

Description

Wide area monitoring, protection and control systems (WAMPACs) have been recognised as the most promising enabling technologies to meet the challenges of modern electric power transmission systems, where reliability, economics, environmental and other social objectives must be balanced to optimize the grid assets and satisfy growing electrical demand. This book provides an overview of this emerging technology.

Topics covered include;

- Wide Area Measurement System: The Enabler for Smarter Transmission
- Reliability-Based Substation Monitoring Systems Placement
- System Integrity Protection Scheme Based on PMU Technology
- New Methodologies for Large-Scale Power System Dynamic Analysis
- A Fuzzy-based Knowledge Discovery Paradigm for on-line Optimal Power Flow Analysis
- False data injection attacks and countermeasures for wide area measurement system

About the Editors

Alfredo Vaccaro is an Associate Professor of Electrical Power Systems at the Department of Engineering of the University of Sannio, Benevento, Italy. His special fields of interest include soft computing and interval-based method applied to power system analysis, and advanced control architectures for diagnostic and protection of distribution networks. Prof. Vaccaro is a member of the Editorial Boards of IET Renewable Power Generation, and the International Journal of Reliability and Safety, and he is the Executive Editor of the International Journal of Renewable Energy Technology.

Ahmed Faheem Zobaa is a Senior Lecturer in power systems, an MSc Course Director and a Full Member of the Institute of Energy Futures at Brunel University London, U.K. His main areas of expertise are power quality, (marine) renewable energy, smart grids, energy efficiency, and lighting applications. Dr. Zobaa is an Editor-in-Chief for the International Journal of Renewable Energy Technology and Technology and Economics of Smart Grids and Sustainable Energy.

Book readership

This text is essential reading for researchers and students working in energy engineering, especially on power transmission and the smart grid.

Book contents

This information is provisional and will be updated prior to publication

Chapter 1- Wide Area Measurement System: The Enabler for Smarter Transmission Grids- G. Giannuzzi & C. Pisani

Chapter 2- Reliability-Based Substation Monitoring Systems Placement- Oscar Gomez, George J. Anders

Chapter 3- System Integrity Protection Scheme Based on PMU Technology- Srdjan Skok

Chapter 4- New Methodologies for Large-Scale Power System Dynamic Analysis- Aleksandar M. Stankovic, Andrija T. Saric

Chapter 5- A Fuzzy-based Knowledge Discovery Paradigm for on-line Optimal Power Flow Analysis

Chapter 6- False Data Injection Attacks and Countermeasures for Wide Area Measurement System- Junbo Zhao & Massimo La Scala