

## Optimized Techniques for Reducing the Reactive Power Generation in Offshore Wind Farms in India

**Authors :** Pardhasaradhi Gudla, Imanual A.

**Abstract :** The generated electrical power in offshore needs to be transmitted to grid which is located in onshore by using subsea cables. Long subsea cables produce reactive power, which should be compensated in order to limit transmission losses, to optimize the transmission capacity, and to keep the grid voltage within the safe operational limits. Installation cost of wind farm includes the structure design cost and electrical system cost. India has targeted to achieve 175GW of renewable energy capacity by 2022 including offshore wind power generation. Due to sea depth is more in India, the installation cost will be further high when compared to European countries where offshore wind energy is already generating successfully. So innovations are required to reduce the offshore wind power project cost. This paper presents the optimized techniques to reduce the installation cost of offshore wind firm with respect to electrical transmission systems. This technical paper provides the techniques for increasing the current carrying capacity of subsea cable by decreasing the reactive power generation (capacitance effect) of the subsea cable. There are many methods for reactive power compensation in wind power plants so far in execution. The main reason for the need of reactive power compensation is capacitance effect of subsea cable. So if we diminish the cable capacitance of cable then the requirement of the reactive power compensation will be reduced or optimized by avoiding the intermediate substation at midpoint of the transmission network.

**Keywords :** offshore wind power, optimized techniques, power system, sub sea cable

**Conference Title :** ICCPCT 2018 : International Conference on Circuits, Power and Computing Technologies

**Conference Location :** Paris, France

**Conference Dates :** September 20-21, 2018