A. Introduction

>Shaping society and economy by law« – in thinking about the theme of today’s symposium, I was struck by the natural overlap between the theme of today’s conference and the law and economics school of legal analysis.

B. Primer on Law and Economics

I. Homo Economicus

One of, if not the, central assumption of law and economics is that the purpose of the law is to shape human behavior.¹ The traditional Chicago School of Law and Economics applies microeconomic principles to question of law and its role in and effect on society.² Law and economics assumes human beings are rational actors³ – homo economicus.⁴ Each individual actor seeks to maximize his or her individual utility.⁵ Utility is defined as one’s happiness,⁶ but inasmuch as it is difficult, if not impossible, to measure and compare happiness because it is subjective, economists use money as a substitute for happiness.⁷ As a rational actor,

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¹ A. Schapiro, Nw. U. L. Rev., 2008, 811, 820 (»One of the great insights of law and economics is the role of tort law in creating incentives to shape conduct.«).
³ Ilg (Fn. 2), p. 59.
⁷ A. Posner, J. Legal Stud., 1980, 243, 247 (»Partly because there is no common currency in which to compare happiness, sharing, and protection of rights, it is unclear how to
each individual seeks to maximize his or her wealth so that he or she can maximize his or her happiness.  

II. Cost-Benefit Analysis

As rational actors, each individual performs a cost-benefit analysis before acting. If an individual determines that the benefits of undertaking an act exceed the costs, he or she will undertake the act. On the other hand, if an individual determines that the costs of undertaking the act exceed the benefits, then the person will not undertake the act. The purpose of law is to affect the rational actor’s cost-benefit analysis, thereby affecting their behavior. The law making process requires lawmakers to determine what behavior is to be encouraged, and which law does the best job of encouraging such behavior; and what behavior is to be discouraged, and which law does the best job of discouraging such behavior. Bottom line, consistent with a law and economics analysis, laws that promote efficiency should be adopted, and the more efficient the better. From a law and economics perspective, efficiency is synonymous with social wealth.

To the extent one of the central premises of law and economics is the power of the law to shape an individual’s cost-benefit analysis, and through the shaping of individual conduct the shaping of society and economy, one need not look too far to find a perfect example of the power of the law to shape society and economy.

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make the necessary trade-offs among these things in the design of a social system. Wealth maximization makes the trade-offs automatically.); Jimenez, UCLA L. Rev., 2008, 59, 89-90.


10 Or omission.


16 See Fn. 9-15.
C. An »enlightening« Case Study – Solar Energy

I. The Natural Climates

Assume two law professors, Professor A and Professor B. They live in two very different parts of the world. Each of them is interested in solar energy, in particular in installing solar panels on the roof of his house to generate electricity. The cities in which they live, however, have very different climates. Professor A lives in one of the sunnier regions of the world. It is relatively close to the equator and is well situated for the collection of solar energy. The town in which Professor A lives averages 335 days of sunshine a year, only 27.2 days of rain a year, and totals 3254.2 hours of sunshine a year.

In contrast, Professor B lives in one of the rainier regions of the world. It is relatively far from the equator and is not particularly well situated for the collection of solar energy. Professor B lives in a city that averages 235 days of sunshine a year (one hundred fewer days of sunshine compared to Professor A); 129.4 days of rain a year (over one hundred more days of rain as compared to Professor A); and totals only 1709 hours of sunshine a year (just over half as much as the city in which Professor A lives).

Both professors are well-educated, sensible individuals who tend to be on the frugal side. Which professor has a solar panel on his roof? Professor B, not Professor A. In light of the differences in the climates that exist between the two cities in which they live, does that make any sense? Are Professors A and B rational actors?

II. The Societal Response – The German Solar Energy Phenomenon

In analyzing whether Professors A and B are rational actors, it might be relevant to consider the conduct of their neighbors. To what extent are they representative of their communities? Professor B resides in Augsburg, in the Bavarian region of Germany. Despite its arguably inhospitable climate for solar panels, Germany has been one of the leaders, if not the leader, in solar energy for a number of years now. In 2004, when the Geosol solar energy plant opened in Espenhain, 186 days of full sunshine, 106 days of partly sunny days, for a total of 292 days of sunshine out of 365 days - 80% of the time one can expect at least partly to full sun, for a total of 3055 hours of sunshine a year. Average Annual Sunshine by State, CurrentResults.com, http://www.currentresults.com/Weather/US/average-annual-state-sunshine.php (last visited Nov. 11, 2011).
Germany it was the biggest solar energy plant in the world.\(^{18}\) By 2007, Germany generated over half of the solar energy in the world.\(^{19}\) But Germany’s photovoltaic revolution is not characterized by large photovoltaic energy plants, it is characterized by countless solar panels being used by individual businesses, homeowners – like Professor B – and even farmers, some of whom are plowing under their crops to plant solar panels. As one travels through Germany – southern Germany in particular – it is impossible not to notice the prevalence of roof top solar panels.

Despite its rather gloomy weather, Germany is the world leader in installed solar photovoltaic panels.\(^{20}\) Half of all solar panels produced worldwide end up on a German roof.\(^{21}\) At their peak – when the sun is at the optimal angle for generating solar energy – Germany’s installed solar panels generate more power than Japan’s entire Fukushima six-reactor nuclear power plant,\(^{22}\) with none of the risks of nuclear power. In addition, »Germany has installed more wind power capacity than the entire current UK nuclear capacity, and is adding to it at a rate equivalent to more than one new reactor a year. (…) [I]n 2009 alone Germany installed solar photovoltaic systems with capacity equivalent to approximately four nuclear reactors, and it looks like the 2010 figures will be much higher.«\(^{23}\) The renewable energy revolution is changing German society.

The transition to renewable energy, solar in particular, has also helped stimulate the German economy. Germany was one of the first countries to identify renewable energy as a potential new economic sector. Development of the renewable energy sector has created – and will continue to create – new industries and jobs. The German initiative to take the lead in the renewable energy field has paid off handsomely for the German economy. In 2009, more than 300,000 Germans were employed in jobs related to renewable energy, an eighty-seven

\(^{21}\) Subsidies for German Solar Industry to Shrink More Quickly Than Intended, Deutsche Welle (Jan. 13, 2010), http://www.dw-world.de/dw/article/0,,5124204,00.html.
\(^{22}\) Mims (Fn. 20).
percent rise since 2004. The number of Germans employed in renewable energy related jobs almost equals the number employed in the country's largest manufacturing sector: automobiles. Europe — led by Germany — passed Japan to lead the world in [photovoltaic cell] manufacture, producing an estimated 1,063 megawatts of solar cells in 2007, up fifty-six percent over 2006. »Europe — led by Germany — passed Japan to lead the world in [photovoltaic cell] manufacture, producing an estimated 1,063 megawatts of solar cells in 2007, up fifty-six percent over 2006.« About 40,000 people are now employed in the photovoltaic cell industry in Germany alone; German’s Q-Cells out-produced Japan's Sharp to become the number one manufacturer worldwide. »About 40,000 people are now employed in the photovoltaic cell industry in Germany alone; German’s Q-Cells out-produced Japan's Sharp to become the number one manufacturer worldwide.« Moreover, experts in the field predict that by the end of the decade, 2020, an additional 120,000–140,000 jobs could be created in Germany alone, and an additional 400,000 throughout the EU. Despite the arguably inhospitable environmental climate, the development of solar energy and other renewable energy programs has found a very welcoming social and political climate in Germany, one that has lead to the transformation of the German economic climate.

III. The California/American Response — Business as Usual

On the other hand, Professor A lives in sunny Southern California in the United States. Despite its relatively hospitable climate for solar energy and renewable energies, there is relatively little production of solar energy or other renewable energies. Although there are anecdotal stories about individual homeowners and businesses putting solar panels on their roofs to reduce their electricity bills, such stories are the exception, not the norm. Such stories typically are written to try to encourage others to follow suit, but to date there has been no groundswell movement in Southern California (or the rest of America) in favor of purchasing

and installing photovoltaic cells. Although there is talk of and plans for large photovoltaic energy plants in California, at this time there are none. And although people like to talk about solar energy, very few businesses or homeowners have put them on their roofs. One can drive around Southern California for hours and never see a rooftop solar panel and no farmers have plowed under their crops to install solar panels. Unlike the German experience, there are virtually no news or academic stories chronicling the growth of solar energy use in Southern California because, frankly, there has been no such growth.

IV. Comparative Solar Energy Capacity: Theoretical Potential vs. Installed Potential

Based on its climate, California’s theoretical photovoltaic energy generating capacity is in the range of millions of MWh/day. As of 2007 California’s installed, actual photovoltaic capacity, however, was only 279.5 MW, a mere fraction of the total potential capacity that [photovoltaic systems] could achieve given the state’s abundant solar resources. In contrast, as of the end of 2007 Germany’s installed photovoltaic capacity was 4.170 MW, well over ten times greater than California’s. In 2008, the installed solar generating capacity in all of the United States totaled just 514 megawatts (MW), less than ten percent the installed solar generating capacity in Germany. By the end of 2009, installed capacity for photovoltaic generated electricity in Germany had jumped to 9.914 MW, and by the end of 2010 it jumped again to 17,320 MW. By the end of

30 Levitan, A Solar Panel on Every Roof? In U.S., Still a Distant Dream, Yale Environment 360 (Aug. 15, 2011) (»Prices of solar panels are steadily coming down, but are still not low enough to prompt a mass movement to solar, especially at a time of economic stagnation.«).
33 Id. at 50.
36 See Fn. 35, p. 17.
2010, the photovoltaic generating capacity in all of the United States was only 2,153 MW, with just under half of that in California, 1,022 MW.\textsuperscript{37}

V. Conclusion

Germany, a country with less than five percent the land mass of the United States and only about half of the amount of sunshine as California, produces almost ten times as much solar generated electricity as all of the United States, and almost twenty times as much as California, one of the largest and sunniest states in America, a state about the same size as Germany.\textsuperscript{38} Despite the rhetoric in the United States in general, and in California in particular, with respect to solar energy, the gap in photovoltaic generated electricity continues to grow between Germany and the United States.

D. Law can affect Society and Economy

In light of the relatively inhospitable natural climate for solar energy in Germany, and in light of the relatively hospitable natural climate for solar energy in Southern California, how does one account for the fact that Germany is «the photovoltaic champion of the world»\textsuperscript{39}? The answer is obvious: the key variable is not the natural climate for renewable energy, the key variable is the legal climate. Germany has adopted a set of policies and rules that aggressively promote the use of renewable energy, and photovoltaic cells in particular.\textsuperscript{40} The German citizens have responded in impressive numbers to the benefits offered by the German renewable energy programs, affecting not only the German society but the German economy as well. The German solar energy experience confirms one of the basic premises of law and economics: That law can affect one’s cost-benefit analysis, thereby affecting society and economy through individual decisions.\textsuperscript{41}

\textsuperscript{38} Germany has 357.021 square km of land mass; California has 403.934 square km.
\textsuperscript{39} See Fn. 34, p. 11.
\textsuperscript{40} See Fn. 43-50 and accompanying text.
\textsuperscript{41} See Fn. 9-13 and accompanying text.
I. Why is the German Renewable Energy Program More Effective?

While the United States, and California in particular, also have a set of policies and rules that promote the use of renewable energy and photovoltaic cells in particular, their policies and rules have not been nearly as effective in promoting renewable energy in general or photovoltaic cells in particular. The German legal system clearly has been much more effective in shaping German society and economy with respect to the development and adoption of renewable energy, solar energy in particular. The obvious question is why; why has the German renewable energy program/solar energy program been so much more effective than the American/California programs? Analysis of that question requires a quick examination of the respective programs.

1. The German Legal Climate

The German legislature first began dabbling in the renewable energy field back in the 1980s when it statutorily «created two small programs to support wind and photovoltaic energy by providing funding for a portion of the investment costs.« In 1989, Germany enacted legislation to allow compensation beyond avoided cost for renewable energy sources, clearing the way for its feed-in tariff system. In 1990 Germany adopted the Feed-In Tariff Act, generally credited as the break-through public policy approach and legal mechanism that stimulated the renewable energy movement in Germany.

Germany is considered the father of the »feed-in tariff« rule of law that led to the widespread adoption of photovoltaic cells in Germany. »Feed-in tariffs are legislatively mandated rates that an electric utility must pay renewable energy producers over guaranteed period of time to cover the cost of energy production and provide a reasonable profit.« »The price is set under legislation (through feed-in laws) that put a legal obligation on utility companies to buy electricity from renewable energy producers at a premium rate and give priority grid ac-

42 See Fn. 51-90 and accompanying text.
43 Motl, Wis. Int’l L.J., 2011, 742, 747. This approach was similar to the one currently utilized by the United States federal and most state governments.
44 Motl (Fn. 43), p. 747.
45 Ibid. The full text of the act is available here: http://www.wind-works.org/FeedLaws/Germany/ARTsDE.html. It consists of only five short sections, in marked contrast to the 60 plus section scheme currently in force.
46 Motl (Fn. 43), p. 745.
The goal is to provide ways for individual renewable energy producers to overcome the barriers to entry into the market. Feed-in tariffs achieve this goal through several methods, including: giving renewable energy priority grid access; setting the tariff for long, fixed periods; setting no limit on the amount of renewable energy fed into the grid; and making participation simple for producers of all sizes. The Feed-in tariff system also makes participation easy for individuals by providing predetermined terms and conditions for the sale of the energy produced to the public utility; thus, obviating the need for negotiations and bureaucratic wrangling.

2. The American/California Legal Climate

Renewable energy policy in the United States began in the late 1970s in response to OPEC’s oil embargo of the 1970s and the resulting energy crisis. Congress passed two acts designed to address the nation’s energy problems. The Energy Tax Act of 1978 (Public Law 96-18) offered a tax credit of up to $2,000 for solar energy devices installed between 1977 and 1986. The $2,000 tax credit, however, was relatively small compared to the cost of purchasing and installing a solar energy system. The Public Utility Regulatory Policy Act of 1978 (PURPA) established the right for independent power producers to connect to the grid run by utilities. Utilities were required to purchase electricity purchased by »qualified producers« – but at no more than the cost they avoided in not producing the electricity themselves. By limiting the amount the utilities were required to pay to no more than the cost they avoided in not producing the electricity themselves, however, the Act failed to take into consideration the benefits of the pollution that was not produced by using the electricity from renewable energy sources. In that respect, the Act failed to properly price the electricity from renewable energy sources. The Energy Tax Act incentives were eventually phased out under the

48 Id.
49 Id.
52 Id. This federal tax credit expired in 1985, under the Reagan Administration, and was not renewed. Id.
53 Id.
54 Id.
Reagan administration in the mid 1980s.\textsuperscript{55} PURPA, however, remains on the books and has proven to be an obstacle to the enactment of feed-in tariffs.\textsuperscript{56}

Tax credits for the purchase and installation of solar energy systems were revived by the Federal Energy Policy Act of 2005, which provided tax breaks for individuals with solar power installations for the years between 2005 and 2007.\textsuperscript{57} This Act was later extended in 2008 so that the tax credit would last until 2016.\textsuperscript{58} These tax credits can cover up to one-third of the cost of purchasing and installing solar energy equipment.\textsuperscript{59} While these tax credits help to reduce the up-front costs of purchasing and installing a solar energy system, without knowing how much the local utilities will pay for the excess electricity generated by such a system makes it difficult, if not impossible, for the average consumer to calculate the ultimate costs and benefits associated with a contemplated project.

The California renewable energy approach can only be characterized as a complicated hodge-podge of programs over the years typically characterized by limited incentives and uncertain benefits which have resulted in limited success. California’s renewable energy policy also began in response to the oil crisis of the 1970s.\textsuperscript{60} Governor Jerry Brown, during his first term as governor, enacted tax credits for homeowners, who could claim up to $3,000 in state tax credits for installing solar energy generating equipment on their homes.\textsuperscript{61} The solar industry briefly flourished in California until the tax credits ended in the late 1980s.\textsuperscript{62} The 1980s also saw a reduction in oil prices, which, when coupled with the expiration of the state and federal tax credits, led to a collapse in the solar market.\textsuperscript{63} »The solar industry retreated from the larger, urban markets and settled down into California’s northern counties, targeting the »do-it-yourselfers« and »off-grid hippies« for the next fifteen years.«\textsuperscript{64}

There was not much further development in the solar industry until the mid-1990s, when energy prices and issues with the supply of natural gas began to re-emerge.\textsuperscript{65} In response, in 1995, California passed a »net metering law.«\textsuperscript{66}

\textsuperscript{55} Id.
\textsuperscript{56} Grinlinton/Paddock, U. Tol. L. Rev., 2010, 943, 960; Motl (Fn. 43), pp. 744-745.
\textsuperscript{57} 26 U.S.C. § 25D (2006); Go Solar (Fn. 51).
\textsuperscript{59} Id.
\textsuperscript{60} Del Chiaro/Gibson, Golden West U. L. Rev. 347, 368 (2006).
\textsuperscript{61} Del Chiaro/Gibson (Fn. 60), p. 369.
\textsuperscript{62} Del Chiaro/Gibson (Fn. 60), p. 369.
\textsuperscript{63} Del Chiaro/Gibson (Fn. 60), p. 369 (»This sudden collapse in government support for a budding market caused a 2,000 percent drop in annual revenue for California’s solar industry from an estimated $475 million to $20 million in just two years.«).
\textsuperscript{64} Del Chiaro/Gibson (Fn. 60), p. 369.
\textsuperscript{65} Del Chiaro/Gibson (Fn. 60), p. 369.
Net metering remains a key financial incentive for investing in solar. Namely, when a solar power system generates more electricity than is being consumed at any given time, the extra electricity is fed back to the grid for use by other utility customers. In California, and in many other states, grid-connected solar power system owners can sign up to receive a credit for their excess solar power valued at a retail rate. This structure is known as net metering because the electric meter literally runs both directions, measuring the net amount of electricity drawn from the grid. If, over the course of a month, the solar power system owner generates more electricity than he or she consumes, the credit can be rolled forward to the next month for up to a year. In this way, the electric grid acts like a giant battery, storing excess electricity for use during times when the sun is down or clouded over. It also encourages conservation and efficiency since the greater the amount of electricity sent back to the grid, the more a homeowner saves.

The net metering legislation initially applied only to small-scale producers, but in 2002 it was extended to large-scale commercial projects. Again, however, while the net metering system gave the homeowner who installed a solar energy system another way to benefit from owning such a system, it arguably failed to properly compensate the homeowner for producing energy without the pollution and other negative externalities associated with electricity generated by more traditional fossil fuels and nuclear power plant facilities. While the net metering legislation helps the individual homeowner who purchases and installs a solar energy system, the exact size of the benefit, particularly over time, is indeterminate.

In 1996, California adopted a series of laws that led to the creation of the Renewable Energy Program. The incentives for solar installations consisted of buy downs or rebates, meant to reduce the initial cost of the system for the customer. In the ten years since 1996, more than 150 megawatts of electricity was installed through both the Energy Commission and the CPUC’s programs. Between 2000 and 2006, California adopted a few small programs offering tax incentives for the purchase and installation of solar energy systems,

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67 Del Chiaro/Gibson (Fn. 60), pp. 369-370.
69 Go Solar (Fn. 51); California Energy Commission, History of California’s Renewable Energy Programs, at 1, Energy.ca.gov (last visited Nov. 1, 2011, 8:45 p.m.).
70 Go Solar (Fn. 51).
71 Id. At the national level, the Renewable Energy Program was augmented by the ‘Million Solar Roofs’ program started by President Bill Clinton in 1997. The Million Solar Roofs program led to the installation of 70,000 photovoltaic systems by the end of 1999. Id.
but again such programs were relatively small and limited in nature, nothing that would inspire the average consumer to seriously consider solar energy.\textsuperscript{72}

In 2006, the California Public Utilities Commission unanimously adopted the largest solar power incentive program in the nation, the California Solar Initiative.\textsuperscript{73} The project’s goal was to install 3,000 MW of solar power on one million roofs within ten years. The administrative rule arose after a protracted debate in the California State Legislature which caused the legislature to fail to pass a bill with similar provisions three years in a row despite widespread public support.\textsuperscript{74} The California Solar Initiative program offers two types of incentives:

There are two types of incentives available to residential and non-residential customers through the California Solar Initiative Program: the Expected Performance-Based Buydown (EPBB) and the Performance-Based Incentive (PBI). Both incentives reward high-performance systems – the EPBB is a one-time, up-front payment based on a system’s expected performance; PBI payments are based on a system’s actual performance and paid out over five years.\textsuperscript{75}

Again, the incentives come in the form of rebates to the solar energy producer based on system capacity or the amount of power actually produced.\textsuperscript{76} The prob-

\textsuperscript{72} The year 2000 saw a flurry of legislation providing financial incentives for solar energy producers in California. The Legislature enacted a grant program through Senate Bill 1345 of 2000 to support growth in photovoltaic installations. Go Solar (Fn. 51). The text of this bill is available at http://www.leginfo.ca.gov/pub/99-00/bill/sen/sb_1301-1350/sb_1345_bill_20000919_chaptered.pdf.

\textsuperscript{73} Funding for the program had to be renewed annually by the Legislature. The state's budget crisis essentially ended the program.« Id. The Reliable Electricity Service Investment Act (REISA) was enacted through Assembly Bill 995 of 2000 and Senate Bill 1194 of 2000, which directed utilities to collect $135 million annually from 2002 to 2012 to support the state’s renewable energy program. Id. Finally, the year 2000 also saw Senate Bill 970 of 2000 enacted, which created a rebate program for large installations. \textit{Del Chiaro/Gibson} (Fn. 60), p. 371.

In 2001, during California’s energy crisis, two tax bills offered credit and funding to solar energy and wind energy producers. Go Solar (Fn. 51). Again, while these bills offered tax credits that effectively reduced the up-front purchase price and installation of a solar system, the total return on one’s investment remained uncertain because of the uncertainty associated with the excess electricity such a system might produce. Whether the local utility had to purchase it, and if so, at what cost, remained unclear.


\textsuperscript{75} \textit{Del Chiaro/Gibson} (Fn. 60), p. 351.

\textsuperscript{76} California Public Utilities Commission, California Solar Initiative Program Handbook, 10 (Sept. 2011).

\textsuperscript{76} California Incentives/Policies for Renewables & Efficiency, DSIRE, http://www.dsireusa.org/incentives/index.cfm?getRE=1?re=undefined&ee=1&spv=0&st =0&srp=1&state=CA.
lem was, these supply side programs did little to affect the demand side of the system.

In 2002, the California legislature finally addressed the demand side of the equation. The legislature enacted California’s first Renewables Portfolio Standard Program which mandated that the state’s utilities obtain at least twenty percent of the power they supply from renewable sources by 2017,\textsuperscript{77} and extended the state’s rebate program.\textsuperscript{78} In 2006, the mandate was updated.\textsuperscript{79} The new target was set at twenty percent of all California power from renewable sources by 2010 (which California failed to meet).\textsuperscript{80} The targets were amended again in 2008 to require that California obtain thirty-three percent of its electricity from renewable sources by 2020.\textsuperscript{81} Most recently, in April of 2011, Governor Jerry Brown signed into law a bill that provides that the state’s utilities obtain at least thirty-three percent of all the power they supply from renewable sources by 2020.\textsuperscript{82} While such mandates in theory are laudable, the problem is there are no real penalties associated with the utilities’ failure to meet these targets. Moreover, the standards do not mandate how the utilities are to meet the targets, leaving it up to them to adopt programs that design and implement the method by which the standards are satisfied, thereby permitting the utilities to favor projects they design and construct over other possible competitors.

It was not until September of 2009 that California finally enacted a feed-in tariff type program. It was adopted by the legislature as part of its greenhouse gas legislation.\textsuperscript{83} The bill allows customers who generate solar power to enter into ten, fifteen, or twenty year contracts for systems up to three megawatts under which the utilities must pay feed-in tariffs.\textsuperscript{84} The rate the utilities must pay, how-

\textsuperscript{77} Del Chiaro/Gibson (Fn. 60), p. 349; see also California Renewables Portfolio Standards, CA.gov, http://www.cpuc.ca.gov/PUC/energy/Renewables/index.htm.

\textsuperscript{78} Del Chiaro/Gibson (Fn. 60), p. 349; see also http://www.californiasolarcenter.org/legislation.html (»[E]nabling the Renewable Investment Plan (includes the CEC RE Buydown (ie. PV rebate) program) and the PIER (including PV Research) program to continue through 2007.«).


\textsuperscript{80} Behles (Fn. 79), p. 171 (discussing why CA failed to meet this goal - drawing only 18% of its power from renewables in the year 2010).


\textsuperscript{84} Grinlinton/Paddock (Fn. 56), p. 970. The California Public Utilities Commission (»CPUC«) first attempted to mandate that utilities purchase renewable energy from individuals in 1993, although this attempt arguably was not a true feed-in tariff. Re S. California Edison Co., 70 FERC 61215 (Feb. 22, 1995). The CPUC ordered utilities to sign long term, fixed price contracts with independent generation facilities that qualified as

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ever, is not fixed but fluctuates based on the market price of electrical energy at the time of day the power is produced. This uncertainty again undermines a possible participant’s ability to calculate with certainty the long term benefits associated with the program. Participants in the feed-in tariff cannot participate in other incentive programs.

The adoption of the greenhouse gas feed-in tariff legislation touched off a debate among key political players with respect to the legality of the legislation. The California Public Utilities Commission, the California Attorney General, California Utilities, and the Federal Energy Regulatory Commission have engaged in much discussion regarding the state’s authority to set tariff rates.

The Federal Energy Regulatory Commission’s final determination left room for the states to set tariff rates. This is the reason that California’s tariff rates are tied to market rates for energy from nonrenewable sources. The feed-in tariff program »qualifying facilities« under PURPA, to the exclusion of more conventional generators. Id.; see also Grinlinton/Paddock (Fn. 56), p. 965. The utilities protested, and Southern California Edison and other utilities filed an action with the Federal Energy Regulatory Commission (»FERC«) requesting that agency void the CPUC’s action as violating PURPA. Re S. California Edison Co., 70 FERC 61215 (Feb. 22, 1995); see also Grinlinton/Paddock (Fn. 56), p. 965. The FERC decided that because the CPUC’s order excluded potentially lower cost bids, the rate exceeded the avoided cost and the law was void under PURPA. Re S. California Edison Co., 70 FERC 61215 (Feb. 22, 1995); see also Grinlinton/Paddock (Fn. 56), p. 965. The opinion noted, however, that avoided costs were to be calculated by the state, within certain guidelines, and that such calculations could take into account increased costs due to targets set by Renewable Portfolio Standards. Re S. California Edison Co., 70 FERC 61215 (Feb. 22, 1995); see also Grinlinton/Paddock (Fn. 56), p. 965.

Id.


Grinlinton/Paddock (Fn. 56), p. 966.

FERC’s initial order addressing the proposed California feed-in tariff for Combined Heat and Power (»CHP«) facilities issued in July 2010 reaffirmed FERC’s earlier decision by limiting feed-in tariffs to a rate no higher than the avoided cost of the purchasing utility. However, on October 21, 2010 FERC issued an order clarifying its July order that appears to provide new latitude for states to more broadly interpret what constitutes avoided cost. In the October order FERC stated that avoided cost rates must reflect prices available from all sources »able to sell to the Utility.« Thus, the costs of power acquisition in the context of state laws such as renewable portfolio standards must be considered in calculating avoided costs. FERC also allowed states to include a limited number of »adders« or »bonuses« that reflect the actual cost of energy generation including the costs of transmissions upgrades or environmental remediation costs. Thus, although state feed-in tariffs are still limited to rates that do not exceed avoided cost under FERC decisions, states appear to have new room to calculate avoided costs in a way that will likely allow higher rates in a number of cases, especially in states with high renewable portfolio standards such as those adopted by California (33% by 2020).« Grinlinton/Paddock (Fn. 56), p. 966.
went into effect on January 1, 2010. However, it was recently amended and the California Public Utilities Commission is in the process of developing regulations consistent with the amendments. Bottom line, these developments, while promising, only continue the uncertainty associated with what rates a producer of solar energy can expect to receive for his or her excess electricity, uncertainty that only continues to undermine a rational actor’s cost-benefit analysis with respect to whether it makes financial sense to purchase and install a solar energy system.

Unlike the German renewable energy programs, which have received worldwide attention for their successes to date, the only attention the American renewable energy programs have received to date are for their relative failures – on both the aggregate and the individual level – to generate much excitement for solar energy. At the aggregate level, the principal achievement to date has been the failure of America to join the renewable energy movement despite having such a hospitable climate in much of the United States.

II. A Law and Economics Analysis of the Comparative Approaches

1. The Importance of Certainty

A key characteristic of the German solar energy program that no doubt has contributed to its astonishing success is the high degree of certainty associated with it. Under the law and economics approach individual actors are rational actors who perform a cost benefit analysis in deciding whether to act or not. In performing their cost-benefit analysis, one often has to factor in the probability of an outcome.

89 Grinlinton/Paddock (Fn. 56), p. 970.
90 California Incentives/Policies for Renewables & Efficiency, DSIRE, http://www.dsireusa.org/incentives/incentive.cfm?Incentive_Code=CA167F&re=1&ce=1 (»The California feed-in tariff was amended by SB 32 of 2009 and SBX1-2 of 2011. The amendments will not be incorporated into the actual program until the California Public Utilities Commission (CPUC) develops regulations to implement the program changes. As of October 2011, these rules have not been adopted yet, and the CPUC is currently considering significant changes to the program.«).
91 See Fn. 9-12 and accompanying text.
92 See Posner (Fn. 13), pp. 11, 167-168, 221; Stevenson/Wagoner, Fordham L. Rev., 2011, 775, 782.
2. *Expected* Cost-Benefit Analysis

Law and economics assumes that as rational actors, humans perform a cost-benefit analysis before acting, but in conducting the cost-benefit analysis, one factors in the ‘expected’ cost or benefit where appropriate, not necessarily the actual cost or benefit. In calculating the ‘expected’ cost or benefit, one has to discount the actual cost or benefit by the probability of the outcome actually occurring. For example, each summer when a new group of American law students arrive for the University of Augsburg’s Summer Program, most American students are surprised to learn that the city of Augsburg tram system operates on the honor system. It is up to the rider to buy a ticket and validate it; there is no attendant to take the rider’s ticket. Each student has to decide whether he should pay the 2,10 € to take the tram from the city center to the University or whether they should take their chances and see if they can get away without paying. The Neoclassical Chicago School of Law and Economics postulates that in performing the cost-benefit analysis, the typical American student calculates the benefit as the 2,10 € saved from not paying for the trip.

On the cost side, however, the American student calculates the expected cost if he or she is caught not paying. The expected cost is calculated by multiplying the actual cost if it were to occur times the probability that it will occur: here that would be the actual penalty if the student were caught not paying the proper fare: 40,00 €, times the probability of apprehension and conviction (what is the probability of being caught by the fare enforcers, and even if caught, what is the probability the student could talk their way out of the predicament by pretending that as a visiting tourist he or she did not understand the system). If the probability of being caught and convicted is ten percent — a one in ten chance — or higher, the expected cost of not paying is not the full penalty, forty euros, but rather it has to be discounted by the probability of apprehension and conviction:

93 See Fn. 9-12 and accompanying text.
94 See *Posner* (Fn. 13), p. 219; *Korobkin*, U. Haw. L. Rev., 2004, 441, 447 («[RCT posits that] individuals will take actions designed to maximize the differential between expected benefits of their actions and expected costs.»).
96 The cost of a two-zone tram ride at the time of this article was 2,10 €, and from the Augsburg city center to the University of Augsburg is a two-zone tram ride. See http://www.jura.uni-augsburg.de/en/curriculum/summer_program/faq/living/ (last visited Dec. 17, 2011.).
97 The penalty for failure to pay the required tram fee, at the time of this paper, was 40 €. See Augsburg, Wikitravel, http://wikitravel.org/en/Augsburg (last visited Dec. 17, 2011, 10:00 a.m.).
98 See Fn. 92 and accompanying text.
(penalty) x (probability of conviction) = 40.00 € x .10 = 4 €. If the expected cost is 4 €, as compared to an expected benefit of only 2,10 € – the rational person would pay the tram fare. On the other hand, if the probability of being caught and convicted is five percent – a one in twenty chance – or lower, the expected cost of not paying calculates out to 40.00 € x .05 = 2 € as compared to an expected benefit of only 2,10 €. The rational person would not pay the tram fare. Under the law and economics analysis, the key number is not the actual cost or benefit of a potential act – or failure to act – but the expected cost or benefit.99

3. RiskNeutral vs. Risk Averse

The expected cost or benefit is also important because in performing one’s cost-benefit analysis it must be remembered that »most people are risk-averse most of the time.«100 The more uncertainty associated with a risk, the more likely people are to be risk-adverse,101 particularly when it is the benefit side that is more uncertain than the cost side.102

4. High Degree of Certainty Associated with German Approach

The fact that most people are risk-averse, particularly when the benefit associated with a risk is more uncertain than the cost, is important because it helps to explain the success of the German approach to renewable energy. The German approach to renewable energy incentives takes away virtually all of the risk associated with investing in renewable energy, particularly on the benefit side. One of, if not the most striking features of the German feed-in tariff approach is the incredibly high degree of certainty associated with it.103 German consumers can, with a very high degree of certainty, calculate the benefit they would receive from the program if they were to join it.104 Feed-in tariffs incentivize renewable energy production by setting a price that will ensure a long term, guaranteed rate that will result in a profit to the producer.105 Most consumers can calculate the

99 Id.
100 See Fn. 92-95 and accompanying text.
102 Stucke (Fn. 101), pp. 570-571.
103 See Fn. 46-50 and accompanying text.
104 Id.
105 Larson/Till, The Right FIT to Promote Renewable Energy, 40 No. 2 ABA Trends 10 (2008). See also Grinlinton/Paddock (Fn. 56), pp. 944-945 (»[t]he specific design of FITS has important implications in providing the certainty developers and financiers of solar PV projects need«).
exact month he or she would pay off their initial investment of purchasing and installing the photovoltaic cells. From that month on, the return on one’s investment is almost all profit. Such certainty is rare in most investment portfolios, no doubt an important variable that helped to incentivize German consumers to invest in photovoltaic cells.

5. Low Degree of Certainty Associated with American/California Approach

In contrast, there is very little if any certainty associated with the American renewable energy program, particularly on the benefit side. At best the programs offer tax credits that reduce up-front costs, but the long term benefits of purchasing and installing solar energy systems remain uncertain due to America’s failure to adopt a feed-in tariff type of program. Tax credits towards the initial purchase and installation costs of solar energy systems without addressing the issue of what rate such producers of energy can count on receiving for their excess energy, inherently involve such risk, particularly on the benefit side, that they are doomed to limited success for the average consumer.

Inasmuch as the purchase and installation of the typical solar energy system cost upwards of $30,000 to $45,000, even a $15,000 tax credit, while helpful, still leaves a considerable cost, one that makes most consumers think long and hard before investing in solar energy systems. Without knowing more about the potential benefits of a solar energy system most American and California consumers are reluctant to undertake the risk that their investment will not pay off. And that, in a nutshell, is one of the primary weaknesses of the American/California approach.

By not addressing the benefit side of renewable energy cost-benefit analysis, the American and California renewable energy programs have left the average consumer unable to calculate the likely benefit one might receive from purchasing and installing a renewable solar energy system. Moreover, some utilities are even trying to charge consumers for having to accept their excess solar electricity. With such uncertainty associated with the benefit side of the analysis, it is

106 See Fn. 52, 57-59, 61, 69-70, 72, 76 and accompanying text.
108 Behles/Powers, Viewpoints: Home solar owners deserve a fair rate, Sacramento Bee, The (CA), Nov. 13, 2011 (»Rooftop solar owners and installers in the San Diego Gas & Electric region are up in arms over recent proposed hikes in electricity costs. In a case before the California Public Utilities Commission , SDG&E is proposing a monthly »transmission and distribution« surcharge for solar panels connected to the electrical grid«.)
easy to see why most American consumers are not willing to take that risk, a risk the German consumers do not have to take under the feed-in tariff system.

III. Market Based Approach

1. The German Demand Side Approach

As the renewable energy figures for Germany, set forth above, indicate, the feed-in tariff approach has been very successful in shaping German society and economy. The number of consumers who have implemented locally based renewable energy is nothing short of astonishing. Much of the success of the feed-in tariff system is because in its pure form it is a market based approach to government subsidies of stimulating renewable energy. The incentive is directed, for the most part, at the consumer in the marketplace. It is up to the consumer to decide which type of renewable energy – solar or wind or other – is best for that individual consumer, which manufacturer is the best to purchase the equipment from, which installer is best to hire to stall the equipment. For the most part, no attempt is made at steering the consumer to one type of renewable energy or another, to one manufacturer or another, to one installer or another. It is up to the market to decide. It is this market based approach which helped shape not only the German society but also the German economy as companies competed in the market for consumers to purchase and install their products to take advantage of the German feed-in tariff programs.

109 In light of such uncertainty the American/California market has responded by developing a lease based approach to solar energy. Large companies are pooling the risk associated with the solar energy market by offering to lease solar panels to consumers that the consumers will then put on their roofs in exchange for fixed energy costs down the road. But even that approach has risks and uncertainty associated with it. The consumer has to pay a fixed lease amount to the solar energy company to lease the photovoltaic cells (which are then put on the consumers roof for which the energy company does not pay the consumer to lease), but how much of a benefit the consumer gets in return again is uncertain. It depends on the future cost of electricity. While the cost of electricity is expected to rise in the future, when will it rise, and how much will it rise remain uncertain. In light of such uncertainty, the photovoltaic cell lease programs remain marginally successful at best.

110 See Fn. 18-28 and accompanying text.

111 Where is Asia’s Place in the Sun, BUS. TIMES (Sing.), November 4, 2009, available at LEXIS.
2. The American Supply Side Approach

While Germany has had a very aggressive and successful renewable energy program, creating a legal climate to counter its arguably inhospitable natural climate, the United States – and California in particular – have failed to create a legal climate that takes advantage of its hospitable natural climate. Like Germany, the United States has a number of statutory programs designed to create incentives for people to take advantage of their renewable energy opportunities, but unlike the German programs, the American programs have been generally unsuccessful to date in shaping the American society and economy.\(^1\) No doubt some of that failure lies in the structure of the American statutory approach.

First, unlike Germany, for the most part America has declined to adopt the feed-in tariff approach.\(^2\) Instead America has relied primarily on a Renewable Portfolio Standards (RPSs) approach.\(^3\) This tends to preserve an electric utility’s dominant bargaining position in an electrify transaction because the utility can choose among third party suppliers or build generation itself.\(^4\) In contrast, feed-in tariffs shift bargaining power and choice to the individual renewable energy developer, because all projects that meet the minimum technical standards are guaranteed access to the grid and grid operators are required to purchase any power produced.\(^5\) In addition, a major component of the US approach to stimulating renewable energy has been loan guarantees, both for the construction of solar energy plants and for the development and manufacture of photovoltaic cells.\(^6\) Putting too much emphasis on loan guarantees as a form of stimulating economic growth in a sector is questionable because in selecting the companies that should qualify for a loan guarantee the government is basically substituting its judgment for that of the market; the government is betting on which companies it thinks have the best chance of succeeding in the market\(^7\) rather than letting the market – the consumers – make that determination.\(^8\)

One need not look too far to see the risks inherent in such a non-market based approach.

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[^1]: See Fn. 51-90 and accompanying text.
[^2]: See Fn. 51-90 and accompanying text.
[^3]: See Fn. 77-82 and accompanying text.
[^4]: Id.
[^5]: Id.
[^6]: Id.
[^7]: See Fn. 120-125.
[^9]: But see Fn. 111 and accompanying text (in contrast to the American approach, the German approach allows the market to make these choices).
The American media has given extensive coverage recently to collapse of Solyndra, an American company that was active in the design, manufacture, and sale of photovoltaic cells. Solyndra claimed that it had a revolutionary design that permitted it to pack more cells closer together, thereby producing more electricity per rooftop than its competitors. Rather than letting the marketplace determine the merits of Solyndra’s claimed competitive advantage, the Department of Energy decided to support Solyndra by guaranteeing $535 million worth of loans. In early September, 2011, Solyndra filed for bankruptcy. But the Solyndra loss may just have been the beginning. In the last year alone the Obama administration has approved more than a billion dollars in loans to green companies, many of which are struggling financially.

One of the reasons the current US approach to stimulating renewable energy use has not been very effective at shaping the American society and economy is because in large part is has not been market based. Instead of trying to shape society and the economy by opening the market, empowering the consumer, and letting the change occur organically from the bottom up consistent with market principles and market forces, the US approach has been to try to shape society and economy from the top down, favoring large institutional players rather than the market and betting on large corporate players rather than letting the market determine who should thrive and survive.


126 See Fn. 112-125; see also Lomborg, Government Shouldn’t be Picking Solyndras, USA Today, Oct. 25, 2011, at 11A.
E. Statutory Law vs. Common Law

I. Efficiency of Statutory Law vs. Common Law

The success of the German solar energy program is also interesting from a law and economics perspective because it calls into question — or at least calls for clarification of — a comparative theory of one of the fathers of the law and economics, Professor Richard Posner. Professor Posner has opined that «[a]lthough the correlation is far from perfect, judge-made rules tend to be efficiency-promoting while those made by legislatures tend to be efficiency-reducing.»\(^\text{127}\)

While Professor Posner’s comments were in the context of comparing the option of judge-made law to that of legislature-made law in a common law country, one might logically argue that his position supports the view that the common law approach to law-making is more efficient than the civil law approach to law-making since the latter does not have the option of judge-made law and must rely solely on the relatively inefficient form of statutory law. Two principal arguments can be advanced in support of the view that the common law is more efficient than the civil law.

1. The Evolutionary Theory of Law-Making

The first reason Professor Posner believes judge-made law is more efficient is basically that the process of creating efficient laws is not an exact science. It is something of a hit-and-miss, trial and error proposition.\(^\text{128}\) It is difficult, if not impossible, to get a new law right the first time. Accordingly, creating an efficient law is more of an evolutionary process than an act, one that involves feedback in the form of on-going litigation about the issue and current version of the law as applied to new scenarios, often leading to changes, revisions, and/or exceptions.\(^\text{129}\) Professor Posner argues that this process of feedback and revision is more consistent with the evolutionary process of judge-made law than with statutory law.\(^\text{130}\) Judge made law goes through several levels of review, starting with the trial court giving it its best effort, the creation of the new law, then the intermediate court of appeals reviews, and possibly revises, the trial court’s work, and then the jurisdiction’s court of last resort can review it one more time. Through-

\(^{127}\) See Posner (Fn. 13), p. 560.
\(^{129}\) Id.
\(^{130}\) Posner (Fn. 13), p. 604; see also Priest (Fn. 128), Goodman (Fn. 128).
out the process there are zealous advocates on opposing sides of the issue ensuring that the court gets a thorough hashing of the issue and proposed rules, educating the court and further the analysis of the issue and proposed law. Moreover, assuming, arguendo, the court gets it wrong and adopts an inefficient law, an inefficient law will result in greater follow-up litigation, giving the courts more opportunities to revise the law or create exceptions to the law to improve its efficiency.\textsuperscript{131} Under the evolutionary theory of law-making, judge-made law tends to be more efficient than statutory-made law.

2. The Public Choice School of Law and Economics

The second reason some claim judge-made law is more efficient than statutory law is that legislators have to seek re-election. The Public Choice School of Law and Economics takes one of the principal tenets of Law and Economics — that each individual seeks to maximize his or her utility — and applies it to legislators.\textsuperscript{132} What maximizes a legislator’s utility and happiness? Being re-elected.\textsuperscript{133} To the extent legislators are rational actors who seek to maximize their chances of being re-elected, legislators do not seek to adopt rules that maximize efficiency and societal wealth, they seek to adopt rules that maximize their chances of getting re-elected.\textsuperscript{134}

In contrast, most judges are appointed for life or for a term of years and do not need to run for re-election.\textsuperscript{135} Once appointed, the independence of the judiciary increases the chances that they will adopt rules that maximize efficiency, at least more so than a legislator would.\textsuperscript{136} As Professor Posner put it himself, »Although the correlation is far from perfect, judge-made rules tend to be efficiency-promoting while those made by legislatures tend to be efficiency-reducing.«\textsuperscript{137}

In analyzing the arguments in support of the claim that judge-made law is better at promoting efficiency than statutory law, it might help those more familiar

\begin{thebibliography}{99}
\bibitem{Birk} See Birk (Fn. 132), p. 1591; Manning, Cal. L. Rev., 2010, 1287, 1299 (»The idea that legislators are »single-minded seekers of reelection« is most closely associated with the work Mayhew, Congress: The Electoral Connection 5 (1974).«).
\bibitem{Posner} See Posner (Fn. 127), p. 560.
\end{thebibliography}
with the civil law tradition to have a better understanding of how judges make law. One way to analyze and visualize the process by which judges make law is to visualize it as involving the interaction of three abstract planes: the factual plane, the rule plane, and the public policy plane.\textsuperscript{138}

II. A Conceptual Model of the Common Law Approach to Rule Making

1. The Factual Plane

Imagine an abstract two-dimensional plane called the factual plane.\textsuperscript{139}

![F](image)

Everything that happens in the world happens on the factual plane. For example,\textsuperscript{140} assume Professor Möllers likes to hunt. He hunts »old school« – he hunts with dogs and hounds. He gets up one morning, gets his dogs and hounds together, and goes out hunting. He has been hunting for a few hours, and he has not had any luck. It is a very hot and sunny day. He is beginning to get sweaty and frustrated, when all of a sudden his dogs and hound spy a fox on an un-owned beach. They take off after the fox. Professor Möllers takes off after his dogs and hounds. They are closing in on the fox. He is about to get the fox, when Professor Wendel, who is walking up the beach from the other direction, watching all of this unfold in front of him, at the last minute takes out a gun and shoots and kills the fox. Who owns the fox? No doubt Professor Möllers will argue that the fox is his: that he saw it first, that he was chasing it, that Professor Wendel saw him, and that Professor Wendel would not have caught it but for his actions. Professor Wendel will argue »So what? I killed it so it is mine.«

\textsuperscript{138} The »three plane« model of legal analysis and the creation of judge-made law is discussed in much greater detail in Peter T. Wendel, Deconstructing Legal Analysis: A 1L Primer (2009).

\textsuperscript{139} See Wendel (Fn. 138), pp. 18-19.

\textsuperscript{140} The facts of the hypothetical are based loosely on the facts of the famous property case Pierson v. Post, 3 Cai.R. 175 (N.Y.Sup.Ct.1805).
The dispute arises on the factual plane. All of the words used to create the hypothetical belong on the factual plane. Moreover, laypeople, the parties to the dispute, typically argue the dispute on the factual plane. The dispute can be depicted as an »x« on the factual plane:

Who walks off the beach with the fox? Hint: who has the gun? If you are Professor Möllers, are you happy? When people are not happy, what do they tend do in our society (at least in America)? We sue. How do we sue? We go to an attorney.

Assuming Professor Möllers goes to an attorney to sue me, after the usual introductions and pleasantries, what is the first meaningful question the attorney will ask the client? »What happened?« Seeking information from what plane? The factual plane. After the attorney learns the facts of the dispute from the client (Professor Möllers), what will the attorney do? He or she will research the law.

2. The Rule Plane

Imagine a second abstract two-dimensional plane called the rule plane that floats above the factual plane:141

141 See Wendel (Fn. 138), pp. 19-20.
All rules of law exist on the rule plane. The lawyer goes to the rule plane looking for a rule of law – called a »cause of action« – upon which to base his or her claim that his or her client is entitled to the relief he or she is seeking.\textsuperscript{142} One can visualize the particular rule of law that a lawyer adopts to base his or her client’s claim on as a circle on the rule plane that casts a shadow down on to the factual plane, encompassing all of the factual scenarios that come within the shadow cast by the rule of law:\textsuperscript{143}

By picking a particular rule of law upon which to base his or her claim, the lawyer implicitly asserts that he or she believes that the facts of the dispute come within the scope of the shadow cast by the rule of law in question, entitling his or her client to the relief he or she is seeking.

\textsuperscript{143} Id.
Professor Möllers’ lawyer picked the cause of action of trespass on the case.\textsuperscript{144} Trespass basically provides that one is entitled to damages where another wrongly interferes with one’s property. Professor Möllers is asserting that Professor Wendel wrongly interfered with his property when Professor Wendel killed the fox.

The lawyer then writes up the claim in a document called a complaint, files it with the court, and serves it on the opposing party. Once served, the opposing party – Professor Wendel here – now needs an attorney. What’s the first meaningful question my attorney would ask me? »What happened?« – seeking information from the factual plane. After the lawyer gets all the relevant information from the client, what does the attorney do next? The attorney would go to rule plane, researching the cause of action the opposing counsel has selected, looking for any possible affirmative defenses. Notice again the interaction of the two planes, the factual plane and the legal plane. The dispute arises on the factual plane, and the lawyers move the dispute to the legal plane. After researching the legal plane, the attorney would write up his or her research in a document called an answer, file the answer, and the case has begun:\textsuperscript{145}

Assuming the case is not settled, and it is not resolved by motion, it will go to trial.

144 See Fn. 140.
145 See Wendel (Fn. 138), pp. 18-20.
Plaintiff – Professor Möllers – goes first at trial. His lawyer will put on his case by calling witnesses. What do the witnesses testify to? As a general rule, the witnesses can only testify to the facts, not the law. The interaction of the two planes continues. After the plaintiff’s attorney puts on his or her case, the defense attorney will put on his or her case. The defense attorney will put on his or her case by calling witnesses. What will the witnesses testify to? The facts. After the defense attorney puts on his or her witnesses, the plaintiff’s lawyer has a chance to present rebuttable witnesses. If there are any, what will they testify to? The facts. The trial is primarily about the facts. Assuming it is a jury trial, which most trials are in America, what happens at the very end of the trial? The judge instructs the jury on the law – the rule plane comes back into play.

The jury then goes back and deliberates. If you were on the jury in this case, how would you reach your conclusion? Most people say first they would analyze the facts; they would figure out to the best of their ability what they think really happened out there on that beach that day. Do they believe Professor Möllers? Do they believe Professor Wendel? Do they believe both of them, but they realize they are both human, and because they are human they see things from their subjective perspective. Then, after they decide what happened factually out there on the beach that day, what does the jury do to decide the case? They apply the law (as given to them in the jury instructions) to the facts to reach their verdict. Here, in the case between Professor Möllers and Professor Wendel, when the jury applied the law to the facts, they found for Professor Möllers.

If you were Professor Wendel, would you be happy with the verdict? No. What would you authorize your attorney to do? Appeal.

147 Sussman, Cardozo J. Conflict Resol., 2011, 491, 502 (»The right to a jury trial not only in criminal cases but also in civil cases, another anomaly in the U.S. as compared to most other jurisdictions, leads to a much lengthier wait to the day of trial and often requires a more detailed and expensive presentation of the case.«).
149 An interesting theoretical question is what is legal analysis: application of the law to the facts or application of the facts to the law? One could have an interesting debate about that question, but that question is beyond the scope of this paper. For a variety of reasons a strong case can be made that the better view is that legal analysis is application of the law to the facts.
As a general rule, under the American approach, what can you appeal and what can you not appeal? As a general rule, you can appeal questions of law, but not questions of fact.\(^\text{151}\) The facts are determined at the trial court level and go up with the record on appeal.\(^\text{152}\) As a general rule, one can only appeal questions of law.

To the extent the appeal is a question of law, what should the Court of Appeals do to the question? It should answer it. Under the common law approach, in a number of cases the question of law on appeal will be described as a »new« question, a »novel« issue, or a »question of first impression.« What does it mean to say that the issue on appeal is a question of first impression? It means that court has never addressed that issue before. Put the variables together: if the question on appeal is a question of law, the Court of Appeals has to answer it, and it is a question of first impression, when the court answers the question what is it really doing? It is making law.\(^\text{153}\)

You now sit on the Court of Appeals. You now realize you will be making law in this case. What should you take into consideration before you make law? Most people respond (1) they would take into consideration the future consequences of whatever rule they adopted; and (2) before adopting the rule, they would go to the third plane, the public policy plane.\(^\text{154}\)

\(^{152}\) Id.
\(^{153}\) Slomp Agular, L. & BUS. REV. AM., 2011, 487, 508 (»This approach contrasts with the common law system, where judges can essentially make up the law in a case of ‘first impression’ (…)«); Auerbach, Minn. L. Rev., 1991, 539, 577 (»In every case of first impression and other cases in which courts make new law by taking advantage of leeways of precedent or overruling existing doctrine, they act in a legislative capacity (…).«).
\(^{154}\) See Wendel (Fn. 138), p. 28.
3. The Public Policy Plane

The public policy plane floats above the rule of law plane. All relevant public policy considerations are on the public policy plane. The Court of Appeals’ job, with the help of the attorneys in the case, is to: (1) identify the relevant public policy considerations, and (2) analyze them to determine which ones are more important, and why:
Then the Court of Appeals comes back down to the rule plane and adopts the rule of law that does the best job of promoting the more important public policy considerations. The Court of Appeals then takes the rule of law that it has just created and applies it to the facts of the case in front of it to reach the holding in the case.

That, in a nutshell, is the common law approach to the creation of law; to how judges create law. The dispute arises on the factual plane, the attorneys go to the rule plane, looking for a rule of law that will support their claims, whichever party loses at the trial court appeals, the appeal has to involve a question of law, if the question of law is a question of first impression, when the court answers the question the court is creating law, and before the court creates law it should take into consideration the relevant public policy considerations.

III. Conceptual Model of the Statutory Approach to Rule Making

Just as the common law tradition of judge-made law can be depicted conceptually on the three planes, so too can the civil law tradition of legislature-made law be depicted conceptually on the three planes. Statutory law is law adopted by a legislative body. The legislative body convenes, a law is proposed, the body

debates the merits of the law, and if it is adopted and signed by the executive branch, it becomes law. Unlike the common law, statutory law starts on the rule plane. It does not arise as the result of a dispute between individual parties; it arises because a legislator proposes a new law.

The legislature holds hearings to decide if the proposed new law is better or worse than the existing approach, be it either the prevailing law or the absence of a law. In analyzing whether the proposed law is better, the members of the legislature have to go to the public policy plane. They will have to identify the relevant public policy considerations, which are the most important, why, and whether the proposed new law does a better job of promoting the more important public policy considerations.

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158 See Gouvin (Fn. 157), pp. 1287-1288; Smith/Bailey, Cal. W. L. Rev., 2011, 259 (comparing the benefits of the legislative process and the opportunities for revision and improvement of a bill in the legislative process to the lack of such opportunities in the initiative process).
If a majority of the legislators conclude the proposed law does a better job of promoting the more important public policy considerations, the proposed law should be adopted.

If a majority of the legislators conclude the proposed new law does not do a better job of promoting the more important public policy considerations, the proposed law should be voted down.

If the proposed law is adopted by the legislative body and signed into law by the executive branch, it enters the rule plane, casting a shadow down onto the factual plane, applying to all fact patterns that come within the scope of the shadow cast on the factual plane: 159

159 In that sense, statutory law is similar to common law in its application to all similarly situated parties who come within the scope of the rule. See Wendel (Fn. 138), pp. 28, 69-77.
F. Case Study Observations

Returning to Professor Posner’s theory that judge-made law is more efficient than statutory law, and to the question of whether that claim is defensible in light of the case study of the German approach to solar energy programs vs. the American approach, a couple of threshold points should be noted. First, while the German approach to solar energy development has been very effective in shaping German society and economy, it is not yet clear whether such an approach is efficient. Many claim that such action by the German government may prove to be inefficient. That the German government is paying too high of a price to induce Germans to adopt solar energy relative to the benefits being derived from the program. It is too early to tell whether the German solar energy program will be deemed efficient. Only time will tell. But whether it turns out to be more efficient or not, several observations can still be drawn from the case study relative to Professor Posner’s claim that judge-made law is more efficient than statutory law.

160 See Fn. 127 and accompanying text.
161 See Europe's solar eclipse energy policy, PrairiePundit, 2011 WLNR 25924334 (Dec. 16, 2011); see also Lomborg (Fn. 126); German Solar Firms Eclipsed by Chinese Rivals, Spiegel Online International (Sept. 7, 2011).
I. Applicability of Judge Posner’s Claim

At first blush, one might question whether any meaningful observations can be drawn from the case study in question. In fact, one might be tempted to question the validity of the law that was selected for the case study. The topic of the paper is »Shaping Society and Economy Through Law, Common Law vs. Civil Law ...« But to the extent both countries rely on statutory law to create incentives for solar energy, how is the case study relevant to the issue of which approach – common law or civil law – is more effective at shaping society and economy by law?

In analyzing the German approach to renewable energy and solar energy, the landmark development will be the development of the feed-in tariff approach.¹⁶² In contrast, the landmark common rule law that no doubt will receive credit for stimulating the renewable energy movement in America is (…) well, it has not been adopted yet, and probably never will be judicially. Whether renewable energy should be promoted and how it should be promoted are »non-justiciable« political questions. Although there are various articulations of the justiciability doctrine, all arise out of the ‘bedrock requirement’ that courts hear only ‘cases and controversies’«¹⁶³. There must be a proper case before the courts can get involved, and if the courts cannot get involved there can be no common law – no judge-made law. Bottom line, the common law is »reactive« in nature in that it reacts only when called upon to resolve a dispute between two or more parties.¹⁶⁴ The British philosopher Jeremy Betham may have said it best:

»It is the judges (…) that make the common law. Do you know how they make it? Just as a man makes laws for his dog. When your dog does anything you want to break him of, you wait until he does it, and then you beat him for it. This is the way you make laws for your dog: and this is the way judges make law for you and me«¹⁶⁵.

The reactive nature of the common law leads to several observations about its ability to shape society and economy in comparison to the civil law approach.

¹⁶² See Fn. 45-50 and accompanying text.
¹⁶⁴ Morrison, Va. J.L. & Tech., 2011, 253, 277 (»Common law has been criticized as being reactive, not proactive.«); Nourse/Shaffer, Cornell L. Rev., 2009, 61, 96 n.154.
II. The Opportunity to be Pro-Active

In thinking about the theme of today’s symposium »Shaping Society and Economy Through Law« several questions naturally arise: What role does the law play in the shaping of one’s society and economy? Does it lead; or does it follow? Should it lead; or should it follow? How does law shape society and the economy? Does law shape society and economy, or do society and economy shape law?

In thinking about those questions, one can argue that the civil law approach presents a greater opportunity for law to shape society and economy. Under the common law approach, there must be a dispute before the courts can get involved. Society and economy must lead, and if a dispute arises, the common law steps in to resolve the dispute. Assuming the dispute involves a question of first impression, the courts create a new rule of law that now applies to all similarly situated parties in the future. But the common law cannot lead; it must wait for a dispute to arise to get involved.  

In contrast, statutory law – the heart of the civil law system – can lead. Effective political leaders can force the issue, taking the lead and getting out in front of an issue. Germany’s feed-in tariff rule is a good example of an area of law where the civil law can be more effective – and arguably more efficient – than common law at shaping society and economy.

III. Using the Carrot vs. the Stick

A second observation that follows from the reactionary nature of the common law is that it is more limited in the incentives it can create in an attempt to influence people’s behavior.

Law and economics is based upon the premise that laws shape people’s behavior by affecting their cost-benefit analysis. Laws affect people’s cost-benefit analysis by using either the carrot or the stick. The carrot creates a positive incentive, a reward, a potential benefit that one can receive from acting in a certain way. The stick creates a negative incentive, a penalty, potential cost or punishment that can be imposed if one acts a certain way.

166 See Fn. 138-154, 163-165 and accompanying text.
167 See Fn. 9-13 and accompanying text.
169 See generally Ayres, Carrots and Sticks: Unlock the Power of Incentives to Get Things Done 24-28 (2010).
170 Id.
The common law approach is better suited for creating laws that use the stick, creating negative incentives. As Jeremy Betham stated, »When your dog does anything you want to break him of, you wait until he does it, and then you beat him for it. This is the way you make laws for your dog: and this is the way judges make law for you and me.« The paradigm common law rule is a rule that creates a negative incentive that discourages people from acting in a particular way. It is difficult for the common law approach to create a positive incentive, a carrot, particularly one that requires a transfer of a benefit or money to the party because of that party’s conduct.

If one wants to create a positive incentive for people to change their behavior — if one wants to use the carrot approach — the legislative process, statutory law, is the more effective and efficient means. It is difficult, if not impossible, to imagine a common law court adopting anything resembling the German feed-in tariff law.

IV. Might the Civil Law System be Better at Creating Statutory Law?

A question that naturally arises from the solar energy case study is might civil law jurisdictions be better at creating statutory law than common law jurisdictions? Professor Posner’s theory is that the common law is more efficient at creating law than statutory law, but that assumes the issue is a justiciable issue. But what if the issue is a non-justiciable issue? Assuming the issue is non-justiciable, does the fact that in common law jurisdictions both the courts and the legislature can create law make the legislature less effective and less efficient at adopting statutory law? In common law jurisdictions, consistent with the Public Choice School of Law and Economics, legislatures have an incentive to hold off acting on politically difficult issues. Might this reluctance to act become habit forming, applying to both justiciable and non-justiciable issues? Under the civil law approach, however, inasmuch as the legislature is the only recognized law-making body, the legislature must act or there will be no law, no response to the problem. Legislators are not able to avoid dealing with politically difficult issues in the hope that the courts will address the issue. In civil law countries, might it

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172 One notable exception is the law of finders.
173 See Fn. 127 and accompanying text.
174 See Fn. 163-165 and accompanying text.
be that the voting public holds the legislature to a higher expectation than the voting public in common law jurisdictions?

Although it is dangerous to draw too much from a single case study, the solar energy case study arguably supports the inverse of Judge Posner’s position: although the correlation is far from perfect, legislatures in civil law countries might be more effective and more efficient at creating statutory law that shapes society and economy than legislatures in common law countries. Under the Public Choice School of Law and Economics, legislators are no different than other rational actors, they seek to maximize their individual utility by seeking to get re-elected. »Public choice theory predicts that, because of their desire for reelection, legislators will act with the goal of maximizing political support.«¹⁷⁶ Scholars in common law jurisdictions have described climate change legislation as the »granddaddy of public choice problems«,¹⁷⁷ one that no rational legislator would touch with a ten foot pole because it involves imposing costs on one’s own constituents even though the benefits will be shared by others. Yet while common law scholars were lamenting the dilemma climate change involves and fearing that there would be little to no political incentive to address the problem, the German legislature was actively adopting the most aggressive renewable energy policies in the world, one now being followed by other jurisdictions.¹⁷⁸

G. Conclusion

Professor Posner argued that »Although the correlation is far from perfect, judge-made rules tend to be efficiency-promoting while those made by legislatures tend to be efficiency-reducing.«¹⁷⁹ Some might be tempted to extrapolate from Professor Posner’s claims that common law countries are more efficient at making law than civil law countries. Any such extrapolation would be dangerous, particularly as applied to non-justiciable issues. If anything, the solar energy case study supports the thesis that civil law countries may be more effective and efficient at creating statutory law. At a minimum the thesis deserves greater study.

¹⁷⁸ See Fn. 45-50 and accompanying text.
¹⁷⁹ Posner (Fn. 13), p. 560.