

33. Industrial energy technology

The type of industrial expansion is explored with the Industry Output Growth lever. This lever allows the user to explore fuel substitution within the chosen Industrial sectors. Gaseous fuels burnt to heat water can be partially replaced by solar hot water panels. Likewise Combined Heat and Power Plants can generate electricity and the heat used in industrial processes. The user may decide to focus on a particular fuel for energy security, lower emissions or to match choices elsewhere.

The last decade

As Bangladesh industry has scaled up, the choice of fuels has often been made based on reliability and availability. Some factories will have gas and oil based generators to cover times of electricity shortage. Others have been forced to change based on regulations. The use of fuelwood in the brick fields was banned in this period.

Assumptions of model

The model makes some rough assumptions about the degree of substitution possible for different fuels. It does not consider cost variables.

Levels

Level 1

The focus is on using electricity. By 2050, in general terms 60% of the energy used in industry comes from grid electricity, with 10% from gas and 30% from solar heating.

Level 2

The focus is on using solid and liquid fuels. By 2050, in general terms 40% of the energy used in industry comes from electricity, with 5% each from solid and liquid fuels, 10% from gas and 20% from solar heating.

Level 3

The focus is on using gaseous fuels. By 2050, in general terms 28% of the energy used in industry comes from electricity, with 60% from gas and 12% from solar heating.

Level 4

The focus is on using solar heating. By 2050, in general terms 20% of the energy used in industry comes from electricity, with 15% from gas and 65% from solar heating. The implication here is that Concentrated Solar Power is used to generate steam that can be used for multiple purposes, including electricity generation.

Interaction with other levers

Widespread use of solar heating might compete for roof space with solar panels for electricity generation.

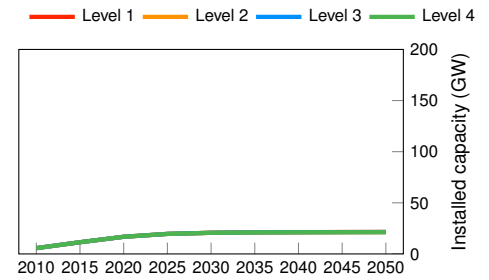


Figure 33.1: Development of total energy need by scenario for Industry focus 4

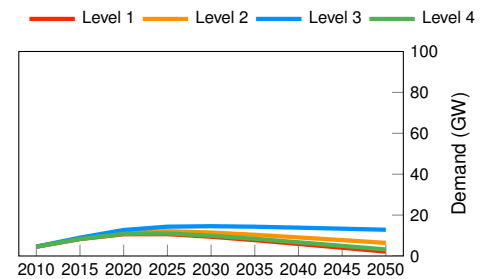


Figure 33.2: Development of Gaseous Fuel need only (by scenario for Industry focus 4)



Figure 33.3: Industrial solar water heaters, India