INFOGRAPHICS SUMMARY

MAKING NET-ZERO, 1.5°C-ALIGNED STEEL POSSIBLE
Making Net-Zero, 1.5°C-Aligned Steel Possible

1. The solutions: Scrap-based steelmaking, near-zero-emissions ironmaking, and carbon capture are the main decarbonisation options.

   - Annual CO₂ emissions (Scope 1 & 2), in Gt CO₂/y
   - Annual CO₂ emissions (Scope 1 & 2) reduction per decarbonisation lever, in Gt CO₂
   - % of cumulative reduction (2020–50)

   - Secondary steelmaking: Increasing availability and usage of scrap for crude steel production (~19%)
   - Near-zero-emissions ironmaking: Iron reduction with natural gas, green hydrogen, and bioenergy (~44%)
   - Carbon capture: Capturing and/or utilising carbon from process and energy emissions (~21%)
   - Other lower-carbon technologies: Novel technologies that are lower carbon but not near-zero emissions (~9%)
   - Carbon dioxide removals: To address residual emissions (e.g., direct air carbon capture) (~7%)

2. What it will take

   - Additional investments to get to net zero, additional annual capital investments (compared to a Baseline scenario), $ billion

     - 90%+ of investments required for supporting energy and carbon infrastructure

   - Additional production costs to get to net zero, levelised cost of steel in 2050, in $/tonne of crude steel*

   - Resource requirements, share of annual global demand by 2050

   * Assumes a greenfield plant with a production capacity of 2.5 Mt/y operating at 80% utilisation.

   - Renewable electricity: 5%-7% out of 90,000-130,000 TWh
   - Green hydrogen: 9%-15% out of 500-800 Mt
   - Sustainable biomass: 2%-4% out of 50-110 EJ
   - CO₂ stored and used: 9%-12% out of 7-10 Gt CO₂ stored and used
### Key milestones

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<thead>
<tr>
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<th>2020</th>
<th>2030</th>
<th>2040</th>
<th>2050</th>
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</thead>
<tbody>
<tr>
<td>Secondary steelmaking share of global production</td>
<td>25%</td>
<td>32%</td>
<td>38%</td>
<td>40%</td>
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<tr>
<td>Near-zero-emissions primary steel produced</td>
<td>0 Mt/y</td>
<td>170 Mt/y</td>
<td>900 Mt/y</td>
<td>1,320 Mt/y</td>
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<tr>
<td>Number of near-zero-emissions primary steel plants</td>
<td>0</td>
<td>70</td>
<td>340</td>
<td>530</td>
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<td>Direct reduced iron (DRI)-grade ore demand</td>
<td>130 Mt/y</td>
<td>740 Mt/y</td>
<td>1,170 Mt/y</td>
<td>1,630 Mt/y</td>
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### Priorities for this decade

**INDUSTRY ACTION TO BOOST SUPPLY AND INNOVATION**
- **Projects:** Plan and deploy 70+ near-zero-emissions primary steel mills by 2030
- **Target setting:** Set robust emissions reduction targets that are 1.5°C-aligned
- **Industry consortia:** Forge new partnerships across the steel value chain and upstream energy system
- **Common policy position:** Set out a joint high-ambition position to policymakers that reflects the role of international steel producers with assets in multiple geographies

**INDUSTRY ACTION TO BOOST DEMAND**
- **Green premiums:** Agree to long-term offtake with a green premium that is proportional to production cost increment and associated risks for both supplier and buyer, particularly with the automotive, renewable energy, and white goods sectors

**FINANCE ACTION**
- **Capital allocation:** Provide sufficient capital to enable at least $100 billion of additional investment in low-emissions steelmaking (and supporting infrastructure) each year until 2030
- **Business case innovation:** Co-develop strategies to manage the market, credit, liquidity, operational, and policy risks for first-of-a-kind (FoA K) projects
- **Investment principles:** Implement 1.5°C-aligned investment principles and plan and support a moratorium of steel investment that is not aligned with such principles from 2030

**GOVERNMENT ACTION**
- **Level playing field:** Establish an international forum/alliance to debate and resolve the issue of how to create a level playing field and create markets for low- and near-zero-emissions steel production
- **Definitions:** Develop stable and ambitious trade- and transaction-grade standards for near-zero-emissions steel production
- **Regulatory reforms:** Accelerate and improve permitting procedure for steel and supporting infrastructure
- **Investment:** Combine concessional, blended finance, credit and loan guarantees, and CAPEX grants for FoA K commercial-scale projects
- **Infrastructure:** Coordinate plans and strategies for necessary infrastructure and raw materials