

Cost estimate for financing CCfDs of a hypothetical member state representing ~10% of the EU's primary steel or cement production

Breakthrough technology	Breakeven CO ₂ price range & central estimate for 2030*	CCfD payment per tCO ₂ avoided @ETS= 45€/tCO ₂	Support per tonne primary steel/cement	10% of EU27 primary production	Annual costs for CCfD (for greening 10% of EU market)
STEEL DRI (NatGas) (-66% t CO ₂ /t steel)	71 49 } 60€/tCO ₂	15€/t CO ₂	17€/t CO ₂	x 10Mt/yr	= 0.17 bn €/yr
STEEL DRI (Green H ₂) (-89% t CO ₂ /t steel)	165 99 } 132€/tCO ₂	87€/t CO ₂	132€/t CO ₂	x 10Mt/yr	= 1.32 bn €/yr
CEMENT Oxyfuel-CCS (-90% CO ₂ /t cement)	131 70 } 101€/tCO ₂	56€/t CO ₂	31€/t CO ₂	x 16Mt/yr	= 0.50 bn €/yr
CO ₂ reductions refer to conventional process (steelmaking; cement)	Green Power price = 60€/MWh – 70€/MWh	Assumes 45€/t CO ₂ average price in EU ETS		2017 EU primary steel (cement) production = 95 Mt (159 Mt)	Number will vary for bigger or smaller member states & depending on capacity supported

Agora Energiewende, 2020

Note: Actual technology breakeven costs may differ from these estimates, depending on site-specific characteristics. The required CCfD strike price and thus per unit cost can be lowered if combined with other support/funding. Costs depend critically on ETS CO₂ price, H₂, and power price assumptions, and size of national market. Exact emissions reductions per technology can vary depending on site specifics.