Development of power flow model of a STATCOM

A Dissertation Submitted

In Partial Fulfillment of the Requirements for the Award of the Degree Of

MASTER OF ENGINEERING
IN

CONTROL AND INSTRUMENTATION

Submitted By:

Ashok Kumar Bajia

University Roll No.: - 12231

Project Supervisor: **S. Bhowmick**

DEPARTMENT OF ELECTRICAL ENGINEERING

DELHI COLLEGE OF ENGINEERING

DELHI-110042

2009

DELHI COLLEGE OF ENGINEERING

DELHI

Department of Electrical Engineering

CERTFICATE

This is to certify that **Mr. Ashok Kumar Bajia,** a student of final semester **M.E. (C&I), Electrical Engineering Department, Delhi College of Engineering**, during the session 2008-2009 has successfully completed the project work on **Development of Power flow Model of a STATCOM** and has submitted a satisfactory report in partial fulfillment for the award of the degree of **Master Of Engineering** (**Control and Instrumentation**) in **Electrical Engineering Department.**

Date:

Sh. S Bhowmick
Sr. Lecturer, EED
Delhi College of Engineering
Delhi - 110042

__ *Acknowledgement*__

I would like to extend my sincere gratitude and thanks to my guide Sh.S Bhowmick,Sr. Lecturer, Electrical Engineering Department, Delhi College of Engineering, Delhi for his valuable guidance, constant encouragement and helpful discussions throughout the course of this work. He initiated the founding ideas behind this thesis and provided insight and valuable information into many of the problems that were encountered. His positive attitude throughout the duration of this thesis always put things into perspective whenever difficulties arose. This thesis would not have been possible without him.

I am extremely grateful to my parents for their encouragement, support and dedication which have helped me in great way to complete this work. Without their blessings, this work would not have been possible.

And lastly I express sincere gratitude to guide **Prof. Parmod Kumar**, Professor and Head of Electrical Engineering Department, Delhi College of Engineering, Delhi with whose blessing this project was completed. And finally, I thank Almighty GOD for his countless blessings.

Ashok Kumar Bajia
M.E(C&I)

Abstract

To enhance the power transmission capability over the existing transmission corridors, power electronics based flexible ac transmission system (FACTS) based controllers are now a days increasingly being used. The performance of voltage sourced converters (VSC) based FACTS controllers like STATCOMs, SSSC, UPFC and GUPFC is generally better then thyristor based ones like SVC, TCSC etc., and consequently evoke interest from both the industry and the academia. Amongst the VSC based controllers, the STATCOMs were the earliest devices and currently in installation in maximum numbers.

The first 100 Mvar STATCOM was installed in the Sullivan substation of the Tennessee valley authority in 1995. The project was jointly sponsored by the Electric Power Research Institute and TVA, and designed by the Westinghouse Electric Corporation.

For proper utilization of a STATCOM, power flow solution of the network containing STATCOM is a must, and hence, in this project, an attempt is made towards to developing a power flow model of a STATCOM.

At first, a program is developed for the power flow solution of a network using the Newton's method. Subsequently, STATCOM has been modeled for the Newton power flow solutions of the network containing them

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