

ENERGY LAW EDUCATION IN THE U.S.: AN OVERVIEW AND RECOMMENDATIONS

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Synopsis: Energy has a powerful and perhaps unmatched influence on our economy, environment, health, politics, international relations and general well-being. Not surprisingly, therefore, it is a heavily regulated field and in some respects considered a "public good." Whether a law student is considering a career in the field of energy law or not, understanding how energy is regulated is becoming essential legal knowledge. This report, commissioned by the leadership of the Energy Bar Association (EBA) and developed by a committee of educators and practitioners, recognizes that formal training in energy law serves a variety of student needs. The report seeks to inform the EBA board, law students, prospective law students, educators, educational advisors, prospective employers, and other interested bar associations about the field and how energy law is taught in the United States today. For those students considering a career in energy law, the report discusses the variety of career options within the field, the differences among law school energy programs, and how to best prepare for practice, which the Committee hopes will assist aspiring lawyers in making choices appropriate for their interests and career goals. For educators, the report presents ideas to better connect energy law education to practice. The Committee also sought to identify and share best practices and develop new ideas in order to assist law schools in expanding and enhancing the options available to students. The report concludes with recommendations to the EBA, potential employers, and other interested parties on measures they can take to further energy law education.

[*] This report was prepared by an ad hoc committee of the Energy Bar Association (EBA); the Committee members are identified at the end of this report. The views expressed herein are the product of the Committee's work and do not necessarily represent the views of the individual committee members, their affiliated organizations, the EBA, or its Board. The Committee thanks all the individuals who contributed their time and effort to this project.

I. INTRODUCTION AND OVERVIEW OF THE REPORT

The Energy Bar Association's Ad Hoc Committee on Energy Law Education is honored to present this Report on energy law education in the United States, addressing how energy law is currently taught and how it can be strengthened to meet the needs of a growing and changing industry. The Committee is composed of academics, recent students, and seasoned practitioners from government and private industries. (A list of participants is included at the end of this Report.)

The Committee developed the Report for the EBA; this long-term project was conceived by then-Vice President of the Association, Richard Meyer, with the approval of then-President, Adrienne Clair. However, the Committee expects it to be useful to a wider audience, including law students, prospective law students, educators, educational advisors, prospective employers, and other interested bar associations. The Report discusses the variety of career options within the field of energy law and ideas to better connect energy law education to practice. It also discusses the differences among law school energy programs and approaches in order to inform law students, pre-law students, and career

counselors about the field and the variety of study options available, which the Committee hopes will assist aspiring lawyers in making choices appropriate for their interests and career goals. The Committee has sought to identify and share best practices and develop new ideas in order to assist law schools in expanding and enhancing the options available to students. The Committee has also addressed recommendations to the Energy Bar Association, potential employers, and other interested parties on measures they can take to further energy law education.

Through our months of meetings and information gathering, the Committee has come to appreciate the complexity of teaching this subject. "Energy" includes a number of discrete sectors, each of which has its own set of laws and policy concerns but which also have various interdependencies and commonalities. Further, energy lawyers apply a diverse set of skills and draw on multiple areas of the law in their everyday work, including cross-overs into many other legal and non-legal disciplines. Simply untangling this web of relationships creates an educational challenge and makes it difficult to structure or recommend "tracks" of study that could serve as a common guide. There are many career options in energy law and many paths by which to secure the knowledge needed.

A benefit of this complexity is that energy law is suited to a wide variety of students with diverse undergraduate majors. The Report includes an appendix that maps the types of skill sets students may have developed as undergraduates, including in the hard sciences, social sciences, business, and liberal arts, to areas of energy law practice.

As a result of the complexity of the subject and the differing goals of various schools, energy law curriculums vary greatly in depth, breadth, and focus. For example, a number of law schools focus on aspects of energy production that are important to the economies of their region, such as oil & gas, coal, or wind. Others have a stronger bent toward environmental law and policy issues. Depending on the number of students interested in energy law, a law school may offer anywhere from one to a dozen or more courses for which energy is the predominant focus. The diversity in programs has value because it provides students who are potentially interested in energy law, and are deciding among schools, with a wide variety of options. However, it also means that any attempt to develop a model curriculum, or specify in the narrative a specific set of courses, would necessarily reflect the lowest common denominator and thus not provide useful guidance. Therefore, the Committee concluded that the Report could not identify a single "best" curriculum or recommend a syllabus for any particular course, but rather should be a broad narrative that reflects the variety of ways in which energy law may be taught, and share ideas that can be adapted to different circumstances. The Committee determined it would be helpful to provide samples of curriculums, as long as they are identified as examples, not models. Accordingly, the Report includes an appendix of curriculums from various schools. The appendix also includes ideas generated by the Committee for subject area content in core areas, but these are intended as examples, that should be modified to suit the needs of each particular educational institution. Law schools should enable students to tailor an individual energy law curriculum from the school's available offerings, supplemented with internships and externships where appropriate, based on specific student interests after consultation with an energy law faculty advisor.

The Committee included a number of practitioners who are not directly involved in education in order to assure that the report incorporated input from potential employers in the private and public sectors. The Committee members are aware that the job market for new graduates is difficult and thus the Committee was concerned that energy law instruction be relevant to the current market and prepare students appropriately to enter the job market and provide the tools needed for them to succeed as their experience grows. Implementing that intention is, of course, difficult. However, this Report suggests multiple ways in which those outside of academia—including practitioners, their firms, companies, agencies, organizations, and bar associations—can become involved with their local law schools and help provide the "real-world" context needed to assure that the next generation of energy law students are ready for practice.

II. WHAT IS ENERGY LAW?

Energy law is a multi-faceted set of statutes, regulations, and federal and state policies that govern the development and use of energy resources and energy-related facilities and the pricing of services from those facilities—all of which affect the daily lives of energy consumers, impact the economics of many businesses, impact the national economies of every country, and often have global implications. Energy law spans the development of natural resources used to produce energy, project finance and other financing structures related to energy facilities development, the reliable transportation and delivery of energy to consumers, the regulation and pricing of energy services provided to the public, the development of state and federal policy to promote or discourage the use of particular types of energy resources, the formulation and operation of both domestic and world markets to promote the efficient pricing and allocation of resources ranging from oil to natural gas to electricity, and policies to promote the efficient use of energy in the populace.

"Energy" includes a number of discrete sectors, such as oil and natural gas, coal, electricity, nuclear power, hydropower, solar, biofuels, and wind, as well as energy efficiency, conservation, demand response, and other measures that affect energy consumption. Each of these sectors has its own set of laws and policy concerns. However, under various circumstances and at various times the sectors may be interdependent or compete with one another. For example, natural gas is a fuel used to produce electricity but natural gas also competes directly with electricity as a source for home or commercial heating. Thus, regulatory measures applied to one energy sector can often have consequences for other energy sectors. Additionally, the production and reliable delivery of "energy" and the laws enacted to regulate energy will often intersect with environmental issues and laws. This includes laws governing land use, water use, and air quality.

III. WHAT IS THE PURPOSE OF OFFERING AN ENERGY LAW CURRICULUM?

A law school should consider offering an energy law curriculum for several reasons.

First and foremost, it provides an introduction for those students who may want to consider a career within the broad spectrum of legal positions in the energy field. Energy is a cornerstone of every economy, and thus it is important to offer

students who may be interested in practicing in this area the opportunity to learn about, and consider professional opportunities within, the field.

Second, it is a necessary corollary to environmental law, and should be included in the curriculum of any environmental law program. A knowledge of energy law principles, at least basic principles of regulation including permitting of generation plants, production facilities, and gas and oil pipelines, is becoming increasingly important and sometimes essential for practitioners of environmental laws involving policy, natural resource development, and other areas. Similarly, a basic understanding of electricity regulation and reliability of electricity supply is becoming increasingly essential for policy makers and practitioners involved in air quality laws.

Third, and similarly, those law schools that pride themselves on providing depth in the regulatory or natural resource extraction fields cannot consider their curriculums as sufficient, much less complete, without some measure of an energy law curriculum.

Fourth, a familiarity with basic energy laws and principles is a useful part of the tool box of any corporate, financial, or regulatory lawyer, since issues involving energy arise increasingly in those areas.

IV. HOW DO WE RAISE AWARENESS OF THE FIELD OF ENERGY LAW?

Educating a new generation of students in energy law requires both that schools provide strong programs and have interested students. So, how do we attract promising young lawyers into this field? The most important aspect is education. At every stage and in every initiative, it is important to educate students on the importance of energy, its political, international, and economic influence, and how access to energy resources affects health, the environment, and the general well-being of every person on the planet.

A. Raising Awareness at the Undergraduate Level

There is no specific undergraduate major required for admission to law school and energy lawyers draw on very diverse skill sets, including technical and scientific skills. Consequently, a university (whether or not it has a law school) should not limit or singularly direct its pre-law counseling to those students with traditional pre-law majors, such as English, economics, history, political science, government/public policy, or pre-law. Due to the technical nature of the energy field (as is also the case in certain other areas of practice such as patent law) there are a number of undergraduate majors, including science, math, and engineering, that provide a significant substantive foundation for practice. While each university has its own unique titles for the majors that it offers, some of the most common non-traditional pre-law undergraduate majors that could be helpful in pursuing energy law practices include, but are not limited to, engineering (civil, chemical, computer, mechanical, electrical, petroleum, nuclear, etc.), physics, geology, and mathematics/statistics/accounting. These non-traditional pre-law majors provide students who are interested in law school a sound technical foundation for numerous areas of energy law practice at the federal, regional/state, and private sector levels.

Providing information that connects undergraduate majors to the pursuit of energy law practice areas is critical in any law school marketing efforts. Opening that discussion provides undergraduate students in non-traditional pre-law undergraduate majors an opportunity to consider a legal education and career in energy law that might otherwise be overlooked, since many undergraduate students are unaware of the relevance of their majors to energy law practice areas. Therefore, it is important for law schools marketing their energy law programs to stimulate that line of consideration. In addition, the undergraduate schools of a university with a law school can encourage their students to broaden their perspectives about future careers—considering going into the legal field and using their undergraduate degree as a foundation.

Appendix 1 provides a sample of potential undergraduate majors that can pave the way to rewarding and exciting areas of energy law practices.

B. Raising Awareness Within Law Schools

In a few jurisdictions, such as Texas and Oklahoma, there is a long tradition of strong student interest in the topic of energy law because state bar examiners may test on oil and gas law topics. Further, in those states and certain others, energy production is such a visible part of the state economy that students are more likely to know an energy attorney or at least be aware that there are employment opportunities in the energy sector. And in recent years, as compared to earlier decades, students across the United States are increasingly likely to have developed an interest in energy prior to law school; for example, through undergraduate work in fields such as natural resources, environmental sciences, geology, economics, or sustainability.[1]

Nevertheless, energy law is still a relatively unnoticed area of study for many law students and some administrators, and therefore, special attention is needed (more so at some schools than others) to raise awareness of the field and make it an attractive area of study. It is particularly important to reach out to students during their first year, before they plan their upper-level course electives, to interest them in the subject, so that they can arrange to take the foundational courses they may need early in their second year.

A key strategy for raising interest is communicating the importance of energy law. Students are more likely to become excited about energy law if they understand the broad impacts that energy law and policy have on their day-to-day lives, on U.S. jobs and businesses, and on the U.S. and global economies, as well as the increasingly important intersection of environmental law and energy law and the cross-impacts of each set of laws. Whether a student ultimately goes into private practice, works as an in-house attorney for an energy company or other business, works with a federal or state energy regulatory agency, administrative or legislative body, or represents an energy trade association, energy law provides an opportunity to influence public policy in an area that ultimately affects every

1. *Natural Resources and Environment Schools and Colleges*, AM. SCHOOL SEARCH, www.american-school-search.com/colleges/natural-resources-environment (last visited Mar. 30, 2015) (stating eighty-four schools now offer a bachelor's degree in natural resources and the environment); *College Search*, BIGFUTURE, https://bigfuture.collegeboard.org/college-search (last visited Mar. 30, 2015) (identifying forty-eight colleges offering Sustainability Studies).

business and individual. Providing students with real-world examples of energy law's importance and reach, through law career forums and through the energy law curriculum itself, can be achieved by inviting energy practitioners to participate on law school career panels, serve as guest lecturers in energy law courses, or teach energy law courses as adjunct professors.

Students may also be attracted to energy law by the opportunity to participate in research in which they work closely with a professor, moot court or writing competitions, and learning more about job opportunities in the energy sector, including through internships and externships. Increasing the number of such opportunities not only raises awareness but also strengthens students' practice skills, which better enables them to find employment.

Students would also be more attracted to energy law if they better understood the number of job opportunities. There is strong anecdotal evidence that the job opportunities in energy law are growing, although quantitative evidence is elusive.[2] For example, schools that compile data on employment of new graduates often include energy law jobs with jobs in environmental law. And even those statistics do not appear to be systemically compiled, making it difficult to utilize them. The U.S. Department of Labor, Bureau of Labor Statistics measured a 31.6% increase in employment in the oil and gas sector from 2007 to 2012, even though the national average for employment across all industries declined by 2.7% over the same period; but, the department's data does not specify the level of employment for lawyers or law-related jobs within the sector.[3] One can surmise that since energy is a robust and growing part of the economy, energy law jobs may be too. But in the absence of a specific measure, it cannot be proven. More specific data collection in this area would be helpful. Even in the absence of such data, however, it appears that students with an interest in energy law are entering a relatively robust job market and student interest can be piqued by better communication about those opportunities.

Building student interest is one key component of a successful program. Just as important, if a law school offers an energy law curriculum, the faculty and administrators should give it both prominence in course offerings and the resources needed for the program's success. This is an area in which practitioners and their organizations can have significant influence, with their *alma maters* or local schools. They can discuss the importance of energy law with the law school's dean. They can contribute time and/or money to energy law programs in a variety of ways, including volunteering to coach and financially sponsor moot court teams, judge in energy-related competitions, help initiate an "Energy Club" at a local school, serve as an adjunct professor or guest lecturer, mentor, and make it a point to advertise energy-related jobs as widely as possible through the school's career office (which generally serves all alumni as well as students and recent graduates).

2. *See, e.g.*, Marion Webb, *What's Hot: The 10 practice areas that are driving hiring now*, THE NAT'L JURIST, Sept.-Oct. 2014, at 26.

3. Jennifer Cruz, Peter W. Smith & Sara Stanley, *The Marcellus Shale gas boom in Pennsylvania: employment and wage trends*, BUREAU OF LABOR STATISTICS (Feb. 2014), *available at* http://www.bls.gov/opub/mlr/2014/article/the-marcellus-shale-gas-boom-in-pennsylvania.htm.

V. TEACHING ENERGY LAW

A. Who Takes Courses in Energy Law?

As noted above, there has long been an interest in oil and gas law, particularly in Texas and Oklahoma, due to its importance to the economy and potential as a bar exam subject. Law schools historically met this demand through a course on Oil & Gas Law, which focused primarily on state-specific regulatory, property, and contract issues involving oil and gas production. Other schools developed energy law programs following the passage of environmental law legislation and energy market upheavals in the 1970s. But in recent years, interest in energy law, and therefore law school course offerings, have expanded significantly, including interest in courses that address sustainability, renewable energy, and the intersection of energy and environmental law.

Students may take an energy law course to help them decide on whether their future career should include the practice of energy law, given its significant importance to modern legal practice. Yet, perhaps only a limited number of students will take energy law courses because they are actually committed to practicing in the area. Students who take energy law may do so because they recognize its importance, because they are interested in particular aspects of energy law such as project finance or environmental aspects of power generation, or because they wish to experiment and learn more about the area. Therefore, the energy law curriculum will likely serve students with varying levels of interest, knowledge, and commitment to the field.

A working knowledge of energy law concepts can benefit non-law students as well. For example, an MBA student or a graduate engineering student who is interested in the energy field would benefit from understanding the basic property, contract, and regulatory principles that are applied in the energy field. Some law schools, therefore, choose to offer their introductory energy law class or selected advanced courses to students from other graduate schools, or even to a limited number of undergraduates, as well as J.D. and L.L.M. students. In addition to the benefits to the individual students who cross-register, non-law students often provide valuable insight and perspective that can foster a useful inter-disciplinary discussion in class. Further, expanding the pool of eligible students can increase the demand for energy law classes and support an expanded curriculum.

Cross-registration between law and other schools in a university can raise both administrative and practical concerns that will need to be addressed. Each university will have its own rules for governing such arrangements and thus, any exploration of cross-registration will need to start within those parameters. For example, at some universities, cross-registration is a controversial issue because of how tuition is allocated or, if class size is capped, there may be limits placed to assure that outside students do not squeeze out the law school's own students. Scheduling, including conflicts with exam schedules, can also be of concern.

Another approach is to create special joint programs specifically designed to foster inter-disciplinary exchanges. These can include joint field trips (e.g., to a drilling platform) for law and other graduate students and short summer abroad programs where students from different disciplines within a school or students from universities in two or more countries work together to explore common

problems, such as integrating biofuels or electric storage devices into existing energy markets, from multiple perspectives, including the legal aspects.

Assessment for law and non-law students may also be an issue, depending on the nature of the course materials and requirements. Professors who have taught classes with cross-enrollment report a variety of strategies for addressing the lack of a common foundation of legal knowledge. A frequent practice is to offer a special session or other extra help for the non-law students to provide them with some of the vocabulary and legal concepts. The professor (working within the school's parameters, if applicable) will also have to determine whether all the students will be assessed in the same manner; for example, whether they will all take the same exam, be graded on the same or different curves, and/or whether some will be permitted to submit research papers in lieu of an exam.

Because energy law by its nature is a cross-disciplinary field, the committee urges schools to explore cross-registration from other graduate programs to the extent their law school and university rules permit doing so. The number of professors who report having successfully taught classes of law and non-law students, to the benefit of both, demonstrates that the challenges can be overcome and the value in making the effort to do so. The process can be simplified for all involved if particular courses can be identified for cross-listing with one or more other schools, so that the related concerns are sorted and policies are established in advance, rather than on a case-by-case basis.

B. The Energy Law Curriculum

1. Introduction to the Energy Law Curriculum

To meet students' varied needs, we believe that every law school should offer at least one survey course, similar to what is called "Energy Law" or "Energy Law and Regulation" at most law schools. Such a course should extend beyond the conventional Oil and Gas Law course taught at many law schools in strong oil and gas production states (which is often taught through the lens of state-specific common law and regulation). Regardless of what motivates a student to take an energy law course, offering an introductory survey course in energy law provides students the opportunity to build "energy literacy" while also gaining a broad understanding of the energy industry, its key stakeholders, and its legal framework.

Energy literacy for *any* student requires some basic understanding of how energy industries work, and the functional distinctions between energy production, delivery, and distribution sectors, as well as the advantages and disadvantages of vertical integration. It also includes a basic understanding of routine transactions in the industries, such as how wholesale energy sales and purchases occur. But energy literacy for *lawyers* also includes an understanding of important legal and regulatory concepts. The survey course should introduce students to fundamental principles of regulation and the application of those principles to current energy issues so that students complete the course with a sense of how existing legal frameworks are used to address energy issues.

Energy law can be a difficult subject with its own language and technical underpinnings. With such a steep learning curve, any survey course will necessarily have to skate over some important legal issues, as the professor helps

the students navigate both the legal and non-legal aspects of the various sectors discussed. Thus, those schools that have the students and resources to delve more deeply into the subject should consider more "advanced" energy course offerings, including both specialty courses and courses that focus on practice and skills applicable to energy law. These courses offer students the opportunity to reinforce the basic information learned in the survey course, including increased familiarity with the terminology and technical aspects, and develop their analytical skills by probing more deeply into the areas of particular interest.

Whether a school interested in adding energy law courses to its curriculum chooses to offer one or more advanced courses or seminars in electricity, nuclear energy, or other topics, and what form these course offerings will take, depends on a number of factors. Such factors include: financial resources, perceived student interest, and faculty (including adjunct professors) who are committed to providing course offerings that may need frequent updating. In anticipation that some law schools may choose to add such courses, this Report provides an overview of advanced classes below and, in Appendix 3, more specific guidance on course content with respect to three of the areas that are commonly taught separately from a survey course: oil and gas, electricity, and renewable energy.

Some schools that have an in-depth energy curriculum have elected to offer a certificate of concentration in the energy field, which may be attractive for some students, and some future employers. A certificate demonstrates a level of competency and serves to inform employers of the student's qualifications. The Committee believes that a school should award such a certification only when completion of the academic requirements of the certificate program will substantially increase the likelihood that a student will be able to accelerate the pace at which he or she will be able to produce quality work for clients after graduation. In awarding such a recognition, law schools should take into account both range and depth of training in fields of energy law and the skills necessary to deal productively with professionals from related fields. American Bar Association accredited institutions have applied varied criteria as to what has to be met to merit a certificate, and the threshold could be as low as thirteen credits. Vermont Law School and the College of Law at West Virginia University have reached the conclusion that fourteen to seventeen credits appropriately demonstrates the student's competency in the field sufficient for awarding a certificate.[4]

Members of the Committee also noted that given the limited amount of time students have for electives, some students might find that the time required to secure a certificate precludes the opportunity to study other areas of the law that are of interest to them and important to their future careers. The Committee recognized that a fewer number of energy courses may be sufficient to allow a student to assess his or her interest in the area. While fewer courses will not build the same level of competency in energy law, two or more courses are likely

4. *Certificate in Energy Law*, VT. LAW SCHOOL, http://www.vermontlaw.edu/academics/certificates/certificate-in-energy-law (last visited Oct. 13, 2015); *Energy & Sustainable Development Law Concentration*, WEST VIRGINIA UNIVERSITY COLLEGE OF LAW, http://law.wvu.edu/energy-concentration/course-requirements (last visited Oct. 22, 2015).

sufficient to demonstrate interest in the field to employers. Given that employers, above all else, are seeking students who are good lawyers, the Committee recognized that some students will be well-served by a more general course of study that develops a broader knowledge base as well as critical research, analysis, writing, and advocacy skills, and includes only a more basic foundation in energy law. Consistent with this view, many schools do not offer certificates of any kind. Thus, at this time, a certificate was deemed to be a favorable, but not essential, attribute for employment. If the issuance of certificates in specific areas of study becomes more prevalent, this view may evolve.

2. Purpose of the Energy Law Survey Course and Its Foundation

As a starting point, the purpose of the energy law survey course must be considered. For some schools, a survey course may be the only course offered in energy law. Other schools may design a survey course as a precursor to a more extensive curriculum and, thus, provide the foundation in regulatory fundamentals for students who intend to concentrate in the field as well as the entire course of instruction for those who take only that one course. These schools must design a course that serves a dual purpose. The number of credit hours at which the course will be offered may depend on the goals of the students who are expected to take the course, with those intending a career in the field perhaps more willing to devote three, four, or even five credit hours than those who are just testing the waters; and conversely, the number of credit hours may affect the number and type of students who take the course. Obviously, if student interest and law school resources permit, providing a course with more credit hours will allow students to delve more deeply into, and better enable the professor to address, the many different issues that can be considered "basic" knowledge appropriate for an energy law survey course. One possible way to bridge this problem of diverse interests is to structure the introductory course in two segments of two or three credit hours each, offered in sequential semesters, with the second delving more deeply into the topics introduced in the first, but still in a survey format.

Whether the survey course is the only energy course or the entry point to a more expansive curriculum, survey course design faces the challenge of being neither too ambitious, thereby likely short-changing important aspects of energy law and policy, nor too broad and missing important details and inter-relationships. Accordingly, in order to meet the needs of both a student who will take only one course and those who will continue on, an energy law survey course would ideally establish a good foundation of the basic legal and regulatory frameworks that shape the industry, as well as expose the students to relevant topics and policies.

Depending on the law school, attention may also need to be paid to prerequisites in approaching the coverage of energy law courses. Virtually every law student taking upper-level energy law courses will have had exposure to Property Law and Contract Law prior to taking energy law since they are part of the first-year curriculum. But most survey courses do not appear to have formal prerequisites, although a familiarity with administrative law and procedure and public law, as well as contracts and property, could be helpful before taking an energy law course. In addition, an undergraduate-level familiarity with economics could also be helpful.

A recent curricular trend at a number of law schools requires students to take a course in regulation or in administrative or public law—often as a part of the first year curriculum. It can thus be assumed at these law schools that students will have already been introduced to important principles of governance such as federalism, the role of administrative agencies, and decision procedures such as adjudication and rulemaking. However, if students have not been introduced to these topics it may be important for an instructor to build them into the energy law survey course syllabus. Even at law schools that may require such courses in the first year, the presence of L.L.M. or transfer students will likely require an instructor to provide a primer or refresher on American legal principles that are fundamental to energy law, such as the role of private property, contract law, and public law basics. Students also might be referred to supplemental resources to fill such gaps.

3. Content of the Energy Law Survey Course

No single energy law survey course will adequately cover every topic related to energy resources, as there are many important aspects to energy law and the particular topics in energy law contain many overlaps and complexities. The simple reality is that the constraints of a semester (typically thirteen to fourteen weeks) ensure that there will always be something that has to be left out (and even more so if taught as a two-credit class rather than a three-, four-, or five credit class).

In reviewing a number of syllabuses currently used to teach energy law survey courses, it is apparent that certain key concepts, and their statutory and judicial basis, must be included in a survey course. These include: theories of economic regulation, constitutional basis for regulation, statutory basis for regulation, including key statutes, such as Federal Power Act, Natural Gas Act, Public Utility Regulatory Policies Act, and federal and state jurisdiction.[5] Such a course should also introduce common regulatory approaches, such as cost-of-service ratemaking and market-based rates. Issues and practices unique to certain sectors, including coal, hydropower, oil and gas production, mineral leasing, infrastructure siting, nuclear development, renewable energy, demand response, energy efficiency, and the development of competitive commodity markets, should also be included at a high level.

In addition, generally, at least one session of an introductory survey energy law course needs to be allocated to environmental regulation issues, to introduce, among other things, emissions regulations and policies. Some understanding of commercial aspects of energy law is also important, including the significance of energy purchase and sales agreements, project finance, and methods of cost recovery. Two more specialized topics that are appropriately included in a curriculum are transportation fuels and carbon capture and storage. While each of these could merit an entire advanced course, depending on student interest and resources, that may not be feasible. Accordingly, each of these may warrant at

5. Ideally, it would introduce both the Federal Power Act and the Natural Gas Act, as discussed above, although if a school places more emphasis on its own state's laws, then one of the major federal statutes may be used to illustrate the reach of federal authority, to allow more time for exploration of state law.

least an hour or two of coverage in a survey course (especially in a three-, four-, or five-credit course).

Depending on the school and the nature of its orientation, certain "hot topics" could be included in the survey course. While this list will vary as the industry evolves, currently, those issues could involve distributed resources, meeting infrastructure needs, emerging technologies, or the intersection of certain key industries, such as telecommunications and electricity, or gas and electric interdependencies. Since different schools may emphasize different priorities, beyond the basics, a survey course might emphasize the environmental impacts of energy or focus more on administrative processes such as cost allocation and rate design. Moreover, energy is a global issue. Therefore, a review of these evolving issues could include a look at the drivers and treatment outside the United States. However, the coverage of "hot topics" in a survey course should be measured. While these issues are enticing because of media coverage, the practical effect of some is relatively small because they do not impact many practicing attorneys. The real value in including these topics in a survey course is to show the application of existing (or developing) legal frameworks, principles, and policy to these current energy issues.

Of course, any particular school's energy law survey syllabus will be affected by other factors such as whether students will enter the class with a foundation in administrative or public law (as discussed above), whether there are advanced courses that will allow students the opportunity to explore certain areas in depth, and student and faculty interests.

An energy law survey course can be taught in a variety of ways. The conventional approach to teaching energy law as a survey has been to focus on a fuel-by-fuel survey of various energy topics along with an in-depth survey of utility regulation and ratemaking. This approach offers the opportunity to cover a broad range of material, but canvassing every fuel or energy resource is daunting to students and instructors alike, often leaving little time for depth in coverage during an ordinary semester. The fuel-by-fuel survey course seems to have declined in popularity among current energy law teachers, in part because some fuels (such as oil & gas) are frequently taught in separate stand-alone courses.

Another emerging approach to teaching a survey course in energy law used by many law schools today (and reflected in many of the recently published casebooks in the field) is to organize an energy law survey course more along the lines of legal or analytical themes, rather than by fuel source. This approach focuses on a common set of issues, such as climate change or the connection between energy and the environment, across a range of select energy resources, such as natural gas and electricity. Such an approach may address recurring principles at the core of energy law, such as the rule of contracts and regulatory commitments, property law topics such as the problem of the commons, the connection to environmental regulation, and governance issues such as federalism.

The Committee sought to identify some substantive elements that it believes are fundamental entry points to assist with energy law survey course design and make it more accessible to students, including those that have no prior background. Topics that were suggested include: (1) *Why do we regulate?* which provides the vehicle to address a range of reliability, economic, and environmental topics; (2) *Social Justice*, which would include affordability, access, distributional

aspects of energy resource allocation; and (3) *What is energy law, is it a distinct area of the law, and why does it matter?* These topics, ideally introduced through the lens of both federal and state legal frameworks, should include study of at least two or three significant sources of energy, and should introduce the major federal agencies regulating the energy industry (including the Department of Energy and the Federal Energy Regulatory Commission). "Flipping the classroom" by assigning students to do in-depth work for presentation in class, together with a writing component, on a topic of their choice has also proven to be an effective means to engage students and encourage a vested interest in the subject.

There are several textbooks available that provide the necessary overview of key topics in energy law for a survey course. Based on a review of current syllabi, the ones most commonly used include: Joel Eisen, et al., Energy, Economics and the Environment (4th ed., 2015); Lincoln Davies, et al., Energy Law and Policy (2014); and Joseph Tomain and Hon. Richard D. Cudahy, Energy Law (2d ed., 2011). Other available texts include Joshua Fershee, Energy Law: A Context and Practice Casebook (2014) and Jonathan A. Lesser and Leonardo R. Giacchino, Fundamentals of Energy Regulation (2d ed., 2013) as well as texts with a specific focus such as Michael B. Gerrard, The Law of Clean Energy (2012), or K.K. DuVivier, The Renewable Energy Reader (2011).

4. Advanced Offerings

Beyond an energy law survey course, and state-specific courses on Oil & Gas, law schools with an interest in more robust energy course offerings, including schools offering comprehensive environmental and energy programs, should consider rounding out an energy law curriculum with "advanced" specialty courses in energy law (e.g., renewable or clean energy, or nuclear power), or through courses emphasizing transactional or litigation skills in the energy law context. Examples of such courses include Nuclear Power, Electricity Law, Energy Project Finance, Energy Infrastructure, Renewable Energy, Energy & Transportation, International Energy, and Energy and Water (just to name a few). These offerings can be conformed to student interest and potential job opportunities. These advanced courses may be offered with or without treating an energy law course as a prerequisite—depending on student interest and resources at the law school.

Structuring an advanced energy law curriculum opens many possibilities, both with respect to the topics to be covered and the way in which they will be taught. For example, "electricity law" requires consideration of virtually all resources, and could be taught fuel by fuel, but can also be taught from the perspective of economics and regulation. But the choice may depend in part on the other offerings of the school, so that each course covers a distinct part of the field. Some schools define "tracks" to help students identify a group of courses that focus on the skills applicable to a particular area of the law. For example, in conjunction with its Energy and Clean Technology Law Certificate program, Berkeley instructs students to take advanced courses that it identifies as falling into one of three subject areas: (1) Finance & Energy Business; (2) IP/Entrepreneurship & Energy Science/Technology; and (3) Environmental Law & Energy Policy. Organizing the options in a manner other than the typical course

listing, which is generally by course number, can help students better understand the relationships among the options.

Several committee members noted the need for—and difficulty in teaching—energy transactions. One suggested approach is to structure the course around the types of documents lawyers negotiate and draft to facilitate such transactions, such as merger and acquisition agreements, power purchase agreements, and financing documents. A law school might also consider giving credit to students for a joint business/law class that examines complex underlying business structures such as spot markets, the practicalities of structuring project financing through partnership flips, allocation of tax benefits among contracting parties, the role of YieldCos, etc. Experiential energy transaction projects might be offered through a practicum that is coupled with a more traditional law class, giving students the opportunity to learn both commercial applications and the associated legal principles.

As noted above, Appendix 3 includes the Committee's thoughts on the essential elements for three advanced study topics: oil and gas law, electricity law, and renewable energy law. But as evidenced from the discussion above, some schools have the capacity to offer more in-depth experiences that will go beyond the basics and, in all cases, there are many possible approaches. Educators who are seeking to develop new courses that include a sustainability component (law and other related fields) may also wish to consult and/or contribute to the syllabus depository.[6]

5. Beyond the Energy Law Classroom

Like modern students in other specialized areas of law, a student who is serious about the study of energy law needs some opportunity to develop experiential skills and advanced knowledge. Not every law school will provide a full menu of energy law courses and practice experiences—especially given resource limits and strategic choices law schools may make to differentiate their curricular offerings and develop programmatic strengths. However, if a law school chooses to offer an energy law curriculum to students, we strongly recommend that it include some kind of meaningful practice component to better prepare them for the early years of legal practice. The ability to develop a portfolio of work is particularly valuable as it aids students in demonstrating their capabilities to potential employers. Basic experiential learning elements in energy law could include:

- Practice skills, like how to appear before a state commission or FERC in adjudication;
- A policy component, such as an agency rulemaking;
- Writing skills; and
- Enforcement, markets, and commercial skills (e.g., exposure to adjudication or to transactional components, such as a power purchase agreement).

Existing energy law casebooks provide problems and examples to allow for these kinds of experiential learning of lawyering skills. Some law schools approach this through the teaching of simulation courses focusing on transactional or litigation skills.

6. *New Energy Syllabus Bank*, TEACHING CLIMATE/ENERGY LAW & POLICY (Aug. 3, 2013), http://teachingclimatelaw.org/new-energy-syllabus-bank/.

Additionally, the Committee sees value in including quantitative skills, economics, and business-related principles in an energy law curriculum, which many law schools also include as course options for students. As noted throughout this report, energy law has many cross-overs into other disciplines, including engineering, economics, accounting, finance, tax, geology, and other earth sciences, which requires the ability to understand technical terms and concepts from these fields as used in the energy sector, as well as fundamental business concepts such as reading balance sheets, financial statements, and tariffs, and understanding and preparing business plans. Therefore, a cross-disciplinary approach to energy law training can better prepare law students to practice, perhaps more so than a number of other law fields, by enabling law students to develop specific expertise that can be integrated seamlessly into energy law practice areas and give that law graduate additional job placement potential. Administrators can facilitate cross-registration by allowing law students interested in energy law to include in their curriculum (for credit) at least a limited number of specialized courses in non-law areas and assist with resolving scheduling and other administrative conflicts.

Of course, a well-prepared energy law student will have explored far beyond the energy law curriculum. The practice of energy law involves not only traditional legal skills (such as writing, research, communication and critical analysis), but also at least a basic knowledge or understanding of laws governing corporate formation and corporate governance, business and financing issues, contract law, transactional matters, tax law, antitrust law, litigation, and the role of public policy in formulating, interpreting, and applying "energy" statutes. The practitioner also should have an understanding of the broad community impacts of energy projects and the domestic and foreign political issues that may be impacted by energy projects and decisions as to how energy is regulated. Students interested in hydrocarbons are particularly advised to include international law in their course of study, with an emphasis on contracts and international transactions. These additional courses may be helpful because many of the larger oil and gas companies operate internationally; and the web of contracts that support every stage of production and delivery, including supply-chain support, often are cross-border transactions. Compliance is also a burgeoning area of energy law. Agencies such as the Federal Energy Regulatory Commission, Commodities Future Trading Commission, the U.S. Department of Transportation, the U.S. Environmental Protection Agency, and some state agencies have specific enforcement mandates. But other agencies also have enforcement functions that may affect firms involved in the energy industry. The SEC and the Justice Department, for example, enforce securities laws and the Foreign Corrupt Practices Act. Regardless of the depth of the school's energy law curriculum, students interested in energy law should use their time in law school to build the same broad foundation that other successful lawyers require.

C. The Role of Internships, Externships, and Other "Real World" Experiences

This Report recommends that law schools choosing to create or expand an energy law curriculum also work to maintain or develop on-the-job learning opportunities for students. These may take the form of practicums and externship programs, including externships for course credit at NGOs or government

agencies, including state public utility commissions and federal agencies, such as Department of Energy or the Federal Energy Regulatory Commission. Exposure to real world problems in clinical settings can also provide a terrific vehicle for such experiential learning—though clinics are very expensive and not every law school will be able to offer energy law clinical opportunities. Students can also be encouraged to consider semester-long or summer internships with local utilities, energy-related trade associations, or other energy-related companies.

The advantage of these opportunities to students, as noted earlier, is not unique to the energy law field. In recent years student participation in these types of programs has expanded significantly. Many law schools offer an array of clinics and other "real world" opportunities in various substantive areas of law. And, where students cannot find slots in these programs, they may often get to spend time in other programs working as interns or externs at various government agencies or non-profit organizations in areas that interest them, from counseling independent film makers to representing defendants in legal aid programs. These programs offer the student participants an opportunity to shine before prospective employers and to develop substantive skills that might be attractive to other potential employers. Law schools interested in developing or expanding programs in energy law should also strongly consider cultivating relationships with energy regulatory and governmental agencies, local law firms, non-profits, and energy companies where they could place their students into programs for credit.

Like other areas of law, energy law students are often attracted to the opportunity to participate in inter-school competitions, and these experiences can be an important part of their education. West Virginia University College of Law's moot court, which started in 2011 with only six schools competing, hosted twenty-four schools in 2014.[7] Past and present teams hailed from the law schools at Duquesne, Texas Tech, North Dakota, Florida State, Kentucky, LSU, Louisville, Maryland, Houston, Colorado, Wyoming, Oklahoma, Utah, Pittsburgh, American, Catholic, and Pace.[8] Students may also be interested in moot courts focused on sustainability and/or environmental law.[9]

D. The Role of Law Journals and Participation in the Energy Bar Association

Not many law schools planning to offer or expand courses in energy law will operate law journals devoted to energy law or even journals that regularly address energy issues. But a number of law schools already publish journals of this type,

7. *College of Law: National Energy & Sustainability Moot Court Competition*, W. VA. LAW SCH., http://energycomp.wvu.edu/ (last visited Jan. 25, 2015).

8. *Id.*

9. *See, e.g.*, *Jeffrey G. Miller Pace National Environmental Law Moot Court Competition*, PACE LAW, http://www.law.pace.edu/jeffrey-g-miller-pace-national-environmental-law-moot-court-competition (last visited Oct. 13, 2015) (started in 1989 and now drawing over 200 competitors); *see also* Inter-American Sustainable Development Moot Court Competition 2015, FGV DIREITO RIO, http://direitorio.fgv.br/cdma/moot-court-competition/2015 (last visited Oct. 13, 2015). The Tulane Law School Moot Court Board, along with the Payson Center, collaborate with the Universidad de los Andes (UniAndes) and FGV Direito Rio (FGV) to host this annual event. While the main theme is sustainable development, the competition necessarily draws from other areas of law, including human rights, energy, and environmental law. *Going the Distance: TLS, Payson Center Take Moot Court Competition One Step Further*, TULANE UNIV. LAW SCH. (Mar. 24, 2011), http://www.law.tulane.edu/tlsNews/newsItem.aspx?id=17903.

and others may choose to expand or modify their journal offerings to encompass coverage of energy law issues. For those falling into the latter two categories, this Report offers some observations from the unique perspective of a bar association that has worked with students at the University of Tulsa College of Law for decades to produce the peer-reviewed Energy Law Journal (ELJ).[10]

The principal distinction between the typical student-run journal and a peer-reviewed journal produced with law student assistance is that in the latter case practitioners, not students, solicit and ultimately select the articles for publication. The Report does not mean to suggest that student-run journals do not provide students valuable training of interest to prospective employers. But the peer-reviewed journal gives the students unique exposure to the issues of current significance to experienced practitioners in the field. In the ELJ's case, students are also required to take administrative law and students that seek to be editors must also take a course from the Sustainable Energy and Resources Law course list. Students also participate in a workshop in which energy law practitioners offer introductory lectures on energy law topics. This Report does not attempt to quantify whether participation in the peer-reviewed ELJ has improved the job prospects of participants. It does suggest, however, that a student's experience with a peer-reviewed journal may provide a substantive law learning experience similar in some ways to the clinic or internship experience—something the students can explain to prospective employers.

Students participating in the ELJ are also encouraged to join the EBA. Like all full-time students from any law school, students that work on the ELJ are allowed to join the EBA at steeply discounted student rates (only $25 for a full-time student compared to $170 for a private practitioner who has been out of school for more than 3 years). Membership, among other things, allows the students to participate for free (by call or in person) in the various committee-sponsored brown bag lunch programs on energy law topics that the EBA schedules each year. EBA membership provides the students with exposure to current energy topics and provides them some opportunities for networking with practitioners. We recommend that law schools interested in developing energy law programs let students know about the availability of EBA student memberships.

Even students not participating directly in a journal should be encouraged to submit their best work for publication. The discipline required to write and produce work of publishable caliber is excellent training and may assist them in their job search. Further, their fresh ideas, which often draw on multiple disciplines as a result of their on-going course work, can provide new insights to seasoned practitioners. Students should also be aware that there are benefits to writing for other law reviews and journals besides the ELJ or even a specialized energy journal, especially about more localized issues, which serve to educate students, the bench, and the bar within the journal's readership about energy issues.

10. *Energy Law Journal*, FOUND. OF THE ENERGY L.J., http://www.felj.org/energy-law-journal (last visited Oct. 13, 2015).

VI. WHO TEACHES ENERGY LAW?

Energy law is not a new field, but historically, except for oil and gas law, it was often not recognized as a distinct field. Rather, energy law outside of the oil and gas areas was taught by professors whose primary focus was identified as administrative law, environmental law, natural resources law, regulated industries, or a related field, such as antitrust. Indeed, the American Association of Law School's directory of tenured and tenure-track professors began identifying Energy Law as a distinct field of expertise in its 2004-2005 edition, but no faculty self-identified as teaching "energy law" that year. The first four self-identified energy law professors were listed in the 2005-2006 directory.

In recent years, however, a number of law schools have hired full-time faculty who have core teaching interests in the energy law area, some of whom have spent considerable time practicing in the energy law field prior to entering into legal academia. The number of full-time tenured or tenure-track faculty who describe themselves as teaching "energy law" increased from the first four in 2005-2006 to forty-four in 2011-2012; and as of July 2015, thirty-five faculty members were listed.[11] In addition, during the years from 2005 to 2012, roughly three dozen to four dozen faculty members self-identified oil and gas as a teaching area (with some faculty teaching "energy law" as well). Thus, while the data is not very precise, it does indicate an increased number of self-identified energy law professors; while at the same time, the interest in oil and gas by faculty remains relatively stable. This is a stark contrast to previous decades, where interest in energy law by full-time law faculty seemed more transitory. Further, as of 2015 three serious energy law casebooks will be in print—all authored by full-time, tenure track faculty, which further evidences that energy law has gained recognition as a distinct area of legal scholarship.[12]

Law school investment in hiring full-time faculty in this area may in part be a response to the merging of energy and environmental law issues in legal scholarship, policy, and practice. The decline in the market for environmental law job placements may also play a role in law schools hiring full-time faculty with an energy law focus; indeed, anecdotally, it appears that many of these faculty have been hired at law schools already offering a strong focus in natural resources and environmental law. This Report encourages continued emphasis among law schools in hiring full-time faculty in the energy law area, especially where there is strong interest in training for students in fields connected to regulated industries, project finance, and environmental and natural resources law.

While a number of law schools in the U.S. have at least one full-time faculty member teaching at least one energy law or oil and gas course, the simple fact remains that adjunct or part-time faculty play a significant role in teaching energy law courses at many law schools. Even at law schools with more than one full-time faculty member teaching energy law, adjunct faculty often play a crucial role

11. The count for years 2005-2006 and 2011-2012 is derived from various annual editions of the American Association of Law School's Directory of Law Teachers. The 2015 number was provided orally by AALS.

12. These include: JOEL EISEN ET AL., ENERGY, ECONOMICS AND THE ENVIRONMENT: CASES AND MATERIALS (Found. Press, 4th ed. 2015); LINCOLN DAVIES ET AL., ENERGY LAW AND POLICY (West Publ'g, 2014); and JOSHUA FERSHEE, ENERGY LAW: A CONTEXT AND PRACTICE CASEBOOK (Carolina Academic Press 2014).

in rounding out the curriculum and expanding experiential learning opportunities. Adjunct faculty have the advantage of bringing current, real-world problems to the study of energy law. In addition, adjunct faculty have allowed law schools some flexibility in curriculum design, allowing courses to readily adapt as new issues become important to the practice of energy law.[13] At the same time, many adjunct courses are two rather than three or more credits—which serves to limit coverage—and ABA accreditation rules limit a law school's reliance on adjuncts in its curriculum.[14]

Many law schools will need to continue to rely exclusively on adjunct faculty for almost all teaching of energy law, but this Report does not encourage this if a law school has the resources to hire a full-time faculty member who teaches energy law. Full-time faculty members (or alternatively full-time deans, some of whom may not be faculty) can be more effective than adjuncts at supporting on-campus activities related to energy-law and offering research opportunities, for a variety of reasons, including their greater availability to students. Full-time faculty have the stature and access to represent the energy law program's interests before the administration and other faculty members and their experience and professional connections make them particularly well qualified to guide overall curriculum development. But even at law schools with full-time faculty focused on the teaching of energy law, adjunct faculty play a significant role in rounding out the curricular offerings in specialized topics and skills-oriented courses, giving students the broadest possible educational foundation for a career in energy law.

VII. INVOLVING THE ENERGY LAW COMMUNITY

The objective of this Report is to identify ways to enhance and further energy law education in order to help prepare the next generation of energy lawyers with the necessary skills to have a productive and successful career in energy law. Potential employers such as law firms, federal and state agencies, trade associations and other interested organizations, individual practitioners and the EBA, can and should, play an active role in this effort.

A. What Potential Employers Can Do

Potential employers can enhance and supplement the law school curriculum by providing law students access to relevant work experience in, and exposure to, the practice of energy law. For example:

1. Academic Credit for Field Placement Opportunities

Non-profit institutions and government agencies can offer field placement opportunities in which law students work for them and receive academic credit in lieu of pay. In addition, the ABA is currently considering whether to allow law

13. S. Scott Gaille, *The ABA Task Force Report on the Future of Legal Education: The Role of Adjunct Professors and Practical Teaching in the Energy Sector*, 35 ENERGY L.J. 199 (2014).

14. AMERICAN BAR ASSOCIATION, ABA STANDARDS AND RULES OF PROCEDURE FOR APPROVAL OF LAW SCHOOLS CH. 4 (2014-2015), *available at* http://www.americanbar.org/content/dam/aba/publications/misc/legal_education/Standards/2014_2015_aba_standards_chapter4.authcheckdam.pdf (describing the minimum full-time faculty required for accreditation).

schools the option to grant students academic credit for externships that also pay students for their work.[15]

2. Academic Credit for Practicum Course

Non-profit institutions and government agencies can partner with law schools in a practicum course, in which a student works with the agency or institution for a semester on a topic selected by the agency or institution and under the supervision of one of its staff (as well as a professor) on a paper for academic credit.

3. Paid Internships and/or Summer Jobs

Law firms, non-profit institutions, including trade associations, and government agencies can hire law students for a semester or over the summer to expose them to energy law and help increase their understanding of the practice of energy law. As an added bonus, the employer may offer to pay the law student employee's EBA membership fee, to better encourage the student to take advantage of the educational and networking benefits of EBA membership.

4. Commissioned Research

Energy law institutes and non-profit trade associations can hire law students for guided work on a specific research project, report, white paper, and/or clinical services. This direct work experience can benefit law students by preparing them for work in the energy law field and giving them a greater understanding of an area of energy law. The end-product can also help advance general public knowledge or an entity's internal expertise on a particular energy law subject.

5. Support Energy Activities at Law Schools

Firms and individual practitioners, working with faculty and students, may offer to sponsor an "energy club" or association at a local law school. Like other law school professional associations, the club might invite guest speakers, sponsor related activities, and inform members about career and job opportunities, all of which the sponsoring firm can help guide and support.

B. What Practitioners Can Do

1. Introduce Students to the "Real World" of Practice

Practitioners can add value by educating law students to the different "tracks" available under the practice of energy law, e.g., environmental, property, regulatory, project finance, and tax. A better understanding of the various paths available for a career in energy law will help law students select their courses to meet the specific requirements of that path and help fine-tune their interests. This can be accomplished through:

- Hosting luncheons (informative sessions among students and practitioners);

15. Karen Sloane, *Paid Law Student Externships Top ABA Council's Agenda*, NAT'L L.J. (June 3, 2015), http://www.nationallawjournal.com/id=1202728285506/Paid-Law-Student-Externships-Top-ABA-Councils-Agenda.

- Arranging site visits (e.g., to compressor stations, nuclear facilities) to help law students gain an appreciation for the practical side of a particular path of energy law;
- Organizing and/or participating on energy law career panels;
- Mentoring energy law student(s); and
- Inviting energy law students to special events or conferences where they can gain professional exposure to help expand their understanding of energy law and to network with people already in the profession.

Practitioners can also educate law students, as well as the bench and energy law bar, about more localized energy issues by contributing to law reviews and journals.

2. Work as an Adjunct Professor or Law School Advisor

Practitioners can teach an energy law course as an adjunct professor to provide a link between academia and the "real world." In addition, practitioners can help students learn how a practicing lawyer approaches issues by acting as an advisor to energy and/or environmental law student organizations, including journals and moot courts.

C. What the EBA Can Do

In addition to the direct actions that potential employers and individual practitioners can take, the Committee recommends that the EBA consider how it can help enhance energy law education, including through the following measures:

1. Recognition for Donations and Funding

- Encourage and provide special recognition for potential employers that make reoccurring donations to the Charitable Foundation of the Energy Bar Association to fund its summer internship program, which places law students at state public utility commissions and/or federal agencies; and
- Encourage and provide special recognition for potential employers or individuals that fund law students' membership dues or fund students to attend EBA energy law courses and then follow up with the student to discuss the course.

2. Boot Camp for Adjunct Professors

- Offer training sessions to cultivate the development of energy law adjunct faculty for law schools, particularly those that currently lack energy law courses, perhaps in conjunction with one or more existing law schools with a robust energy law program.

3. Clearinghouse for Potential Employers and Energy Law Students

- Develop materials for energy law faculty to share with energy law students regarding EBA's scholarships, EBA courses, and opportunities offered by EBA membership;
- Develop a booklet (or website) on careers in energy law to inform energy law students of the various "paths" that are available under a career in energy law; and

- Raise awareness of these opportunities and cultivate more widespread adoption by serving as a clearinghouse for information regarding all existing interaction (not just EBA-sponsored activities):
  - Listings for all entry-level energy law internships and practicums;
  - Listing of financial support for energy law scholarships (for LLMs, for law school research initiatives, etc.);
  - Luncheon programs for information sessions among students and practitioners;
  - Career panels;
  - Mentoring;
  - Invitations to special events or conferences; and
  - Adjunct professor opportunities.

4. Offer Free Networking and Educational Opportunities to Students

- Open as many events as possible to law students free of charge to allow them to interact with practitioners and participate in professional development activities (as the EBA does now with brown bag lunches). The number of free spots could be limited (first come, first serve), if necessary for cost reasons.

D. Providing Financial Support of a Law School's Energy Law Program

Potential employers, individual practitioners, the EBA and the energy and natural resources sections of local bar associations can offer assistance through financial support to help law students pursue their interest in energy law.

- Fund scholarships to study energy law (e.g., an LLM);
- Donate to fund law school research initiatives (which flows to students who do the research, for pay);
- Sponsor an energy moot court or writing competition;
- Donate to fund the overhead of a law school energy research center, institute or other initiative; and
- Donate to energy law programs to help sustain and enhance fundamental legal skills and general knowledge of energy law.

Of course, as noted elsewhere, a good energy lawyer must also be a good lawyer. Thus, any support given to a law school that has an energy program helps enhance the opportunity for law students to build a broad and strong foundation in fundamental legal skills and general knowledge.

APPENDIX 1

Types of U.S. Energy Law and Practice	Sample of Potential Undergraduate Majors (using General Description*)
Coal production and transportation—State Regulation (Federal as to railroad transport):	Biology; Environmental; Geology; Mechanical Engineering; Political Science/Government/Public Policy.
Electric and natural gas distribution (rates and facilities/siting/operations)—State Regulation:	Accounting; Economics; Chemical/Petroleum Engineering; Electrical Engineering; Mathematics; Physics; Political Science/Government/Public Policy.
Electric Smart Grid—Federal/State Regulation:	Accounting; Computer Engineering; Computer Science; Economics; Electrical Engineering; Environmental; Information Systems and Technology; Mathematics; Mechanical Engineering; Physics; Political Science/Government/Public Policy; Systems Engineering.
Electric ratemaking and markets—Federal/State Regulation:	Accounting; Economics; Electrical Engineering; Mathematics; Physics; Political Science/Government/Public Policy.
Electric transmission lines/siting/operations—State Regulation:	Electrical Engineering; Environmental; Physics; Political Science/Government/Public Policy.
Geothermal power generation (siting/operations)—State Regulation:	Civil Engineering; Chemical Engineering; Environmental; Geology; Geophysics; Mechanical Engineering; Political Science/Government/Public Policy.
Hydroelectric (siting/operations)—Federal/State Regulation:	Biology; Civil Engineering; Economics; Electrical Engineering; Environmental; Hydroelectric Engineering; Physics; Political Science/Government/Public Policy.

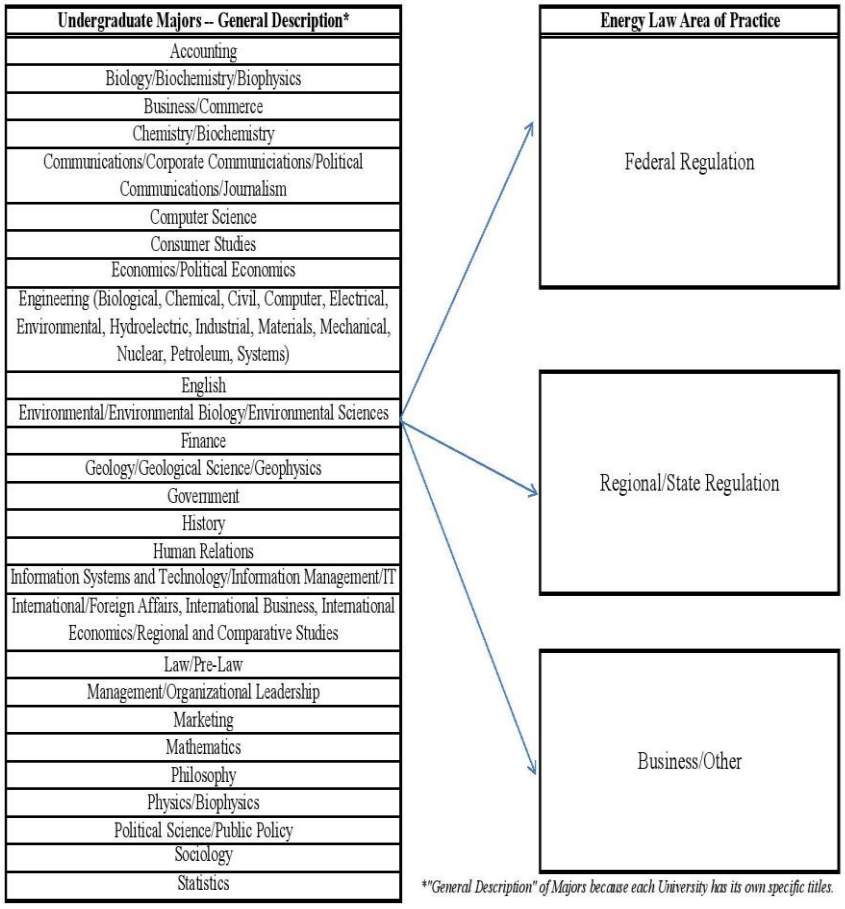
Natural gas production (siting/operations)—State Regulation:	Biology; Chemical Engineering; Economics; Environmental; Geology; Petroleum Engineering; Political Science/Government/Public Policy;
Natural gas transmission (siting/operations/ratemaking) and pipeline safety—Federal/State Regulation:	Accounting; Biology; Chemical Engineering; Civil Engineering; Economic; Environmental; Mathematics; Petroleum Engineering; Political Science/Government/Public Policy.
Nuclear power generation (siting/operations)—Federal/State Regulation:	Environmental; Nuclear Engineering; Physics; Political Science/Government/Public Policy.
Oil & Petroleum Products Production and Refining (siting/operations)—State Regulation:	Environmental; Chemical Engineering; Geology; Petroleum Engineering; Political Science/Government/Public Policy.
Oil & Petroleum Products Transportation (operations/ratemaking)—Federal/State Regulation:	Accounting; Chemical Engineering; Economics; Mathematics; Petroleum Engineering; Political Science/Government/Public Policy.
Solar power generation (siting/operations)—State regulation:	Civil Engineering; Electrical Engineering; Physics; Political Science/Government/Public Policy.
Wind power generation (siting/operations)—State Regulation:	Civil Engineering; Electrical Engineering; Environmental; Physics; Political Science/Government/Public Policy.
	**"General Description" of Majors because each University has its own specific titles.*

APPENDIX 1 (CONT'D)

Sectors of all areas of energy law **(as listed above)**	*(These are in addition to generally useful undergraduate majors, e.g., Commerce, Communications, English, History, Law/Pre-Law, Philosophy/Ethics, Psychology, etc.)*
General Operations/Business Entities:	Accounting; Business/Commerce; Economics; Engineering (specific to field of energy—*see above*, and generally Systems Engineering); Finance; Management/Organizational Leadership; Marketing; Statistics.
ADR/Arbitration/Dispute resolution:	Accounting; Business/Commerce; Communications; Economics; Finance.
Anti-trust:	Accounting; Economics; Mathematics; Political Science/Government/Public Policy.
Commodities/securities:	Accounting; Economics; Mathematics; Political Science/Government/Public Policy.
Computer/Information Technology:	Computer Engineering; Computer Science; Information Systems and Technology.
Consumer protection:	Accounting; Consumer Studies; Economics; Finance; Mathematics; Political Science/Government/Public Policy; Sociology.
Contracts/transactional:	Accounting; Economics; Finance; Mathematics.
Cybersecurity and infrastructure:	Computer Science; Information Systems and Technology; Political Science/Government/Public Policy.
Finance/grants:	Accounting; Economics; Mathematics; Political Science/Government/Public Policy.
Government contracts/procurement:	Accounting; Economics; Finance; Political Science/Government/Public Policy.
Human resources:	Human Resources; Sociology.

Intellectual Property:	Engineering (specific to field of energy—*see above*); Political Science/Government/Public Policy.
International—Tariffs/subsidies, comparative law:	Accounting; Business; Economics/International Economics; Engineering (multiple types); Finance; International/Foreign Affairs; Political Science/Public Policy; Regional and Comparative Studies.
Land use (land ownership, public lands):	Environmental; Political Science/Government/Public Policy.
Mergers/acquisitions:	Accounting; Business; Economics; Political Science.
Policy/Legislation:	Accounting; Economics; Engineering (specific to field of energy—*see above*); Finance; Political Science/Government/Public Policy; Sociology.
Regulation (Federal, State, Regional):	*See above*
Taxation:	Accounting; Economics; Engineering (specific to field of energy—*see above*); Mathematics; Political Science/Government/Public Policy.

APPENDIX 1 (CONT'D)



APPENDIX 2

SAMPLE ENERGY CURRICULUMS

The following examples of course offerings were provided voluntarily and solely for the purposes of illustration. This is a very, very small sample of the schools that offer energy law and the Committee does not endorse or recommend these (or any other) law schools above others. It does urge the EBA to make available on its website a means for law schools to voluntarily share information about their programs for the convenience of prospective law students.

THE GEORGE WASHINGTON UNIVERSITY LAW SCHOOL, WASHINGTON, DC

www.law.gwu.edu/

Degrees offered:

[X]	J.D. (juris doctorate)	[ ]	with certificate in energy law
[X]	L.L.M. (masters of law)	[X]	with concentration in energy or energy/environmental law
[X]	Other S.J.D (doctor of juridical science) with a concentration in student's chosen area of study		

Energy law courses (please see law school website for further information on which courses are required for recognition of energy-specific courses of study):

Energy Law & Regulation (introductory survey course)
Atomic Energy Law
Oil & Gas Law
International Project Finance
Seminar: Regulation and Trading of Energy and Environmental Commodities and Derivatives
Seminar: Electricity Systems in Transition: A Comparative Review
Seminar: The US Electric System & Sustainability
Seminar: Electric and Natural Gas Regulation; and
Environmental and Energy Law Practicum (through which students work in conjunction with outside organizations to research and address real-world issues).

Number of full-time faculty that teach at least one course in energy: [2]

Does the law school have, or is it affiliated with, an energy research program/center/institute? [Yes]

UNIVERSITY OF HOUSTON, HOUSTON, TX

http://www.law.uh.edu/

Degrees offered:

[X]	J.D. (juris doctorate)	[X]	with certificate in energy law
[X]	L.L.M. (masters of law)	[X]	with concentration in energy or energy/environmental law

Energy law courses (please see law school website for further information on which courses are required for recognition of energy-specific courses of study):

Oil & Gas Law
Advanced Oil & Gas Contract Drafting
Energy Law: Doing Business in Emerging Markets
International Petroleum Transactions
Drafting and Negotiating International Oil & Gas Agreements
Energy and the Environment
Legal Practitioner's Guide to the Oil & Gas Industry
Oil & Gas Pipeline Regulation
Seminar in Energy Efficiency
Shale Gas & LNG
The Future of Natural Gas
Transnational Petroleum Law
International Risk Management
Upstream Economics (co-listed with UH Business School)
Project Finance
Other energy-related courses such as Climate Change Law

Number of full-time faculty that teach at least one course in energy: [2]

Does the law school have, or is it affiliated with, an energy research program/center/institute? [Yes]

VANDERBILT LAW SCHOOL

law.vanderbilt.edu/

Degrees offered:

[X]	J.D. (juris doctorate)	[ ]	with certificate in energy law
[X]	L.L.M. (masters of law)	[ ]	with concentration in energy or energy/environmental law

Energy law courses (please see law school website for further information on which courses are required for recognition of energy-specific courses of study):

Energy Law (survey course)
Oil & Gas Law (short course)
Law and Business of Climate Change
Renewable Power Seminar

Number of full-time faculty that teach at least one course in energy: [2]

Does the law school have, or is it affiliated with, an energy research program/center/institute? [Yes]

Along with the Environmental Law Institute, Vanderbilt Law School students edit the *Environmental Law & Policy Annual Review*, online at http://law.vanderbilt.edu/academics/academic-programs/environmental-law/environmental-law-policy-annual-review/index.php
The law school's Energy, Environment and Land Use program is affiliated with the campus-wide Vanderbilt Institute on Energy & the Environment (VIEE), online at http://www.vanderbilt.edu/viee/

VERMONT LAW SCHOOL, SOUTH ROYALTON, VT

http://www.vermontlaw.edu/

Degrees offered:

[X]	J.D. (juris doctorate)	[X]	with certificate in energy law
[X]	L.L.M. (masters of law)	[X]	with concentration in energy or energy/environmental law
[X]	Other(s) Master in Energy Regulation and the Law; Master of Environmental Law and Policy		

Energy law courses (please see law school website for further information on which courses are required for recognition of energy-specific courses of study):

Energy Law and Policy in a Carbon Constrained world
Energy Regulation
Advanced Energy Writing Seminar
America's Energy Crisis: Solutions
Essentials of the Electric Grid: Engineering
Essentials of the Electric Grid: Legal
Essentials of the Electric Grid: Business
Oil & Gas Production
Renewable Energy Law & Policy
Global Energy Justice

Number of full-time faculty that teach at least one course in energy [ ]

Does the law school have, or is it affiliated with, an energy research program/center/institute? [Yes]

WEST VIRGINIA UNIVERSITY COLLEGE OF LAW

http://law.wvu.edu/

Degrees offered:

[X]	J.D. (juris doctorate)	[X]	with certificate in energy law
[X]	L.L.M. (masters of law)	[X]	with concentration in energy or energy/environmental law

Energy law courses (please see law school website for further information on which courses are required for recognition of energy-specific courses of study):

Energy Law (Law 630)
Energy Seminar: Issues in Energy Law (Law 689W)
Coal, Oil and Gas Law (Law 766)
Energy Law and Practice (Law 791A)
The Energy Business: Law and Strategy (Law 791M)
Permitting and Siting of Energy Facilities (Law 791T)
Renewable Energy/Alternative Fuels (Law 793C)
Nuclear Law and Policy (Law 793M)
Science and Technology of Energy (Law 793T)
Mine Safety Law (Law 793X)
Seminar: Hydraulic Fracturing (Law 794E)
Energy Regulation, Markets and the Environment

Number of full-time faculty that teach at least one course in energy: [4]

Does the law school have, or is it affiliated with, an energy research program/center/institute? [ ]

APPENDIX 3

Advanced Course Fundamentals

The Committee identified three areas of study that are frequently offered in addition to a survey course—oil and gas, electricity and renewable energy—and therefore formed three subcommittees to further consider the essential elements of study in each of these areas. The work of the subcommittees is set forth below.

I. OIL & GAS

There are three categories of "core competencies" in the oil & gas sector. First, there are basic items that should be part of an overview survey course. Second, for schools that have the interest and resources, oil and gas could be taught through an economic regulatory model (including aspects of the electric sector). Finally, there is the more traditional oil and gas course that focuses on mineral rights and state regulatory issues. Each option is described below.

As has been noted in other contexts in this Report, hot topics should be used judiciously in basic energy education that prepares students for practice. Some hot media topics, like horizontal drilling and hydraulic fracturing, are having a major impact on a large number of practicing attorneys. Other items, such as LNG exports and the Keystone XL pipeline are interesting and have had major media coverage, but do not impact that many practicing attorneys (at least relatively) to warrant the recommendation of extensive coverage in a survey course.

A. High-Level Energy Survey Course

The following items are recommended for coverage in an energy law survey or introductory course that provides a 30,000-foot view of energy regulation. (The following would be combined with topics addressing other areas of energy law.)

1. Basic Mineral Rights
   a. Severance of surface and subsurface rights
   b. Private Mineral Ownership (U.S. Model) v. State Ownership
2. Basics of Mineral Leasing
   a. Granting Clause
   b. Habendum Clause
   c. Royalty Payments
   d. Implied Covenants
3. Oil & Gas Exploration
   a. Rule of Capture
   b. Correlative Rights
   c. Pooling & Unitization
4. Horizontal Drilling & Hydraulic Fracturing
5. Natural Gas Convergence in the Electricity Sector
6. Downstream Sector Issues
   a. FTC oversight
   b. Antitrust Issues
   c. Petroleum Marketing Practices Act (PMPA)
7. Conservation Laws—spacing/density/environmental discussions

B. State and Federal Economic Regulation of Oil & Gas

The following represents the scope of topics for a more specific course on economic regulation of oil and gas, within a broader energy framework.

1. Introduction

Overview of history of energy sources (wood, coal, oil, gas, electricity, nuclear) and modern systems to extract, refine, and deliver oil, coal, natural gas, natural gas liquids, and electricity. EIA statistics on energy production and consumption. Federal interest in interstate network of pipelines (oil, NGLs, gas) and bulk power transmission.

2. Economic Drivers

Private, public, and common goods; market forces (demand and supply, costs, marginal revenue, price elasticity); regulation of monopolies that provide public goods, competition, and resource allocation; regulation of market entry and prices. Relationship of economic regulation to antitrust law.

3. Significant Statutory Origins

Interstate Commerce Act and expansion of Federal activity 1887-1920; Federal Power Act (1920, 1935) and Natural Gas Act (1938); Commodity Exchange Act (1936); Atomic Energy Act (1954); Emergency Petroleum Allocation Act (1973); Commodity Futures Trading Commission Act (1974); Department of Energy Organization Act (1977); Energy Policy Acts (1992, 2005).

4. Market Forces v. Regulation: Oil

Standard Oil and trust-busting; shift to oil import dependence; the turbulent 1970s: 1971 wage and price controls, OPEC and Arab oil embargo, emergency price and allocation regulations; lack of national oil energy policy; end of price controls (1981); oil price collapse (1985) and surge (2004-present); legislative and administrative responses; FTC antitrust and anti-manipulation authority.

5. Principles of Administrative Regulation

Application of APA to rate and service regulation; energy rulemakings; key agency decisions regarding scope of jurisdiction; judicial review; regulation by the states—Constitutional principles (Commerce Clause, Supremacy Clause).

6. Tariffs

Use of tariffs to regulate prices and terms of service; prospective changes to tariffs; rate-setting and refund authority; filed rate doctrine; certificates of public convenience and necessity; contract carriage v. common carriage.

7. Natural Gas and Electricity (part 1)

History of economic regulation of natural gas production. Principles of cost-of-service ratemaking; the Uniform System of Accounts; principles of cost recovery and use of a test period; cost allocation and rate design; depreciation; cost of capital.

8. Natural Gas and Electricity (part 2)

Deregulation of natural gas production; unbundling of pipeline and utility services; PURPA; development of market-based rates; regional transmission organizations; open-access tariffs; planning and cost allocation; distributed generation; oversight of the reliability of the bulk electric grid; liquefied natural gas markets.

9. Oil and Gas Law

State regulation of production and retail services; State-Federal jurisdictional (pre-emption) issues; Federal lands and leasing programs; BOEMRE and offshore production.

10. Current Markets

Shift to light-handed regulation, relationship of physical and financial markets; CFTC regulation of futures; international electronic trading and clearing; bilateral contracts; price indices and function in setting contract prices; California energy crisis 2000-2001; spot and forward markets; evolution of organized electricity markets.

11. Enforcement

Enforcement authority of different agencies; inter-agency cooperation and relationship to criminal investigations; civil penalty actions and court review;

market behavior rules and prohibition of energy market manipulation (SEC origins); PHMSA safety regulation.

C. Traditional Oil and Gas Course: Mineral Rights, Exploration, and Production

1. History: Laws of private ownership and rule of capture
2. Conservation & Correlative Rights
3. Oil and Gas Leases
    a. Granting Clause
    b. Habendum Clause
    c. Royalty Payments
    d. Implied Covenants
4. Interests in Oil and Gas
    a. Minerals versus royalties
    b. What is a "mineral?"
    c. Shared interests
    d. Conveyances in Leases
5. Trespass & Loss of Title
6. Pooling & Unitization
7. Taxation
    a. Severance Taxes
    b. Commodity Taxes
8. Publicly Owned Lands
9. Indian Lands
10. Permitting and Environmental Regulation

II. ELECTRICITY

Whether a school interested in adding energy law courses to its curriculum chooses to offer one or more advanced courses or seminars in electricity, and, if so what form these course offerings will take, depends on a number of factors—financial resources, perceived student interest, and faculty (including adjunct professors) committed to providing course offerings that may need frequent updating. Where law schools choose to make this commitment this Report recommends:

One. That, similar to our recommendation for survey courses, advanced courses and/or seminars in electricity incorporate some background in core jurisdictional concepts in the context of the structure and scope of the major federal laws and typical state public utility laws governing electricity regulation. The launching point for any analysis of complex electricity regulation issues—whether the role of competition, the integration of renewable energy or demand response into electricity markets, regulation to ensure the reliability of electricity supply, the future role of electric distribution utilities, cybersecurity, etc.—is an understanding of the organic statutes that define the authority of federal and state electricity industry regulators. The first question is often: is the issue a matter for state regulation or is it a federal role, or both? In addition, understanding the statutory standards that federal and state regulators must adhere to (e.g., rates must

be "just and reasonable") is critical to thinking about how regulatory frameworks will adapt to changes in industry conditions (e.g., changes in the general economy, changes in the economics of various fuel inputs to electricity production, technological innovations related to energy production, transmission or consumption, and changes in clean air requirements). This foundation is also important to understanding where energy law and policy intersect, and how state and federal regulators can forge or implement new energy policy within the constraints of their jurisdiction and the statutory standards they must satisfy. While a study of core jurisdictional concepts and major electricity laws is itself likely the subject of an advanced course (building upon survey courses, courses in administrative law or regulated industries), this Report recommends that law schools include at least some background introduction to the federal and state framework for electricity regulation as part of any single advanced electricity course or seminar, or a set of advanced electricity offerings.

Two. That schools consider offering one or more advanced courses/seminars in electricity regulation specific to the region or state in which they are located, focusing, for example, on regulation by the public utility commission in the state where the law school is located. Not only are there job opportunities with state regulatory commissions, but "utility" practice before state commissions now includes representation not only of utilities, consumer advocates and industrial users of electricity, but power producers, providers of demand management services, manufacturers of smart-grid related appliances, and others. While many state public utility laws are similar, there can be unique provisions in each state, and unique considerations in practicing before the public utility commissions of different states.

Three. That law schools offering a set of advanced courses or seminars on electricity regulation regularly update their course offerings. While the study of core jurisdictional concepts is not likely to change frequently, the topics of interest to law students and prospective employers that might be suitable for smaller (one or two credit) seminars are likely to change more frequently as the industry changes. So, for example, while an advanced seminar on regulation of demand response and energy efficiency might have current appeal, it might well be less topical in a few years.

Four. That law schools offering advanced courses regularly update the course materials they use and not rely solely on textbooks. Because of the rapid changes in the energy industries, particularly the electric industry, it's often necessary to update course materials during the middle of a course to reflect important court opinions that have been issued, timely articles regarding key issues facing or affecting industry participants, energy consumers and energy regulators, or Congressional action relevant to a particular topic.

Five. That, irrespective of the specific electric subject matter being covered, an advanced course provide the student with a basic understanding not only of the laws governing or affecting the particular topic, but also an understanding of the multi-disciplinary expertise (e.g., economics, finance, accounting, engineering) that may be needed to interpret energy laws and address issues relevant to the topic of the course. For example, a broad advanced course on electricity should provide students with, among other things, a basic technical understanding of the various

components of the electricity system (generation technologies, transmission, distribution, etc.), electric system operations, the economic underpinnings of monopoly utility regulation and, if applicable, the economic principles underlying retail and wholesale electricity market designs. Seminars covering narrower topics (e.g., renewable energy, nuclear power, energy efficiency, etc.) should similarly give students a basic technical background specific to that subject (e.g., renewable energy technologies, the nuclear fuel cycle, etc.).

Six. That core jurisdictional concept courses themselves be treated as advanced electricity law courses, with prerequisites that students first take a course in administrative law, public law or regulated industries. The core concepts course would cover basic regulatory principles—the constitutional basis for regulation, the role and scope of utility regulation, and the role of the Supremacy Clause, Commerce Clause and Takings Clause in electricity regulation. It would also address other basic areas, such as: regulation of energy facility siting; ratemaking principles (zone of reasonableness, undue discrimination, market based rates, rate design, cost allocation); corporate structure (e.g. mergers, asset dispositions); the role of contracts and contract law in developing and financing electric infrastructure and in rate setting; the interrelationship between state and federal regulators, among federal regulators (FERC, NRC, CFTC, DOJ, FTC, etc.), and between the U.S. and Canada (particularly with respect to open access transmission and transmission grid reliability); regulation of reliable operations, and regulation of cybersecurity.

III. RENEWABLE ENERGY

Renewable Energy is a topic of significant interest to students as well as a growth sector of world-wide importance, and should be included in both the energy survey course and, interest and resources permitting, may be offered for a more advanced course of study.

A. Defining the Topic

One of the significant difficulties with respect to designing a course on Renewable Energy is to define the boundaries of the course. This problem has multiple dimensions.

1. What industry sector are we talking about?

The discussion below assumes a structure that would teach the policy and law of renewable energy within the context of a specific industry sector, particularly the electric sector or perhaps electric and transportation sectors, rather than on a resource by resource basis—e.g., solar, land-based wind, off-shore wind, geothermal, small hydro, kinetic hydro, biofuels, etc.—but the Committee acknowledges that the course could be approached differently and both approaches have merit. For example, the industry sector approach would omit instruction on laws and regulations affecting uses of renewable energy outside of the selected sector(s), such as use of passive solar or solar water heating in buildings or industrial uses of renewable energy, but the sector approach provides a broader context for consideration of the issues surrounding the transition toward, and integration of, renewables. While there are certain laws, regulations and

policy issues unique to different resources even within an industry sector, as a general matter, these differences were deemed to be less important topics for instruction, given the time constraints of a semester-long course, than the overall discussion of the laws, regulations and policies that affect use of renewables into our economy, and therefore should be included only to the extent critical or as time-permits.

2. Is this a discrete subject?

One could argue that there is no need for a course on renewable energy, because courses on electricity law or transportation law should be resource-neutral, and thus cover all forms of resources, including both fossil-based and renewable resources. However, existing laws related to the electric industry, at least, are primarily structured around industry models that rely on fossil-fuels and nuclear power. The relatively recent addition of significant amounts of non-hydro renewables raises new issues and nuances that require consideration at a deeper level than likely to be addressed in a course that addresses electric energy law more generally. If laws and regulations governing the electric and transportation sectors evolve to more fully incorporate renewable resources, it might not be necessary in the future to single renewables out for separate treatment.

3. Is energy efficiency a renewable resource?

Yes. Laws, regulations and policy regarding energy efficiency should be part of the curriculum for a course on renewable energy. Similarly, programs governing demand response and other techniques for managing load and conserving electricity should be included.

4. And distributed generation?

Because of the surge in renewable resource-based distributed generation, it is important to address the differences between utility-scale generation and distributed generation within a course on renewable energy. (However, since not all distributed generation is renewable, but some of the same laws may pertain to both renewable and non-renewable distributed generation, this is another instance that highlights the artificiality of the boundary between renewable resources and other resources.)

5. What other technologies should be addressed?

Storage, microgrids, smart grid and smart meters, appliances and technologies, and some material on transmission (particularly with respect to reliability and integration) are important complements to integrating renewable energy into the electric grid and therefore the laws and regulations around use of these technologies is appropriately included. Although co-generation is generally accomplished with fossil-based fuels, it also may be included in the course because it is a means of improving efficiency in energy use and, more importantly, the portion of the Public Utility Regulatory Policies Act (PURPA) governing co-generation overlaps significantly with that governing renewable resources. Other clean technologies, including carbon sequestration and storage are appropriately addressed elsewhere.

B. Structure and Themes

The topic should be addressed from three perspectives: (1) law and regulation; (2) policy; and (3) finance and transactions. Key themes that are integral to teaching the subject, are: (a) the federal-state jurisdictional tension resulting from the deployment of new technologies at what has traditionally been a retail service level, subject to state jurisdiction, but which may participate in, or at least affect, wholesale markets that are under FERC's jurisdiction; and (b) determining what services and which service providers are to be regulated, and by whom. Emerging business models for utilities could be a related topic, but not necessarily integral to understanding the law and polices around renewable energy.

C. Course Material

The initial class should provide a basic framework for thinking about the policies regarding renewable energy within an environmental/climate context, and establish an understanding of the extent to which our current energy economy is rooted in fossil fuels and the motivating forces for change (and resistance to change).

With respect to electricity, an essential introductory session would review the organizational structure of the US electric system and markets, the institutions, and the basic physics of how the system operates. Terminology, measurement units and other "technical jargon" should be demystified at the start.

A course on the legal and regulatory framework for renewable energy in the electric sector has to encompass both federal laws and regulations (Federal Power Act, PURPA) and state laws and regulations (including topics such as RPS, RECs and net metering). In addition to teaching the black-letter law, attention should be given to the tension between federal and state jurisdiction and the shifts that have occurred or are occurring in jurisdictional scope. Specific units should address:

- Distributed Energy Resources (DER), particularly Distributed Generation (DG): Issues include the question of what constitutes DER? Discuss factors such as size, ownership and location on the grid. What laws govern (and under what conditions)? Address pricing (who regulates the price, net metering rules, sales to the grid, feed-in tariffs, the authority of states to authorize more than avoided cost pricing, how avoided cost is calculated) and the terms and conditions of service (interconnection, quality and reliability).
- Demand Response (DR): This class should address how demand response differs from supply side resources. It should also address jurisdiction, or more precisely, distinguishing programs under RTO/ISO auspices from those implemented as state programs under public utility/service commission jurisdiction. Another key issue is measurement and verification of the demand resource.
- Energy Efficiency (EE): Key topics include rate issues (decoupling, incentives) including a comparison of the compensation methods for EE as compared to DR, standards for EE, measurement and verification; how EE

intersects with and relates to RPS goals; and the DOE's mandatory standards for appliances and the EPA/DOE EnergyStar program.

- Financing and Transactions: What are the sources for financing of renewable energy projects/technologies and energy efficiency? Discuss financing sources and costs relative to project types and scale. Discuss role of bi-lateral contracts as support for financing and market mechanisms (including to encourage and reward DR).
- Intersection of renewable energy development with environmental and natural resource regulation. Key topics include regulation under the National Environmental Policy Act and Federal wildlife laws and permitting and leasing on Federal lands.

As noted above, there are a number of other topics that are pertinent and appropriately incorporated into the curriculum, but for which an in-depth treatment is better reserved for an upper level seminar or paper.

- Microgrids, storage and other emerging technologies that facilitate integration (although at least some discussion is appropriate in the core course).
- Enforcement: There are interesting enforcement issues emerging, particularly around EE and DR, but while these issues are appropriately referenced at various places within the course, they may be too detailed to cover within the course of a semester and could be better addressed in the context of enforcement and compliance generally.
- Equity: Similar to enforcement, the issue of whether direct access to renewable resources is or should be available to all ratepayers is an interesting policy discussion, but probably too detailed to address in-depth in a survey course but might be addressed in a focused, more advanced course. Other equity issues, such as those surrounding the impact of distributed generation on other customers, may be inevitable in any policy discussion, and should be included as appropriate.

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