

Industrial boilers and furnaces fuel migration: gas

In the 2050 Calculator industry can supplement the use of coal with natural gas. In 2006, coal is the dominant fuel for industrial boilers and furnaces, except for in the Chemical and Petrochemical sectors¹.

The *Industrial boilers and furnaces fuel migration: gas* Lever increases share of gas as industrial fuel and reduces coal usage. The rate of increase for each industrial subsector is listed in the table below².

Level 1

Level 1 assumes there is no change in the share of gas as fuel in industry such that the share remains at about 12%.

Level 2

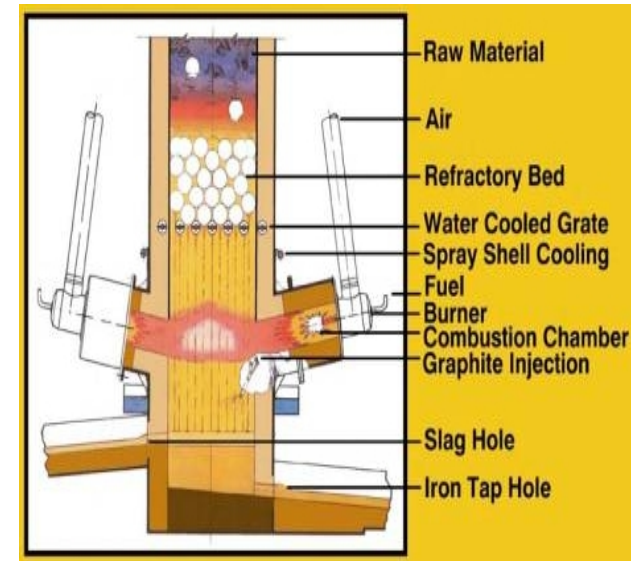
Level 2 assumes that gas consumption remains low with a slight increase in gas consumption to supply around 15% of industrial fuel demand in 2050.

Level 3

Level 3 assumes that there is a noticeable shift to gas as an industrial fuel with gas now contributing almost a third of fuel demand in 2050.

Level 4

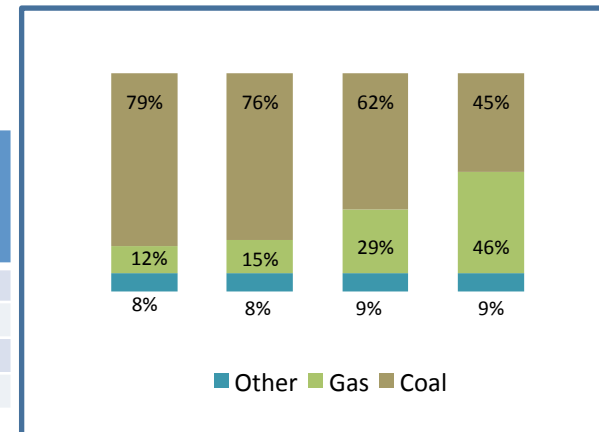
Level 4 assumes that there is a sharp increase in gas consumption such that gas rivals coal in its share of approximately 46% of industrial fuel demand in 2050.



Gas-fired cokeless furnace for cast iron melting.
Source: www.foundryinfo-india.org

Share of gas as industrial boiler and furnace fuel by useful energy demand

Level	Mining	Iron and Steel	Chemicals and Petrochemical	Non-Ferrous Metals	N.M.M Products	Food, Beverage and Tobacco	Pulp and Paper Products	Other
1	5.8%	16.0%	56.0%	-	14.0%	4.0%	3.0%	6.0%
2	5.8%	16.0%	56.5%	1.3%	14.1%	11.4%	11.2%	12.6%
3	13%	33%	68%	5%	32%	27%	27%	28%
4	20%	50%	80%	10%	50%	50%	50%	50%



The final energy contribution of gas to total industrial energy demand for boiler and furnace systems in 2050 for levels 1 to 4. Also shown is the relative coal usage. Note that the final share is dependent on subsector growth assumptions for the period.

¹ Industrial Energy Balance, 2006 (ERC,2013).

² Adapted from ERC industrial gas consumption review (Napp,2013)

Industrial boilers and furnaces fuel migration: waste

In 2006, coal is the dominant fuel for most industrial boilers and furnaces. The *industrial boilers and furnaces fuel migration: waste* Level supplements coal fuel supply with waste¹.

The options provided in Levels 2 to 4 offer a progressive increase in fuel shares of waste with a reduction in coal usage. The rate of increase for each industrial sub-sector is listed in the table below.

Level 1

Level 1 assumes that of the fuel used for industry the ratio of waste to coal remains the same as it was in 2006.

Level 2

Level 2 assumes that a notable increase in waste diverted from landfill occurs to supply 3% of the fuel used in industrial boilers and furnaces.

Level 3

Level 3 assumes that waste diverted from landfill provides 5% of the fuel used in industrial boilers and furnaces.

Level 4

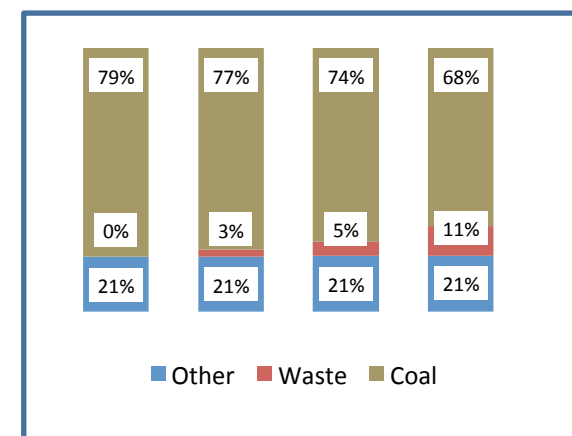
Level 4 assumes that landfill provides 10% of the fuel used in industrial boilers and furnaces.



Non-recyclable waste to fuel industrial boilers.
Source: www.powermag.com

Share of waste as industrial boiler and furnace fuel by useful energy demand.

Level ²	Mining	Iron and Steel	Chemicals and Petrochemical	Non-Ferrous Metals	N.M.M Products	Food, Beverage and Tobacco	Pulp and Paper Products	Other
1	-	-	-	-	-	-	-	-
2	3.0%	3.0%	3.0%	3.0%	3.0%	3.0%	3.0%	3.0%
3	5%	5%	5%	5%	5%	5%	5%	5%
4	10%	10%	10%	10%	10%	10%	10%	10%



The final energy contribution of waste to total industrial energy demand for boiler and furnace systems in 2050 for levels 1 to 4. Also shown is the relative coal usage. Note that the final share is dependent on subsector growth assumptions for the period.

¹ Waste as fuel refers to material that would otherwise be regarded as municipal waste.

² Estimated.