4. Liquid fuel power stations

Various grades of liquid fuels, such as petrol and diesel, can be burnt to generate steam to drive turbines. These stations have a very quick response time, making them ideal for covering short term peak loads. Bangladesh has a very small domestic oil production capability.

The last decade

Since 2010, a large number of small, privately owned, liquid fuel power stations have started providing energy to the grid. Generation capacity has been increased from 0.44GW in 2010 to 2.84 GW in 2014. Since electricity demand is increasing more rapidly than generation capacity, they have been supporting the base-load generation as well as peak loads.

Assumptions of model

The model simplifies all classes of liquid fuels into one homogenous vector. Reflecting current usage, the model assumes a relatively high load factor of 52% in 2010, dropping to 23% onwards. By comparison, the UKs load factor for similar plants is only 6%, corresponding to operating 22 days a year. Own use requirements and thermal efficiency were calculated from power sector reports and are set here as 11% and 21% respectively.

Levels

Level 1

Least effort. Level 1: No new Liquid fuel power stations are built. Wear and derating gradually reduce their capacity to 2.13 GW by 2050

Level 2

Current policy. No new Liquid fuel power stations are built. Operating capacity is reduced to 1.6 GW by 2030 in line with PSMP 2010. It is then held at this level out to 205. This is lower than the pure legacy estimates.

Level 3

New Liquid fuel power stations continue to be built, but at a steadily decreasing rate. The 2030 capacity is 4.95 GW and the 2050 capacity is 5.23 GW

Level 4

New Liquid fuel plants continue to be built at the same rate as between 2010 and 2015. The 2030 capacity is 10.05 GW and the 2050 capacity is 19.67 GW

Interaction with other levers

Some of the liquid fuel used in power generation can be sourced from converted biomass. The rest is sourced from domestic or imported oil products. The exact source mix will vary according to the settings on the Bio-energy group of levers and the Gas Imports lever.

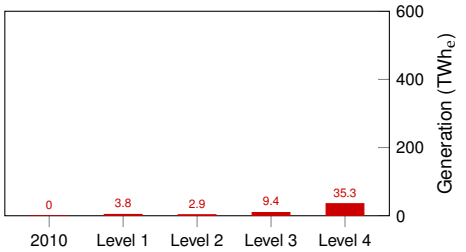

Figure 4.1: Projected Capacity in 2050

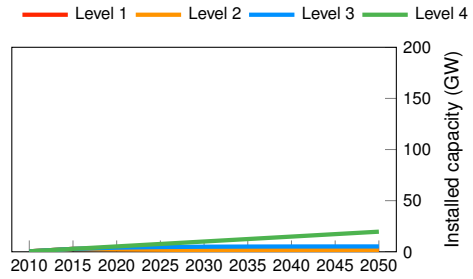

Figure 4.2: Development of liquid fuel power generation capacity by scenario

Figure 4.3: An example Liquid Fuel Power Plant