



ISBN: 978-0-12-804249-6

PUB DATE: April 2016

LIST PRICE: \$100.00

FORMAT: Paperback

PAGES: c. 466

**Use Discount ENG315 to
Save 30% off the list price
at Check-out!**

**For purchase, click on link
below for the Elsevier**

Store site:

<http://store.elsevier.com>

Future of Utilities - Utilities of the Future

How technological innovations in distributed generation will reshape the electric power sector

Edited by: **Fereidoon P. Sioshansi**, President, Menlo Energy Economics, San Francisco, CA, USA



Rapid technological advancements plus falling costs of **distributed energy resources** (DERs) – which includes **energy efficiency** improvements plus **distributed generation** – is turning an increasing number of **consumers** into **prosumers**, eroding utility revenues and threatening the historical business model.

Equally important are rapid advances in **energy storage**, **electric vehicles**, **micro-grids**, **intelligent home energy management**, **demand aggregation**, and **demand response**, all pointing to a different future with a different role for the incumbents.

Future of utilities: Utilities of the future, which includes contributions from experts with different perspectives from different parts of the globe, examines the implications of these developments on the electric power sector.

"The future of the utilities is not yet given, or written. Even those utilities having avoided the market revolution of the past decades won't be able to avoid the 3 tsunamis of supply, demand and technology that are about to hit them. You – and they – can imitate the ostrich and stay blind a bit longer or... read the book!"

Professor Jean-Michel Glachant, Director Florence School of Regulation, European University Institute

"The electricity service of 2010 would be quite recognizable to a customer from 1910, but this is about to change. This book shows how technological innovation, economic forces and new business models could combine to produce radical changes over the coming decades."

Professor Richard Green, Imperial College Business School

"This book brings together the thinking of some of the smartest minds from around the globe to bear on the quintessential question of this age: what will be the future of the electric utility industry?"

Dr. Ahmad Faruqi, The Brattle Group

"New technologies, consumers, and policies are challenging the organizational and operational paradigm of the utilities prevailing since the formative years of the sector. We need to better understand this transition. This book written by leading practitioners and scholars offers a valuable guide to the issues and options for creating the utilities of future."

Professor Tooraj Jamab, Durham University

Use Discount **ENG315** to save **30% off** the list price at Check-out!

For purchase, click on link below for the Elsevier Store site:

<http://store.elsevier.com>



*Prices are subject to change without notice. All Rights Reserved.

Future of Utilities - Utilities of the Future

Fereidoon Sioshansi, Editor

Table of Contents

Foreword

Michael Peevey, former president of California Public Utilities Commission

Preface

Peter Terium, CEO RWE AG

Introduction

Fereidoon Sioshansi, Menlo Energy Economics

Part I. What is changing, what are the implications?

1. What future for electric power sector?

Fereidoon Sioshansi, Menlo Energy Economics

2. The value of an integrated grid

Clark Gellings, EPRI

3. Microgrids: finally finding their place

Chris Marnay, Microgrid Design of Mendocino LLC

4. A customer-centric view of electricity service

Eric Gimon, Energy Innovation LLC.

5. The innovation platform enables the Internet of Things

John Cooper, Siemens Business Transformation

6. The role of the utility and pricing in the transition

Tim Nelson, AGL Energy and **Judith McNeill**, Univ. of New England

7. Intermittency: it's the short-term that matters

Daniel Rowe, **Saad Sayeef** and **Glenn Platt**, CSIRO Energy

Part II. Competition, innovation, regulation, pricing

8. Retail competition, advanced metering investments, and product differentiation: evidence from Texas

Varun Rai, Univ. of Texas Austin and **Jay Zarnikau**, Univ. of Texas Austin & Frontier Associates

9. Rehabilitating retail electricity markets: pitfalls and opportunities

Ralph Cavanagh and **Amanda Levin**, NRDC

10. Residential rate design and death spiral for electric utilities: efficiency and equity considerations

Rasika Athawale and **Frank Felder**, Rutgers Univ.

11. Modeling the impacts of disruptive technologies and pricing on electricity consumption

George Grozev, **Stephen Garner**, **Zhengen Ren**, **Michelle Taylor**, **Andrew Higgins** and **Glenn Walden**, CSIRO and Ergon Energy, Australia

12. Decentralized reliability options: Market based capacity arrangements

Stephen Woodhouse, Pöyry Mgmt. Consulting

13. Network pricing for the prosumer future: Demand-based tariffs or locational marginal pricing?

Darryl Biggar, Australian Competition and Consumer Commission and **Andrew Reeves**, former Chairman, Australian Energy Regulator

14. The evolution of smart grids begs disaggregated nodal pricing

Günter Knieps, Univ. of Freiburg, Germany

Part III. Utilities of the future – future of utilities

15. Identifying value pools, building new business models

Paul Nillesen, PwC and **Michael Pollitt**, Cambridge Univ.

16. European utilities – strategic choices and cultural prerequisites for the future

Christoph Burger and **Jens Weinmann**, European School of Mgmt. and Technology

17. Thriving despite disruptive technologies: German utilities' case study

Sabine Löbbe, Reutlingen University and **Gerhard Jochum**, Büro Jochum

18. The future of utility customers and utility customers of the future

Robert Smith, East Economics and **Iain MacGill**, Univ. of NSW

19. Business models for power system flexibility: new actors, new roles, new rules

Luis Boscán, Copenhagen Business School and **Rahmatallah Poudineh**, Oxford Inst. for Energy Studies

20. The repurposed distribution utility: roadmaps to getting there

Philip Hanser and **Kai Van Horn**, The Brattle Group

21. The distributed utility: conflicts and opportunities

Kevin Jones, **Taylor Curtis**, **Marc de Konkoly Thege**, **Daniel Sauer**, and **Matthew Roche**, Vermont Law School

22. The fully integrated grid: wholesale and retail, transmission and distribution

Susan Covino, **Paul Sotkiewicz** and **Andrew Levitt**, PJM Interconnection LLC