



Introduction to the silicon stream: Recent developments in the silicon and ferrosilicon markets

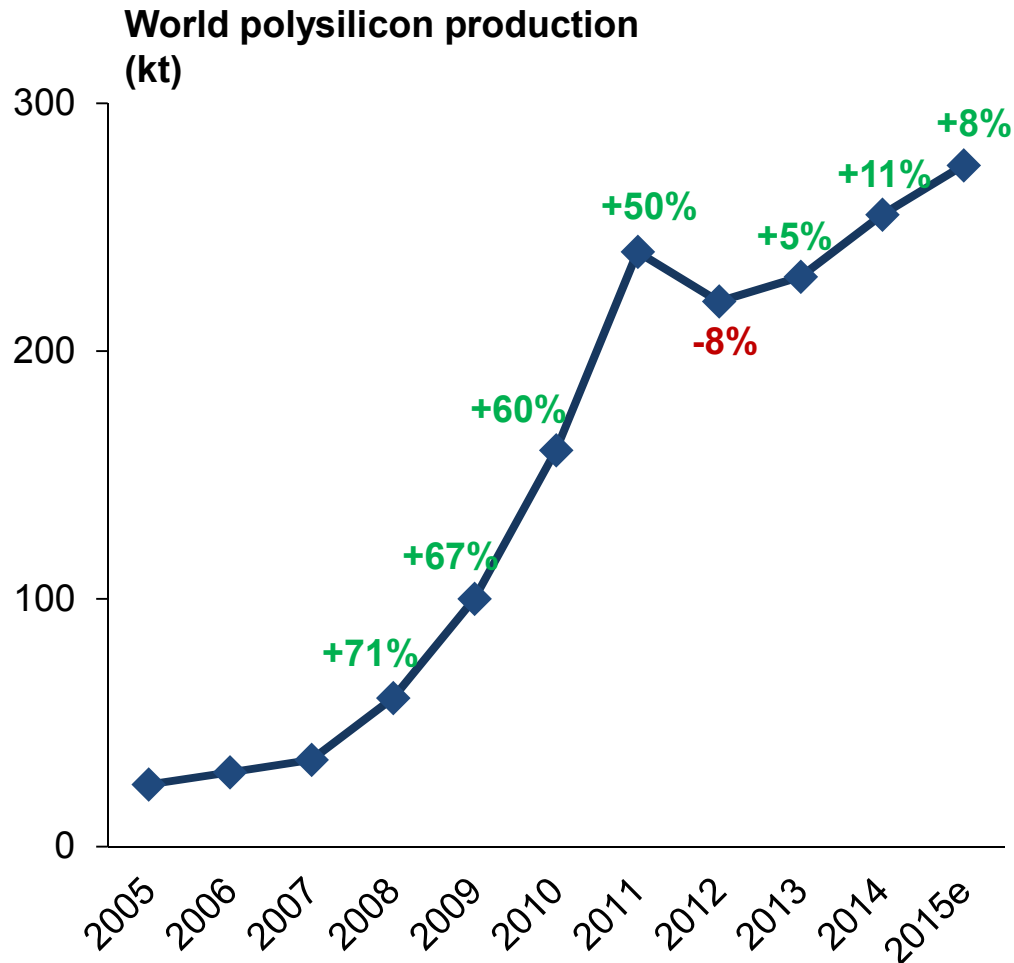
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Metal Bulletin 31st International Ferroalloys Conference
Prague, 9th November 2015



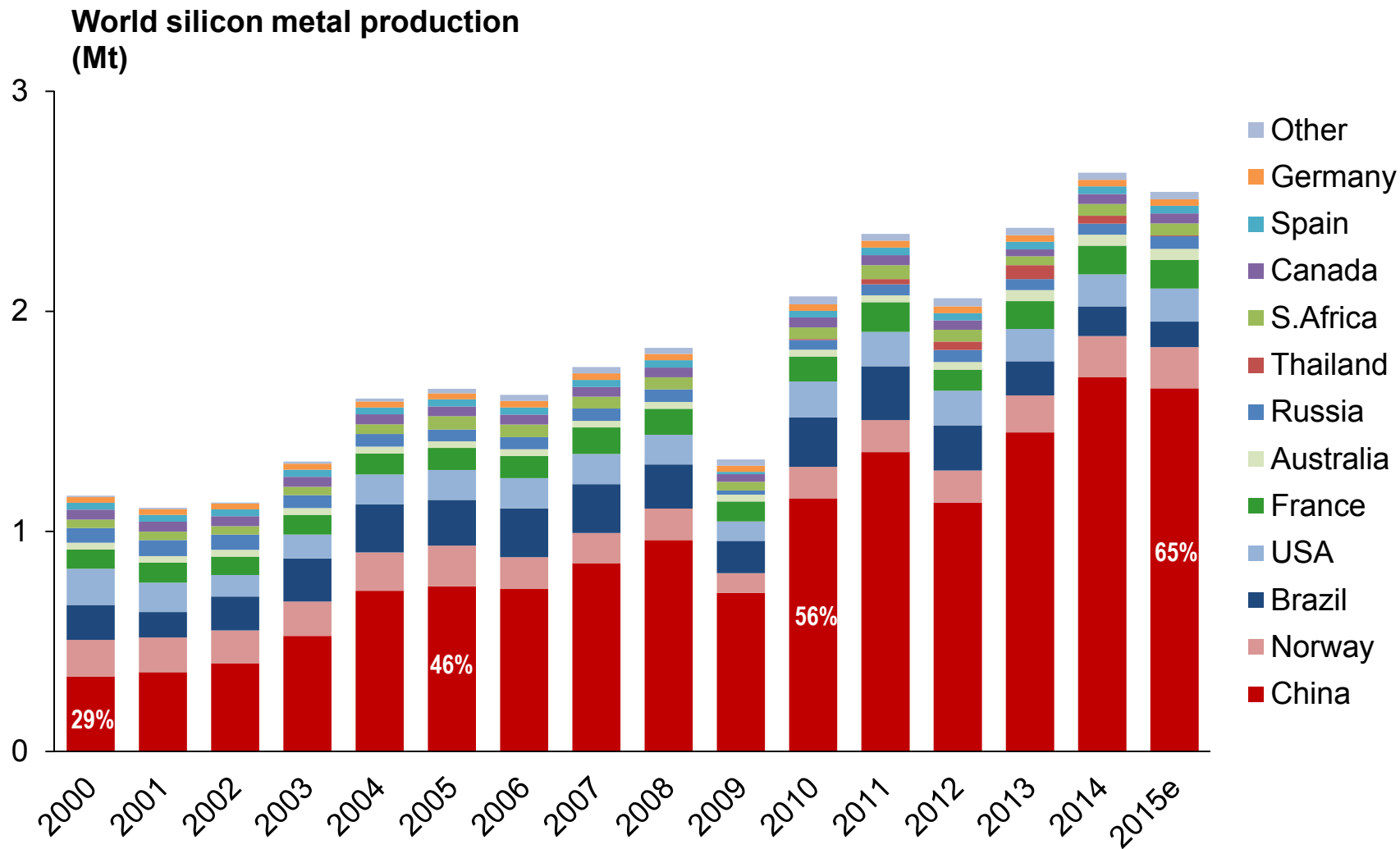
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The solar sector now seems to be following a more sustainable growth path, with massive growth potential over the coming decades

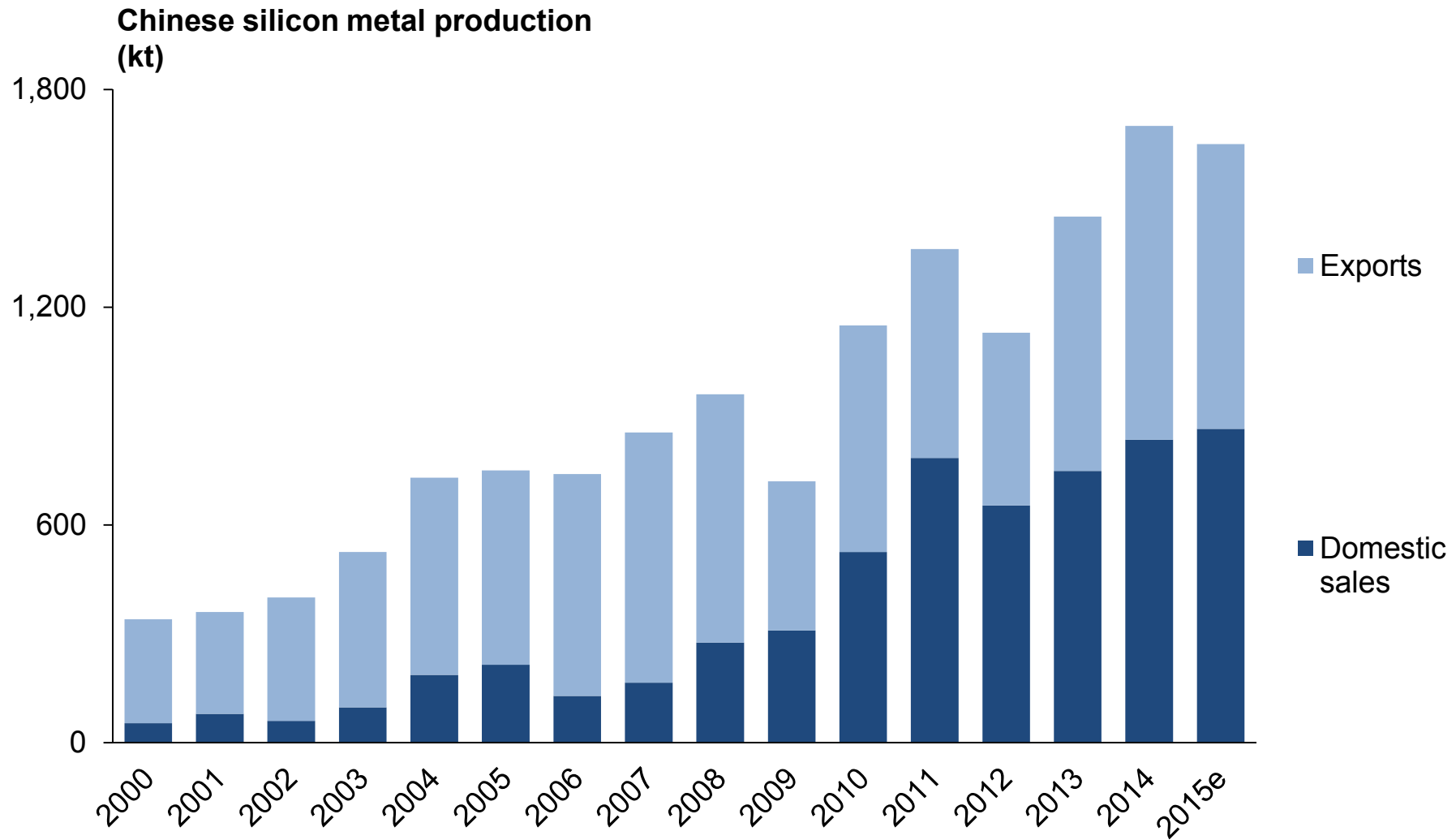


- The solar sector has returned to growth following the “solar depression” of 2011-13
- Growth in demand now more driven by unsubsidised PV installations, mostly in Asia. As such, growth is therefore likely to be more sustainable and less volatile than in the past
- Growth of ~10%pa expected over the long term, requiring hundreds of thousands of tonnes of extra silicon (stark contrast with flat demand outlook for steel)

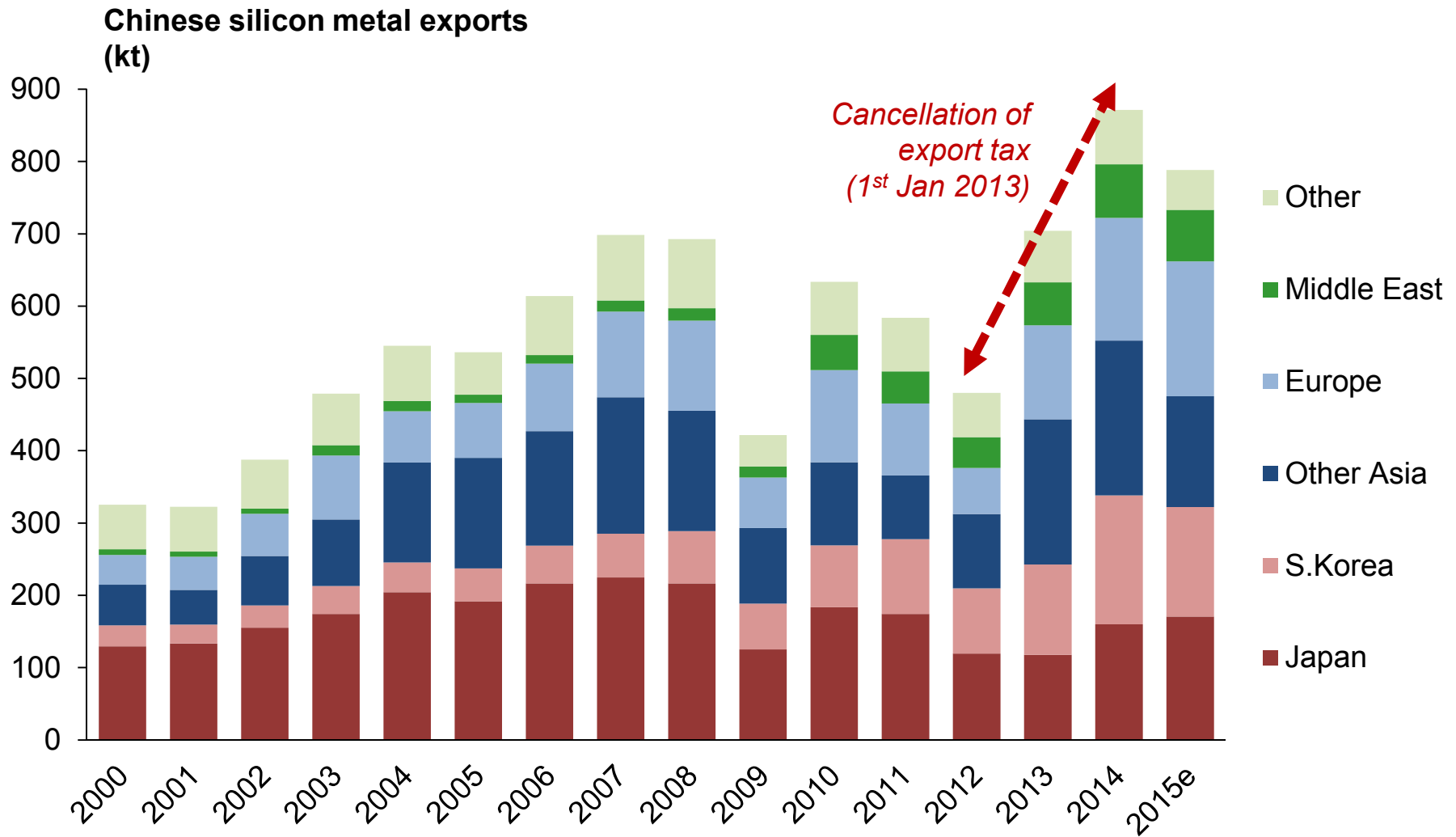
World silicon metal production is expected to decline slightly to reach 2.54 Mt in 2015, with China now accounting for 65% of global output



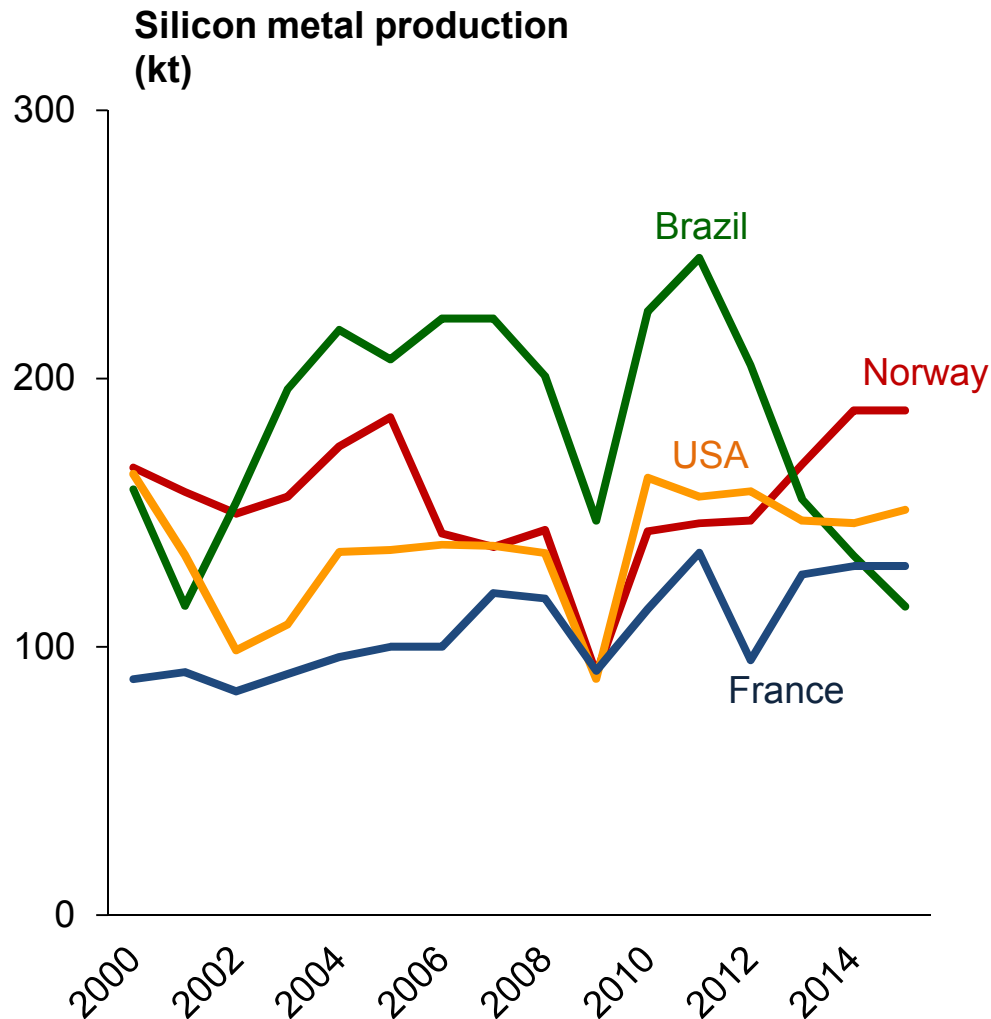
Unlike most ferroalloys, China's rising silicon metal output has been export-driven in recent years, though exports have fallen slightly in 2015



Chinese exports almost doubled from 2012 to 2014. Though exports have fallen slightly in 2015, exports to Japan and Europe have continued to rise



Outside of China, the main development in silicon metal production has been reduced Brazilian output, due to electricity shortages



- Brazilian output has halved since 2011, due to electricity shortages
- Following expiry of long-term power contracts at end-2014, many producers were unable to secure competitively priced power, and idled their production
- Higher output in Norway, partly due to furnace conversion from FeSi
- New furnace in Australia, on-stream since 2012
- Overall, non-Chinese output has been broadly stable for 15 years
- New projects proposed in Canada and Iceland

Many Si and FeSi plants in Brazil are in the southern state of Minas Gerais, where the electricity situation has been particularly bad



Location of main silicon metal and FeSi plants in Brazil:

In Para:
CCM (Dow Corning)

In Bahia:
Ferbasa

In Minas Gerais:
CBCC (Dow Corning)
RIMA Capitaó Eneas
RIMA Varzea da Palma
Minasligas
LIASA
Nova Era
Italmagnesio
Bozel

Summary of recent developments in Brazil

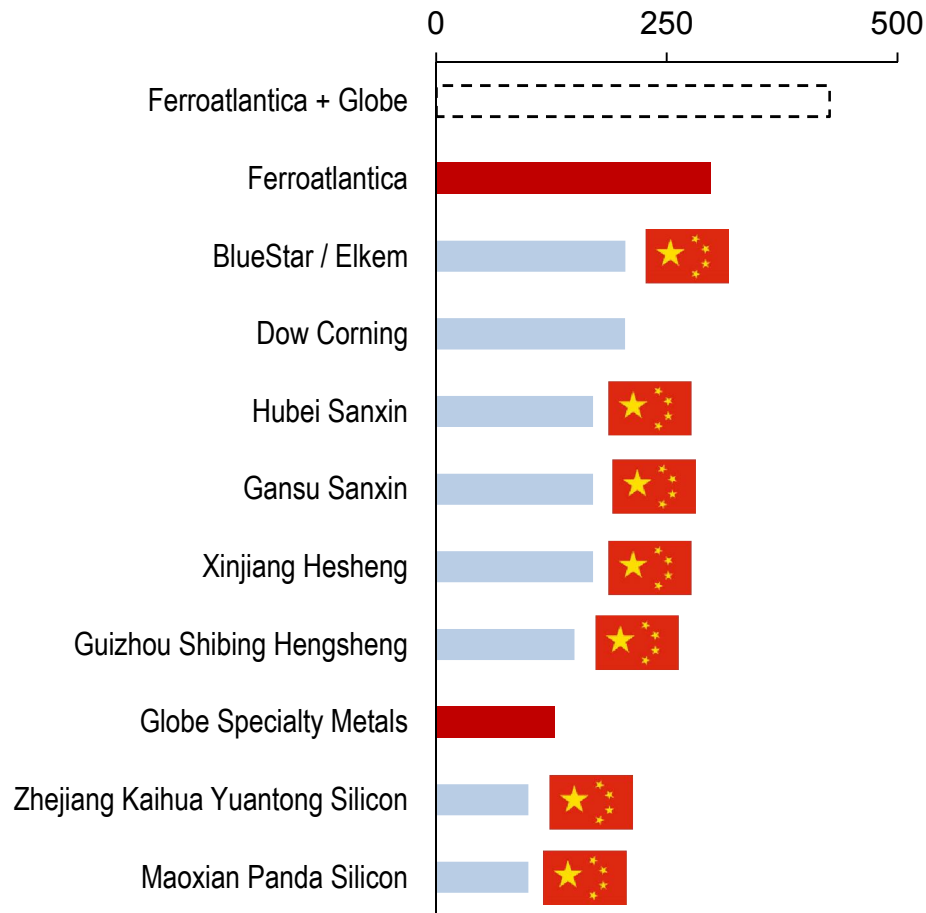
- The impact of the electricity shortages has been very uneven across Brazilian producers in 2015
- Northern plants have been able to produce at close to normal levels whilst most capacity in Minas Gerais has been idle; in essence Dow Corning and Ferbasa have been least impacted whilst others further south have been much more severely affected
- Ferroalloy plants in northern Brazil negotiated favourable power contracts in mid-2015 lasting into the 2030s, average tariff in USD lower than in 2014 due to weak local currency
- Plants in Minas Gerais reported to be in the midst of negotiating new power agreements. Some production likely to return in Q4-2015, though dependent on the state of the market
- Brazilian output in 2016 highly likely to increase relative to 2015

Proposed Globe-Ferroatlantica merger: Summary of publicly-released information

- New company has estimated value of US\$3.1bn
- Transaction expected to close in Q4-2015
- New company to be headquartered in London, listed in New York
- To be led by Alan Kestanbaum (Globe executive chairman); Joint CEOs will be Jeff Bradley (Globe CEO) and Pedro Larrea Paguaga (Ferroatlantica chairman and CEO)
- Expected cost savings of US\$65M per year; debt expected to fall by US\$30M over 3 years and cash flow to improve by US\$100M (more efficient management of working capital and other efficiency savings)
- Approved by shareholders of Globe Specialty Metals in Sep 2015; still subject to approval by regulators in relevant jurisdictions

The proposed merged company's silicon metal capacity would be twice that of the second-largest producer

World top-10 silicon metal producers by capacity (kt)



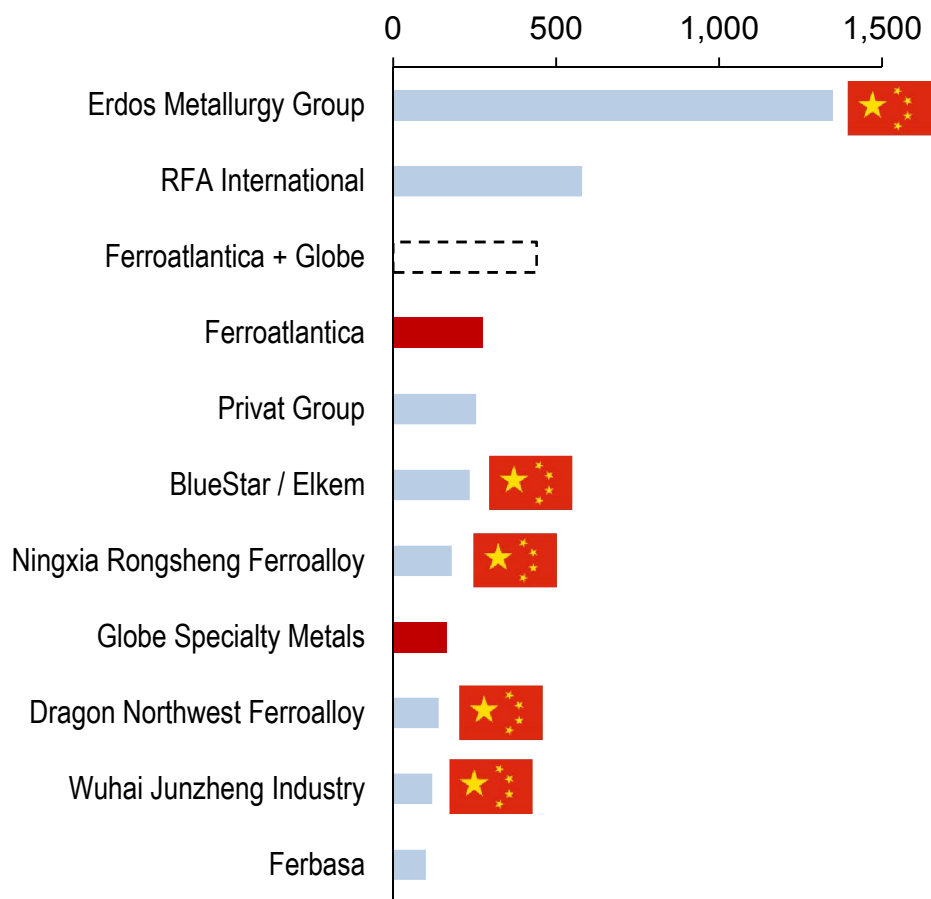
Ferroatlantica already world's biggest producer of silicon metal

Globe currently world's 8th biggest producer (3rd largest non-Chinese owned producer)

New company will have silicon metal capacity approx. twice the size of the second largest producer

The proposed merged company will be the world's 3rd largest FeSi producer, behind Erdos and RFA

World top-10 FeSi producers by capacity (kt, basis 75% Si content)



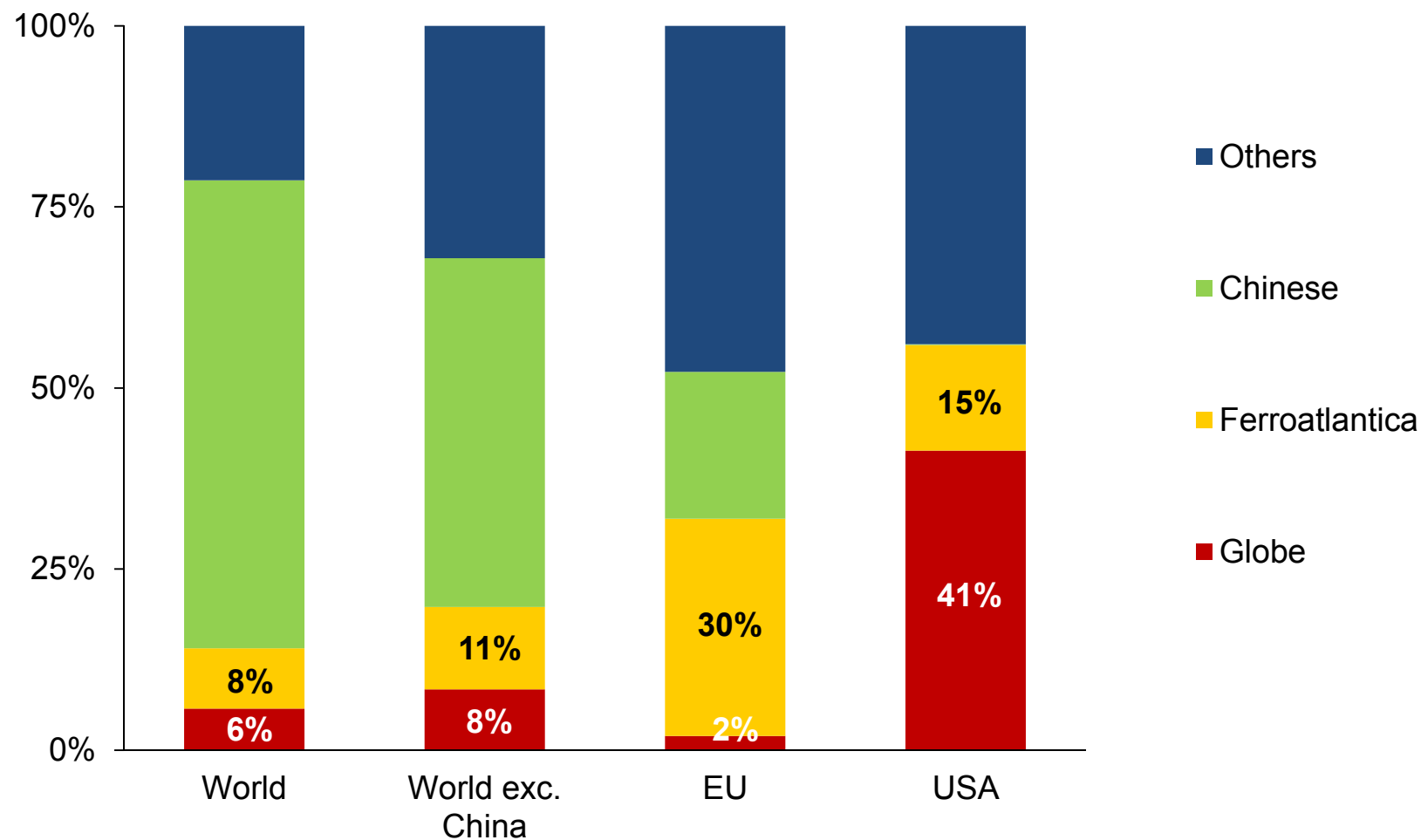
Ferroatlantica currently world's 3rd biggest producer of FeSi (2nd largest non-Chinese owned producer)

Globe currently world's 7th biggest producer (4th largest non-Chinese owned producer)

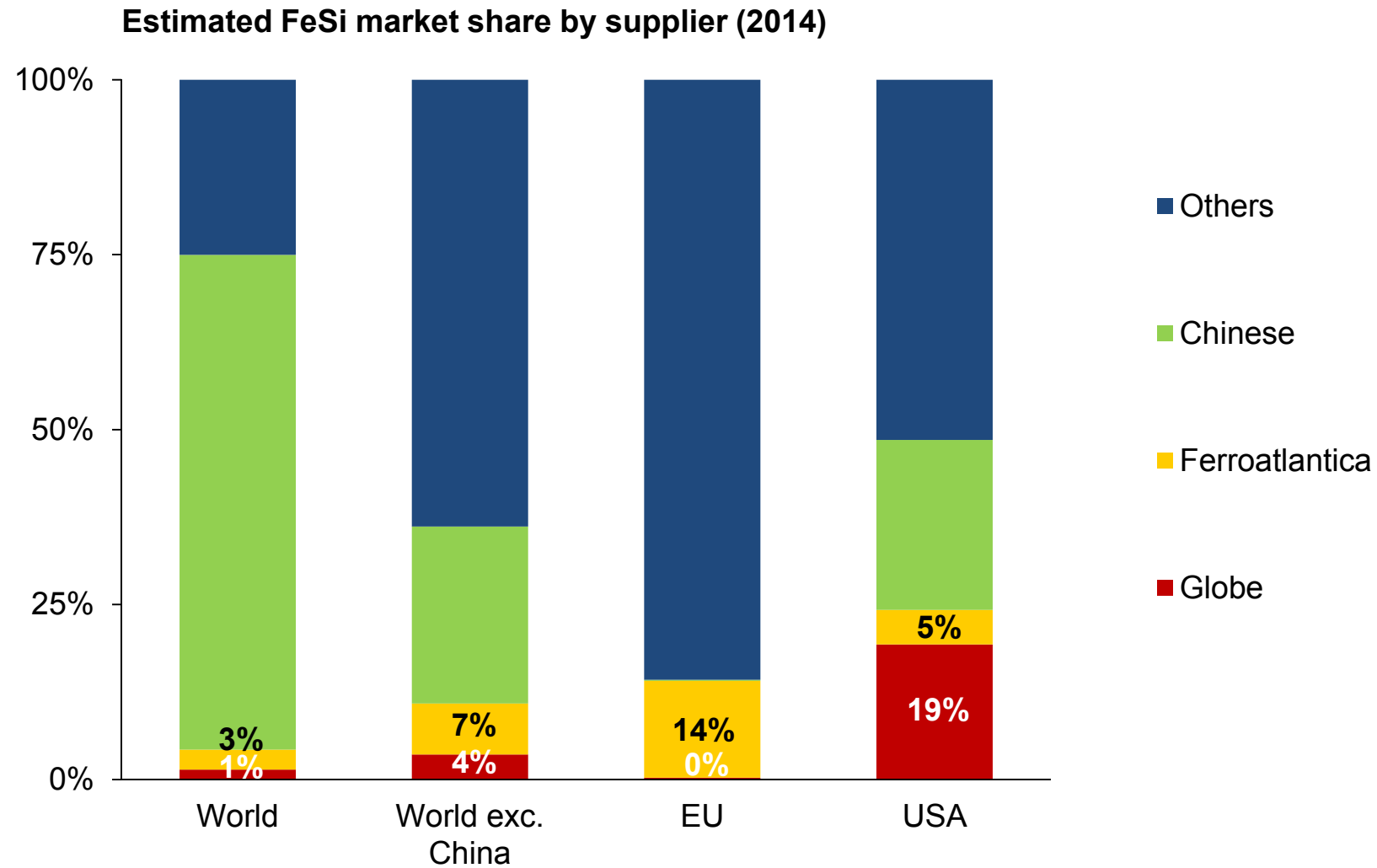
New company will be world's 3rd biggest producer of FeSi (2nd largest non-Chinese owned producer)

The merged company's biggest impact on silicon metal market share will be in the USA

Estimated silicon metal market share by supplier (2014)



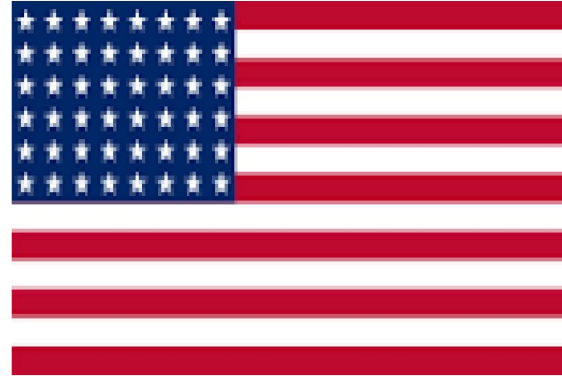
The merged company will not have a substantial impact on FeSi market share in any major market



Silicon metal anti-dumping update



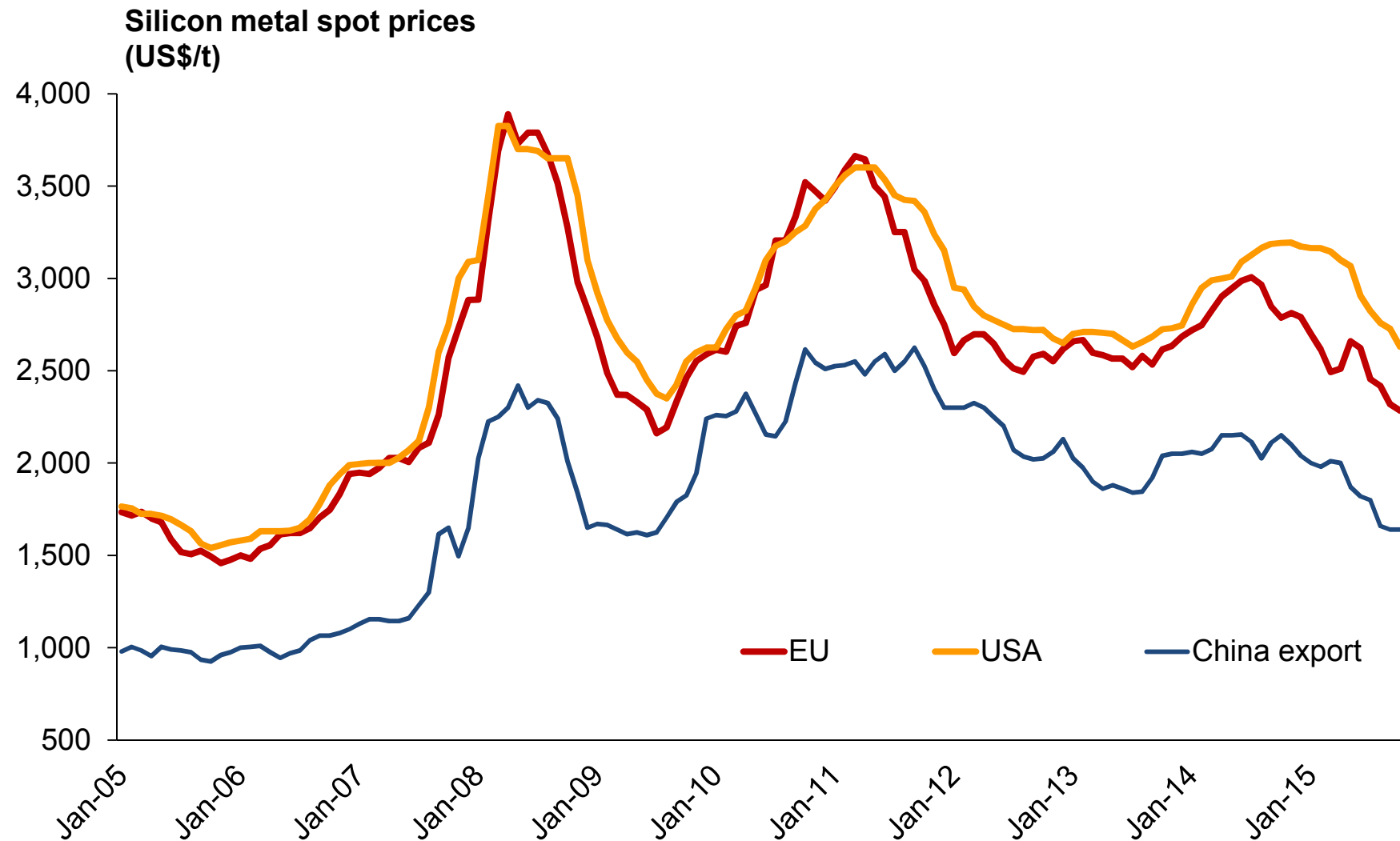
- EU anti-dumping duties against Chinese silicon metal expire in 2015, and the investigation into their potential renewal is at an advanced stage



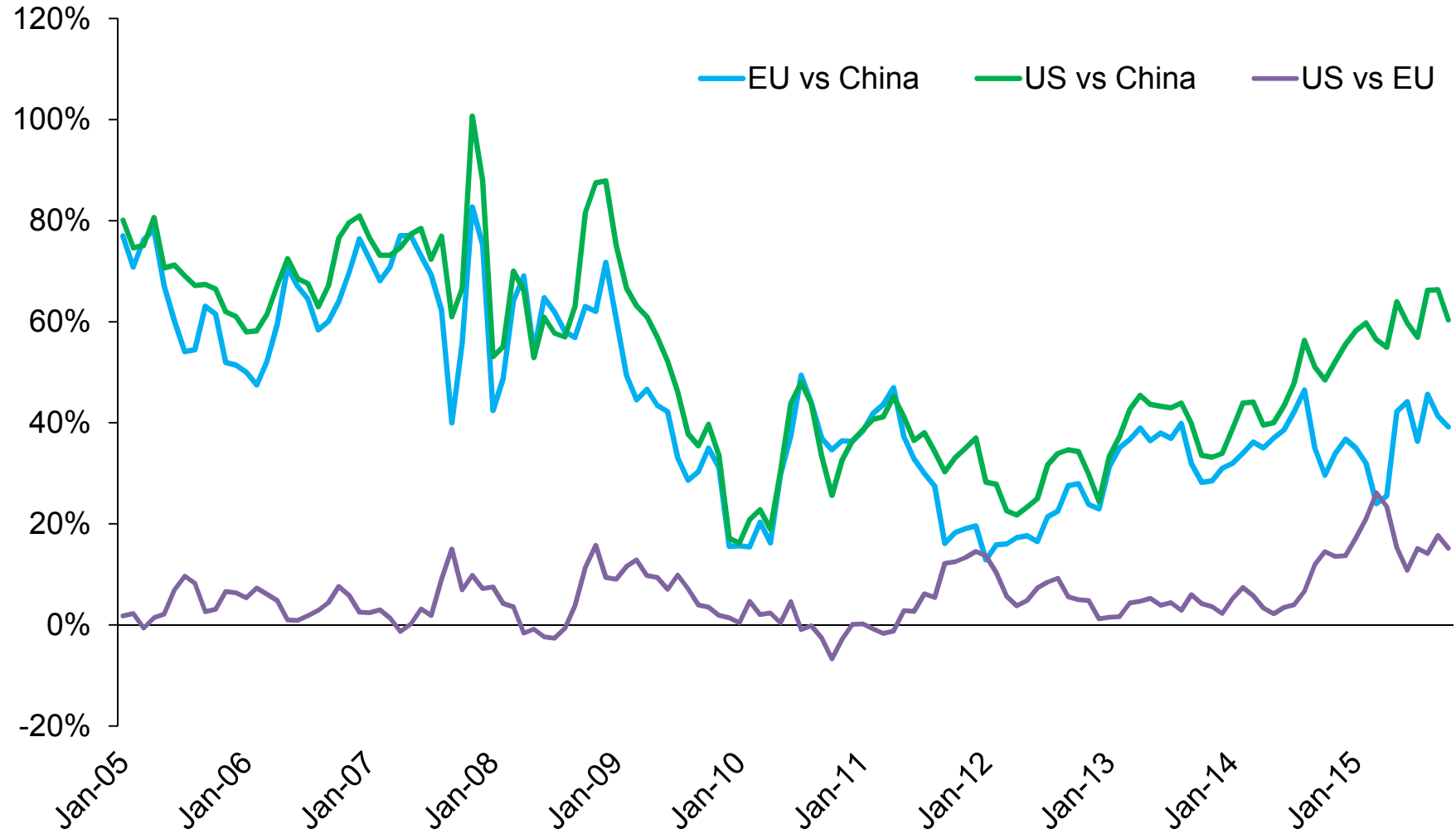
- US anti dumping duties against Russian and Chinese silicon metal are not (ordinarily) scheduled for review until 2017/18

AD duties on Chinese silicon metal also in place in Canada and Australia

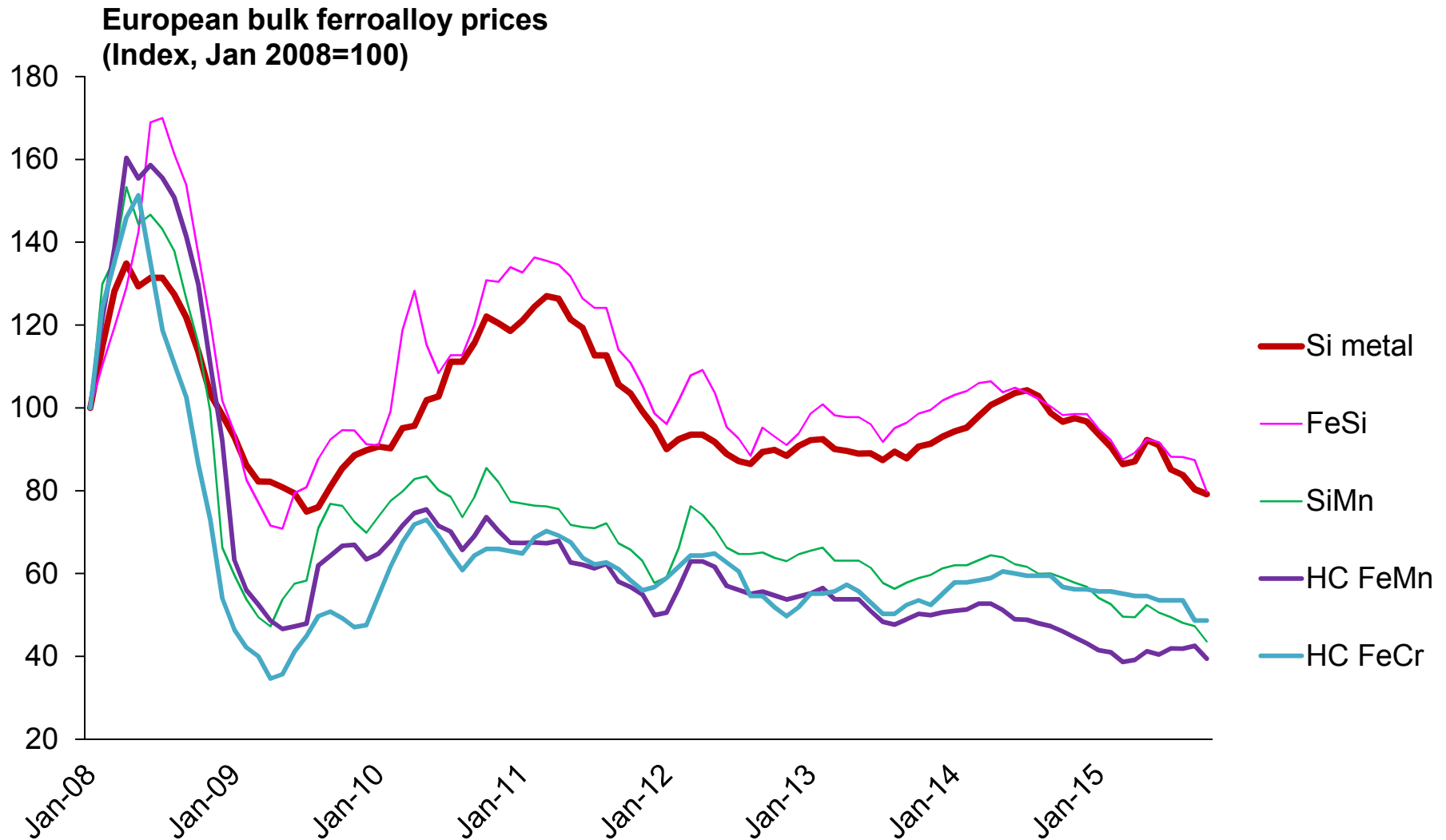
Silicon metal prices have declined quite sharply in 2015



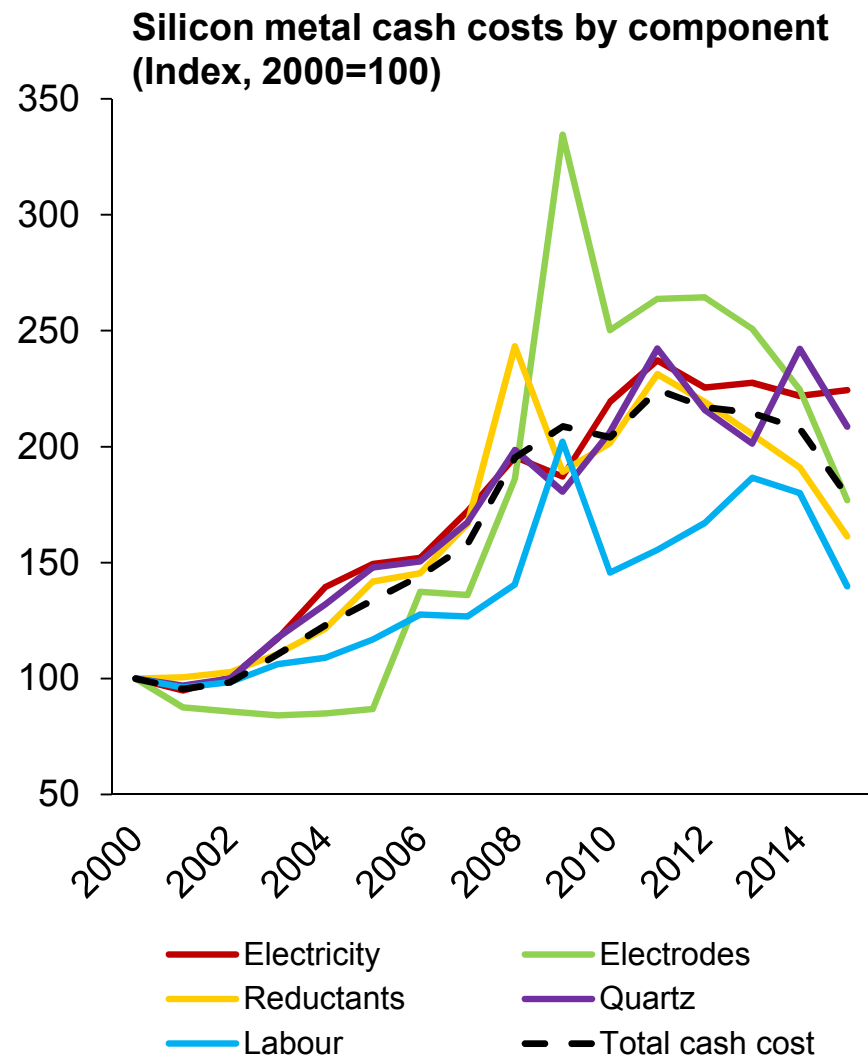
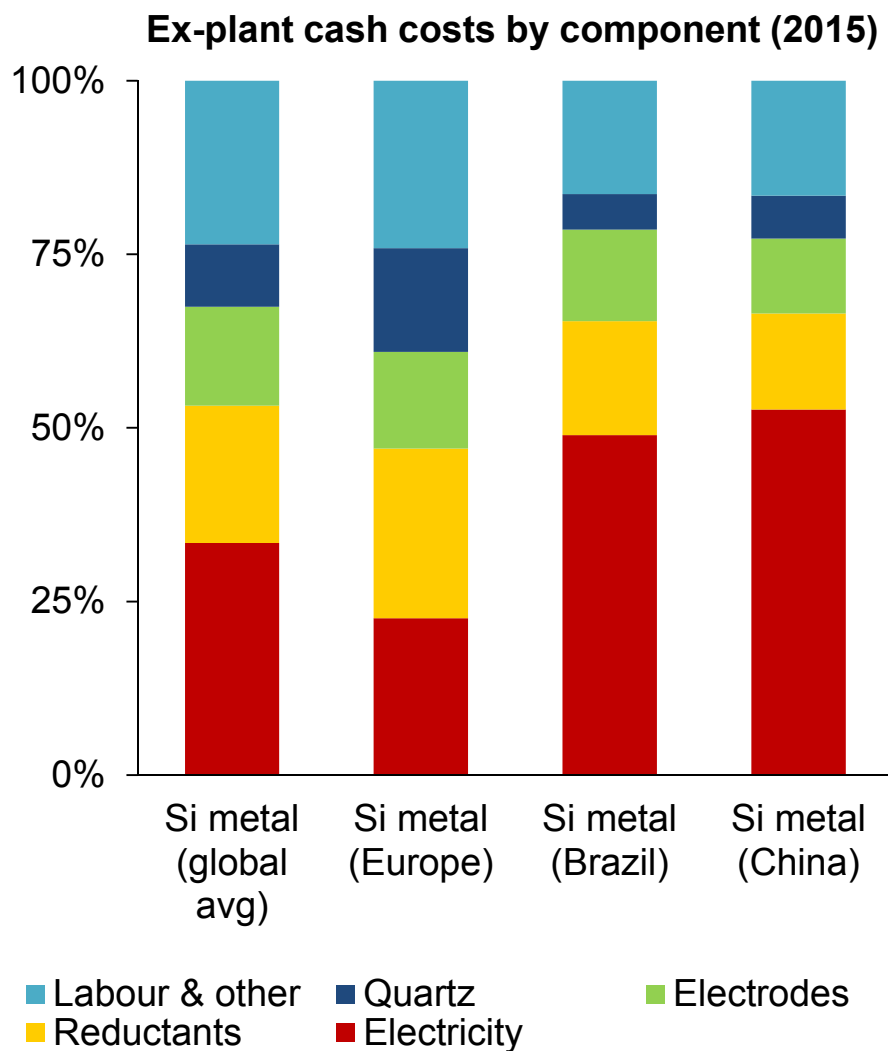
Silicon metal spot price premiums



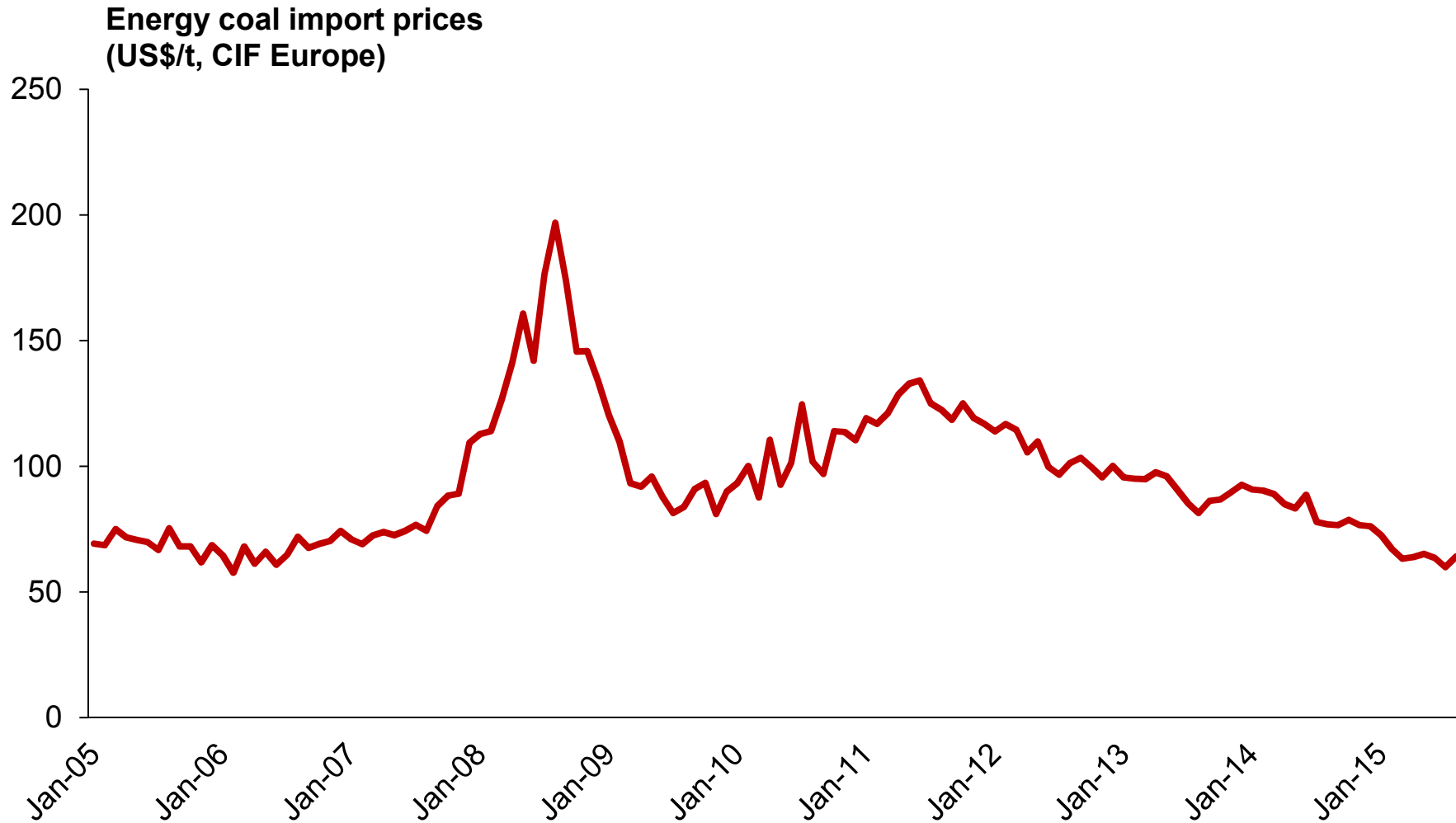
Silicon metal prices have maintained a very close correlation with FeSi despite a much stronger consumption situation in 2015



Silicon metal production costs are driven by electricity and reductant costs....average cash costs have declined markedly in 2015

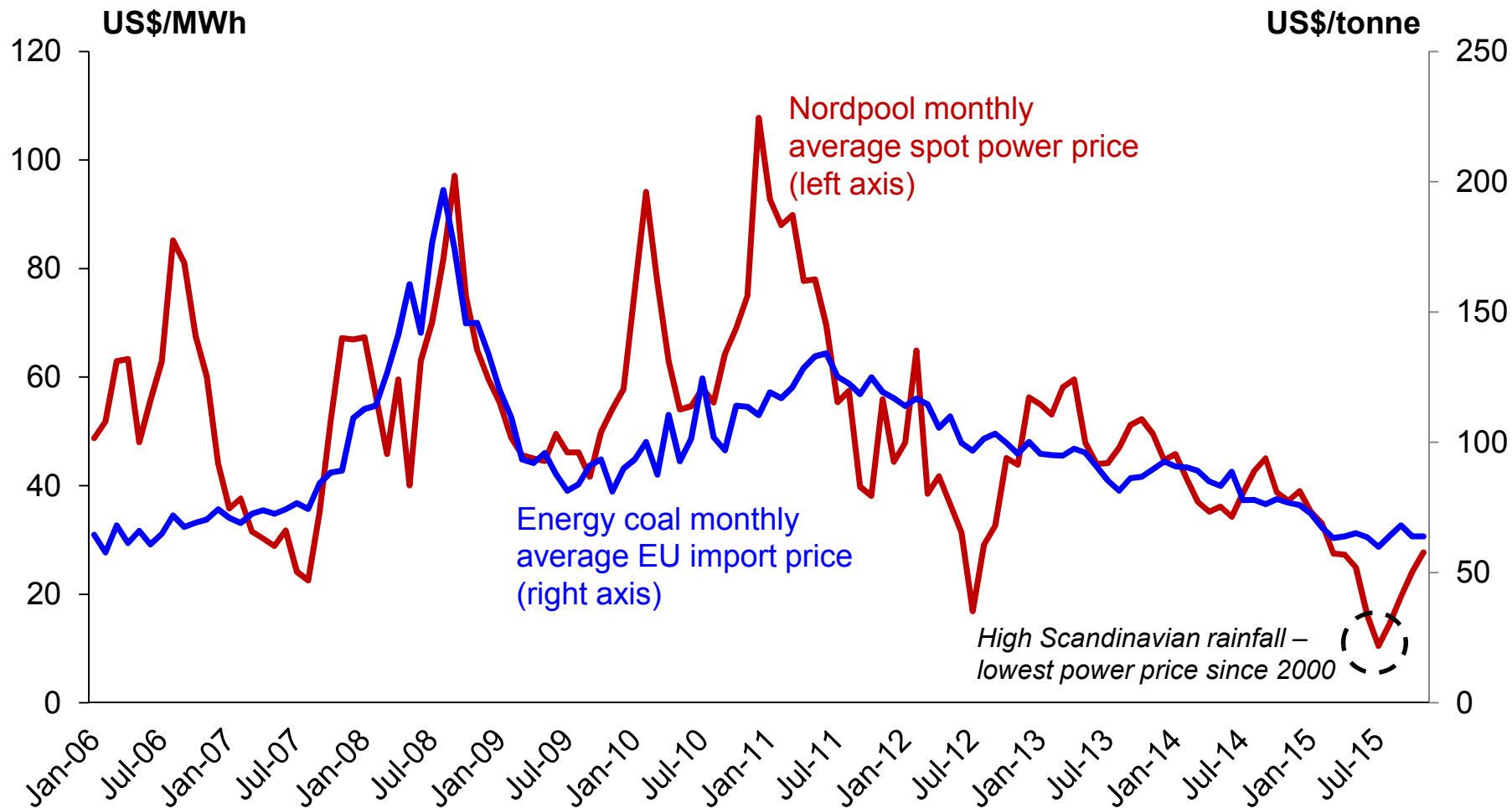


A major driver of falling production costs for both Si and FeSi has been falling energy coal prices...now at their lowest level since 2006



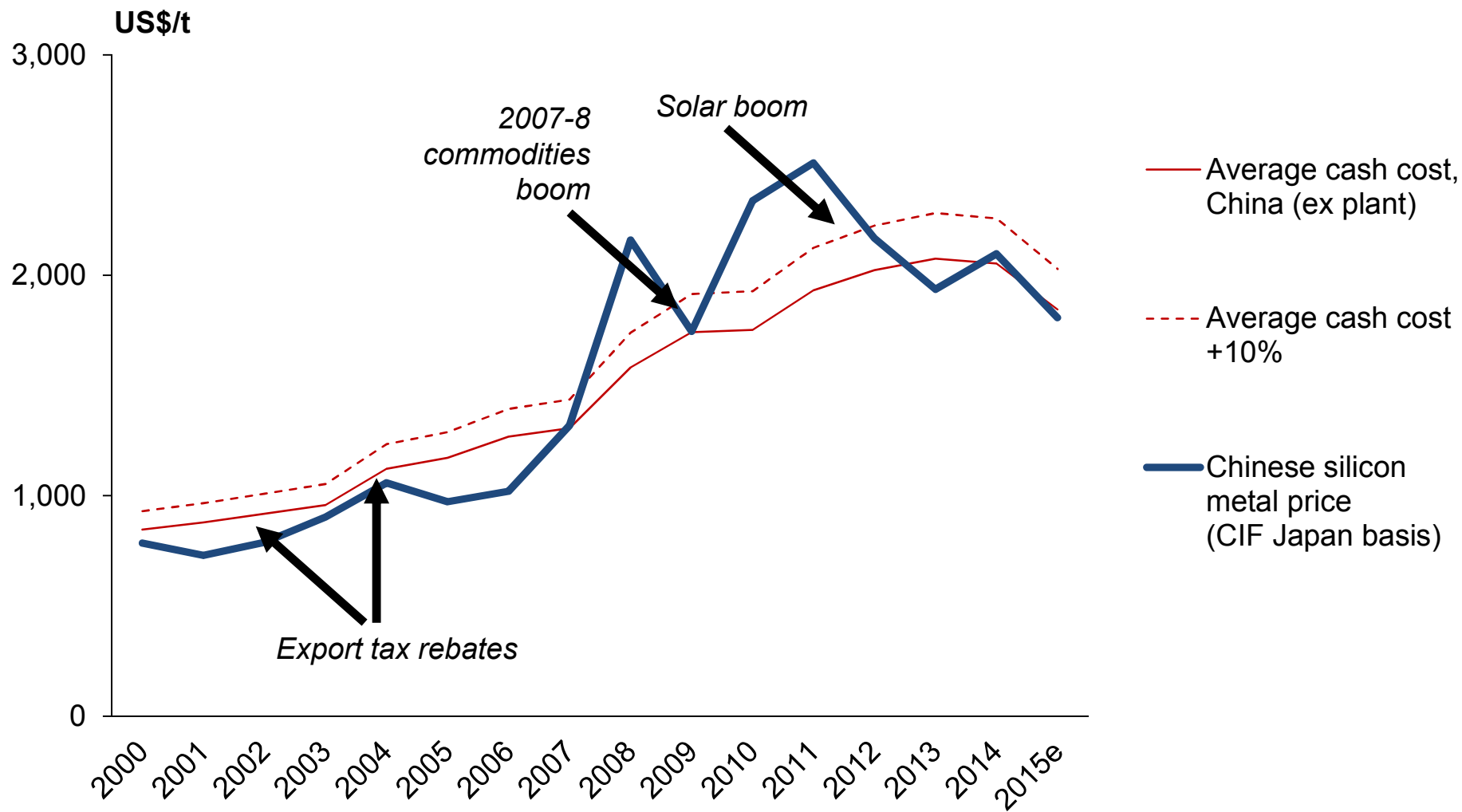
Source: Eurostat, AlloyConsult

In a highly liberalised power market such as Europe, electricity prices have declined in close alignment with falling coal prices

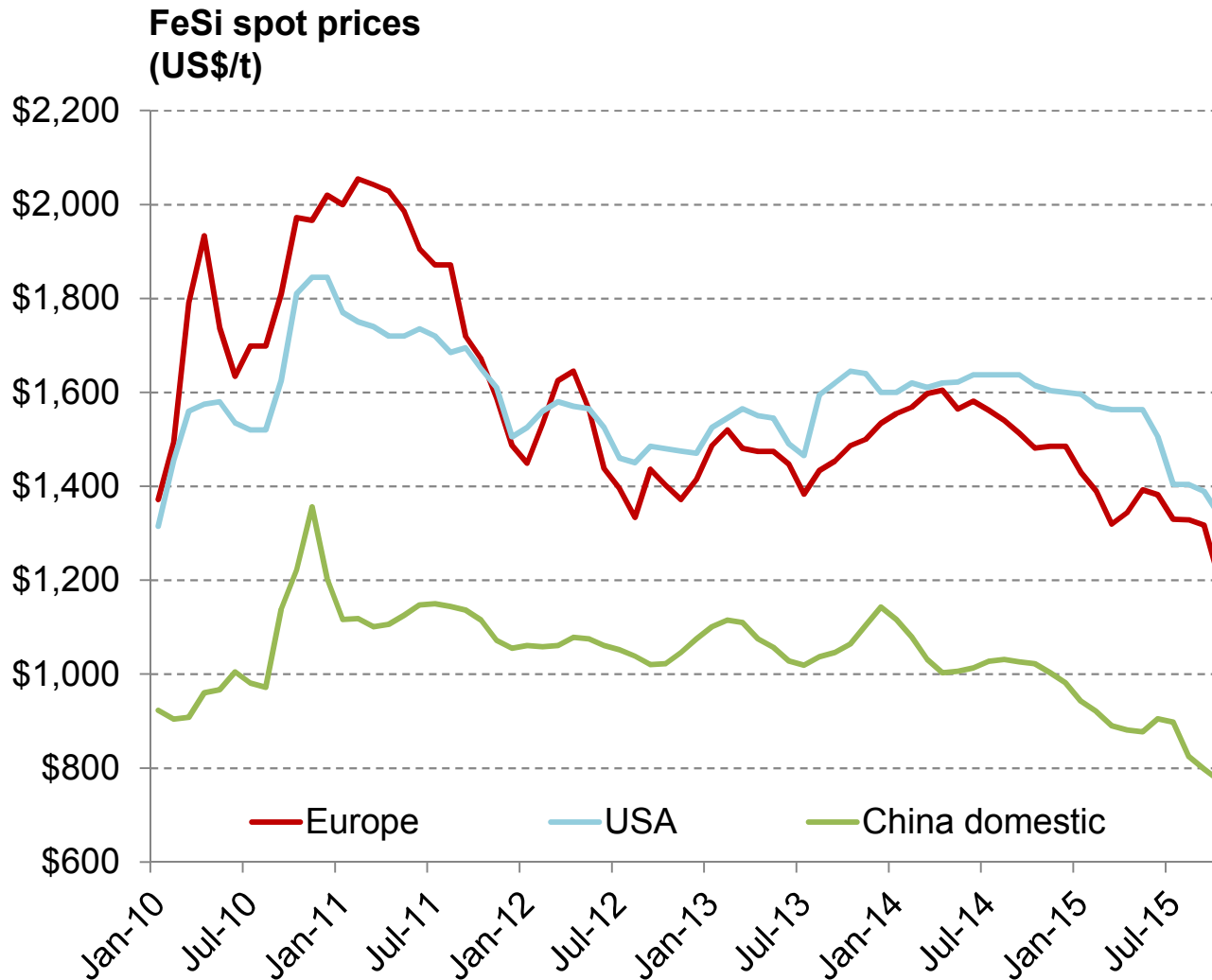


Chinese electricity prices have also declined in 2015

The movement of Chinese silicon metal prices in 2015 corresponds closely with the change in average cash production costs



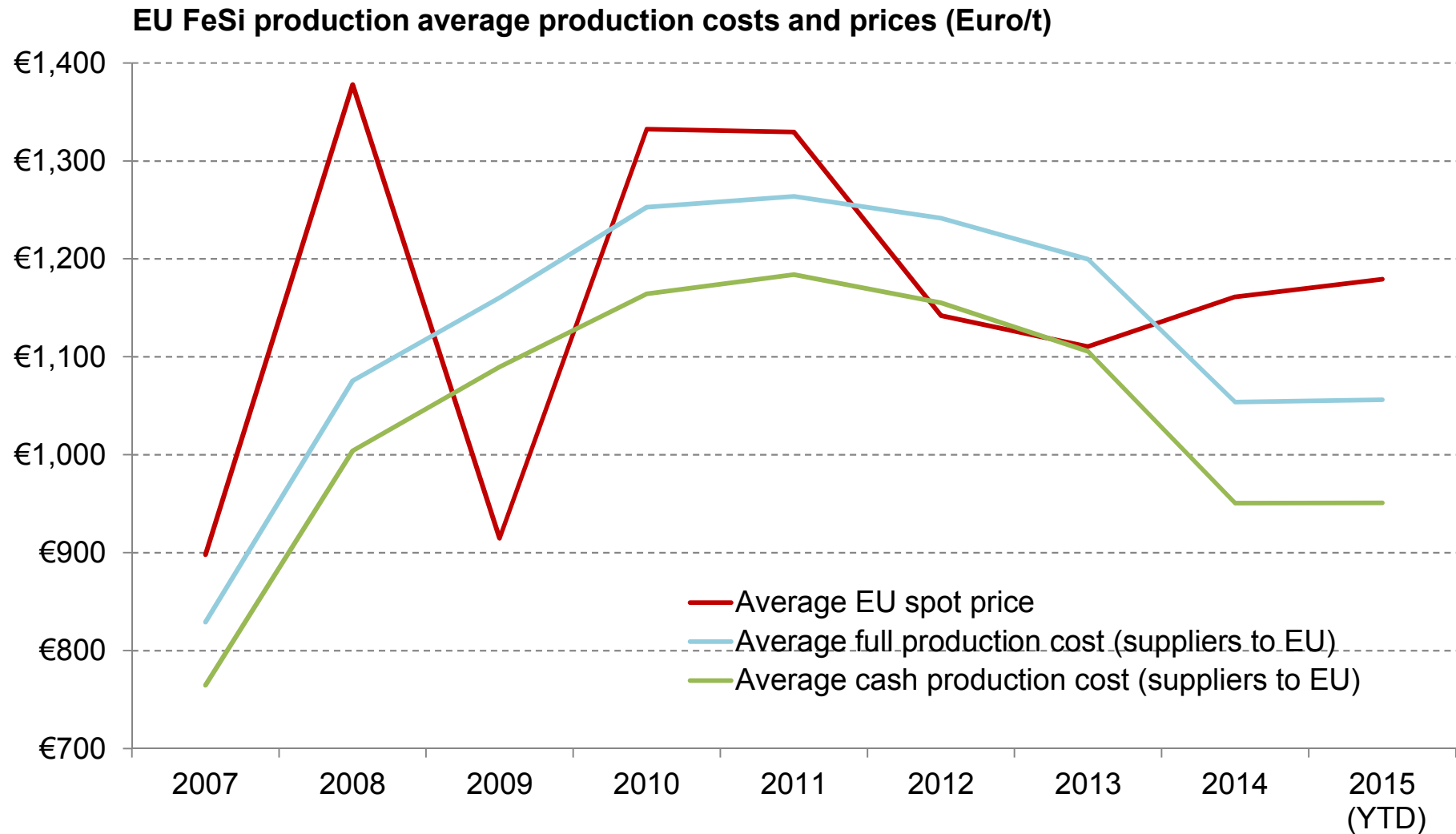
FeSi prices have declined sharply over the past 2 months, especially in Europe



Points to note:

- Downturn in steel output
- Falling production costs
- New supply from Kazakhstan, Malaysia, Brazil
- Increased smuggling of Chinese export
- Inaccurate published prices / move to index-based sales

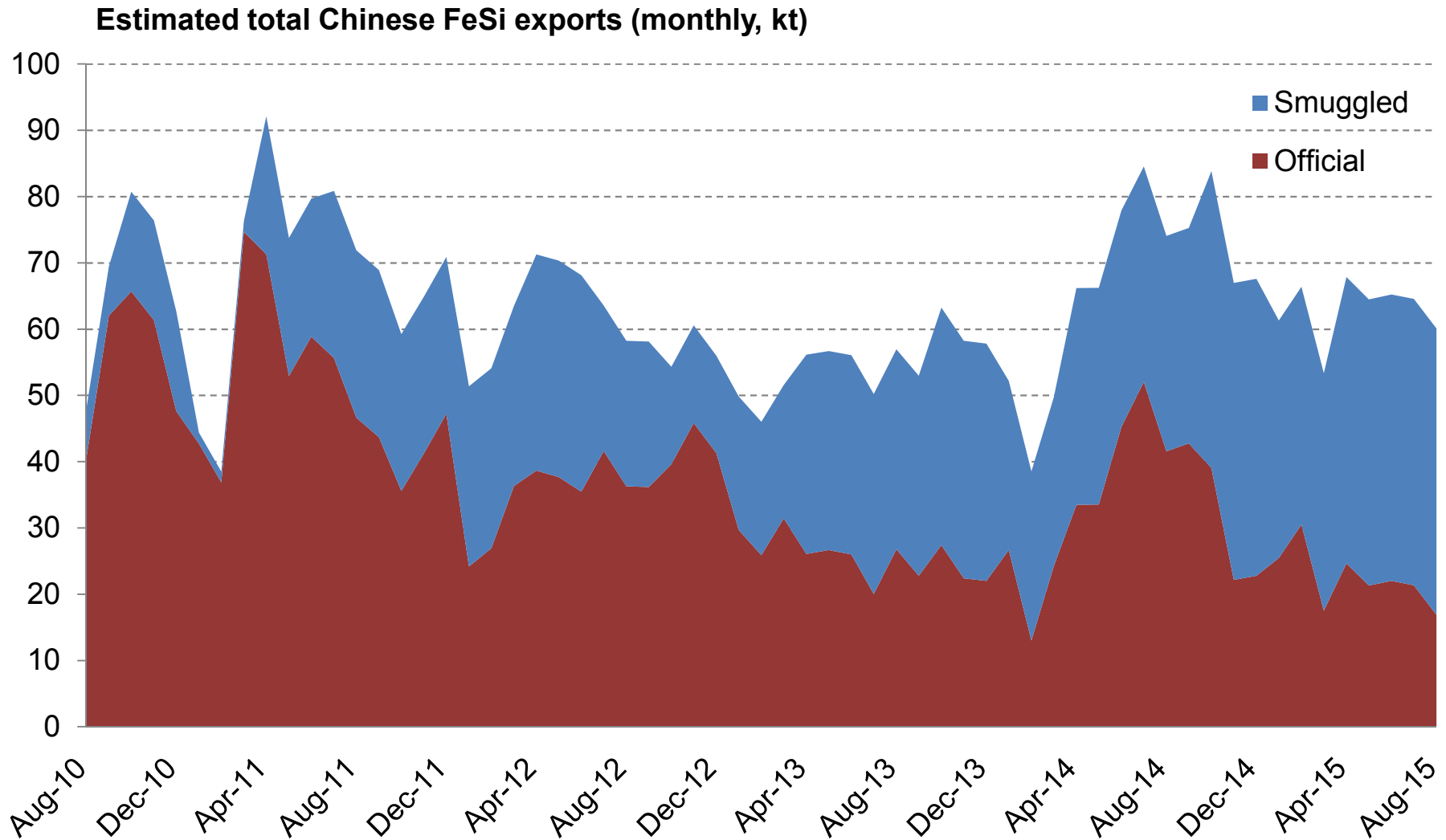
Until the significant decline of prices since Aug/Sep 2015, FeSi published prices were at profitable levels for European producers



EU imports of FeSi, 2008-2015 (kt basis 75% Si content)

	2008	2009	2010	2011	2012	2013	2014	2015
	Year	Year	Year	Year	Year	Year	Year	Year (F)
Russia	60	74	54	29	41	28	4	6
Ukraine	37	30	50	42	26	31	40	43
Kazakhstan	0	0	0	0	0	0	0	14
Macedonia	35	7	10	23	24	46	67	39
China	117	7	13	4	2	2	1	1
Brazil	23	35	88	70	58	49	11	8
Norway	202	115	186	217	210	209	236	206
Iceland	79	98	93	85	99	102	85	92
Egypt	14	5	2	1	1	7	32	31
South Africa	9	10	18	20	7	2	6	11
Venezuela	23	21	12	28	15	15	18	20
India	25	14	30	35	16	10	17	32
Malaysia	0	0	0	0	0	0	0	20
Others	15	29	34	57	25	22	27	25
Total import	638	446	589	613	524	524	545	549

More than 70% of Chinese FeSi export is now smuggled



Source: AlloyConsult



Thank you for your attention



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