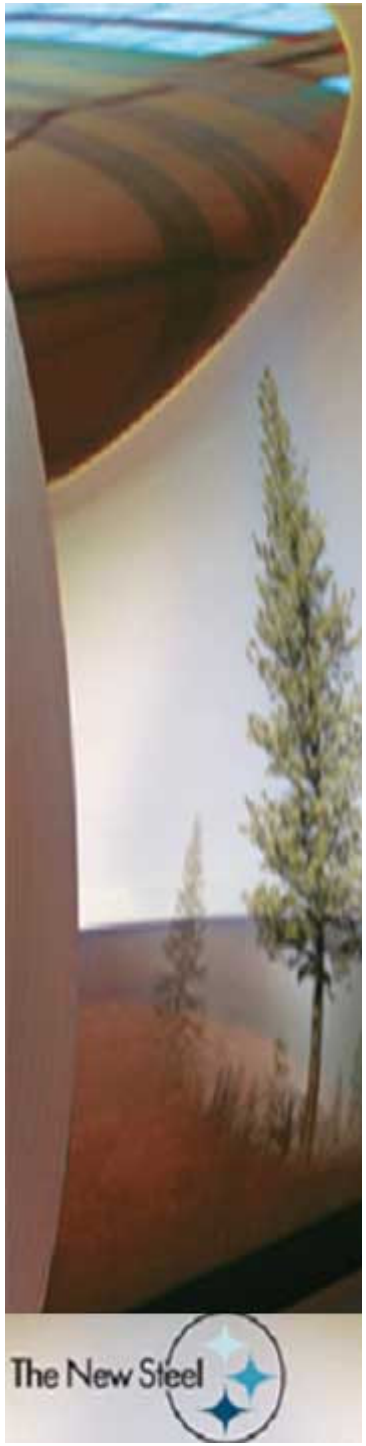
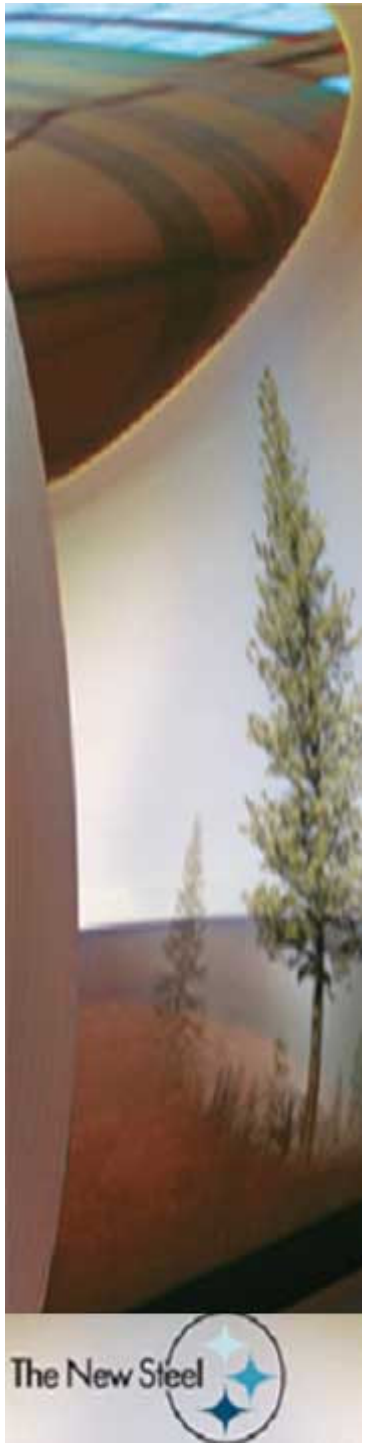


Energy and the Steel Industry

Presented to the Consumer Energy Alliance

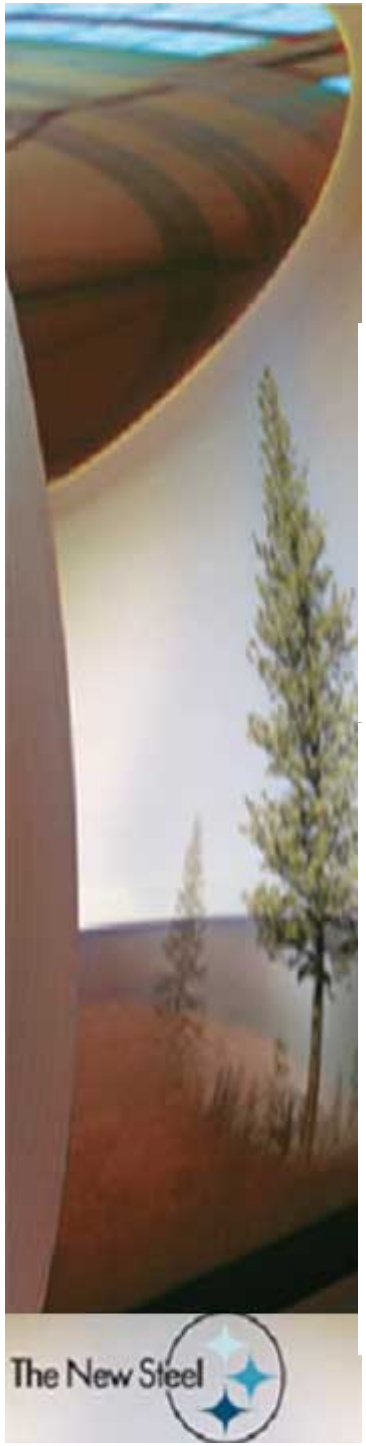
Jennifer Diggins
Vice President, Government Relations
February 19, 2009

American Iron and Steel Institute

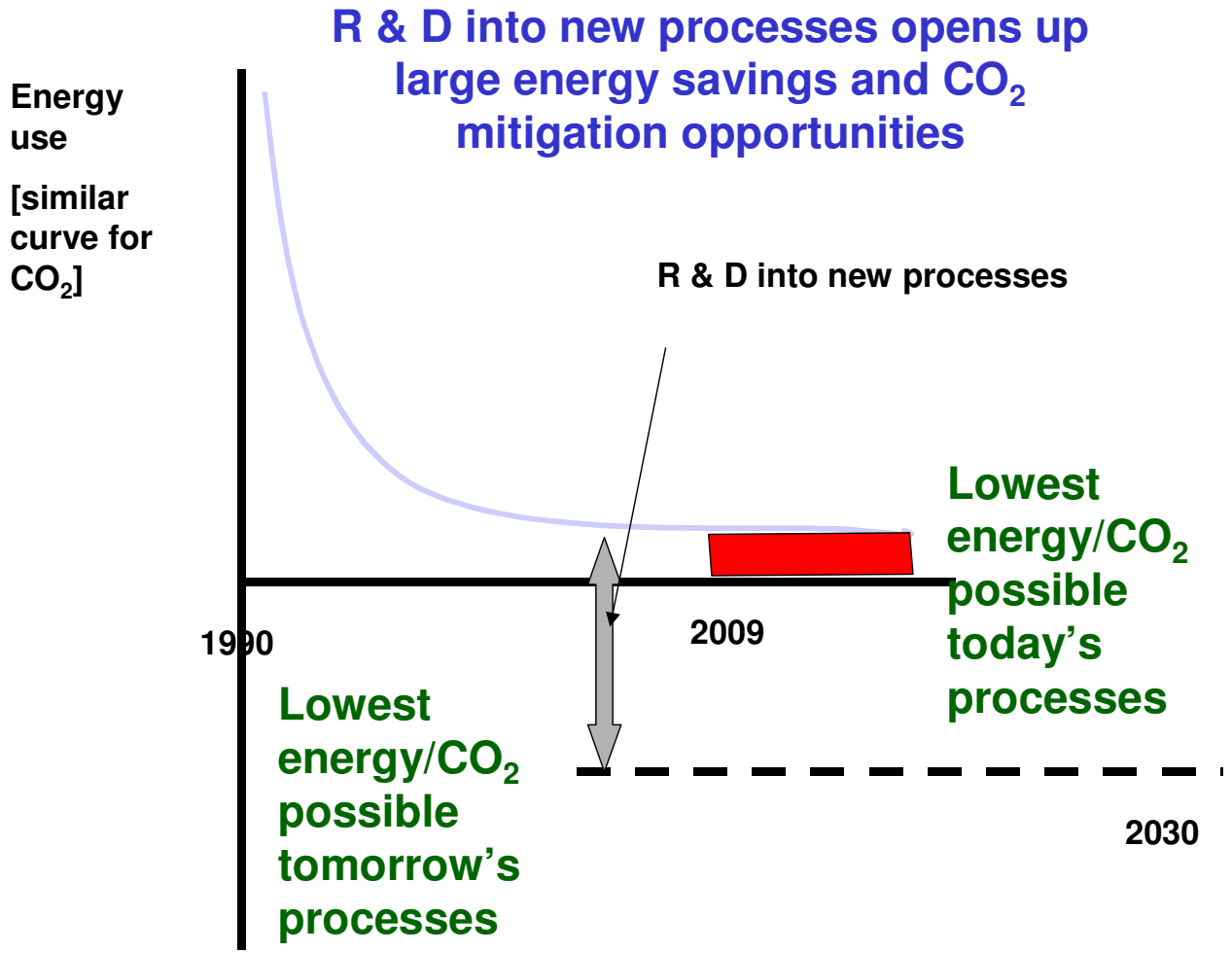


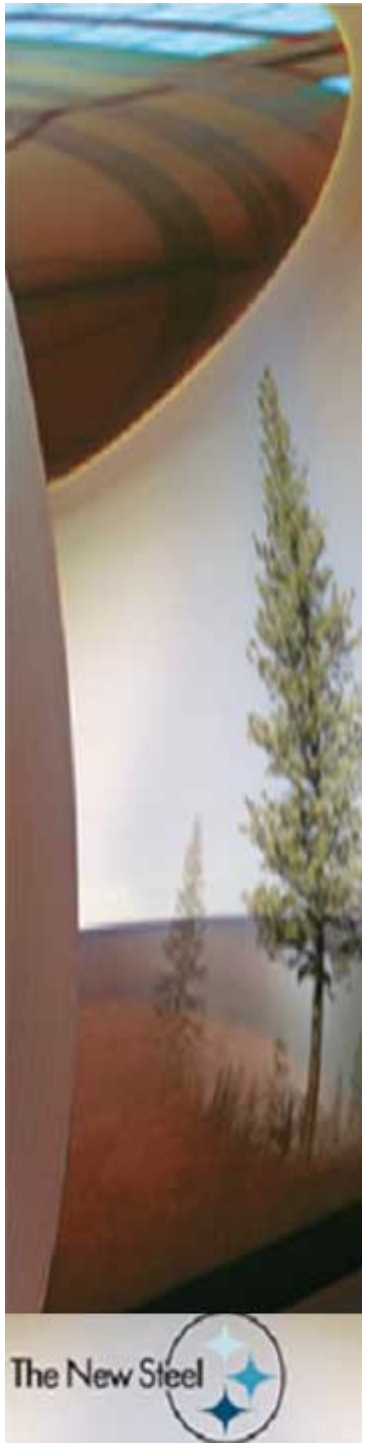
Steel is Energy Intensive

- Steelmaking is energy intensive and coal based
  - <2% of U.S. energy, 10% of industrial
  - 15-20% manufacturing costs
  - Electricity base largely from coal
  - Every $1 increase per/MCF of natural gas costs the domestic industry more than $300 million per year

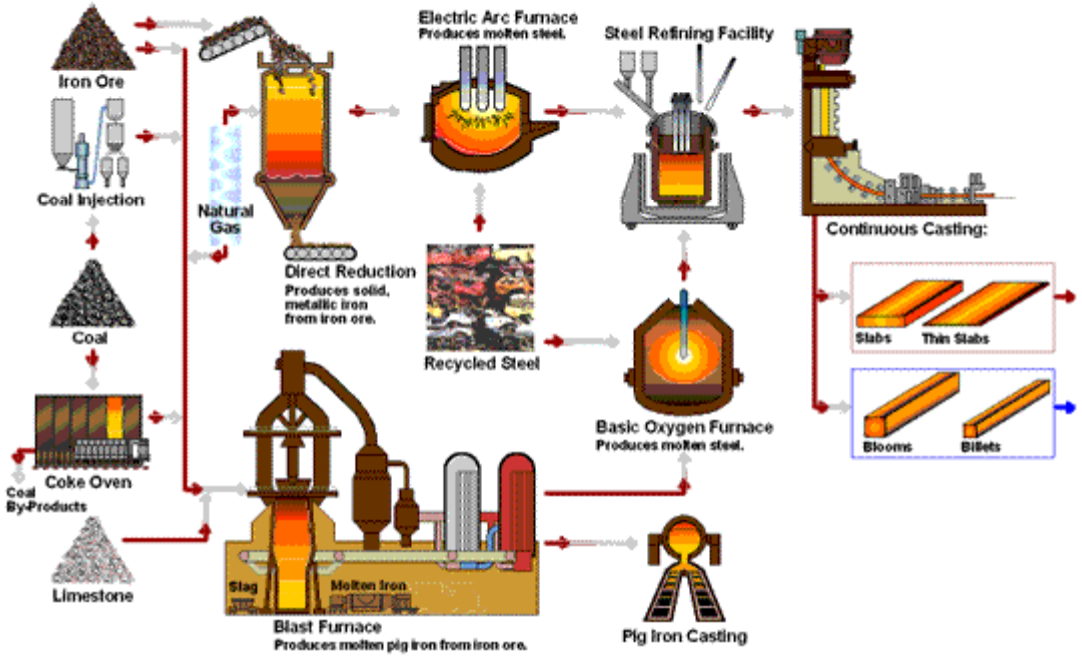


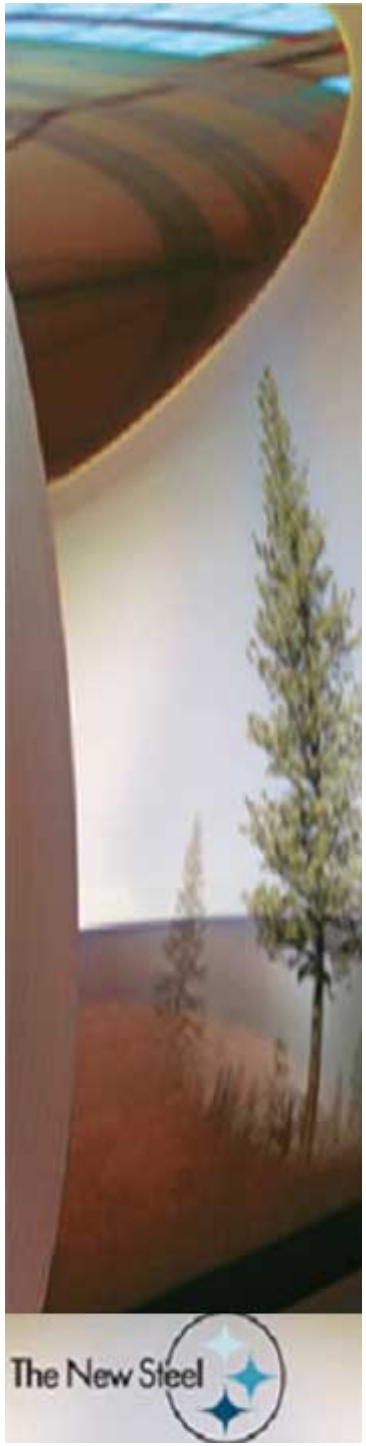
..and Energy Efficient





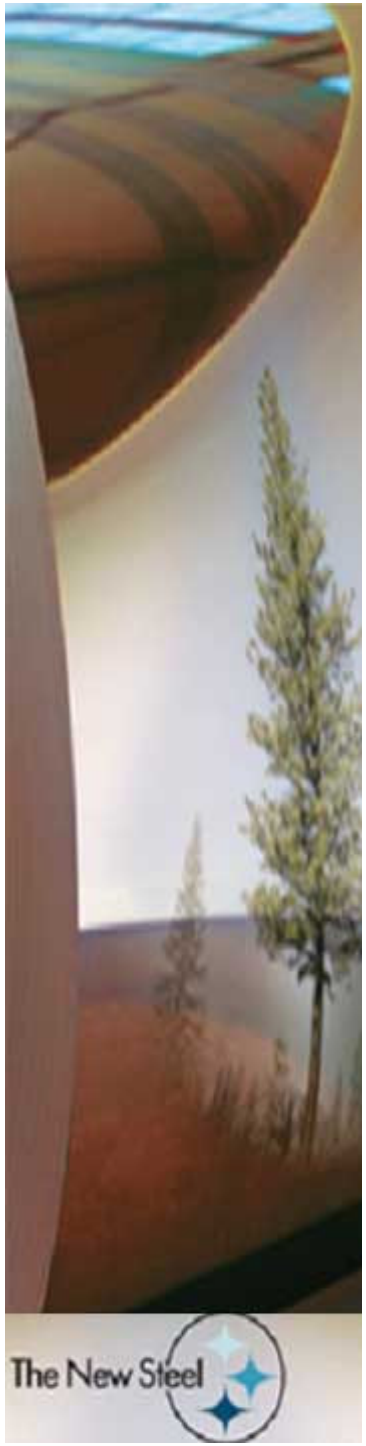
How Steel Is Made





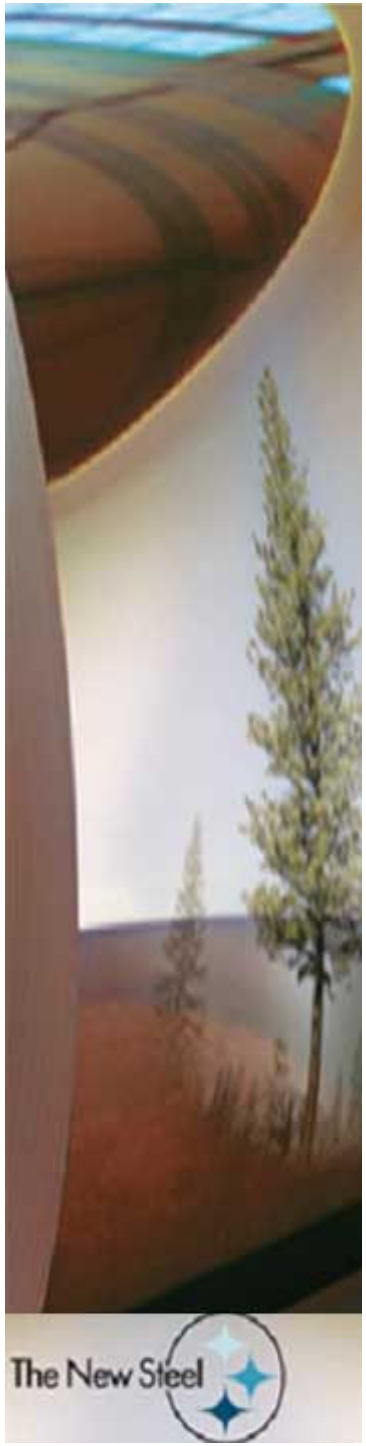
How Steel is Made cont.

- There are two steelmaking technologies- integrated (basic oxygen furnace/BOF) and EAF (electrical arc furnace/minimills).
- Integrated mills are the traditional source for virgin steel
  - 80% liquid hot metal
  - 20% scrap steel



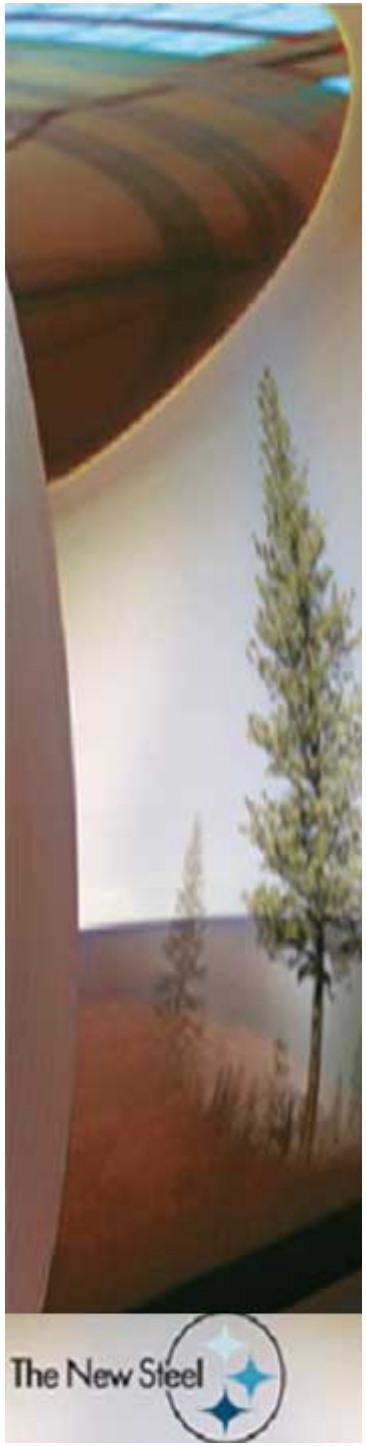
How Steel is Made cont.

- EAFs now constitute 55% of steel production
  - Use 75-100% scrap steel (steel has no memory)
  - Less energy intensive
  - Fewer GHG emissions

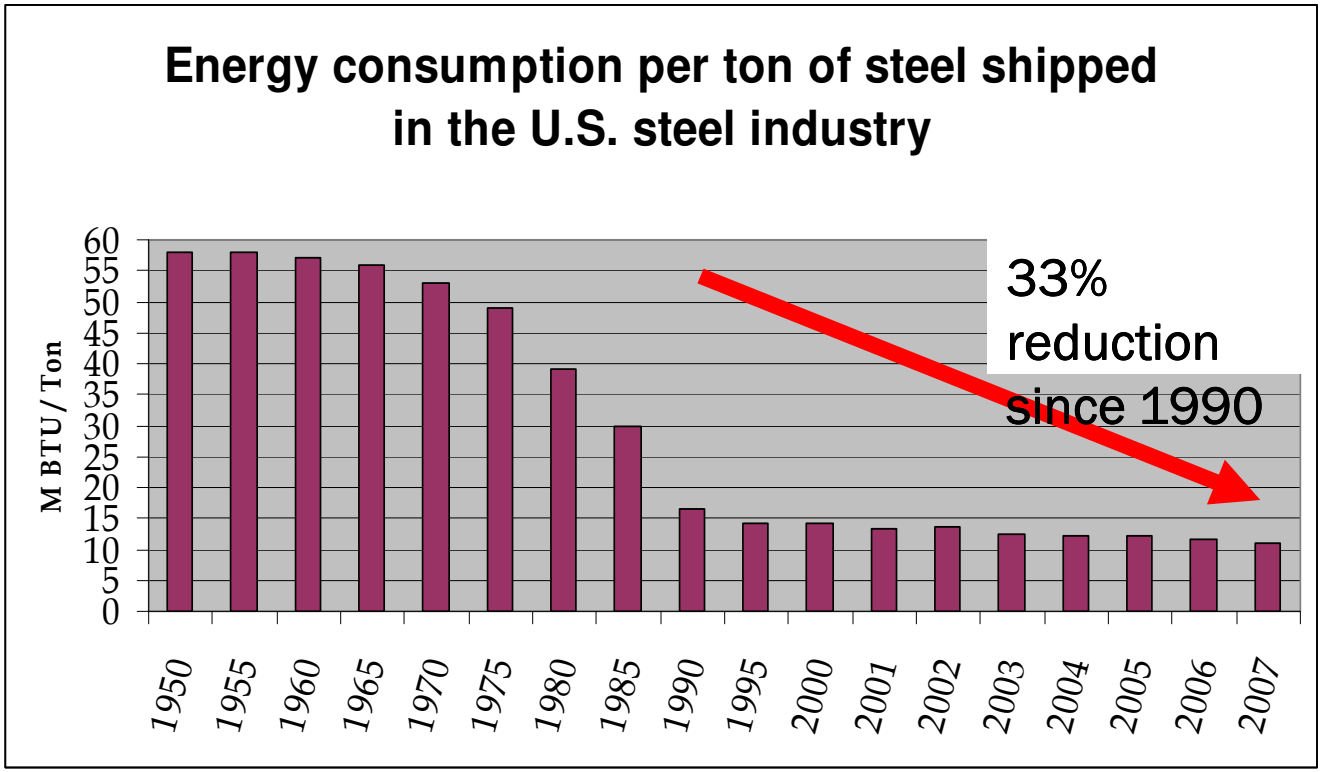


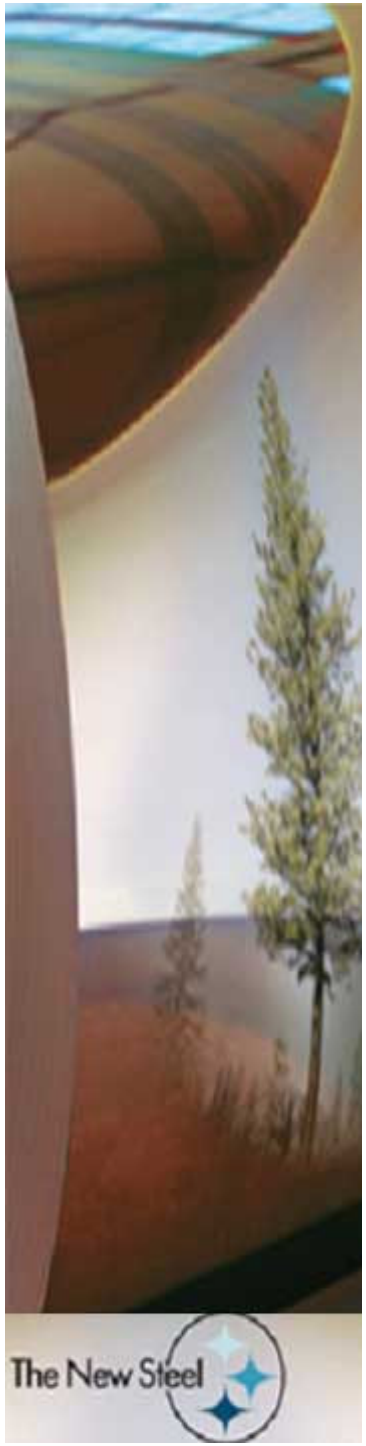
Steel Industry Performance

- Major investments in energy conservation
  - Capital intensive, long turnovers
  - 45% reduction in energy use since 1975
  - Gains realized come through capital investment
    - Open hearth furnaces displaced by electric furnaces
    - Continuous casting- more efficient process, less energy required



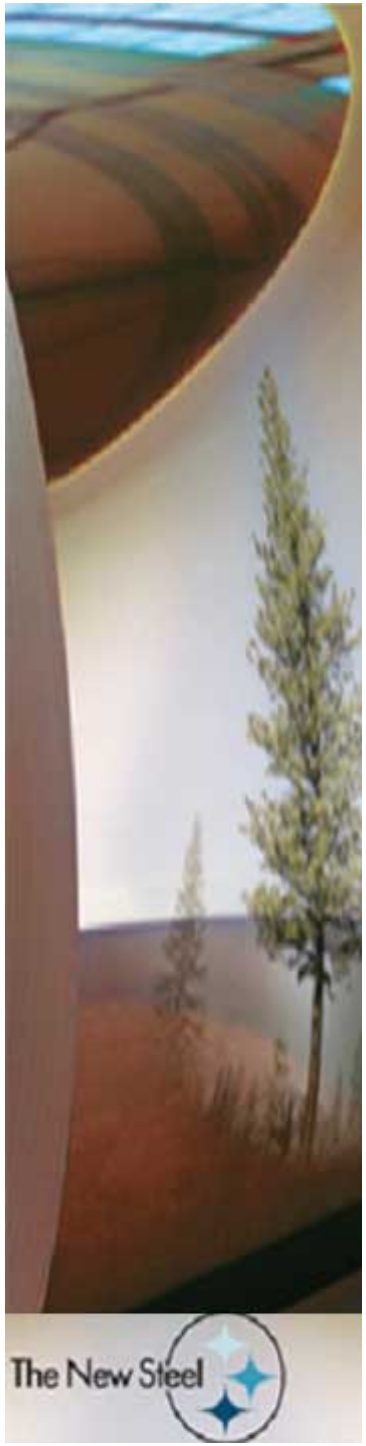
Steel Industry Energy Performance
[lowest energy intensity in world]





Industry Supported Research and Development

- Domestic industry currently conducting research into next generation of iron and steel technologies
- Will dramatically reduce or virtually eliminate CO2 emissions
- If successful, these technologies will be available for commercial use in 15-20 years.
- Success of future carbon-free steelmaking relies on a green grid.



Affordable and Abundant Energy Supply Needed!

- We need all the tools in the tool box
  - Offshore Exploration
  - Conservation
  - Expansion of nuclear
    - Clean
    - Lots of steel needed for reactors!
  - Greening of the Energy Grid
    - Green fuels needed to realize goal of zero emissions in new steel making technologies
    - Steel supply needed for constructions of pipelines, wind turbines, solar panels
  - Oversight in electricity markets needed for energy intensive consumers