Carbon Capture and Storage

CCS Power Stations and Fuel Split

Carbon capture and storage refers to a process of capturing carbon dioxide from and storing it in suitable sites, from which it will not enter into atmosphere. This can provide solutions to reduce carbon emissions from fossil fuel based power plants. This lever provides choices to the users, for selecting different level of carbon capture and storage linked power plants. Impact of user's choices on various outputs like emission reduction and cost implications can be seen.

Level 1

Level 1 assumes that no plants with CCS will be commissioned. This could be due to high upfront cost and government's focus on renewable energy.

Level 2

Level 2 assumes that power plants with CCS usage will be deployed at slow rate. This could be because costs are high and are a barrier to deployment. CCS usage will start in 2030 and will reach 250 MW in 2050. Electricity generation from plants using CCS technology would be 1.3 TWh in 2050. Level 2 assumes that CCS technology is completely based on coal and gas is not utilized for CCS at this stage.

Level 3

Level 3 assumes that CCS based plants will increase at a much faster rate. This could be because of owing national commitments on GHG reductions and state government efforts. Cumulative capacity of plants with CCS technology will reach 0.5 GW and generation from CCS based plants will increase to 2.9 TWh by 2050. In this scenario even gas based generation sees induction of CCS technology. The fuel split is in the ratio 95:5 for coal and gas, respectively by 2050.

Level 4

Level 4 which is the most optimistic scenario, assumes that growth rate of plants with CCS technology will be much higher, which could be because of decrease in capital cost and technological advancements. Cumulative installed capacity of CCS based plants will increase to 1 GW by 2050. Electricity generation from these plants would be 5.5 TWh by 2050. The fuel split is in the ratio 9:1 for coal and gas, respectively by 2050.