

Industrial Energy Efficiency Policy The International Experience

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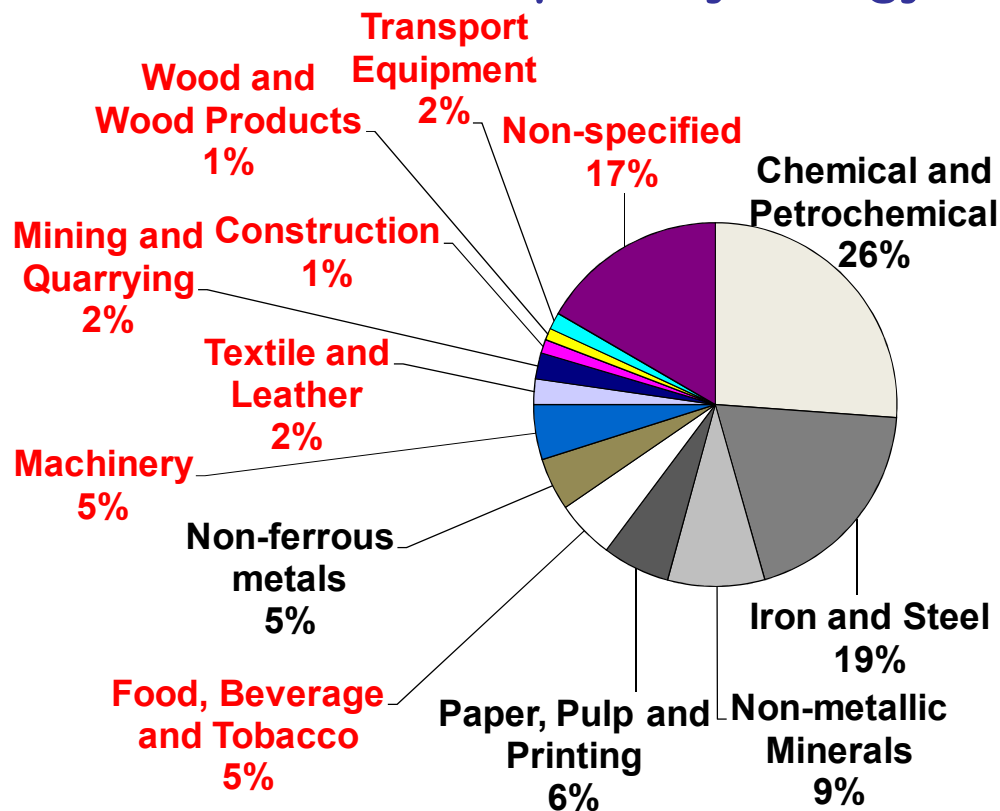


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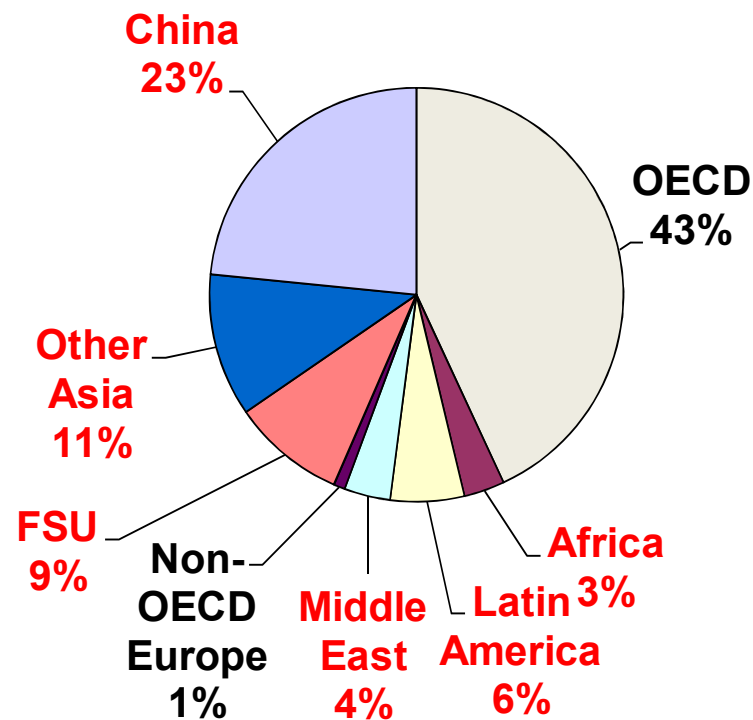


Industrial Energy Use, 2006

121 EJ final/156 EJ primary energy use – 1/3 of total global energy use



Sectoral Split



Regional Split

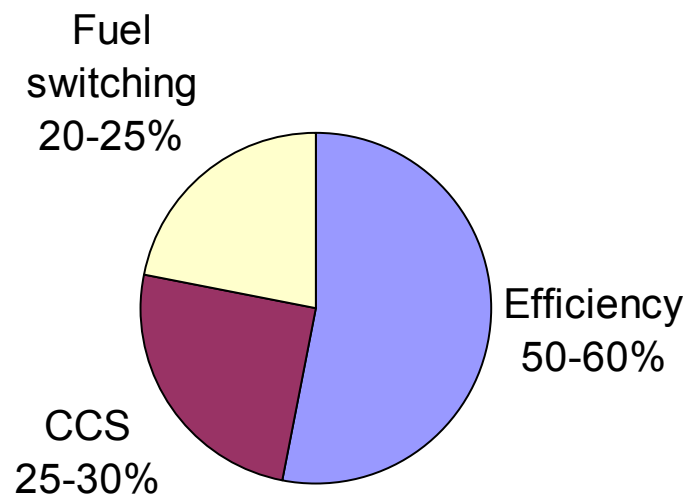
7.1 Gt CO₂ – 25% of total E&P CO₂ (direct emissions) – 40% direct + indirect



Long-Term CO₂ Emissions Reduction Potentials in Industry (compared to Baseline, 2050) (IEA, *Technology Transitions for Industry*, 2009)

Scenario Framework:

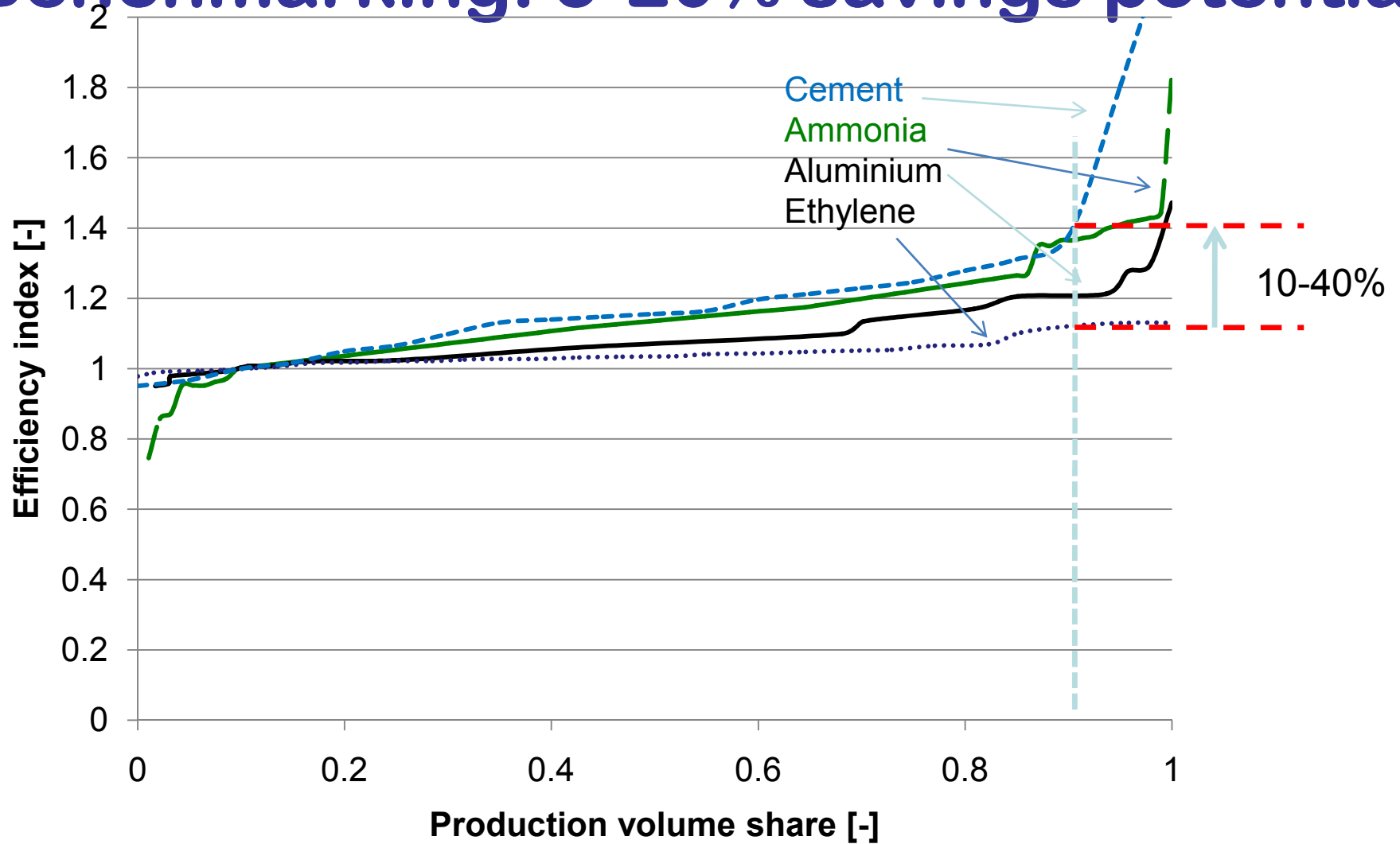
Global emissions -50%
Industrial emissions -20%



Efficiency (on top of baseline) constitutes half of the potential
This requires a doubling of the technical efficiency improvement rate



Benchmarking: 5-20% savings potential





Industrial Energy Systems

- Pumps, fans, compressed air, steam etc.
- Not equipment but systems optimisation
- Average savings potential >25% (wide range)
- Large and small size enterprises
- A key area of work for UNIDO



Small and Medium Sized Enterprises

- ❑ 30-40% of industrial energy use
- ❑ Limited attention so far
 - Especially in developing countries
 - Perhaps half of total industrial efficiency potential
- ❑ Some energy intensive sub-sectors
foundries, glass, lime, bricks, food and beverages
 - Energy constitutes 20-40% of production cost
 - Efficiency gains can improve the bottom line



Barriers for Efficiency Improvements

- Ignorance
 - Management standards can help !
- Technology/equipment access & maintenance
 - Management standards can help !
- Intuitive decision making
 - Management standards can help !
- Cost-efficiency
 - Pay-back
 - Split incentives
- Risk
- Opportunity cost/financial resource availability



Policies Can Accelerate Efficiency Uptake

- Financial instruments
 - Tax rebates, low-interest loans, risk sharing, investment subsidies, energy pricing, CDM
- Voluntary efficiency agreements or efficiency regulations
 - For individual large companies or sectoral agreements
- Energy management systems
 - Benchmarking, standards etc.
- Capacity building
 - Technology information, (on-site) training, workshops
- Technology transfer
 - RD&D, equipment supply chains



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The UNIDO Programme

- ❑ Assist in the development of ISO 50 001 EMS
- ❑ Focus on industrial energy systems
- ❑ Emphasis on SMEs
- ❑ Capacity building and technology transfer
- ❑ Currently working in 11 countries (emerging economies)
- ❑ Total project portfolio approx. USD 200 million
 - USD 50 million GEF co-funding for efficiency
- ❑ Apart from energy efficiency
 - Renewables for productive use
 - Innovative technology solutions (hydrogen, CCS etc)
 - Over 40 Cleaner Production Centers
 - Three technology R&D centers



South Africa Industrial Energy Use, 2006

| [ktoe] | Fuel | Electricity |
|-----------------------------------|------------------------------------|-------------|
| CTL/GTL/refineries | 14457 | 0 |
| Iron and steel | 4936 | 1890 |
| Chemical and petrochemical | 2386 | 893 |
| Non-ferrous metals | 0 | 1651 |
| Non-metallic minerals | 1127 | 231 |
| Transport equipment | 0 | 8 |
| Machinery | 45 | 4 |
| Mining and quarrying | 2150 | 2510 |
| Food and Tobacco | 23 | 67 |
| Paper, pulp and print | 50 | 155 |
| Wood and wood products | 0 | 26 |
| Construction | 216 | 5 |
| Textile and leather | 0 | 46 |
| Non-specified (industry) | 4152 | 2244 |
| Total | 29542 | 9730 |
| | Share of total national energy use | |
| | 23% | 46% |

Source: IEA data



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THANK YOU !

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