



# **Rising power prices and their impact on the competitiveness of the ferroalloy smelting industry in South Africa**

**Kevin Fowkes**  
*Managing Consultant*

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# Structure of presentation

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1. What does the South African bulk ferroalloy smelting industry consist of, and what is its importance (both locally and globally)?
2. Power price developments in South Africa
3. Power price developments worldwide
4. Impact of power prices on competitiveness of producing bulk ferroalloys  
- thoughts & conclusions

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# What does the South African bulk ferroalloy smelting industry consist of, and what is at stake?

	<b>Ferrochrome</b>	<b>Manganese alloys</b>	<b>Silicon alloys</b>
Producers	<b>8</b> GlencoreXstrata Samancor Hernic IFM ASA Afarak Tata Assmang Ferrochrome Furnaces	<b>5</b> South32 Assmang Transalloys MMC Afarak	<b>2</b> Ferroatlantica Globe Specialty Metals
Plants	<b>15</b>	<b>5</b>	<b>3</b>
Capacity	<b>4.5Mtpy</b>	<b>950,000tpy</b>	<b>170,000tpy</b>
Direct employment	<b>6,500</b>	<b>2,500</b>	<b>800</b>

## What does the South African bulk ferroalloy smelting industry consist of, and what is at stake?

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**Answer: More than you might think!**

**13** companies

Operating **22** smelting plants in a variety of locations

With a production capacity of **5.6Mtpy** of saleable bulk ferroalloys

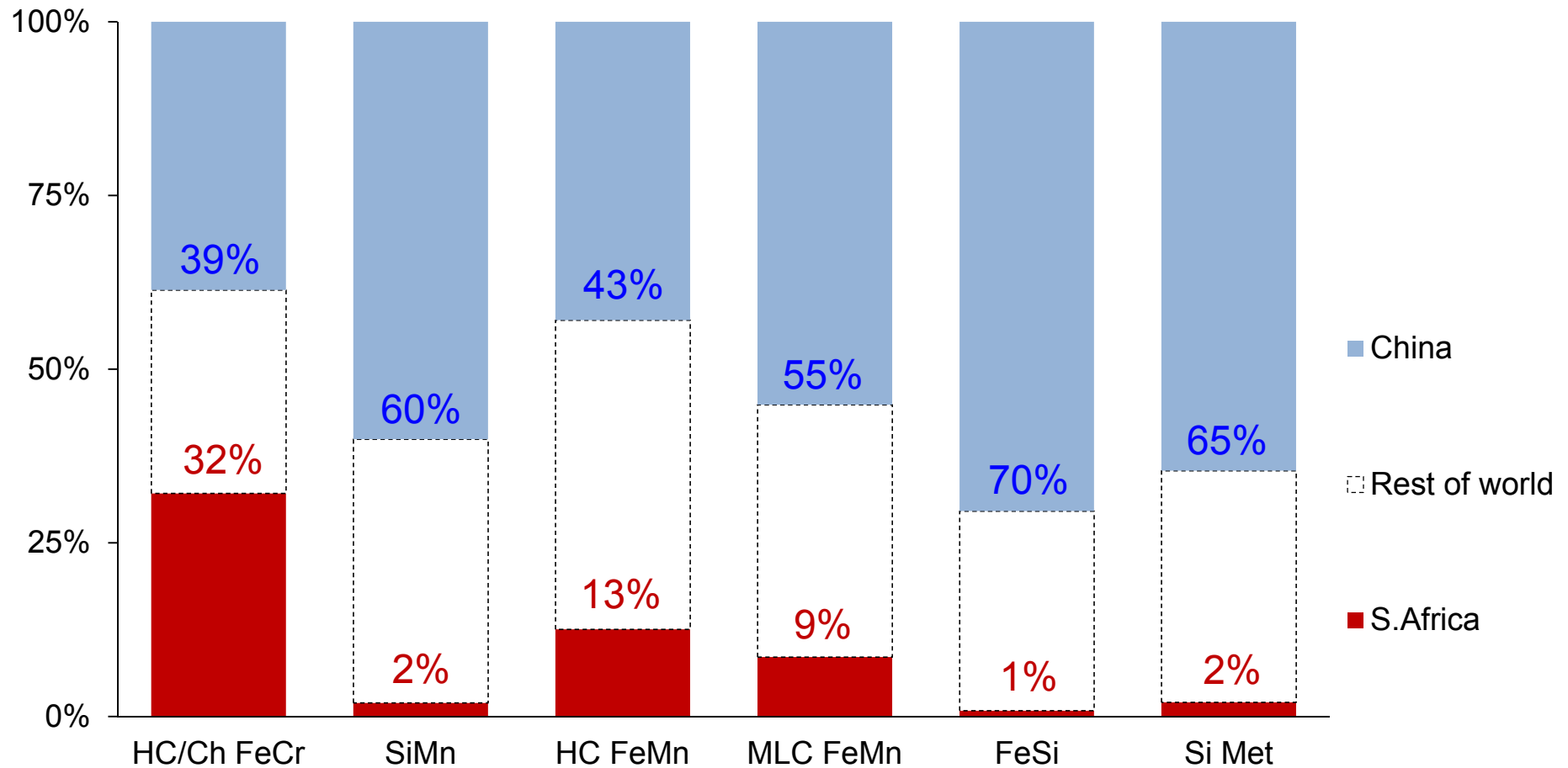
Directly employing approximately **9,800 people** at these operations  
(Plus several multiples of this in indirect employment – contractors, suppliers, logistics, local businesses etc)

Annual sales revenue of **US\$5.5bn** (2014 estimate)

Almost 95% of output is exported, supporting the balance of payments with foreign currency inflow of **US\$5.2bn** per year (2014 estimate)

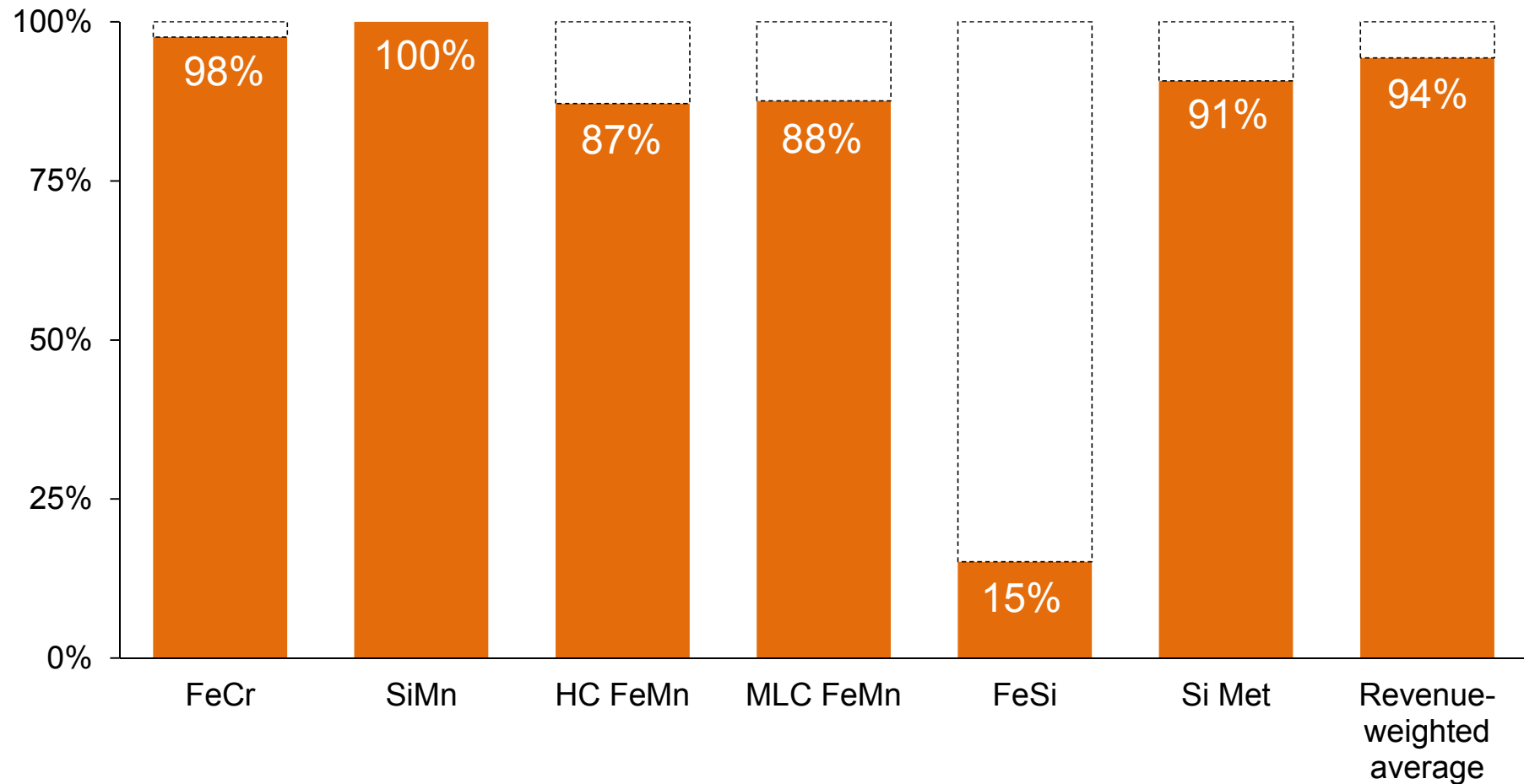
# What is the importance of the South African bulk ferroalloy industry within the context of global production?

World production of bulk ferroalloys by country, 2014 (%)



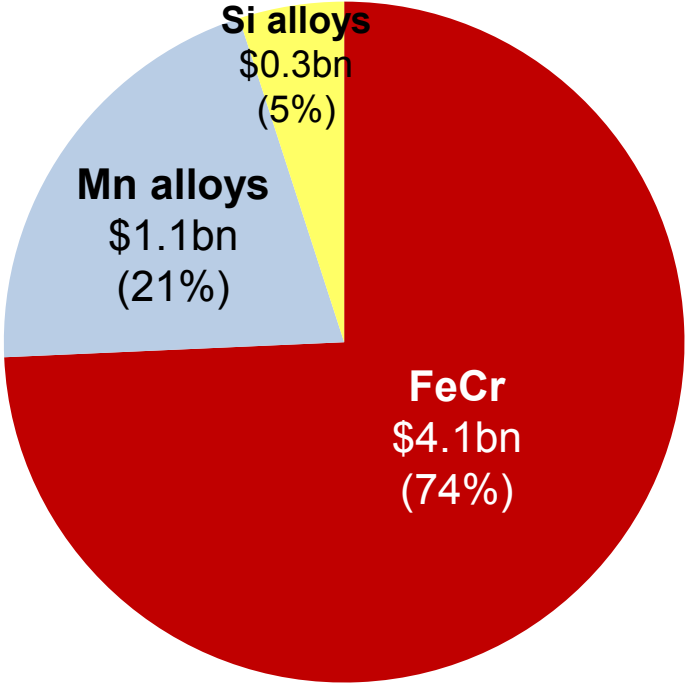
## The vast majority of South African bulk ferroalloy production is exported – the sole exception being ferrosilicon

Exports as a percentage of South African bulk ferroalloy production, 2014 (%)

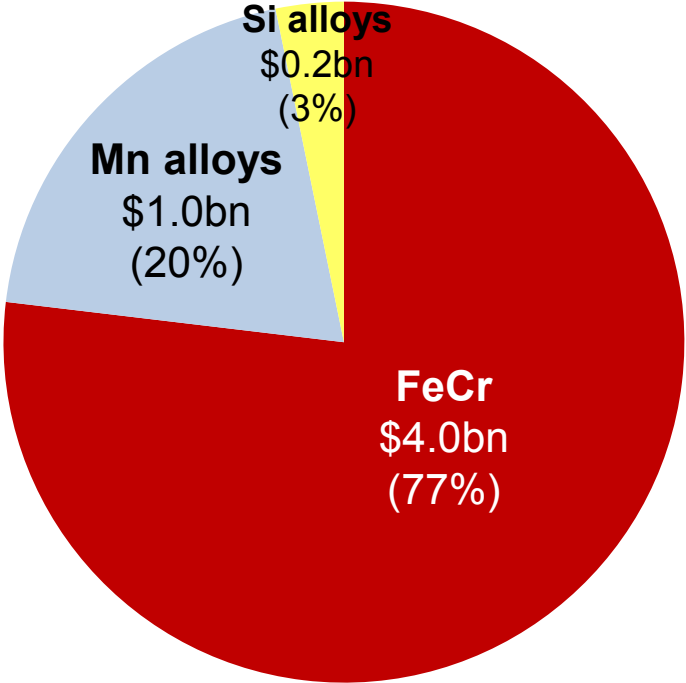


# Ferrochrome accounts for around three quarters of the revenues generated by South African bulk ferroalloy production & exports

Estimated South African revenues from bulk ferroalloy smelting (2014)



Estimated South African revenues from bulk ferroalloy exports (2014)





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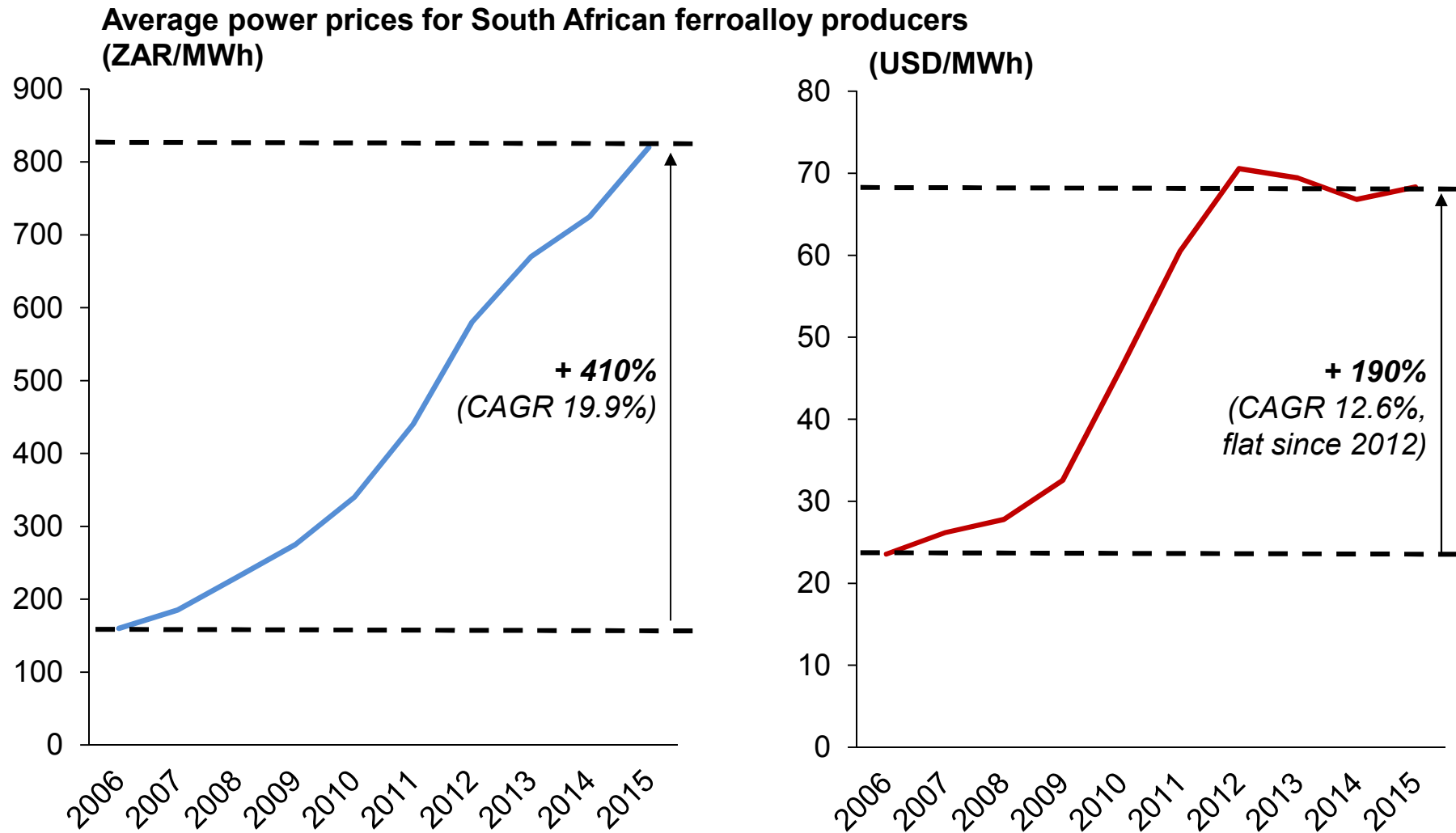
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## Brief summary of developments in power supply in South Africa over the past decade

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- Average prices paid for electrical power by South African bulk ferroalloy producers have increased by around 400% between 2006 and 2015 (in ZAR). This reflects numerous factors, including:
  - Higher demand
    - Metals industry part of this
    - Greater provision of residential power a major factor
  - Static / falling generation capacity
  - Long lead time of new investment in power generation
  - Need to provide for growing demand whilst also replacing obsolete capacity
  - High inflation
  - Challenging economic environment (globally & locally)

# Devaluation has caused the huge power price increases in ZAR not to be reflected in USD. Power prices in USD still slightly below 2012 level



## Can the stability of South African power prices in USD be taken as a source of comfort?

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- **In the longer term, NO:**

- Eskom risks having to play “constant catch up” – weaker ZAR will mean even higher ZAR price increases are deemed necessary, as inflation expectations rise and dollar-based raw materials (eg coal) and investment costs become more expensive in ZAR
- Power prices in many major ferroalloy producing regions are currently falling in USD terms (due to declining coal prices and the strong USD); in relative terms South African power prices are still becoming more and more expensive
- The South African power crisis is increasingly a problem of lack of power availability just as much as a problem of rising power prices; ferroalloy producers may not be able to obtain the necessary power even if the price is competitive

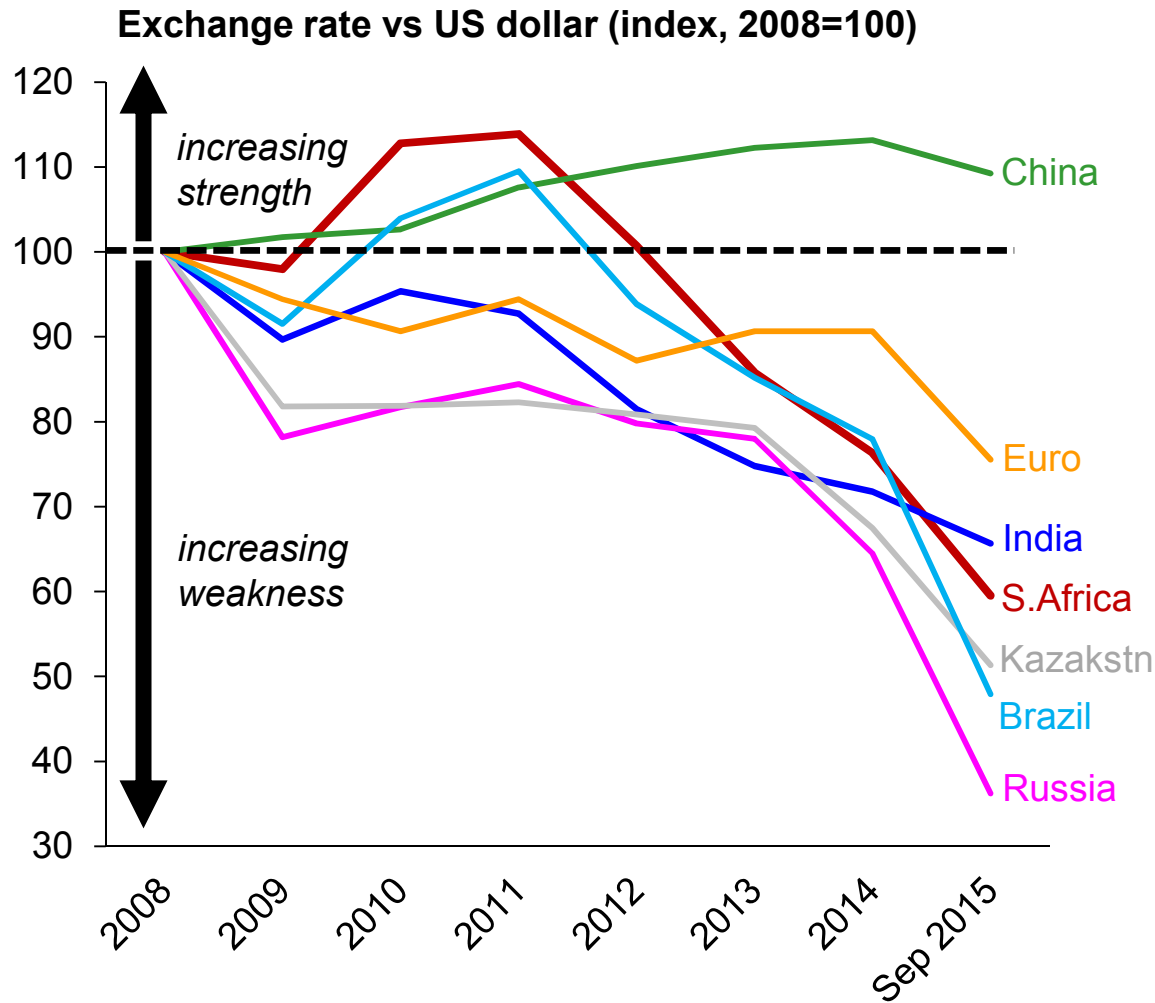
- **In the short term however it is undeniable that the devaluation of the Rand has given South African ferroalloy producers a helpful lifeline**

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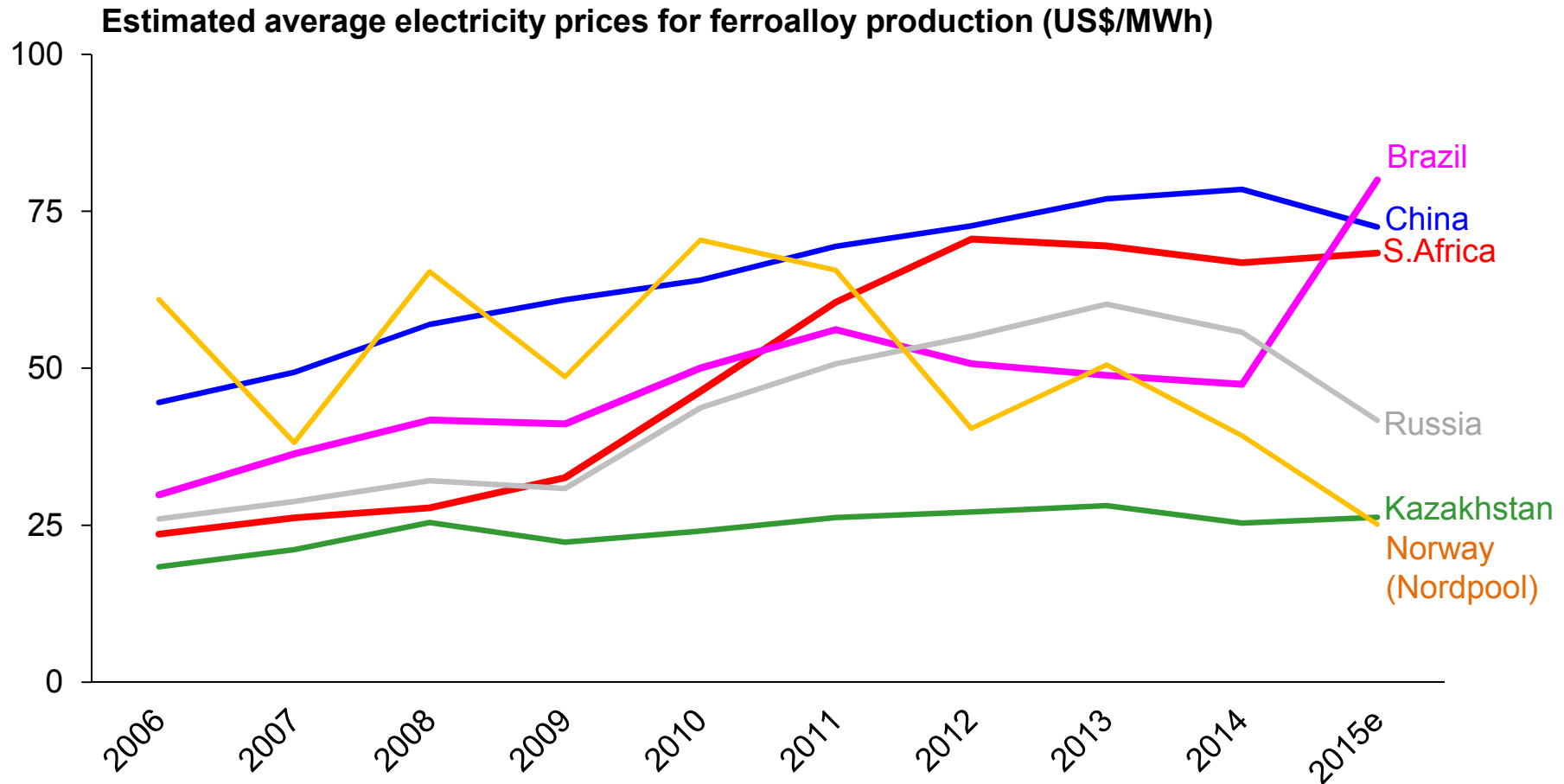
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# The devaluation of the Rand is not extraordinary when compared with other emerging economies with large mining & smelting industries



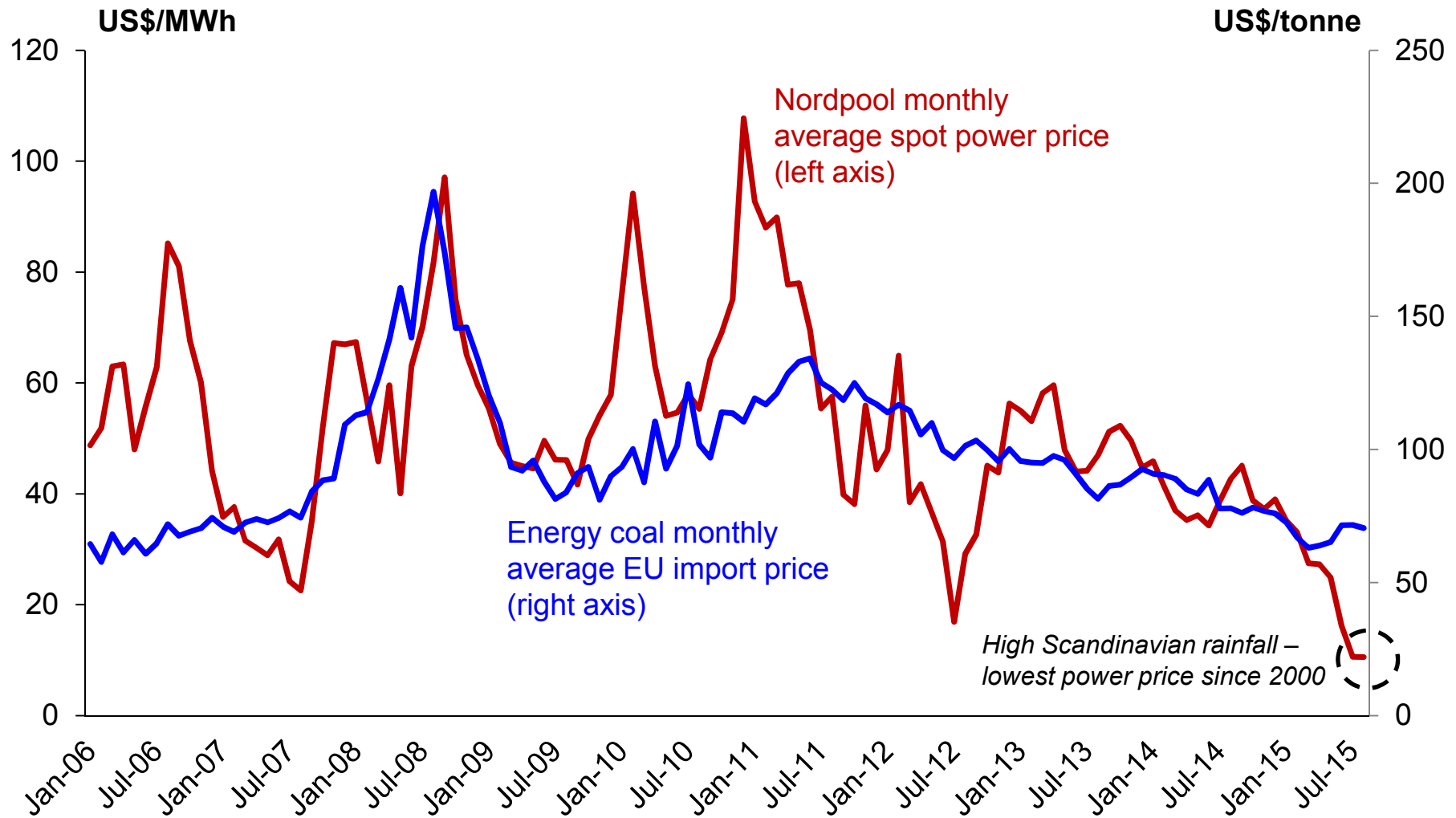
	2008	2014	Sep 2015
S.Africa Rand	8.28	10.85	13.91
India Rupee	43.81	61.03	66.72
China RMB	6.96	6.15	6.37
Kazakh Tenge	122.38	181.37	238.37
Russia Rouble	24.87	38.57	68.67
Brazil Real	1.84	2.36	3.84
Euro	0.68	0.75	0.90

# Power prices have declined in numerous major ferroalloy producing countries in 2015 –S.Africa continuing to become less competitive



**This generally reflects a combination of lower coal/oil/gas prices and the weakening of most currencies against the US dollar**

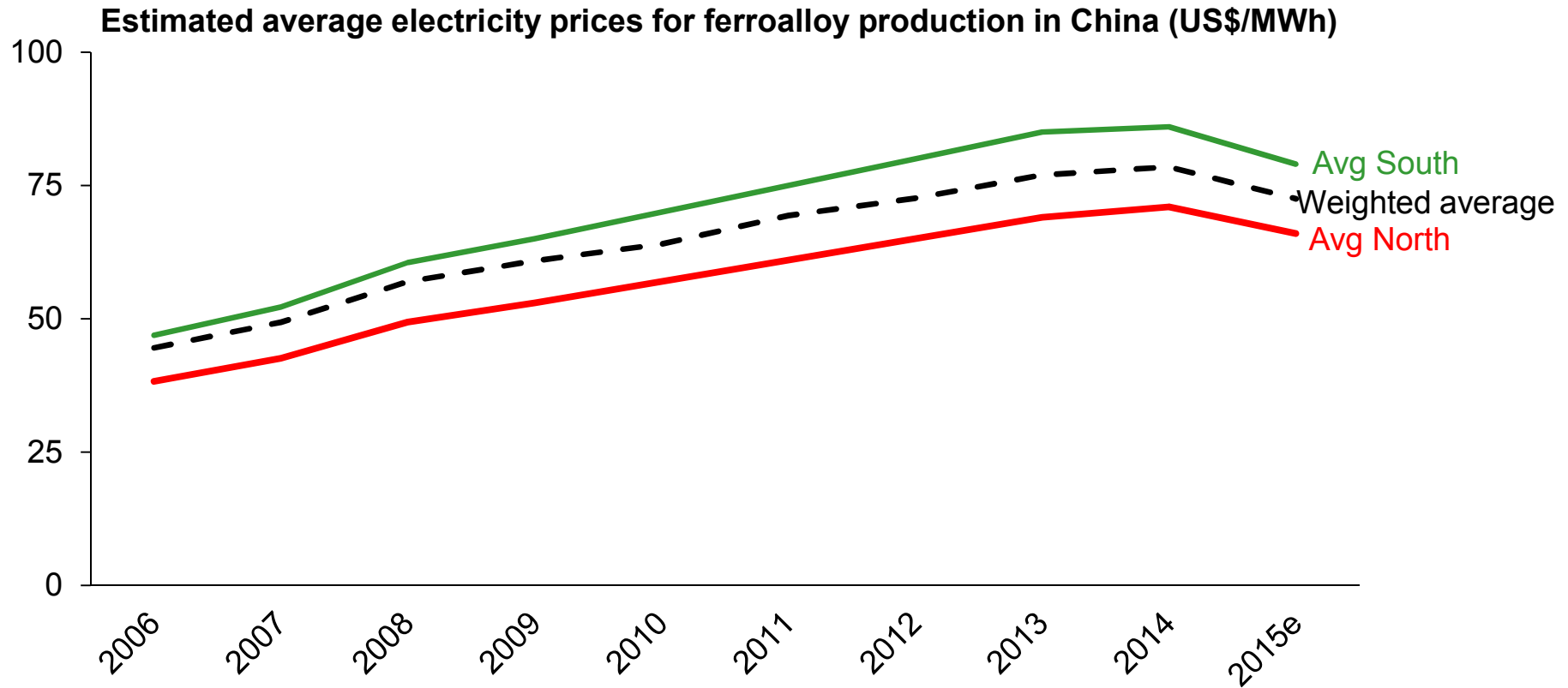
# In some highly liberalised power markets such as Europe, electricity prices have moved downwards in close alignment with falling coal prices



Source: Nordpool, Eurostat

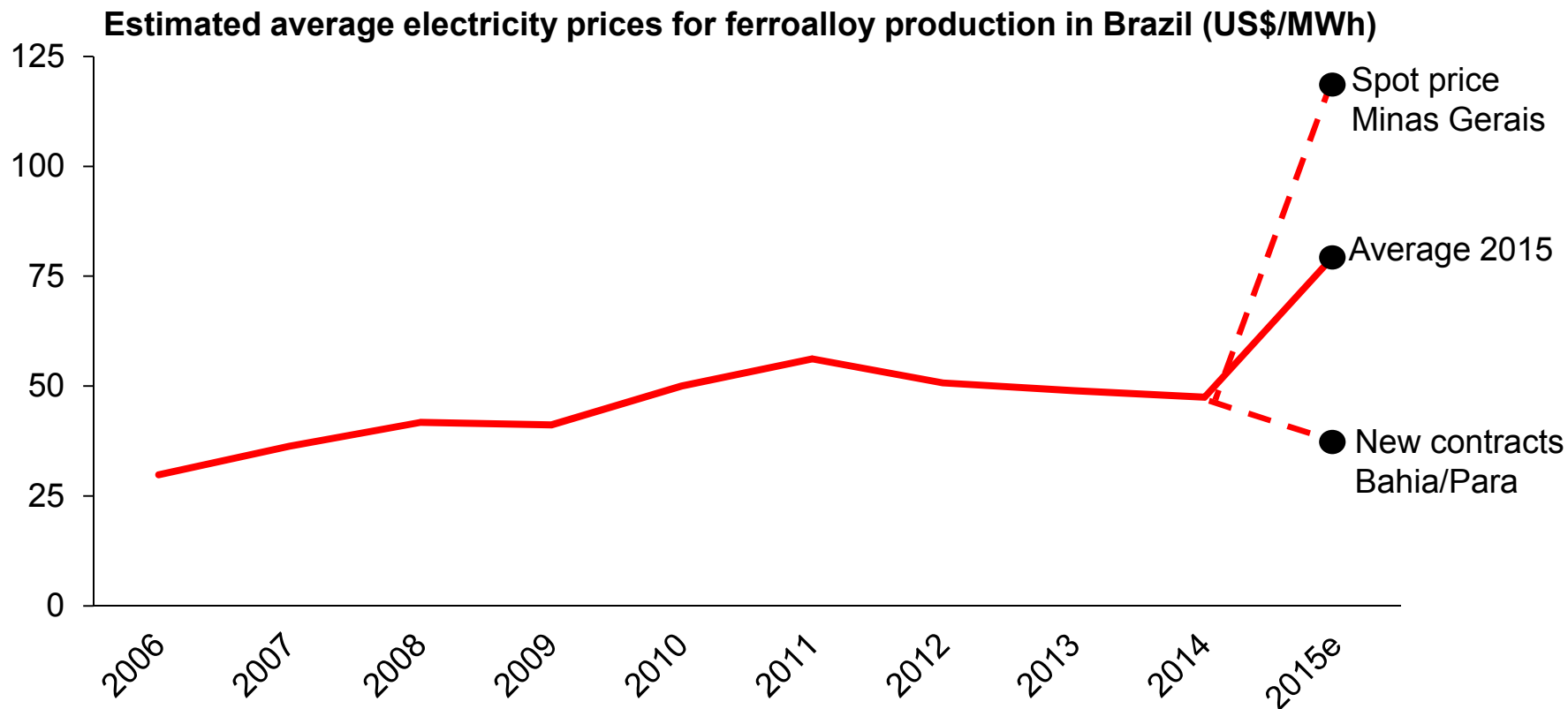


# Power price developments in major ferroalloy producing countries - China



**Recent devaluation of Chinese currency has lowered power prices further in USD compared with year-to-date averages. Ongoing shift of ferroalloy production to north of country may gradually pull weighted average down.**

## Power price developments in major ferroalloy producing countries - Brazil



**Brazil's ferroalloy production is currently polarised between plants in the north, which recently secured favourable new power contracts, and plants in the south which mostly remain idle and subject to very high spot power prices**

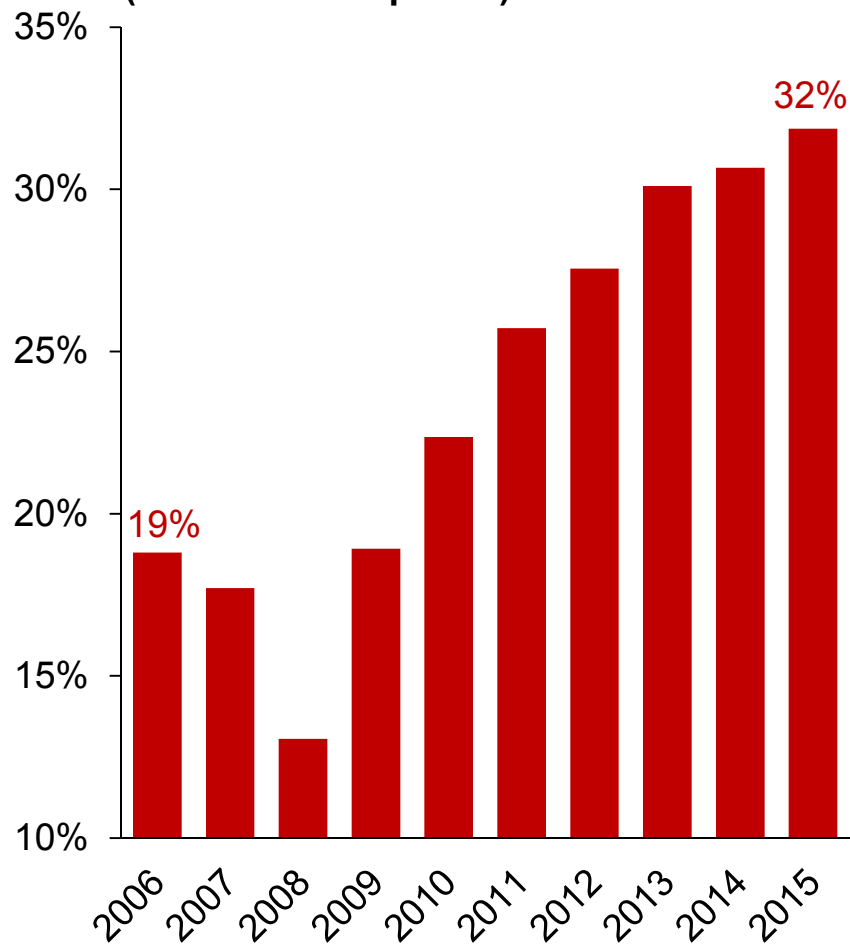
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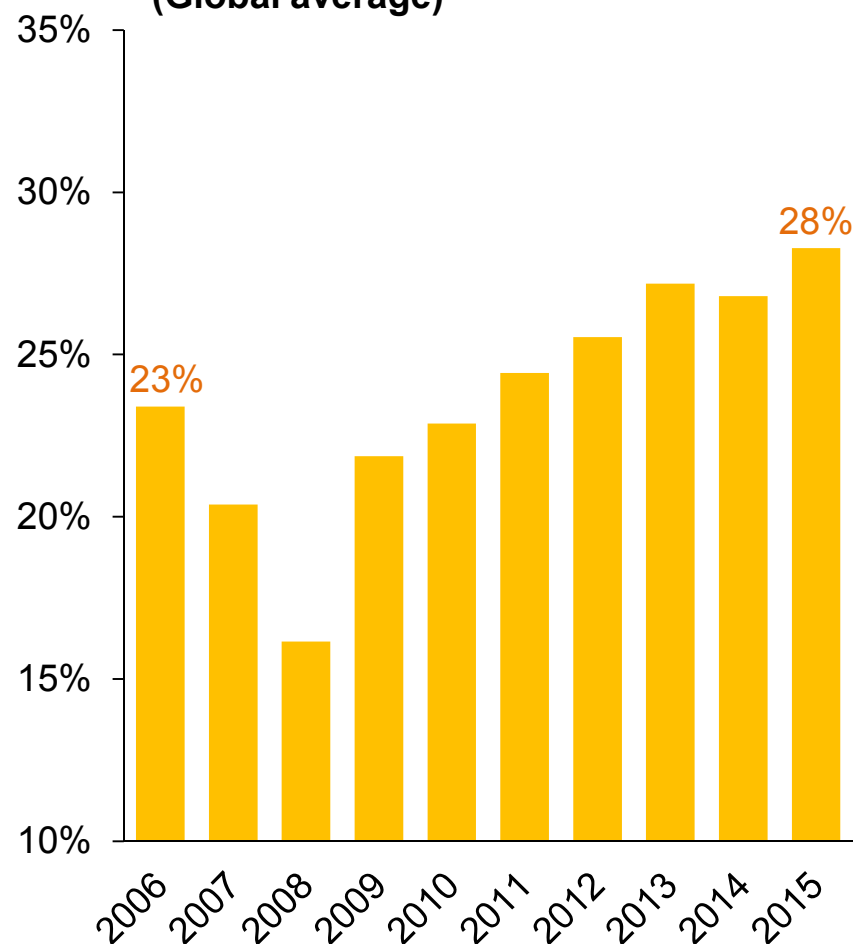
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# Power now accounts for a greater percentage of cash costs at South African FeCr smelters than the global average

Electricity as a percentage of FeCr ex-plant cash costs  
(South African plants)

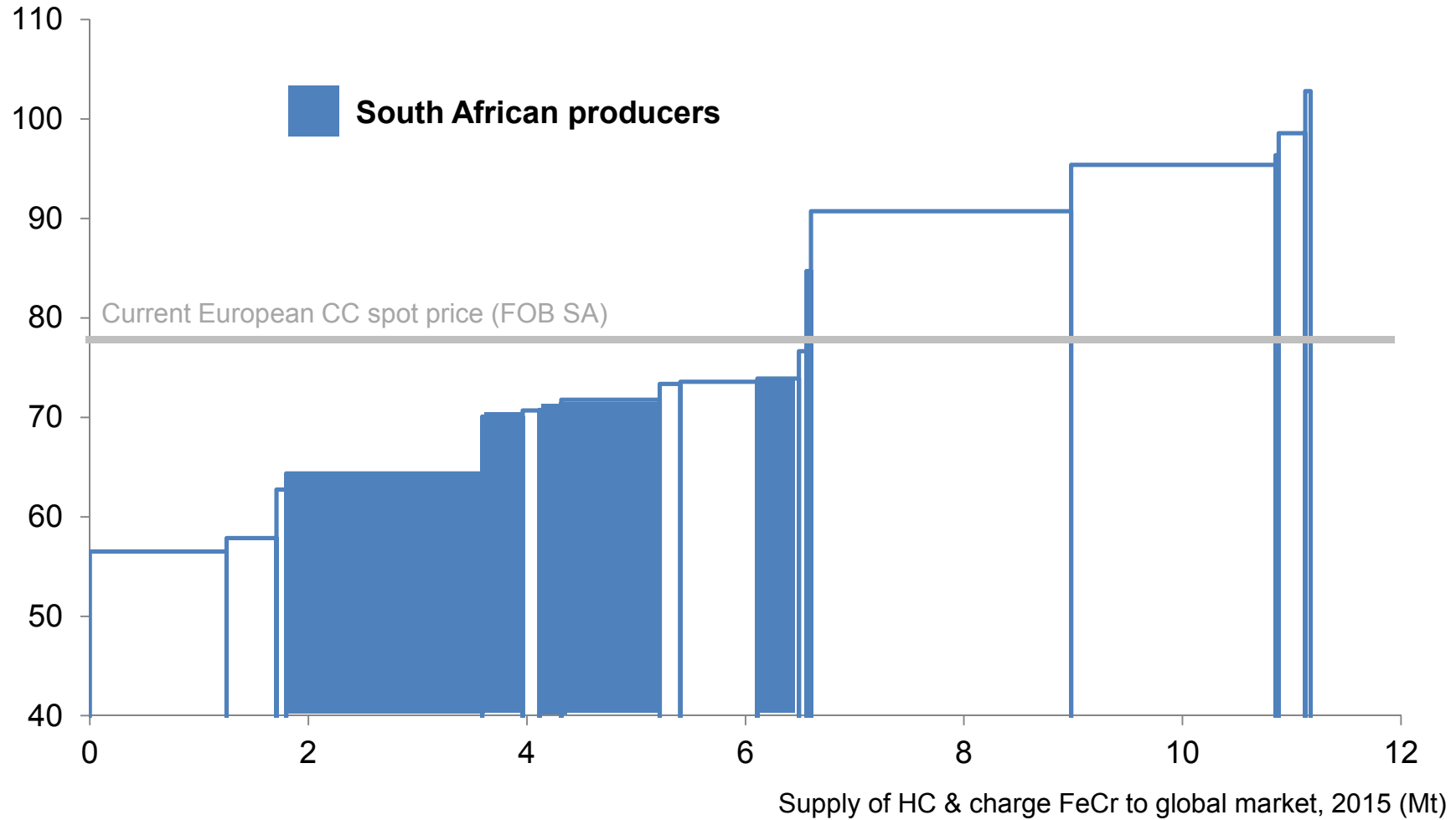


(Global average)

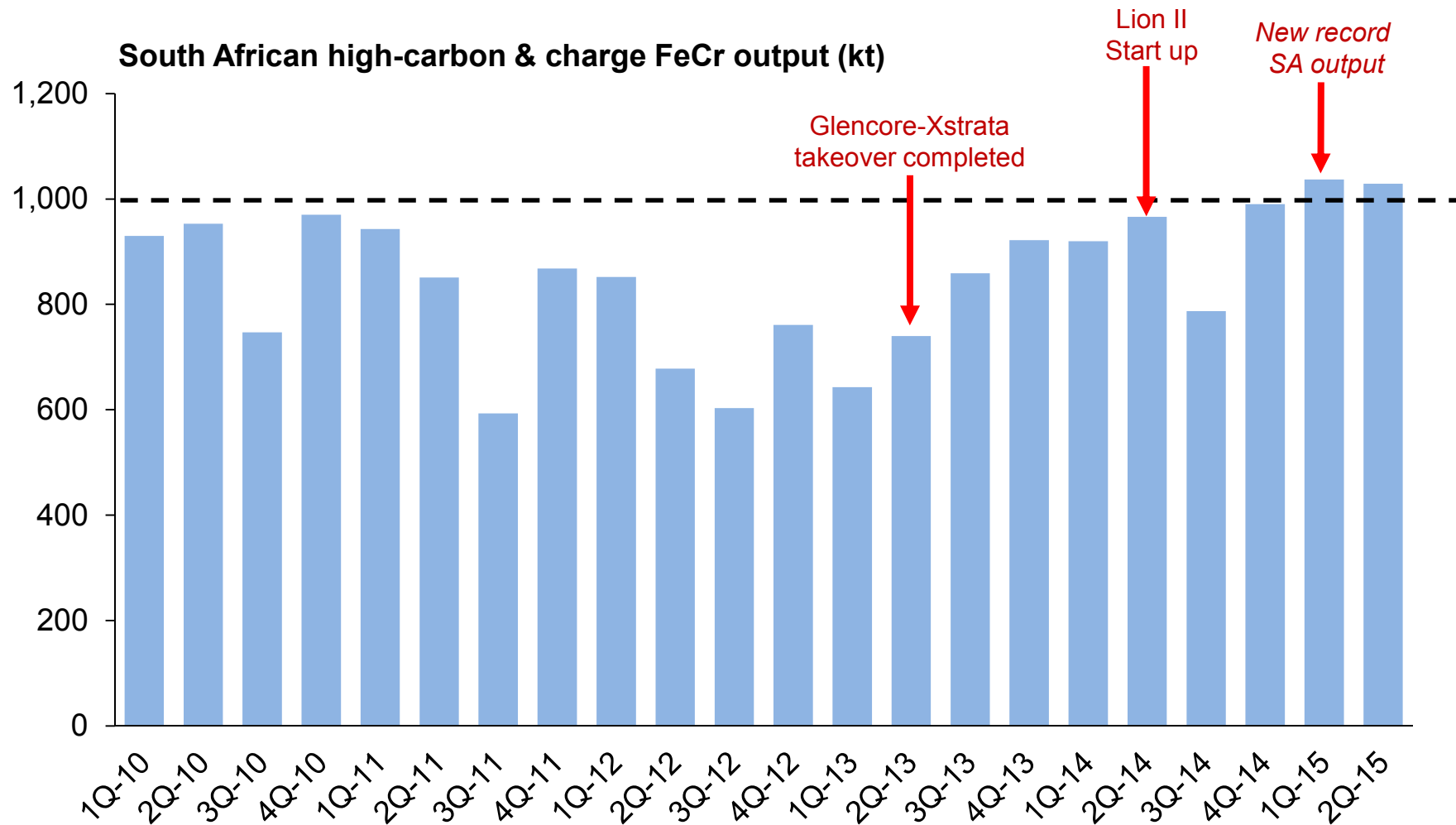


# Nevertheless most S.African FeCr plants remain competitive globally – though some plants have become marginal at current prices

Global average HC/charge FeCr cash costs, 2015 (FOB basis, US cents per lb Cr)



## Furthermore there has been a renaissance in S.African FeCr output, coinciding with the Glencore-Xstrata takeover and Lion Phase II



## Thoughts...ferrochrome

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- Overall, a significant proportion of South African FeCr output remains cost competitive even at current quite depressed price levels
- In terms of potential impact of future power price increases, attention will surely focus on smaller / more marginal plants. Disappearance of ferrochrome smelting from South Africa seems highly improbable on any foreseeable timescale
- Further development of power-saving technology (Premus, co-generation) will be of benefit to South African producers

## Thoughts...manganese alloys

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- **In contrast to ferrochrome, the future of manganese alloy smelting in South Africa currently seems at significant risk:**
  - Much of South32 and Assmang's remaining manganese alloy capacity reported to be idle. Assmang closed its Machadodorp smelter earlier this year
  - Problem of deteriorating competitiveness in South Africa exacerbated by persistently poor prices in all markets
  - Key differences with ferrochrome are unwillingness of Chinese to import manganese alloy and a narrower cost differential between South African and Chinese production costs (exacerbated by very low Mn ore prices)
  - Potential for offshoring alloy production (eg. Assmang Malaysia)



## Thoughts...silicon alloys

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- Silicon metal and ferrosilicon are a much smaller part of South Africa's ferroalloys industry than ferrochrome or manganese alloys
- Nevertheless, power consumption per tonne of product is considerably greater
- Market prices have held up quite well relative to other alloys
- Highly positive demand outlook from solar sector projected to lead to shortage of silicon metal capacity
- With merger of Ferroatlantica and Globe Specialty Metals, all South African production will be part of same company – potential for consolidation of plants?



**Thank you for your attention**



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