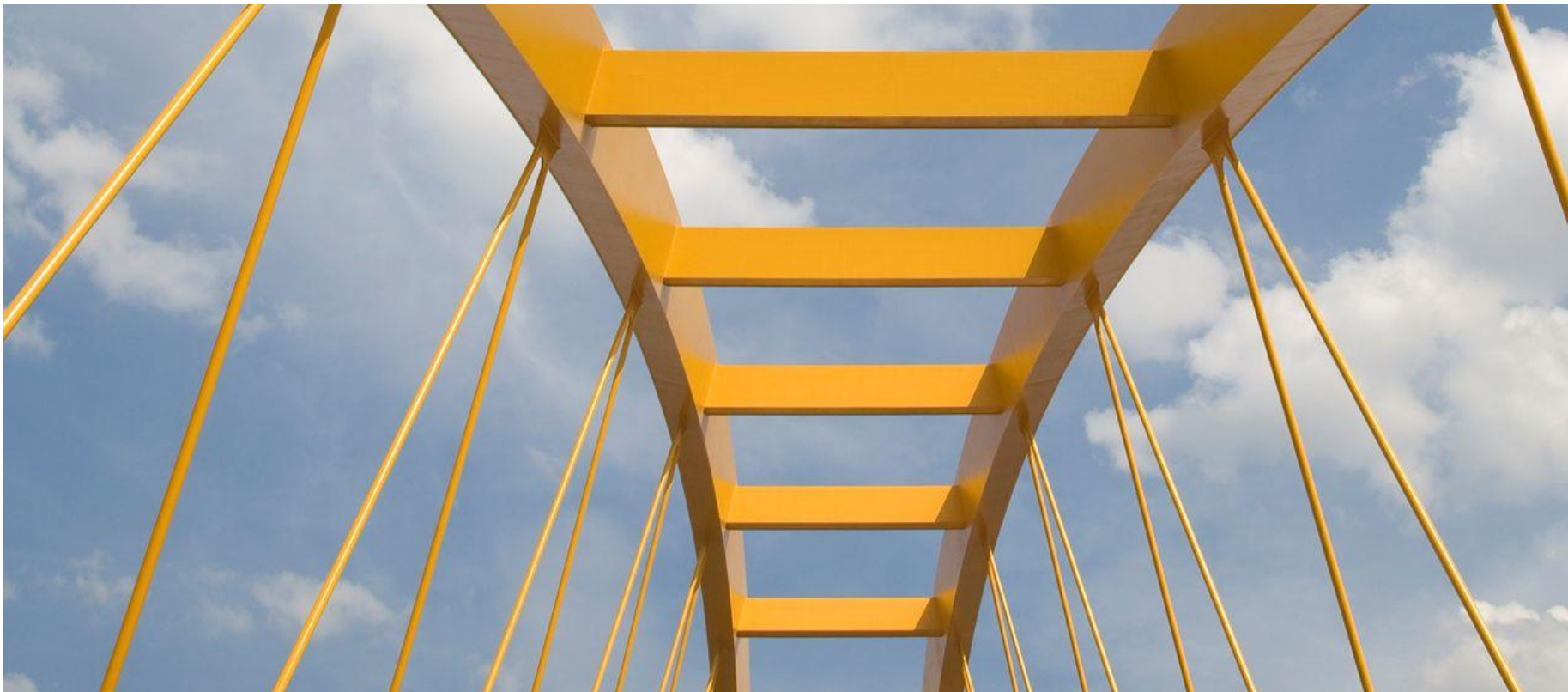


Energy Technology Transition for Industry

Comments from World Steel Association on Iron and Steel Chapter
IEA Paris 9 February 2009



General Comments

- **Much improved report – very helpful contribution**
- **Agree with most conclusions:**
 - steel production forecasts
 - scope for improvement with existing technology
 - importance of breakthrough technologies and carbon free power
 - too high confidence in probability of success for new technologies, and on the order of magnitude for investment required
 - Benefits of COREX, MIDREX, FINEX probably overstated.

“It is technically possible to halve global CO₂ emissions in iron and steelmaking in 2050 from the 2006 level. A reduction of carbon intensity by a factor of four”

This is not yet proven – technically and operationally

worldsteel Global Climate Change Approach

4 building blocks

- **steel applications**
- **breakthrough technology**
- **technology transfer**
- **data collection, reporting and commitments**

worldsteel 2050 Project

- **steel demand in 2050 \simeq 2.7 billion tonnes**
- **scrap availability \simeq 1.6 billion tonnes**
- **scope for CO₂/T reduction with current best practice \simeq 20%**
- **prevention of CO₂ emissions above current levels requires major R&D programmes and successful introduction of radical new technologies**

Breakthrough Technologies

- **top gas recycling blast furnace + CCS**
- **new DRI + CCS**
- **smelting reduction + CCS**
- **electrolysis**
- **hydrogen reduction**

**Success requires widespread
adoption of CCS or C free electricity
or both**

Key Messages for IEA Report

- **Steel use will grow strongly in developing countries to meet rising population and welfare needs**
- **Even mature industrialised economies will require more intelligent steel for a post C world**
- **Scope for improvements in CO₂/t is limited with current technology**
- **Scope greatest in Russia, Ukraine, India and China**

Key Messages

- **Breakthrough technology is the key**
- **new technologies are promising but not yet proven technically**
- **High carbon prices will be required for their introduction**
- **Carbon leakage is a key concern**

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