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UP THE CREEK WITH A PADDLE: WATER DOCTRINE AS A BASIS FOR SMALL WIND ENERGY RESOURCE RIGHTS

INTRODUCTION

Responding to contemporary increases in conventional energy resource costs, state and federal governments have renewed their promotion of the development and use of renewable energy sources with an effort not seen since the energy crisis of the late 1970s.1 Recent increases in energy costs and a focus on pollution reduction have spurred the development and marketing of renewable energy technologies.2 These developments have increased the feasibility and affordability for homeowners who wish to install wind turbines for personal energy needs.3 These personal wind turbines are generally referred to as small wind systems.4 However, despite increased conventional energy costs and improvements in renewable energy technologies, the realization of renewable energy production goals remains hampered by long-recognized barriers to wind energy production, such as land use laws and nuisance concerns.5

Notwithstanding wind energy's increasing importance and development, a legal framework that defines the rights to wind as an energy resource does not exist. This legal framework is needed in order to encourage and protect the environment, property rights, and wind en-


4. Small wind turbines are clean, wind-powered electric generators that produce energy at a rate of 100 kilowatts (kW) or less to power homes, farms, and small businesses. American Wind Energy Association, Small Wind, http://www.awea.org/smallwind/ (last visited Jul. 11, 2009). The terms "windmill," "wind system," and "turbine" appear throughout this Comment and are used interchangeably.


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energy development at the individual and public utility-scaled levels.\textsuperscript{6} However, the use of patently novel concepts in the development of a wind rights framework would inevitably lead to conflicts with existing law; therefore, any approach to devise such a framework should be cabined within existing legal concepts.\textsuperscript{7}

Investment in small wind energy systems is accelerating:\textsuperscript{8} 9,092 small wind units were sold in the United States in 2007.\textsuperscript{9} In October 2008, the average cost of electricity in the U.S. residential sector was 11.91¢ per kilowatt-hour (kWh),\textsuperscript{10} and in 2007, the average American home consumed 936 kWh of electricity per month.\textsuperscript{11} Taken together, the average American home spends over $1,300 per year on electricity. Small wind energy systems are a viable means to offset or eliminate the significant costs of home electricity. The installation costs of a small wind turbine can be recouped in less than ten years, depending upon the size, cost, and efficiency of the turbine installed, as well as the available wind, local cost of traditional electricity, and available incentives.\textsuperscript{12} Although the technology is increasingly affordable, the investment can be significant for the homeowner.\textsuperscript{13}

Naturally, the substantial cost to install a wind energy system necessitates protection of the investment and protection of the value of the energy it is expected to generate.\textsuperscript{14} Corporate wind farms have a number of means at their disposal to protect such investments from

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\textsuperscript{9} AM. WIND ENERGY ASS'N, supra note 2, at 3.

\textsuperscript{10} OFFICE OF COAL, NUCLEAR, ELECTRIC, & ALTERNATIVE FUELS, U.S. DEP’T OF ENERGY, ELECTRIC POWER MONTHLY 110 tbl. 5.3 (July 2009), available at http://www.eia.doe.gov/cneaf/electricity/epm/epm.pdf.


\textsuperscript{13} Purchase and installation costs of small wind energy systems range from $3,000 to $5,000 per kilowatt of capacity. See id.

\textsuperscript{14} Installation costs vary with the size and type of the small wind energy system. Rooftop models may cost as little as $5,000, but other residential systems with towers ranging in height from thirty-three to one hundred feet may cost from $12,000 to $55,000. See Kate Galbraith, Personal-Size Wind Power, N.Y. TIMES, Sept. 4, 2008, at C1; Kristina Shevory, Homespun Electricity, Generated from the Wind, N.Y. TIMES, Dec. 13, 2007, at F1. However, some small wind system owners may not “care about how much it costs,” even while knowing that energy cost savings will not be realized soon after installation. Galbraith, supra. These owners may be moti-
obstruction or activities on adjoining lands that may impair their ability to harvest wind for energy production and sale. For example, large-scale wind farms can secure access to wind through the purchase of adjoining property, the acquisition of negative easements over neighboring property, and the use of non-interference contracts. However, the typical private homeowner does not have the same means at his disposal because corporate methods of securing access are often costly. Thus, operators of small wind energy systems must pursue other means of securing access to wind.

It is a well-established principle that the definitive rights to a natural resource control that resource’s allocation; they govern the claim, the use, and the transfer of the resource. Viewing wind as an energy resource is the starting point for establishing a legal framework to resolve disputes that arise from wind access and land use conflicts. Currently, there is no widely held doctrine that defines a landowner’s right to capture wind to generate energy. Legal doctrines that define rights and govern allocation of other resources can fill that void. Principles imported from other natural resource allocation doctrines should address the following: the property rights of the windmill owner and those of neighboring properties; the uniqueness of the wind at a particular location, including the suitability of the location for wind capture; the equities of the parties involved; the statutory and relevant common laws; and the public policy endorsed by federal and...
Some have proposed a wind rights doctrine drawn from the laws of wild animals, percolating water, or oil and gas rights. However, due to wind's renewability, others have suggested that such analogies are inappropriate. Any theory set forth to concretize the concept of a right to appropriate wind should take into account wind's fugitive nature, as well as its inexhaustible characteristic. For this reason, solar rights and water rights may prove to be valuable analogous doctrines. However, solar rights theory remains largely undeveloped and perhaps unreliable, despite some favorable case law and protective statutes.

This Comment argues that water use doctrines provide the most useful analogies for the development of a theory that defines the small wind energy operator's rights to wind. Water, like wind, is relatively non-depletable—a trait wind does not share with oil and gas. Water rights also have a well-developed legal history.

Part II of this Comment provides an overview of contemporary energy use and wind energy production, and it distinguishes the needs of the small wind energy operator from those of wind farm operators. Additionally, Part II describes legislative protection of wind rights, efforts to promote wind energy development and use, and relevant case law that illustrates the distinction between traditional property ownership and ownership of wind rights. Finally, Part II provides an

22. See Smith, supra note 6, at 282–83.
23. Id. at 300–01.
25. Smith, supra note 6, at 301. Smith concludes that using a property-based theory to define the "wind estate" is necessary so that "companies and individuals . . . feel sufficiently secure in and certain of their rights that they are willing to make the investments necessary to gain the benefits of wind energy." Id. at 317. Smith analogizes the current legal status of wind energy to that of gas and oil in the early twentieth century, noting that one of the challenges to indoctrinating oil and gas appropriation rights was its fugitive nature. Id. at 282.
28. See discussion infra notes 116–269 and accompanying text.
29. Smith, supra note 6, at 301. However, Smith summarily rejects water as a physically similar "substance" without explanation. Id.; cf. Corr, supra note 24, at 11 (wary of a water analogy due to the complexity of the doctrine).
31. See infra notes 38–59 and accompanying text.
32. See infra notes 60–97 and accompanying text.
33. See infra notes 98–115 and accompanying text.
of the two doctrines upon which modern water regulations are founded: the riparian doctrine and the prior appropriation doctrine. Part III constructs a wind rights doctrine by drawing from the well of water rights. Part IV analyzes the impact that the proposed wind rights doctrine will have on the implementation of small wind energy systems, and it suggests legislative vehicles that might work in conjunction with such a theory. Part V concludes that a wind rights theory based on water rights will prove to be a useful tool in the promotion and protection of wind energy generation, and it suggests that a wind rights theory based on water rights will provide a predictable means of resolving wind access issues for small system owners.

II. BACKGROUND

Over time, the allocation of a particular resource becomes governed by a legal doctrine suited to that resource, yet the allocation of wind lacks its own theory of governance. Many states have passed legislation that promotes the development and use of wind energy on a personal level, but this legislation generally offers only non-guaranteed tax incentives. One jurisdiction has recognized wind rights as a severable interest in real property, but as argued in this Comment, traditional property theory is inadequate to encompass the needs of small wind energy operators. Only Wisconsin has passed legislation that bars the obstruction of personal wind turbines, but other states have similar statutes that prohibit the obstruction of sunlight from a landowner’s solar panels—a potential source of law for a wind rights theory. Although small wind energy rights are largely unprotected,
scholars have suggested that legislators should define rights in wind by analogizing to the laws that govern oil and gas, minerals, solar energy, and property. The increasing need to define wind rights thus requires an analysis of analogous energy resource doctrines, around which access rights for small wind energy operators may be structured.

A. Current Wind Energy Use and Consumption

Wind and renewable energy consumption and production is expanding: in 2007, seven percent of all energy consumed in the United States was produced by renewable resources, and of that, fifty-one percent was used to generate electricity. Additionally, wind energy constituted five percent of all renewable energy generated in 2007, the vast majority of which was electricity generated on commercial farms. In fact, in 2007 alone, the amount of electricity generated by wind energy increased forty-five percent, an increase that could power an additional 1.5 million American homes. Almost all of this electricity was generated by commercial wind farms, which are gener-


43. See Smith, supra note 6, at 300-02 (discussing oil and gas and water doctrines as possible analogous doctrines); see also Contra Costa Water Dist. v. Vaquero Farms, Inc., 68 Cal. Rptr. 2d 272 (Cal. Ct. App. 1997) (analogizing wind appropriation rights to oil and gas); cf. Cott, supra note 24, at 11 (supporting an analogy to solar rights when crafting wind rights doctrine but rejecting an analogy to nonrenewable energy resources).

44. See Cott, supra note 24, at 11.


46. Id.

47. Id.


50. Id.
ally comprised of turbines that stand 200 or more feet tall.\textsuperscript{51} Wind farms are expected to produce enough electricity to power 4.5 million American homes in 2008, equivalent to over one percent of the total amount of electricity produced annually in the United States.\textsuperscript{52} The cost of developing a wind farm may approach $1 billion, which includes property acquisition by fee or lease, easement procurement, and other costs.\textsuperscript{53} The significant investment in wind projects enhances the need to guard against wind obstruction by adjoining landowners.\textsuperscript{54} To protect against obstructions, corporate wind developers resort to various remedies and mechanisms that generally take the form of subordination, non-disturbance, and attornment agreements (SNDAs), as well as contracts, easements, and property purchases.\textsuperscript{55} However, these measures require capital that a small wind operator is not likely to possess.

Technological improvements have reduced the size of wind turbines, increased efficiency, and lowered the costs of small wind energy systems, thereby increasing the practicality of home installation.\textsuperscript{56} A single small wind turbine may be capable of generating from 100 kW to 34,000 kW of electricity per year.\textsuperscript{57} The cost to acquire and install a wind turbine is the cost of the "turbine, the tower, wiring, and installation, less any state or federal tax credits."\textsuperscript{58} Although installation costs may be manageable, the costs associated with securing wind access for small wind energy operators may not. This could potentially


\textsuperscript{53} For example, the 130-turbine Cape Wind project slated for installation off of Cape Cod is expected to cost over $1 billion. See Abby Goodnough, \textit{Wind Farm Clears Bureaucratic Hurdle, but Critics Vow a Fight}, N.Y. TIMES, Jan. 17, 2009, at A11. The current investment stands at $40 million without construction having begun. \textit{Id.} The much publicized dispute over the siting of the wind farm is now in its eighth year. \textit{Id.} Proponents of the farm state that it will provide seventy-five percent of Cape Cod's power needs and negligibly impact local scenery, but opponents claim the project will hinder navigation, the local economy, and the environment. \textit{Id.} Several steps in the permit process must be completed before construction can begin. \textit{Id.}

\textsuperscript{54} \textit{See} Susman & Doll, \textit{supra} note 15, at 35, 36.

\textsuperscript{55} \textit{Id.} at 38.

\textsuperscript{56} \textit{See} Casey, \textit{supra} note 3, at F3. \textit{But see} Galbraith, \textit{supra} note 14, at C9 (reporting that the motivating factor in installing such a system is born of environmental concerns and that the value of the electricity generated by such small systems may never approach installation costs).

\textsuperscript{57} The output determination is based on average wind speed and rotor diameter. \textit{See} PAUL GIPE, WIND ENERGY COMES OF AGE 494 (1995) [hereinafter COMES OF AGE]. The power generated by a windmill is also a function of air density. \textit{See} PAUL GIPE, WIND POWER 30 (2004) [hereinafter WIND POWER]. Small wind turbines might generate 100 kWh to 1,000 kWh per year, depending upon average annual wind speed and the efficiency of the turbine. \textit{Id.} at 59 fig.4-2.

\textsuperscript{58} GIPE, \textit{WIND POWER}, \textit{supra} note 57, at 73.
stifle clean energy development and undermine federal and state goals.  

B. Relevant History of Rights in Wind and Renewable Energy Promotion

Although the federal government has passed legislation declaring the importance of developing wind energy systems, the states have generally taken the lead in regulating wind energy and creating incentives for its use and development. However, while most states recognize the creation of wind and solar easements, only one state has implemented statutory protection of wind access that is specifically designed to protect wind-generated electricity.


Federal recognition that small wind energy systems are a viable means of energy production is not novel. Indeed, the Wind Energy Systems Act of 1980 provides that “the use of small wind energy systems for certain applications is already economically feasible, and therefore, the Federal Government should not undertake any financial incentive or financial initiative [that] may detrimentally affect commercial markets for small wind energy systems.”

The U.S. government recently renewed and expanded tax incentives for small wind systems with the passage of the Energy Improvement and Extension Act of 2008. The Act extends tax incentives for small wind systems through December 31, 2016 by offering a renewable

59. See generally Pisauro, supra note 5, at 51.
60. See Perera, supra note 16, at 966–74.
61. For a survey of state statutes giving validity to the creation of wind easements, see supra note 42.
63. 42 U.S.C. § 9201(a)(6) (2006). The government’s focus on “commercial markets” seeks to protect manufacturers and retailers of small wind systems, yet it leaves homeowners who would install such systems unprotected against legislation that may stifle the actual use of such systems. Id.
energy credit of thirty percent for residential wind properties. 66
Under the Act, any expenditure on property that uses a small wind
turbine to generate electricity qualifies for the incentive. 67

2. State Legislative Protection and Promotion of Small Wind
   Energy Systems

States have undertaken the most meaningful efforts to promote
small wind energy. 68 States generally codify their intent to promote
renewable energy development, 69 and some states have specifically
addressed the use of small wind systems by single homeowners. 70 For
example, Georgia currently provides a tax credit of up to $10,500 for
single family residences that purchase and construct wind energy sys-
tems. 71 Likewise, Louisiana offers a tax credit to individual home-
owners for the purchase and installation of wind energy systems. 72
Starting in 2008, Louisiana began issuing a credit equal to fifty percent
of the first $25,000 spent on the installation of such a system; however,
the credit precludes the homeowner from taking any other state prop-
erty tax credit. 73 Other states exempt property from taxation if it is
used exclusively for wind-generated electricity. 74 Unfortunately, these
exemptions are of no help to the individual homeowner with a small
wind system because property tax incentives are generally available
only for large commercial wind farms. 75

68. See Ronald H. Rosenberg, Diversifying America's Energy Future: The Future of Renewa-
   ble Wind Power, 26 VA. ENVTL. L.J. 505, 532 (2008) (remarking that the federal government
   largely encourages investment rather than making policy that truly advances the use of wind as
   an energy resource).
69. See, e.g., 20 ILL. COMP. STAT. 687/6-3 (2008) (outlining administrative duties to “foster
   investment in and the development . . . of renewable energy resources”); MONT. CODE ANN.
   § 70-17-303 (2007) (stating the requirements for wind energy easements); N.H. REV. STAT. ANN.
   § 674:17 (2008) (structuring zoning ordinances so that they encourage the installation and use of
   renewable energy systems); VA. CODE ANN. § 67-201 (2007) (requiring that the Virginia Energy
   Plan incorporate provisions for siting wind energy systems).
70. See, e.g., LA. REV. STAT. ANN. § 47:6030 (2009) (granting a tax credit); ME. REV. STAT.
   ANN. tit. 35-A, § 3211-C (2008) (creating a rebate program); MASS. GEN. LAWS ch. 62, § 6(d)
73. § 47:6030(B)(1).
74. See, e.g., KAN. STAT. ANN. § 79-201 (1997) (exempting only property predominately used
   for wind-generated electricity); LA. REV. STAT. ANN. § 47:6030(B)(1). But see MINN. STAT.
   § 272.029 (2008) (tax incentives for large-scale wind farms are one hundred times greater than
   incentives for small wind systems).
75. Id.
Aside from tax incentives, states may also provide grants for wind energy projects or require that conventional electricity providers offer net metering. Net metering has effectively encouraged homeowners to install small wind energy systems. Net-metering programs vary by state but require that wind energy systems be connected to the existing utility grid to participate. In jurisdictions where net metering programs are available, an owner of a wind energy system that produces more electricity than the owner consumes—which results in a “supply” to the grid—is eligible for an energy credit, or at the very least, the owner may realize a reduction in electricity costs. States that are fearful of a backlash from utility companies that may be tempted to unfairly treat net-metering participants can enact anti-discrimination statutes to protect personal wind-energy owners from retaliatory utility rates, fees, or withholding of services.

Resistance by neighbors to the erection of windmills on private residential property is typically rooted in concerns about noise and aesthetics, and these concerns often give rise to nuisance claims. Overcoming these claims presents a problem for the private turbine owner, who is also likely to face zoning ordinance challenges to a wind energy system. Rose v. Chaikin illustrates the use of judicial

76. For example, Illinois makes grants available for public schools to install renewable systems, including wind energy systems. The grants cover fifty percent of the total cost to install such a system, up to $1 million. 20 ILL. COMP. STAT. § 687/6-5.5 (2009).
77. Casey, supra note 3, at F3 (net metering changes the economics of residential wind generating for the better).
81. See, e.g., Rose v. Chaikin, 453 A.2d 1378 (N.J. Super. Ct. Ch. Div. 1982) (recognizing the social utility of windmills, but holding that its utility did not outweigh the health and nuisance concerns of neighbors who sought an injunction against the operation of a privately owned windmill); see also Dadonna v. Town of Watertown, No. CV07401365S, 2008 WL 4983772, at *1 (Conn. Super. Ct. Nov. 5, 2008) (plaintiffs objected to the grant of a variance that would allow installation of a private windmill); Bomba v. Zoning Bd. of Appeals, No. 293552, 2005 WL 2106162, at *1, *8 (Mass. Land Ct. Sept. 1, 2005) (summary judgment in favor of plaintiffs who objected to a variance granted to install two additional wind energy test towers on an existing wind farm); In re Halnon, 811 A.2d 161, 166 (Vt. 2002) (holding that the denial of plaintiff’s application for a personal wind turbine was proper because an average person may have found the proposal “offensive or shocking”).
82. See Peter Applebome, On an Upstate Wind Turbine Project, Opinions As Varied As the Weather, N.Y. TIMES, Oct. 28, 2007, at 27; Shevory, supra note 14, at F4 (highlighting opponents’ concerns with noise, aesthetics, and shadows); see also Casey, supra note 3, at F3 (warning that “in urban and suburban areas, neighbors are never happy to see a 60- to 120-foot tower going up across the street”).
83. See Pisauro, supra note 5, at 40 (arguing that “[s]tumbling blocks to . . . energy independence and . . . reduction in the use of fossil fuels” are generally the “result of various land use laws”).
discretion when upset neighbors attempt to enjoin the operation of private windmills.\textsuperscript{84} In \textit{Rose}, the court held that the plaintiff had an actionable common law nuisance claim against the operation of the windmill even though local zoning laws allowed the operation of private windmills.\textsuperscript{85} The defendant’s windmill consistently exceeded a noise emission limit of fifty decibels, and it disturbed neighboring landowners who owned property that was located ten feet from the windmill.\textsuperscript{86} Under the common law, the court reasoned that the social utility of a windmill—specifically, furthering the national need to conserve energy by the use of an alternate renewable source of power—was outweighed by the amount of harm it created.\textsuperscript{87} This illustrates the potential for undesirable outcomes for small wind operators when traditional nuisance factors are weighed against local ordinances that allow for wind energy systems. Also problematic for small wind systems are zoning ordinances that specifically allow for wind energy production, yet typically contemplate only wind farms.\textsuperscript{88}

Although states may intend to foster renewable energy development through net metering regulations, tax incentives, and other mechanisms, zoning ordinances may hinder the installation of small renewable energy systems.\textsuperscript{89} To combat this effect, states have enacted statutes that prohibit the adoption of ordinances and regulations that unreasonably restrict an owner’s use of a wind energy system on his own property.\textsuperscript{90} States may also take a promotional approach in lieu of a purely restrictive approach to municipal zoning and land use ordinances by encouraging local municipalities to adopt measures that promote renewable energy development.\textsuperscript{91}

\textsuperscript{84} 453 A.2d 1378 (N.J. Super. Ct. Ch. Div. 1982). In holding that a neighbor’s windmill was an actionable nuisance under the common law, the court declared that the social utility of a windmill in furthering the national need to conserve energy by the use of an alternate renewable source of power was outweighed by the amount of harm it created. \textit{Id.} at 1382.

\textsuperscript{85} \textit{Id.} at 1383.

\textsuperscript{86} \textit{Id.} at 1381. However, the court suggested that intermittent violations of local noise ordinances may not rise to the level of nuisance. \textit{Id.}

\textsuperscript{87} \textit{Id.} at 1382. \textit{But see} Rassier v. Houim, 488 N.W.2d 635, 638–39 (N.D. 1992) (affirming the trial court’s dismissal of a nuisance claim seeking to enjoin continued use of a neighbor’s windmill that operated at fifty to sixty-nine decibels and may have thrown ice into neighboring property because it did not unreasonably interfere with plaintiffs’ enjoyment and use of property).


\textsuperscript{89} Pisauro, \textit{supra} note 5, at 40.

\textsuperscript{90} See, e.g., \textsc{Nev. Rev. Stat.} § 278.0208 (2008) (“A governing body shall not adopt an ordinance, regulation or plan or take any other action that prohibits or unreasonably restricts the owner of real property from using a system for obtaining solar or wind energy on his property.”).

\textsuperscript{91} See, e.g., \textsc{Neb. Rev. Stat.} § 66-913 (2007) (codifying the protection and development of wind energy access in order to promote energy conservation).
But not all states welcome wind energy systems, and they therefore regulate with caution in order to avoid inadvertently opening their doors to the installation of wind energy systems. For example, although Ohio and Iowa do not expressly bar the installation of windmill systems, they limit nonagricultural use of land in order to preserve food production capabilities. Thus, conflicts between government-backed incentives to foster wind energy development and land regulations that inadvertently or pretextually hinder wind system installations must be resolved.

While statutory efforts to promote the installation of commercial-scale wind energy systems are in vogue, states have not shown the same enthusiasm for protecting the rights of small wind energy system owners. Only Wisconsin has codified the right to a remedy against adjoining landowners who obstruct wind and hamper wind energy systems. Specifically, in Wisconsin, a wind energy system owner may receive damages for the obstruction of wind created by the actions of an adjoining land owner who exceeds the bounds of the zoning laws that govern the adjoining landowner’s property. Moreover, Wisconsin statutorily classifies construction or vegetation on adjoining or nearby property as a private nuisance if the installation of the solar or wind energy system on the subject property preceded these obstructions. This provision grants system owners a remedy, notwithstanding the adjoining landowners’ compliance with local zoning and land use regulations.

C. Wind Rights and Relevant Case Law

In the seminal wind rights case of Contra Costa Water District v. Vaquero Farms, Inc., the California Court of Appeals recognized a right to the wind that traverses one’s property. In that case, the plaintiff took possession of the defendant’s ranch through eminent domain. The defendant attempted to maximize its just compensation

95. § 700.41(1), (4) (requiring that the installation of the small wind energy system precede the obstruction, so long as the system was not installed prior to 1994).
96. Id. The statute provides that “[a]ny structure that is constructed or vegetative growth that occurs on adjoining or nearby property after a . . . wind energy system . . . is installed on any property, that interferes with the functioning of the . . . wind energy system, is considered to be a private nuisance.” Wis. Stat. § 844.22 (2008).
99. Id. at 274.
award by seeking a declaration that its wind power rights were not severable from a fee simple interest in land that is subject to eminent domain proceedings.\textsuperscript{100} In holding that the plaintiff could sever and reserve the wind power rights in the property to the defendant, the court reasoned that “wind power rights are ‘substantial rights’ capable of being bought and sold in the marketplace.”\textsuperscript{101} The court took notice of the fact that the defendant had “derived [an] economic benefit from the dissection of its property rights by separately leasing wind power rights to a third party.”\textsuperscript{102} Therefore, the court expressly recognized a right to the wind that traverses one’s property.

Likewise, in \textit{Choctaw, Oklahoma & Texas Railroad Co. v. True},\textsuperscript{103} the Court of Civil Appeals of Texas recognized a specific right to wind access.\textsuperscript{104} In this case, the plaintiffs sought damages resulting from construction of an embankment that was adjacent to their property.\textsuperscript{105} When considering the admissibility of evidence that would support the plaintiffs’ claim for damages, the court ruled that it was proper to allow evidence that the embankment, which was part of the new railway, impaired the use of the plaintiff’s windmill and thus contributed to the damages suffered by the plaintiffs.\textsuperscript{106} In doing so, the court recognized that wind access had an identifiable value to the plaintiffs.\textsuperscript{107}

In addition, obstruction of a renewable resource for personal energy needs may constitute an actionable private nuisance.\textsuperscript{108} In \textit{Prah v. Maretti}, the Wisconsin Supreme Court reversed the dismissal of a landowner’s claim to enjoin a neighbor from constructing a building that would block sunlight from the landowner’s solar energy system.\textsuperscript{109} In reaching its decision, the court noted the societal interests

\begin{footnotes}
\footnote{100. \textit{Id.} at 277–78 (discussing why wind power rights are severable and sustainable).}
\footnote{101. \textit{Id.} at 277.}
\footnote{102. \textit{Id.} The defendant had leased a significant portion of the tract for a wind energy project that was home to 260 electricity generating wind turbines. \textit{Id.} at 274. The defendant’s decision to lease the right to develop a wind farm on the property to a third party undermined the defendant’s argument that the wind power rights were not severable from the fee simple estate. \textit{See id.} According to the defendant, the lost income from the wind lease would have been added to the damages award that arose from the condemnation of the property. \textit{See id.}}
\footnote{103. 80 S.W. 120, 121 (Tex. Civ. App. 1904).}
\footnote{104. \textit{See id.} at 121.}
\footnote{105. \textit{Id.}}
\footnote{106. \textit{Id.}}
\footnote{107. \textit{See id.}}
\footnote{108. In order to prevail, the injured party must show that the adjoining landowner’s obstruction of sunlight unreasonably interfered with the plaintiff’s use and enjoyment of his land. \textit{See Prah v. Maretti}, 321 N.W.2d 182, 190–91 (Wis. 1982) (citing \textsc{Restatement (Second) of Torts} §§ 827, 816, 829 (1977)).}
\footnote{109. \textit{Prah}, 321 N.W.2d at 184.}
\end{footnotes}
in furthering the development of alternative energy sources, as well as federal and state efforts to promote solar energy. The court analogized the obstruction of sunlight to the interference with the flow of surface waters, which is actionable conduct under traditional tort law. The court justified the application of the surface water doctrine by reasoning that traditional nuisance law was an appropriate means of protecting access to sunlight and other landowner's development rights. Conversely, in O'Neill v. Brown, the Appellate Court of Illinois refused to enjoin the defendant from constructing an addition to his house that would partially prevent sunlight from reaching the plaintiff’s greenhouse. The court rejected the proposition that one has a right to the free flow of light and air under either the common law or Illinois’s Solar Energy Act of 1989.

D. General Scope of Doctrinal Rights in Natural Resources

The right to appropriate wind over one’s land for personal use is largely undefined. Generally, legal rights for the allocation of a resource are well-defined, and they influence the use, exclusion, and transfer of the particular resource. Defining rights with respect to wind energy in the context of obstruction or interference “requires a consideration of the nature of the resource and of analogous bodies of law,” such as those that govern wild animals, solar energy, minerals, oil and gas, and water.

110. Id. at 189 n.11.
111. Id. at 190.
112. The Wisconsin Supreme Court employed the reasonable use doctrine as set forth by the Restatement (Second) of Torts. See id. at 190–92 (examining the gravity of harm and utility of the conduct to assess whether the plaintiff had stated a nuisance claim).
113. Id. at 191 (“Private nuisance law is better suited to regulate access to sunlight in modern society and is more in harmony with legislative policy and the prior decisions of this court.”).
115. The court held that the Solar Energy Act did not create solar skyspace easements for solar collectors. Id. at 841 (discussing the Comprehensive Solar Energy Act of 1977).
116. See supra notes 38–44 and accompanying text.
117. Gisser & Johnson, supra note 18, at 139.
118. Smith, supra note 6, at 300.
119. Each theory generally addresses the right to capture the resource for one’s use. Id. (proposing that percolating water, wild animal, oil and gas, and mineral theories may best define rights to wind and that the prevailing laws within a particular jurisdiction inform which theory to follow); see also Corr, supra note 24, at 11 (remarking that water and sunlight rights may be appropriate models for wind rights theory); cf. Contra Costa Water Dist. v. Vaquero Farms, Inc., 68 Cal. Rptr. 2d 272, 278 (Cal. Ct. App. 1997) (agreeing with the trial court's analogy of the harnessing of wind to the pumping of subsurface oil and gas).
The laws of wild animals and percolating waters have been suggested as analogous doctrines. However, unlike wind, wild animals belong to the state and have no value—that is, there is no property interest—until such animals are lawfully domesticated. Rights to percolating waters rest primarily with the owner of the surface estate who can lawfully capture as much water as he wishes, even to the detriment of adjoining landowners, “absent malice or willful waste.”

The utility of analogizing these doctrines to wind rights is questionable because issues involving wild animals and percolating waters presuppose that the object of capture is subject to ownership prior to its effective capture. Furthermore, wind is not reduced to possession to realize its value. Thus, wind rights should be analogized to a more familiar doctrine that is more suited to general application.

Less arcane models such as oil, gas, and mineral rights doctrines have also been suggested as useful parallels to wind rights. However, while an ample body of law governs the allocation of these resources, these resources must also be reduced to possession in order to realize their inherent value; although these doctrines are familiar to the legal system and may inform some disputes over developer competition, they will not address problems of obstruction or turbine wake interference. Furthermore, unlike oil, gas, and minerals, which are scarce and non-renewable—and for that reason intensely disputed—wind is “intangible and completely renewable.”

Solar doctrine, if it can be credited as an independent doctrine, originally developed by analogy to common law prior appropriation and property theory. Theories of easement, implied easement, mali-
ciously erected "spite structures," zoning rules, and nuisance have been advanced as a means to resolving disputes over access to sunlight for solar energy.\(^\text{130}\) Property rights are certainly no stranger to the courts, and they require the attention of anyone who seeks to craft or identify rights in wind.

Troy Rule recently proposed that wind rights should look to "Rule Four" of Calabresi and Melamed's "Cathedral Model" to resolve disputes between competing wind energy developers.\(^\text{131}\) Rule Four allows an "agitator" to continue to behave in the agitating manner unless the victim compensates the agitator for the cessation of the activity.\(^\text{132}\) Troy Rule suggests that under Calabresi and Melamed's Rule Four, an upwind turbine may continue to operate, despite the economic injury of the turbine's "wake effects" on a downwind energy operator.\(^\text{133}\) The turbine may only be stilled to eliminate its adverse effects on downstream turbines if the downwind operator purchases the upwind turbine owner's entitlement to operate.\(^\text{134}\) Troy Rule acknowledges two problems with his proposition: (1) Rule Four is infrequently applied in private disputes,\(^\text{135}\) and (2) its mechanics, when applied to wind, depend primarily on whether a wind operator is upwind or downwind of his competition.\(^\text{136}\) Application of the doctrine overemphasizes whether a wind operator is situated upstream or downstream of the interference or obstruction because a victim of wind deprivation will always be situated downwind of the source of interference. Furthermore, because wind changes direction with frequency, interference with wind reception may originate from different adjoining landowners at different times. Moreover, the Rule Four proposal does not place enough emphasis on landowners' rights to

appropriation doctrine as a basis for wind energy rights is discussed infra notes 246–57 and accompanying text.

\(^{130}\) Id. at 351. See, e.g., Sher v. Leiderman, 226 Cal. Rptr. 698, 705 (Cal. Ct. App. 1986) (claim asserted under the California Shade Control Act); Prah v. Maretti, 321 N.W.2d 182, 190–91 (Wis. 1982) (nuisance claim appropriate for deprivation of access to sunlight for solar energy);

\(^{131}\) Rule, supra note 7, at 210–11 (suggesting that competition over wind rights is the problem that Calabresi and Melamed's Rule Four has been waiting for).


\(^{133}\) Id. at 236. Wind turbines disrupt the flow of wind, which causes turbulence and reduces the productivity of turbines that are situated downwind within a distance of up to a half mile for commercial turbines. Rule, supra note 7, at 208–09. Small wind systems have drastically smaller wake zones compared to their large commercial siblings, which will vastly reduce the likelihood of a dispute over lost productivity between neighbors with small wind systems. Id.

\(^{134}\) Id. at 236.

\(^{135}\) Id. at 211.

\(^{136}\) Id. at 219.
lawful enjoyment and the exercise of development rights. Although the concepts inherent in a wind rights doctrine that is modeled upon a real property framework would be familiar to the legal system, the doctrine ignores wind's use as an energy source and the legal implications that attach.

Identifying a substance as a resource suggests that the substance has an inherent value, and given that society has a general interest in natural resources, it influences the treatment of that substance by imparting gravity into any situation where the rights to that substance are at stake. As the intensity of calls for clean energy and energy independence increases, wind must be acknowledged as an indispensable component of any energy plan. It follows that the potential and existing use of wind as an energy resource should be addressed by a doctrine that regulates its allocation.

I. Obstruction of and Interference with the Exercise of Water Rights

The rights to water use and appropriation are generally defined by one of three doctrines: the riparian doctrine, the prior appropriation doctrine, or a hybrid of both. Under the traditional theory of riparian rights, the rights to allocate water are inherent in the land and cannot be waived for lack of activity. Under the law of prior appropriation, which developed as a result of the limited availability of water sources in the western United States, once a person uses any

137. The theory discredits the notion of "first in time, first in right" and reaches for results based primarily on economic efficiency and a particular society's preferred method for wealth distribution. See Calabresi & Melamed, supra note 132, at 1093–1105.

138. See Getches, supra note 30, at 3. This Comment focuses on the riparian and prior appropriation doctrines and the contributions that each can make to the formation of a small wind access rights theory. Discussion of hybrid models drawn from riparian and prior appropriation theories is beyond the scope of this Comment due to the complexity and multitude of variations of those theories.

139. Id. at 4.

140. Id. at 5. The doctrine spread throughout the West in order to foster settlement and industry. See id. at 82. Most states that govern water allocation by the law of prior appropriation began first as riparian states. Id. at 193. The reason for adopting the appropriation doctrine was summarized by the U.S. District Court for the District of Nevada:

This change is the natural outgrowth of the conditions existing in this state. The climate is dry. The soil is arid. The land is unproductive, without irrigation. When water can be used thereon, it becomes capable of successful cultivation. There are but few streams of water. The benefits accruing to land along the banks of these streams by the mere flow of water in the channel is very slight. The bottom lands that can be irrigated by a diversion of the water, so that it can be turned back into the stream, are of limited extent. A large proportion of the area of land suitable for cultivation would have to remain in its wild and unproductive state, covered only by the natural growth of sagebrush and greasewood, unless the right to appropriate and divert the water of the streams away from the channel for the purpose of irrigating such lands is recognized
water from a source in compliance with state law, he has perfected his right to draw water from that source; this right remains valid as long as the use continues.\(^{141}\)

a. Riparian Rights and the Reasonable Use Doctrine

The doctrine of riparian rights arose during the Industrial Revolution, spurred by new water uses and the associated problems of pollution and excessive consumption.\(^{142}\) Riparian rights generally attach to land that borders a watercourse or lake.\(^{143}\) Ownership of such land, referred to as “riparian land,” historically granted each riparian owner the right to the natural, undiminished flow and quality of water.\(^{145}\) However, strict riparianism “was impractical and seemed to bar any consumption of water” because any consumption of water naturally diminishes the natural flow of water, and it later gave way to the reasonable use theory.\(^{146}\) Under the reasonable use doctrine, riparian owners are still generally entitled to an undiminished flow of water, but instead of a strict application of this rule to obstructions and interferences, the reasonable use doctrine requires the courts to weigh each party’s use and interests.\(^{147}\) The Restatement (Second) of

and secured. The same conditions exist with reference to the necessity for the use of the water for mining, milling, mechanical, manufacturing, municipal, and other beneficial purposes. These conditions and the growing wants and necessities of the people imperatively demanded that such a change should be made. Riparian rights are founded upon the ancient doctrine of the common law. If the law is a progressive science, courts should keep pace with the progress and advancement of the age, and constantly bear in mind the wants and necessities of the people, and the peculiar conditions and surroundings of the country in which they live.

Union Mill & Mining Co. v. Dangberg, 81 F. 73, 92–93 (D. Nev. 1897).

141. See Getches, supra note 30, at 74.

142. Restatement (First) of Torts div. 10, ch. 41, topic 3 (1939).

143. Id.; see also Restatement (Second) of Torts § 843 cmt. b (1979) (noting that among riparian rights, aside from the privilege to take water for certain purposes, is the right to object to the unprivileged taking and obstructing of water flow by others).

144. Restatement (Second) of Torts § 843 cmt. d (1979).

145. See Restatement (First) of Torts div. 10, ch. 41, topic 3 (1939).

146. Getches, supra note 30, at 4. The evolution from strict riparianism, which sought to preserve undiminished water flow for each riparian owner, to the reasonable use theory was influenced by “climate, . . . economic development, and inherited legal theory.” 1 Robert E. Beck & Amy K. Kelly, Waters and Water Rights § 7.01(b), at 7-15 (repl. ed. 2007). But cf. Pat Boone, Jr., State Claims in Texas Stream Waters, 28 Tex. L. Rev. 931, 947 (1950) (arguing that the reasonable use doctrine is unworkable and advocating for the application of the beneficial use doctrine to water use issues).

147. “A riparian proprietor is subject to liability for making an unreasonable use of the water of a watercourse or lake that causes harm to another riparian proprietor’s reasonable use of water or his land.” Restatement (Second) of Torts § 850 (1979). In 1888, the Supreme Court of Errors of Connecticut noted that the riparian doctrine was grounded upon the golden rule of law that “no one may so use his own as to injure the property of another,” and that the
Torts sets forth a multi-factored analysis to determine the reasonableness of a riparian’s water use:

(a) [t]he purpose of the use, (b) the suitability of the use to the watercourse or lake, (c) the economic value of the use, (d) the social value of the use, (e) the extent and amount of the harm it causes, (f) the practicality of avoiding the harm by adjusting the use or method of use of one proprietor or the other, (g) the practicality of adjusting the quantity of water used by each proprietor, (h) the protection of existing values of water uses, land, investments, and enterprises, and (i) the justice of requiring the user causing harm to bear the loss.148

Under the Riparian Rights Doctrine, it is generally understood that riparian owners may make a reasonable use of water, so long as that use does not deprive similarly situated people of their rights.149 In other words, a riparian proprietor has a right to use and enjoy the water that naturally flows past or through his land, subject to the rights of other riparian owners to reasonably use it for domestic, agricultural, and manufacturing purposes, regardless of whether they are upstream or downstream of the subject property.150

The determination of whether a riparian has wasted water and thereby diminished or obstructed the downstream flow may rest on a regulatory scheme.151 For example, in Romey v. Landers, an upstream landowner constructed dams that pooled naturally flowing stream water and diminished the downstream flow to the plaintiff’s farm.152 Although the construction of the dams seemed permissible by state statute,153 the court relied on a statutory exception that prohibited the construction of dams if they interfered with the rights of other riparian

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148. Restatement (Second) of Torts § 850A (1979). Note that “[t]he determination of the reasonableness of a use of water depends upon a consideration of the interests of the riparian proprietor making the use, of any riparian proprietor harmed by it and of society as a whole.” Id.


150. See, e.g., Mentone Irrigation Co. v. Redlands Elec. Light & Power Co., 100 P. 1082 (Cal. 1909) (holding that an electric company acted within its rights in using a watercourse to generate electricity); Jones v. Connecticut, 64 P. 855 (Or. 1901) (refusing to enjoin an upper riparian from irrigating far reaches of an arid tract over the protests of a lower riparian); Lentz v. Carnegie Bros. & Co., 23 A. 219 (Pa. 1892) (rejecting downstream plaintiff’s claim against upstream company for damage caused by pollution).

151. See, e.g., Romey v. Landers, 392 N.W.2d 415 (S.D. 1986) (under a statute, construction of earthen dams on an upstream landowner’s property was permissible; however, the dams were also impermissible under the same statute because they interfered with a downstream landowner’s water rights).

152. Id. at 417.

153. Id. at 421–22 (internal citations omitted).
Thus in *Romey*, the court found that the plaintiff had established his water rights and was thereby entitled to relief.\textsuperscript{155}

In general, the appropriation of water by mills and power plants is considered a reasonable use as long as the flow to upstream and downstream users is reasonably maintained.\textsuperscript{156} Unreasonable users may be subject to injunctions or damages for interference with others' water rights.\textsuperscript{157} A downstream riparian may be entitled to damages that are measured by the value of the potential use of the water as an energy resource, even if the downstream owner did not operate a hydraulic mill.\textsuperscript{158} Yet where courts are confronted with a situation in which construction of a hydroelectric dam harms other riparian owners, deference will be given to the state legislatures and Congress to the extent that the advancement of social, environmental, and energy policies are concerned.\textsuperscript{159}

\textsuperscript{154} Id. at 421–22 (internal citations omitted) (barring dam construction on nonnavigable streams that interferes with vested rights). The plaintiff's vested rights were also established by statute.

\textsuperscript{155} Id. at 417 (plaintiff was entitled to relief for forced premature sale of cattle because of insufficient water supply); see id. at 422 (remarking that South Dakota law stipulates that livestock watering establishes a vested right to use water).

\textsuperscript{156} See Callison v. Mount Shasta Power Corp., 11 P.2d 60, 62 (Cal. Dist. Ct. App. 1932) (upholding an injunction that prohibited a power company from maintaining a dam and a tunnel in a manner that interfered with the upstream water supply, but permitted the reasonable use of water for generating electricity); see also Plumleigh v. Dawson, 6 Ill. (1 Gilm.) 544, 551 (1844) (taking water from a stream is a reasonable use, so long as it does not unnecessarily damage downstream riparians).

\textsuperscript{157} See, e.g., Plumleigh v. Dawson, 6 Ill. (1 Gilm.) 544, 553 (1844) (actual or nominal damages available to downstream landowner); Romey v. Landers, 392 N.W.2d 415 (S.D. 1986) (defendant's construction of dams on a watercourse enjoined).

\textsuperscript{158} In *Plumleigh v. Dawson*, an upstream mill owner damned a small stream, thereby reducing the flow to the downstream plaintiff by approximately twenty-five percent. 6 Ill. (1 Gilm.) at 549. Although the downstream plaintiff had no hydraulic mill and the remaining flow was sufficient for agricultural and domestic use, the Supreme Court of Illinois found that "the stream, which had been diverted, might be made valuable as a power, and that by its diversion, [the plaintiff] was damaged." Id. at 551. The court observed that the upstream mill owner was allowed a reasonable use. Id. at 552.


The balancing of the damage to the riparian owners on the lower Santee against the benefits to South Carolina at large, and to Columbia and Charleston in particular, is a question of policy for the state Legislature, and it has spoken on this subject; its decree thereabout has been approved by the highest state court. This seems to us to dispose of all attempts to base the charge of illegality on the violation of any State Constitution or statute. But, we think that the only common-sense view of the evidence compels us to hold that, so far as the project involves navigation, it is a project which so substantially affects interstate commerce as to be one over which Congress plainly has power of control.

*Id.* at 864.
Riparian rights can be waived. For example, in *Merrit v. Houlton Water Co.*, the Supreme Judicial Court of Maine denied recovery to mill operators that were harmed by the defendant’s upstream diversion of water because the mill operators had known about the upstream diversion of water for several years but had failed to object to it, and they had thus consented to the activity. Therefore, the plaintiff's implied waiver of riparian rights precluded recovery.

b. Prior Appropriation

Unlike riparian theory, the doctrine of prior appropriation does not confer a possessory interest in water upon the user; rather, it defines the right to appropriate water as only usufructuary. The prior appropriation doctrine grants the right to capture and use water on a “first come, first served” basis, subject to the availability of the resource. Unlike riparian rights, the right to appropriate water is not contingent upon ownership or possession of land, and it is transferable to the extent that the transfer does not harm other appropriators. Once a water right is transferred, the new owner of the water right is prohibited from enlarging the water right beyond the original owner's use.

Under the traditional prior appropriation doctrine, an appropriator has the right to divert and use water for a beneficial use. Traditionally, to establish the right to divert and use water for irrigation or for any other purpose, the purpose of the diversion must be economic, beneficial, and reasonable. An excessive diversion of water for any purpose cannot be regarded as a diversion for a beneficial use. Under the appropriation theory, the obstruction of water from a se-

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160. Annotation, *Estoppel of One Riparian Owner to Complain of Diversion of Water by Another Riparian Owner*, 74 A.L.R. 1129, 1133 (1931) (relief may be denied to a riparian owner for diversion of water caused by another riparian “on grounds of equitable estoppels and laches arising out of the consent or tacit acquiescence of the riparian owner in the erection of... improvements by which the diversion was caused”).
161. 76 A. 951, 951 (Me. 1910).
162. Id.
163. Id.
164. 78 AM. JUR. 2D Waters § 341 (2008). A life tenancy is the modern equivalent of a usufruct, whereby one has a right to “use and enjoy the fruits of another’s property for a period without damaging or diminishing it.” BLACK’S LAW DICTIONARY 1058 (8th ed. 2004).
165. GETCHES, supra note 30, at 75.
166. 45 AM. JUR. 2D Irrigation § 25 (2008).
170. Union Mill & Mining Co. v. Dangberg, 81 F. 73, 97 (D. Nev. 1897).
nior appropriator\textsuperscript{171} is actionable, and the actor may be liable to the senior appropriator\textsuperscript{172}. However, a mere change in the application of the appropriated water or in the method or place of the diversion by which the water is appropriated is within one's appropriative rights if the water rejoins the watercourse at the same location, and if it does not injure downstream users\textsuperscript{173}. Moreover, once a water right is acquired through appropriation, the right must be continuously exercised for a beneficial purpose or the holder risks abandonment\textsuperscript{174}.

Two elements are necessary for the abandonment of a water right: nonuse of the water associated with the water right and intent to abandon the water right. Evidence of a long period of continuous nonuse of a water right raises a rebuttable presumption of an intent to abandon that right and shifts the burden of proof to the nonuser to explain the reasons for nonuse\textsuperscript{175}.

The investigative nature required to apportion, classify, and validate the use of water under the prior appropriation doctrine may be unduly burdensome on state courts, and therefore, statutory provisions now govern most water use in prior appropriation states\textsuperscript{176}.

III. CHARTING THE COURSE OF WIND RIGHTS

The wide range of statutory incentives available to a small wind turbine operator is evidence that the public recognizes the social utility of renewable energy applications for the individual\textsuperscript{177}. Even with this in

\textsuperscript{171} A senior appropriator is a user who establishes a right to use water before a right is established by another, junior user. 78 Am. Jur. 2d Waters § 360 (2009).
\textsuperscript{172} See Getches, supra note 30, at 75.
\textsuperscript{173} See Cline v. McDowell, 284 P.2d 1056, 1059 (Colo. 1955) (upholding decrees that allowed the defendant to change the location from which water was appropriated from an irrigation ditch).
\textsuperscript{174} Axtell, 955 P.2d at 1368.
\textsuperscript{175} Id. at 1369.
\textsuperscript{176} The Montana Supreme Court explains,

In Montana, prior to 1973, water rights were adjudicated according to the doctrine of prior appropriation. Under this doctrine, a person could acquire an exclusive right to use a specific amount of water by applying it to the land for a beneficial use, or, in other words, “appropriating” the water. Prior appropriations had priority over later appropriations. Over time, as the number of appropriators claiming water rights in Montana increased, the adjudication of these rights became cumbersome and complex. Finally, in 1973, the Montana Legislature passed the Water Use Act (the Act), abolishing the doctrine of prior appropriation and creating a new system of adjudicating water rights. Axtell, 955 P.2d at 1367; see also Gallegos v. Colo. Ground Water Comm’n, 147 P.3d 20, 27–28 (Colo. 2006) (“The Water Rights Determination and Administration Act . . . provides the statutory framework for implementing the constitutional right to divert the unappropriated waters of any natural stream to beneficial uses.”). However, for the purpose of defining a doctrinal framework to examine claims of right to appropriate wind, this Comment will explore only the basic, traditional prior appropriation doctrine.
\textsuperscript{177} See Smith, supra note 6, at 295.
mind, a court may enjoin a single wind turbine as a nuisance if a less intrusive, viable renewable energy alternative is available. To guard against the enjoinment of personal wind turbines, an appropriative right in the movement of air over one's property may be useful. As previously stated, the value in classifying the rights to wind as a right to a natural resource may guide legislative regulation that protects small wind operators against obstruction, diversion, or impairment of winds. As a practical matter, it seems logical to define legal rights to wind by comparing it to energy sources that have similar characteristics. Wind is the movement of air, and its most significant characteristic is that it cannot be depleted. Unlike wind, traditional energy resources like oil, gas, and coal are available in finite quantities. Although water—especially clean, fresh water—may be finite in quantity, it is generally renewable as an energy source. Arguably, mankind's most valuable resource is water, which—due to the

178. Id.
179. See, e.g., Pisauro, supra note 5, at 51 (calling for regulatory measures that will provide certainty and that will avoid interference issues). However, any measures taken must be grounded upon legal principles that provide sound footing and guidance for the measures themselves.
180. Chavarria, supra note 21, at 834.
182. Chavarria, supra note 21, at 835.
185. See Benjamin K. Sovacool & Christopher Cooper, Congress Got It Wrong: The Case for a National Renewable Portfolio Standard and Implications for Policy, 3 ENVTL. & ENERGY L. & POL'Y J. 85, 135 (2008). An unrelated but staggering fact is that nearly forty percent of all freshwater withdrawn for use in production of electricity is consumed by coal, natural gas, and nuclear electric plants. Id. at 126.
shared physical characteristics of water and wind, and each substance's classification as a resource—provides the best foundation upon which a legal framework for wind rights can be constructed.

Wind rights have generally been viewed as derivative of or incidental to a fee ownership of real property. This theory can be extended to allow the possessor to "harvest" the wind from the airspace above the surface estate by "extracting" the wind from the estate and thus severing the ownership right to wind from the fee simple estate. An important aspect of the use of wind as an energy resource, however, is in the act of taking possession—or more simply, its appropriation for use—which is a right that is not necessarily attached to the fee simple estate. Thus, like all other natural resources, wind rights should encompass property rights that are attached to an estate and appurtenant rights that do not lie in the estate.

A. Surface Estate-Based Component of Energy Resource Rights

Traditionally, the right to use wind that is attached to a particular piece of property constitutes one facet of a landowner's rights, and it does not require a separate "possessory" right to the wind. After all, wind is the movement of air, and the air above the surface of one's land, in terms of the most traditional property theories, is owned by the titleholder of the surface estate. An analogy to riparian rights may help explain a property owner's wind rights. A riparian's right to enjoy and use water is derived from ownership of the land estate; a riparian has the right to use water from an adjacent watercourse or body of water to the extent that downstream users are not adversely

187. Rule, supra note 7, at 214 n.24 (noting that although wind and water are fugitive substances, the position of each is predictable).
188. See Wilson, supra note 183, at 1784.
189. Id. at 1784. Wilson proposes that rights to appropriate the wind from the airspace or to extract it from the estate are two separate theories that can be used to help define the rights. Id. However, this Comment takes a broader view and combines the two ideas under the general theory of property rights because the origin of each is physically related to the estate.
190. See Smith, supra note 6, at 301 (arguing that the right to "capture" wind is an ownership interest with a nexus to the real property).
191. For example, a landowner has the right to drill for and extract oil and gas on his property, even though it is drawn or flows from beneath the surface of an adjoining owner and diminishes the flow of his neighbor's wells that were dug prior to his. See 58 C.J.S. Mines and Minerals § 142 (2008).
192. Smith, supra note 6, at 301.
193. See Chavarria, supra note 21, at 834 ("How can one 'possess' or own the movement of air?").
194. A similar approach with respect to solar rights was explored in Allocation of Sunlight, supra note 181.
affected.\textsuperscript{195} Applying a similar line of reasoning, a small wind energy system owner would have the right to use wind for personal purposes, arising from the situation of his land and the mere fact that wind passes over his land, much like a riparian's right to use water that flows on, through, or next to his property.\textsuperscript{196}

It is worth noting that the water that a riparian is entitled to use does not need to exist directly on the surface estate;\textsuperscript{197} rather, the riparian may use any watercourse that runs adjacent to his property.\textsuperscript{198} When this theory is applied to wind, it can be distinguished from the traditional theory of owning the airspace above one's estate up to the heavens.\textsuperscript{199} Instead of considering wind as "property" of one estate, it would be the communal "property" of similarly situated landowners who share the wind's path of travel.\textsuperscript{200} Applying the riparian theory, it is unlikely that a wind appropriator's small wind energy system would be an excessive, unreasonable use that prevents other similarly situated landowners from using the resource.\textsuperscript{201} In this respect, riparian rights to appropriate water are distinguishable from rights to appropriate oil, gas, and minerals.\textsuperscript{202}

\textsuperscript{195}See supra notes 142–146 and accompanying text.

\textsuperscript{196}Smith posits a similar theory that is grounded on oil and gas law. See Smith, supra note 6, at 301–03. "The right to use or benefit from the wind that blows across one's land might well be considered an incident of land ownership, analogous to the right to extract oil and gas in non-ownership jurisdictions." \textit{Id.} at 302.

\textsuperscript{197}In oil and gas law, the landowner may drill and extract oil on his property. See Brown v. Spillman, 155 U.S. 665, 669–70 (1895); see also 38 AM. JUR. 2D Gas and Oil § 6 (2009) (recognizing that a right to extract oil from beneath a landowner’s tract is limited only by the grant of the same rights to another party).

\textsuperscript{198}See supra note 143 and accompanying text.

\textsuperscript{199}See supra note 193 and accompanying text.

\textsuperscript{200}Riparian rights are incidental to the estate because they do not necessarily exist "on" the estate. See Clesson S. Kinney, A Treatise on the Law of Irrigation and Water Rights 760 (2d ed. 1912). Under the riparian doctrine, rights to use the water depend upon the land being contiguous to the watercourse; it is of no consequence whether the real property has a vertical or lateral relationship to the watercourse or body. See David B. Anderson, Water Rights as Property in Tulare v. United States, 38 McGeorge L. Rev. 461, 481 (2007) (explaining that the right to use water "arises because, as a practical matter,... land's natural, physical contiguity to the stream affords access to the flowing water").


\textsuperscript{202}Although water, oil, and gas are fugitive substances, a landowner has the right to "capture" oil and gas beneath his land, even if the oil or gas is drawn from reservoirs beneath neighboring lands. 1 Eugene Kunz, A Treatise on the Law of Oil and Gas: Being a Revision of Thornton on Oil and Gas § 4.1, at 112 (1987). With respect to riparian rights, one riparian's appropriation of water cannot injure another riparian's right to the same. See Getches, supra note 30, at 4.
1. Allowable Use Limits and the Reasonable Use Doctrine

When wind is used to generate electricity, it is never reduced to possession; the same amount of air resides in the atmosphere before and after the breeze spins the blades of a turbine.203 This is similar to the use of moving water to generate electricity at hydroelectric plants.204 Hydroelectric power, like wind, is generally considered a clean, renewable energy source.205 Once water has passed a hydroelectric dam, it continues downstream within its water course. Similarly, wind passing through a turbine will carry past the owner's surface estate to the lands beyond.206 Applying the general rule that a riparian owner can make a reasonable use of water to the extent that it does not interfere with the use of water by similarly situated downstream landowners, it follows that small wind energy producers would be entitled to use wind to generate their own electricity if they do not interfere with the reasonable use of wind by downwind owners.207

Riparian rights at common law have largely been modified by statutory limitations.208 To define what would constitute a reasonable use of the wind, it is necessary to understand the uses that have been permitted under the reasonable use doctrine. The use of water to produce electricity has been viewed as a reasonable and proper use arising from a riparian right, although the determination that a particular installation constitutes a reasonable use is largely fact-based.209

203. See Chavarria, supra note 21, at 834. ("The concept of wind ownership is difficult to comprehend because one cannot capture or possess [it] to the exclusion of others.").


205. Id. at 140. However, hydroelectric power plants cause silting, which in turn poses environmentally adverse consequences. Id. at 142.

206. In commercial applications, the wake or disturbance caused by wind turbines can impact the productivity of downwind wind turbines. See Rule, supra note 7, at 208.

207. Downwind landowners may be a dynamic group, unlike downstream riparian owners who are situated along a watercourse. While the direction of travel for water in a watercourse is generally channeled by physical constraints, the direction in which the wind blows is continually changing.


209. State statutes broadly indicate what applications constitute reasonable uses of water. See, e.g., Cal. Const. art. X, § 2 (water taken under riparian right must be put to beneficial use, and such a taking must be "exercised with a view to the reasonable and beneficial use thereof in the interest of the people and for the public welfare"); Ala. Code § 33-7-51 (2008) (prohibiting maintenance on and building of structures that would unreasonably obstruct the use of navigable waters); Ga. Code Ann. § 44-8-1 (2008) (prohibiting any diversion or use that interferes with others); Iowa Code § 464B.25 (2004) (stating that waterfalls created by a proprietor using water power to propel machinery are a reasonable exercise of riparian rights); N.H. Rev. Stat. Ann.
For example, in Callison v. Mount Shasta Power Corp., this determination turned on whether the power company’s use of water was reasonable in light of its “correlative share of . . . water . . . for riparian . . . purposes.” Thus, after engaging in a fact-specific inquiry, the court concluded that the use did not unnecessarily or disproportionately disadvantage other riparian users.

In actuality, the risks posed by downwind and upwind property owners are not reciprocal with respect to obstructing airflow—the upwind owner poses a risk to the small wind energy user. It is difficult to see how a small wind user could unnecessarily, disproportionately, or adversely interfere with downwind users in the exercise of their appropriation or use of wind because the wind is not reduced to possession by a wind turbine. Rather, with wind, the problem is that an upwind property owner will erect a house or structure that will obstruct or impede the naturally occurring flow of air to a private wind turbine. An object such as a building situated on neighboring property can disrupt airflow for a distance of twenty times its height. Although the upwind landowner is not “using” the wind for any constructive purposes, the obstruction deprives the downwind small wind energy user of his right to the wind. Viewed under the doctrine of

§ 481:12 (2001) (prohibiting the unlawful use of a waterflow stored for power or other judicially approved use); Okla. Stat. tit. 82, § 105.1 (1990) (water use for household purposes is reasonable; water use for agricultural purposes must be de minimus); Vt. Stat. Ann. tit. 10, § 1031 (1995) (snow-making is a reasonable use). Thus, the determination of what specific activities constitute reasonable use falls to the courts. Although many statutes do not provide a per se stamp of approval upon energy generation as a reasonable use of water, courts generally recognize it as a reasonable use. See, e.g., Head v. Amoskeag Mfg. Co., 113 U.S. 9, 23 (1885) (“One reasonable use of the water is the use of the power, inherent in the fall of the stream and the force of the current, to drive mills.”). But see Herminghaus v. S. Cal. Edison Co., 252 P. 607, 618 (Cal. 1926) (“The production of power upon riparian land was a proper riparian use of the waters flowing thereon, even though the power and energy so developed was to be conveyed away and used at distant points not riparian to such lands.”) (citation omitted). However, the Herminghaus court enjoined a power company from constructing dams and reservoirs that downstream riparians alleged would interfere with their riparian rights by disrupting their ability to irrigate their lands. See id. at 611.

211. Id.
212. A similar problem was recognized at the advent of residential solar energy applications. See Allocation of Sunlight, supra note 181, at 422.
213. Turbulence is created by the spinning of the blades, which in the case of a small wind energy system is negligible, but “[t]he turbulence generated by the spinning rotors of thousands of large wind turbines on a farm in the southern Great Plains could cause changes in local meteorological conditions.” Kris Christen, Turbulence on the Wind Farm, Envtl. Sci. & Tech. Online, Jan. 19, 2005, http://pubs.acs.org/subscribe/journals/esthag-w/2005/jan/tech/kc_turbulence.html.
215. This situation may be analogous to “spite fences.” See, e.g., Vt. Stat. Ann. tit. 24, § 3817 (2008) (“A person shall not erect or maintain an unnecessary fence or other structure for
riparian rights, the total or substantial blockage of airflow may be unreasonable.

Several states have either adopted the Restatement (Second) of Torts or employed similar analyses to resolve riparian reasonable use issues. Viewed through the lens of riparian rights, the small wind energy user could demonstrate that the upwind owner's development of his property deprives him of the flow of wind, and that it constitutes an unreasonable use of the resource. However, economically, the upwind landowner will likely prevail on the analysis of the value of the use. The remaining factors will require a rigorous analysis of the facts and policy issues, and they could perhaps influence an outcome favorable to the small wind operator.

a. Purpose of the Use

The first factor used by courts when determining the reasonableness of obstructions weighs the competing purposes for which each landowner uses the wind. Drawing an analogy to water rights, the appropriation of water to produce electricity is a reasonable exercise of one's riparian rights. Thus, by comparison, the appropriation of wind to generate electricity should be considered a reasonable use.
Although the purpose of using wind for energy production may be presumptively reasonable, the actual use of the wind or land must be reasonable with respect to the surrounding landowners who have direct or indirect interests in the wind or land that is frustrated by the wind energy system.\textsuperscript{221} Therefore, a degree of compatibility and suitability is required between the subject use and the use of surrounding land.\textsuperscript{222} The right to develop one's property as one sees fit is a fundamental principle of property law.\textsuperscript{223} Thus, the actions of an adjoining landowner that threaten to block wind, but that arise from the owner's lawful use and enjoyment of his property, will probably be found to originate from a reasonable purpose, to the extent that the actions are in compliance with local land use laws and are not spiteful.\textsuperscript{224} With these countervailing considerations, an analysis of the use factor may not lead to a determinative finding for either the small wind energy operator or the neighbor who threatens to obstruct the flow of air.\textsuperscript{225}

b. Suitability of the Use to the Location

The next factor that a court addresses when determining the reasonableness of an obstruction is whether one landowner's or both landowners' activities correspond to the physical properties of the land and area, as well as the outlying community. This factor may also be non-determinative if both landowners can establish some suitable use not restrict or prohibit the construction and maintenance of [a] renewable energy source" in accordance with a state statute).

\textsuperscript{221} Under the reasonable use doctrine, an upstream user who is engaged in a valuable activity that deprives a downstream user of water for a questionably valuable activity for which other means are more suitable would not be liable to the downstream user. See, e.g., \textsc{Restatement (Second) of Torts} § 850A cmt. a, illus. 1 (1979) (giving the example of a situation in which an upstream riparian's use of water to irrigate crops, although it deprives a downstream user of the ability to drown gophers, is reasonable with respect to the other riparian).

\textsuperscript{222} See infra Part III.A.1.b.


\textsuperscript{224} Id. The determination of whether an improvement constitutes a nuisance to a neighbor will turn on whether the offending neighbor's actions were spiteful. "[W]hat makes a spite fence a nuisance ... is not merely that it obstructs the passage of light and air, but that it does so unnecessarily for the malicious purpose of annoyance." Wilson v. Handley, 119 Cal. Rptr. 2d 263, 271 (Cal. Ct. App. 2002).

\textsuperscript{225} Both enjoyment of one's property and clean energy production are recognized as beneficial uses of land. See, e.g., \textit{In re Halnon}, 811 A.2d 161, 163 (Vt. 2002) (discussing whether a proposed small wind energy project would "violate a clear, written community standard intended to preserve the aesthetics" of the area; "offend the sensibilities of the average person"; or whether the project owners "failed to take generally available mitigating steps that a reasonable person would take to improve the harmony of the proposed project with its surroundings").
that does not offend local zoning regulations or customs. In order to satisfy the suitability factor, the wind operator must show that he expects a reasonable level of benefit from the location. The installation of a windmill in a location where winds are neither strong nor constant enough to generate more than a meager amount of electricity, for example, will likely weigh against the small wind energy operator. \footnote{Rassier v. Houim illustrates the suitability factor. In Rassier—a case involving a private nuisance claim—the Supreme Court of North Dakota declined to enjoin the owner of a windmill from continuing its use because the installation of the windmill on property amid lots intended for residential development did not defeat the assertion that the windmill was suitable for the location.} This inquiry is malleable according to the sensitivities of the sitting judge. This demonstrable malleability, while it may prove unpredictable at first blush, allows for conclusions on suitability to reflect the values of the jurisdiction.

c. The Extent and Amount of the Harm Caused by the Obstruction

The third factor considered by a court when determining the reasonableness of an obstruction is the extent of harm suffered by the plaintiff. The extent of harm suffered by a windmill owner arising from the obstruction of air flow may require a showing of hardship and injury. \footnote{For example, a prospective windmill operator who was denied a variance from local setback and height limitations prevailed at trial in Ormond Beach v. State on the assertion that “his only hardship was to attempt to save electricity.”} On appeal, the District

\footnote{See Restatement (Second) of Torts § 850A cmt. d (1979) (noting that the determination should consider customary methods of obtaining the benefits of water use).}

\footnote{See Patricia E. Salkin, Wind Power, in 1 American Law of Zoning § 9:51, at 9-161 (2008).}

\footnote{488 N.W.2d 635, 638-39 (S.D. 1992).}

\footnote{The court did not premise its ruling on suitability of the location. Instead, the defendant prevailed because the plaintiff came to the nuisance and the windmill did not interfere with the enjoyment of the plaintiff’s property. Id. at 638.}

\footnote{Id. at 640 (Meschke, J., concurring in part and dissenting in part) (disagreeing with the majority’s position that installation of the windmill did not betray the “character of the locality at the time that the interfering activity [began]”). The dissent observed that because the intended use of the property was residential prior to its development, "Houim’s wind turbine on part of his lot was not well suited to this residential locale. On the other hand, [plaintiff’s] use of her property for a residence [was] well suited to the character of the locale.” Id. at 640-41 (Meschke, J., concurring in part and dissenting in part).}

\footnote{See City of Ormond Beach v. State, 426 So. 2d 1029, 1032 (Fla. Dist. Ct. App. 1983).}

\footnote{Id. at 1032 (ruling that the petitioner’s request for a variance to a zoning stipulation that would hinder operation of his planned wind turbine was reasonable and should be granted).}
Court of Appeal of Florida held that the hardship requirement would be satisfied if the plaintiff was prohibited from erecting the windmill, but he would otherwise have to show that the local setback and height restrictions made satisfactory performance of the wind turbine impossible.\textsuperscript{233}

Courts might employ a reasonableness standard to determine whether satisfactory performance of an installation can be realized and ultimately whether a wind operator has been subjected to undue hardship.\textsuperscript{234} For example, in \textit{Mississippi Power Co. v. Goudy}, the Mississippi Supreme Court held that an electric utility "has the unquestioned right under our law to receive a fair and reasonable return for the services it renders."\textsuperscript{235} Therefore, an obstruction that eliminates a small wind energy operator's expected return on investment may show that the obstruction prevents satisfactory performance and causes hardship because the operator should expect lower, if not eliminated, conventional electricity costs, in addition to a reduced carbon footprint.\textsuperscript{236} The courts will have system performance, electricity costs, and other data at their disposal to assess the expected return and hardship.

It is easy to show that a neighbor's planned development will obstruct the flow of wind to an operating wind energy system and thereby harm the turbine owner. System purchase and installation costs, as well as costs avoided by reducing or eliminating the need for conventionally supplied electricity, clearly exemplify the extent of harm caused as a result of wind obstruction.\textsuperscript{237} Rather than the economic benefits provided by the small wind system, perhaps the greater value to all small wind operators is the reduced environmental impact provided by the system's implementation.\textsuperscript{238} This particular facet of the analysis is best considered in light of its social utility.

\textsuperscript{233} \textit{Id.}
\textsuperscript{234} See Miss. Power Co. v. Goudy, 459 So. 2d 257, 270–72 (Miss. 1984).
\textsuperscript{235} \textit{Id.} at 271.
\textsuperscript{236} See Galbraith, \textit{supra} note 14, at C9 (a modest private wind turbine is capable of generating enough electricity to justify the cost, while a smaller one may be a cross between a "hobby and an environmental fashion statement").
\textsuperscript{237} Energy savings costs can be shown by calculating the amount of energy the system produces and then assigning the going market rate for electricity to that quantity. Electric bills received preceding and following system installation will also show the economic benefits that the small wind system provides to the owner.
\textsuperscript{238} See Galbraith, \textit{supra} note 14, at C9.
d. Economic and Social Value of the Use

The fourth factor analyzed by courts when determining the reasonableness of an obstruction is the economic and societal value of the use. The economic and social value of the wind turbine installation must be examined in light of the community's needs. Given the current statutory trend of recognizing the social value in promoting development and implementation of renewable energy devices, this factor may weigh in favor of the individual wind energy system owner.\textsuperscript{239} For example, the implementation of wind energy technologies reduces the amount of carbon dioxide that is released into the atmosphere throughout the production of electricity.\textsuperscript{240} From a social economic standpoint, it can be argued that the small wind operator is shouldering at least his personal share of the burden in reducing pollution and that because he is investing his capital in wind-generated electricity, he should be given a certain amount of deference under the analysis of the economic and social use factor.

e. Practicality of Avoiding the Harm

The fifth factor analyzed by courts when determining the reasonableness of obstructions is the practicality of avoiding the harm. When property development and wind access are at odds, each party to the dispute must act in a manner that conforms to local regulations and that does not unduly harm neighbors. Guidance on this issue can be found in \textit{City of Ormond Beach v. State}, where a small wind proprietor sought a variance from zoning height and setback requirements to achieve maximum efficiency.\textsuperscript{241} The court required the windmill operator to investigate whether he could comply with the applicable land use restrictions and still maintain satisfactory system operations before seeking a variance.\textsuperscript{242} Likewise, a neighbor who proposes to install a structure or object that will interfere with the wind flow to an operating windmill should bear the burden of investigating alternate locations and configurations that will not interfere with the windmill owner's use and enjoyment of the property.\textsuperscript{243} The practicality of adjusting resource consumption may favor the obstructed small wind en-

\textsuperscript{239} See supra notes 63–97 and accompanying text.
\textsuperscript{240} AM. WIND ENERGY ASS'N, SMALL WIND TURBINE GLOBAL MARKET STUDY 2008, at 5 (2008) (each 50 MW of installed wind energy capacity amounts to a carbon dioxide displacement of 60,000 tons per year).
\textsuperscript{241} 426 So. 2d 1029, 1030 (Fla. Dist. Ct. App. 1983).
\textsuperscript{242} Id. at 1032.
\textsuperscript{243} See generally Romey v. Landers, 392 N.W.2d 415 (S.D. 1986) (analyzing the interference with water flow from upstream neighbor's earthen dams). See also Prah v. Maretti, 321 N.W.2d 182 (Wis. 1982) (involving the obstruction of sunlight from private solar panels).
ergy operator if the turbine was erected prior to the neighbor’s planned development, and the neighbor can situate his development in such a way that it does not interfere with the wind turbine. However, in the event that the two activities cannot coexist, the late-coming developer may need to bear the costs of relocating or modifying the wind turbine, thereby preventing the development from adversely impacting the wind turbine’s operation.

f. Protecting Existing Investments

The sixth factor that courts consider when determining the reasonableness of an obstruction is the protection of existing investments. Balancing the value and utility of wind power, land, and other investments and enterprises will likely be a strenuous fact-based inquiry. The Court must consider the economic value of the land, the nature of each party’s possession of the land, the traditional land use rights, and the implications of renewable energy use and development. An important consideration may be the wind energy operator’s expectations of and adherence to local regulations and relevant statutory provisions that were enacted at the time the system was installed. Results will vary by occurrence due to the fact-dependent nature of the analysis.

2. Riparian-Based Rights Conclusion

In sum, a riparian-based theory allows one to appropriate or use the wind that blows across his property so long as others are not adversely impacted by the appropriation or use. When conflicts arise, the theory considers the specific facts and policies at stake to determine which use will prevail. In that sense, the theory recognizes an incidental right, not a possessory right, to appropriate the wind. The inherent balancing approach resembles the doctrines of public and private nuisance. But if the use of small wind energy systems is to be regulated or controlled through the tort system, this rigorous inquiry could prove taxing and produce inconsistent results. Moreover, legal fees and court costs incurred through litigation may be too expensive to warrant the investment, particularly for small wind owners. Thus, legislation is in order. This legislation must consider traditional notions

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244. See Restatement (Second) of Torts § 850A cmt. k-1 (1979) (noting that under water doctrine the existing use of the water and property play a role in establishing whether a new use is permissible and whether the existing practices have a priority over proposed uses).

245. See City of Ormond Beach, 426 So. 2d at 1031 (affirming in part and reversing in part a trial court decision that awarded a prospective windmill operator attorney’s fees and costs related to bringing a claim to obtain a zoning variance to allow a windmill at the optimum location on the plaintiff’s property in accordance with state statute).
of property ownership and riparian rights in order to structure protection for and the encouragement of investment in small wind energy systems.

B. Use and Appropriation-Based Rights to Use Wind, Modeled on the Theory of Prior Appropriation

The doctrine of prior appropriation, an alternate theory of water rights allocation, may be less applicable in resolving wind rights issues.\textsuperscript{246} The doctrine of prior appropriation resolves disputes between competing water users on a first-come, first-served basis.\textsuperscript{247} Under the doctrine, water in its natural state is subject to state regulation until an appropriator has reduced it to possession so that "no one shall be denied his proper use and benefit of this common necessity."\textsuperscript{248}

However, the application of the doctrine of prior appropriation of water to wind rights is limited by its fundamental principles. First, the doctrine presupposes that appropriators are competing over the resource.\textsuperscript{249} In the case of a landowner who obstructs wind access to a neighbor's small wind energy turbine, competition over the resource is not likely at issue; instead, the most heated issue concerns whether the landowner's property rights in his neighbor's land trump the neighbor's property rights in the landowner's land. A neighbor who erects a structure or plants a tree that deprives a windmill of wind does not contemplate "use" of the wind in its traditional sense; each party has a different interest in the use of the airspace.\textsuperscript{250} The prior appropriation

\begin{thebibliography}{9}
\bibitem{246} The prior appropriation doctrine has been advocated as a means of protecting solar rights. \textit{See Allocation of Sunlight}, supra note 181, at 436 (favoring the application of the prior appropriation doctrine over that of the riparian doctrine on the basis that prior appropriation states "have more fully developed and consistent patterns of law than riparian states").
\bibitem{247} California even codified the principle with respect to priority of water use. \textit{See Cal. Civ. Code} § 1414 (1872) (establishing priority of use "[a]s between applications, the one first in time is the first in right"). But a concern with the doctrine is that if left unrestrained, adverse affects will result from the decreased availability of resources. \textit{See James Huffman, Instream Water Use: Public and Private Alternatives, in Water Rights: Scarce Resource Allocation, Bureaucracy, and the Environment} 251 (Terry L. Anderson ed., 1983) (advocating for state intervention in the allocation of resources).
\bibitem{249} \textit{See supra} note 247 and accompanying text.
\bibitem{250} The obstructing party's interests lie in the development of his property, but the small wind operator's interests lie in energy production and savings, reduced personal environmental impact, and other concerns. \textit{See Prah v. Maretti, 321 N.W.2d 182, 187 (Wis. 1982)} (a neighbor's proposed construction of a residence threatened to interfere with the plaintiff's access to unobstructed sunlight for solar energy). The problem may be more sensitive when community aesthetics are involved, especially for those communities that value their natural appearances. \textit{See Richard G. Jones, Windmill Cuts Bills, but Neighbors Don't Want to Hear It, N.Y. Times, July 11,}
doctrine and its dependence upon appropriators who make beneficial and continuous use of the resource fails to contemplate such competing "uses."  

Moreover, the threshold test under the appropriation doctrine revolves around the date of first beneficial use. In the instance where an operating wind energy system is deprived of its wind supply by the subsequent action of a neighbor, it should be undisputed as to who was the first appropriator of the wind. Under the doctrine, a beneficial use is generally shown by demonstrating that a practical need exists for the activity, and that the activity is socially desirable. Like the appropriation of water to produce electricity, it should also be undisputed that the appropriation of wind to generate energy constitutes a beneficial use. The analysis should resemble the determination of whether the use has economic and social value under the riparian use test. However, the beneficial use test is inadequate to address wind rights. Because the test contemplates "use," the wind energy proprietor must certainly prevail because the obstructer is not seeking to "use" the wind; in fact, his appropriation of the wind is incident to other purposeful activity. Like many rights, appropriative rights can be waived by a party's failure to exercise those rights. Thus, the small wind energy user who is threatened with or suffers a deprivation of air flow must protest without delay once notice of the condition is received.

The beneficial use inquiry is similar, although less extensive, than the allowable and reasonable use test of the riparian doctrine, but it may fail to give due consideration to some of the relevant facts of a dispute. Appropriative rights, while not a complete theory to incorpo-

2007, at B1 (describing a conflict between a single small wind turbine at a residence and the town's concern over the turbine's impact on community aesthetics and noise; the small wind operator felt entitled to "the same life, liberty and pursuit of wind currents as anyone else").

251. The doctrine of appropriation generally requires that an appropriator intend to appropriate water for a beneficial use. See Getches, supra note 30, at 88. In the commercial wind farm arena, direct competition over wind access is problematic. See, e.g., Rule, supra note 7, at 211. Rule's assertion of a particular property rights theory almost ensures victory for an upwind appropriator who is in conflict with a downwind appropriator, regardless of which system was first in operation. Id.

252. See supra note 165 and accompanying text.

253. See supra note 170 and accompanying text.

254. See Grand Hydro v. Grand River Dam Auth., 139 P.2d 798, 805 (Okla. 1943) (an electricity company secured the right to appropriate water because it was first in line and the use was of a beneficial nature).

255. See supra note 148 and accompanying text.


257. See id. at 1369.
rate all of the interests at stake, may nevertheless have limited application where two landowners both seek to use the wind.

IV. DOCTRINAL IMPACT ON LEGISLATIVE MEASURES

With the increasing development and reliance upon wind energy, courts and legislatures will be asked to resolve controversies over obstruction of wind flow and conflicting uses by owners of neighboring land.\textsuperscript{258} This Comment does not suggest a total departure from traditional legal theories for wind turbine dispute resolution, but rather suggests an alternative view that focuses on small wind energy operators and how their small-scale, though still valuable, ventures may be protected from undesirable nuisance challenges and unreasonable interference. It is important to note that the disputes over wind blockages will not always be in the form of competition for the use of wind itself; instead, the parties will typically compete over the use of airspace generally.

While property rights should be given due consideration in any legislation, an analysis of analogous riparian and prior appropriation doctrines that govern the use of water may help legislators craft meaningful legislation that fosters and protects wind energy development at the residential level. Because some areas are more suitable to wind energy development, legislation will be most effective at the state and local levels, where regional physical characteristics and customs can help shape wind energy development.\textsuperscript{259}

A. Regulation Based on the Riparian Doctrine

The “purpose of use” factor under the riparian analysis presents the most likely problem with respect to the competition between a landowner who intends to harvest wind for his energy needs and his neighbor who intends to exercise his property rights by building and maintaining structures that may interfere with the former’s energy production goals. Both activities are lawful and beneficial. Rather than leave every situation to the balancing test, legislators should enact baseline standards that anticipate wind access disputes. For example, just as riparian rights are vested in watercourses adjacent to an owner’s land, “windcourses” could be defined in a manner that give

\textsuperscript{258} Smith, supra note 6, at 317.

\textsuperscript{259} See Salkin, supra note 227, at 9-161 to 9-163.
residential wind energy systems precedence over interfering uses on adjacent lands.260

Macro data of the windiest regions in the country is readily availa-
ble.261 After the regions are studied and identified on a local level, legislators could draw districts that facilitate wind energy production. Within these districts, zoning measures can provide small wind sys-
tems with a heightened degree of protection from obstruction. For instance, Wisconsin granted local municipalities the authority to adopt permitting measures that allow wind turbines to operate within municip-
al confines, provided that all requirements are met and that the application passes scrutiny at a public hearing.262 However, the authorization to enact such measures is not as effective as a mandate. To more directly encourage the installation of small wind energy sys-
tems, states could, based on the foregoing, determine the areas that are best suited for wind energy devices and, in accordance with federal and state goals, declare measureable goals for wind energy develop-
ment in these areas. Such measures will also reduce the extent of harm suffered by parties who must currently install systems while facing the risk that they will be sanctioned in the future. With guidelines in place, a small wind operator and his neighbor can avoid situations in which they will adversely affect one another. An operator can seek to live in these turbine-friendly areas, while others can avoid the areas or situate themselves in an area where the wind systems will not hin-
der them. Thus, when a wind energy operator constructs a permissi-
ble turbine, he cannot later be denied return on his investment when a neighbor “comes to the nuisance.”263

By declaring certain areas as suitable to small wind energy develop-
ment, legislators will serve the interests of practicality and protection of investments, and they will provide a set of guidelines for the imple-
mentation of wind energy development. Such guidelines will establish

260. Geographic zones can be mapped and height limits can be imposed on structures and vegetation so as not to interfere with such systems, in addition to other familiar restrictions such as setbacks and height limits. See Young, supra note 88, at 63–66 (discussing the revision of zoning ordinances in order to foster wind energy sites and development, as well as addressing wind turbine nuisance concerns like noise and visual impact).

261. The data is readily available on wind resource maps; however, local studies are needed to help define the boundaries of wind energy zones that would be analogous to watercourses. See NAT'L RENEWABLE ENERGY LAB., U.S. DEP'T OF ENERGY, SMALL WIND ELECTRIC SYSTEMS 11 (2007) (noting that prospective small wind operators often conduct their own studies to determine the feasibility of the installation of a small wind system).


263. See, e.g., Rassier v. Houim, 488 N.W.2d 635, 640 (N.D. 1992) (Meschke, J., concurring in part and dissenting in part) (holding that a property was zoned residential and therefore was not suited to the installation of a wind turbine).
baseline expectations for all landowners within suitable “wind-friendly zones,” and it will serve to meet and advance renewable energy policy goals.

B. Regulation Based on the Prior Appropriation Doctrine

The doctrine of prior appropriation is illustrative of the basic “first come, first served” principle of resource allocation. Any regulatory measures adopted to augment and protect small wind energy rights under this doctrine would need to incorporate a limitation on that right. The limitation would need to apply equally in instances in which an adjacent landowner has developed land that would conflict with a subsequently installed small wind system and instances in which a neighbor later seeks to develop his property in a manner that is adverse to the small wind operator. Legislation drawn on the prior appropriation doctrine must also address the beneficial use and abandonment factors. Although the beneficial use analysis under the appropriation doctrine is similar to the reasonable use inquiry under the riparian doctrine, some relevant facts and policy concerns may be overlooked under the appropriation doctrine. By establishing an abandonment stipulation, a land-use regulation measure will help balance any perceived harm to neighbors of small wind systems. If permitting schemes analogous to the procedure that was described in the Wisconsin statute are adopted, permit grantees should have a specified period of time in which to make the small wind energy system operational and beneficial. If such ends are not achieved within the stipulated time frame, then the failure should be considered an abandonment, and neighboring property should not be subject to land use regulations that expressly address small wind energy systems.

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264. See supra notes 164–175 and accompanying text.

265. Such a measure would be analogous to the majority’s position in Rassier v. Houim, in which the North Dakota Supreme Court let a wind turbine stand in a residential neighborhood over the protests of a neighbor who later built a house on adjoining property. See 488 N.W.2d at 638–39.

266. See supra notes 164–175 and accompanying text.

267. Compare Restatement (Second) of Torts § 850A (1979) (requiring analysis of up to nine factors to determine reasonableness of water use), with State Dep’t of Ecology v. Grimes, 852 P.2d 1044, 1051 (Wash. 1993) (the beneficial use of water must be economically advantageous, reasonable, and not wasteful).


269. See, e.g., § 66.0403(9) (stating that the failure to install a functional device within two years of the issuance of a permit terminates wind access rights).
V. Conclusion

Under current law, there is little protection afforded to would-be small wind energy system owners, yet the need for increased renewable energy development is increasing. Abundant authority exists in the traditional water rights doctrines, and these authorities logically and easily apply to wind energy issues. The lessons learned over two centuries of American water appropriative doctrine need not be re-learned with respect to protecting rights to appropriate wind for energy generation. Rather, the applicable portions of the riparian and prior appropriation doctrines, as well as current public and social policy renewable energy goals, should be considered when drafting federal, state, and municipal legislation that address wind appropriation, incentives for wind energy systems, and local land use regulations.

Because riparian rights are inherent in land, it follows that the creation of “wind-friendly zones” is the next logical step in zoning regulations in order to accommodate an increasing number of small wind energy systems.

This Comment proposes that local land use regulations should be enacted with the aim of establishing a minimum number of small wind systems and meeting state-mandated wind-electricity production within “wind-friendly zones.” Much like water use, which is largely regulated by doctrines that suit the character of the environment and the demands of local communities, wind energy can be regulated and protected in the same manner. To provide context and structure to the development of wind rights regulations, legislators should create wind zones that are analogous to watercourses. Property owners within these zones should have riparian-like rights to the reasonable use of the wind in general. Furthermore, because the doctrines governing water use have altered over time to accede to contemporary demands, a wind rights doctrine based on water law will benefit from the same flexibility as today’s development, climate, and economic issues influence energy policy. These small adjustments will help shift

270. Many sources discuss practical policy and societal impacts related to the vitalization of the renewable energy industry. See, e.g., JANET L. SAWIN, MAINSTREAMING RENEWABLE ENERGY IN THE 21ST CENTURY 44–52 (Thomas Prugh ed., 2004) (discussing global policies for advancing wind and solar energy use, efforts to phase out conventional fossil fuel electricity sources, and market and employment impacts within the energy sectors). A similar, more detailed treatment of the same issues is available in GIPE, WIND POWER, supra note 57.
the legal landscape to encourage the installation of small wind energy systems and support renewable energy goals.

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