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# Renewables and Land Use Law

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Over the last several years, there has been a resurgence of interest in renewable energy sources in the United States. Evidence of this includes numerous new and proposed wind energy and multiple off-shore wind projects. New technologies are poised to make solar panels less expensive, more efficient, and easier to install. Wave and tidal energy generators are becoming more practical.

The wax and wane of public interest in renewable energy has typically corresponded with the rise and fall of energy prices. That remains the case with the current new energy development trends that also seem prompted by other, less familiar factors such as the increased public awareness of global warming, the decline in energy reliability, and, to some extent, the U.S. involvement in Iraq with a corresponding focus on America's energy-related vulnerabilities.

Despite this public interest momentum, our current land use laws present significant hurdles for any individual or business seeking to increase reliance on renewable energy. Although, in theory, everyone supports the use of renewable energy, there are numerous difficulties associated with developing and relying on it. This article examines how land use law can either promote or discourage alternative energy development. It addresses issues related to the installation of small wind and solar generators for individuals and businesses, but not utility-scale renewable energy installations or offshore wind farms.

## *A Push for Renewable Energy*

The federal government has recognized the need to promote renewable energy for decades. The Solar Energy Research, Development, and Demonstration Act of 1974 stated that "the mass production and use of equipment utilizing solar energy will help to eliminate the dependence of the United States upon foreign energy sources and promote the national defense." 42 U.S.C. § 5551(a)(7). A few years later, with the Public Utility Regulatory Policies Act of 1978 (PURPA), the federal government took another step down the long and sometimes bumpy road of promoting renewable energy. PURPA encouraged renewable energy by requiring interconnection with small generators. This commitment to renewable energy continued with the passage of the Wind Energy Systems Act of 1980 in which Congress found that "it is in the Nation's

interest to provide opportunities for the increased production of electricity from renewable energy sources." 42 U.S.C. § 9201(3). This series of starts and stops on the road to renewable energy continued up to the Energy Policy Act of 2005. The Energy Policy Act reauthorized the production credits available for solar and wind renewables. It also put into place grants and other incentives for research into renewable energy systems. These federal initiatives have been supplemented by policy and regulatory developments in some states.

State efforts to promote the development of renewable energy are sometimes affected by the establishment of renewable energy portfolio standards (RPS); the authorization of the sales of renewable energy into the grid, referred to as "net metering"; the promotion of renewable energy credits and tax incentives; and the issuance of energy-related rebates. This article delineates why those steps often don't go far enough to effectuate renewable energy development and, in some cases, may be contradictory when viewed in conjunction with corresponding land use laws.

Over thirty states have enacted various RPS requiring that utilities either produce or purchase a certain percentage of their electricity from renewable sources. These standards usually start with a low initial purchase obligation and then gradually increase over a set period of time to achieve an ultimate goal. New Jersey, for example, has designated that 0.0817 percent of electricity supplied by each generator in the state between the period of June 1, 2007, and May 31, 2008, come from solar generation. That amount increases up to 2.12 percent for the period of June 1, 2020, to May 31, 2021. Similarly, 2.037 percent of the electricity supplied to consumers in New Jersey between June 1, 2007, and May 31, 2008, should come from Class 1 renewables and that amount increases each year until it reaches 17.88 percent by the June 1, 2020, to May 31, 2021, period. N.J. ADMIN. CODE tit. 14, § 8-2.3(a). (New Jersey defines Class 1 renewables as solar electric, wind, wave and tidal, geothermal, combustion of methane gas from landfill, fuel cells, combustion of gas from anaerobic digestion of food waste, and sewage. N.J. ADMIN. CODE tit. 14, § 8-2.5(b).)

California has set a more aggressive goal of producing 20 percent of its electricity needs from renewable energy by 2015 and 33 percent of its needs by 2020. Cal. Energy Comm'n, 2007 Integrated Energy Policy Report at 23. Massachusetts requires that, in 2008, 4 percent of its electricity needs come from renewable energy, a requirement that increases by 1 percent per year every year thereafter. 225 MASS. CODE REGS.

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14.07 (2008). New Mexico, on the other hand, requires that 5 percent of its energy electricity come from renewable energy sources by 2006, increasing to 20 percent by 2020. N.M. STAT. § 62-16-4 (1978). New Mexico has set different standards for its rural operations. Florida, the sunshine state, up to recently has not had a policy of encouraging renewable energy. Recently, Florida proposed legislation to require 20 percent of the state's electricity come from renewable energy. S.B. 1544 2008 SESS. (Fla 2008).

In addition to the renewable energy portfolio developments, states also are promoting incentives for decentralized renewable energy development through net metering laws. According to the Database of State Incentives for Renewables & Efficiency, forty-one states have enacted net metering laws. [www.dsireusa.org/summarytables/reg1.cfm?&CurrentPageID=7&EE=1&RE=1](http://www.dsireusa.org/summarytables/reg1.cfm?&CurrentPageID=7&EE=1&RE=1). Net metering allows the individual generator of renewable energy to "sell back" his or her energy to the power grid. With net metering, a person uses the electricity generated from his or her renewable energy system. This electricity is "behind the meter" and does not register on his or her electric meter. For those times more electricity is needed than he or she can generate, the person can receive electricity from the grid and his or her electric meter runs normally. When the person is generating more energy than he or she can use, that excess electricity is sold back to the grid. In essence, the electric meter runs backwards as the person puts his or her energy into the grid for consumption by others.

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In conjunction with RPS requirements, many states also have created renewable energy credits (RECs). The RECs are usually held by the owner of the renewable energy system and then, ultimately, sold to the utilities. Utilities purchase the RECs in order to meet the requirements set by the RPS of their state. This approach can provide some income to the

renewable energy generator, helping to reduce the amount of time before their investment in the system will pay itself back. Additionally, there are both state and federal tax credits for installing renewable energy systems and many states have provided rebates to help offset the cost of installing renewable energy systems.

This multitude of strategies seems to be having a positive effect on promoting renewable energy. According to the Energy Information Administration, there was a 7 percent increase in renewable energy consumption between 2005 and 2006. Energy Info. Admin., Renewable Energy Consumption and Electricity Preliminary 2006 Statistics, [www.eia.doe.gov/cneaf/solar.renewables/page/prelim\\_trends/rea\\_prereport.html](http://www.eia.doe.gov/cneaf/solar.renewables/page/prelim_trends/rea_prereport.html). Overall in 2006, renewable energy made up 7 percent of the overall energy usage of the country. *Id.* With the many direct and indirect incentives for the installation of renewable energy, one would think that the United States would be teeming with bright shiny solar panels, tilting and twirling wind mills, biomass generators, wave and tidal generators, etc. Wind and solar systems only comprise 4 and 1 percent respectively of the overall 7 percent of renewable energy generated in 2006. *Id.* While we may have made good progress over the last few years, unfortunately, we have not realized the full potential of renewable energy generation. The major stumbling blocks to a realization of energy independence and a true reduction in the use of fossil fuels are the hurdles that face proponents of renewable energy systems. Many of these hurdles are the result of various land use laws.

### ***State and Local Land Use Laws Inconsistently Impact Renewables***

In general, renewable energy systems were either not considered or mostly ignored when most land use laws were enacted. For example, California, which is arguably one of the most successful states in implementing renewable energy, has a requirement in its land use law that municipal governments prepare "master plans." It also outlines seven areas that the master plan should encompass. None of the seven areas deals with energy conservation, green buildings, or renewable energy. CAL. GOV'T CODE § 65302. As will be discussed below, New Jersey also requires municipalities to prepare master plans that do not explicitly require the municipalities to consider renewable energy. There is pending legislation that would require a municipality's master plan to include renewable energy, green buildings, and energy conservation. Such legislation would help strengthen one of the goals of New Jersey's land use law that provides that it should "promote the utilization of renewable energy resources." N.J. STAT. ANN. § 40:55D-2n. Since most states do not have land use laws requiring the inclusion of renewable energy, local governments have been left to their own devices in this area. The results have been haphazard.

For example, New Jersey has 566 municipalities, each of which sets its own land use laws, including how to address renewable energy systems. By late 2007, there were approximately eight municipalities with ordinances expressly

addressing the siting and management of wind turbines. Those ordinances run the gamut from expressly allowing wind energy to banning their installation. The Township of Long Beach, New Jersey, which because of its location along the coast has good wind resources, also has sought to ban wind turbines completely within the town. TOWNSHIP OF LONG BEACH, NJ MASTER PLAN (2007). This decentralized regulatory approach is echoed in North Carolina. In Currituck County, small wind turbines are permitted in all zones. The county requires that the tower be one and a half times its height from the property line. Currituck also sets forth a process to waive the setback requirements. Currituck's ordinance provides for a maximum height of 120 feet. CURRITUCK, NC, UNIFIED DEVELOPMENT ORDINANCE § 07-68 (2008). Camden County, North Carolina, is slightly different in that it requires a special permit for a small wind turbine in residential zones but has zoned for them in industrial areas. CAMDEN, NC, CODE § 151.334. The ordinances limit the height to 150 feet and provide for setbacks to be at least equal to the height of the tower and at least one and a half times the height from the nearest inhabited structure on the neighboring property. The owner of the tower also has to provide a surety bond or other guarantee in the amount of 120 percent of the anticipated cost of removing a wind energy system before its installation. *Id.* § 151.347(T).

In contrast, the state of Michigan has taken more of a "hands-on" approach and issued siting guidelines for both utility scale and on-site use (small-scale) turbines. Small-scale turbines can be no more than 40 meters while utility-scale systems can have towers up to 90 meters. The Michigan system permits small systems with towers less than 20 meters within all zoning districts while towers above 20 meters need to obtain a special land use approval. The Michigan siting guidelines require that the tower be set back from the property line at least 1.5 times the tower height, in order to "protect neighbors in the unlikely event of a tower failure." State of Michigan, Michigan Siting Guidelines for Wind Energy Systems (2007), [www.michigan.gov/documents/Wind\\_and\\_Solar\\_Siting\\_Guidelines\\_Draft\\_5\\_96872\\_7.pdf](http://www.michigan.gov/documents/Wind_and_Solar_Siting_Guidelines_Draft_5_96872_7.pdf). In contrast to the decentralized approach of New Jersey and some other states, Michigan and California have set up statewide policies that remove obstacles to the installation of renewable energy.

Zoning restrictions can create obstacles to those wishing to install renewable energy sources. Depending on the zoning requirements of the particular municipality, the installer and/or the homeowner may need to obtain permits from the construction officials or may even need to apply for special permissions or a variance from the agency in charge of the municipality's land use laws. In many instances, the municipalities will consider a wind turbine a nonpermitted use, therefore requiring a variance. In other instances, because of the lot size, exclusionary zoning, or height limitations, a person may be required to file an application for a variance for the wind turbine. The cost of obtaining a variance can be

measured in both time and money. It can tack on thousands of extra dollars to an already-expensive undertaking and add weeks, if not months, to the permitting process. The installer also would have to hire lawyers, planners, and engineers for the variance hearing. At a hearing for a variance, the applicant would have to present testimony regarding the design, placement, and utility of their proposed renewable energy system. That testimony would not only have to come from the applicant, but likely from a professional planner and maybe an engineer. A land use hearing also would provide an opportunity for public participation. This public participation can add significant time and adversity to the process. Oftentimes the testimony of the public can be inflammatory. In many instances, such testimony only need cloud the issue enough to create doubt in the minds of the land use board members.

In Brigantine, New Jersey, an ordinance provides that the setback from the property line be equal to the diameter of the rotor of the wind turbine plus five feet. BRIGANTINE, NJ, CODE § 198-127. Brigantine's code promotes renewable energy and has zoned the systems for business and residential zones. In contrast, other towns in New Jersey require a minimum of five acres in order to put up a single wind turbine regardless of its height. MILLVILLE, NJ, CODE § 30-220. In Kansas, the county of McPherson requires that the turbines be set back at least twice the height of the turbine but allows the turbines in all zoning districts. MCPHERSON, KS, ZONING REGULATIONS art. 6, § 100B(14). The setbacks for utility scale systems are 2000 feet from any residential structure.

These examples demonstrate that even if the wind turbine is a permitted use and the zoning does not preclude its installation, the setback or bulk requirements may discourage wind energy development. While the setback requirements may be argued as important from a safety perspective (even though most wind turbine systems are designed to withstand hurricane-force winds), they also can be perceived as out of step with other requirements in similar circumstances. Many other structures are comparable in height but not subject to similar requirements. Flagpoles, for example, also are subject to gravity and to extreme wind events, but there are no restrictions on where they may be located. Trees may be planted anywhere within a person's property, but, again, there is no requirement that the trees be situated so as to avoid falling onto a neighboring property.

Some municipalities have added a third set of hurdles by requiring installers to prepare and provide burdensome documents. For example, one town required avian studies for the installation of a single turbine. The town also required visualization studies showing how the turbine looks from various vantage points from the property. These requirements also add to the costs, delay the permitting/approval processes, and can discourage the implementation of renewable energy generation. In most cases these requirements do nothing to add real protection to the environment but do add to the costs and time for the project and increase the likelihood that the project will not happen.

## Solar and Wind Interference Issues

Solar panels can face some different issues when it comes to land use constraints. Since most solar panels are installed on roofs, zoning and setback requirements are not typically implicated. Instead, solar panels can be subject to requirements that they be screened or invisible from the street, potentially impacting the actual effectiveness of the solar panels. The screening that prevents the panels from being visible also can shade the panels and impair their effectiveness. Additionally, once the solar panels are installed, those same local land use laws may not protect the panels from incompatible uses by neighbors. For example, a neighbor could install a structure that would shade the solar collectors; that situation may not be directly addressed by the applicable ordinances.

The solutions to the dilemma may be potentially costly. For example, the owner of the solar panels may buy a solar easement. The purchase of an easement requires negotiation with the other land owners but does not guarantee that a solution will be effectuated or that the solution is the optimal one. Easements also would require the retention of a lawyer to draft and record the easement and a surveyor to plot out the easement—all costs that increase the price to install and operate renewable energy systems. On the other hand, some states, including California and New Mexico, have provided statutes protecting the investment. These statutes create a right to the solar energy and preclude obstructions. This, in effect, creates a solar easement without the need to negotiate and pay for the easement.

Like solar panels, wind turbines can be subject to interference or obstructions. For example, a neighbor could build a structure or plant trees interfering with access to the wind. The owner of a wind turbine could preemptively purchase an easement for access to the wind, but, like solar easements, this is an uncertain process with additional expenses. As noted above, California has anticipated these issues of siting and enacted laws that protect access to the resource. Amendments to California's Solar Rights Act were signed into law in September 2005. The statute provided that "[t]he installation and operation of solar energy systems do not create adverse impacts on health, safety, or noise in areas where those systems are installed." CAL. GOV'T CODE § 2473.1(a)(5). California also has a statute promoting small wind systems. The statute provides: "any ordinances regulating small wind energy systems adopted by local agencies have the effect of providing for the installation and use of small wind energy systems and that provisions in these ordinances relating to matters including, but not limited to, parcel size, tower height, noise, notice, and setback requirements do not unreasonably restrict the ability of homeowners, farms, and small businesses to install small wind systems in zones in which they are authorized by local ordinance. It is the

policy of the state to promote and encourage the use of small wind energy systems and to limit obstacles to their use." CAL. GOV'T CODE § 65892.13(a)(5). The statute goes further to provide that "[t]he implementation of consistent standards to achieve the timely and cost-effective installation of small wind energy systems is not a municipal affair . . . but is instead a matter of statewide concern." *Id.* at (b). California has addressed, through these statutes, unreasonable restrictions on siting of renewable energy and has protected a person's investment in renewable energy.

It would be even more efficient if the federal government would enact laws similar to California's that guarantee continued access to the renewable energy resource. There are at least two examples of federal "preemption" of local land use laws. The Federal Telecommunications Act of 1996 for cell towers and the FCC's treatment of amateur radio towers both provide that land use laws cannot overly restrict the placement of these desired structures. Under federal law, local governments have limited ability to restrict the installation of cell towers. 47 U.S.C. § 332 (2008). For example, local governments cannot put into place prohibitions or regulations that would in effect prohibit the construction of cell towers. *Id.*

## Future of Renewable Energy in Land Use Law

Many states have done only half the job of securing renewable energy benefits and the examples above show the issues and difficulties of installing renewable wind or solar even on a small scale. States or the federal government must address the remaining half by enacting laws protecting those who wish to install small renewable energy generators. Statutory authority should be put into place making it the policy that increasing renewable energy production is a statewide goal. The laws must provide that renewable energy systems are permitted within all zoning districts without the need for special permits or variances. The ordinances controlling the construction, installation, and siting of these systems must be structured in such a way as to protect against legitimate concerns of local governments while at the same time creating incentives and policies promoting the utilization of renewable energy systems. Restrictions must provide meaningful and tangible protections and not be cover for improper motives or a desire to impede progress.

The effective promotion of renewable energy hinges, in a large part, on policy decisions by the federal, state, and local governments. Is renewable energy important enough to the environment and to the economic health of the country that hurdles should be removed to the development of the resource? If so, land use laws must be revised to expedite the safe installation of solar and wind power. 🏡