

Table of Contents

Volume 1

CHAPTER 1. OVERVIEW AND ORGANIZATION

- § 1:1 Introduction
- § 1:2 Philosophy and approach
- § 1:3 Organization and scope

CHAPTER 2. GENERATION TECHNOLOGIES AND FUELS FOR ELECTRIC PLUS THERMAL ENERGY

I. OVERVIEW ON ENERGY

- § 2:1 History
- § 2:2 Generally

II. COGENERATION AND COOLING TOWER TECHNOLOGIES

- § 2:3 Technological advantages of cogeneration
- § 2:4 Cooling technologies—For power generation facilities
- § 2:5 —For buildings

III. PRIME MOVER TECHNOLOGIES

- § 2:6 General comparisons
- § 2:7 Steam turbines
- § 2:8 Combustion turbines
- § 2:9 Combined cycles
- § 2:10 Diesel engines
- § 2:11 Rankine cycles
- § 2:12 Renewable technologies
- § 2:13 Photovoltaics
- § 2:14 Wind energy
- § 2:15 Geothermal
- § 2:16 Biomass
- § 2:17 Landfill gas
- § 2:18 Waste-to-energy
- § 2:19 Ocean energy

- § 2:20 Coalbed methane
- § 2:21 Hydropower

IV. EVOLVING TECHNOLOGIES AND PROCESSES

- § 2:22 Generally
- § 2:23 Prime movers
- § 2:24 —Fuel cells
- § 2:25 —Stirling engines
- § 2:26 —Turboexpanders
- § 2:27 Fuels—Gasification or liquidification of nonpremium fuels
- § 2:28 —Fluidized bed combustion
- § 2:29 —Hydrogen fuel
- § 2:30 Energy storage

CHAPTER 3. THE SUCCESSFUL PROJECT: THE POWER MARKET, ECONOMICS, TAX ASPECTS, AND DEVELOPMENT STRATEGY OF INDEPENDENT POWER AND DEMAND-SIDE MANAGEMENT

I. THE POWER MARKET

A. GROWTH, MARKET SHARE, AND FUEL CHOICE

- § 3:1 Generally
- § 3:2 Statistics and comparisons
- § 3:3 Original expectations

B. POTENTIAL GROWTH

- § 3:4 Projections
- § 3:5 Financial commitments

II. INDUSTRY AND REGIONAL GROWTH POTENTIAL

- § 3:6 States and regions
- § 3:7 Industry sectors

III. INTERNATIONAL INDEPENDENT POWER DEVELOPMENT

- § 3:8 Generally
- § 3:9 Magnitude of privatization
- § 3:10 Privatization and the expansion of capital markets

TABLE OF CONTENTS

- § 3:11 Privatization and expansion of capital markets—
International and domestic capital risks: Commercial,
Sovereign, Policy-induced, and Currency
- § 3:12 Privatization and the expansion of capital markets—
Specialized credit and guarantee facilities
- § 3:13 — —OPIC
- § 3:14 — —World bank instruments for private infrastructure
financing
- § 3:15 — —Additional credit enhancements
- § 3:16 —Specialized equity funds
- § 3:17 International Energy investment treaties
- § 3:18 Overview of recent international energy project
investment disputes
- § 3:19 Energy Charter Treaty (“ECT”)
- § 3:20 Direct and indirect expropriation
- § 3:21 Substantial deprivation of value of investment
- § 3:22 Political risk insurance
- § 3:23 International investment agreements and energy
- § 3:24 ECT international energy disputes—Spain: regulatory
post—Contract changes
- § 3:25 Spain: Energy sector litigation
- § 3:26 Indonesia: Energy disputes
- § 3:27 Fair and Equitable Treatment (“FET”)—Energy
- § 3:28 Expropriation of energy sector assets
- § 3:29 Neutral energy dispute settlement provisions
- § 3:30 Evolution of ISDS provisions in energy investment
treaties
- § 3:31 Stabilization clauses in energy contracts
- § 3:32 Energy dispute resolution clauses
- § 3:33 Privatization and the expansion of capital markets—
Rule 144A bonds
- § 3:34 Country profiles

IV. LEAST-COST PLANNING AND INDEPENDENT POWER

- § 3:35 Generally
- § 3:36 Energy Policy Act of 1992
- § 3:37 Historic evolution
- § 3:38 Efficiency as a power resource—Energy profile
- § 3:39 —Methodological application of LCUP
- § 3:40 —Targeting end-uses
- § 3:41 —Positive externalities
- § 3:42 —DSM successes
- § 3:43 —Problems with implementation

V. THE ECONOMICS OF INDEPENDENT POWER

A. PROJECT DEVELOPMENT

§ 3:44 Generally

B. CONSIDERATIONS FOR SELF-GENERATION

§ 3:45 Generally

§ 3:46 Full load service or base load cream skimming

§ 3:47 Self reliance vs. dependence

§ 3:48 Prime movers

§ 3:49 Designing the system to thermal requirements

§ 3:50 Interruptible or firm gas supply

§ 3:51 Distribution infrastructure

§ 3:52 Maintenance options

§ 3:53 Qualifying facility law

§ 3:54 Exit fees

§ 3:55 Off-site sales

§ 3:56 Land use considerations

§ 3:57 Water requirements

§ 3:58 Air permits

C. PROJECT ECONOMICS

§ 3:59 Construction costs

§ 3:60 Power sales rates

§ 3:61 Consuming versus selling self-generated energy

§ 3:62 Third-party owners

§ 3:63 Resale of operating projects

VI. TAX ASPECTS OF INDEPENDENT POWER INVESTMENTS

A. IN GENERAL

§ 3:64 Overview

§ 3:65 Recent tax code changes and practical impacts

B. TAX-EXEMPT FINANCING

§ 3:66 Industrial development bonds

§ 3:67 Qualifying bonds

§ 3:68 Power facilities under Sections 103, 141, and 142 of the IRC

C. TAX BENEFITS

§ 3:69 Clean renewable energy bonds

§ 3:70 New clean renewable energy bonds under Sections 54 and 54C

TABLE OF CONTENTS

§ 3:71	Ownership
§ 3:72	Conservation easement tax benefits
§ 3:73	Depreciation
§ 3:74	Accelerated depreciation recovery for energy property
§ 3:75	Historic losses and credits
§ 3:76	Tax credits and treasury grants for power projects: 2009 and after
§ 3:77	Renewable electricity production credit under Section 45
§ 3:78	Qualified facilities
§ 3:79	Taxation of cooperatives and their patrons
§ 3:80	Energy credit under Section 48
§ 3:81	Energy research credit under Section 41
§ 3:82	Credit for investment in advanced energy property under Section 48C
§ 3:83	Tax provisions related to energy conservation
§ 3:84	Other eligible property
§ 3:85	Credit for residential energy efficient property under Section 25D
§ 3:86	New energy efficient home credit under Section 45L
§ 3:87	Qualified Energy Conservation Bonds under Section 54D
§ 3:88	Tax equity finance
§ 3:89	Energy Conservation Subsidies provided by Public Utilities under Section 136
§ 3:90	Energy efficient commercial buildings deduction under Section 179D
§ 3:91	Special rules for nuclear decommissioning costs under Section 468A
§ 3:92	Other tax cautions

VII. PRACTICAL COMPREHENSIVE DEVELOPMENT STRATEGY

A. OVERVIEW

§ 3:93	Generally
§ 3:94	Rendering attorney legal opinions
§ 3:95	Project finance and credit support
§ 3:96	Warranties
§ 3:97	Price escalators
§ 3:98	Hedging weather risks

B. STAGES OF DEVELOPMENT

1. In General

§ 3:99	Overview
--------	----------

2. Pre-Screening

§ 3:100	Generally
---------	-----------

- § 3:101 Power contract
- § 3:102 Dodd-Frank Compliance
- § 3:103 Accounting treatment
- § 3:104 Force majeure
- § 3:105 Approval rights
- § 3:106 Changed circumstances
- § 3:107 Fuel price structure
- § 3:108 Site
- § 3:109 Technology
- § 3:110 Pro-forma financial analysis
- § 3:111 Environmental permits
- § 3:112 Partnership
- § 3:113 Energy regulation

3. Development

- § 3:114 Generally
- § 3:115 Partnership arrangements
- § 3:116 Real estate acquisition
- § 3:117 Environmental due diligence and permits
- § 3:118 Power contract
- § 3:119 SEC approval
- § 3:120 FERC filing
- § 3:121 State regulatory approval
- § 3:122 Interconnection
- § 3:123 Waste disposal
- § 3:124 Licensing
- § 3:125 Fuel supply
- § 3:126 Steam host
- § 3:127 O & M
- § 3:128 Project budget and schedule
- § 3:129 Technology due diligence
- § 3:130 Contractor due diligence
- § 3:131 Lender solicitation

4. Pre-Closing

- § 3:132 Generally
- § 3:133 Construction contract
- § 3:134 Construction loan commitment

5. Closing, Construction, and Completion

- § 3:135 Closing
- § 3:136 Construction
- § 3:137 Completion

6. Operation and Financing

- § 3:138 Operation
- § 3:139 Permanent financing

TABLE OF CONTENTS

§ 3:140 Energy storage associated with distributed generation

VIII. RISK AND RELIABILITY

- § 3:141 Reliability of IPPs and QFs
- § 3:142 Techniques to ensure reliability
- § 3:143 Project development problems and failures
- § 3:144 Utility and QF bankruptcy

CHAPTER 4. REGULATION OF QUALIFYING FACILITY (QF) POWER

I. QUALIFYING FACILITY STATUS

- § 4:1 Introduction
- § 4:2 QF certification—Obtaining certification
- § 4:3 —Losing QF status
- § 4:4 —Waiver of QF noncompliance
- § 4:5 —Federal versus state QF status jurisdiction

II. REGULATORY EXEMPTIONS ENJOYED BY QUALIFYING FACILITIES

- § 4:6 From federal law
- § 4:7 From state and local law
- § 4:8 From “utility-type” regulation

III. SIZE AND EFFICIENCY CRITERIA

A. IN GENERAL

- § 4:9 Overview

B. COGENERATION

- § 4:10 Efficient dual output
- § 4:11 Operating efficiency parameters
- § 4:12 Calculating the efficiency criterion
- § 4:13 —Sequential use
- § 4:14 —Operating and efficiency standards
- § 4:15 Output parameters
- § 4:16 “Useful” thermal energy defined

C. SMALL POWER PRODUCTION

- § 4:17 Size parameters
- § 4:18 Fuel input parameters—Eligible fuels
- § 4:19 —Waivers

IV. CRITERIA FOR OWNERSHIP

- § 4:20 Pre-2006 50 percent utility limit

- § 4:21 Pre-2006 calculation of percentage ownership
- § 4:22 Pre-2006 state limitations

V. FUEL USE

- § 4:23 Generally

VI. UTILITY PURCHASES OF POWER FROM QFS

A. THE OBLIGATION TO PURCHASE

- § 4:24 Rate requirements
- § 4:25 Termination of PURPA purchase obligation
- § 4:26 Net versus gross power sale and net metering
- § 4:27 —Net power sale
- § 4:28 —Net metering
- § 4:29 Massachusetts net metering structure
- § 4:30 Calculation of net metering credits
- § 4:31 The municipal carve-out
- § 4:32 Connecticut net metering structure
- § 4:33 Net versus gross power sale and net metering—
Submetering
- § 4:34 Avoided cost

B. THE QF RATE DETERMINATION

- § 4:35 Just and reasonable rates
- § 4:36 Avoided cost rates

VII. UTILITY POWER SALES TO QFS

- § 4:37 The obligation to serve diverse facilities
- § 4:38 Standby rates

VIII. INTERCONNECTION

- § 4:39 Legal parameters
- § 4:40 Technical parameters
- § 4:41 Economic parameters

IX. STATE REGULATION OF QFS AND IPPS

- § 4:42 Authority—Matters regulated
- § 4:43 —IPP status as public utilities
- § 4:44 Rate disincentives to self-generation
- § 4:45 Contract buy-outs and buy-downs
- § 4:46 Direct retail sales by QFs
- § 4:47 Self-determined QF power purchase rates

TABLE OF CONTENTS

**CHAPTER 5. FEDERAL REGULATION OF
INDEPENDENT POWER PRODUCTION (IPP)
AND NONQUALIFYING FACILITIES**

I. THE UTILITY CONTEXT

- § 5:1 Corporate organization
- § 5:2 Regulatory overview
- § 5:3 Municipal utilities
- § 5:4 Federal and state regulation of tribal utilities
- § 5:5 —Federal regulation of tribal utilities
- § 5:6 —State regulation of tribal utilities
- § 5:7 —Nontribal service delivered onto tribal lands

**II. FEDERAL ENERGY REGULATORY
COMMISSION (FERC) REGULATION**

A. BASIS OF JURISDICTION

- § 5:8 Fundamental issues
- § 5:9 Power sales
- § 5:10 Transmission of power
- § 5:11 Domestic jurisdiction
- § 5:12 Foreign transmission

**B. INDEPENDENT POWER PRODUCERS
REGULATED AS PUBLIC UTILITIES**

- § 5:13 Sales versus purchases of energy
- § 5:14 Sales of nonelectric energy
- § 5:15 State siting authority
- § 5:16 Preemption of siting authority at the state level

**III. ELEMENTS OF PUBLIC UTILITY, QF, AND IPP
REGULATION**

A. FILED-RATE DOCTRINE

- § 5:17 Supreme court precedent
- § 5:18 Filed rates and PURPA rates
- § 5:19 IPP regulation and filed rates
- § 5:20 State versus federal authority
- § 5:21 FERC Rates and Practices

B. OTHER ELEMENTS

- § 5:22 Rate and service regulation
- § 5:23 State retail rate-setting
- § 5:24 Different rate categories and applicability

- § 5:25 Time-of-use peak-sensitive rates
- § 5:26 Decoupling rates
- § 5:27 Administrative Procedure Act and FERC Regulation
- § 5:28 Regulation of brokers and marketers

IV. THE PUBLIC UTILITY HOLDING COMPANY ACT OF 1935—WHEN IN FORCE

A. PURPOSE AND DESIGN

- § 5:29 Generally
- § 5:30 Statutory purpose
- § 5:31 Restrictions
- § 5:32 Definition of a holding company
- § 5:33 Fuel sales by electric utilities

B. SUBSIDIARIES AND AFFILIATES

- § 5:34 Application of PUHCA
- § 5:35 Integrated public utility systems

C. EXEMPTIONS

- § 5:36 Generally
- § 5:37 Intrastate exemption
- § 5:38 Intrastate with contiguous operations exemption
- § 5:39 Other primary business

D. IPP APPLICATIONS TO PUHCA

- § 5:40 The two-bite rule
- § 5:41 Sale and leaseback
- § 5:42 Rules 14 and 15

E. SUMMARY

- § 5:43 Generally

F. EXEMPT WHOLESALE GENERATORS (EWGS)

- § 5:44 EWGs defined and application process
- § 5:45 Regulation of relationships between registered holding companies and EWGs
- § 5:46 Foreign utilities and tribal lands

G. SEC RULE 58

- § 5:47 Generally

V. FERC INDEPENDENT POWER PRODUCER REGULATION AND PRECEDENT

- § 5:48 Generally

TABLE OF CONTENTS

- § 5:49 Key FERC electricity orders and enforcement
- § 5:50 FERC orders structuring market integrity
- § 5:51 FERC orders fostering competitive and clean energy technologies
- § 5:52 FERC orders regulating competitive transmission and interconnection
- § 5:53 Prior Proposed FERC Rules
- § 5:54 Defining IPPs—Lack of market power
- § 5:55 —Strategic considerations
- § 5:56 Legality
- § 5:57 Filing requirements and regulatory waivers—Rate applications
- § 5:58 —Exemptions
- § 5:59 Remaining issues

VI. HYDROELECTRIC POWER PROJECT LICENSING

A. OVERVIEW

- § 5:60 Introduction
- § 5:61 Generally

B. JURISDICTION AND PERMITS

- § 5:62 Clean Water Act jurisdiction
- § 5:63 Projects on federal lands
- § 5:64 NEPA
- § 5:65 Other statutes

C. LICENSING AND PRELIMINARY PERMIT CONSIDERATIONS

- § 5:66 Pre-licensing
- § 5:67 Preliminary permits

D. LICENSES

- § 5:68 Generally
- § 5:69 Major projects greater than 5 Mw—Unconstructed and modified
- § 5:70 Major projects greater than 5 Mw at existing dams
- § 5:71 Major projects less than 5 Mw at existing dams, major unconstructed or modified projects with capacity between 1.5 Mw and 5 Mw, and minor projects of 1.5 Mw or less

E. STATE REGULATORY RIGHTS

- § 5:72 Generally

- § 5:73 Siting approval for power generation, transmission and distribution lines
- § 5:74 —Required state certification for all electric generation facilities
- § 5:75 —Legal standards applied to facility siting approval
- § 5:76 State siting preemption of local land use and zoning regulations
- § 5:77 Legal siting process and appeal issues
- § 5:78 —Composition of the siting authority
- § 5:79 —Public access and party legal status
- § 5:80 —The legal record in a siting proceeding
- § 5:81 —Appellate process and rights

Volume 2

CHAPTER 6. ENVIRONMENTAL REGULATION OF INDEPENDENT POWER

I. POWER GENERATION POLLUTANTS

A. OVERVIEW

- § 6:1 Generally

B. CONTROLLING KEY POLLUTANTS

- § 6:2 Generally
- § 6:3 NO_x
- § 6:4 SO₂
- § 6:5 VOCs
- § 6:6 CO
- § 6:7 CO₂ and greenhouse gases
- § 6:8 International carbon reduction and trading: Kyoto and European Union
- § 6:9 U.S. Carbon Control
- § 6:10 U.S.—RGGI
- § 6:11 —California
- § 6:12 *[Reserved]*
- § 6:13 *[Reserved]*
- § 6:14 Methane
- § 6:15 Particulate matter

C. ENVIRONMENTAL IMPACTS OF QUALIFYING FACILITIES, INDEPENDENT POWER PRODUCERS, AND COGENERATORS

- § 6:16 Generally

TABLE OF CONTENTS

D. ENVIRONMENTAL SAVINGS FROM ENERGY EFFICIENCY AND INDEPENDENT POWER

1. Environmental Externalities

- § 6:17 Pollutants of concern
- § 6:18 Environmental externalities explained
- § 6:19 Assigning values
- § 6:20 Applying externality values
- § 6:21 Externalities in practice

2. Environmental Impacts of Power Technologies

- § 6:22 Nuclear power
- § 6:23 Renewable energy
- § 6:24 Waste-to-energy
- § 6:25 Energy Efficiency
- § 6:26 Coal
- § 6:27 Oil
- § 6:28 Natural gas
- § 6:29 Changing technologies and fuels
- § 6:30 Dollar value of savings

II. FEDERAL AIR QUALITY REGULATION

A. THE CLEAN AIR ACT'S REGULATORY TOOLS

- § 6:31 Overview
- § 6:32 National Ambient Air Quality Standards (NAAQS)
- § 6:33 New Source Performance Standards (NSPS)—The technology forcing standard
- § 6:34 —What constitutes a major modification or new source
- § 6:35 National Emission Standards for Hazardous Air Pollutants (NESHAPs)
- § 6:36 Indirect sources

B. ENFORCEMENT

- § 6:37 Generally

III. NSPS: TECHNOLOGY-BASED AIR QUALITY STANDARDS

A. IN GENERAL

- § 6:38 Overview

B. GAS TURBINES

- § 6:39 Nitrogen oxide (NO_x) emissions
- § 6:40 Sulfur dioxide (SO₂) emissions

C. STEAM TURBINES AND STEAM GENERATORS

1. Electric Generating Units

- § 6:41 In general
- § 6:42 Particulate emissions
- § 6:43 Sulfur dioxide (SO₂) emissions
- § 6:44 Nitrogen oxide (NO_x) emissions

2. Nonutility Generating Units

- § 6:45 Construction prior to June 1984
- § 6:46 Construction after June 1984

D. INCINERATORS

- § 6:47 Generally

E. STRATEGIES FOR MINIMIZING ENVIRONMENTAL RESTRICTIONS

- § 6:48 Generally

IV. GEOGRAPHICALLY DETERMINED AIR STANDARDS

- § 6:49 Structure of regulations
- § 6:50 Prevention of significant deterioration (PSD)—The standard—Application
- § 6:51 — —Maintenance and repair
- § 6:52 — —Increments
- § 6:53 — —Visibility protection
- § 6:54 —Air modelling
- § 6:55 New source review
- § 6:56 Definition of “Source” and netting emissions
- § 6:57 Practical advice

V. THE 1990 CLEAN AIR ACT AMENDMENTS AND IPPS

A. IN GENERAL

- § 6:58 Overview

B. KEY OPERATIVE PROVISIONS

1. Urban Air Pollution

- § 6:59 Generally
- § 6:60 Ozone and fine particulates
- § 6:61 OTAG states

TABLE OF CONTENTS

2. Mobile Sources

§ 6:62 Generally

a. Fuel Regulation

§ 6:63 Fuels and fuel additives registration/certification

§ 6:64 Reformulated gasoline renewable oxygenate requirement

b. Bus Regulations

§ 6:65 Urban bus retrofit/rebuild requirements

§ 6:66 New urban buses

c. Other Regulatory Programs

§ 6:67 Clean fuel fleet vehicle program

§ 6:68 Feasibility and economic impact of alternative fuel use

§ 6:69 Air toxics

§ 6:70 Mobile source emission reduction credits

§ 6:71 Transferability of mobile source credits

3. Toxic Air Pollutants

§ 6:72 Generally

§ 6:73 Listing

§ 6:74 Source categories

§ 6:75 Emission standards

§ 6:76 —Phase 1—Technology based standards

§ 6:77 —Phase 2—Residual health based standards

§ 6:78 Extension and exemptions

§ 6:79 Accidental release program

§ 6:80 Permit program

§ 6:81 Utility hazardous emissions

§ 6:82 Mercury emissions

4. Stratospheric Ozone and Global Climate

§ 6:83 Generally

5. SO₂ Control

§ 6:84 Generally

C. PERMITS AND ENFORCEMENT

§ 6:85 Permit requirements

§ 6:86 Enforcement

D. IMPACT OF THE AMENDMENTS ON IPPS

1. Sulphur

§ 6:87 What is covered

- § 6:88 Trades and results
 - 2. SO₂ Requirements
 - § 6:89 Phase I SO₂ requirements
 - § 6:90 Phase II SO₂ requirements
 - 3. NO_x Limitations
 - § 6:91 Generally
 - § 6:92 Statutory requirements
 - § 6:93 Classification
 - § 6:94 Emission reduction credits
 - § 6:95 RACT impact on power boilers
 - § 6:96 CTGs and ACTs
 - § 6:97 EPA regulations
 - § 6:98 The ambient ozone standard
 - § 6:99 Summer ozone budgets
 - § 6:100 EPA SIP call
 - § 6:101 CAIR and CSAPR
 - § 6:102 Title IV
 - § 6:103 The fine particulate proposal
 - 4. IPP Sulphur Allowances
 - § 6:104 Options for IPPs
 - § 6:105 The auctions process
 - § 6:106 Opt-in provisions
 - 5. Strategic Considerations
 - § 6:107 Generally

VI. OTHER FEDERAL REQUIREMENTS

A. NEPA, NOISE, FAA, ENDANGERED SPECIES, OSHA REGULATION

- § 6:108 Generally
- § 6:109 OSHA
- § 6:110 FAA
- § 6:111 NEPA—EIS
- § 6:112 Historic Preservation
- § 6:113 ESA and bird protection

B. WATER QUALITY

- § 6:114 Point sources
- § 6:115 Safe Water Drinking Act
- § 6:116 Wetlands and floodplains
- § 6:117 Non-point sources

C. SOLID WASTE MANAGEMENT AND DISPOSAL

- § 6:118 Waste-to-energy emissions and ash

TABLE OF CONTENTS

- § 6:119 Resource Conservation and Recovery Act (RCRA):
Waste management
- § 6:120 Hazardous waste
- § 6:121 Underground storage tanks
- § 6:122 Solid waste
- § 6:123 Recycling waste for energy or reuse
- § 6:124 The “Superfund” (CERCLA): Waste cleanup—Enforce-
ment tools
- § 6:125 Persons liable
- § 6:126 Natural resource damages
- § 6:127 Hazard communication requirements
- § 6:128 SARA Title III community right-to-know program
- § 6:129 Emergency planning
- § 6:130 Emergency releases
- § 6:131 Chemical inventories

**VII. STATE AND LOCAL ENVIRONMENTAL
REGULATION**

A. COMPARED WITH FEDERAL REGULATION

- § 6:132 Generally

B. LOCAL PERMITS AND LICENSES

- § 6:133 General environmental
- § 6:134 Noise
- § 6:135 Building and construction
- § 6:136 Land use
- § 6:137 —Use control
- § 6:138 —Dimensional control
- § 6:139 —Exemptions and variances
- § 6:140 Siting approval for power generation, transmission
and distribution lines
- § 6:141 —Required state certification for all electric
generation facilities
- § 6:142 —Legal standards applied to facility siting approval
- § 6:143 State siting preemption of local land use and zoning
regulations
- § 6:144 Legal siting process and appeal issues
- § 6:145 —Composition of the siting authority
- § 6:146 —Public access and party legal status
- § 6:147 —The legal record in a siting proceeding
- § 6:148 —Appellate process and rights
- § 6:149 Using existing railroad utility rights of way for power
and gas
- § 6:150 Siting wind facilities and FERC authority
- § 6:151 State preemption of local wind siting authority: Cape
wind

- § 6:152 Traditional municipal zoning power to site wind facilities and selective state preemption
- § 6:153 Land-Based wind zoning and state preemption
- § 6:154 Land use—Spot zoning
- § 6:155 —Vestings and takings

C. STATE PERMITS AND LICENSES

- § 6:156 Environmental assessment
 - 1. Air Quality
 - § 6:157 Emission preferences, offsets, and credits
 - § 6:158 CO₂ control
 - § 6:159 Acid deposition caps
 - 2. Water, Waste, Land Use, and Utility Status
 - § 6:160 Water discharges and quality
 - § 6:161 Discretion on sewer connections under the police power
 - § 6:162 The zoning and land use power regarding infrastructure connections
 - § 6:163 Water consumption
 - § 6:164 —Surface and groundwater
 - § 6:165 —Potable water
 - § 6:166 —Recycled water
 - § 6:167 Utility and general
 - § 6:168 Standardized contracts for sales of energy
 - § 6:169 Fuel storage and solid waste
 - 3. Infectious and Hazardous Waste as an Energy Source
 - § 6:170 Generally
 - § 6:171 Hazardous waste
 - § 6:172 Infectious and hospital waste

VIII. FEDERAL PREEMPTION

- § 6:173 Regulation
- § 6:174 Taxation
- § 6:175 Nuisance
- § 6:176 Environmental statutes—Preemption standards
 - § 6:177 —Hazardous and solid waste
 - § 6:178 —Air quality
 - § 6:179 —Water quality
- § 6:180 Estoppel

TABLE OF CONTENTS

IX. OFFICER, EMPLOYEE, AND DIRECTOR LIABILITY

A. THE CHANGING NATURE OF ENVIRONMENTAL PROSECUTION

- § 6:181 The responsibility of company directors
- § 6:182 The increase in prosecution
- § 6:183 Who is prosecuted?

B. FEDERAL ENVIRONMENTAL AUTHORITY AND PERSONAL OFFICER LIABILITY

- § 6:184 Statutory authority
- § 6:185 The concept of the corporate veil
- § 6:186 Types of liability

C. CIVIL LIABILITY

- § 6:187 Direct officer involvement
- § 6:188 Indirect “positional” liability

D. CRIMINAL LIABILITY

- § 6:189 Direct officer involvement
- § 6:190 —TSCA
- § 6:191 —RCRA
- § 6:192 —FIFRA
- § 6:193 —RICO
- § 6:194 —Clean Air and Clean Water Acts
- § 6:195 —CERCLA
- § 6:196 Indirect “positional” liability—Analogous precedent
- § 6:197 —Burden of proof

E. MISCELLANEOUS ISSUES

- § 6:198 Sentencing guidelines
- § 6:199 CERCLA liability
- § 6:200 Workplace environmental violations—OSH Act
- § 6:201 —Implied preemption

CHAPTER 7. AVOIDED COST

I. FEDERAL LAW

A. FEDERAL ENERGY REGULATORY COMMISSION (FERC) RULES

- § 7:1 Promulgated—Statutory goals
- § 7:2 —Implementation

- § 7:3 —Calculating avoided cost—Methodologies
- § 7:4 —Economic considerations
- § 7:5 Proposed

B. THE *ORANGE & ROCKLAND* DECISION

- § 7:6 Scope of the decision
- § 7:7 Extent of federal preemption

C. SUPREME COURT PRECEDENT

- § 7:8 Generally

II. STATE LAW

A. DISPUTED ISSUES

- § 7:9 Generally

B. RATES IN EXCESS OF AVOIDED COST

- § 7:10 Statutory minimum purchase rates
- § 7:11 Quantifying intangible benefits
- § 7:12 Levelized value
- § 7:13 Policy to promote qualifying facilities (QFs)

C. RATES DISALLOWED IN EXCESS OF AVOIDED COST

- § 7:14 FERC preemption judicially determined
- § 7:15 Federal preemption administratively determined

D. LEVELIZATION OF AVOIDED COST RATES

- § 7:16 In general
- § 7:17 Future avoided capacity
- § 7:18 Maintaining stabilized level rates
- § 7:19 Discounted present value of future capacity
- § 7:20 Marginal capacity costs
- § 7:21 Availability of excess QF power

E. CONTINUING REGULATORY JURISDICTION

- § 7:22 Regulatory intrusion into existing contracts
- § 7:23 Adjustments to long-term contract power rates permitted—FERC acquiescence
- § 7:24 —Arguments against
- § 7:25 Reopening of contract provisions disallowed

III. UTILITY RECOVERY OF QF COSTS

- § 7:26 The QF contract rate

TABLE OF CONTENTS

- § 7:27 The retail rate
- § 7:28 Legal issues
- § 7:29 State discretion and utility reliance on public utility commission (PUC) orders
- § 7:30 Protecting the utility
- § 7:31 The filed-rate doctrine

CHAPTER 8. THE NEW GRID AND TRANSMISSION

I. THE WHEELING TRANSACTION

- § 8:1 Benefits and detriments
- § 8:2 Technical constraints and transmission capacity
- § 8:3 Magnitude of sale-for-resale transactions—Wholesale transactions
- § 8:4 —Regional variations
- § 8:5 As a condition of merger approval

II. LEGAL AUTHORITY TO WHEEL

A. FEDERAL AUTHORITY AND THE PURPA AMENDMENTS

- § 8:6 Wheeling statutorily mandatory after 1992
- § 8:7 Standards for wholesale wheeling
- § 8:8 Transmission policy
- § 8:9 Interconnection and system upgrades
- § 8:10 Regional transmission groups
- § 8:11 FERC-mandated wheeling
- § 8:12 Antitrust and essential facilities doctrine
- § 8:13 Wheeling in and out

B. STATE AUTHORITY

- § 8:14 Intrastate wheeling
- § 8:15 FERC preemption: Any transmission affecting interstate commerce
- § 8:16 Eminent domain
- § 8:17 Limited FERC siting authority
- § 8:18 Eminent domain, private parties and public purpose
- § 8:19 Extending eminent domain to private stakeholders—Massachusetts
- § 8:20 —Vermont
- § 8:21 —Maine
- § 8:22 No extension of eminent domain to IPPs—Connecticut
- § 8:23 —New Hampshire
- § 8:24 —Rhode Island

C. ENTITIES TO WHICH WHEELING IS PERMITTED

- § 8:25 State practice
- § 8:26 Wheeling to retail customers through intermediary utilities—Stranded investment

III. ECONOMICS OF WHEELING

- § 8:27 Generally
- § 8:28 Efficiency: Goals and realities
- § 8:29 Costs incurred by the wheeler
- § 8:30 Cost allocation—Methods and objectives
- § 8:31 —Pricing
- § 8:32 —Determining market values

IV. ELECTROMAGNETIC FIELDS AND LIABILITY

- § 8:33 The science of EMF
- § 8:34 State standards
- § 8:35 Personal injury precedent
- § 8:36 Property damage precedent

CHAPTER 9. POWER AUCTIONS AND BIDDING

I. STATE AUCTION AND BIDDING PRACTICES AND RESULTS

A. BACKGROUND: ALTERNATIVES TO PRICING INEFFICIENCIES

- § 9:1 Developer “windfalls”
- § 9:2 Auction and bidding fundamentals

B. STATE-BY-STATE AUCTION PROCEDURES

- § 9:3 States bidding
- § 9:4 Factors weighed
- § 9:5 Results

II. AUCTION THEORY

A. THEORY OF BIDDING

- § 9:6 Administrative versus market determinations
- § 9:7 Types of auctions
- § 9:8 Game theory

B. AUCTION THEORY IMPERFECTIONS

- § 9:9 Multiple auctions and bids

TABLE OF CONTENTS

- § 9:10 Collusion and information
- § 9:11 Extraction of economic rents

C. AUCTION DESIGN

- § 9:12 Goals
- § 9:13 Nonprice variables
- § 9:14 Frequency of auctions
- § 9:15 Lumpiness of bids
- § 9:16 Front-loading
- § 9:17 Valuing capacity

III. AUCTIONS IN PRACTICE

A. IN GENERAL

- § 9:18 Overview

B. ALL-SOURCE DECREMENT BIDDING

- § 9:19 Regulatory context
- § 9:20 The auction system

C. FIRST-PRICE SILENT BIDDING

- § 9:21 Regulatory context
- § 9:22 The auction system
- § 9:23 Auction results—Price and quality factors
- § 9:24 —Winning bids

D. CENTRALIZED BIDDING AUTHORITIES

- § 9:25 Generally

E. SECOND-PRICE SILENT BIDDING

- § 9:26 Generally

IV. FERC PROPOSED BIDDING RULES

- § 9:27 Policies and objectives
- § 9:28 The bid process
- § 9:29 Legal considerations
- § 9:30 Required approvals

Volume 3

CHAPTER 10. DEREGULATION OF POWER

I. OVERVIEW

- § 10:1 Deregulation and unbundling services—New market forces
- § 10:2 —Spark spread and arbitrage
- § 10:3 —Telecommunication shared facilities and attachments
- § 10:4 Natural gas and telecommunications deregulation comparisons
- § 10:5 Reliability and blackouts
- § 10:6 New state and federal authority

II. STATE AND FEDERAL DEREGULATION

A. THE INITIAL IMPETUS

- § 10:7 FERC Order 888
- § 10:8 The 2005 Energy Act
- § 10:9 The 2003 Federal legislative proposals
- § 10:10 The “Blue Book”

B. THE FRANCHISE AND OBLIGATIONS TO SERVE

- § 10:11 Generally

C. STATE PROGRESS

- § 10:12 Generally
- § 10:13 A detailed example
- § 10:14 The guidelines
- § 10:15 The settlement order

D. OTHER STATE ACTIVITIES

- § 10:16 Generally
- § 10:17 Retail rate discounts

E. ENERGY CONSUMER OPTIONS

- § 10:18 Generally
- § 10:19 Municipalization—Savings and options
- § 10:20 —Municipal power purchase contracts
- § 10:21 Consumer contracts for power and metering; aggregation
- § 10:22 Federal and tribal options

TABLE OF CONTENTS

**III. HOW MARKET RESTRUCTURING FAILS:
CALIFORNIA**

- § 10:23 Generally
- § 10:24 The restructuring choices
- § 10:25 The 2000–2001 crisis
- § 10:26 Environmental versus energy trade-offs
- § 10:27 First response to crisis

IV. STATE LEGISLATIVE RESPONSES

- § 10:28 Closing customer choice
- § 10:29 Blackouts and the power police
- § 10:30 The bankruptcies
- § 10:31 Legislative reflex: Search and seizure

V. THE HARD LANDING

A. THE \$43 BILLION FORWARD COMMITMENT

- § 10:32 Long-term contracts
- § 10:33 Market manipulation
- § 10:34 Abrogating contracts

B. CONCLUSION

- § 10:35 Generally

VI. REVISION OF POWER CONTRACTS

A. OVERVIEW

- § 10:36 Generally

B. THE “VINTAGE” YEARS OF QF PRICES

- § 10:37 Generally
- § 10:38 Date of contract consummation
- § 10:39 Relevance of other factors
- § 10:40 State required QF prices in excess of full avoided cost

**C. REVISING A QF POWER PURCHASE PRICE
ONCE IT IS IMPLEMENTED**

- § 10:41 Generally
- § 10:42 PURPA’s legislative history
- § 10:43 Federal court precedent
- § 10:44 Federal energy regulatory commission requirements
- § 10:45 State court precedent

D. RESIDUAL STATE AUTHORITY OVER PURPA PRICES

- § 10:46 Generally
- § 10:47 State imprudence authority
- § 10:48 “Utility-type regulation”

E. STATE ACTION CONTRARY TO PURPA PRECEDENT

- § 10:49 Federal preemption of state QF price revision discretion
- § 10:50 QF approval process

F. OPTIONS AVAILABLE REGARDING QF CONTRACTS

- § 10:51 Generally
- § 10:52 Reorganization of the utility
- § 10:53 Contract defenses
- § 10:54 Eminent domain
- § 10:55 Curtailment and dispatch of power purchases
- § 10:56 Cancellation and buy-out—Activity
- § 10:57 —Northeast
- § 10:58 —Outside northeast
- § 10:59 —Tax treatment of buyouts

VII. STRANDED INVESTMENT

- § 10:60 What and how much
- § 10:61 FERC Order 888
- § 10:62 State options
- § 10:63 —Exit fees and access fees
- § 10:64 —Securitization—Structuring the security vehicle
- § 10:65 —State statutory provisions
- § 10:66 Federal versus state jurisdiction
- § 10:67 Who pays

VIII. ANTICOMPETITIVE PRACTICES

- § 10:68 Generally
- § 10:69 Antitrust claims by independent power producers
- § 10:70 Legal bases
- § 10:71 Market Manipulation at the Wholesale Level
- § 10:72 Anticompetitive conduct pursuant to state action immunity
- § 10:73 *Noerr/Pennington* immunity doctrine
- § 10:74 Relevant market
- § 10:75 Essential facilities doctrine

TABLE OF CONTENTS

§ 10:76 Basic showings

IX. SPECIAL CONSIDERATIONS

A. DEFENSIVE STRATEGIES AND UTILITY MERGERS

§ 10:77 Merger activity
§ 10:78 FERC merger policy

B. TAX IMPLICATIONS OF ELECTRIC UTILITY RESTRUCTURING

§ 10:79 Generally
§ 10:80 Types of state and local utility taxes
§ 10:81 —Gross receipt taxes
§ 10:82 —Corporate franchise taxes
§ 10:83 —Property taxes
§ 10:84 —Franchise fees
§ 10:85 —Sales and use taxes
§ 10:86 —Utility user taxes
§ 10:87 —Regulatory assessment taxes or fees
§ 10:88 Tax implications of electric utility restructuring
§ 10:89 —Legal principles of state and local taxation
§ 10:90 —Impact of restructuring and competition on state and local revenues
§ 10:91 —Impact of state and local taxes on competitive balance
§ 10:92 Federal income tax issues
§ 10:93 —Restructuring transactions

C. ZONING OVERRIDES

§ 10:94 Generally
§ 10:95 State preemption of local zoning for energy facilities

D. COMMON LAW AND UCC

§ 10:96 Generally
§ 10:97 Products liability actions
§ 10:98 Contract actions
§ 10:99 Antitrust
§ 10:100 Tax and bankruptcy
§ 10:101 International characterization

X. UNBUNDLED TRANSMISSION AND DISTRIBUTION SERVICES

A. IN GENERAL

§ 10:102 Background

- § 10:103 Contract paths and physical flows
- § 10:104 Network and point-to-point service

B. ANCILLARY SERVICES

- § 10:105 Generally
- § 10:106 Reactive power
- § 10:107 Operating reserves
- § 10:108 Frequency control
- § 10:109 Loss compensation

C. TRANSMISSION SYSTEMS

- § 10:110 Generally
- § 10:111 Independent system operators (ISOs) and their governance
- § 10:112 —Spot price pools
- § 10:113 —International spot pools
- § 10:114 Congestion management
- § 10:115 Regional transmission organizations
- § 10:116 System design

XI. PROMOTION OF RENEWABLE TECHNOLOGIES AND DSM IN A COMPETITIVE ENVIRONMENT

A. IN GENERAL

- § 10:117 Overview

B. POLICY OPTIONS

- § 10:118 Generally
- § 10:119 Interconnection of Distributed Generation
- § 10:120 System benefits charge
- § 10:121 Resource portfolio requirements
- § 10:122 Massachusetts RPS structure
- § 10:123 Connecticut and Vermont RPS structure
- § 10:124 Strategic trade-offs between SRECs and Net Metering
- § 10:125 The Value of Solar
- § 10:126 Siting reviews of new generation capacity
- § 10:127 “Green” electricity marketing—The green product
- § 10:128 —Regulation of marketing
- § 10:129 Promotional ratemaking and transmission policies
- § 10:130 Long-term renewable contracts
- § 10:131 Emission trading schemes
- § 10:132 Emission taxes
- § 10:133 Cleancos

TABLE OF CONTENTS

§ 10:134 Efficiency standards

C. SUMMARY OF LEGAL ANALYSIS

§ 10:135 Generally

§ 10:136 Deregulation: The shift from state to federal law

§ 10:137 Techniques legally delegated or reserved to the state

§ 10:138 Problematic state regulatory techniques

D. STATE PROGRAMS

§ 10:139 Generally

E. FEDERAL AND STATE AUTHORITY

§ 10:140 Regulation of power sales

§ 10:141 Transmission of power

§ 10:142 Filed-rate doctrine

§ 10:143 Feed-in state tariffs

F. FEDERAL ENCOURAGEMENT OF
RENEWABLES AND DSM

§ 10:144 The special value of renewable and waste-fueled
projects: The PURPA incentives

§ 10:145 Federal renewable energy and DSM encouragement
in EPACT

§ 10:146 Commerce clause requirements

§ 10:147 Above-market prices for renewable projects

G. THE DICHOTOMY OF FEDERAL AND STATE
REGULATION

§ 10:148 Prices and portfolios of power

§ 10:149 Deregulated markets and state authority

§ 10:150 Limits on state discretion

H. DIRECT FINANCIAL PREFERENCES FOR
RENEWABLES AND DSM

§ 10:151 FERC precedent

§ 10:152 Utilization of the externality premium

§ 10:153 Functional separation of wholesale markets

§ 10:154 PURPA complications

I. INDIRECT TECHNIQUES

§ 10:155 Portfolio management as a condition of retail
competition

§ 10:156 Reliability and diversity factors

- § 10:157 Segmenting the “supply” market for power
- § 10:158 Transmission and distribution pricing
- § 10:159 Independent system operator protocol
- § 10:160 Use of tax policy
- § 10:161 Stricter enforcement of environmental laws
- § 10:162 State subsidy of renewables

J. CONTINUATION OF EXISTING PROMOTIONAL PROGRAMS AFTER DEREGULATION

- § 10:163 Generally
- § 10:164 Legislative history
- § 10:165 Federal court precedent
- § 10:166 Federal energy regulatory commission requirements
- § 10:167 State court requirements
- § 10:168 “Regulatory-out” clauses as “utility-type” regulation

XII. ACQUIRING EXISTING UTILITY ASSETS

- § 10:169 Generally
- § 10:170 Valuation
- § 10:171 Environmental and permitting issues
- § 10:172 Strategic enhancements
- § 10:173 Assignment of power purchase and sale rights and obligations

XIII. DISTRIBUTED GENERATION

- § 10:174 Generally
- § 10:175 Interconnection of distributed generation
- § 10:176 State regulation of distributed generation
- § 10:177 Connecticut regulatory treatment
- § 10:178 Massachusetts regulatory treatment
- § 10:179 Siting approval for power generation, transmission and distribution lines
- § 10:180 —Required state certification for all electric generation facilities
- § 10:181 —Legal standards applied to facility siting approval
- § 10:182 State siting preemption of local land use and zoning regulations
- § 10:183 Legal siting process and appeal issues
- § 10:184 —Composition of the siting authority
- § 10:185 —Public access and party legal status
- § 10:186 —The legal record in a siting proceeding
- § 10:187 Siting wind facilities and FERC authority
- § 10:188 State preemption of local wind siting authority:
Cape wind
- § 10:189 Traditional municipal zoning power to site wind facilities and selective state preemption

TABLE OF CONTENTS

- § 10:190 Land-Based wind zoning and state preemption
 - § 10:191 Legal siting process and appeal issues—Appellate process and rights
 - § 10:192 Eminent domain
 - § 10:193 Limited FERC siting authority
 - § 10:194 Eminent domain, private parties and public purpose
 - § 10:195 Extending eminent domain to private stakeholders—Massachusetts
 - § 10:196 Vermont
 - § 10:197 Maine
 - § 10:198 No extension of eminent domain to IPPs—Connecticut
 - § 10:199 New Hampshire
 - § 10:200 Rhode Island
 - § 10:201 Energy storage associated with distributed generation
 - § 10:202 Ferc and Federal Tax Provisions Affecting Storage
 - § 10:203 State laws, regulations, and policies affecting energy storage
- Appendix 10-1. State renewable portfolio standards

APPENDICES

- APPENDIX 1. Federal Power Act
- APPENDIX 2. Public Utility Holding Company Act
- APPENDIX 3. Regulation Under the Public Utility Regulatory Policies Act of 1978 of Power Production and Cogeneration
- APPENDIX 4. Clean Air Act Regulations: Prevention of Significant Deterioration (PSD)
- APPENDIX 5. Clean Air Act Regulations: New Source Review

Volume 4

- APPENDIX 6. Clean Air Act Regulations: New Source Performance Standards
- APPENDIX 7. Proposed Rulemaking: Federal Energy Regulatory Commission (FERC); Public Utility Regulatory Policies Act of 1978 (PURPA)
- APPENDIX 8. Commentary: Federal Energy Regulatory Commission (FERC) Independent Power Notice of Proposed Rulemaking Relating to 18 C.F.R. Parts 38 and 382, Docket No. RM88-4-000 (March 16, 1988)

LAW OF INDEPENDENT POWER

APPENDIX 9. Commentary: Federal Energy Regulatory
Commission (FERC) Power Auction and
Bidding Notice of Proposed Rulemaking
Relating to 18 C.F.R. Parts 35 and 293,
Docket No. RM88-5-000 (March 16, 1988)

APPENDIX 10. Energy Policy Act of 1992

APPENDIX 11. *[Reserved]*

APPENDIX A. Final Rule: Federal Energy Regulatory
Commission (FERC) Order No. 888 (April
24, 1996)

APPENDIX B. Glossary of Terms and Acronyms

Table of Laws and Rules

Table of Cases

Index