

ENERGY LAW & REGULATION**LAW 6722****SYLLABUS**

Time/Location: Monday/Wednesday 9:30-10:50; Room 207

Course Description: This course provides an introduction to energy law and regulation in the United States. It covers basic principles of rate regulation and public utilities; the division of jurisdiction between federal and state governments; the key federal statutes and regulatory regimes governing natural gas, electricity, and nuclear power; and the implications of new climate change and renewable energy mandates for the electric power sector. The first half of the course will focus on public utility regulation and the basic regulatory frameworks for natural gas and electricity regulation, with an emphasis on understanding the messy and uneven transition to wholesale competition in these sectors and, in the electricity context, the experience with state restructuring and retail competition. The second half of the course will introduce students to the distinctive regulatory regime for nuclear power and explore in some depth the challenges and opportunities that come with new policies seeking to promote renewable energy and transition to a low-carbon electricity system. This course does not cover traditional oil and gas law.

Reading Materials:

- Casebook: Fred Bosselman et al., *Energy, Economics and the Environment: Cases and Materials*, 3rd Edition (Foundation Press: 2010)
- Supplementary Materials posted on TWEN
- Note that some readings are marked “optional” and are provided for students seeking additional and/or broader perspectives on particular issues

Attendance & Class Participation: Students are expected to attend and participate in class. If you will not be able to attend class, please let me know in advance. Class discussion is very important, and you are encouraged to engage regularly in discussion. Attendance and class participation will be considered in deciding whether to adjust your grade.

Grading: Grades will be based upon a 3-hour exam subject to any adjustment for class participation and/or attendance. Final Exam is Thursday December 13, 2012 at 1:15pm Room 207.

Disability Issues: If you qualify for accommodations because of a disability, please submit to me a letter from Disability Services in a timely manner so that your needs can be addressed. Disability Services determines accommodations based on documented disabilities. Contact: 303-492-8671, Willard 322, and [www.Colorado.EDU/disability services](http://www.Colorado.EDU/disability_services).

Religious Observances: Campus policy regarding religious observances requires that faculty make every effort to deal reasonably and fairly with all students who, because of religious obligations, have conflicts with scheduled exams, assignments or required attendance. See full details at http://www.colorado.edu/policies/fac_relig.html. If you need accommodation for religious observances, please let me know in advance.

The Honor Code: Read it, understand it, and follow it. See <http://www.colorado.edu/Law/about/honorcode/index.htm>.

Contact Information: Office # 443 | 303.492.7320 | william.boyd@colorado.edu.

Office Hours: Mondays and Wednesdays 3:00pm to 4:00pm or by appointment.

PART 1 - INTRODUCTION

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| 1 8/27 | <p>INTRODUCTION & COURSE OVERVIEW: FRAMING THE ENERGY PROBLEM</p> <ul style="list-style-type: none"> • CASEBOOK, 1-25 • JOHN P. HOLDREN, <i>THE ENERGY INNOVATION IMPERATIVE</i>, <u>INNOVATIONS</u> (SPRING 2006), POSTED ON TWEN (OPTIONAL READING)) |
| 2 8/29 | <p>COMMON LAW PRINCIPLES OF PUBLIC UTILITY LAW</p> <ul style="list-style-type: none"> • KEY DOCTRINAL DEVELOPMENTS & PRINCIPLES - CASEBOOK, 26-51; |
| 3 9/5 | <p>THEORY & PRACTICE OF ENERGY REGULATION</p> <ul style="list-style-type: none"> • MARKET POWER & TASKS OF THE REGULATORY COMMISSION – CASEBOOK, 51-61 • COST-OF-SERVICE REGULATION – CASEBOOK, 62-82 |
| 4 9/10 | <p>THEORY & PRACTICE OF ENERGY REGULATION (CONT.)</p> <ul style="list-style-type: none"> • COST-OF-SERVICE REGULATION (CONT.) – CASEBOOK, 82-101 |
| 5 9/12 | <p>THEORY & PRACTICE OF ENERGY REGULATION (CONT.)</p> <ul style="list-style-type: none"> • PROBLEMS WITH RATE REGULATION & ALTERNATIVES – CASEBOOK, 101-116 |

PART 2 - NATURAL GAS

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| 6 9/17 | <p>BACKGROUND</p> <ul style="list-style-type: none"> • RESOURCE CHARACTERISTICS & INDUSTRY STRUCTURE – CASEBOOK, 443-460 • MIT, <u>THE FUTURE OF NATURAL GAS (2011)</u> - SELECTIONS POSTED ON TWEN • CERA, <u>FUELING NORTH AMERICA’S ENERGY FUTURE, THE UNCONVENTIONAL NATURAL GAS REVOLUTION & THE CARBON AGENDA (2010)</u> – EXECUTIVE SUMMARY – POSTED ON TWEN • JACOBY ET AL., <u>THE INFLUENCE OF SHALE GAS ON U.S. ENERGY & ENVIRONMENTAL POLICY, ECONOMICS OF ENERGY & ENVIRONMENTAL POLICY (2012)</u> (OPTIONAL READING) – POSTED ON TWEN |
| 7 9/19 | <p>FEDERAL REGULATORY FRAMEWORK; RESTRUCTURING & OPEN ACCESS</p> <ul style="list-style-type: none"> • OVERVIEW & HISTORICAL DEVELOPMENT– CASEBOOK, 489-507 • RESTRUCTURING & OPEN ACCESS– CASEBOOK, 507-522 |
| 8 9/24 | <p>RESTRUCTURING & OPEN ACCESS (CONT.)</p> <ul style="list-style-type: none"> • RESTRUCTURING & OPEN ACCESS (CONT.) – CASEBOOK, 522-528 • PROBLEMS WITH RESTRUCTURED MARKETS – THE CALIFORNIA ENERGY CRISIS & BEYOND – CASEBOOK, 529-542 |

PART 3 - ELECTRICITY

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| 9 9/26 | <p>INTRODUCTION TO ELECTRICITY</p> <ul style="list-style-type: none"> • INTRODUCTION TO ELECTRIC POWER SYSTEMS - BRIEF AMICUS CURIAE OF ELECTRICAL ENGINEERS, ENERGY ECONOMISTS AND PHYSICISTS, <i>NEW YORK v. FERC</i>, 535 U.S. 1 (2002) (SELECTIONS POSTED ON TWEN) • MIT, <u>THE FUTURE OF THE ELECTRIC GRID (2011)</u> APPENDIX A: A BRIEF HISTORY OF THE US GRID; |
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| | <p>APPENDIX B: ELECTRIC POWER SYSTEM BASICS (OPTIONAL READING) – POSTED ON TWEN</p> <ul style="list-style-type: none"> • THE ESSENTIAL ASPECTS OF ELECTRICITY, CH. 2 IN SALLY HUNT, <u>MAKING COMPETITION WORK IN ELECTRICITY</u> (OPTIONAL READING) – POSTED ON TWEN • HISTORICAL DEVELOPMENT OF THE INDUSTRY – CASEBOOK, 563-583 • REGULATORY ASSISTANCE PROJECT, ELECTRICITY REGULATION IN THE USA: A GUIDE (2011) – OPTIONAL BACKGROUND READING – POSTED ON TWEN |
| 10 10/1 | <p>INTRODUCTION TO ELECTRICITY (CONT.)</p> <ul style="list-style-type: none"> • INDUSTRY STRUCTURE – CASEBOOK, 583-607 • INDUSTRY STRUCTURE – SALLY HUNT, <u>MAKING COMPETITION WORK IN ELECTRICITY</u>, CH. 12: <i>THE STRUCTURE OF THE INDUSTRY</i> (OPTIONAL READING) – POSTED ON TWEN |
| 11 10/3 | <p>COMPETITION & ELECTRICITY - WHOLESALE POWER</p> <ul style="list-style-type: none"> • COMPETITION IN ELECTRIC POWER – CASEBOOK, 609-613 • GROWTH OF WHOLESALE COMPETITION – CASEBOOK, 613-626 |
| 12 10/8 | <p>COMPETITION & ELECTRICITY – WHOLESALE POWER (CONT.)</p> <ul style="list-style-type: none"> • OPEN ACCESS TRANSMISSION: UNBUNDLING & THE EMERGENCE OF NEW WHOLESALE POWER MARKETS – CASEBOOK, 626-656 |
| 13 10/10 | <p>COMPETITION & ELECTRICITY – WHOLESALE POWER (CONT.)</p> <ul style="list-style-type: none"> • OPEN ACCESS TRANSMISSION: UNBUNDLING & THE EMERGENCE OF NEW WHOLESALE POWER MARKETS (CONT.) – CASEBOOK, 657-682 |
| 14 10/15 | <p>COMPETITION & ELECTRICITY – RETAIL POWER</p> <ul style="list-style-type: none"> • RETAIL RESTRUCTURING – HISTORY, RATIONALE, COMMON FEATURES – CASEBOOK, 683-702 |
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| 15 10/17 | COMPETITION & ELECTRICITY – RETAIL POWER (CONT.) <ul style="list-style-type: none"> • RETAIL RESTRUCTURING: STATE COMPETITION PLANS - CASEBOOK, 702-713 • RETAIL RESTRUCTURING: THE FUTURE – CASEBOOK, 713-721 |
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PART 4 – NUCLEAR POWER

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| 16 10/22 | BACKGROUND; CURRENT STATUS AND PROSPECTS <ul style="list-style-type: none"> • EARLY DEVELOPMENT – CASEBOOK, 996-1003 • STATUS AND PROSPECTS – CASEBOOK, 1003-1012 • MIT, <u>THE FUTURE OF NUCLEAR POWER (2003 + 2009 UPDATE)</u> – SELECTIONS POSTED ON TWEN • M. V. RAMANA, <i>NUCLEAR POWER: ECONOMIC, SAFETY, HEALTH, AND ENVIRONMENTAL ISSUES OF NEAR-TERM TECHNOLOGIES</i>, <u>ANNUAL REVIEW OF ENVIRONMENT AND RESOURCES</u>, (2009) (OPTIONAL READING) – POSTED ON TWEN • E. MONIZ, <i>WHY WE STILL NEED NUCLEAR POWER</i>, <u>FOREIGN AFFAIRS</u> (NOV/DEC. 2011) (OPTIONAL READING) – POSTED ON TWEN |
| 17 10/24 | THE BASIC REGULATORY FRAMEWORK FOR NUCLEAR SAFETY <ul style="list-style-type: none"> • NUCLEAR SAFETY – REGULATORY FRAMEWORK - CASEBOOK, 1012-1044 |
| 18 10/29 | DISPOSAL OF NUCLEAR WASTE <ul style="list-style-type: none"> • MIT, <u>THE FUTURE OF NUCLEAR POWER (2003 + 2009 UPDATE)</u>– SELECTIONS POSTED ON TWEN • NUCLEAR WASTE – CASEBOOK, 1045-1062 • BLUE RIBBON COMMISSION ON AMERICA’S NUCLEAR FUTURE, REPORT TO THE SECRETARY OF ENERGY (2012), EXECUTIVE SUMMARY, POSTED ON TWEN |

| PART 5 – RENEWABLE ENERGY, DEMAND RESPONSE & ELECTRIC POWER | |
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| 19 10/31 | <p>BACKGROUND ON RENEWABLE ENERGY & ELECTRIC POWER</p> <ul style="list-style-type: none"> • BACKGROUND ON RENEWABLE ENERGY RESOURCES, TECHNOLOGIES, ECONOMICS – <ul style="list-style-type: none"> ○ NATIONAL ACADEMY OF SCIENCES, <u>ELECTRICITY FROM RENEWABLE RESOURCES: STATUS, PROSPECTS, AND IMPEDIMENTS</u>, EXECUTIVE SUMMARY, (2009) – POSTED ON TWEN ○ HUGH SHARMAN, <i>WHY WIND POWER WORKS FOR DENMARK</i>, 158 <u>CIVIL ENGINEERING</u> 66 (2005) (OPTIONAL READING) – POSTED ON TWEN ○ THE RISE OF RENEWABLE ENERGY – DAN KAMMEN, <i>THE RISE OF RENEWABLE ENERGY</i>, 295 <u>SCIENTIFIC AMERICAN</u> 84 (2006) (OPTIONAL READING) – POSTED ON TWEN ○ IPCC, <u>SPECIAL REPORT ON RENEWABLE ENERGY SOURCES AND CLIMATE CHANGE MITIGATION, SUMMARY FOR POLICYMAKERS</u> (2011) (OPTIONAL READING) - POSTED ON TWEN |
| 20 11/5 | <p>PROMOTING RENEWABLES – RPSs AND RECs MARKETS</p> <ul style="list-style-type: none"> • EARLY GOVERNMENT PROGRAMS, CASEBOOK, 872-875 • RENEWABLE PORTFOLIO STANDARDS, CASEBOOK, 875-884 • RENEWABLE PORTFOLIO STANDARDS – UNDERSTANDING RECs MARKETS <ul style="list-style-type: none"> ○ G.K. LAWRENCE & A.Y. VELIE, <i>DEVELOPING MARKETS FOR RENEWABLE ENERGY CERTIFICATES & THEIR IMPACTS ON PROJECT FINANCE</i> IN <u>ENERGY AND ENVIRONMENTAL PROJECT FINANCE LAW & TAXATION</u> (2010) – POSTED ON TWEN ○ MICHAEL GILLENWATER, <i>REDEFINING RECs – PART 1: UNTANGLING ATTRIBUTES AND OFFSETS</i>, 36 <u>ENERGY POLICY</u> 2109 (2008) – (OPTIONAL READING) POSTED ON TWEN ○ MICHAEL GILLENWATER, <i>REDEFINING RECs – PART 2: UNTANGLING CERTIFICATES AND EMISSIONS MARKETS</i>, 36 <u>ENERGY POLICY</u> 2120 (2008) (OPTIONAL READING) POSTED ON TWEN |
| 21 11/7 | <p>PROMOTING RENEWABLES –BARRIERS TO STATE PROGRAMS; FEDERAL RPS PROPOSALS</p> <ul style="list-style-type: none"> • LEGAL BARRIERS TO STATE PROGRAMS – CASEBOOK, 884-893 • FEDERAL RPS – CASEBOOK, 893-905 • FEDERAL CLEAN ENERGY STANDARD (PROPOSED) – SELECTIONS TO BE ASSIGNED – POSTED ON TWEN • ROBERT J. MICHAELS, <i>A NATIONAL RENEWABLE PORTFOLIO STANDARD: POLITICALLY CORRECT</i>, |

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| | <p><i>ECONOMICALLY SUSPECT</i>, 21 <u>THE ELECTRICITY JOURNAL</u> 9 (2008) (OPTIONAL READING) – POSTED ON TWEN</p> |
| 22 11/12 | <p>PROMOTING RENEWABLES - FEED-IN TARIFFS</p> <ul style="list-style-type: none"> • FEED-IN TARIFFS, CASEBOOK 905-912 • FERC ORDERS, CALIFORNIA PUBLIC UTILITIES COMMISSION, 132 FERC ¶61,047 & 133 FERC ¶61,059 (2010); – POSTED ON TWEN • FEDERAL LAW CONSTRAINTS: SCOTT HEMPLING ET AL., <u>RENEWABLE ENERGY PRICES IN STATE-LEVEL FEED-IN TARIFFS: FEDERAL LAW CONSTRAINTS AND POSSIBLE SOLUTIONS</u> (2010) (OPTIONAL READING) POSTED ON TWEN • FEED-IN-TARIFFS AND OTHER GREEN INCENTIVES - LIN GAN ET AL., <i>GREEN ELECTRICITY MARKET DEVELOPMENT: LESSONS FROM EUROPE AND THE US</i>, 35 <u>ENERGY POLICY</u> 144 (2007) – (OPTIONAL READING) POSTED ON TWEN |
| 23 11/14 | <p>PROMOTING RENEWABLES – TAX INCENTIVES; FINANCING ISSUES</p> <ul style="list-style-type: none"> • STATE & FEDERAL FINANCIAL INCENTIVES, CASEBOOK 912-918 • TAX CREDITS & WIND – RYAN WISER ET AL., <u>USING THE FEDERAL PRODUCTION TAX CREDIT TO BUILD A DURABLE MARKET FOR WIND IN THE UNITED STATES</u>, LBNL-63583 (NOVEMBER 2007) – POSTED ON TWEN • TAX CREDITS & WIND – E. FEO & S. FRIEDMAN, <i>TAX EQUITY FINANCING FOR WIND PROJECTS IN ENERGY AND ENVIRONMENTAL PROJECT FINANCE LAW & TAXATION</i> (2010) (OPTIONAL READING) – POSTED ON TWEN • PROJECT FINANCE – K WONG & A. MARKS, <i>OVERVIEW OF THE DEVELOPMENT & FINANCING OF RENEWABLE ENERGY PROJECTS IN ENERGY AND ENVIRONMENTAL PROJECT FINANCE LAW & TAXATION</i> (2010) – POSTED ON TWEN • FINANCING ISSUES - WAYNE P. OLSON, <i>AT A CROSSROADS: MODERNIZING UTILITY INFRASTRUCTURE IN A TOUGH CREDIT ENVIRONMENT</i>, 22 <u>THE ELECTRICITY JOURNAL</u> 6 (2009) (OPTIONAL READING) – POSTED ON TWEN • PROMOTING RENEWABLES IN EUROPE & CHINA, CASEBOOK 918-926 (OPTIONAL READING) |
| <p>FALL/THANKSGIVING BREAK 11/19-11/23</p> | |

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| <p>24 11/26</p> | <p>PROMOTING RENEWABLES— TRANSMISSION CHALLENGES</p> <ul style="list-style-type: none"> • TRANSMISSION CHALLENGES, CASEBOOK, 930-955 • FERC ORDER 1000: <u>TRANSMISSION PLANNING & COST ALLOCATION BY TRANSMISSION OWNING & OPERATING PUBLIC UTILITIES</u>, 136 FERC ¶ 61,051 (2011) SELECTIONS POSTED ON TWEN • TRANSMISSION CHALLENGES - AWEA/SEIA, <u>GREEN POWER SUPERHIGHWAYS: BUILDING A PATH TO AMERICA’S CLEAN ENERGY FUTURE</u> (2009) – (OPTIONAL READING) POSTED ON TWEN |
| <p>25 11/28</p> | <p>CONSERVATION & DEMAND RESPONSE</p> <ul style="list-style-type: none"> • INTEGRATED RESOURCE PLANNING – CASEBOOK, 967-974 • DEMAND SIDE MANAGEMENT (DSM) – CASEBOOK, 974-984 • FERC ORDER 745: <u>DEMAND RESPONSE COMPENSATION IN ORGANIZED WHOLESALE ENERGY MARKETS</u>, 134 FERC ¶ 61,187 (2011) SELECTIONS POSTED ON TWEN |
| <p>26 12/3</p> | <p>SMART GRID</p> <ul style="list-style-type: none"> ○ CASEBOOK, 984-995 ○ PAUL JOSKOW, <i>CREATING A SMARTER U.S. ELECTRICITY GRID</i>, 26 <u>JOURNAL OF ECONOMIC PERSPECTIVES</u> 29 (2012) POSTED ON TWEN ○ <u>A POLICY FRAMEWORK FOR THE 21ST CENTURY GRID: ENABLING OUR SECURE ENERGY FUTURE</u> (2011) (OPTIONAL READING) POSTED ON TWEN ○ RECOMMENDED OPTIONAL BOOK: PETER FOX PENNER, <u>SMART POWER: CLIMATE CHANGE, THE SMART GRID, AND THE FUTURE OF ELECTRIC POWER</u> (2010) |
| <p>27 12/5</p> | <p>SMART GRID (CONT.)</p> <p>COURSE WRAP-UP</p> |
| <p>EXAM REVIEW – DATE/TIME TBA</p> | |