

5. Nuclear power

Nuclear power stations sustain a fission reaction in a fuel isotope (normally Uranium). The energy released is captured and used to generate steam to drive turbines. Like most countries, Bangladesh has no natural reserves of Uranium and would import the fuel.

The last decade

Bangladesh has not used nuclear power in the past, although a recent contract has been signed to construct a new plant.

Assumptions of model

The model currently assumes all new plants built would be Pressurized Hot Water Reactors. This is a mature form of nuclear reactor technology. It is assumed they have a load factor of 80% (provide peak capacity 80% of the time) and use 10% of their generated electricity to power themselves. A thermal efficiency of 35% is used to estimate the energy in steam used to drive the generators.

Levels

Level 1

Least effort. No nuclear power stations are built.

Level 2

Current policy. A 0.4 GW test reactor is built by 2020 and the PSMP goal of 3.8GW generation by 2030 is reached. Capacity then remains constant.

Level 3

A 0.75 GW test reactor is built in 2020 and the PSMP goal of 3.8 GW in 2030 is reached. Capacity is then increased at 6% annually, to match the moderate economic growth estimate.

Level 4

A 1.5 GW test reactor is built in 2020 and the PSMP goal of 3.8 GW in 2030 is reached. Capacity is then increased at 10% annually, to exceed the upper bounds of economic growth.

Interaction with other levers

No interaction with other levers is expected.

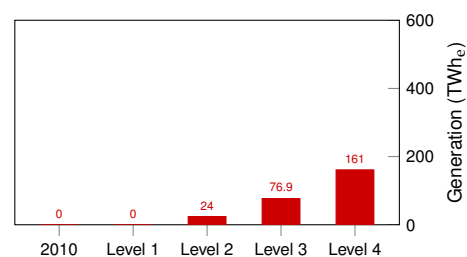


Figure 5.1: Projected Capacity in 2050

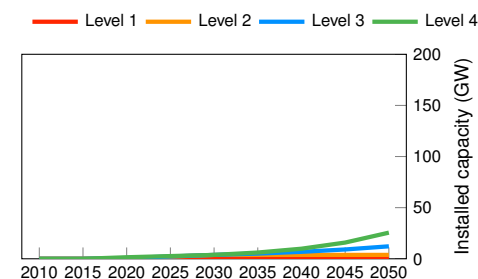


Figure 5.2: Development of capacity by scenario



Figure 5.3: A Nuclear Power Plant under construction