

TABLE OF CONTENTS

PREFACE	III
COPYRIGHT ACKNOWLEDGMENTS	V
TABLE OF CASES.....	XXI
Introduction.....	1
PART I. THEMES, ENERGY SOURCES, AND EXTRACTION OF NATURAL RESOURCES	
Chapter 1. The Complex Energy System: Physical, Market, and Regulatory Elements	17
A. Overview	17
B. Introduction to the Energy System	22
Notes and Questions	28
C. Key Governmental and Nongovernmental Actors in the Energy System.....	28
Notes and Questions	31
D. Administrative Law Basics.....	32
1. The Administrative Procedure Act.....	35
a. Adjudication	35
b. Rulemaking.....	36
2. Judicial Review.....	38
E. Three Themes of <i>Energy Law and Policy</i>	42
1. What Role Should Regulation Play in Energy Markets?	43
New York v. FERC	46
Zero Zone, Inc. v. U.S. Dep’t of Energy	52
Notes and Questions	56
2. Federalism	57
Federal Power Commission v. Florida Power & Light Co.	58
Notes and Questions	64
3. A Transition to Clean Energy	64
Am. Lung Ass’n v. EPA	67
Notes and Questions	73
Practice Problem.....	73
Chapter 2. Energy Resources, Metrics, and Legal Tools	77
A. Overview	77
B. Measuring Energy	78
1. Energy and Power Units.....	78
2. Resource-Specific Energy Units	79
3. Size and Quantity Units	82

C. Energy Consumption and Resources	83
Notes and Questions	88
1. Nonrenewable Resources	89
a. Coal.....	90
b. Oil	97
c. Natural Gas.....	100
d. Nuclear Power.....	104
2. Renewable Resources	108
a. Hydropower.....	112
b. Wind	117
c. Solar.....	121
d. Geothermal.....	125
e. Biomass, Biofuels, and Waste-to-Energy	128
f. End Use Energy: Efficiency, Demand Response, and Conservation	131
D. Energy Market Failures and Energy Legal Tools	137
1. Market Power	138
Otter Tail Power Co. v. United States	139
Notes and Questions	144
2. Waste.....	145
State v. Ohio Oil Co.....	148
Notes and Questions	152
3. Negative Externalities	153
Shafer & Freeman Lakes Env't Conserv. Corp. v. FERC	154
Notes and Questions	162
4. Free-Riding	162
Matter of Westar Energy, Inc	164
Notes and Questions	169
Chapter 3. Extraction of Natural Resources for Energy	171
A. Overview	171
B. Fossil Fuel Sources.....	171
1. Coal.....	172
a. Ownership Disputes on Private Lands	173
Stewart v. Chernicky.....	173
Notes and Questions.....	177
b. Coal Leasing on Federal Land	178
WildEarth Guardians v. BLM	179
Notes and Questions.....	184
c. Federalism and the Surface Mining Control and Reclamation Act of 1977 (SMCRA).....	186
Bragg v. W. Va. Coal Ass'n.....	187
Notes and Questions.....	191
2. Oil and Gas	192
a. Oil and Gas Development on Private Lands.....	193
Elliff v. Texon Drilling Co.	196
VirTex Operating Co. v. Bauerle	201

Texas Natural Resources Code	207
Notes and Questions.....	211
b. Oil and Gas Development on Federal Lands	213
Citizens for a Healthy Community v. BLM	214
Notes and Questions.....	218
C. Renewable Energy Sources.....	218
1. Hydropower Energy.....	219
Gina S. Warren, Hydropower: It's a Small World After All	220
U.S. Dep't of Interior v. FERC.....	223
Notes and Questions	230
2. Solar and Wind Energy	233
Ecogen, LLC v. Town of Italy.....	234
Board of Cty. Comm'r's v. Perennial Solar	237
Quechan Tribe of Fort Yuma Indian Reservation v. U.S. Dept. of Interior	244
Notes and Questions	248
Practice Problem.....	251

PART II. MAJOR ENERGY SYSTEMS: ELECTRICITY AND TRANSPORTATION

Chapter 4. Traditional Electricity Regulation.....	257
A. Overview	257
1. Resource Overview	258
2. Industry Overview.....	260
a. History	260
b. Electric Utilities.....	262
c. What Is a Utility?	263
SZ Enterprises, LLC d/b/a Eagle Point Solar v. Iowa Utilities Board.....	264
Notes and Questions.....	269
Practice Problem.....	270
d. Utility Plants	271
e. The Grid	272
f. Measuring Electricity	273
Notes and Questions.....	275
B. Regulatory Overview.....	276
C. Regulating Electric Utilities.....	277
1. Natural Monopoly.....	278
2. Price Setting	281
Munn v. Illinois	281
3. Regulatory Compact	284
Notes and Questions	286
D. Ratemaking.....	286
1. Overview of the Ratemaking Process.....	287
a. Capital Attraction.....	289
b. Reasonably Priced Energy	290

c.	Efficiency	290
d.	Demand Control or Consumer Rationing.....	291
e.	Income Transfer.....	292
	Ohio Revised Code § 4928.02: State Policy	292
	Notes and Questions.....	294
2.	Ratemaking Formula	295
a.	Operating Expenses.....	295
b.	Rate Base	296
c.	Rate of Return.....	297
	Notes and Questions.....	297
E.	A Basic Rate Case	299
1.	Rate Hearings	299
	Federal Power Act § 205	300
	Federal Power Act § 206	301
2.	Commission Discretion to Set Rates	302
	Federal Power Commission v. Hope Natural Gas Co.	303
	Notes and Questions	308
3.	Filed Rate Doctrine	311
	City of Girard v. FERC.....	312
	Notes and Questions	315
4.	The <i>Mobile-Sierra</i> Doctrine	316
	Potomac Elec. Power Co. v. FERC.....	317
	Notes and Questions	322
F.	Electricity Federalism.....	324
1.	Establishing Electricity Federalism: The <i>Attleboro</i> Gap	324
	Public Utilities Commission of Rhode Island v. Attleboro Steam & Electric Co.	325
	Notes and Questions	329
2.	Contemporary Federalism Issues.....	330
	FERC v. Elec. Power Supply Ass'n.....	332
	Notes and Questions	336
3.	Dormant Commerce Clause	337
	State of North Dakota v. Heydinger.....	338
	Notes and Questions	343
G.	Contemporary Ratemaking Issues	346
1.	Cost-of-Service Ratemaking.....	346
	Duquesne Light Co. v. Barasch	348
	<i>Jersey Central Power & Light Co. v. FERC (Jersey Central III)</i>	351
	Notes and Questions	356
2.	Alternatives to Cost-of-Service Ratemaking.....	359
a.	New Ratemaking Principles	359
	Electric Distribution Utilities: Guidance on Utility Distribution System Planning and Order Requiring Continued Investigation	360
	Notes and Questions.....	361

b.	New Rate Designs.....	363
	Fixed Utility Distribution Rates Policy Statement	363
	Notes and Questions.....	367
Chapter 5. Electricity Regulation in Transition.....		371
A.	Overview	371
B.	Electricity Ratemaking in Transition	375
1.	Wholesale Competition: Market-Based Rates	376
a.	Challenges to Competitively Set Electricity Rates.....	378
	Public Citizen v. FERC.....	378
	Notes and Questions.....	385
b.	Wholesale Market-Based Rate Authority	387
	Zephyr Wind, LLC	391
	AEP Power Marketing, Inc.	392
	Notes and Questions.....	397
2.	Retail Competition: Restructuring and the Struggle to Consumer Choice	402
	Notes and Questions	406
C.	Electricity Transmission in Transition.....	410
1.	Transmission Coordination: RTOs and ISOs	410
	Illinois Commerce Commission v. FERC (<i>ICC I</i>)	417
	Illinois Commerce Commission v. FERC (<i>ICC II</i>)	422
	Notes and Questions	429
2.	Transmission Planning: Reshaping the Grid	434
	Piedmont Environmental Council v. FERC.....	441
	South Carolina Public Service Authority v. FERC	446
	Notes and Questions	453
D.	Electricity Supply in Transition: Renewable Energy, Policy Innovation, and Federalism.....	457
1.	PURPA	458
	Notes and Questions	463
2.	Renewable and Clean Energy Standards	465
	Kansas Renewable Energy Standards Act	469
	Virginia Clean Economy Act.....	471
	Notes and Questions	479
	Allco Finance Ltd. v. Klee	483
	Coalition for Competitive Electricity v. Zibelman.....	489
	Notes and Questions	496
	Practice Problem.....	499
Chapter 6. Vehicle Transportation and Energy Use.....		501
A.	Overview	501
	Notes and Questions	503
B.	Transportation Infrastructure: Highways, Sprawl, Environmental Justice, and Decarbonization	506

1.	The Federal Highway System, Gas Taxes, Mass Transportation and New Urbanism.....	506
	Federal-Aid Highway Program (FAHP): In Brief.....	507
	Notes and Questions	509
	Notes and Questions	513
2.	Environmental Justice Concerns	514
	Saint Paul Branch of N.A.A.C.P. v. U.S. D.O.T.....	516
	Notes and Questions	522
C.	Oil Consumption and Technology-Forcing Regulation	524
1.	Vehicle Fuel Efficiency and Cafe Standards	525
	Center for Biological Diversity v. National Highway Traffic Safety Admin.	527
	Notes and Questions	537
2.	Regulation of Fuel Additives	539
	Ethyl Corp. v. Environmental Protection Agency	540
	Notes and Questions	547
D.	Alternative Fuels: Ethanol and Electricity	548
1.	Ethanol and the Renewable Fuel Standard.....	548
	Kelsi Brarmort, The Renewable Fuel Standard (RFS): An Overview.....	550
	Notes and Questions	554
	Americans for Clean Energy, et al. v. EPA.....	557
	Notes and Questions	563
2.	Electric Vehicles	564
	Bill Canis et al., Vehicle Electrification: Federal and State Issues Affecting Deployment	564
	In re Proposed Rules of the Minnesota Pollution Control Agency Adopting Vehicle Greenhouse Gas Emission Standards (Clean Cars Minnesota), Minnesota Rules Chapter 7023.....	570
	Notes and Questions	579
	Practice Problem.....	581
Chapter 7. Energy Infrastructure and the Transportation of Energy		585
A.	Overview	585
B.	Energy Transport Bottlenecks	588
1.	The Natural Gas Industry	591
	Notes and Questions	594
2.	Natural Gas Regulation: Entry, Exit, and the Shift to Competition.....	594
	Interstate Natural Gas Ass'n of America v. FERC	600
	Notes and Questions	603
C.	Energy Transport Siting	606
1.	Natural Gas Pipelines and Facilities	607
	Minisink Residents for Environmental Preservation & Safety v. FERC	608

Environmental Defense Fund v. FERC	613
Notes and Questions	619
2. Oil Pipelines.....	625
Puntenney v. Iowa Utilities Board	632
Notes and Questions	640
Practice Problem.....	644
3. Electricity Transmission	644
Square Butte Elec. Co-op. v. Hilken.....	647
In re Application of International Transmission Co.	654
Notes and Questions	658
Practice Problem.....	663
D. Energy Transport Safety	664
Bradley C. Bobertz, Legitimizing Pollution Through Pollution	
Control Laws: Reflections on Scapegoating Theory	669
Jonathan L. Ramseur, Oil Spills: Background and Governance.....	672
United States v. Mizhir.....	677
Notes and Questions	682

PART III. ENERGY IN TRANSITION: EMERGING ISSUES

Chapter 8. The Future of the Electric Grid: Modernization and Complexity	687
A. Overview	687
The Future of Electric Power in the United States	688
B. Enabling New Technologies Through New Planning and Operations	692
Notes and Questions	696
C. Policies to Promote Grid Modernization	701
D. Challenges Facing Grid Modernization	704
In the Matter of the Petition of Northern States Power Company, dba Xcel Energy, for Approval of Its Proposed Community Solar Garden Program	706
Notes and Questions	712
In re Consumers Energy Co.....	713
Notes and Questions	717
E. Cybersecurity.....	719
Grid Resilience: Priorities for the Next Administration.....	719
Fact Sheet: President Signs Executive Order Charting New Course to Improve the Nation's Cybersecurity and Protect Federal Government Networks	721
Notes and Questions	725
F. Privacy	725
Naperville Smart Meter Awareness v. City of Naperville.....	726
Notes and Questions	734
Practice Problem	735

Chapter 9. Addressing the Benefits and Risks of New Energy Sources and Technologies: Hydraulic Fracturing and Offshore Energy Development	737
A. Overview	737
B. The Growth of Shale Oil and Gas Development and Associated Regulatory Challenges	738
1. The Evolution and Expansion of Shale Oil and Gas Extraction ...	739
Oil and Petroleum Products Explained.....	740
Notes and Questions	743
2. The Role of Property Law in Hydraulic Fracturing	745
Coastal Oil & Gas Corp. v. Garza Energy Trust	746
Notes and Questions	751
3. The Role of Federal Regulation in Hydraulic Fracturing	752
Wyoming v. U.S. Dep't of Interior	754
Notes and Questions	759
4. The Role of State and Local Regulation in Hydraulic Fracturing	761
Robinson Township v. Commonwealth of Pennsylvania	761
City of Longmont v. Colo. Oil and Gas Ass'n	769
Notes and Questions	773
Practice Problem.....	774
C. Offshore Energy Development.....	776
1. Offshore Oil and Gas Leasing and Production	777
Center for Biological Diversity v. U.S. Dep't of Interior	778
California v. Norton.....	784
Laura B. Comay et al., Five-Year Program for Offshore Oil and Gas Leasing: History and Program for 2017–2022	789
Notes and Questions	792
2. The Promise and Perils of Deepwater Drilling.....	793
Curry L. Hagerty & Jonathan L. Ramseur, Deepwater Horizon Oil Spill: Selected Issues for Congress.....	793
Notes and Questions	796
3. Offshore Wind Energy.....	798
Adam Vann, Wind Energy: Offshore Permitting	798
Public Employees for Env't Responsibility v. Hopper	801
Notes and Questions	805
Chapter 10. Nuclear Energy.....	807
A. Overview	807
1. The Nuclear Industry	808
2. Nuclear Regulation.....	814
Blue Ridge Environmental Defense League v. NRC	819
Notes and Questions	826
3. Nuclear Power and Energy Law	831
B. Atomic Power and the Energy-Environment Nexus	833
1. The Disaster at Fukushima Daiichi.....	836
Evan Osnos, The Fallout: Letter from Fukushima	836

Notes and Questions	844
Practice Problem.....	848
2. Addressing Nuclear Power's Environmental Risks.....	849
San Luis Obispo Mothers for Peace v. NRC	852
New Jersey Department of Environmental Protection v. NRC.....	856
Notes and Questions	858
Practice Problem.....	860
C. High-Level Nuclear Waste—Energy Federalism and “Super Wicked Problems”.....	861
Notes and Questions	868
1. Who Decides?: Jurisdiction in Energy Governance.....	869
2. The Failed Skull Valley Plan.....	871
David Rich Lewis, Skull Valley Goshutes and the Politics of Nuclear Waste: Environment, Identity, and Sovereignty.....	871
Notes and Questions	878
Virginia Uranium v. Warren	880
New England Power Co. v. New Hampshire	884
Skull Valley Band of Goshute Indians v. Nielson	888
Notes and Questions	894
Practice Problem.....	895
Chapter 11. Energy Futures: Net-Zero Energy and Disruptive Innovation	897
A. Overview	897
B. Climate Targets and Net Zero Energy.....	898
1. Definitions and International Goals	899
2. Implementing Net Zero Energy.....	903
a. Studies on Implementing Net Zero Energy	904
Notes and Questions.....	906
b. Government Net-Zero Policies	906
California 100 Percent Clean Energy Act of 2018 (SB 100)	907
Virginia Clean Economy Act (2020)	910
Notes and Questions.....	911
c. Corporate Commitments and Initiatives	912
Notes and Questions.....	915
d. Financial Institutions.....	916
Notes and Questions.....	918
Practice Problem.....	919
C. The Innovation Process.....	919
Joseph P. Tomain, Clean Power Politics: The Democratization of Energy	920
Notes and Questions	922
D. Decarbonizing Technologies: Two Case Studies.....	923
1. Electric Vehicles	923
Notes and Questions	928

In the Matter of a Commission Inquiry into Electric Vehicle Charging and Infrastructure	929
In the Matter of the Petition of the Electric Vehicle Work Group for Implementation of a Statewide Electric Vehicle Portfolio, Maryland Public Service Commission	933
Notes and Questions	937
Practice Problem.....	939
2. Carbon Capture and Storage (CCS)	940
Council on Environmental Quality Report to Congress on Carbon Capture, Utilization, and Sequestration	942
In the Matter of the Commission's Investigation Pursuant to Wyo. Stat. § 37–2–117 of the Integrated Resource Plan Filed By Rocky Mountain Power on October 18, 2019	944
In the Matter of the Public Service Company of New Mexico's Abandonment of San Juan Generating Station Units 1 and 4	949
Notes and Questions	955
Practice Problem.....	956
E. Your Role in the Energy Future	958
INDEX.....	961