

Gas Power Stations

Currently, there are no gas based plants in Karnataka. The present analysis deals with grid connected gas based plants that will be added in future and how they will grow under different scenarios. It is expected that gas based power will be vital, not only to meet peaking demand but also to balance intermittent generation from renewable energy sources. State is planning to develop Yelahanka (370 MW) and Bidadi (2,100 MW) plants in coming years.

Level 1

Level 1 assumes that only Yelahanka will get commission by 2022. There will be no gas-based capacity addition thereafter, which could be because of issues related to fuel availability, gas infrastructure, lack of policy support, etc. The total installed capacity will remain at 370 MW. However, the average plant load factor of gas based power plants will improve from existing (2015) 17% to 40% by 2050 which will result in increase in generation to 1.3 TWh by 2050.

Level 2

Government interventions can improve gas availability slightly. This in turn can increase utilization of existing stranded assets. Yelahanka will get commission by 2020 and 1,400 MW Bidadi plant will get commission in phases by 2040 and total installed capacity will reach up to 1.8 GW by 2050 and plant load factor will also improve to 45% in 2050. This will result in increase in electricity generation to 7 TWh in 2050.

Level 3

Level 3 assumes a slightly higher growth in installation of gas based power plants. This could be because of increase in fuel availability, improved gas infrastructure, and need for balancing power to manage renewable generation. Yelahanka will get commission by 2020 and 2,100 MW Bidadi plant will get commission in phases by 2050. Total installed capacity will reach 2.5 GW by 2050 and plant load factor will also improve and reach up to 55% in 2050. Further, due to technological advancements conversion efficiency will improve to about 64% by 2050, resulting in electricity generation of 11.9 TWh by 2050.

Level 4

Level 4 is a more aggressive scenario wherein installation of gas based power plants will increase at a much faster rate as compared to historic trend. Yelahanka and Bidadi will get commission at a faster rate by 2045. This development could be due to improved gas availability from both domestic and imported sources and improvement in gas infrastructure. Total installed capacity will reach up to 2.5 GW by 2050 and plant load factor will also improve significantly reaching to 60% in 2050. This will result in increase in generation from gas based power plant to 13 TWh in 2050.

Gas based Installed Capacity

