CO_2 Removal & Gases: CCS Capture Rate

This lever controls the sub-levers listed in the table, and ambition levels are for the end year shown on the right-hand side.

The capture rate of a CCS process determines what proportion of the total CO_2 emissions can be captured. A capture rate of 100% means that all of the carbon emitted by a process fitted with CCS is captured.

Applying CCS to a process can reduce its efficiency as the process of capturing and storing carbon requires energy. In the Calculator, higher capture rates may result in a greater loss of efficiency.

Key Interaction

This lever controls the proportion of CO_2 captured by CCS processes. The level of CCS deployment is controlled by the levers for Industry CCS, Bio-Conversion with CCS, Hydrogen (Biomass or Methane) CCS and electricity from Biomass CCS. If no CCS is deployed, then the CCS capture rate has no effect.

Level 1

For most applications a capture rate of up to 85% is the minimum expected[1]. Industry CCS capture rates are those achievable for key industrial processes within the sector.

Level 2

For most applications a capture rate of 90% is achieved.

Level 3

For most applications, a capture rate of 95% is achieved.

Level 4

All emissions are captured by CCS processes.

[1] https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/566803/Leigh_Fisher_Non-renewable_Generation_Cost.pdf

Default Timing

Start year: 2025, End year: 2035

Share of CO_2 captured by CCS

Sub-Lever	Units	2015	Level 1	Level 2	Level 3	Level 4
Metal Production	share	70%	70%	80%	90%	100%
Cement, ceramics, glass	share	80%	80%	85%	90%	100%
Chemicals	share	65%	65%	80%	90%	100%
Other Industry	share	70%	70%	80%	90%	100%
Refineries	share	65%	65%	80%	90%	100%
Biomass Gasification	share	85%	85%	90%	95%	100%
Bio liquid Production	share	85%	85%	90%	95%	100%
Energy from Waste	share	85%	85%	90%	95%	100%
Hydrogen from Biomass	share	85%	85%	90%	95%	100%
Hydrogen from gas (SMR)	share	85%	85%	90%	95%	100%
Electricity from Biomass	share	85%	85%	90%	95%	100%
Electricity from Gas	share	85%	85%	90%	95%	100%