

Preface

There has been a growing trend in the power systems from a centralized producer-driven grid to a smarter interactive customer network. This requirement compels a new way of designing smart grids for a more reliable and secure power system performance. Involving the demand side in the power system management requires large-scale utilization of distributed communication networks. In this context, there is a considerably increasing concern regarding the security and privacy of both physical and communication layers of the network. This book utilizes an advanced interdisciplinary approach to address the existing security and privacy issues and propose legitimate countermeasures for each of them in the standpoint of both computing and electrical engineering. The proposed methods are theoretically proved by mathematical tools and illustrated by real-world examples.

This book paves the way for researchers working on privacy and security issues spread throughout computer science and smart grids. Furthermore, it provides the readers with a comprehensive insight to understand an in-depth big picture of privacy and security challenges in both physical and information aspects of smart grids. This book can be used as textbook for graduate-level courses in computer engineering, computer science, electrical engineering, and other related areas.

Features

Here are the unique aspects of our book which address the oblivious network routing problems:

- (1) Preserving of the location privacy of mobile users of future smart grids.
- (2) The security of smart grids attracts researchers' attentions.
- (3) Information privacy for smart meters and mobile users plays a key role in future smart grids.
- (4) Maintaining the reliability of the smart grids.

- (5) Providing security countermeasures for false data injection into the communication networks of smart grids.
- (6) Evaluating the privacy and security of both physical and information infrastructures.

Proposing a novel congestion-based economic dispatch framework based on oblivious routing network concept.

Intended Audience

This monograph is suitable for senior undergraduate students, graduate students, and the researchers working in the related areas.

Miami, FL, USA
Pittsburgh, PA, USA
Miami, FL, USA

Kianoosh G. Boroojeni
M. Hadi Amini
S.S. Iyengar

Smart Grids: Security and Privacy Issues

Boroojeni, K.G.; Amini, M.H.; Iyengar, S.S.

2017, XIV, 113 p. 26 illus., 25 illus. in color., Hardcover

ISBN: 978-3-319-45049-0