An Option for Stranded Renewables: Electrolytic-Hydrogen in Future Energy Systems

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Supplementary Information

Table 10: Data for the evaluation of the different energy sources in terms of GHG emissions (data is taken from the GEMIS database, version 4.95 and "IPCC 2013 (100 years)" is chosen as Impact Assessment Method)

Energy source	GHG emissions [$g_{CO2\text{-}eq.}/kWh_e$]
Waste	996
Lignite	918
Gas	562
Oil	764
Coal	763
Other (approached with furnace gas)	1118
Onshore wind	0
Offshore wind	0
Photovoltaics	0

Table 11: Results of the environmental evaluation for case 2 assuming different grid extension levels according to Table 2.

Grid extension level	"Start + A2"	"BBP"	"Base"
GHG emissions of H_2 production via electrolysis ($g_{CO2\text{-}eq.}/kg_{H2}$)	16,669	16,788	16,420
GHG emissions of H_2 logistics ($g_{CO2\text{-}eq.}/kg_{H2}$)	437	440	431
Total GHG emissions ($g_{CO2\text{-}eq.}/kg_{H2}$)	17,106	17,228	16,851