



ETC (2021), Hydrogen Council & LBST (2021), COM (2021a)

Note: The energy production includes upstream methane emissions and has leakage rates of 0.15–1.2% based on fossil gas source and transport distance. H₂ production refers to process emissions from SMR/ATR. GHG emissions for capex are due to carbon emissions associated with grid electricity used to manufacture equipment. Embedded emissions in renewables are assumed to be zero due to the complete decarbonisation of production process, including electricity, steel and concrete. NG = Fossil gas; ATR = Autothermal reforming; SMR = Steam methane reforming; PEM = Polymer electrolyte membrane electrolysis. A GHG emissions factor of 84 is used to reflect the global warming potential of methane over 20 years. OGCI = Oil and Gas Climate Initiative.