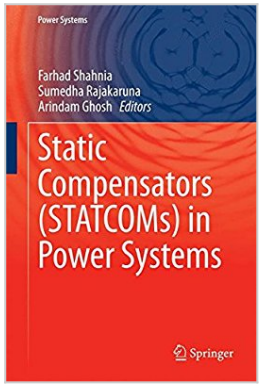

Static Compensators (STATCOMs) in Power Systems

From Springer

Static Compensators (STATCOMs) in Power Systems From Springer

A static compensator (STATCOM), also known as static synchronous compensator, is a member of the flexible alternating current transmission system (FACTS) devices. It is a power-electronics based regulating device which is composed of a voltage source converter (VSC) and is shunt-connected to alternating current electricity transmission and distribution networks. The voltage source is created from a DC capacitor and the STATCOM can exchange reactive power with the network. It can also supply some active power to the network, if a DC source of power is connected across the capacitor. A STATCOM is usually installed in the electric networks with poor power factor or poor voltage regulation to improve these problems. In addition, it is used to improve the voltage stability of a network.

This book covers STATCOMs from different aspects. Different converter topologies, output filters and modulation techniques utilized within STATCOMs are reviewed. Mathematical modeling of STATCOM is presented in detail and different STATCOM control strategies and algorithms are discussed. Modified load flow calculations for a power system in the presence of STATCOMs are presented. Several applications of STATCOMs in transmission and distribution networks are discussed in different examples and optimization techniques for defining the optimal location and ratings of the STATCOMs in power systems are reviewed. Finally, the performance of the network protection scheme in the presence of STATCOMs is described. This book will be an excellent resource for postgraduate students and researchers interested in grasping the knowledge on STATCOMs.

Static Compensators (STATCOMs) in Power Systems

From Springer

Static Compensators (STATCOMs) in Power Systems From Springer

A static compensator (STATCOM), also known as static synchronous compensator, is a member of the flexible alternating current transmission system (FACTS) devices. It is a power-electronics based regulating device which is composed of a voltage source converter (VSC) and is shunt-connected to alternating current electricity transmission and distribution networks. The voltage source is created from a DC capacitor and the STATCOM can exchange reactive power with the network. It can also supply some active power to the network, if a DC source of power is connected across the capacitor. A STATCOM is usually installed in the electric networks with poor power factor or poor voltage regulation to improve these problems. In addition, it is used to improve the voltage stability of a network.

This book covers STATCOMs from different aspects. Different converter topologies, output filters and modulation techniques utilized within STATCOMs are reviewed. Mathematical modeling of STATCOM is presented in detail and different STATCOM control strategies and algorithms are discussed. Modified load flow calculations for a power system in the presence of STATCOMs are presented. Several applications of STATCOMs in transmission and distribution networks are discussed in different examples and optimization techniques for defining the optimal location and ratings of the STATCOMs in power systems are reviewed. Finally, the performance of the network protection scheme in the presence of STATCOMs is described. This book will be an excellent resource for postgraduate students and researchers interested in grasping the knowledge on STATCOMs.

Static Compensators (STATCOMs) in Power Systems From Springer Bibliography

- Sales Rank: #4313016 in Books
- Published on: 2014-12-02
- Original language: English
- Number of items: 1
- Dimensions: 9.21" h x 1.56" w x 6.14" l, 2.60 pounds
- Binding: Hardcover
- 735 pages

Editorial Review

From the Back Cover

A static compensator (STATCOM), also known as static synchronous compensator, is a member of the flexible alternating current transmission system (FACTS) devices. It is a power-electronics based regulating device which is composed of a voltage source converter (VSC) and is shunt-connected to alternating current electricity transmission and distribution networks. The voltage source is created from a DC capacitor and the STATCOM can exchange reactive power with the network. It can also supply some active power to the network, if a DC source of power is connected across the capacitor. A STATCOM is usually installed in the electric networks with poor power factor or poor voltage regulation to improve these problems. In addition, it is used to improve the voltage stability of a network.

This book covers STATCOMs from different aspects. Different converter topologies, output filters and modulation techniques utilized within STATCOMs are reviewed. Mathematical modeling of STATCOM is presented in detail and different STATCOM control strategies and algorithms are discussed. Modified load flow calculations for a power system in the presence of STATCOMs are presented. Several applications of STATCOMs in transmission and distribution networks are discussed in different examples and optimization techniques for defining the optimal location and ratings of the STATCOMs in power systems are reviewed. Finally, the performance of the network protection scheme in the presence of STATCOMs is described. This book will be an excellent resource for postgraduate students and researchers interested in grasping the knowledge on STATCOMs.

About the Author

Dr. Farhad Shahnia received his Ph.D. in Electrical Engineering from Queensland University of Technology, Brisbane, Australia. He is currently a Lecturer in Curtin University, Perth, Australia. His professional experience includes three years at Research Office-Eastern Azerbaijan Electric Power Distribution Company, Tabriz, Iran. Prior to joining Curtin University, he was a research fellow in Queensland University of Technology, Brisbane, Australia. He has published 5 book chapters, 8 journal papers and 55 conference papers.

Dr. Sumedha Rajakaruna received his Ph.D. in Electrical Engineering from the University of Toronto, Ontario, Canada. He was a Lecturer at University of Moratuwa, Sri Lanka until 2000 and then an Assistant Professor at Nanyang Technological University, Singapore until 2007. Since 2007, he is at Curtin University, Perth, Australia. He is the founding Director and Lead Designer of Green Electric Energy Park at Curtin University, a state of the art renewable energy laboratory built at the cost of over $1.2 million in 2012. He is the supervisor of more than 10 PhD graduates and has published 2 book chapters and over 40 research articles.

Dr. Arindam Ghosh received his Ph.D. in Electrical Engineering from University of Calgary, Canada in 1983. Currently, he is a Professor of Power Engineering at Curtin University, Perth, Australia. Prior to joining the Curtin in 2013, he was with Queensland University of Technology, Brisbane, Australia from 2006 to 2012 and with the Department of Electrical Engineering at IIT Kanpur, India, for 21 years. He is a fellow of INAE and IEEE. He has published 1 book, 6 book chapters and more than 350 papers in

international conferences and journals.

Users Review

From reader reviews:

Bobby Bagwell:

Do you have favorite book? In case you have, what is your favorite's book? Book is very important thing for us to understand everything in the world. Each book has different aim as well as goal; it means that guide has different type. Some people really feel enjoy to spend their a chance to read a book. They are reading whatever they take because their hobby is usually reading a book. What about the person who don't like studying a book? Sometime, man feel need book whenever they found difficult problem or even exercise. Well, probably you will need this Static Compensators (STATCOMs) in Power Systems.

Robert Hay:

What do you concerning book? It is not important along with you? Or just adding material if you want something to explain what the ones you have problem? How about your spare time? Or are you busy man? If you don't have spare time to complete others business, it is give you a sense of feeling bored faster. And you have extra time? What did you do? Everyone has many questions above. They have to answer that question simply because just their can do which. It said that about guide. Book is familiar on every person. Yes, it is correct. Because start from on guardería until university need this particular Static Compensators (STATCOMs) in Power Systems to read.

Angel Jones:

As people who live in the modest era should be update about what going on or information even knowledge to make these people keep up with the era that is always change and move forward. Some of you maybe will certainly update themselves by reading through books. It is a good choice to suit your needs but the problems coming to you is you don't know which one you should start with. This Static Compensators (STATCOMs) in Power Systems is our recommendation to cause you to keep up with the world. Why, because this book serves what you want and need in this era.

Richard Valadez:

Don't be worry when you are afraid that this book will certainly filled the space in your house, you will get it in e-book method, more simple and reachable. This kind of Static Compensators (STATCOMs) in Power Systems can give you a lot of friends because by you investigating this one book you have issue that they don't and make a person more like an interesting person. This kind of book can be one of one step for you to get success. This guide offer you information that might be your friend doesn't recognize, by knowing more than various other make you to be great men and women. So , why hesitate? We should have Static Compensators (STATCOMs) in Power Systems.

Read Static Compensators (STATCOMs) in Power Systems From Springer for online ebook

Static Compensators (STATCOMs) in Power Systems From Springer Free PDF d0wnl0ad, audio books, books to read, good books to read, cheap books, good books, online books, books online, book reviews epub, read books online, books to read online, online library, greatbooks to read, PDF best books to read, top books to read Static Compensators (STATCOMs) in Power Systems From Springer books to read online.

Online Static Compensators (STATCOMs) in Power Systems From Springer ebook PDF download

Static Compensators (STATCOMs) in Power Systems From Springer Doc

Static Compensators (STATCOMs) in Power Systems From Springer Mobipocket

Static Compensators (STATCOMs) in Power Systems From Springer EPub

QFR5N3E1MJP: Static Compensators (STATCOMs) in Power Systems From Springer