MARSULEX

SulfurUnit.com
MORE PRODUCTION - LESS RISK

Coking.com

Sulphur & Petroleum Coke Markets

More important than you might think!

Calgary | September 13-16, 2010


OUTLINE

1. How is refinery/upgrader reliability linked to byproduct markets?
2. Market size & sectors
3. The byproduct dilemma – inelasticity defined
4. How does the market balance?
5. Future market trends
6. Financial contribution of sulphur/petcoke to the refinery
7. The value of reliability


MARSULEX:
WE KNOW SULPHUR & PETCOKE!

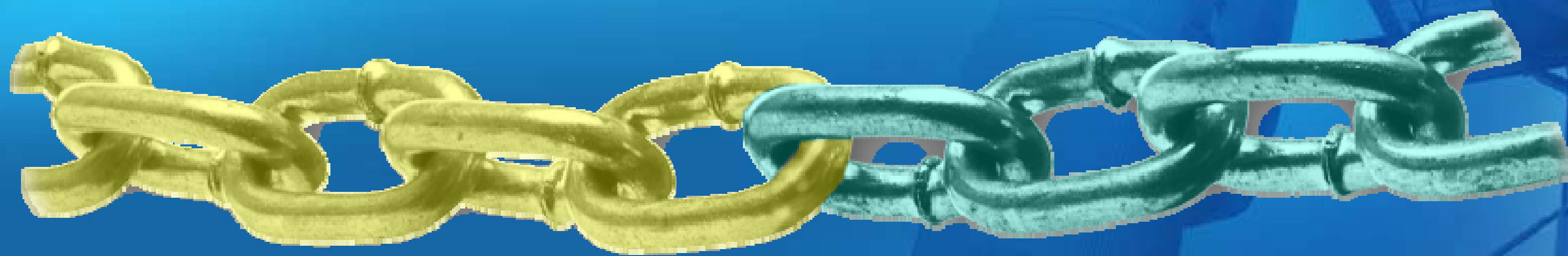
Provides a wide range of services to a very prestigious customer base across North America, including:

- Petcoke cutting and handling services
- Spent acid regeneration
- Acid gas and sour water/ ammonia processing/ sulphur recovery
- Molten sulphur forming
- Flue-gas desulphurization integrated with Ammonium Sulphate fertilizer

www.marsulex.com
TSX symbol: MLX

REFINERY RELIABILITY CHAIN

Within the Refinery Fence | **External Factors**



Engineering design

Safe operations

Operating excellence

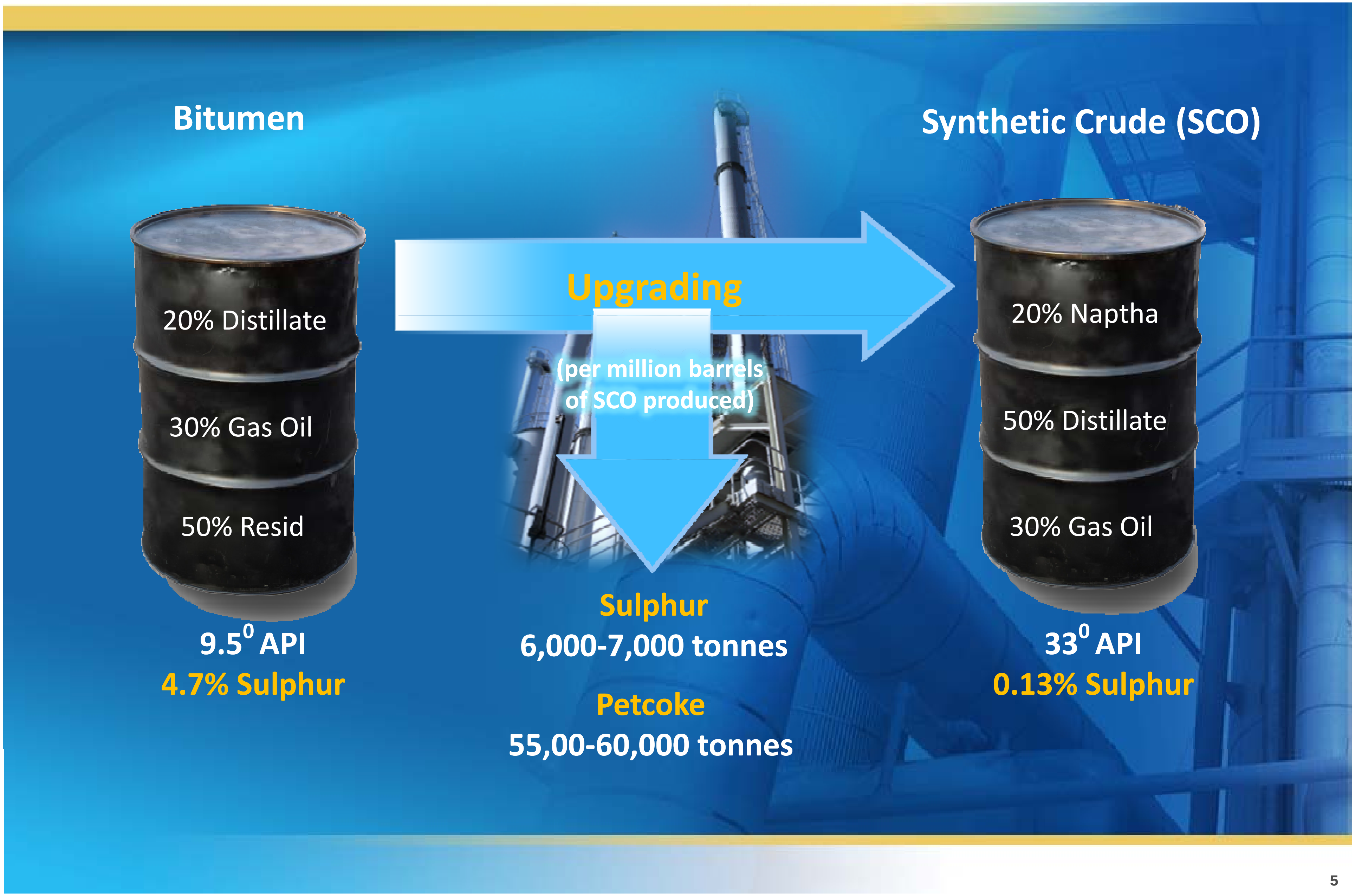
Preventative maintenance

Reliability

By-product logistics

By-product marketing

BITUMEN AND SYNTHETIC CRUDE COMPOSITION



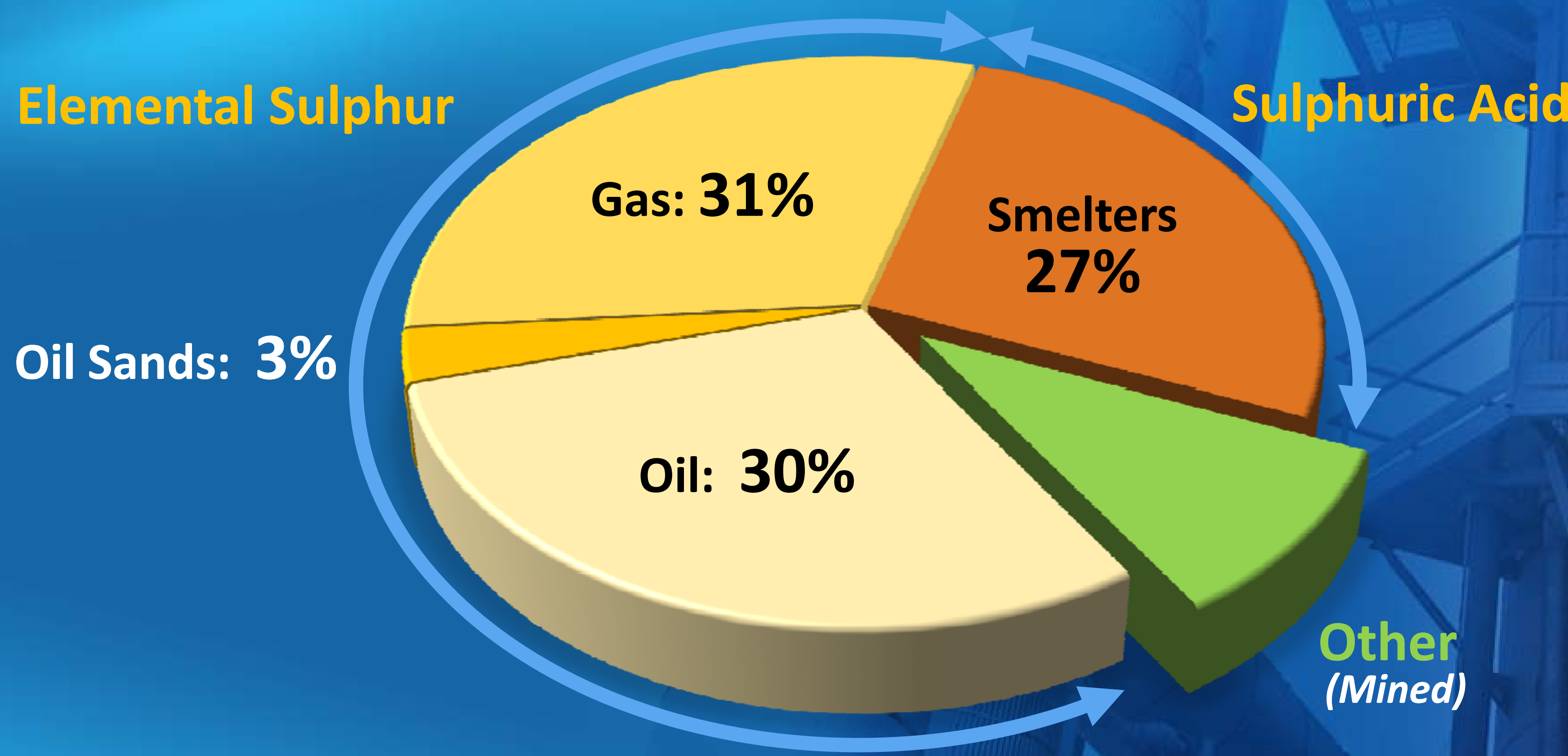
SULPHUR & PETCOKE FROM CANADIAN BITUMEN

10 Year Growth Trend

	2010	2020
Bitumen (bbls/day)	1.5MM	2.9MM
Sulphur (tonnes/yr)	3.6MM	7.0MM
Petcoke (tonnes/yr)	31.8MM	61.5MM

GLOBAL SULPHUR PRODUCTION SOURCES TODAY

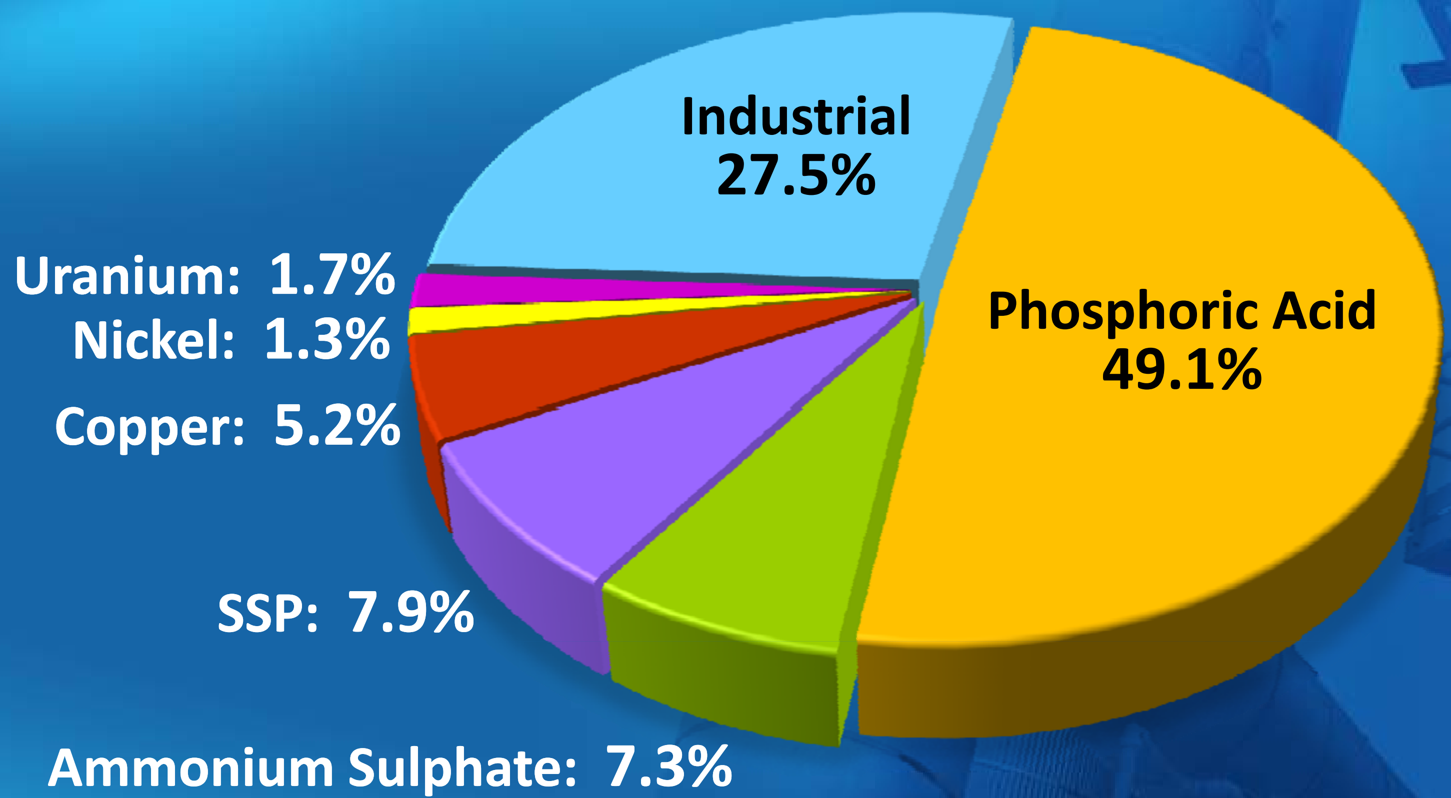
Where does most of this sulphur go today?



GLOBAL SULPHURIC ACID CONSUMPTION

2009 World Sulphuric Acid Supply & Demand

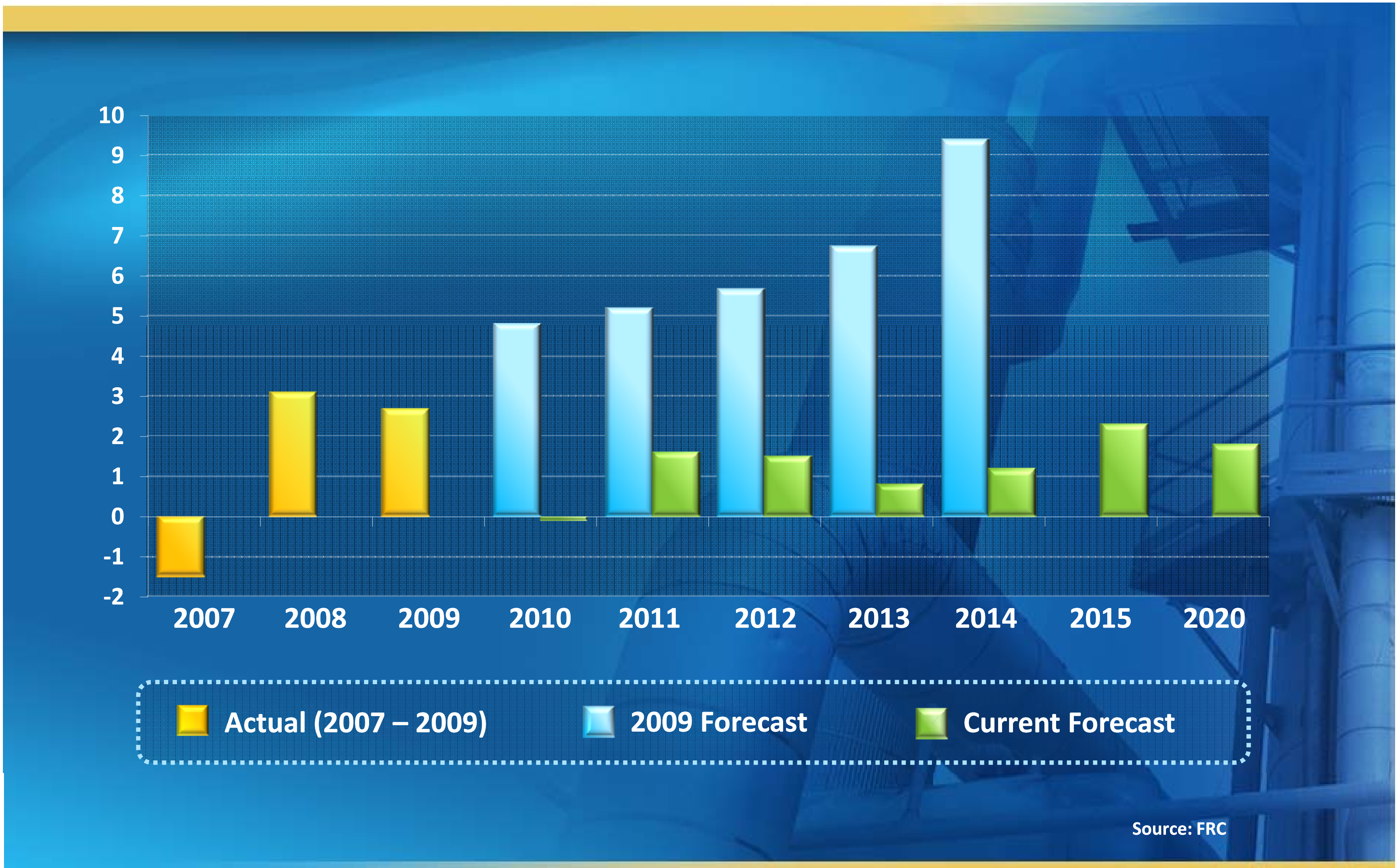
Total demand: 191,368 (Thousand tonnes H_2SO_4)



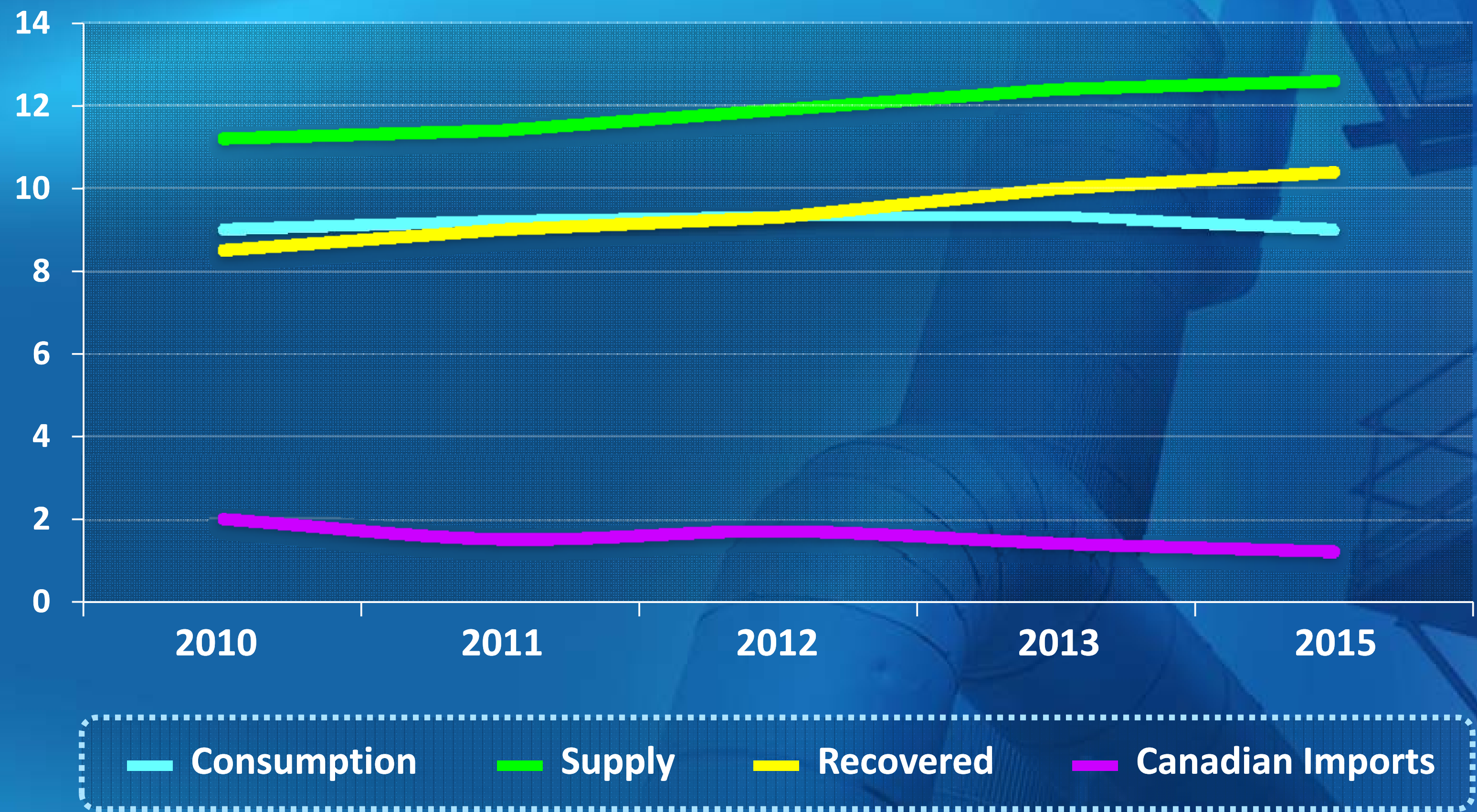
SULPHUR – INELASTICITY DEFINED

Sulphur Spot Price Comparison

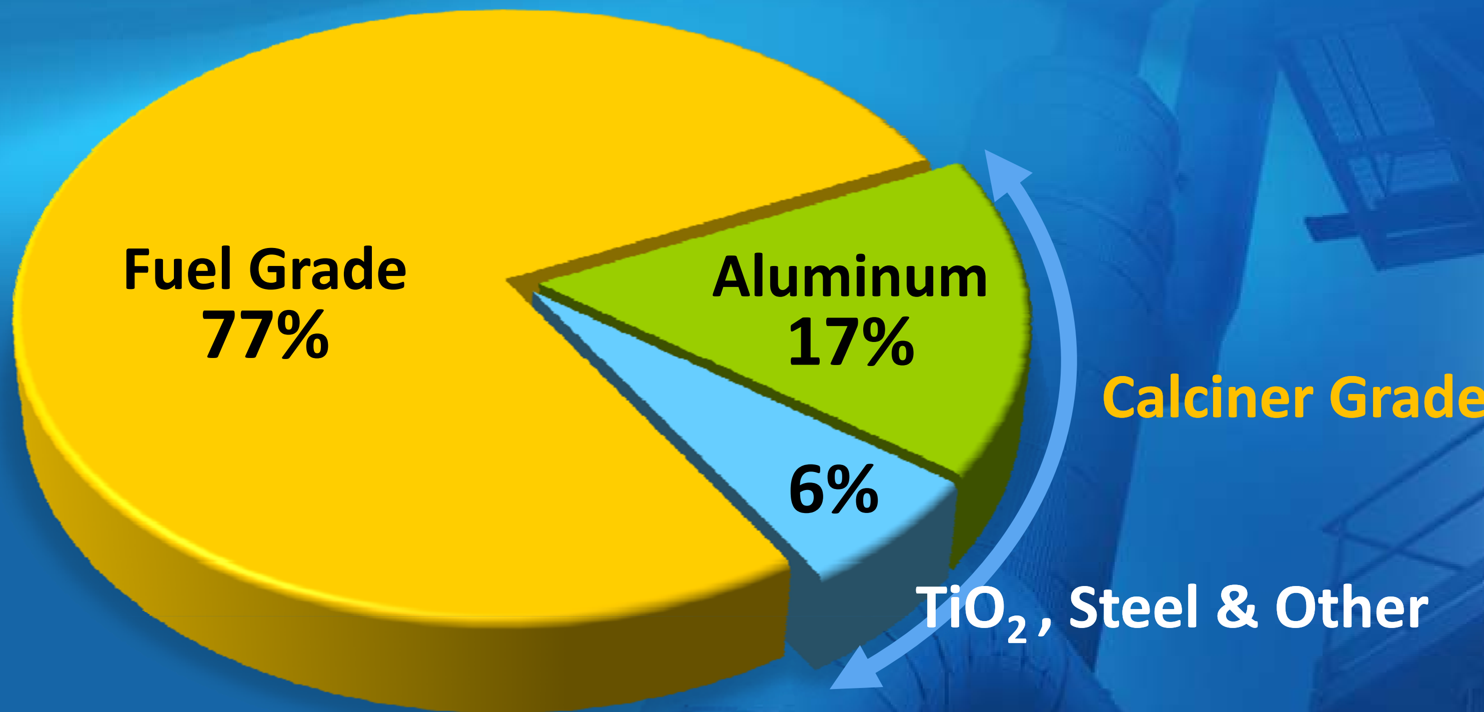
WORLD SULPHUR BALANCE
(million tonnes)



US SULPHUR BALANCE
(million tonnes)



PETROLEUM COKE MARKETS



Total Market Size: 95MM tonnes/year





PETROLEUM COKE MARKETS – FUEL GRADE

Typical Petcoke End Users

North America, Japan, Europe

- 5-10% blends in conventional coal fired power plants
- Cement Plants that burn coal
- Power plants with CFBB *
- Power Plants with IGCC **

China, India, rest of developing world where air regulations are less stringent

- Anywhere coal is burned

*Circulating Fluidized Bed Boiler
** Integrated Gasifier with Combine Cycle





Delivered petcoke price must be less than delivered coal price on a per BTU basis

DELIVERED PRICES COMPARISON
Petroleum Coke vs. Steam Coal

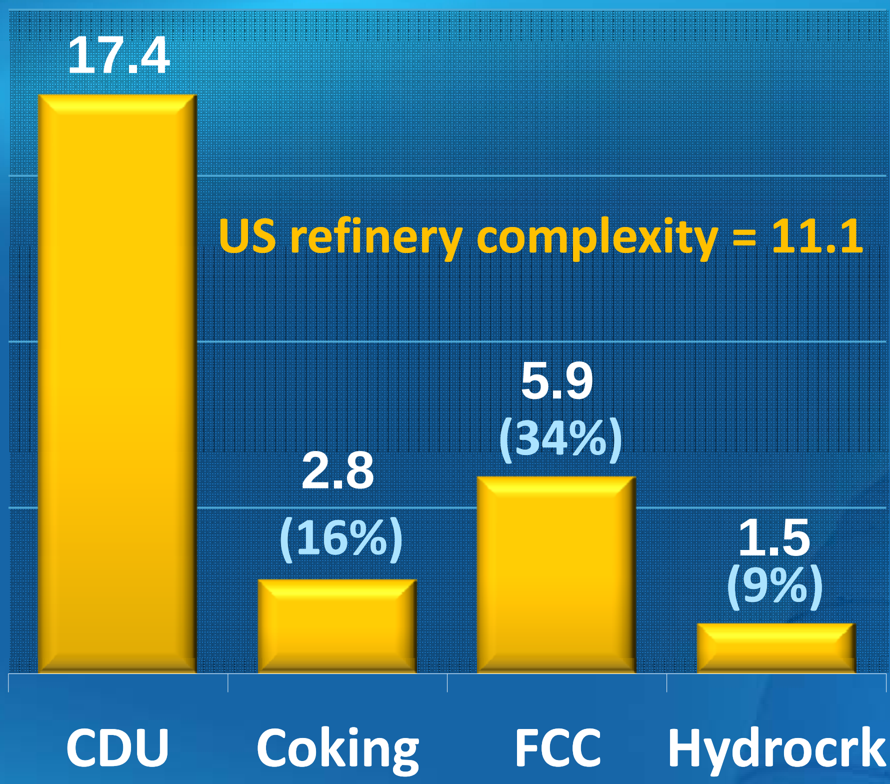
Japan - >2%S vs. Aussie Coal

PETROLEUM COKE
Balancing the Market

- **Not quite as tricky as Sulphur given that the fuel grade coal substitute market is very large**
- **Trend to watch for is the intersection between increasing tighter SO_2 regulations by governments with industries' ability to meet these regulations with higher sulphur content fuel sources**

COKING IS PRIMARY HEAVY OIL CONVERSION PROCESS TO PRODUCE DISTILLATE PRODUCTS

USA Refining Capacity (millions barrels/day)

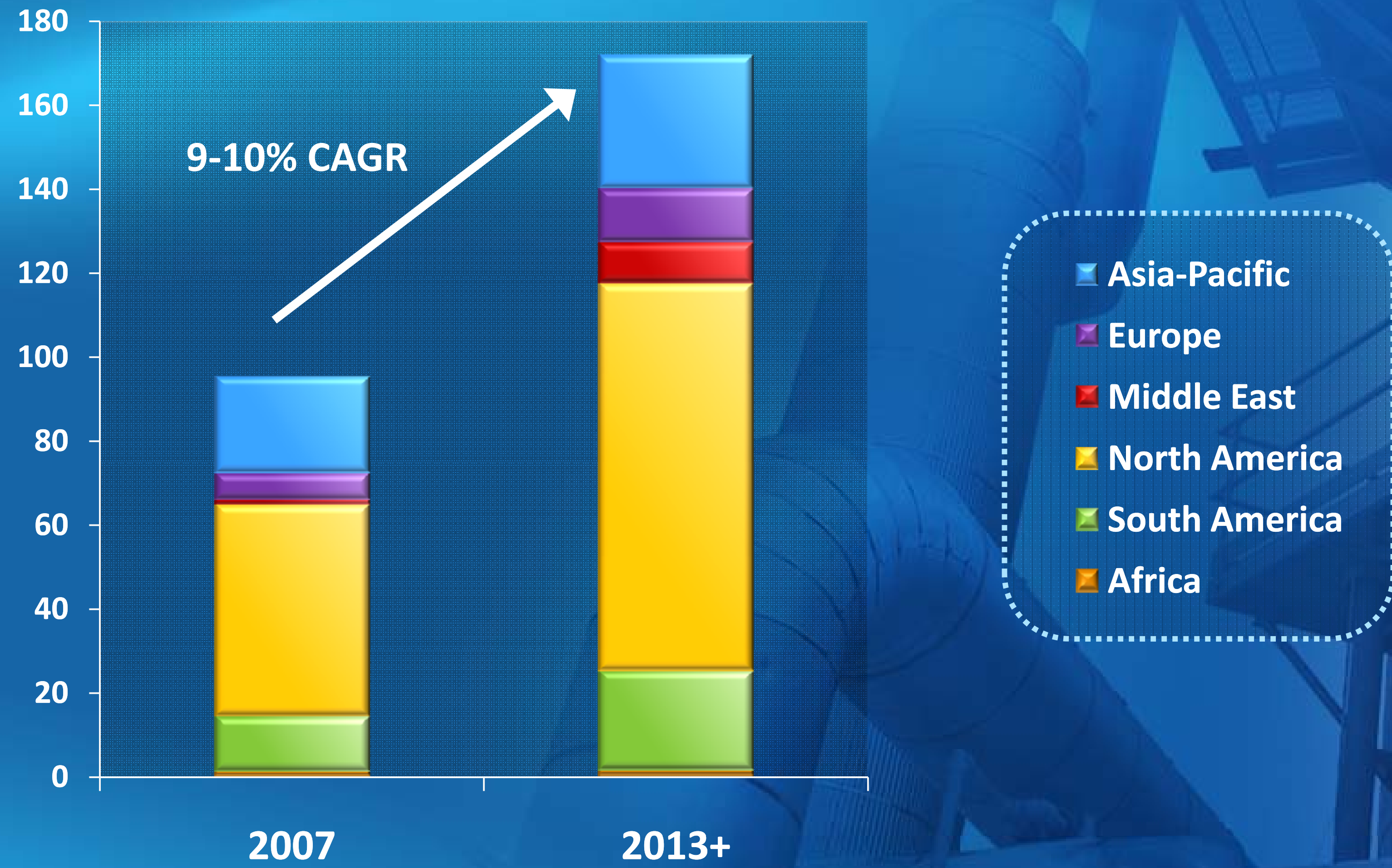


- FCC technology geared to gasoline production—typical units are 20-30 years old
- Cokers and hydrocrackers are principal paths to maximize diesel/distillate production
- Typical coker units are less than 10 years old
- 50 MM TPY of petcoke produced in USA (~100 lbs per barrel)

Source: Cambridge Energy Research Associates

PETROLEUM COKING CAPACITY WORLDWIDE

Million Metric Tons (WET) Per Year



ECONOMICS OF HEAVY OIL/ COKING USA REFINERY

	CONVENTIONAL - 150,000 bpd	HEAVY OIL - 150,000 bpd
ASSUMPTIONS/INPUTS		
API crude feed	29.9°	18.5°
Total net energy	483 MMBTU/bbl	399 MMBTU/bbl
On-purpose H2	45 MMSCFD	100 MMSCFD
YIELDS		
Vacuum bottoms	18 vol%	45 vol%
Volume % distillate/diesel	26.8 vol%	34.7 vol%
Gasoline	52.3 vol%	37.9 vol%
Sulphur (@$30/MT)	120 MTPD	340 MTPD
Petcoke (@$50/ST)	1227 STPD	3135 STPD
ECONOMICS		
Crude	$75/bbl	$60/bbl
$ Gasoline/diesel	$2.15 gasoline/$2.55 diesel	$2.15 gasoline/$2.55 diesel
Combined coke/sulphur revenues	$70 MM/yr	$200 MM/yr
Profit before tax	$825 MM/yr	$1,425 MM/yr

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OF PETROLEUM PRODUCERS

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