

Please note that this Supplementary Information file was added on 8 April 2025 and was not available at first publication of the article on 27 January 2025. The Royal Society of Chemistry apologises for this error.

Supplementary Material 1

Table 1S – ISBL and OSBL Factors

Factor	Description	Value
ISBL Adjustments		
f_{er}	Erection of equipment	0.4
f_p	Piping	0.6
f_i	Instruments, sensors and control equipment	0.3
f_{el}	Electrics	0.2
f_c	Civil engineering costs	0.3
f_s	Site structures/buildings	0.2
f_i	Insulation, paint and other	0.1
OSBL Adjustments		
OS	Offsites	0.4
DE	Design and Engineering	0.25
X	Contingency	0.1

Table 2S – Utility Costs

Utility	Price unit	Price
Electricity	£/kWh	0.11
Steam	£/GJ	12.7
Cooling water	£/GJ	0.255
Air	£/m ³	0.00252

Table 3S – Hydrogen Production Utility Requirements

Utility	Unit	Requirement
Steam for Heating	kJ/g H ₂	10.7
Cooling Water	kJ/g H ₂	22.3
Electricity	kJ/g H ₂	6.2