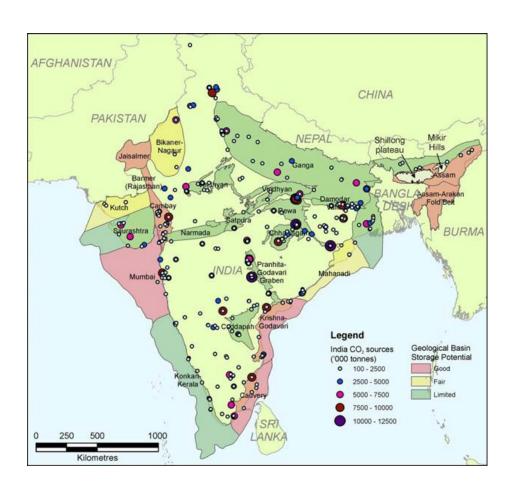
#### **CARBON CAPTURE AND STORAGE**

Fossil fuels will occupy a major part of our energy mix until 2047. Under the above circumstance, carbon capture and storage (CCS) could be a critical GHG reduction strategy in the use of fossil fuels. 'Green coal' could be a win-win solution. This lever in the IESS is a separate coal based power generation technology, and supplements coal based power as higher levels of CCS based plants are chosen (L-2 to 4)

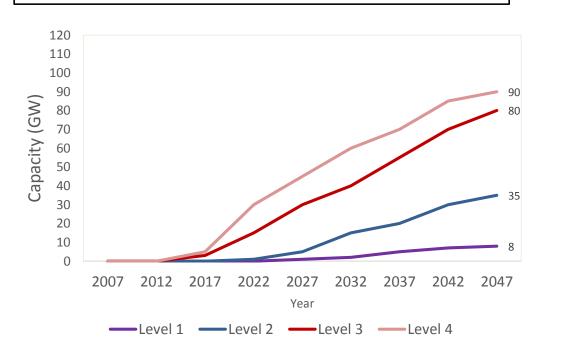


## **LEVEL 1**

No planned generation plants with CCS till 2025 - resultantly the rate of CCS technology deployment will be less. Generation with CCS usage till 2025 will be negligible and starts to increase, but at very slow pace due to lack of efficient and cheap technology. Generation with CCS usage will increase to 8 GW by 2047 from 0 GW in 2012. High cost of CCS technology becomes a deterrent in its adoption. The electricity generation in 2047 would be 42.2 TWh.

## **LEVEL 3**

The amount of CCS-equipped capacity grows rapidly. The absolute growth rate in capture-equipped capacity occurs between 2030 and 2040. Going by IEA roadmap for CCS technology 2013, India will target generation capacity with CCS of 3 GW till 2022 and will increase to 80 GW till 2047. The electricity generation in 2047 would be 423.3 TWh.



# **LEVEL 2**

Generation with CCS usage will be deployed at a slow rate. India will follow projections for US with some time lag. Generation with CCS in 2022 will be around 1 GW and will reach to 35 GW by 2047. The electricity generation in 2047 would be 185.3 TWh.

### **LEVEL 4**

More generation plants with CCS technology will be deployed as an outcome of technology upgradation and reduction in capital requirement. India will begin constructing its own demonstration scale facilities, and more ambitious CCS projects. India will target generation capacity with CCS of 5 GW till 2022 that increases to 90 GW by 2047. The electricity generation in 2047 would be 475.2 TWh.