

ETS INNOVATION FUND HYBRID STEELMAKING

Linz, 04/29/2019

ETS INNOVATION FUND

HBI/DRI BASED HYBRID STEELPLANT

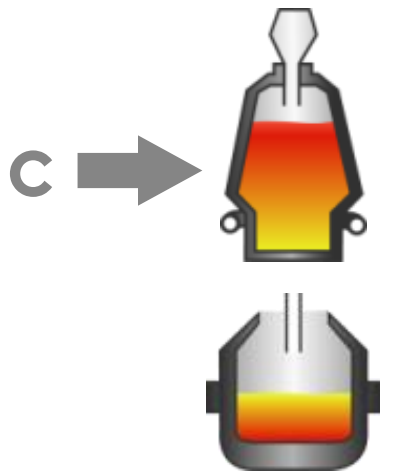
- » **voestalpine proposal:** Establishment of metallurgical demonstration hubs at voestalpine-sites in Austria for transforming the production of high quality steel grades by the BF/BOF route into low CO₂ steelmaking with guaranteed capability for production of the same high quality steel grades.
- » **Key elements in need of demonstration:** Control of slag metallurgy, steel metallurgy, energy management/integration and slag by-product generation, all at industrial scale, using EAF technology with combinations of flexible raw material feed (HM/Scrap/HBI) and increased use of hydrogen (NG, COG, H₂) and renewables.
- » **Products:** Low-CO₂ steel grades for supplying automotive industry and railway/energy systems at same or increased qualities
- » **Scope:** Establishment of above mentioned EAF technology results in CAPEX demand of 600 m€ and increased OPEX of 20 – 30 % due to energy cost. Additional OPEX due to increased raw material cost possible. TRL 8 to 9.
- » **CO₂ reduction:** up to -80% per ton of low-CO₂ steel and -10% to -30% for the “hybrid plant”.

HYBRID STEELMAKING

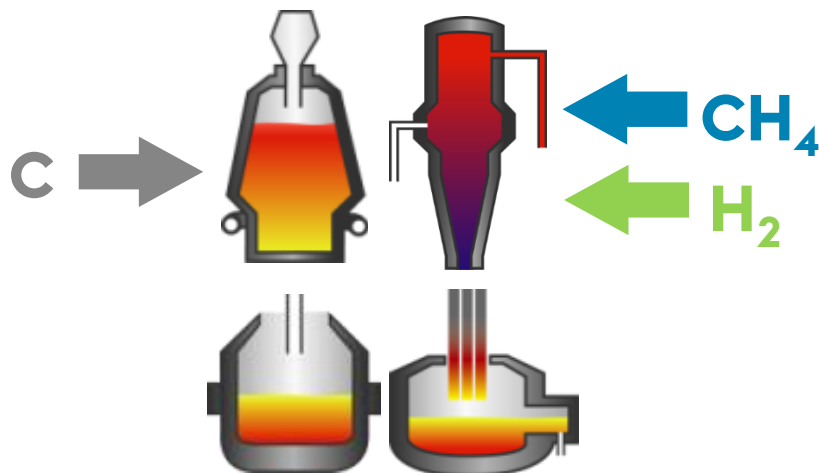
COMBINATION OF BOF/ EAF TECHNOLOGY

2010

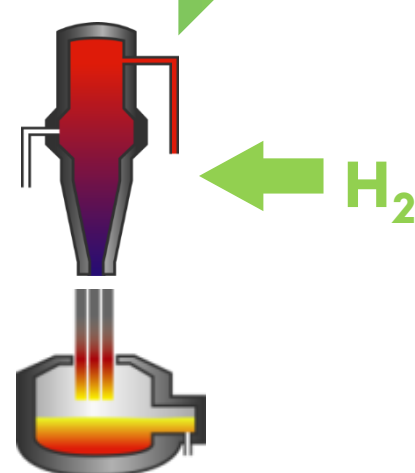
2050



CO₂ 100 %



70 - 90 %
Hybrid Steelmaking



< 20 %
voestalpine