

Refractory markets

trends, developments, & outlook

By

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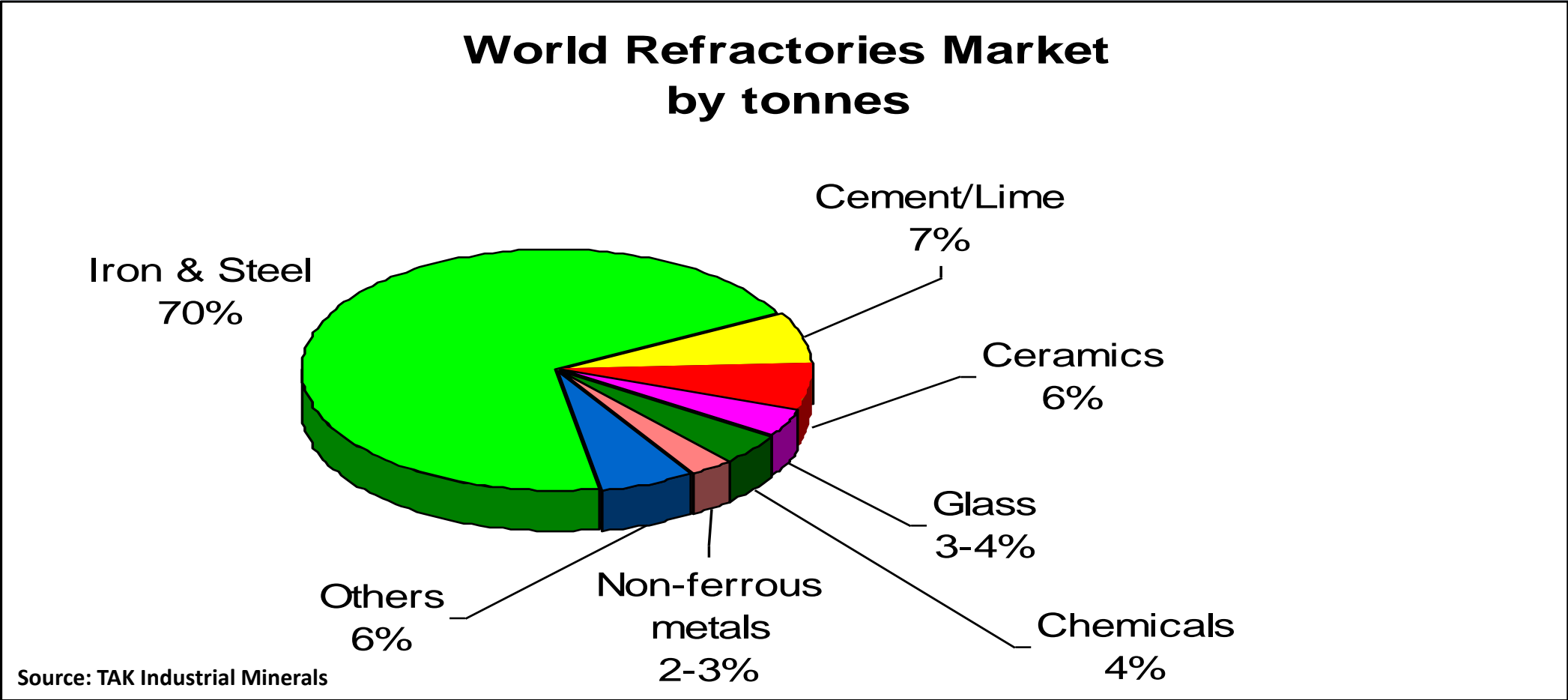
Refractories and COVID

- Refractories markets were already relatively low before the pandemic
- A poor performance in some regions was only made worse in 2020, with significant declines
- Hopefully we will return to some sort of normal or at least a new normal in 2022
- There have been signs of significant recovery in first quarter of 2021
- Strong sales possibly enhanced because of need to rebuild stocks and line idled vessels before bringing them back on line.

World refractories output

- Total refractories market in 2019 was estimated to be about 34-35 million tonnes
- Fell by as much as 20-25% in 2020 in Europe and North America but actually increased slightly in China
- Longer term outlook is for modest growth
- Growth in steel and cement industries to be moderate and continuing but slow reduction in unit consumption of refractories.
- But there are other factors creeping in that could influence longer term demand

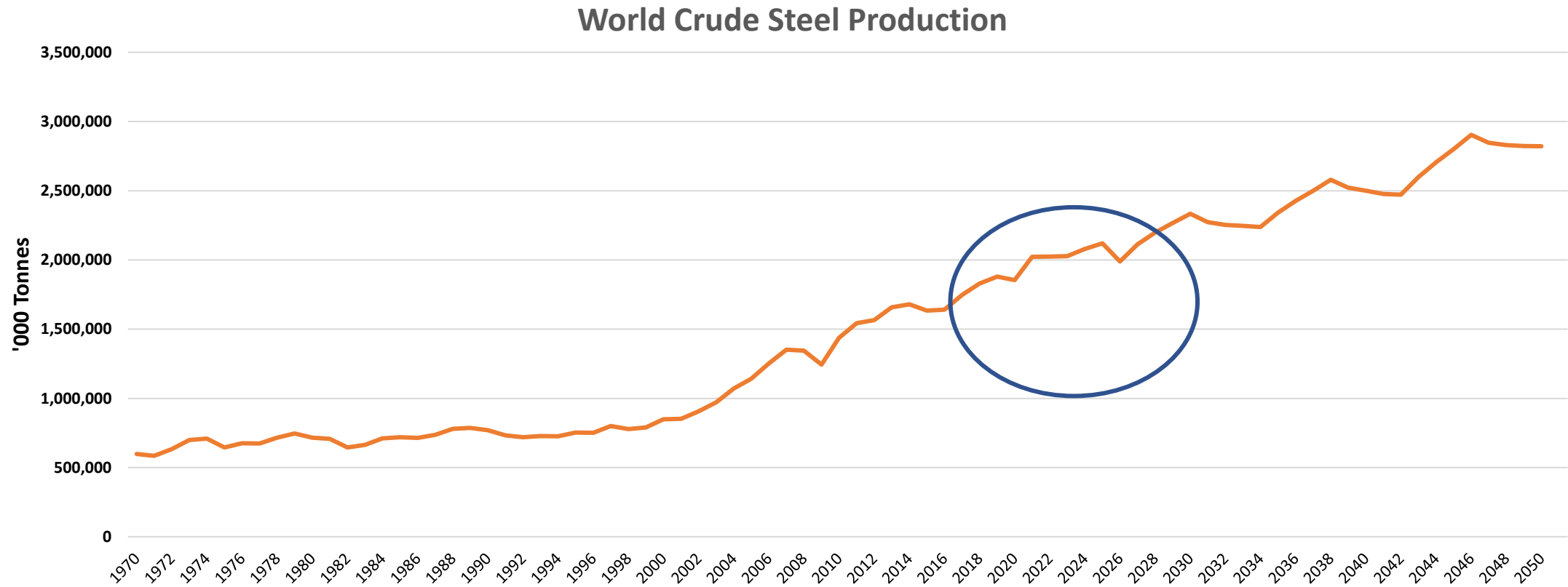
Drivers of the refractories industry



Influences on refractory demand

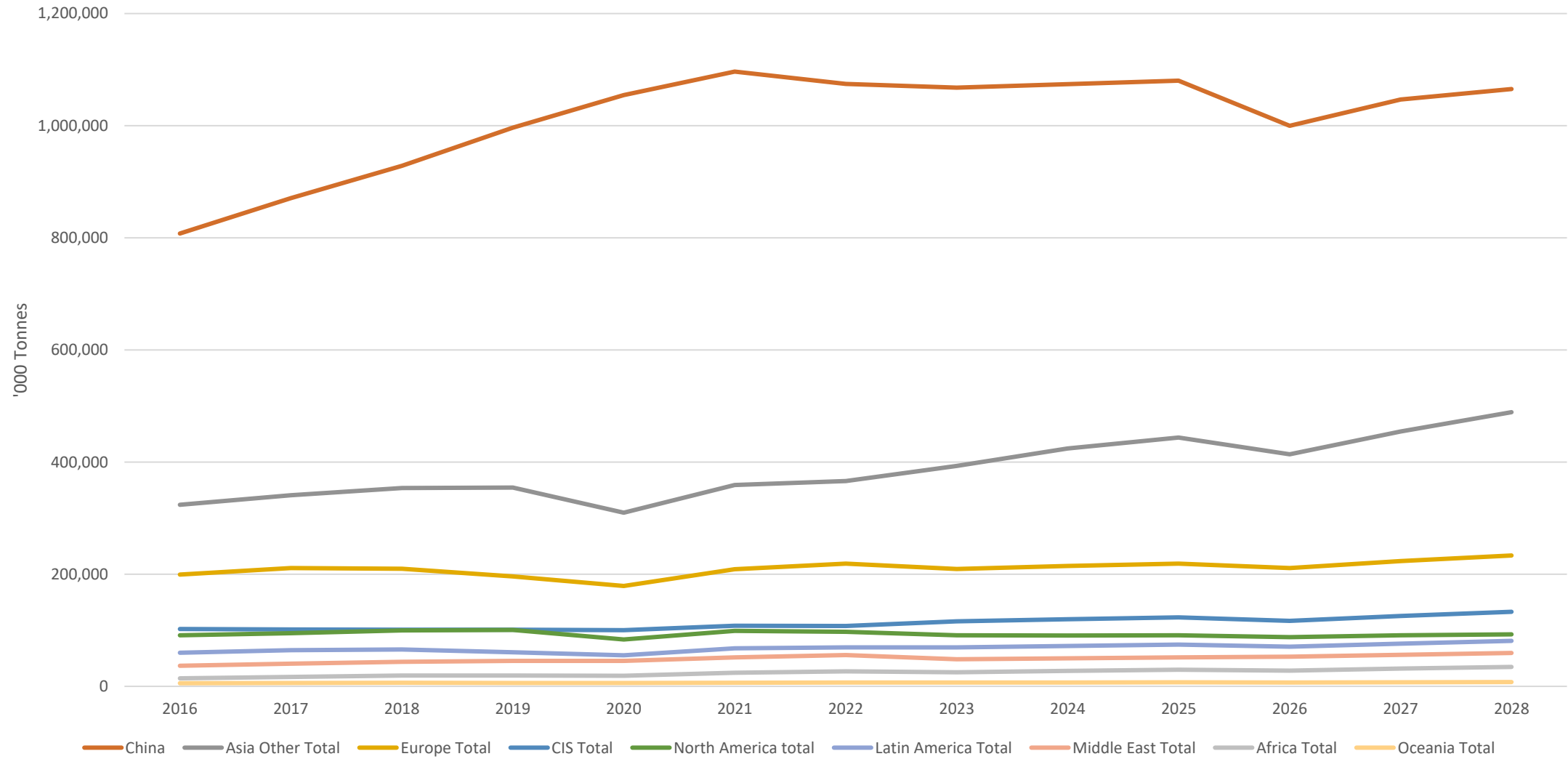
- Primary consuming driver -- Crude Iron and Steel production
- Other industrial drivers – Cement, Glass, Non-ferrous metals, Ceramics, Power Generation etc
- **Modifiers**
 - Reduction in unit consumption of refractories per tonne of steel, cement etc
 - Move to higher qualities of refractories
 - For longer working life
 - Cleaner Steels
 - Harsher conditions eg alternative fuels in cement

Crude steel production long term forecast



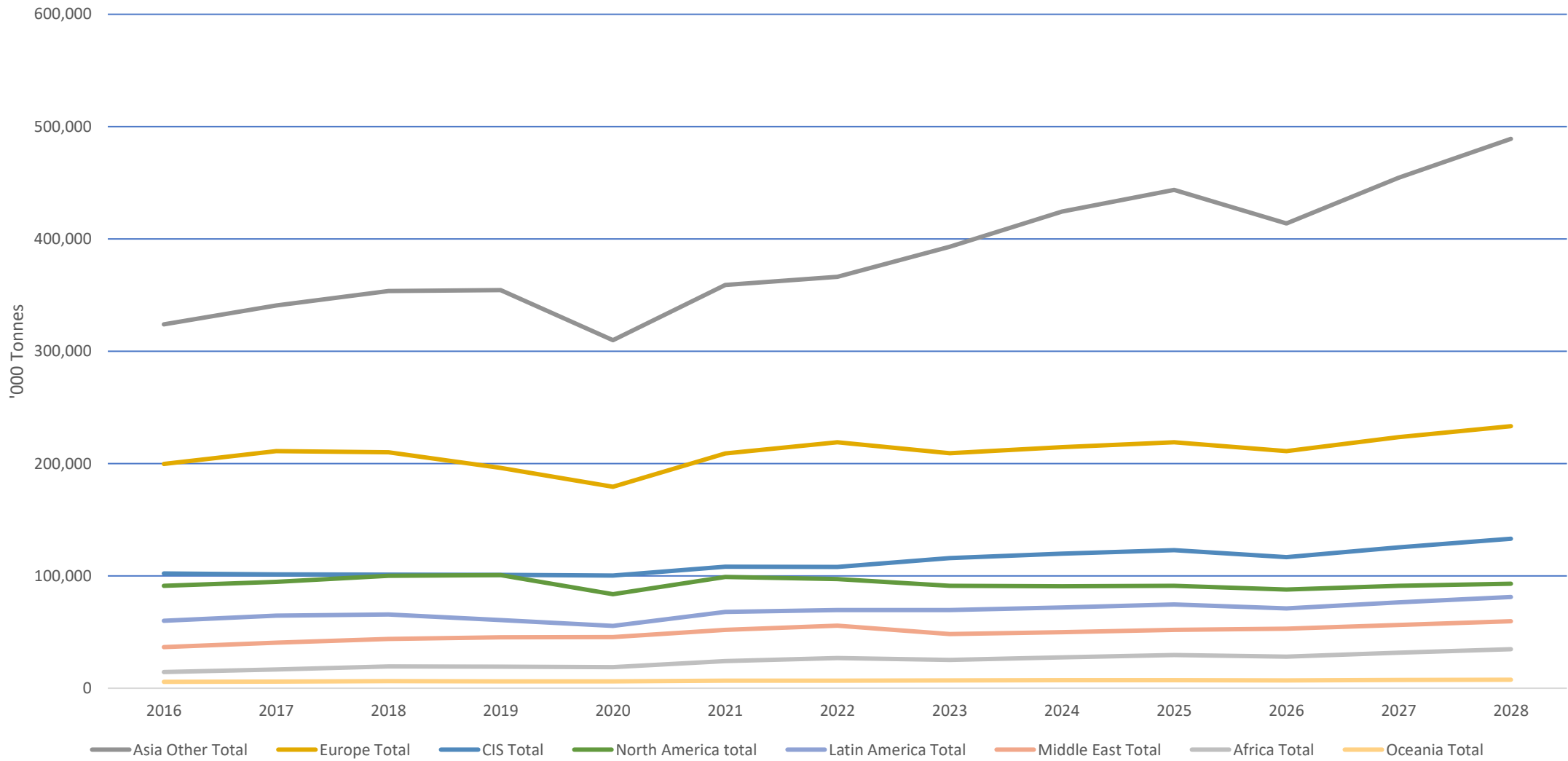
Source James King

Medium Term Trends Crude Steel



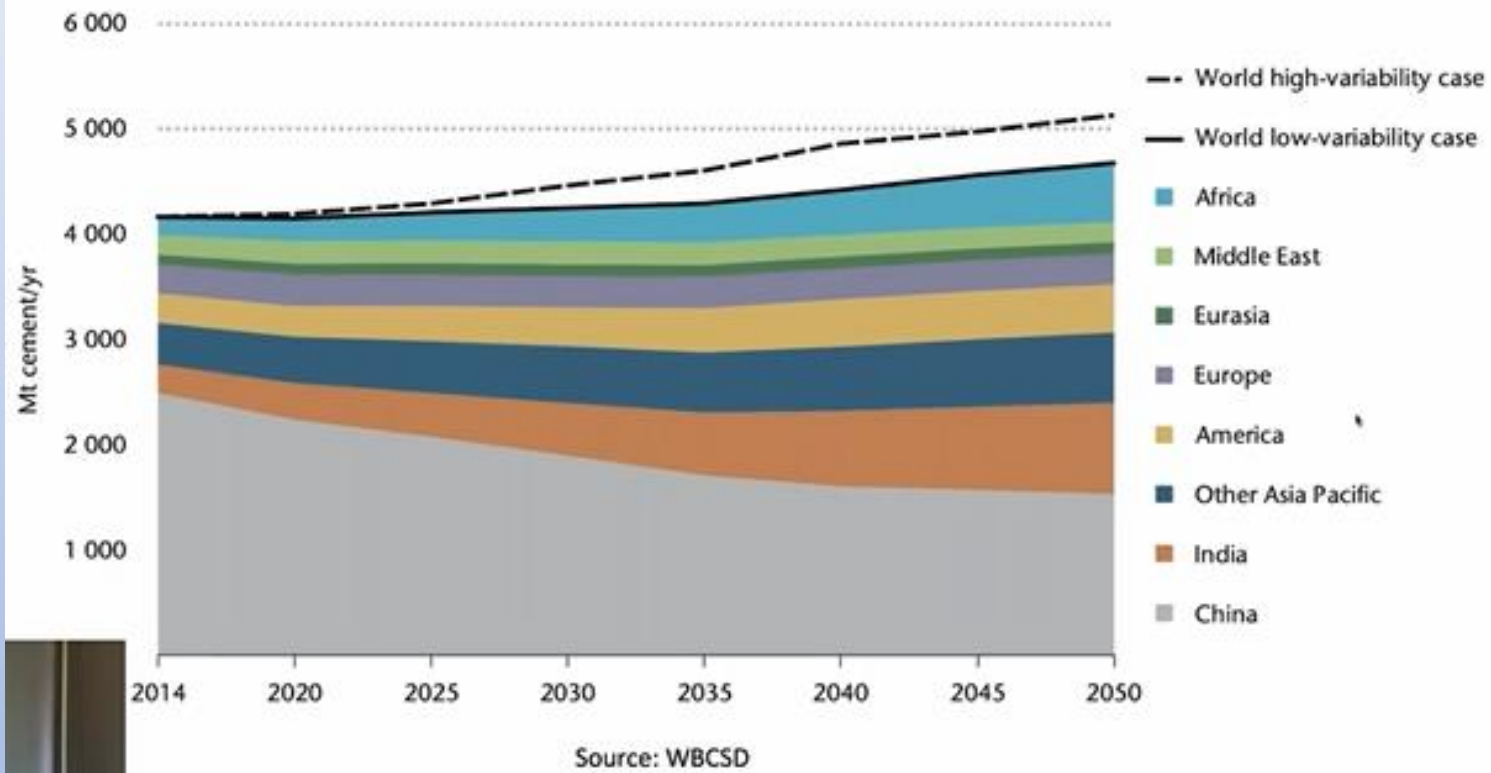
Source: James King

Medium Term Trends Crude Steel ex-China



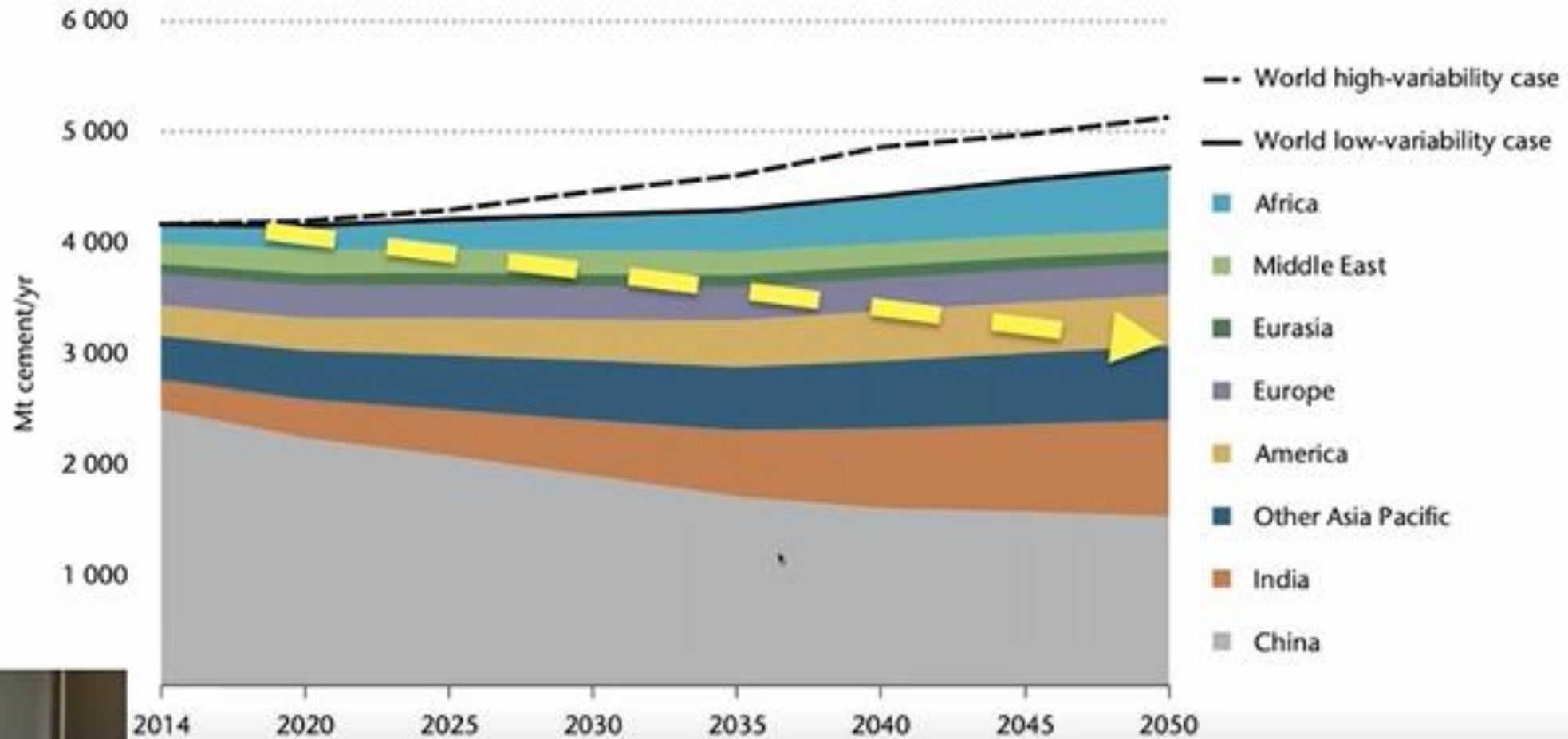
Source: James King

Global cement production



China made more concrete between 2011 and 2013 than the US did in the whole 20th Century.

Global clinker production



Source: Robert McCaffrey, Global Cement

Other possible factors influencing demand

- Increase in recycling of refractories
- Reducing carbon footprint of steel
 - Hydrogen fuel
 - Greater use of Direct Reduced Iron
 - Electric melting
- Cement replacement for CO₂ reduction
 - Greater use of pozzolans and fillers in concrete
 - Alternative cements/binders



Photo by CEphoto, Uwe Aranas

Innovative changes

- Innovation in the refractories industry to meet challenges
- Traditionally as an industry it has been relatively conservative
- Actions for climate change and circular economy likely to force innovative solutions
- Speed of change is likely to be faster than traditional norms through necessity
- Even closer collaboration with consumers required
- All of this will cost in both capital and operating costs, which will have to be recovered from customers
- Further industry consolidation may be needed

Thank you for listening

**If you have any questions I am happy to answer in this session if possible.
Otherwise please feel free to send them to me at the contact details below**

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