Developments in stainless steel raw materials - a supplier's perspective

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Stainless Steel Raw Materials – Trends and Issues

- Recent trends in raw materials use
- Future supply / demand dynamics and price trends
- Common issues and the need for a collaborative approach

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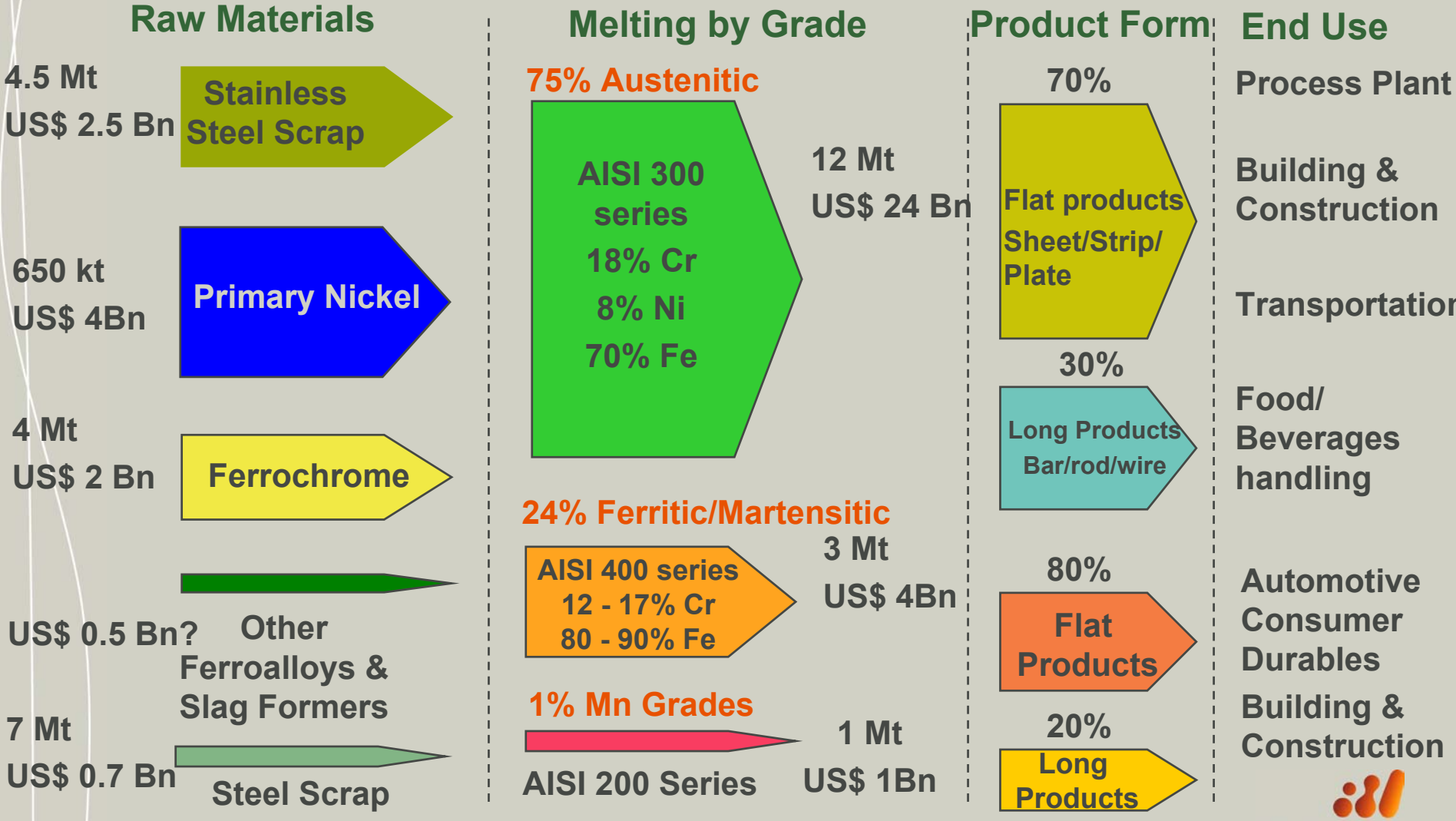
Stainless steel value chain



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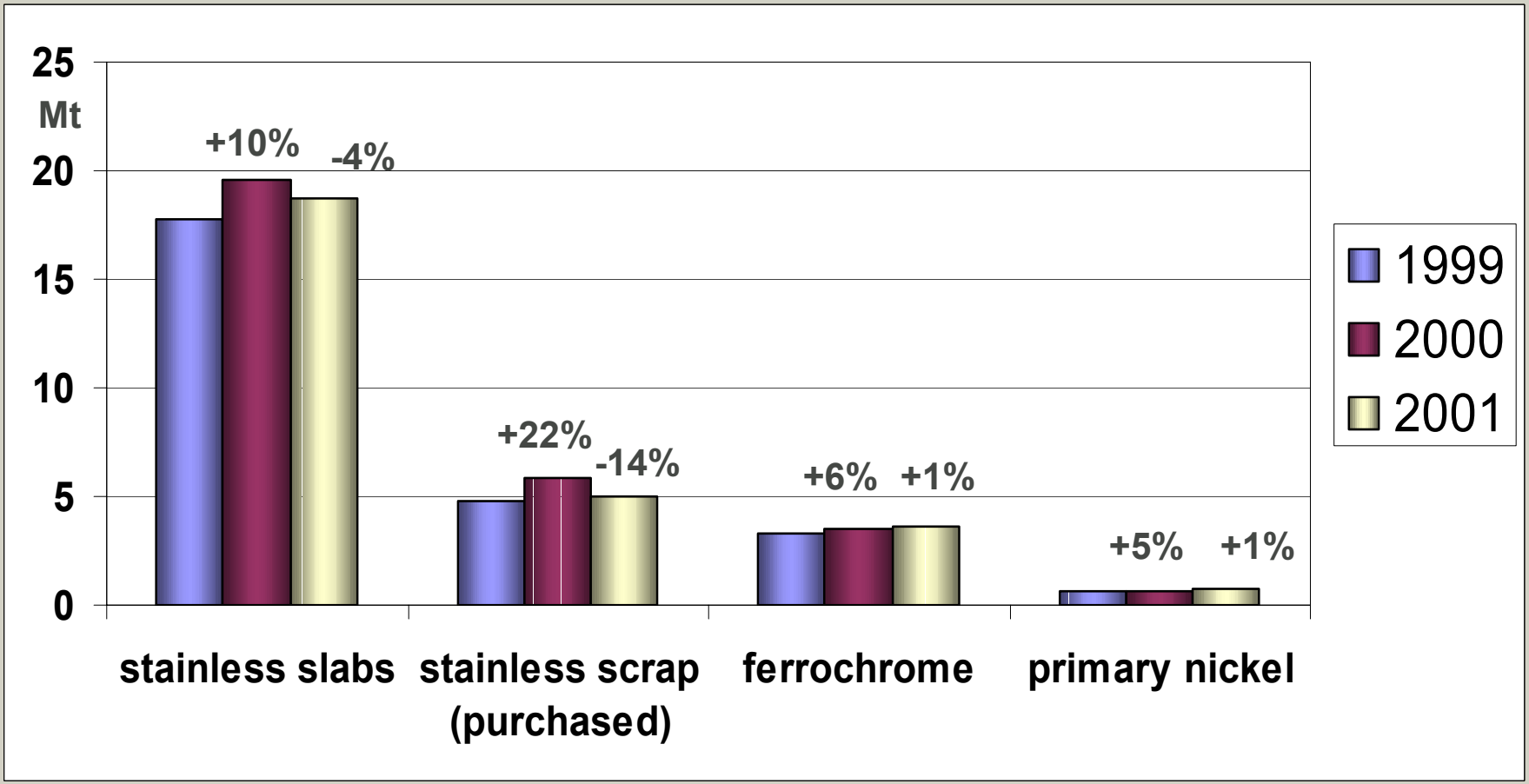
Global stainless production and raw materials use



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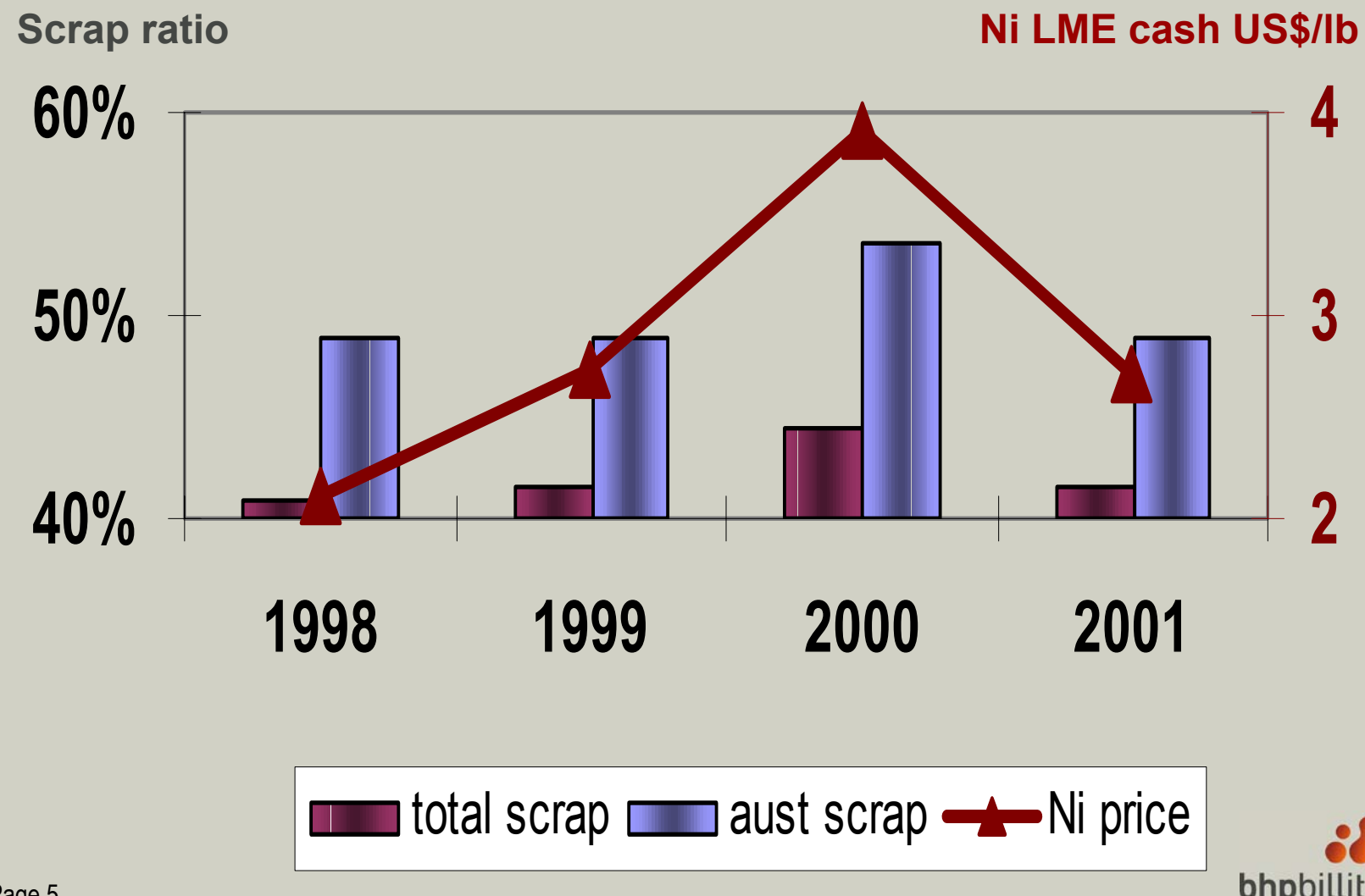
Stainless scrap supply is highly nickel price elastic



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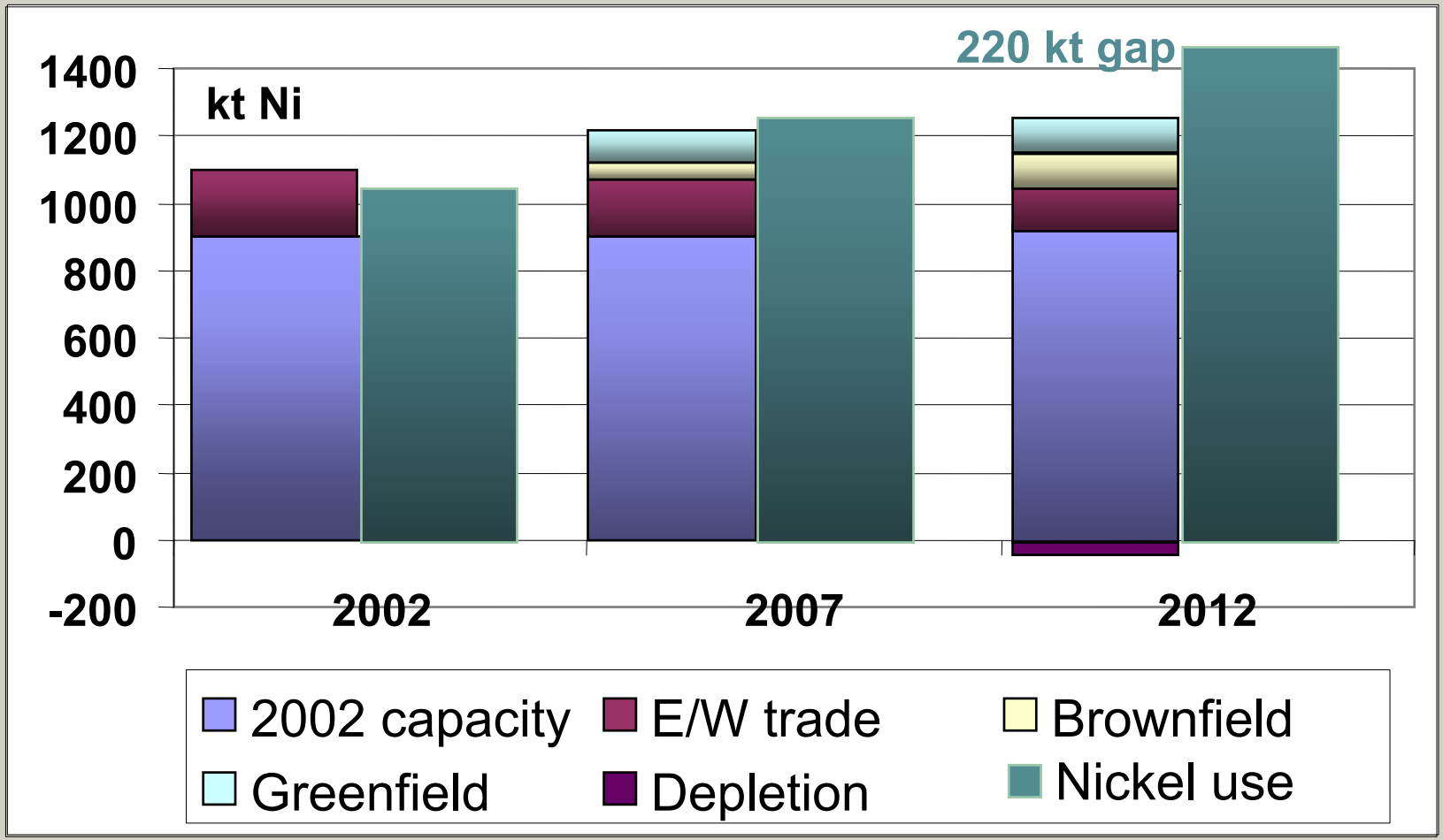
Primary nickel projected supply / demand



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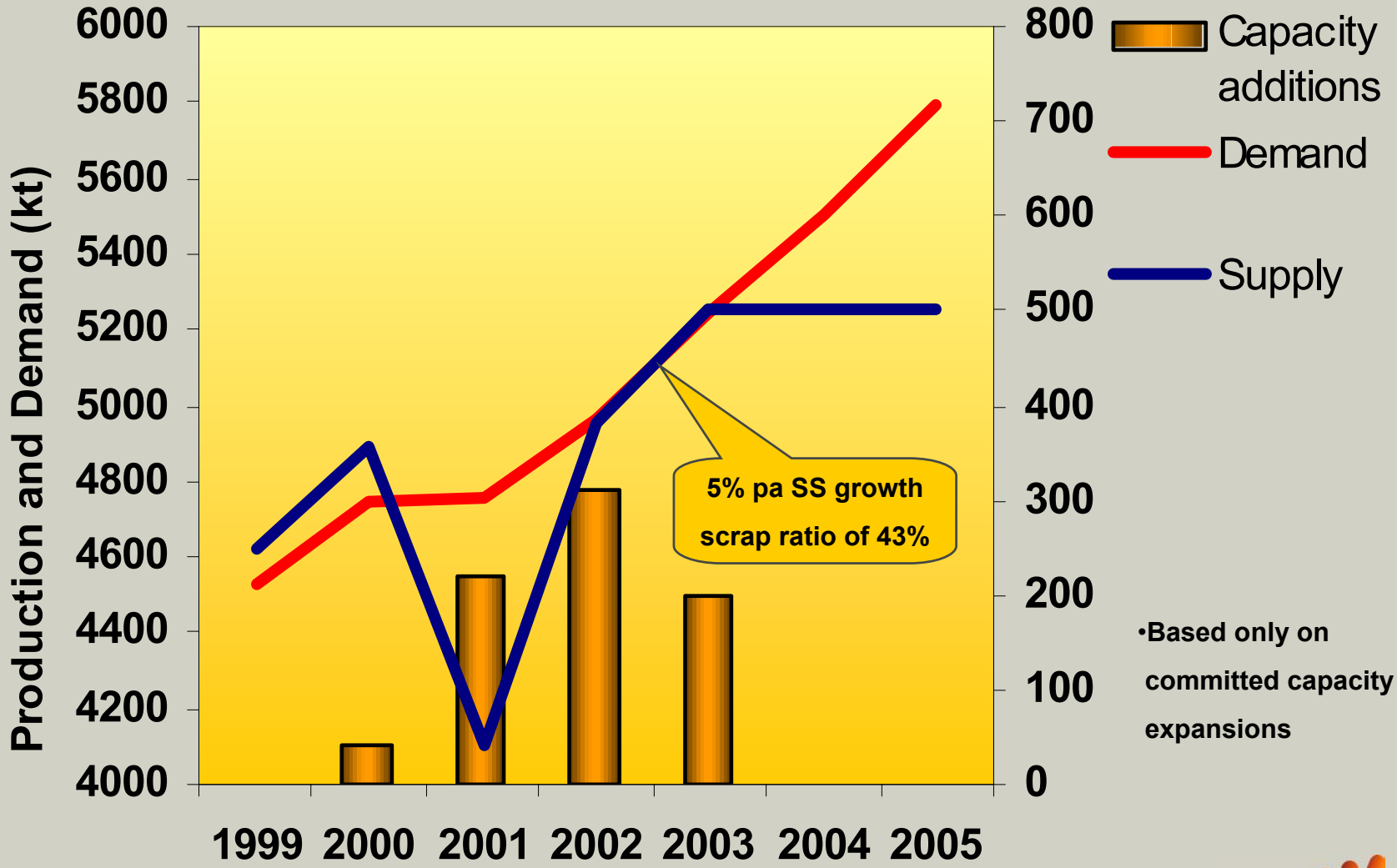
Ferrochrome - Supply / demand balance



•Based only on committed capacity expansions

*Capacity additions considered as effective capacity added

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Stainless steel scrap trends

- Stainless scrap will always be a preferred raw material. It has lower melting point, convenient chemical composition and usually discounted price
- Revert and new scrap are likely to decline further as a proportion of the total, as technology improves
- Given the efficiency of recycling, the life cycle of stainless in use and a trend growth in stainless demand of 5% pa, we believe it will be difficult for the proportion of new melt provided by scrap of EU and USA origin to increase
- Yields from Japan may increase
- Scrap recovery from FSU unlikely to return to, and be sustained, at > 0.6 Mt/a rate of mid 1990s
- However scrap reservoir in FSU, particularly east of the Urals, is significant

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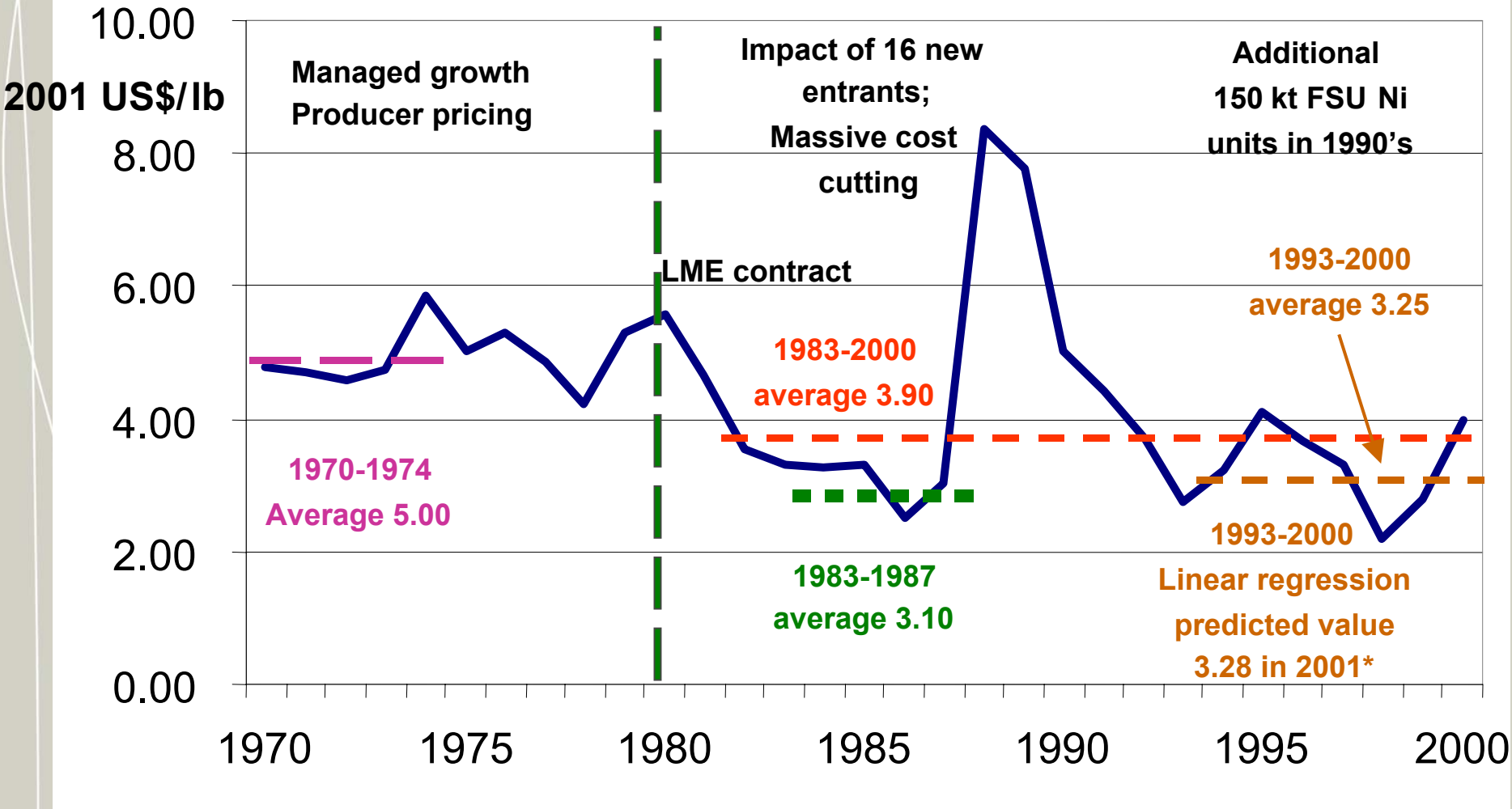
Nickel price based on statistical trends



 Series deflated with US GDP Deflator

* correlation coefficient 0.03

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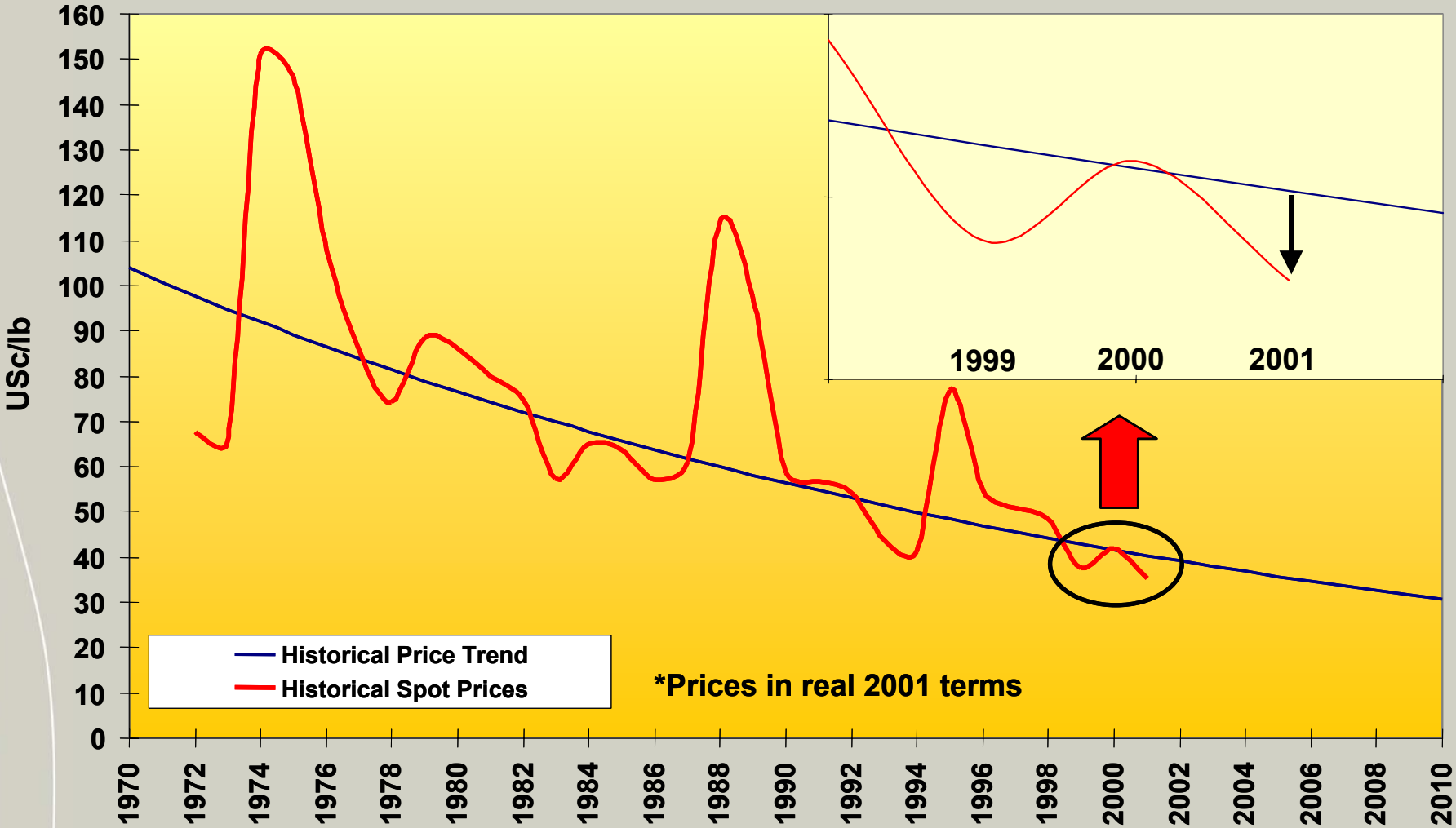
FeCr price based on statistical trend



Source: CRU US Import 50-55%

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Issues needing greater future co-operation

- **Environmental and health regulation**
- **Sustainable development**

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How are metals viewed by external groups?

- Green groups / politicians:
  - associate metals with “heavy metals”; “toxic compound”; issues such as dermatitis and cancer
  - see metals as hazardous substances - long term threat to health & environment
- The result is greater regulation and restriction to “protect society”

“If metals are hazardous, why do we have to use them?”

“Why risk it?”

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Regulatory response

- Attraction of simplifications
  - Cutting and pasting Hazardous Substances Lists
  - Use of “science based tools” for ranking or priority setting

- Need for immediate action
  - Actions should be based on detailed risk assessment rather than over-simplification by the regulators
  - Actions should be based on risk not hazard
  - Proper account must be taken of speciation
  - The Precautionary Principle should be applied correctly

EU policies

- Ambient Air Quality
  - proposed lower Limit Value for ambient air by 2010 (for Ni 20 ng/m3 is proposed)
  - Surveys show for Ni:
    - major sources are power generating industry (coal burning) and motor vehicles
    - stainless mills also show as anomalies
  - legislation in preparation for roll out July 2002. Debate with industry has come late, but dialogue now ongoing to seek more informed Limit Values.
- Potential impact of industry is widespread (at proposed levels):
  - Power generation, auto-industry, aluminium smelters, steel industry, coke ovens, base metal smelters and refineries, and stainless steel mills.

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EU Chemicals policy - key features (proposed)

- 30,000 substances to be registered (about 20 so far!)
- Evaluation for 5,000 PBTs
- Authorization for 1,500 CMRs and POPs
- Metals are considered to be chemicals
- Risk Assessments responsibility of supplier
- No data, no market - failure to register or incomplete data will render illegal production or sale of a substance
- Data required on full life cycle of chemicals, including EOL

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Sustainable Development

- Public accountability on a “triple bottom line” basis
  - Social -- Economic – Environmental
  - “Development that meets the needs of the present generation without compromising the ability of future generations to meet their own needs” (UN 1987)
- BHP Billiton is committed to SD. Alloys made with out Ni and Cr meet the SD criteria:
  - Corrosion resistance – infrastructure of civilization lasts longer
  - Durability – products and processes of civilization last longer
  - Recyclable
    - nickel and chrome are used, not consumed
    - Ni and Cr produced by BHP Billiton and sold to Stainless Steel remain a resource for the future, to be reprocessed with relatively low energy requirements

End-use manufacturers: emerging messages

- **Traditional Marketing Model**
  - cradle to grave
  - manufacturers sell things
  - consumers consume
  - manufacturers have poor or low involvement with consumers
  - end of life responsibility lies with consumer or government
- **New Model**
  - cradle to cradle
  - manufacturers provide service
  - consumers have automated services in household
  - manufacturer builds long term relationship with consumer based on SD principles
  - social and environmental responsibility assured throughout the value chain

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