

Costs considerations for Western Si metal producers

Thierry Alary, CRU Silicon Forum 2019
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Forward-Looking Statements and non-IFRS Financial Metrics

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EBITDA, adjusted EBITDA, adjusted diluted profit (loss) per ordinary share and adjusted profit (loss) attributable to Ferroglobe are non-IFRS financial metrics that, we believe, are pertinent measures of Ferroglobe's success. The Company has included these financial metrics to provide supplemental measures of its performance. We believe these metrics are useful because they eliminate items that have less bearing on the Company's current and future operating performance and highlight trends in its core business that may not otherwise be apparent when relying solely on IFRS financial measures.

For additional information, including a reconciliation of the differences between such non-IFRS financial measures and the comparable IFRS financial measures, please refer to our periodic filings with the U.S. Securities and Exchange Commission, available in the SEC Filings section under the Investors tab on our website, www.ferroglobe.com.

Presentation summary

- 🌐 **Ferroglobe at a glance**
- 🌐 **Energy: the end of take or pay agreements ?**
- 🌐 **Coal: What's next ?**
- 🌐 **Electrode crisis post-mortem**



Ferroglobe at a glance



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Ferroglobe — global operations and diversified product offering

Factories

Mining

Energy



Production flexibility

Production optionality

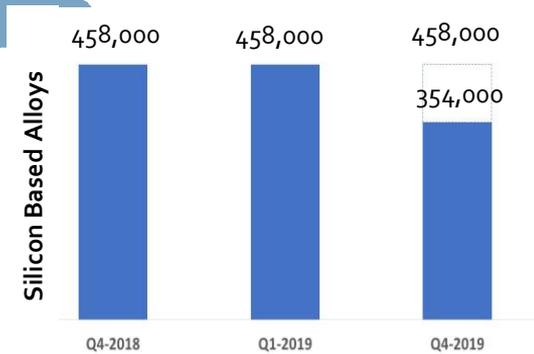
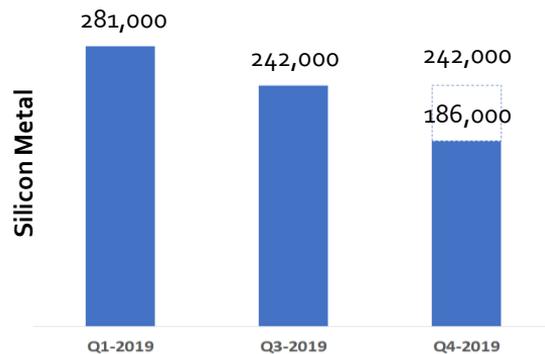
Natural F/X hedge

Broadest product range

Global customer reach

Low cost operations

High barriers to entry



Operating Capacity

Capacity curtailment due to extended outage

Including CEE-Dumbria

Ferroglobe – Raw Materials Management

Estimated 2019 (kt)	Ores	Coal/Charcoal	Cokes	Wood	Electrodes	Others	Total
Mn Alloys	800	50	210	-	8	512	1.580
Si Alloys	1.300	750	25	750	41	174	3.040
Others	-	25	1	-	0	54	80
Total	2.100	825	236	750	49	740	4.700

- 🌐 **Approximately 5 Million metric tons / year of raw materials**
- 🌐 **Approximately 6 Million metric tons / year of logistical movements**
 - 250 vessels chartered / year
 - Close to 1M tons transported by train
- 🌐 **Lean central Purchasing & Logistics structure based in Madrid**
- 🌐 **12 people in total**

Mining integration, a key factor of competitiveness

Ferroglobe is significantly integrated in High Grade quartz and Specialty coals

- Quartz: 70 % own supplies in 2018 from mining activity in Spain, USA and South Africa.



- Coal: 39 % own supplies in 2018 from mining activity in Kentucky, USA.



Electrode integration, a key factor of independence

 Ferroglobe manufactures some key electrode components

Electrode Paste

25,000 t / year in South Africa



Carbon electrodes

10,000 t / year in Ningxia, China



Energy: The end of Take or Pay contracts?



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Increasing trends of energy related constraints

Greenfields are emerging in

- Electrical “islands”
 - Iceland, Malaysia
 - Take or Pay contracts on electricity
- Provinces/countries with reduced grid structures requiring integrated power generation
 - China Xinjiang, India, Kazakhstan
 - Heavier investments involved

Traditional Western producers face

- The development of renewable energies
- The increasing usage of interruptibility contracts with “take or pay” like clauses

Increasing trends of energy related constraints

Greenfields or integrated production units

- Bigger payback ⇔ high price levels required

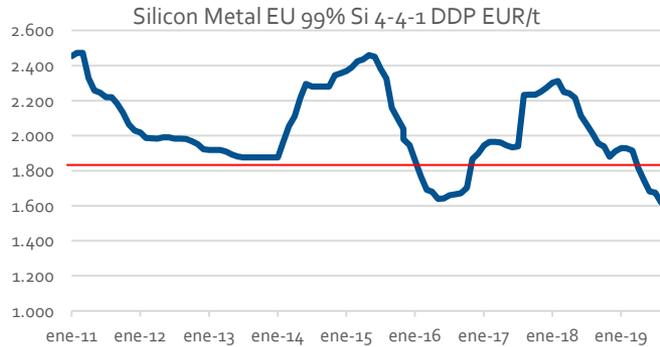
Take or Pay contract consequences

- Reduction of production nearly impossible and costly in the short term
- Prevent producers to react quickly to adverse market evolution

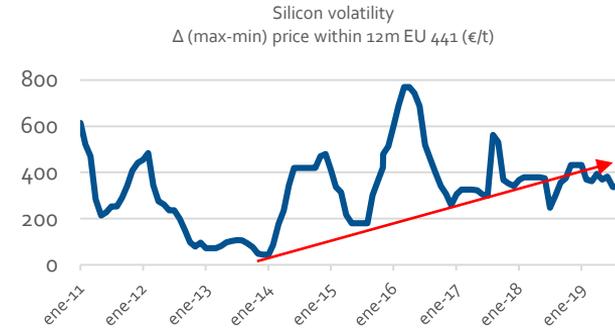
Industry needs price and flexibility

Inadequacy Take or Pay / Silicon prices

Low prices



Significant volatility in SiMe prices



When demand is down, supply needs to adapt

- Take or Pay constraints can hardly adapt

400€/t volatility since 2016

- Take or Pay agreements do not provide enough flexibility



What is next for Coal ?



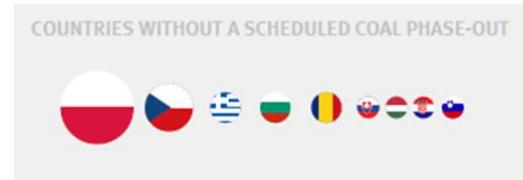
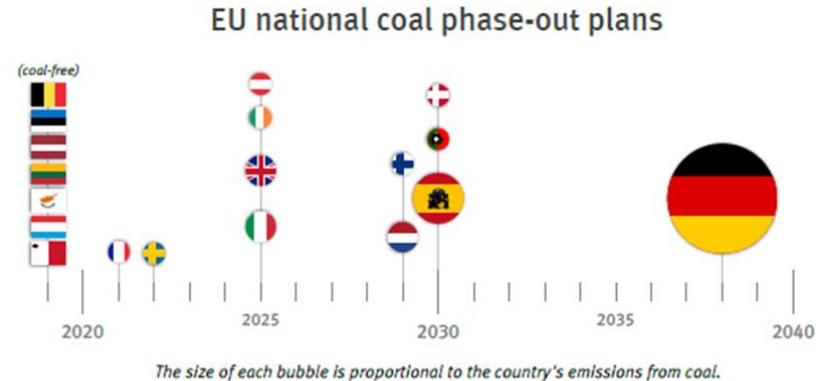
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Coal dynamics changing

🌐 Coal disgrace in progress

- Coal burning decline accelerating, especially in Europe
- High and growing cost of environmental compliance
- International Investors moving away from coal assets



Challenges ahead for washing coal operations

🌐 **Coal fines to stay in the mines**

🌐 **Coal quality to change**

🌐 **Miners to move into coal specialties**

🌐 **Washing coal industry reshuffle expected in the near coming years**

- Closure / Move of washing plants
- Washed coal supply geography to change



Impact for silicon producers

Medium-term uncertainty

- Low ash coal availability questioned in the medium term.
- Price evolution driven by trade-off between diminishing markets for fines and the need to sell higher value products

Coal usage in Si production to decline

- Alternative to coal in North Hemisphere of growing interest but not immediate.
- Charcoal a seducing but expensive alternative
 - CO₂ neutral, integrated charcoal production is complex to manage
 - Western forestry industry not ready to switch to industrial charcoal
 - Sensitivity with the cutting / burning of wood in tropical countries

Electrode crisis post-mortem



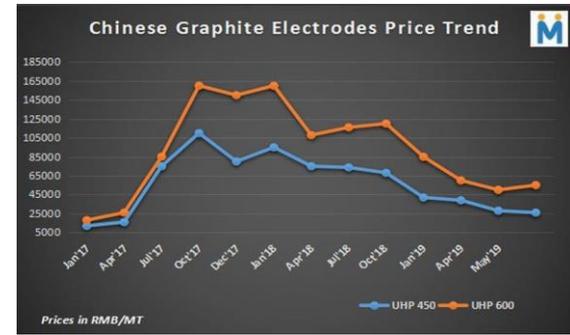
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Electrode crunch had a significant impact on silicon producer costs

🌐 Graphite prices madness

- Badly impacted production costs and squeezed margins as surcharge could not be applied to customers
- Weighed heavily on financial costs
- Deteriorated the attractiveness of graphite electrode technology in 2017 / 2019



🌐 Pre-baked electrodes price increase (H2 2018 / H1 2019) over

🌐 Historical competitive ranking of different electrode technology restored

What did the industry learn?

-  **China has gained strength in both graphite and carbon markets**
 - Strong development of modern production facilities
-  **Production costs pressure to remain on graphite prices**
 - Needle coke availability and price unlikely to change course
-  **New electrode technologies emerging**
 - New technologies implemented / tried
 - Substitution of graphite possible in the near future
-  **Increased flexibility developed for switching between electrode technology**

Final remarks

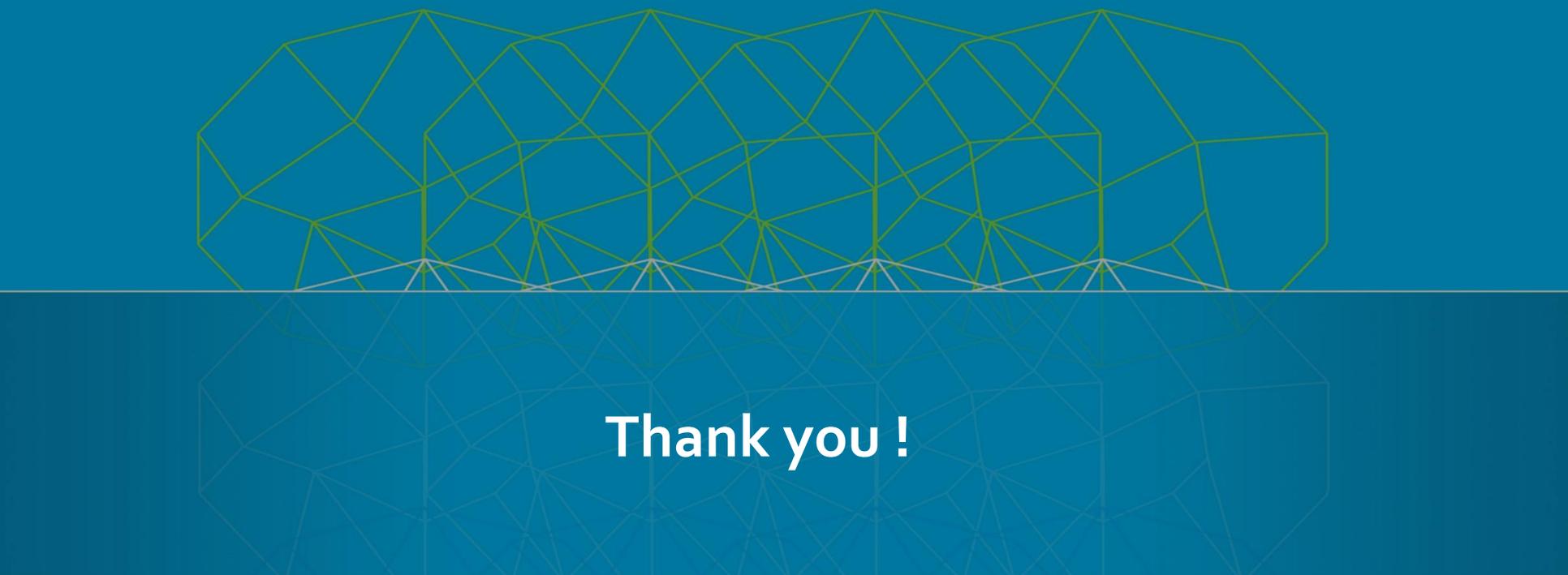


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Conclusions

- 🌐 **Silicon metal industry going through rough times**
- 🌐 **Silicon producers using coal and graphite regaining competitiveness in 2020**
- 🌐 **Si price lift needed to justify operations continuity in most, if not all, producing areas**



Thank you !



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