

Analysis of Ayyanarthu Wind Farm with and without Battery Energy Storage System

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Abstract: This paper deals with the battery energy storage system is used in Ayyanarthu wind farm which analysing the variation in electrical parameters like voltage level, per unit value and power value should not vary even the battery energy storage system is applied in the windfarm and battery integrated with the windfarm can reduce the variability especially under the peak load conditions and also reduce the power quality problems, it can analyse through the simulation. DigSilent power factory tool software is used to design and analysis the windfarm the real data in windfarm for 24 hours. Battery energy storage system (BESS) is used to store the excess power because the wind is not constant, it will vary with time and natural climatic changes so that can store the power when the generation is high and the stored power can used when the power demand is high because now a days the population is high so the consumption of power is increasing and inject the surplus power to grid. This paper also highlights the need of storing power in order to strengthen the power and voltage levels. BESS further helps main three challenges i.e. smoothing the voltage levels, capacity firming and time shifting thus the battery energy storage system regulates the active power in a modern day grid.

Keywords: Ayyanarthu wind farm, battery, Energy storage system (ESS), Digsilent tool, voltage level, power, BESS.