

ENHANCEMENT OF PERFORMANCE OF LONG TRANSMISSION LINE USING SERIES COMPENSATION

*A project report submitted in partial fulfillment of the requirements
For the award of the degree of*

BACHELOR OF TECHNOLOGY IN ELECTRICAL & ELECTRONICS ENGINEERING

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Tamaram, Narsipatnam, Visakhapatnam-531113

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CERTIFICATE

This is certify that the project report entitled “**ENHANCEMENT OF PERFORMANCE OF LONG TRANSMISSION LINE USING SERIES COMPENSATION**” is a bonafide work submitted by **L SWAMY, M DURGA PRASAD, R RAMA CHANDRA RAO, G KOTI RAJESH** and **T KRISHNA SAI** in partial fulfillment of the requirements for the award of degree of

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ABSTRACT

In industrial sector or process continuity plant the continuity of the industrial processes becomes a more important factor for the organization profit and economical balance. But sometime its get interrupted due to electrical faults, low voltage supply, voltage sag some mechanical faults or man made mistakes. Out of it voltage sag is one of the most persisting factors to be taken in to account, starting high power loads like induction motors or heavy loads draws a very large amount of current then the system rated specified voltages. So these sags gets detected by the under voltage relays or over current relays and consequently act in opening up of the breaker and hence brings distortion in the process continuity of the plants working processes. And further the cost of restarting the process again and delay in the order supply acts more to the damage done. So, it's really necessary to compensate for the reactive power or the voltage sag occurred during this time.

So one of the available alternative is the modern generation FACT controller like Series connected STATCOM which is a series operated reactive power compensating device or reactive power exchanging device for improving the voltage system profile of the system, so here in this thesis report we will try to investigate the operation of the Series connected STATCOM. Its device characteristics, its constructional details and take a special model in the MATLAB simulation to show the compensating ability of the Series connected STATCOM and its benefits will be figured out. Here we will also find out some of the other ways to improve the voltage sag improvement and theirs features. Little focus will be also on the reactive power analysis, how it affects the system and its necessity will be discussed in brief. Little light will also be given to the FACTS class of the device its modern trends and its benefits to the electrical engineering sector. Here in the Series connected STATCOM circuit which comes across the FACT device class will be using a voltage source PWM operated inverter circuits for its operation. The facts technology is mainly based upon implementing power electronics technology in the field of power system dynamics for its stability and improvement of the various important