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Role of renewable energy over coal based thermal power generation and the environmental impact in India: A review

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Developing countries like India require abundant reliable and continuous supply of energy to boost up its economic development. In the recent years, there is a huge rise in demand of electricity due to rapid growth in population and economy. Presently these demands in electricity are nearly 60% matched by coal based thermal power plant. India has the fifth largest power generation portfolio in the world and its current renewable energy contribution stands at 44.812 GW. Whereas total thermal power plant installed capacity is 212467 MW. Due to abundance of national coal reserve and political promises for free electricity to farmers and others backward section, the progress on renewable source of electricity has been reviewed and highlighted in this paper in details. On the other hand coal power generation is characterized by local and regional environmental degradation as well as green house gas emission leading to climate change. Recently India has an ambitious target of 175 GW of renewable power by 2022. So with this target a comparison study has been done between the growth in renewable energy and the coal based thermal power generation as well as the green house gas emission. India is also equally stand by the target to restrict the global temperature increases to 2°C by the year 2020 as discussed by COP21. Thus the Indian government has taken several positive steps to tackle climate change. In this paper, progress in renewable energy growth and how it is influencing the market share of coal based thermal power plant electricity generation has been discussed in detail. The challenges and mitigations for enforcing the renewable source of electricity suppressing the coal based thermal power plant generation that has environmental impact are also highlighted.

Biography

Avijit Mallick has nearly 10 years' experience in operation of both sub-critical and super critical thermal power plant. He currently serves as a Senior Manager in operation of the Super Critical Thermal Power Plant of Reliance Power Ltd. He is also acting as Technical Team Leader with responsibilities to lead and guide the operation of Boiler, Turbine, ESP & BOP, etc., and is involved in calculating plant daily performance parameters and all energy savings activities. He has a B.Tech in Power Engineering (2003-2007) from National Power Training Institute (NPTI), India, a PG-Diploma in Quality Engineering and Management from Institution of Engineers India (IEI) securing highest mark and got the Merit Award; is a certified Energy Auditor after passing Energy Auditor exam from Bureau of Energy Efficiency, India; an IntPE after passing 'International Professional Engineers' exam in Mechanical Engineering conducted by Institution of Engineers India (IEI) and has completed the Familiarization Program in 'Integrated Management System'.

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