Energy regulation experts, Jonathan Lesser, PhD, and Leonardo Giacchino, PhD, have teamed up to produce an important new reference guide for regulators, attorneys, rate analysts, economists, accountants, and students interested in this dynamic field.

In Part I, the authors of *Fundamentals of Energy Regulation* begin by explaining fundamental economic and regulatory concepts used in ratemaking and regulatory oversight worldwide. They explain how the revenue requirement concept underlies all forms of regulation, from traditional “cost-of-service” regulation to various types of “incentive” and performance-based regulation that are increasingly used in the United States and internationally. Using clear examples and case studies, the authors guide readers through the ways practitioners perform key—and often controversial—calculations that establish the baseline of revenues that regulated firms require to operate successfully. The authors carefully explain the methods used to measure and verify costs, determinations of the prudence of regulated investments, the role and calculation of depreciation costs, and the methods used to estimate regulated rates of return.

Drs. Lesser and Giacchino then tackle issues surrounding cost allocation, focusing especially on the methods used to allocate “joint and common” costs among different customer groups, as well as how those groups are themselves determined. The authors address the differences between short-run and long-run marginal costs, which often determine the overall structures of regulated rates and tariffs; conflicts between pricing for efficiency and pricing for equity, as well as broader “social policy” price goals; the establishment of “ready-to-serve” charges; the use of multipart price tariffs; and different methods to estimate tariffs. They conclude Part I by discussing different “pass-through” mechanisms that allow regulated companies to automatically adjust rates in response to changes in cost components over which they have no control.

In Part II, the authors present a wide range of topics, including the practical aspects of new regulatory structures, as well as a host of issues that have become increasingly critical, including: evaluation and prevention of market power in newly deregulated markets; the growing importance of environmental regulation, including regulation designed to address global climate change; investment decisions that can cope with increasingly volatile energy markets; methods to ensure reliable electric systems; and emerging issues in international energy regulation.

Table of Contents

Part I: Principles

Chapter 1: A Brief History
Introduction

Chapter 2: Economic Concepts of Regulation
Introduction
The Fundamental Economic Goal of Regulation
The Competitive Ideal
Factors that Preclude a Competitive Outcome
Profit Maximization Under Monopoly
The Contestability of Markets
The Regulator’s Pricing Challenge
Other Complicating Factors
How Deregulation Can Lead to More Regulation
Chapter Summary

Chapter 3: The Role of the Revenue Requirement
Introduction
Meeting the Regulatory Challenge
Key Regulatory Principles
Why Revenue Requirements Underlie All Regulatory Schemes
Revenue Requirement Components
Depreciation
Taxes
Return on Capital Assets
Other Issues
Chapter Summary

Chapter 4: Alternative Regulatory Structures
Introduction
Common Aspects of Regulatory Structures
Cost Differences and Operating Environments
Cost of Service
Performance-Based Regulation
Yardstick Competition
Comparing Different Regulatory Regimes to Set Tariffs
Chapter Summary

Chapter 5: Cost Measurement
Introduction
Why Regulators Measures Costs
Estimating and Regulating Operating Cost
Estimating and Regulating the Rate Base
Deferred Costs and Regulatory Assets
Chapter Summary
Appendix: Depreciation Mechanics

Chapter 6: Cost Allocation
Introduction
Cost Functionalization
Cost Classification
Cost Allocation
Chapter Summary

Chapter 7: Rate Setting Principles and Procedures
Introduction
Billing Determinants
Tariff Design
Alternative Design Structures
Tariff Setting Methods
Pricing and Social Policy
Electric Restructuring and Default Service
Chapter Summary

Chapter 8: Rate and Tariff Adjustment Mechanisms
Introduction
Pass-Through Mechanisms
Inflation Adjustments
An Alphabet Soup of Adjustment Factors
Shared-Savings and Off-Ramps
Chapter Summary

Chapter 9: Market Power in the Electric and Natural Gas Industries
Introduction
Defining Market Power
Dominant Firms
Horizontal and Vertical Market Power
Remedies for Market Power
Withholding of Generation Resources
The Essential Facilities Doctrine
Chapter Summary

Part II: Extensions and Applications

Chapter 10: Dealing With Uncertainty
Introduction
Key Issues
Making Investment Decisions Under Uncertainty
Measuring Price Volatility
Market and Nonmarket Uncertainties
Chapter Summary

Chapter 11: Environmental Regulation of the Energy Industry
Introduction
Environmental Costs and Environmental Externalities
Regulatory Responses
Measuring Environmental Costs and Benefits
Environmental Costs and Energy Prices
Externality Adders
Current Regulatory Policies: Renewable Energy and Global Climate Change
Chapter Summary

Chapter 12: Regulating the Electric System Reliability
Introduction
Direct Current Circuits
Alternating Current Circuits
Defining Reliability
Reliability and Installed Capacity Markets
International Capacity Markets
Chapter Summary

Chapter 13: Regulation and Reform in International Markets
Introduction
Transition Mechanisms
Alternative Privatization Arrangements
Establishing the Regulatory Framework
Renegotiation and Change
International Arbitration
Chapter Summary

Chapter 14: The Future of Economic Regulation in the Electric and Natural Gas Industries
Introduction
The Regulatory Clash of Politics and Economics
The Future of U.S. Regulation
Concluding Thoughts
Written by two economists, Fundamentals of Energy Regulation will be useful to attorneys, students, and other professionals learning about or working in the field of energy regulation. Among other things, Dr. Lesser is currently one of three deans for the Energy Bar Association's (EBA) Primer Program, and this text was suggested reference reading for the recent EBA Primer Series, Electricity and Electric. The content is very up-to-date, which is a good thing in the fast evolving energy field. There is, for instance, an excellent and timely discussion of the Federal Energy Regulatory Commissions (FERC) natural gas pipeline discount rate policy and its ongoing effects, something not seen outside legal briefs on the matter. The authors in the Preface to the Second. Written by two economists, Fundamentals of Energy Regulation will be useful to attorneys, students, and other professionals learning about or working in the field of energy regulation. Among other things, Dr. Lesser is currently one of three deans for the Energy Bar Association's (EBA) Primer Program, and this text was suggested reference reading for the recent EBA Primer Series, Electricity and Electric Rate Regulation: An Introduction, held in Denver in December 2013. This is the second edition.
Written by two economists, Fundamentals of Energy Regulation will be useful to attorneys, students, and other professionals learning about or working in the field of energy regulation. Among other things, Dr. Lesser is currently one of three deans for the Energy Bar Association's (EBA) Primer Program, and this text was suggested reference reading for the recent EBA Primer Series, Electricity and Electric Rate Regulation: An Introduction, held in Denver in December 2013. This is the second edition, released December 15, 2013, with the first edition published in August 2006. The content is The Council of European Energy Regulators (CEER) and the Florence School of Regulation (FSR) are delighted to announce a unique joint course called Introduction to Fundamentals of Energy Regulation, to be held in the CEER’s office in Brussels in April 2019. This CEER-FSR course is focused on explaining the fundamentals of EU energy policy and regulation, building on similar successful courses held in previous years. The course is ideally suited for newer staff members within National Regulatory Authorities (NRAs), European Institutions and other public authorities.

Regulation is an activity performed by the state, and most often the task of regulation is granted to an institution (authority, agency, office) that has been given a degree of independence with regard to government, in order to execute this task as effectively as possible. In a market economy, this kind of institutional arrangement is common of industries in which the direct involvement by a public institution is acknowledged as beneficiary, even necessary. This includes industries such as banking.
Energy is a global issue, affecting world affairs, human welfare, pollution and climate. This book provides a guide to the fundamentals of this important subject: resources, technologies, economy and policy. Remarkable, refreshing, and so useful.’ Jean-Michel Glachant - Loyola de Palacio Professor in Energy Policy and Director, Florence School of Regulation. ‘This book offers a concise, up-to-date, authoritative account of key features of the global energy system. Tagliapietra, a highly respected energy expert and academic researcher, places energy alternatives in the context of changing Energy Conservation Construction Code of New York State, as incorporated in Chapter 13 of the New York City Building Code Proposal developed by the Energy & Ventilation Committee. Summary. Issue: The Energy Code provides commercial buildings two major compliance paths with over a dozen sub-paths. This results in an excessively complex code structure, which creates loopholes and makes enforcement difficult. Recommendation: To simplify compliance and enforcement, require that all commercial buildings follow ASHRAE 90.1. Proposed Legislation, Rule or Study. Amendments to the Energy Conservation Code. Written by two economists, Fundamentals of Energy Regulation will be useful to attorneys, students, and other professionals learning about or working in the field of energy regulation. Among other things, Dr. Lesser is currently one of three deans for the Energy Bar Association’s (EBA) Primer Program, and this text was suggested reference reading for the recent EBA Primer Series, Electricity and Electric Rate Regulation: An Introduction, held in Denver in December 2013. This is the second edition, released December 15, 2013, with the first edition published in August 2006. The content is 2-D Cluster Variation Method. Free Energy: Fundamentals and Pragmatics. Alianna J. Maren Northwestern University School of Professional Studies. Master of Science in Data Science Program and. The essential notion of the CVM is that we work with a more complex entropy expression within the free energy formalism for a system. In a simple Ising model, the entropy S can be computed based on only the relative fraction of active units in a bistate system. That is, there are only two kinds of units; active ones in state A, where the fraction of these units is denoted x1, and inactive ones in state B, where the fraction of these units is denoted x2.