Industry: Industrial Efficiency

This lever controls the sub-levers listed in the table, and ambition levels are for the end year shown on the right-hand side. Units of 'Index' are relative to 2015.

In the Calculator, industrial energy intensity is the amount of energy consumed by an industrial sector to produce a unit of heat. It is a measure of how efficient the processes in industry are. Efficiency measures that can be used in industry include:

- Replace heating/cooling technologies with modern, more efficient ones
- Increased automation and optimized scheduling of processes
- Building management systems and intelligent lighting
- Development of strategies for big consumers of energy.

Recycling of materials can deliver substantial energy savings. For example, recycling aluminium uses around 5% of the energy needed to produce it from ore[1].

In some industrial process CO_2 emissions arise from the fuel needed as a reagent in a chemical reactions, such as reduction of iron oxide, or production. Using different fuels in such processes could lead to reduced CO_2 emissions such as the use of hydrogen instead of coke. Using resources more efficiently could lead to reductions in CO_2 emissions from industry[2].

Key Interaction

Efficiency improvements reduce fuel requirements in industry.

Combustion and process emissions can be captured by carbon capture technologies. This is controlled by the Industry CCS lever.

Level 1

Energy consumption in the metal and cement industries are unchanged from 2015. Remaining industries continue to improve efficiencies to achieve cost savings on energy bills. Process emissions from all industry remain at 2015 levels.

Level 2

Energy consumptions in the metal and cement industries are unchanged from 2015, but their emissions intensity falls slightly. Remaining industries are able to do more to reduce energy use and emissions by introducing improved process controls, more automation and energy audits.

Level 3

There are improvements in energy intensity and emissions across all industry.

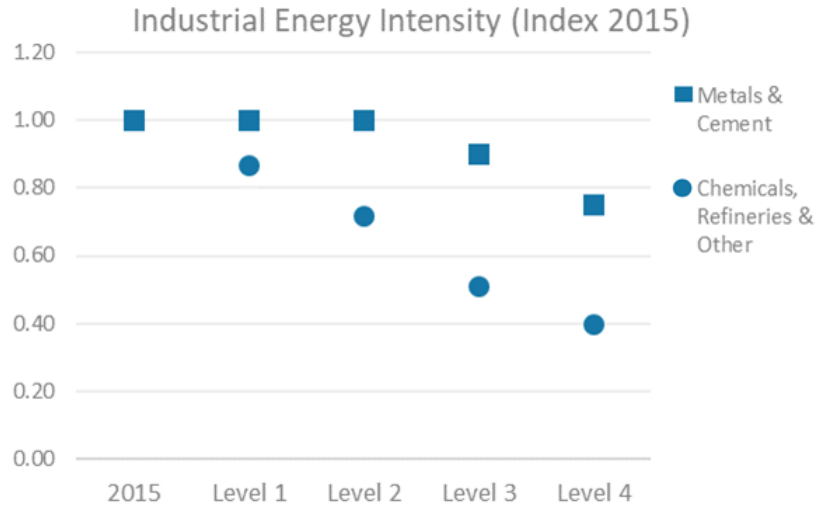
Level 4

A suite of energy saving solutions and efficiency measures are applied throughout all industrial sectors to achieve big reductions in energy consumption. Low-carbon reducing agents are used in the cement and chemicals industries.

Default Timing

Start year: 2020, End year: 2050

Sub-Lever	Units	2015	Level 1	Level 2	Level 3	Level 4
Energy Intensity						
Metal Production	Index	1.00	1.00	1.00	0.90	0.75
Cement, ceramics, glass	Index	1.00	1.00	1.00	0.90	0.75
Chemicals	Index	1.00	0.87	0.72	0.51	0.40
Other Industry	Index	1.00	0.87	0.72	0.51	0.40
Refineries	Index	1.00	0.87	0.72	0.51	0.40
Process Emissions Intensity						
Metal Production	Index	1.00	1.00	0.96	0.92	0.88
Cement, ceramics, glass	Index	1.00	1.00	0.85	0.70	0.55
Chemicals	Index	1.00	1.00	0.82	0.63	0.45
Other Industry	Index	1.00	1.00	0.83	0.67	0.50
Refineries	Index	1.00	1.00	0.82	0.63	0.45



[1] http://www.world-aluminium.org/media/filer_public/2013/01/15/fl0000181.pdf (p. 6)
[2] https://www.green-alliance.org.uk/resources/Less_in_more_out.pdf