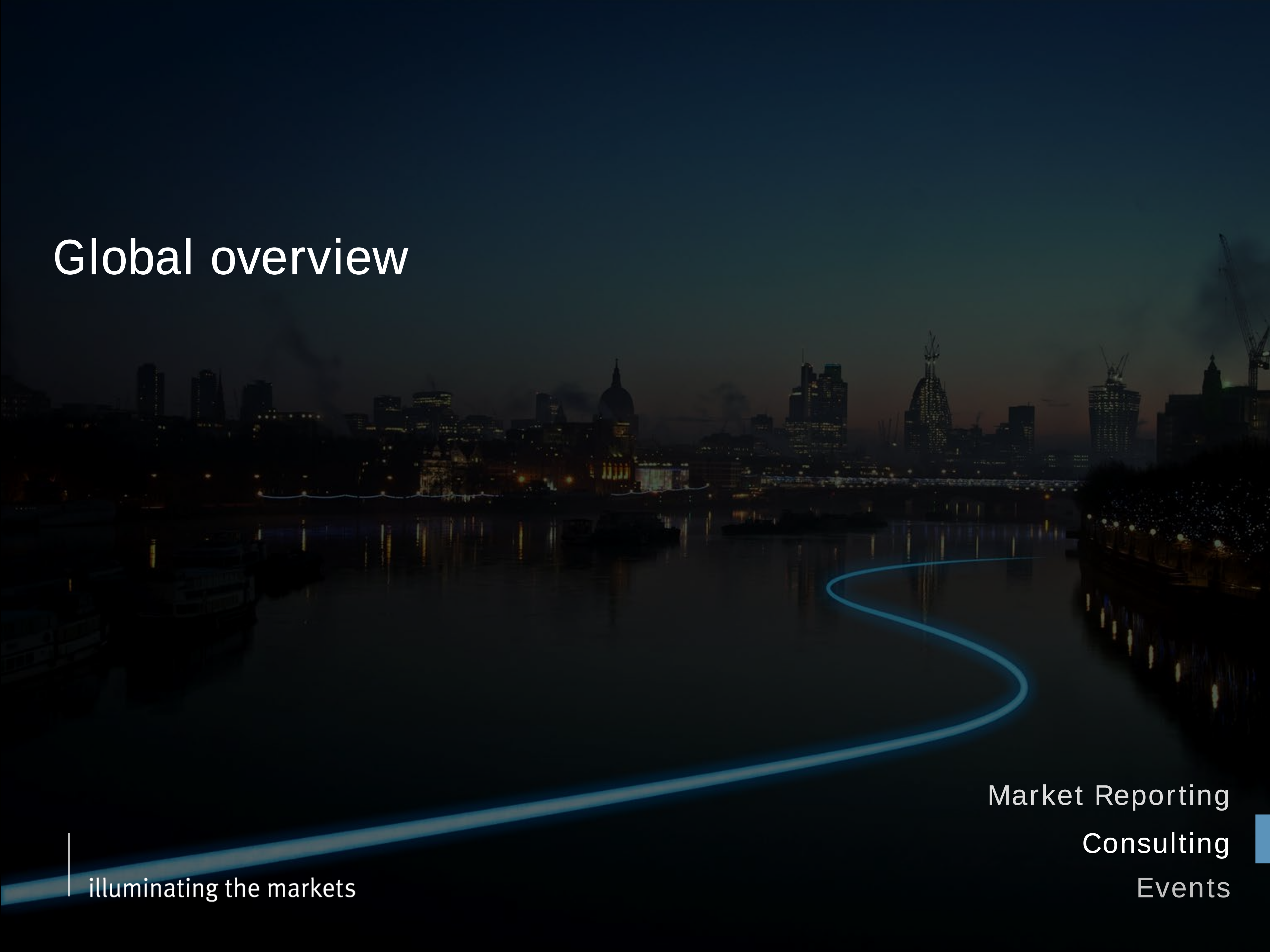
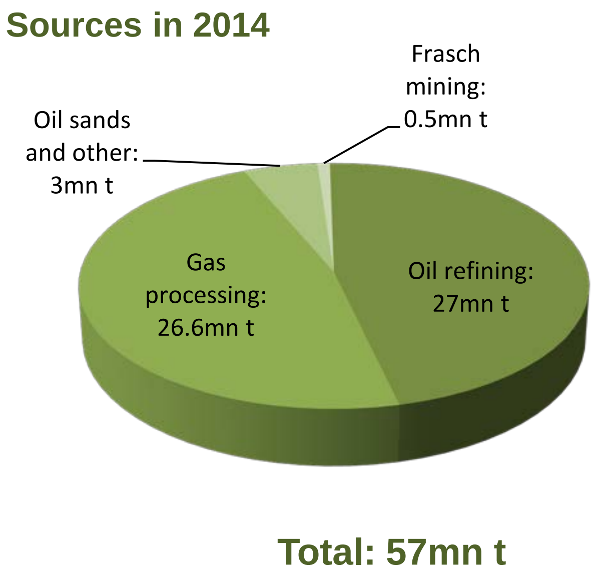
Agenda

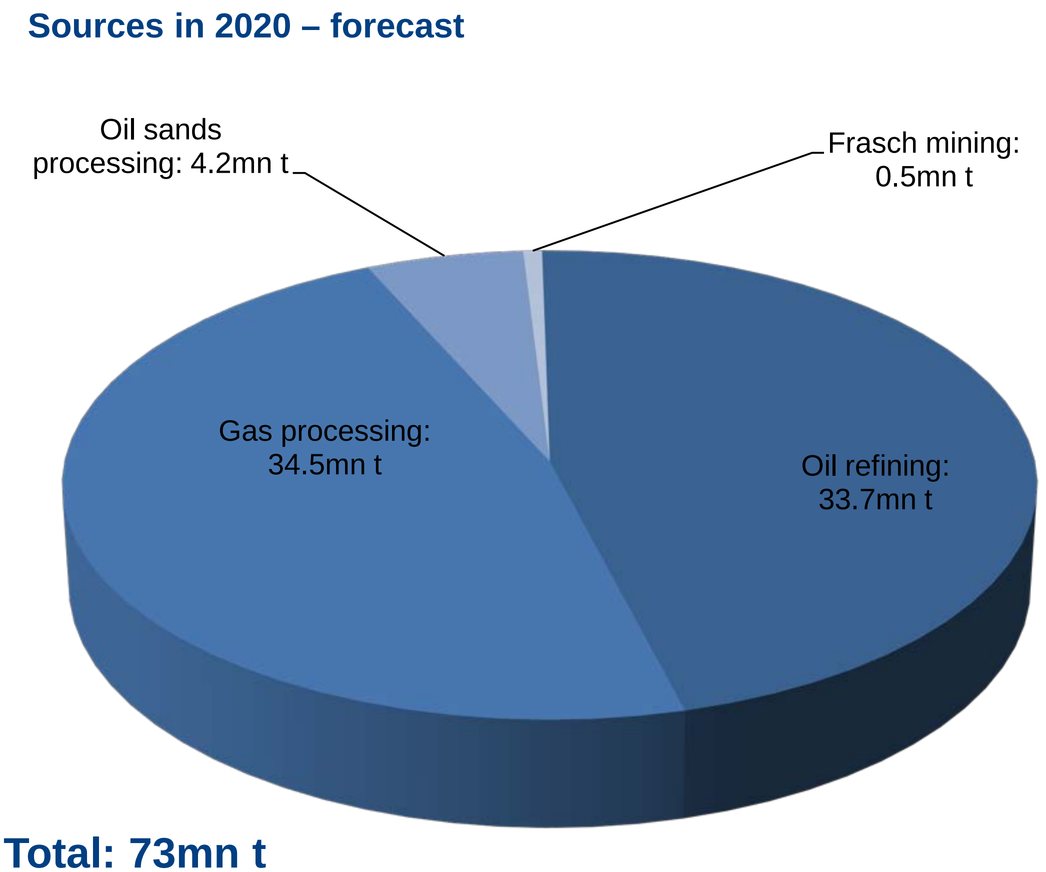
- **Global overview**
  - Production
  - Demand
  - Balance
  - To watch moving forward
  - Focus on China
- **North America**
  - Production
  - Demand
  - Trade flow
  - The role of Latin America
  - Changes in strategy/to watch moving forward

Global overview



Elemental sulphur production





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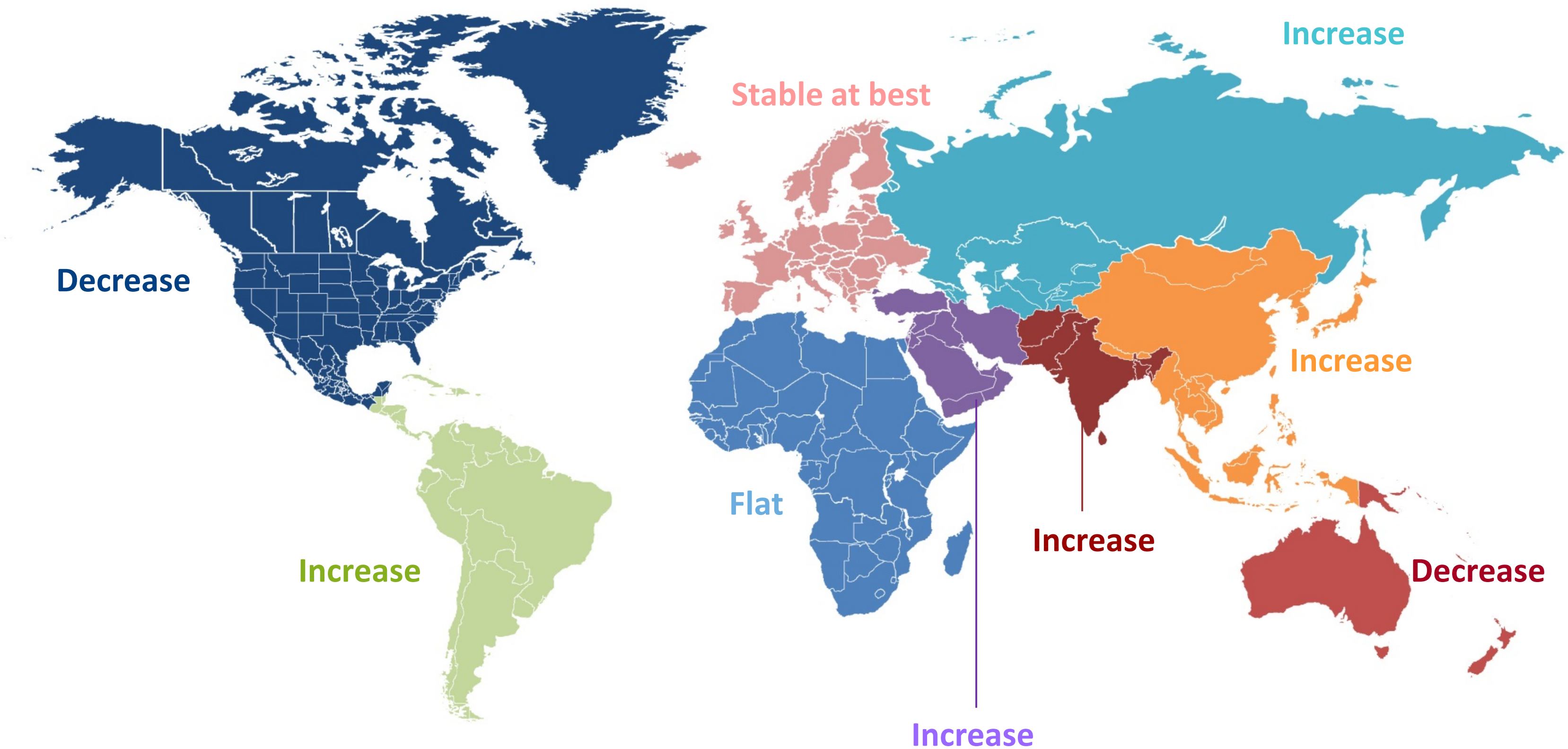
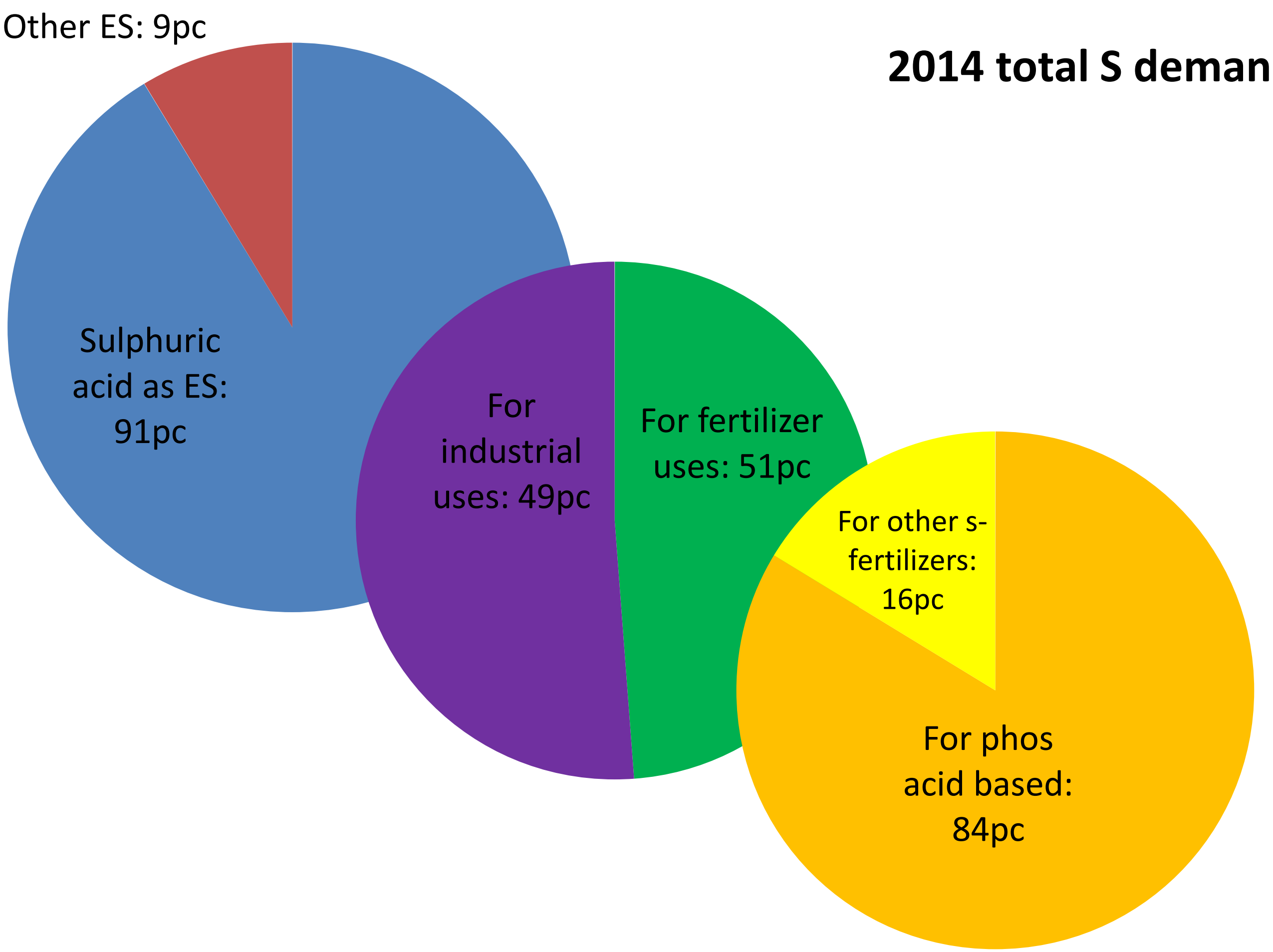
2015 and beyond – supply changes



2015-2020 supply growth: 11.6mn t+

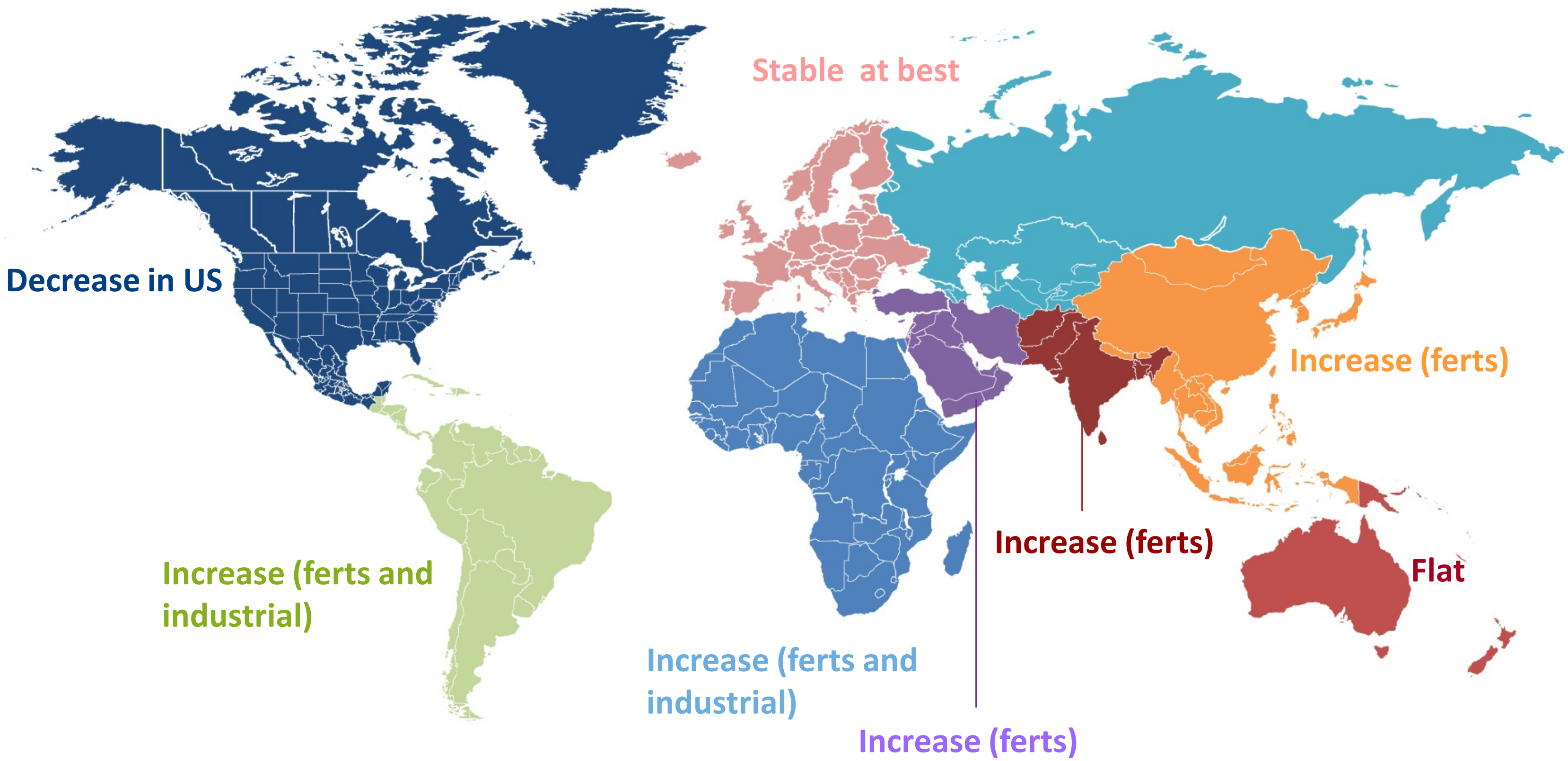
Sulphur demand

2014 total S demand 58.2mn t



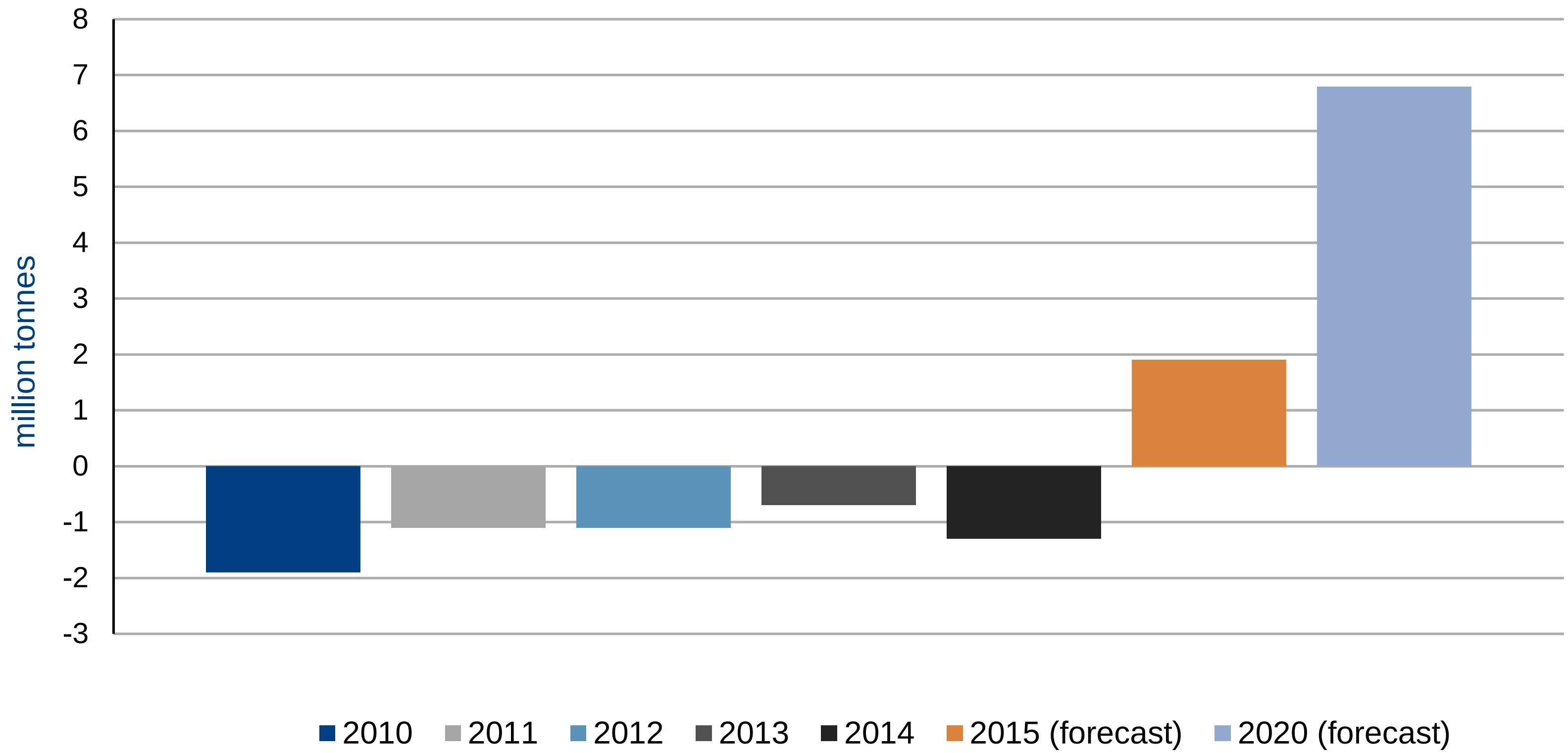
Source: IFA

2015 and beyond – demand changes



2015-2020 demand growth: 6.6mn t+

Global sulphur balance



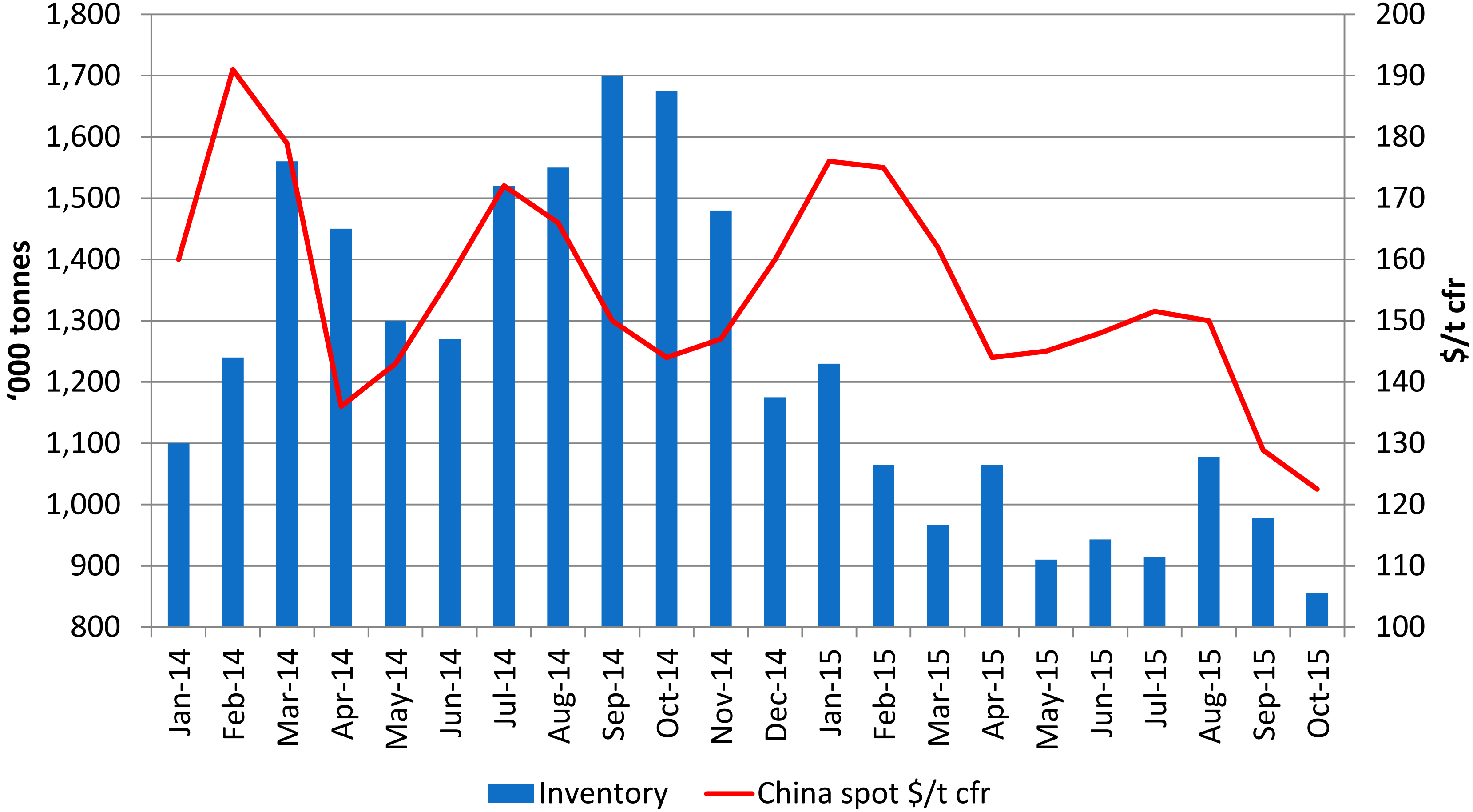
Source: IFA/Argus

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



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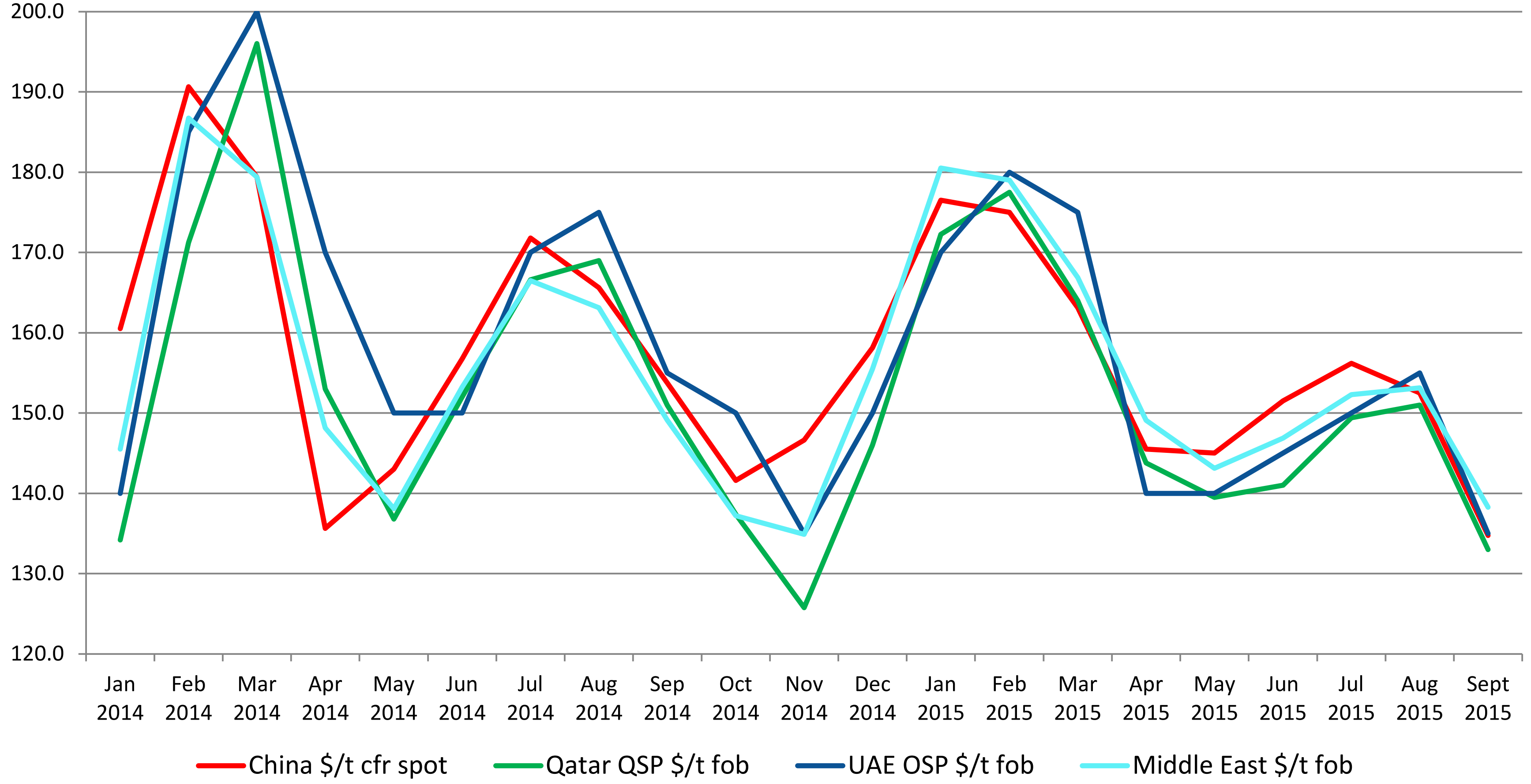
China spot \$/t cfr vs Middle East \$/t fob prices



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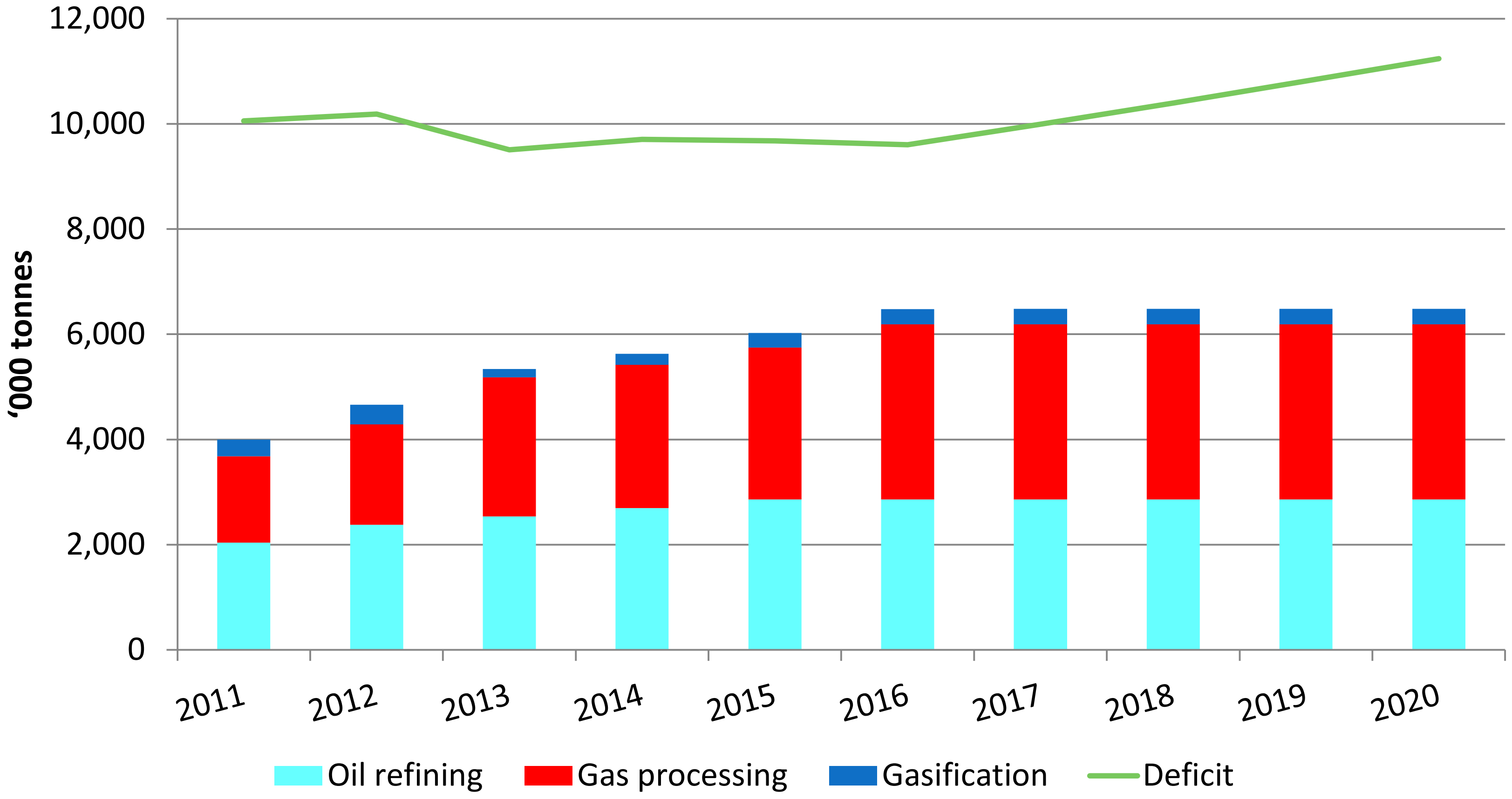
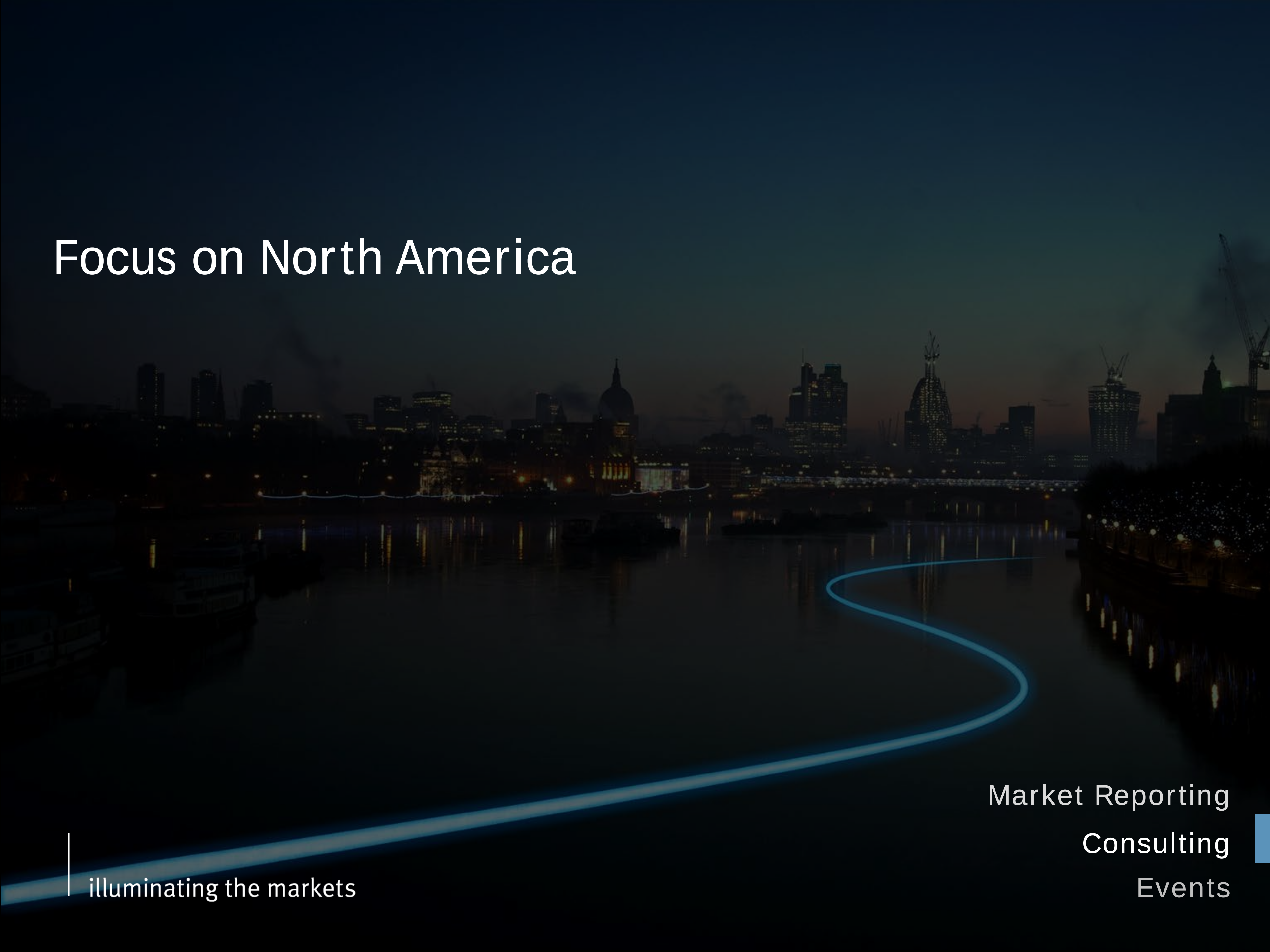
China sulphur production vs consumption



Focus on North America



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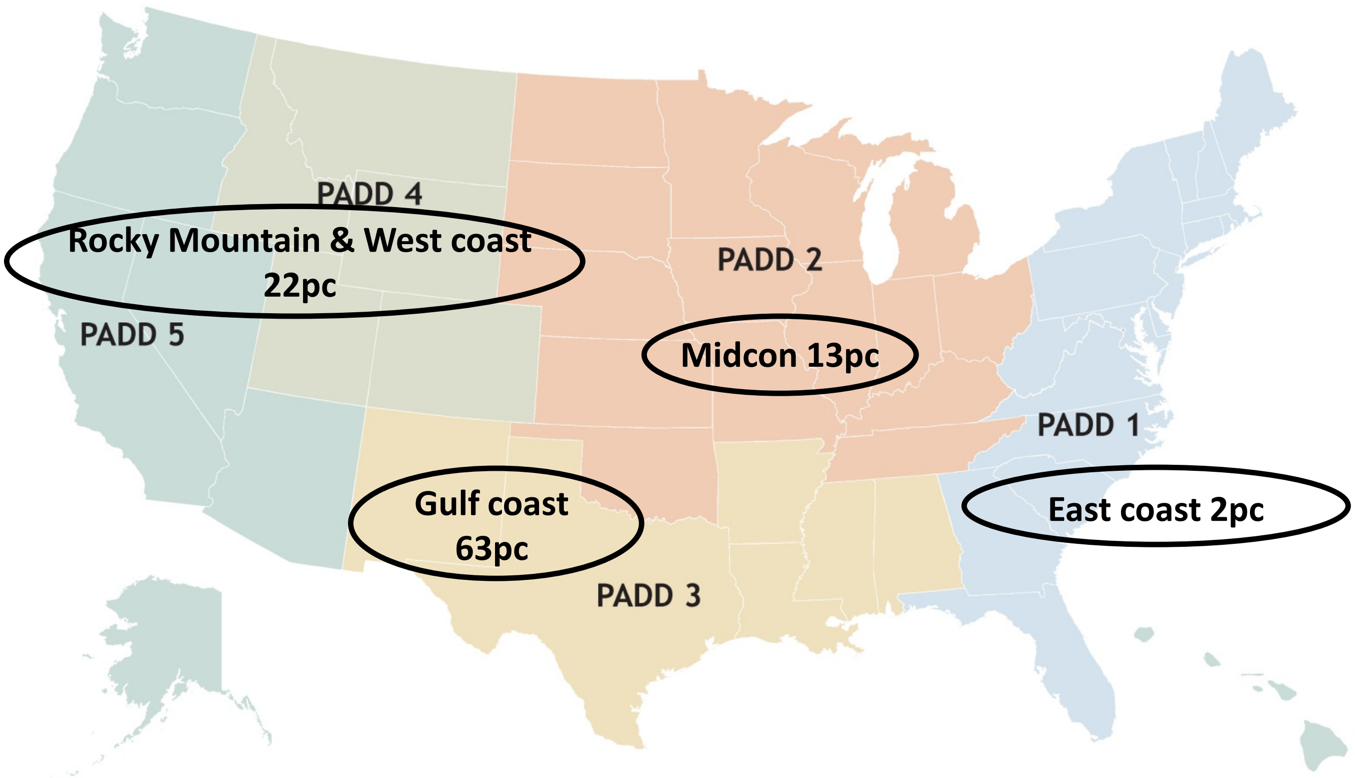
US sulphur production

	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
TOTAL	**8,230,000**	**8,410,000**	**8,600,000**	**9,030,000**	**4,450,000**	**4,307,000**

- 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

Source: USGS

US sulphur production by region



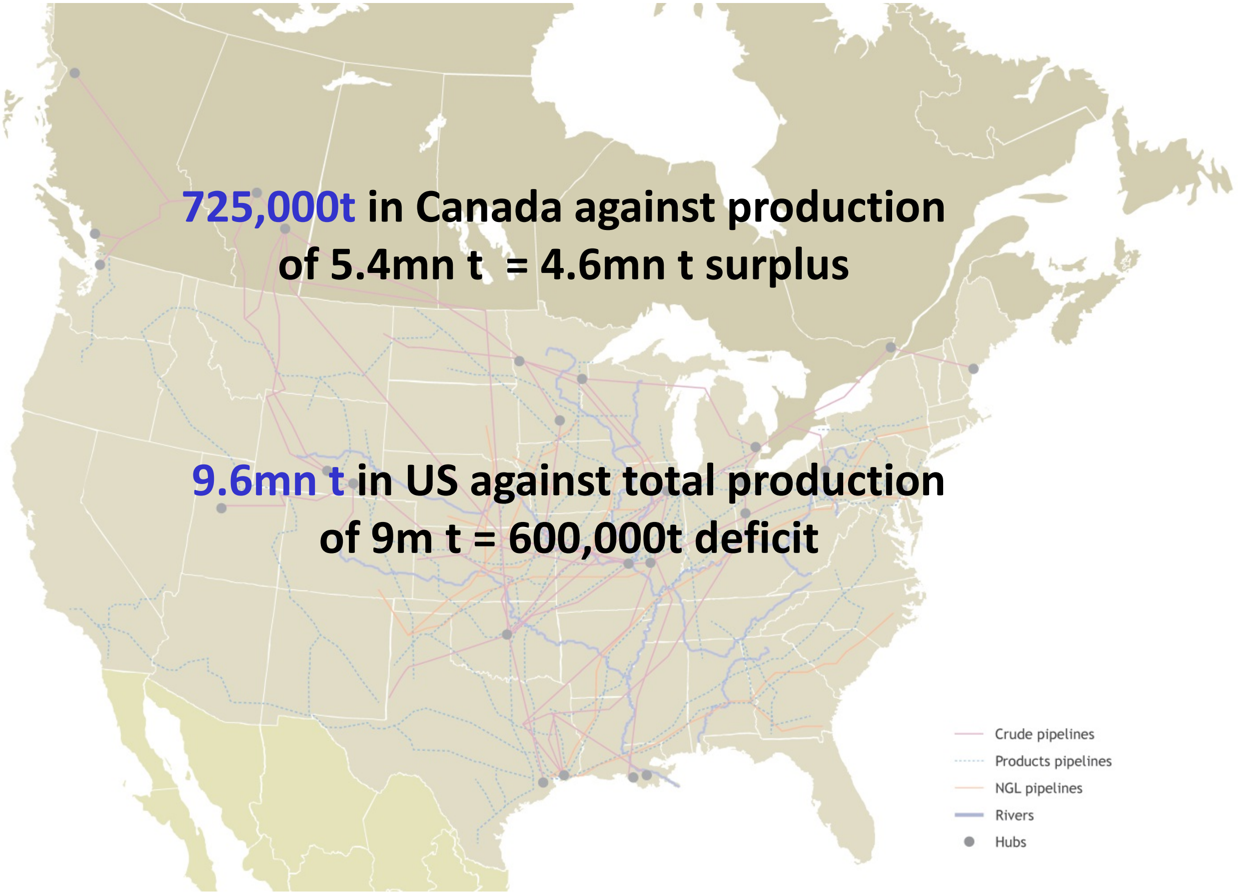
Canada sulphur production

	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
TOTAL	**6,143,443**	**5,760,418**	**5,756,796**	**5,382,181**	**2,402,000**	**2,390,000**

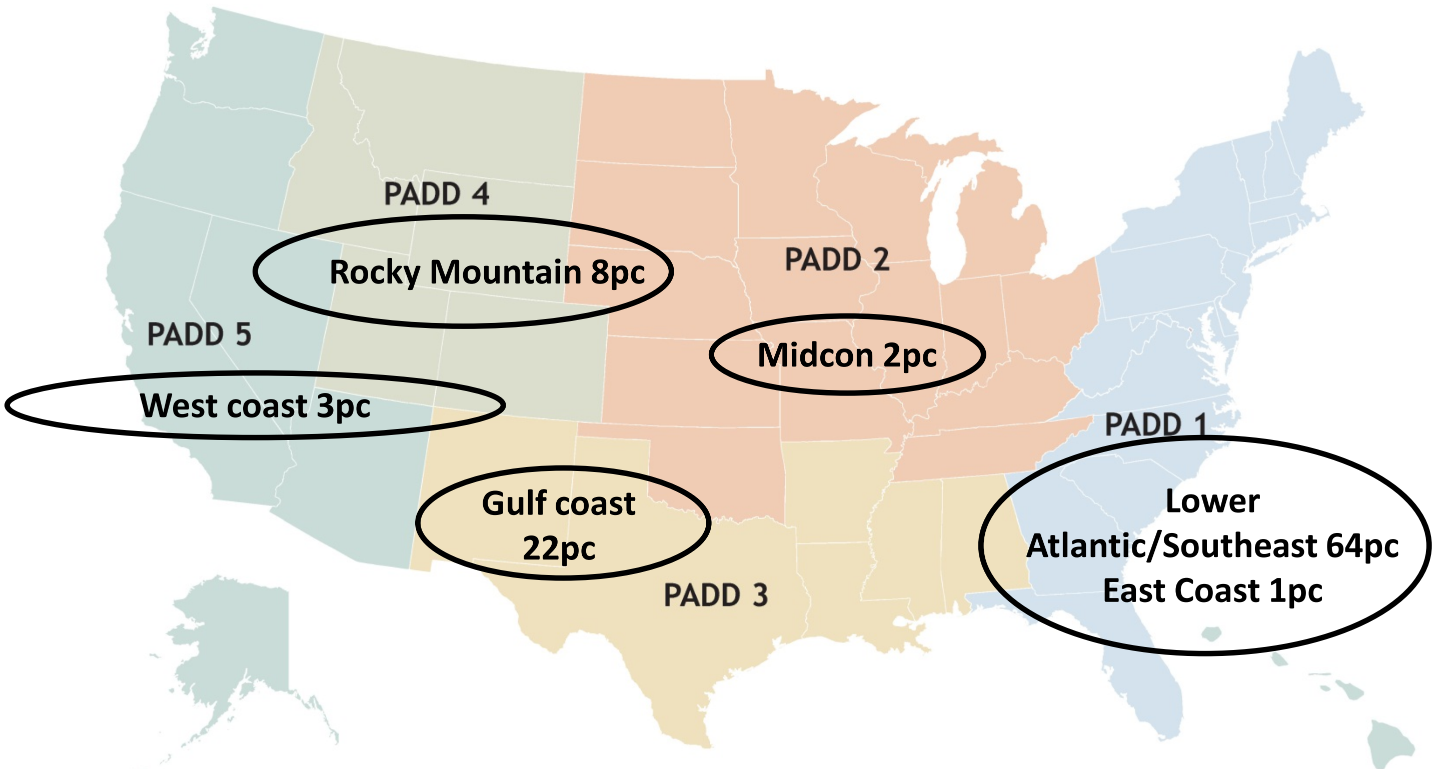
- Argus five-year outlook
  - Production from natural gas processing to decline to 2.1mn t by 2020
  - Production from oil sands/refining growing and to reach around 3mn t by 2020

Source: ERCB, BC Gov, Argus

North American consumption 2014



US sulphur consumption by region



US imports and exports

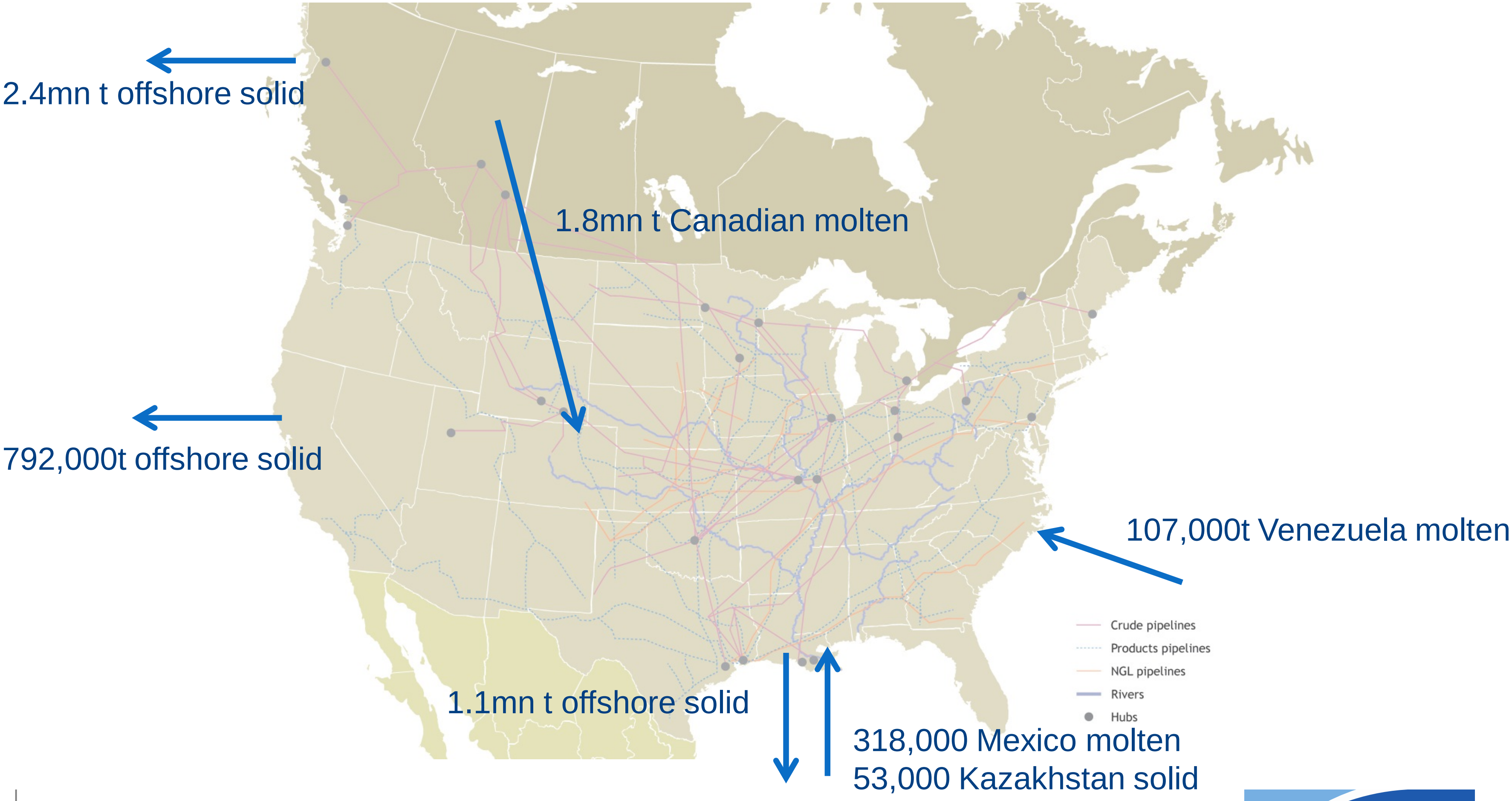
* **Imports** regularly from Canada, Venezuela and Mexico (molten)

* **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)

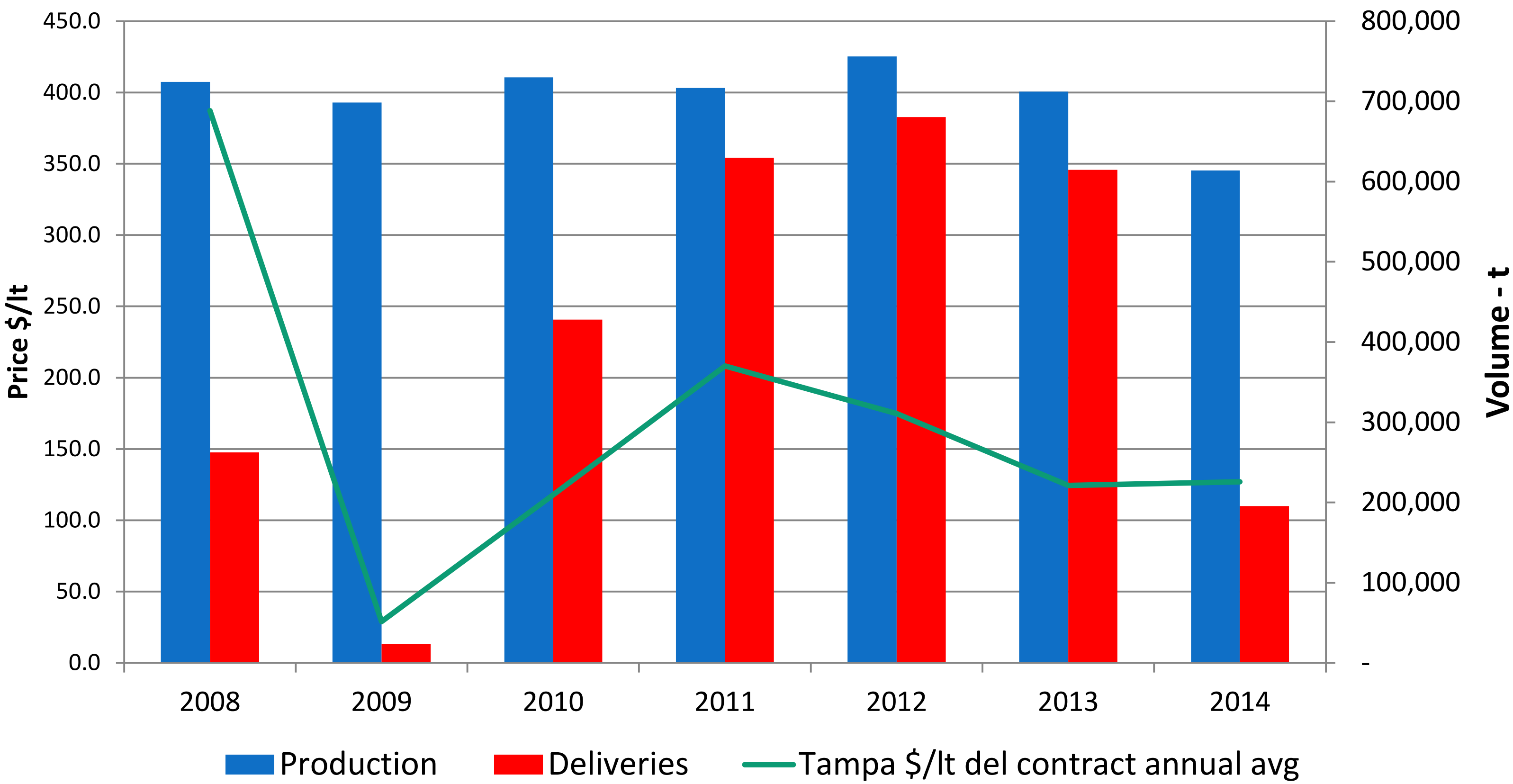
North American sulphur flow 2014



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



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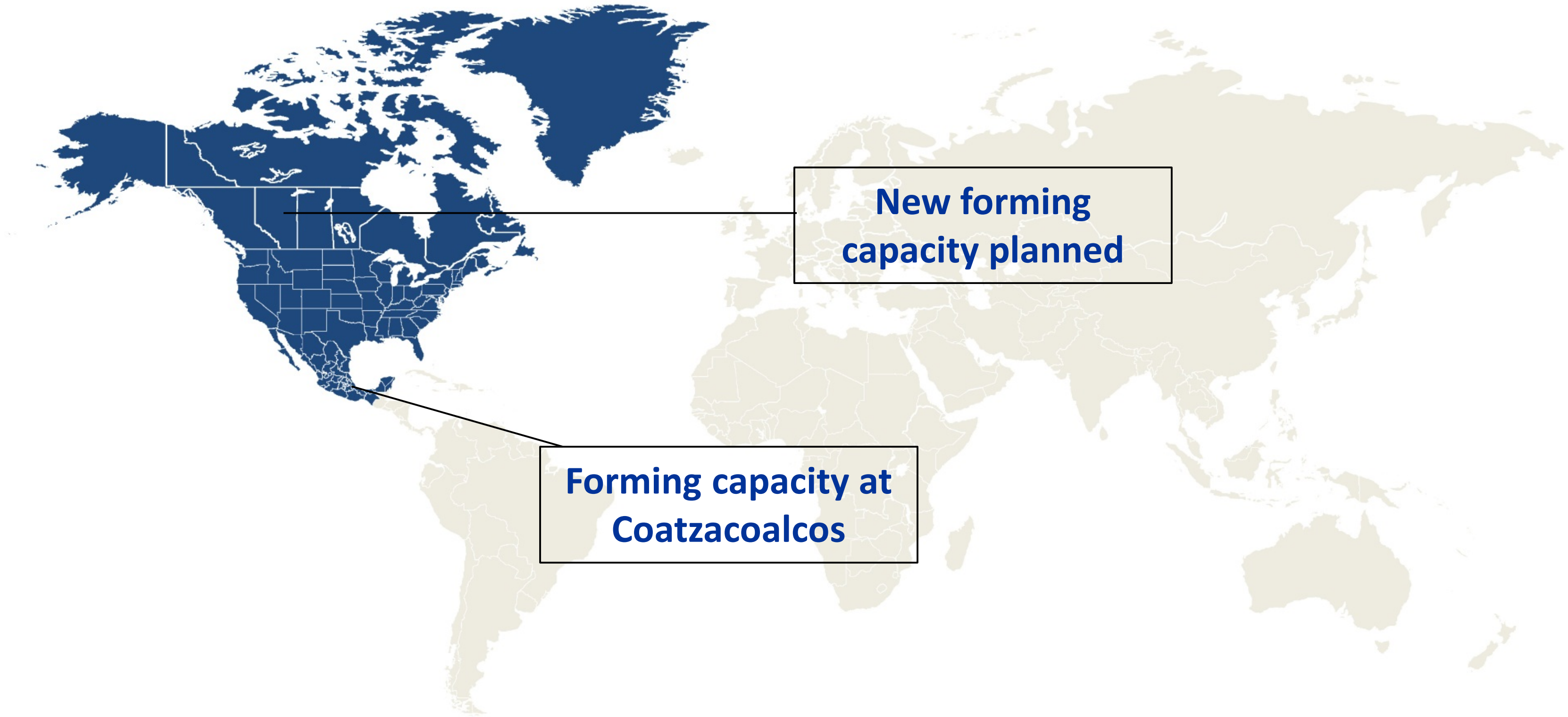
What role does Latin America play?

- **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

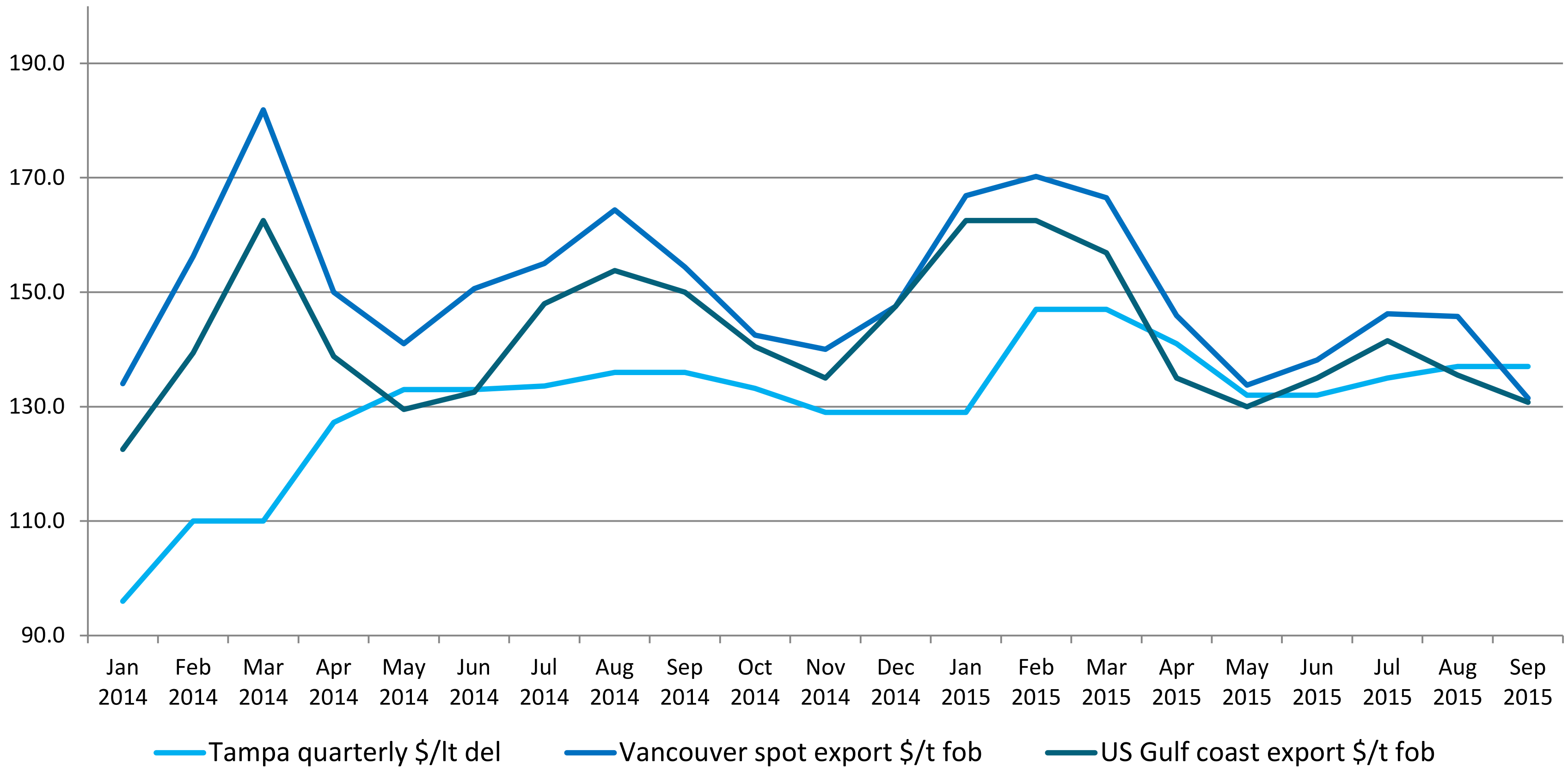
Changes in strategy – Canada and Mexico



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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