IEA-EBRD workshop on low-carbon roadmap for iron and steel industry
29 March 2019
What is the EBRD?

- Multilateral financing institution established in 1991 to support transition to market economies
- Owned by 70 countries, the EU and the EIB

- €30 billion capital base
- €41 billion portfolio
- €9.5 billion average annual business in the past 3 years

3 key operational principles
- Sound banking
- Transition impact
- Environmental sustainability
Green Economy Financing Results: 2006 – 2018

**FINANCED**
1,500+ green projects
1000+ directly financed projects with green components, and
400+ credit lines to local financial institutions for on-lending to smaller projects

**SIGNED**
€ 28.5 billion of green financing
For projects with a total value of €160+ billion
Since 2016 green financing has represented 35% of EBRD’s total business.

**REDUCED**
93 million tonnes of CO2/year
Emission reductions equal to the annual energy use related emissions of Greece
Steel Industry Decarbonisation

<table>
<thead>
<tr>
<th>Technology</th>
<th>Condition</th>
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<tbody>
<tr>
<td>CCU routes – incremental</td>
<td>Partnership with Chemicals sector</td>
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<tr>
<td>CCS routes – breakthrough (higher opex)</td>
<td>Partnership for hubs with other sectors</td>
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<td>Hydrogen/DRI routes - breakthrough (huge capex/higher opex)</td>
<td>Availability of low-cost Green Hydrogen</td>
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“Breakthrough Technologies require Breakthrough Policies” (Eurofer)
A Great Disruption for the 2020s/2030s?

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<th>Estimated investment</th>
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Session 4: “Economic feasibility of demonstrating innovative I&S technologies and overcoming barriers”
Shibojyoti Dutta, Tata Steel:
• Market mechanisms inadequate
• Need for additional grant funding, e.g. Green Climate Fund (GCF)
• Governments engage industry in scenario analysis
• Need for “time bound action plan”

Lin, BHP Billiton Industry Carbon Capture Project - three possible mechanisms:
• Projects supported by carbon allowance
• Market production as “zero-carbon steel”, with significant premium
• Tax refund: subsidy

Supported by concessional finance from MDBs?
“How to reach Net-Zero CO2 Emissions for Steel”

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<th>Innovation</th>
<th>Policy</th>
<th>Industry/Business</th>
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<td>• Develop and pilot hydrogen-based DRI</td>
<td>• Carbon tax $50-70 by 2030 (coalition of governments)</td>
<td>• “Green steel” standards</td>
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<td>• New technologies for carbon capture on BF-BOF</td>
<td>• Regulations on embedded carbon intensity of steel-based products</td>
<td>• Automotive industry’s commitments to “green steel” by 2040</td>
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<td>• Develop metallurgy to enable higher value recycling</td>
<td>• Commit to 100% “green steel” in publicly-funded infrastructure by 2040</td>
<td>• Producer/user collaboration to increase recycling</td>
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Source: Energy Transitions Commission: Mission Possible (November 2018)

- Three technologies developed (all linked to CCS for major CO2 reduction)
- Two technologies piloted (TGR/ Hlsarna smelting)
- One technology to early demonstration (Hlsarna) - now to be pursued by Tata Steel in India
- TGR demonstration project (Florange) withdrawn from EC NER-300 funding competition: location and risk issues
- After 15 years, no continuing demonstration projects in Europe; hydrogen projects still embryonic
Steel Industry Barriers

- Low profitability (compared with oil and gas/power)

- Cyclicality (compared with power/automotive), exacerbated by chronic overcapacity - constraint on borrowing

- International competitiveness (compared with power) - constraint on carbon pricing and on higher priced steel

- Limited effectiveness of carbon pricing in decarbonisation, due to lack of substitute materials and high ability to pass through increased prices to customers
(1) Financing from steel industry revenues:

- Carbon pricing-based: $50/tCO2? 100/tCO2?
  - But competitiveness/trade issues
  - The problem of pass-through (higher prices, with no change in technology)

- Customer-led: automotive procurement of “Green Steel”

- Public Procurement-led: construction contracts based on “Green Steel”

- Investor-led: Task Force on Climate-related Financial Disclosures (TCFD)

- Responsible Steel

But impact on developing breakthrough technologies too slow?
(2) With external support

- Green hydrogen
  - Massive scale-up by power suppliers? Financing? Location?
- Concessional finance (e.g. from Multilateral Development Banks/ Green Climate Fund (GCF) for developing countries)
  - EBRD experience with GCF e.g. Green Cities
  - But subject to company borrowing constraints and sound banking
- Public support for developing and supporting breakthrough technologies
  - In EU: Innovation Fund; Horizon Europe; Eurofer proposal for Partnership for Low Carbon Steel (Eur 2bn for demonstrators (2021-2027) - 50% to be funded by EU; conditional on supportive policies, e.g. carbon pricing/trade)
  - Monetisation of Carbon reductions under article 6 of Paris Agreement? To be discussed at COP25 (2019)

- For Demonstration projects: do we need a new Sectoral approach? a new Fund?
- Is Trade Policy a condition for higher-priced steel?
THANK YOU

For more information:

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