

Industry: Industry Shift to Biomass

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 use of biomass in industry has the potential to reduce carbon dioxide emissions because most of the CO₂ emitted from the combustion of biomass has been previously absorbed by the crop.

If the biomass used in industry is also combined with carbon capture and storage (controlled by the industry CCS lever), this has the potential to remove CO₂ from the atmosphere ('negative emissions').

Industries that make use of solid fuel burners and boilers are more readily able to switch to solid biomass as a fuel source whereas natural gas fired processes are less likely to be switched over to biomass, due to the disruption and cost to change the technology. There may be issues in some industries with biomass not reaching high enough temperatures for high-temperature processes – this is most likely in the metals and cement industries. Ash collection also represents a logistical issue with biomass.

Key Interaction

Biomass supply must also be considered. Biofuels can be created from waste and biomass grown in the UK, but these have limited availability. Any demand not met by UK

biomass is satisfied by imports. However, dependency on large quantities of imported biomass may not be possible in reality and would result in a less robust energy system. UK bioenergy production can be controlled through the Land Use & Biofuels levers.

Level 1

The use of biomass throughout industry remains the same as 2015 levels.

Level 2

Ambition level is 1/3rd of the difference between Level 1 and Level 4. Approximately a third of industrial heat demand is satisfied by biomass.

Level 3

Ambition level is 2/3rds of the difference between Level 1 and Level 4. Over half of industrial heat demand is satisfied by biomass.

Level 4

Biomass switching in industry reaches maximum potential suggested by expert opinion. In some instances, this would require a move away from existing gas fired processes to biomass. Unless industrial heat demand is reduced, this would require nearly all the maximum available raw biomass of around 300 TWh/year (CCC 'Global governance and innovation' scenario¹).

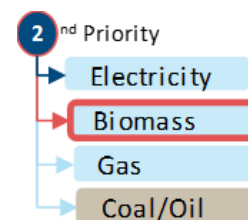
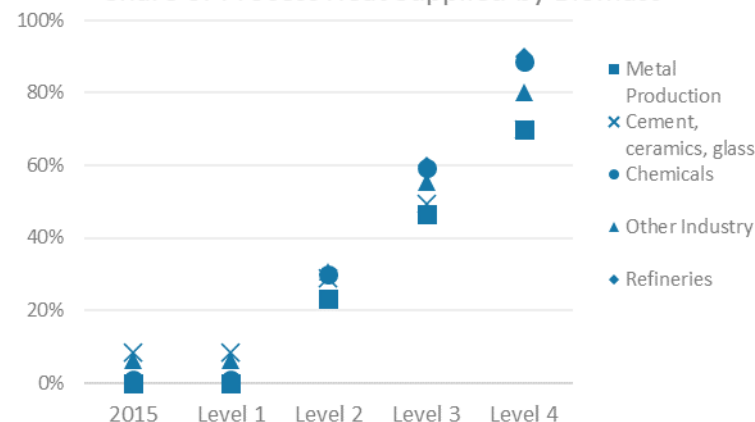
¹<https://www.theccc.org.uk/publication/biomass-in-a-low-carbon-economy/>

Default Timing Start year: 2020, End year: 2050

Share of process heat supplied by Biomass

Sub-Lever	Units	2015	Level 1	Level 2	Level 3	Level 4
Iron, Steel & other metals	share	0%	0%	23%	47%	70%
Cement, ceramics & glass	share	8%	8%	29%	49%	70%
Chemicals	share	1%	1%	30%	59%	88%
Other industry	share	6%	6%	31%	55%	80%
Refineries	share	0%	0%	30%	60%	90%

Share of Process Heat Supplied by Biomass



Lever Priority

Biomass is second in the priority order for supplying process heat to industry.

Where supply would otherwise exceed demand, measures lower in the priority order will be superseded by those above them. High carbon fossil fuels coal and oil meet any shortfall in demand.