# Net Zero Steel

## European Union Country Profile - Netzero Steel Project

www.netzerosteel.org/countries-results/

The Netzero Steel Project considers the geo-spatial evolution of production of 75 existing facilities in the EU described in the GEM database that account for 79% of the EU's 2019 production, as well as 42 smaller additional archetype plants that were added to account for missing production. All scenarios achieve >90% reduction in emissions by 2050, see the full report for the methodology and background to the study.

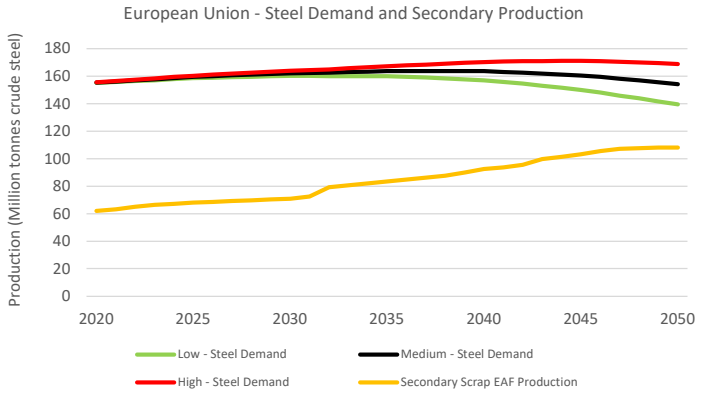
All the nine modelled scenarios (3 demand scenarios) and (3 CCS pipeline length scenarios) reduce overall emission intensities from an estimated existing emission intensity of 1.25 tCO2e/tonne of steel in 2019 to 0.13 tCO2e/tonne of steel in 2050. This compares to a global average of 1.58 in 2019 and 0.14 tCO2e/tonne of steel in 2050. Note that the study boundary includes all direct energy and process emissions that occur at integrated iron and steel mills, but does not include GHG Protocol Scope 2 or Scope 3 class emissions that occur off-site, or allow for the crediting of exported energy products (See report for more details).

### Demand Transition

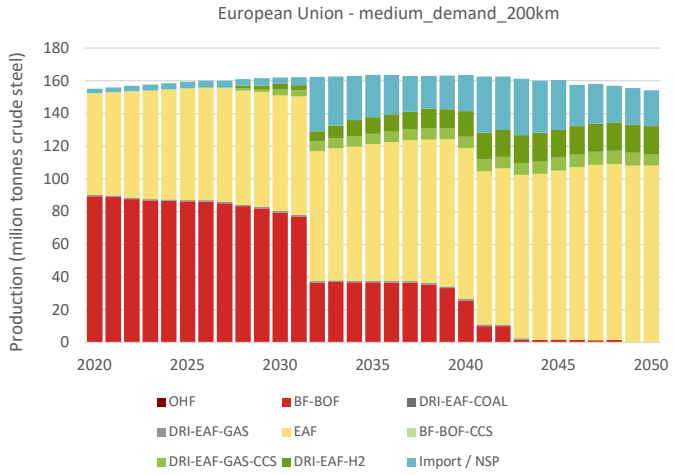
• In the medium demand scenarios EU steel demand decreases 1% between 2020 and 2050.

• low/medium/high scenarios in 2050 correspond to 265/293/320 tonnes crude steel per capita. This compares to a global average of 206/236/267 tonnes crude steel per capita.

• Secondary production from scrap in EAF rises from 39% in 2020 to 70% in 2050 in our central scenario. This compares to the projected global average of 46%.




### Technology Transition




• By 2032 more than half of the European Union's production is projected to be low carbon in the central scenario.

• DRI-EAF-H2 rises in market share from zero in 2027 to 11% in 2050 in our central scenario (range of scenarios is 12% to 12%).

• Steel production with CCS retrofit accounts for 5% of production in 2050 central scenario (range of scenarios is 4% to 5%).

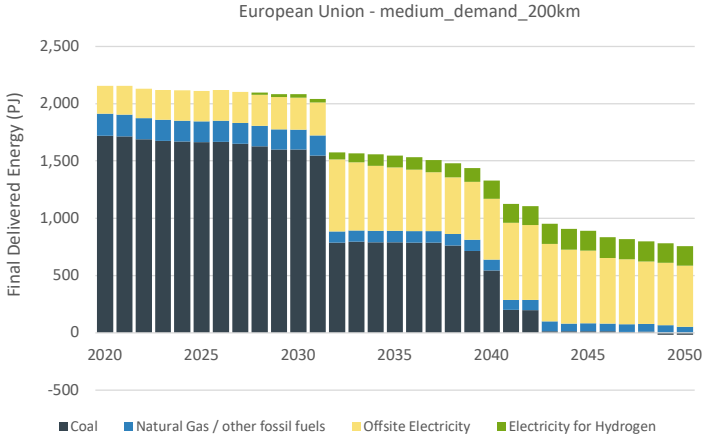
• Green imports or non spatially allocated production accounts for 14% of production in the 2050 central scenario (range of scenarios is 13% to 15%).

### Energy Transition

• Facility energy demand for fossil fuels falls by 98% by 2050 in the central scenario (this is actually the case for all 9 modelled scenarios).

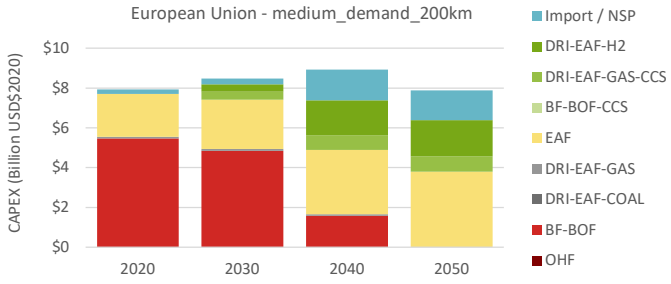
• Electricity demand rises to 196 TWh in 2050, a rise from current levels of 2.9x by 2050 in the central scenario (range of scenarios is 2.6x to 3.3x). For comparison, electricity demand in 2050 represents 7% of current total electricity demand in the EU.

• Electricity demand for hydrogen rises to 48 TWh by 2050 in the central scenario (range of scenarios is 45 to 55 TWh).



## European Union Country Profile - Netzero Steel Project

### Investment Transition

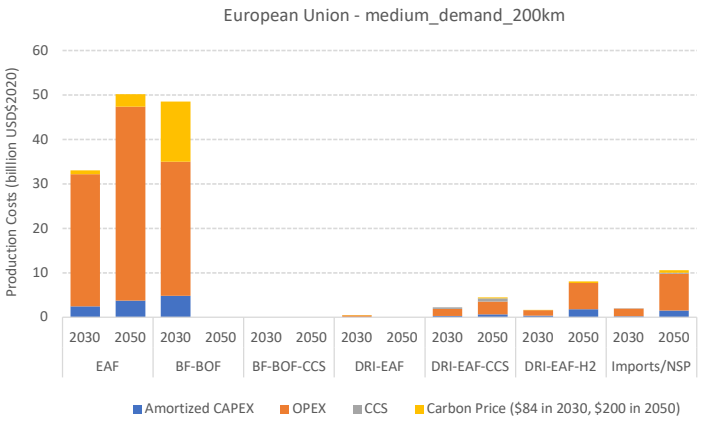



• CAPEX investment decreases by 1% from 2020 to 2050 in the central scenario.

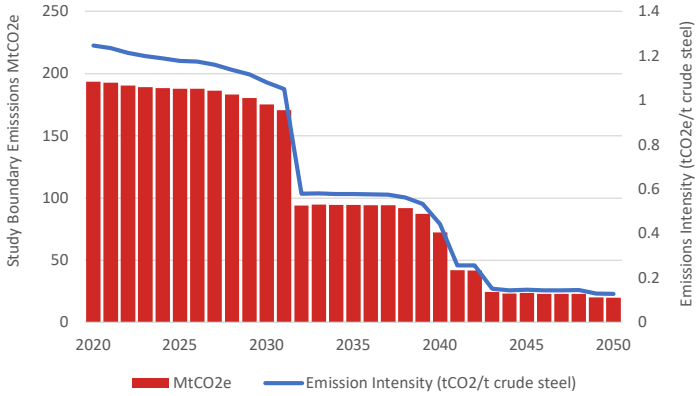
• EAF contributes to the largest share of CAPEX investment, 48% in 2050 in the central scenario.

• Total production costs in 2020 $USD are estimated to be $88 billion in 2030 and $73 billion in 2050 for the central scenario.

• CAPEX costs are projected to be 11% of overall production costs in 2050 for the central scenario.




### Emissions Transition




• Cumulative emissions between 2030 and 2050 are 3,308 MtCO2e (Range for scenarios is 3,270 to 3,341 MtCO2e.)

• Emission intensity of production falls from 1.25 tCO2e/tonne of crude steel in 2020 to 0.13 tCO2e/tonne of crude steel in 2050.