

Energy Project Development & Finance

Fall 2013 – Berkeley Law
Wednesday 3:35-6:15pm
3 Units

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Course Description:

The course will follow the progression of the development of an energy project, from early stage site and offtake development issues through construction and project financing through operation and disposition and abandonment. The class will highlight the differences between developing renewable and conventional energy projects, including baseload vs. intermittent resources, energy vs. capacity, fuel risk vs. renewable source risks, etc. In addition to a primary focus on utility-scale solar and natural gas combined cycle plants, the course will address issues unique to the development and financing of other modern types of energy infrastructure, including energy efficiency, energy storage, biofuels, fuel cells, wind and distributed solar projects and portfolios. For each stage of the development process covered, we will begin with the federal and state legal and jurisdictional issues, then identify the primary risks and contractual arrangements, and finally do problem identification and resolution. The course addresses the theoretical foundations for risk allocation and project finance structures typically used in the energy and infrastructure industries, while also covering practical negotiation and contract drafting strategies for addressing business and legal issues that arise on energy projects.

Students will complete the course with a fundamental understanding of how energy projects are developed and financed, and how the key regulatory and commercial forces affect the development of such projects, with a particular emphasis on the factors important to non-conventional energy projects. While the course focuses specifically development and finance of energy projects, students will acquire skills broadly useful to transactional legal practices in other industries that incorporate aspects of commercial transactions, technology transactions, regulatory proceedings and financing transactions.

Course Materials: The two books listed below are required. All cases and other materials referenced in the syllabus below will be available on bSpace.

- Richard Munson, *From Edison to Enron: The Business of Power and What It Means for the Future of Electricity* (Praeger Publishers, 2005).
- Scott L. Hoffman, *The Law and Business of International Project Finance* (Cambridge 3d Ed. 2007).

Prerequisites: None required. Prior or concurrent enrollment in LAW 270.6 (Energy Regulation and the Environment) is recommended, although these courses are designed to be complementary. We also recommend having taken a survey course on renewable energy technologies like LAW 270.7 (Renewable Energy and Other Cleaner Fuels) or ER 200 (Energy & Society).

Grading: 10% class participation; 20% group project; 70% final exam

Meetings: 14 Classes

Final Exam: The final exam will be a take-home written exam which can be completed at any time during the final exam period. You will have 6 hours to complete the exam.

Group Project: You will form groups of about four students each, and each group will be assigned a different case study concerning a project. The case studies will include a utility-scale solar project, a wind project, a combined cycle gas-fired combustion turbine project, an energy efficiency project, and a few others, depending on the number of students enrolled. The group will present its project to the class, which will act as the Finance Committee charged with deciding whether to invest in the project. In addition to your prepared presentation, you will receive questions from the Finance Committee during your presentations. The total presentation time including questions will be approximately 40 minutes. The prepared portion of your presentation should be 15 minutes. As you prepare, focus on addressing the points outlined below. Review the case study materials, course readings, and any other outside sources to prepare a presentation of your project.

- Describe the site and any environmental and permitting issues.
- Who is the offtaker and/or customer? Are there any transmission or interconnection issues?
- Describe the technology and where it has been used before.
- Who will be building the project? Operating and maintaining the project?
- Describe the government incentives you expect to receive.
- How will the financing structure be optimized?
- Provide a summary of the project economics.
- What is unique about the project?
- Address any risks associated with each of the above points, and how those risks will be allocated.

Course Syllabus

Class 1

8/21/13 Introduction; Project Development & Finance Overview; Presentation of Case Studies

Required:

- L. Alexander, *et al.*, *Clean Technology Project Finance*, August 2013, pp. 3-9.
- *Hoffman*, Ch.1 (§§ 1.01-.09) pp. 4-13.
- *From Edison to Enron*, pp. 103-114.

Suggested:

- *From Edison to Enron*, 43-102 (a great, readable history of the development of the electric utility sector in the US).
- Project Finance Glossary –
<http://www.people.hbs.edu/besty/projfinportal/glossary.htm>

Class 2

8/28/13 Offtake Agreements: Energy vs. Capacity, Environmental Attributes/RECs, Power Purchase vs. Leasing, Merchant, Availability, Curtailment, Guarantees, Development Security

Required:

- *Hoffman*, Ch 19 “Power Sales Agreements” pp. 222-242.
- *NRG Power Marketing, LLC v. Maine Public Utilities Comm’n*, 558 U.S. ____ (No. 08-674) (January 13, 2010) (see questions on first page of the reading in bSpace).
- *Iberdrola Renewables, Inc. et al. v. Bonneville Power Administration*, 137 FERC ¶ 61,185 (Dec. 7, 2011) (see questions on first page of the reading in bSpace).

Suggested:

- Power Purchase Agreement by and between Fire Island Wind, LLC and Chugach Electric Association, Inc., June 21, 2011 (no need to read in depth; just review TOC and peruse the contract).
- *Hoffman*, Ch 33 “Merchant Facilities” pp. 429-432.

Class 3

9/4/13 Environmental and Siting: Permitting, Environmental Law, Real Estate (Title, Options, Easements, Leases), Equator Principles

Guest Speaker: Peter Mostow, Wilson Sonsini Goodrich & Rosati

Required:

- *Hoffman*, Ch 11 “Environmental Regulation” pp. 105-112.
- *Center for Biological Diversity, Inc. v. FPL Energy Inc.*, Alameda County, Super. Ct. No. RG04-183113 (2008) (petition for review denied by the Supreme Court of California).
- Memo re Conditional Use Permit in Alameda County, August 20, 2009.
- Agreement to Repower Turbine at the Altamont Pass Wind Resources Area, December 3, 2010.

Suggested:

- Brown and Escobar, *Wind Power: Generating Electricity and Lawsuits*, 28 Energy L. J. 489-514.
- Bureau of Land Management, *Final Programmatic Environmental Impact Statement (PEIS) for Solar Energy Development in Six Southwestern States – Executive Summary*, July 2012.
- California Executive order to create the Desert Renewable Energy Conservation Plan (DRECP), S-14-08, November 17, 2008.

Class 4

9/11/13 Interconnection and Transmission: FERC Jurisdiction and Order No. 888, PURPA rights, ISOs and Interconnecting Utilities, Queues and Processes

Guest Speaker: Stan Berman, Sidley & Austin

Required:

- Federal Power Act, Sections 201, 205, 206, 210, 211.
- *New York v. Federal Energy Regulatory Comm’n*, 535 U.S. 1 (2002) (refresh if you have already read this in another course)
- *From Edison to Enron*, pp. 115 - 132.

Suggested:

- Steven Ferrey, *Law of Independent Power* (Thompson/Reuters West 2008) §§ 10.78.1 – 10.90.

Class 5

9/18/13 Regulatory and Policy Enablers and Incentives: FERC Regulation of Independent Power, State PUC Regulation of Procurement and RPS implementation, Energy Credits/RECs, Investment and Production Tax Credit, Other State Incentives

Required:

- *Independent Energy Producers Ass’n v. California Pub. Utilities Comm’n*, 36 F.3d 848 (9th Cir 1994).
- Clean Energy States Alliance, *The Commerce Clause and Implications for State Renewable Portfolio Standards*, March 2011.
- Database for State (and Federal) Incentives for Renewables & Efficiency (DSIRE) – <http://www.dsireusa.org/>

Suggested:

- Richard F. Hirsh, *Power Loss: The Origins of Deregulation and Restructuring in the American Electric Utility System* (MIT 1999); Section II, pp. 71-131 (refresh if you have already read in another course).
- Steven Ferrey, *Law of Independent Power* (Thompson/Reuters West 2008) §§ 5:13-5:14.

Class 6

9/25/13 Equipment, Procurement, and Construction: Managing Technical Risks, Warranties, Pricing, Scope, Scheduling, Changes, Completion Criteria, Serial Defects, Intellectual Property, Disputes, Liquidated Damages

Required:

- *Hoffman*, Ch 15 “Construction Contracts” pp. 164-187.
- *El Dorado Irrigation Dist. v. Traylor Bros.* (E.D. Cal. Jan 2006).

Suggested:

- Class Action Complaint, *Smilovits v. First Solar, Inc.*, (D. Ariz.) (March 15, 2012).
- Sample Form EPC Contract

Class 7

10/2/13 Intro to Project Finance: General Project Finance Concepts, Corporate Structures, Partnerships

Required:

- Groobey, Faber & Klaus, *Project Finance for Renewable Energy and Clean Technology Projects* (February 2012), pp 1-16.
- Esty & Sesia, *An Overview of Project Finance and Infrastructure Finance—2009 Update* (Sept 30, 2011), pp 1-39.
- Hoffman, Ch 5 “Project Finance Participants and Their Roles” pp. 71-77.
- Hoffman, Ch 6 “Project Finance Structures” pp. 78-82.
- Hoffman, Ch 7 “Selecting the Project Finance Ownership Structure” pp. 83-92.

Suggested:

- ABA, *Model Joint Venture Agreement Checklist*, pp 1-21.

Class 8

10/9/13 Financing Structures: Types of Debt And Equity, Partnership Flip, Sale-Leaseback, Inverted Lease, Property-Assessed Clean Energy

Required:

- Hoffman, Ch 21 “Financing Sources” pp. 275-282.
- NREL, *The Impact of Financial Structure on the Cost of Solar energy*, March 2012, pp 1-28.
- NREL, *Property-Assessed Clean Energy Financing of Renewables and Efficiency* (July 2010).

Suggested:

- Joint Comments on FHFA Rulemaking re PACE (Sept 13, 2012).

Class 9

10/16/13 Financial Modeling: Forecasting, Cost and Revenue Assumptions, Capital Costs and Operating Costs, Sensitivities, IRR and Debt Coverage Ratios

Guest Speaker: Mike Niver, Kilowatt Financial

Required:

- Sample Excel Project Financial Model will be posted in advance of class. This class period will be co-taught with a project developer. Required reading for this session will include

readings that define basic project finance model terms, and a sample Excel model to be reviewed.

Class 10

10/23/13 Additional Financing Topics: Equipment Leasing, Credit Support, Secured Financings, Ratings Agencies, Guarantees, Insurance

Required:

- Hoffman, Ch 20 "Credit Enhancement" pp. 245-256.
- Capital-E and the Energy Foundation, *Energy Efficiency Financing – Modeling and Strategies, Pathways to Scaling Energy Efficiency Financing from \$20 Billion to \$150 Billion Annually*, October 2011, pp 1-48.
- Fitch, *Ratings Criteria for Solar Power Projects*, February 2012, pp 1-20.

Suggested:

- New York Bar, *Structured Financing Techniques*, 50 Bus. Law. 527, 1994-1995.
- Fitch, *Construction and Operational Solar Project Issues*, June 2012, pp 1-6.

Class 11

10/30/13 Group Presentations

Class 12

11/6/13 Group Presentations

Class 13

11/13/13 Operations and Maintenance: Force Majeure applied; Change in Law; Disposition and Abandonment

Required:

- Hoffman, Ch 17 "Operations and Maintenance Contracts" pp. 198-208.
- Todd Glass, Change in Law Presentation.
- *Northern Indiana Public Service Company v. Carbon County Coal Co.* 799 F.2d 276 (7th Cir. 1986).
- *URI Cogeneration Partners v. Board of Governors for Higher Education*, 915 F. Supp. 1267 (D.R.I. 1996).

Suggested:

- Steven Ferrey, *Law of Independent Power* (Thompson/Reuters West 2008) §§ 10.139 – 10.143.

Class 14

11/20/13 International Projects and Partners: Cross-Border Trends, Tariffs, Multilateral Development Banks/Export-Import Banks, Currency Risks, Expropriation, Federal Corrupt Practices Act

Guest Speaker: Dan Kammen, Energy & Resources Group, UC Berkeley

Required:

- International Trade Association, US Department of Commerce, *Crystalline Silicon Photovoltaic Cells, Whether or Not Assembled Into Modules, from the People's Republic of China: [Preliminary] Affirmative Countervailing Duty Determination*, [March 20, 2012] – Fact Sheet, pp 1-3.
- International Trade Association, US Department of Commerce, *Crystalline Silicon Photovoltaic Cells, Whether or Not Assembled Into Modules, from the People's Republic of China: [Preliminary] Affirmative Countervailing Duty Determination*, [March 19, 2012] – Scoping Memo, pp 1-10.
- *Hoffman*, Ch 20.11 “Political Risk Insurance, B Loan Programs and Guarantees” pp. 256-266.
- *Hoffman*, Ch 21.07-21.10 “Financing Sources” pp. 282-300.
- *Hoffman*, Chapter 29 “US Laws Affecting Foreign Investment” pp. 392-399.
- Asian Development Bank, Statement of the ADB’s Operations in 2011, pp 1-10.

Suggested:

- Asian Development Bank, 2010 Clean Energy Investment Project Summaries, pp 1-73.