

University of Missouri School of Law Scholarship Repository

Faculty Publications

2010

Renewable Energy and the Neighbors

Troy A. Rule

University of Missouri School of Law, rulet@missouri.edu

Follow this and additional works at: <http://scholarship.law.missouri.edu/facpubs>

 Part of the [Air and Space Law Commons](#), [Energy Law Commons](#), [Land Use Planning Commons](#), and the [State and Local Government Law Commons](#)

Recommended Citation

Troy A. Rule, Renewable Energy and the Neighbors, 2010 Utah L. Rev. 1223 (2010)

This Article is brought to you for free and open access by University of Missouri School of Law Scholarship Repository. It has been accepted for inclusion in Faculty Publications by an authorized administrator of University of Missouri School of Law Scholarship Repository.

RENEWABLE ENERGY AND THE NEIGHBORS

Troy A. Rule*

I. INTRODUCTION

The greatest opponents of renewable energy development are often those living next door. Many landowners view wind turbines and solar panels as threats to local aesthetics and property values.¹ As a result, zoning ordinances and subdivision covenants in communities throughout the country restrict or prohibit the installation of green energy devices.²

Recent policy developments in the United States evince strong general support for “distributed renewables”—rooftop solar panels, small wind turbines,³ and similar systems that generate electric power for on-site use.⁴ Generous federal

* © 2010 Troy A. Rule, Associate Professor of Law, University of Missouri School of Law. Many thanks to Lee Fennell, Blake Hudson, Thomas E. Plank, Ben Trachtenberg, participants at the 2010 Southeastern Association of Law Schools Annual Meeting, participants at the 2011 Association for Law, Property, and Society Annual Meeting, and faculty members at the Villanova University School of Law for their valuable comments on earlier drafts of this Article. Thanks also to the University of Missouri Summer Faculty Research Program for its generous support.

¹ Neighborhood conflicts over small renewable energy systems have become a regular occurrence in recent years. *See, e.g.*, Richard Cowen, *Wayne Man's Wind Turbine in Judge's Hands*, RECORD (N.J.), Mar. 28, 2010, at L3 (describing a dispute between a landowner and the local planning board over a proposal to install a fifty-foot-high wind turbine atop the landowner's commercial car wash facility); Bob Goldsborough, *Naperville Takes Wind Out of Turbine Plan; Carwash's Energy Proposal Delayed Until City's Ready*, CHICAGO TRIBUNE, June 3, 2010, at 9 (describing local government's decision to indefinitely table a landowner's proposal to install a forty-five-foot-tall small wind turbine); Catherine Saillant, *Solar Panels Causing Some Storms*, L.A. TIMES, Nov. 30, 2009, at A4 (describing disputes between landowners and homeowner associations over rooftop solar panels); Kate Galbraith, *Homeowners Associations: The Enemy of Solar?*, N.Y. TIMES (May 15, 2009, 8:15 AM), <http://green.blogs.nytimes.com/2009/05/15/homeowners-associationsthe-enemy-of-solar/> (describing a homeowner association's opposition to solar panel installations).

² For a more detailed discussion of local barriers to distributed renewable energy development, *see infra* text accompanying notes 73–84, 89–90.

³ Small wind turbines are sometimes distinguished from building-mounted turbines, which tend to be smaller and are mounted on existing structures. For the purposes of this Article, “small wind turbines” refers to both building-mounted turbines and conventional tower-mounted turbines, all typically having generating capacities of one hundred kilowatts or less. *See* AM. WIND ENERGY ASS'N, SMALL WIND TURBINE GLOBAL MARKET STUDY: YEAR ENDING 2009, at 17 (2010) [hereinafter AWEA, 2009 SMALL WIND MARKET STUDY], available at http://www.awea.org/documents/2010_AWEA_Small_Wind_Turbine_Global_Market_Study.pdf (describing building-mounted turbines).

⁴ “Distributed” renewable energy development is distinguishable from commercial renewable energy development, which involves the siting and installation of industrial-

subsidies have significantly defrayed the cost of distributed renewables,⁵ and incentive programs in dozens of states further encourage landowners to invest in the devices.⁶

Unfortunately, Americans tend to be far less supportive when distributed renewables are proposed for installation on a neighboring lot or just down the street.⁷ Even municipalities that have embraced green building standards and other sustainable land use practices often disfavor local policies that promote distributed renewable energy.⁸

Communities' reluctance to accommodate distributed renewables raises difficult questions over how best to allocate land use regulatory authority between states and local governments. Statutes in a growing minority of states overcome community opposition to distributed renewables by broadly invalidating local land use controls that restrict their installation.⁹ Such broad legislation succeeds at tearing down local barriers to distributed renewable energy but can ignore legitimate concerns that drive community resistance.

Distributed renewable energy is vital to curbing energy sprawl¹⁰ by large-scale energy generation facilities while still reducing the nation's reliance on fossil fuels.¹¹ As small-scale wind and solar power systems grow ever more cost-efficient, neighborhood battles over them will only increase. Innovative laws are

scale renewable energy generating systems for the production of power that is typically sold on a wholesale basis for use offsite. Commercial wind or solar energy projects are also prone to local opposition but present their own set of distinct issues that are outside the scope of this article.

⁵ See generally 26 U.S.C. § 25D (2006) (providing a 30% federal income tax credit on the installation of solar panels, small wind turbines, and certain other renewable energy devices).

⁶ DATABASE OF ST. INCENTIVES FOR RENEWABLES & EFFICIENCY, <http://www.dsireusa.org> (last visited Oct. 22, 2010) (providing state-by-state information on state-level incentives for renewable energy).

⁷ See *supra* note 1.

⁸ See, e.g., *infra* text accompanying note 83.

⁹ State legislation aimed at preempting or invalidating local restrictions on distributed renewable energy is described in more detail in Part III.E of this Article.

¹⁰ Professor Bronin recently authored an article on the issue of "energy sprawl," which she defines as the "ever-increasing consumption of land, particularly in rural areas, required to site energy generation facilities." Sara C. Bronin, *Curbing Energy Sprawl*, 43 CONN. L. REV. (forthcoming Dec. 2010), available at <http://ssrn.com/abstract=1594515> (discussing energy sprawl and the critical importance of distributed renewable energy to addressing this growing problem).

¹¹ Other legal scholars have emphasized the growing and crucial role of distributed renewable energy to the nation's energy future. See, e.g., Garrick B. Pursley & Hannah J. Wiseman, *Local Energy*, 60 EMORY L.J. (forthcoming Mar.-Apr. 2011) (manuscript at 6), available at <http://ssrn.com/abstract=1567585> ("Distributed renewables . . . are just as essential as large-scale installations to establishing a stable nationwide energy infrastructure powered substantially by renewable resources . . .").

needed to prevent local opposition from hindering the future growth of distributed renewable energy.

This Article analyzes distributed renewable energy from the perspective of communities, proposing a new strategy for making it more attractive at the local level. Part II of the Article suggests that fears of adverse effects on home values are a primary reason why land use laws favoring distributed renewables often garner less local support than other sustainability-driven land use policies. Part III analyzes existing state and federal efforts to overcome community resistance, concluding that none of them effectively mitigates neighborhood opposition without forfeiting the valuable benefits of local land use decisionmaking. Part IV frames governmental powers to regulate land use as scarce “entitlements” within Guido Calabresi and A. Douglas Melamed’s model of property rules and liability rules. Part IV also explores the possibility of using liability rule–like approaches to promote more efficient allocations of these powers between state and local governments. Part V proposes a statutory scheme that would award special property tax credits to landowners in communities that have voluntarily amended their land use regulations to allow distributed renewables. This “Green Community Tax Credit” approach would encourage communities to accommodate distributed renewables, yet allow each community to weigh its unique local costs and independently decide the issue.

II. THE LOCAL ECONOMICS OF SUSTAINABILITY

Renewable energy devices are just one component of the global, decades-old sustainability movement. “Sustainable development” is development that “meets the needs of the present without compromising the ability of future generations to meet their own needs.”¹² Originating in a 1983 U.N. World Commission on Environment and Development report,¹³ the phrase has become a popular catchall for ecological, energy-efficient land use practices.¹⁴ Suburban growth boundaries,

¹² Jerrold A. Long, *Sustainability Starts Locally: Untying the Hands of Local Governments to Create Sustainable Communities*, 10 WYO. L. REV. 1, 5 (2010) (quoting U.N. World Comm’n on Env’t & Dev., *Our Common Future: Report of the World Commission on Environment and Development*, U.N. Doc. A/42/427 (May 21, 1987)).

¹³ *Id.* Long mentions that sustainable development was originally intended to encompass economic and social equity components. *Id.* Although the common usage of sustainable development connotes an emphasis on environmental sustainability, some scholars have called for greater attention to these other two components. *See, e.g.*, Patricia E. Salkin, *Sustainability and Land Use Planning: Greening State and Local Land Use Plans and Regulations to Address Climate Change Challenges and Preserve Resources for Future Generations*, 34 WM. & MARY ENVTL. L & POL’Y. REV. 121, 131–32 (2009) (“While not as commonly associated with sustainability, the provision of an adequate supply of affordable housing is central to the social equity component of sustainability.”).

¹⁴ The U.N. Commission’s broad conception of sustainable development has drawn criticism for its vagueness. *Cf.* Long, *supra* note 12, at 6 (“I am sick to death of hearing about sustainable development. What is it? What do I do about it? How do I make it

green building standards, renewable energy incentive programs, development density requirements, and programs for the preservation of trees and open space are all classifiable as sustainable land use policies.

Mounting fears of climate change and growing frustration with suburban sprawl have triggered a surge of popular interest in sustainable land use in recent years.¹⁵ Sustainable development practices reduce the country's dependency on fossil fuels and help curb carbon dioxide emissions. In an era of fierce global trade competition, sustainability policies are also increasingly viewed as a source of new domestic jobs¹⁶ and a means of safeguarding the nation's economic position.¹⁷

A. Sustainability and the "Homevoter"

Although sustainable land use arguably offers valuable national and global benefits, not all sustainable development practices are equally appealing at the local level. Some sustainable land use policies can enrich a community's most influential landowners, while other policies threaten to have the opposite effect. Discussions about how to promote sustainable land use often fail to clearly distinguish those policies that are likely to garner neighborhood-level support from those that are not. State and federal strategies for promoting sustainable development will be most effective if they reflect the distinctly local interests and pressures that drive most land use decisions.

Sustainable development requires novel approaches to land use permits, building codes, and urban planning—all of which have historically fallen primarily

happen? What am I supposed to tell my client to do, or not to do? I need answers to those questions, and am not finding them in law review articles, policy papers, and engineering journals. Don't talk to me about sustainable development until you have the answers." (quoting J.B. Ruhl, *The Seven Degrees of Relevance: Why Should Real-World Environmental Attorneys Care Now About Sustainable Development Policy?*, 8 DUKE ENVTL. L. & POL'Y F. 273, 274 (1998)).

¹⁵ Cf. John R. Nolon, *The Land Use Stabilization Wedge Strategy: Shifting Ground to Mitigate Climate Change*, 34 WM. & MARY ENVTL. L. & POL'Y REV. 1, 10–12 (2009) (describing the many costly and unsustainable characteristics of the "single-family settlement pattern" that has predominated development in the United States since World War II).

¹⁶ For example, in 2009, U.S. colleges and universities created more than one hundred new majors, minors, and certificates in the area of energy and sustainability. See Julie Schmit, *As Colleges Add Green Studies, Classes Fill; And Employers Look Forward to New Hires*, USA TODAY, Dec. 28, 2009, at B1.

¹⁷ For instance, China is aggressively integrating sustainability into its policymaking, and other nations (including the United States) are struggling to keep pace in burgeoning renewable energy industries. See Keith Bradsher, *China Leading Race to Make Clean Energy*, N.Y. TIMES, Jan. 31, 2010, at A1 ("China vaulted past competitors in Denmark, Germany, Spain and the United States last year to become the world's largest maker of wind turbines, and is poised to expand even further this year. China has also leapfrogged the West in the last two years to emerge as the world's largest manufacturer of solar panels.").

under the control of municipalities and private community associations. Cities, counties, and homeowner associations are the primary regulators of land use in the United States.¹⁸ Municipal governments derive their land use authority primarily from the state delegation of police powers.¹⁹ Most states have empowered the local governments within their jurisdictions to regulate land use by enacting versions of the State Zoning Enabling Act.²⁰ The vast majority of states have also implicitly granted land use regulatory authority to many of their cities and counties by affording them home rule status.²¹ In the past few decades, state-level regulation of land use has increased to address environmental concerns,²² which also falls within

¹⁸ For a history of local government involvement in land use regulation, see Sara C. Bronin, *The Quiet Revolution Revived: Sustainable Design, Land Use Regulation, and the States*, 93 MINN. L. REV. 231, 235–38 (2008). Bronin cites work by Professors Richard Briffault, Carol Rose, and Dan Turlock, asserting that most scholars support the “locality of land use regulation.” *Id.* at 235.

¹⁹ It is generally accepted that land use regulation bearing a substantial relation to the public health, safety, or welfare, falls within the scope of the police power. *See* *Vill. of Euclid v. Ambler Realty Co.*, 272 U.S. 365, 395 (1926).

²⁰ *See* Long, *supra* note 12, at 17–18 (stating that the Standard State Zoning Enabling Act empowers local governments to “regulate and restrict” numerous aspects of land use and development within their boundaries “for the purpose of promoting health, safety, morals, or the general welfare of the community” (quoting ADVISORY COMM. ON CITY PLANNING & ZONING, U.S. DEP’T OF COMMERCE, A STANDARD STATE ZONING ENABLING ACT: UNDER WHICH MUNICIPALITIES MAY ADOPT ZONING REGULATIONS § 1 (1926)). The Standard Zoning Enabling Act largely remains in effect in forty-seven states. *Id.* at 17 n.78; 1 NORMAN WILLIAMS, JR. & JOHN M. TAYLOR, *AMERICAN LAND PLANNING LAW* 490 (3d ed. 2003).

²¹ According to one commentator, as of 2003, forty-eight states were considered “home rule” states. *See* WILLIAM VALENTE ET AL., *CASES AND MATERIALS ON STATE AND LOCAL GOVERNMENT LAW* 254 (5th ed. 2001). However, the extent of authority conveyed to home rule municipalities concededly varies by state, and in some states not all types of municipal entities enjoy home rule autonomy. *Id.* For a thorough examination of issues raised by home rule, see generally David J. Barron, *Reclaiming Home Rule*, 116 HARV. L. REV. 2257, 2260 (2003) (“[A]ll but two states now have express constitutional or statutory home rule provisions.”).

²² *See* ENVTL. LAW INST., *NEW GROUND: THE ADVENT OF LOCAL ENVIRONMENTAL LAW* 172 (John R. Nolon ed., 2003) [hereinafter NOLON, *NEW GROUND*] (claiming that an increased interest in environmental issues motivated several states in the 1970s and 1980s to make “significant modifications to their systems of land use control, giving more power to the regional and state governments to deal with environmental protection through land use controls”). This reclamation of land use power by state governments was coined the “quiet revolution” in a book bearing that phrase in 1971. *See* FRED BOSSELMAN & DAVID CALLIES, *THE QUIET REVOLUTION IN LAND USE CONTROL* (1971); Bronin, *supra* note 18, at 267 (arguing that the quiet revolution never fully materialized and advocating its revival as a means of promoting sustainability).

the scope of the state's police power.²³ Nonetheless, local governments still retain the lion's share of land use regulatory authority. In recent years, homeowner associations have also become increasingly important regulators of land use.²⁴

Communities may derive their land use regulatory authority from the state, but they tend to formulate land use policies with distinctly local interests in mind. Professor William Fischel's *Homevoter Hypothesis* posits that "concern for home values is the central motivator of local government behavior."²⁵ A home is often a voter's most valuable and highly leveraged asset, and land use regulations can greatly impact the market values of homes within a jurisdiction.²⁶ Homeowners thus "tend to choose those policies that preserve or increase the value of their homes," recognizing that the package of taxes and public amenities that accompanies a home is capitalized into its value.²⁷ Professor Fischel suggests that these "homevoters" are often a community's most influential voters²⁸ and that they tend to favor policies that protect local home values even if alternative policies

²³ See PETER W. SALSICH, JR., & TIMOTHY J. TRYNIECKI, *LAND USE REGULATION* 424 (2d ed. 2003) ("Both environmental protection and land use regulation powers are derived from the police power of the state to protect public health, safety and welfare.").

²⁴ As of 2009, an estimated 60.1 million Americans lived in housing governed by homeowner associations and there were approximately 305,400 homeowner association-governed communities in the United States. See *Industry Data: National Statistics, COMMUNITY ASS'NS INST.*, <http://www.caionline.org/info/research/Pages/default.aspx> (last visited July 13, 2010).

²⁵ WILLIAM A. FISCHEL, *THE HOMEVOTER HYPOTHESIS* 5 (2001).

²⁶ Decades of empirical research have affirmatively established that land use regulations can materially affect property values. In Fischel's words:

It is an undergraduate exercise these days. Find a sample of single-family housing values, either individual transactions or census tract averages. Regress their value against a number of control variables—square feet of living space, number of rooms, age of structure, access to amenities or disamenities—and add a variable or two to capture the effect of some local government policy that varies within the sample. The results of this exercise show . . . that local government policies do indeed make a difference.

WILLIAM A. FISCHEL, *REGULATORY TAKINGS: LAW, ECONOMICS AND POLITICS* 219 (1995) (citing JOHN A. YINGER ET AL., *PROPERTY TAXES AND HOUSE VALUES: THE THEORY AND ESTIMATION OF INTRAJURISDICTIONAL PROPERTY TAX CAPITALIZATION* (1988)).

²⁷ FISCHEL, *supra* note 25, at 4. Fischel's homevoter-based conception of local politics is in stark contrast to the conventional view of *state*-level policymaking, where special interest groups tend to have a greater influence on legislative decisions. See *id.* at 206 ("[C]oncentrated interest groups with much to gain from development would seem more likely to be served at the state level.").

²⁸ Fischel has cited multiple empirical sources and studies in support of his assertion that "[h]omeowners are clearly the dominant political faction in the communities in which the great majority of Americans reside" and that the "prospect of capital gains and losses to homeowners is the most consistent motivator of local government activity." *Id.* at 96.

would better enhance the broader social welfare.²⁹ Focused on the community-specific costs and benefits that predominate in their constituents' minds, local governments often pay less attention to the regional, national, or global effects of land use decisions.³⁰

The community-centric nature of local land use policy has important implications for state or federal policymaking aimed at promoting sustainable land use. Few municipal governments would voluntarily increase local taxes if they knew that 99% of the additional tax revenue raised would flow directly to the federal government. For similar reasons, most communities are reluctant to incur substantial new costs to support a sustainable development strategy whose benefits would flow primarily outside their jurisdictional boundaries.³¹

Distributed renewable energy is less likely than many other sustainable land use practices to garner local political support. The following subsections attempt to categorize various sustainable land use policies based on their relative propensities for community acceptance, labeling the policies as "homevoter-favored," "homevoter-neutral," or "homevoter-feared." Such sorting is somewhat oversimplified, but it helps to illustrate why distributed renewable energy devices are more susceptible to local resistance than most other forms of sustainable development.

²⁹ Michelman has written about the often community-centric character of local government policymaking, describing a "public choice" model of local government in which voters and local officials are primarily self-interested. See Frank I. Michelman, *Political Markets and Community Self-Determination: Competing Judicial Models of Local Government Legitimacy*, 53 IND. L.J. 145, 148–50 (1978). He contrasts this "public choice" conception of local government with a "public interest" model (under which officials might focus more on maximizing the net social benefit of land use policies), conceding that the public interest model may in a sense be a "less 'realistic' way of looking at the world than public choice." See *id.*

³⁰ Rockland County, New York, has even expressly mandated community-centric cost/benefit analyses of development projects, authorizing the waiver of LEED certification requirements upon a determination by a county executive that "the benefits of waiving this local law's requirements outweigh the environmental benefits to the residents of Rockland County." Patricia E. Salkin, *Renewable Energy and Land Use Regulation (Part I)*, ALI-ABA BUS. L. COURSE MATERIALS J., Feb. 2010, at 47, 53 (quoting CNTY. OF ROCKLAND, N.Y., LOCAL LAW NO. 14, § 3 (2008)) (internal quotation marks omitted).

³¹ Not surprisingly, other scholars have observed this reluctance of local governments to adopt policies for the primary benefit of those outside the jurisdiction. See, e.g., Amnon Lehari, *Intergovernmental Liability Rules*, 92 VA. L. REV. 929, 931 (2006) (arguing that when a locality's land use decision "has substantial implications on private and public actors outside its territory, the local government has no apparent political motive to consider these effects in advance, let alone to consciously forego intrajurisdictional benefits to prevent interjurisdictional harms").

B. Homevoter-Favored Sustainability

Some sustainable land use policies substantially benefit a community's most influential voters. These homevoter-favored policies restrict or increase the cost of new real estate development, bolstering the market values of developed properties within a jurisdiction.³²

Several sustainable land use strategies directly or indirectly restrict real estate development. One aggressive growth-restricting policy is a growth boundary—a line drawn near the edge of an urban area beyond which new development within the jurisdiction is prohibited or highly restricted.³³ Growth boundaries and other aggressive “smart growth”³⁴ strategies are typically advocated as means of promoting infill development and reducing suburban sprawl, but they also reduce the supply of new development within the affected area. Particularly in “unique” communities where the demand for developed property is relatively inelastic, local citizens may support a smart growth policy at least partly for its capacity to buttress real estate values.³⁵

Growth boundaries and other direct development restrictions can be vulnerable to regulatory taking claims and political opposition, so community governments seeking to constrain growth often “fall back on more indirect controls” that are less susceptible to challenge.³⁶ By increasing the cost of

³² Fischel has cited numerous empirical studies to argue that growth controls (which restrict the supply of new housing) tend to raise the market values of existing housing within the relevant jurisdiction. See FISCHEL, *supra* note 25, at 221–23.

³³ Numerous cities throughout the nation have used growth boundaries to restrict growth. For a detailed description and analysis of the growth boundary approach in Boulder, Colorado, see Joseph N. de Raismes, III et al., *Growth Management in Boulder, Colorado: A Case Study* (undated) (unpublished manuscript), available at <http://www.bouldercolorado.gov/files/City%20Attorney/Documents/Miscellaneous%20Docs%20of%20Interest/x-bgmcs1.jbn.pdf>.

³⁴ A “smart growth” policy is any regulatory mechanism aimed at combating suburban sprawl. See ROBERT H. FREILICH, *FROM SPRAWL TO SMART GROWTH: SUCCESSFUL LEGAL, PLANNING, AND ENVIRONMENTAL SYSTEMS* 8–9 (1999). For a thoughtful survey of smart growth policies, see generally *id.* at 167–320.

³⁵ See Robert C. Ellickson, *Suburban Growth Controls: An Economic and Legal Analysis*, 86 YALE L.J. 385, 390–91 (1977). Ellickson points out that the elasticity of demand for developed real property in a municipality greatly influences the magnitude of effects from shifts in the supply curve. See *id.* at 400. More “unique” jurisdictions are typically characterized by more inelastic demand and would thus be predicted to exhibit greater market price effects from growth restrictions than more generic suburban communities for which there are close substitutes. See *id.* (“If consumer demand for residency in a suburb is not completely elastic, its housing owners can employ growth controls to cartelize housing supply.”).

³⁶ *Id.* at 390.

developing real estate within a jurisdiction,³⁷ these indirect controls cause inward shifts in the supply curve for development that prop up market prices for existing homes and buildings.³⁸

Local ordinances that impose green building requirements on new developments are an indirect restriction on growth. Green building practices surely reduce the environmental impact of real estate development by incorporating stricter energy efficiency and sustainability standards into building construction and design.³⁹ However, green building ordinances also diminish developers' flexibility in selecting materials and construction methods and are thus likely to raise the construction costs within a jurisdiction and thereby increase the value of developed real estate.⁴⁰

Not surprisingly, communities throughout the nation are increasingly embracing green building⁴¹ and other homeowner-favored sustainability practices. A growing number of local governments require that new, private development projects meet the U.S. Green Building Council's Leadership in Energy and Environmental Design (LEED) building standards or comparable green building requirements.⁴² Some cities also mandate that developers protect solar access in

³⁷ Ellickson cited "onerous design specifications in subdivision ordinances and building codes" as examples of indirect growth controls. *Id.* at 391.

³⁸ Other scholars have characterized growth controls as a means of increasing homeowner wealth. *See, e.g.,* FISCHER, *supra* note 25, at 228 (arguing that growth controls are an easy method by which the net worth of homeowners can be increased).

³⁹ Green buildings are "facilities designed, built, operated, renovated, and disposed of using ecological principles for the purpose of promoting occupant health and resource efficiency plus minimizing the impacts of the built environment on the natural environment." Sarah B. Schindler, *Following Industry's LEED: Municipal Adoption of Private Green Building Standards*, 62 FLA. L. REV. 285, 287 (2010) (quoting Charles J. Kibert, *Green Buildings: An Overview of Progress*, 19 J. LAND USE & ENVTL. L. 491, 491-92 (2004)).

⁴⁰ The magnitude of cost increases associated with green building and smart growth varies by project but is greater than zero, and even the mere perception of higher costs or greater cost-related project risks associated with such policies can constrain growth. *See* Leigh Kellett Fletcher, *Green Construction Costs and Benefits: Is National Regulation Warranted?*, 24 NAT. RESOURCES & ENV'T 18, 20 (2009) (referencing an empirical study estimating that "LEED-certified green buildings are a minimum of 1-2 percent more expensive to construct than traditional buildings" and conceding that "despite the benefits, it simply costs more money to build green"); *see also* Bronin, *supra* note 18, at 245 (noting the existence of a "perception that green building is excessively costly" but citing two empirical studies to argue that the cost premiums for green building are modest).

⁴¹ One commentator described cities' recent willingness to adopt green development standards as a veritable "love affair" with LEED certification. Salkin, *supra* note 30, at 54.

⁴² Examples of new green building requirements abound. The District of Columbia and several major U.S. cities have recently adopted green building mandates for much of the private development occurring within those jurisdictions. *See, e.g.,* WASH., D.C., CODE 6-1451.01 to .10 (2010); CAL. DEP'T OF JUSTICE, STATE AND LOCAL GOVERNMENT GREEN BUILDING ORDINANCES IN CALIFORNIA (2010), *available at* <http://www.ag.ca.gov/>

new subdivisions,⁴³ conserve water,⁴⁴ or preserve urban tree populations in connection with new development.⁴⁵ Support for growth-restraining sustainability policies has seemingly been greatest in uniquely positioned cities with high real estate prices.⁴⁶ Steep market values and a comparatively inelastic demand for real estate should theoretically mean greater property value increases from growth controls in these jurisdictions, which may partly explain why these cities have been swift to implement growth-restraining sustainability policies.

Green building and smart growth are laudable means of conserving scarce energy, water, and land⁴⁷ without significantly compromising community aesthetics.⁴⁸ However, given localities' increasing voluntary adoption of green development policies and the theoretical underpinnings for such local support, aggressive state or federal interventions aimed at accelerating their community-level adoption seem less justifiable than for the homevoter-neutral and homevoter-

globalwarming/pdf/green_building.pdf (listing dozens of California cities with mandatory green building ordinances, many of which apply to new privately-owned buildings).

⁴³ See, e.g., MADISON, WIS., CODE OF ORDINANCES § 16.23(8)(a)(2)(e) (2008) (requiring that street and lot layout in new subdivisions be oriented to maximize solar access).

⁴⁴ For example, some municipal governments in Arizona have voluntarily adopted one-hundred-year water adequacy requirements for new subdivisions, as authorized under state legislation passed in 2007. See, e.g., COCHISE CNTY., ARIZ., SUBDIVISION REGULATIONS § 408.03 (2008).

⁴⁵ See, e.g., AUSTIN, TEX., CITY CODE §§ 25-8-601 to -648 (establishing various requirements for the preservation of trees in developments within city limits).

⁴⁶ A recent study by Cushman & Wakefield and the Northwest Energy Efficiency Alliance gave the highest Mandates & Incentives Scores for aggressive green development requirements in New York City, San Francisco, Los Angeles, and Washington, D.C.—metropolitan areas notorious for having some of the highest commercial real estate values in the nation. See BETTERBRICKS, CUSHMAN & WAKEFIELD, GREEN BUILDING OPPORTUNITY INDEX 4 (2010), available at http://betterbricks.com/images/gbi_pdf/GreenBuildingIndex-NationalOverview.pdf. The two metro areas sharing the lowest Mandates & Incentives Scores were Detroit and Phoenix, where commercial real estate values are far more modest. See *id.* (giving a score of “100” to all three New York metro areas, an “87.5” score to Los Angeles, San Francisco and Washington, D.C., and a “25” score to Phoenix and Detroit). Admittedly, the greater average wealth of the citizenry in the former four cities may have also influenced their affection for green policies. See Thomas W. Merrill, *Private Property and the Politics of Environmental Protection*, 28 HARV. J.L. & PUB. POL'Y 69, 73 (2004) (arguing that as “people get richer, they develop a stronger taste for environmental amenities” and become “more willing to have a portion of their wealth taxed to support . . . public environmental protection”).

⁴⁷ See Bronin, *supra* note 18, at 244 (stating that “commercial buildings alone use nearly twenty percent of our nation’s drinking water supply” while “LEED certified projects consume substantially less water and energy”).

⁴⁸ See Salkin, *supra* note 30, at 53 (stating that the U.S. Green Building Council’s LEED program “promotes the use of sustainable locations for building and the use of recycled material and energy and water efficient appliances and fixtures . . . while still promoting aesthetic quality”).

feared policies described below. Model green building ordinances, education programs aimed at local officials, and other more passive interventions are arguably more appropriate for promoting homevoter-favored policies.⁴⁹

C. Homevoter-Neutral Sustainability

A second category of sustainable development laws is not likely to substantially increase local property values but does not threaten home values either. Examples of these homevoter-neutral policies might include community garden programs,⁵⁰ urban reforestation ordinances,⁵¹ pedestrian- or bicycle-friendly road construction for new developments,⁵² green building requirements for public projects,⁵³ and mass transit-oriented planning strategies.⁵⁴ Policies fitting within

⁴⁹ It should be noted that the California Building Standards Commission recently voted to impose a state-mandated green building code on municipalities—the only state that has taken such an approach. See Daniel B. Wood, *California Adopts First Statewide Building Code*, CHRISTIAN SCI. MONITOR (Jan. 15, 2010), <http://www.csmonitor.com/USA/2010/0115/California-adopts-first-statewide-green-building-code>.

⁵⁰ Empirical evidence suggests that community gardens can potentially increase property values, although substantial price effects tend to be limited to cases involving well-maintained gardens in blighted areas. See Ioan Voicu & Vicki Been, *The Effect of Community Gardens on Neighboring Property Values*, 36 REAL EST. ECON. 241, 243 (2008) (finding that “the opening of a community garden has a statistically significant positive impact on the sales prices of properties within 1,000 feet of the garden” and that “gardens have the greatest impact in the most disadvantaged neighborhoods”). For an example of a community garden program, see CLEVELAND, OHIO, ZONING CODE § 336.01 (2007) (establishing an “Urban Garden District” as part of the city’s zoning code “to ensure that urban garden areas are appropriately located and protected to meet needs for local food production, community health, community education, garden-related job training, environmental enhancement, preservation of green space, and community enjoyment on sites for which urban gardens represent the highest and best use for the community”).

⁵¹ The Urban Reforestation and Habitat Restoration Grant Fund established in King County, Washington, is an example of an urban reforestation program that might fit within this category. *Wild Places in City Spaces*, KING COUNTY, <http://www.kingcounty.gov/environment/grants-and-awards/grant-exchange/wildplaces.aspx> (last updated May 1, 2009). Under the program, private and public entities can obtain grants of up to \$10,000 to fund reforestation and habitat restoration in urban areas. *Id.*

⁵² Multiple states have developed resources to aid municipalities and private developers with pedestrian- and bicycle-friendly development measures. See, e.g., FLA. DEP’T OF TRANSP., WALKABLE COMMUNITIES: TWELVE STEPS FOR AN EFFECTIVE PROGRAM (1995), available at <http://www.walkable.org/assets/downloads/12STEPS.pdf>; GA. DEP’T OF TRANSP., PEDESTRIAN & STREETScape GUIDE (2003), available at http://www.walkable.org/assets/downloads/Georgia_ped_streetscape_guide.pdf.

⁵³ A long list of major U.S. cities have ordinances setting green building criteria for public projects. For a relatively recent compilation of local initiatives for green development, including information regarding LEED mandates for municipal buildings, see Les Lo Baugh, *LEED® Green Building Initiatives*, 556 PLI/REAL 23, 47–71 (2008).

this category often involve discrete public expenditures, at least some of which may be offset by consequent improvements in the local tax base or by reductions in municipal energy consumption.

In regions where social norms strongly favor “going green,”⁵⁵ homevoter-neutral sustainability policies may have particular appeal as a means of cultivating a community’s trendy, progressive image.⁵⁶ Some city governments appear to adopt such policies at least partly as a means of distinguishing their locale from others in hopes of attracting employers or desirable economic development.⁵⁷

A prototypical homevoter would not strongly protest homevoter-neutral sustainable land use practices because any negative impacts that the measures might have on property values are usually minimal. Still, arguments that strong state or federal programs are needed to motivate communities to adopt homevoter-neutral sustainable land use policies are less convincing than for the homevoter-feared policies described below. Model ordinance provisions and intercommunity idea-sharing programs could simplify the adoption and implementation of these

⁵⁴ Massachusetts has developed model transit-oriented development ordinance provisions for voluntary adoption by local governments to promote greater development density and development near transit services. See MASS. EXEC. OFFICE OF ENERGY & ENVTL. AFFAIRS, TRANSIT ORIENTED DEVELOPMENT MODEL BYLAW (undated), available at http://www.mass.gov/envir/smart_growth_toolkit/bylaws/TOD-Bylaw.pdf.

⁵⁵ The U.S. Conference of Mayors’ recent success in using peer pressure to motivate cities to adopt sustainability policies is evidence of prevailing social norms supportive of sustainability in much of the country. More than one thousand mayors throughout the nation have signed the U.S. Mayors Climate Protection Agreement, committing to “strive” to engage in various sustainability-related activities. See *List of Participating Mayors*, U.S. CONF. OF MAYORS: MAYORS CLIMATE PROTECTION CENTER, <http://www.usmayors.org/climateprotection/list.asp> (last visited Oct. 23, 2010) (listing 1,044 mayors who have signed the U.S. Mayors Climate Protection Agreement). Many of the action items in the Climate Protection Agreement are classifiable as community-neutral, such as commitments to promote greener transportation options or “maintain healthy urban forests.” MAYORS CLIMATE PROTECTION CTR., U.S. CONFERENCE OF MAYORS, THE U.S. MAYORS CLIMATE PROTECTION AGREEMENT (2005), available at <http://www.usmayors.org/climateprotection/documents/mcpAgreement.pdf>.

⁵⁶ Other scholars have cited the desire to bolster a community’s public image as a motive for adopting sustainable policies. See, e.g., Carl J. Circo, *Using Mandates and Incentives to Promote Sustainable Construction and Green Building Projects in the Private Sector: A Call for More State Land Use Policy Initiatives*, 112 PENN ST. L. REV. 731, 781 (2008) (“Indeed, some of the most vigorous green building initiatives evidence a belief that in the near future a public commitment to sustainability will enhance, not diminish, a locale’s economic development image.”).

⁵⁷ Recent policy developments in Greensburg, Kansas exemplify the strategy of embracing sustainability to set the community apart and attract investment. For a description of sustainability efforts in Greensburg, see Keith Schneider, *After a Tornado, a Kansas Town Rebuilds Green*, N.Y. TIMES, Sept. 23, 2009, at B6.

policies, making them better suited than state or federal programs to promote such policies at the local level.⁵⁸

D. Green LULUs: Homevoter-Feared Sustainability

A third set of sustainable land use policies are particularly susceptible to resistance to local resistance. Rather than enhancing a community's property values or public image, these policies require neighborhoods to accommodate land uses that they have historically opposed.

Many landowners view distributed renewable energy devices as locally undesirable land uses (LULUs).⁵⁹ State and federal programs aggressively promote distributed renewables, yet local land use restrictions across the nation have long inhibited their installation.⁶⁰ Such opposition undermines federal and state efforts to promote sustainability, arguably imposing costs on the nation and the world.⁶¹

Despite the numerous advantages of distributed renewables, these "green" LULUs commonly attract neighborhood opposition because of a perception that they could impose local costs in excess of the local benefits they would provide.⁶² Communities have restricted the installation of distributed renewables on countless

⁵⁸ See *infra* text accompanying notes 59–65, 109–111; see also, e.g., *Solar America Communities – About*, U.S. DEP'T OF ENERGY, <http://www.solaramericacommunities.energy.gov/about> (last updated Dec. 30, 2010) (describing the United States Department of Energy's Solar America Cities Program, an innovative idea-sharing program).

⁵⁹ Clotheslines and xeriscaping are also arguably classifiable as green LULUs. The analysis in this Article focuses primarily on small-scale renewable energy systems, but much of the analysis could extend to these other sustainable land uses as well.

⁶⁰ For a discussion of common land use and permitting restrictions on wind turbines and solar panels, see DAMIAN PITT, *TAKING THE RED TAPE OUT OF GREEN POWER: HOW TO OVERCOME PERMITTING OBSTACLES TO SMALL-SCALE DISTRIBUTED RENEWABLE ENERGY* 15–44 (2008), available at <http://www.newenergychoices.org/uploads/redTape-rep.pdf>.

⁶¹ For example, the U.S. Department of Energy estimates that if 20% of U.S. electricity demand were met by wind by 2030, annual electric sector carbon dioxide emissions would be reduced by 825 million metric tons, and the wind energy industry alone would employ over five hundred thousand Americans. See Elizabeth Burleson, *Wind Power, National Security, and Sound Energy Policy*, 17 PENN. ST. ENVTL. L. REV. 137, 140 (2009) (citing U. S. DEP'T OF ENERGY, *20% WIND ENERGY BY 2030: EXECUTIVE SUMMARY* 13 (2008)). Distributed renewable energy helps to stabilize domestic energy costs, reduce dependence on fossil fuels, curb energy sprawl, and conserve scarce water resources. See Ronald H. Rosenberg, *Making Renewable Energy a Reality: Finding Ways to Site Windpower Facilities*, 32 WM. & MARY ENVTL. L. & POL'Y REV. 635, 659–65 (2008); see also *infra* text accompanying notes 68–69, 86–88.

⁶² This challenging combination of costs and benefits is a defining characteristic of LULUs. ROBERT C. ELLICKSON & VICKI L. BEEN, *LAND USE CONTROLS: CASES AND MATERIALS* 731–32 (3d ed. 2005) (stating that communities are "reluctant" to host LULUs because LULUs "impose (or are perceived to impose) concentrated local costs, even when the more diffuse regional benefits outweigh those costs").

occasions based on fears that the devices could diminish neighborhood aesthetics, disturb nearby landowners, or threaten property values.⁶³

An ordinance that invites distributed renewables into a municipality can arguably create greater uncertainty for local voters than an ordinance authorizing the siting of a single waste disposal site or power plant. Unlike large-scale, concentrated LULUs, distributed renewables are typically installed at unpredictable locations throughout host communities over time. Individual voters considering whether their town should host a large LULU often already know where it would be sited and thus may have greater certainty about how it could impact them. In contrast, distributed renewables-friendly ordinances create the risk that any resident could ultimately see a small wind turbine or unsightly solar panel array installed next door.⁶⁴ Such broadly distributed risk can make it particularly difficult to build local support for land use controls favoring these devices.⁶⁵ The following subsections discuss small wind turbines and solar panels—two common examples of green LULUs.

⁶³ Although popular perceptions of solar panels and wind turbines are difficult to accurately measure and vary across jurisdictions, anecdotal evidence of opposition to these systems abounds. For example, one person opposing a neighbor's solar panel installation stated, "It's a visual nuisance . . . I have to stare at these hideous panels. It might as well be an ugly billboard." Freda R. Savana, *Solar Panel Fight Between Neighbors Not Over Yet*, BUCKS CNTY. COURIER TIMES, Feb. 1, 2010, available at 2010 WLNR 4339695. Similarly, a United Kingdom citizen opposed softened land use requirements for wind turbines, saying, "[T]hese plans are outrageous. It would lead to wind turbines popping up everywhere and ruining people's lives." *Major Concerns Over Wind Turbine Plan*, W. SUSSEX GAZETTE (Feb. 24, 2010, 12:04 PM), http://www.westsussextoday.co.uk/news/audio-and-visual/major_concerns_over_wind_turbine_plan_1_838907. In Ruhl's words, "energy is a key player in working the sustainable development cube—we cannot live without it, but we seem to be having difficulty living with it." J.B. Ruhl, *Law for Sustainable Development: Work Continues on the Rubik's Cube*, 44 TULSA L. REV. 1, 4 (2008).

⁶⁴ In some cities and towns, allowing small wind turbines and solar panels to be dispersed throughout a community might present a greater threat to property values than allowing a single, larger LULU. See WILLIAM A. FISCHER, DO GROWTH CONTROLS MATTER?: A REVIEW OF EMPIRICAL EVIDENCE ON THE EFFECTIVENESS AND EFFICIENCY OF LOCAL GOVERNMENT LAND USE REGULATION 17–18 (1990) (citing empirical studies by Ronald Lafferty and Ted Frech as evidence that the "more dispersed a community's nonresidential land uses, the lower the value, on average, of single-family homes").

⁶⁵ As Fischer has noted, homeowners are "likely to be especially risk-averse" with respect to land uses that could affect the value of their homes, and the "inability of homeowners to obtain insurance to cover value-reducing neighborhood effects contributes to the NIMBY [not-in-my-backyard] syndrome" exhibited by many homeowners. William A. Fischer, *Voting, Risk Aversion, and the NIMBY Syndrome: A Comment on Robert Nelson's "Privatizing the Neighborhood,"* 7 GEO. MASON L. REV. 881, 885 (1999).

1. *Small Wind Turbines*

Small wind turbines are an increasingly popular renewable energy source in the United States.⁶⁶ In contrast to their commercial-scale counterparts, small wind energy systems convert the kinetic energy in wind into electrical power that is typically consumed on-site.⁶⁷

Distributed wind energy development has distinctive characteristics that make it an attractive source of alternative energy. Unlike industrial-scale wind energy projects, small wind turbine installations do not require the construction of costly access roads and transmission lines across vast stretches of rural land and thus pose less of a threat to wildlife and conservation areas.⁶⁸ Small wind turbines also diversify a region's renewable energy portfolio in ways that can ease pressure on utility grids because they often generate the most power during periods when solar panels are the least productive.⁶⁹

Government incentive programs and improved turbine technologies have catalyzed dramatic growth in small wind turbine installations in recent years.⁷⁰ Congress' recent extension of a 30% federal tax credit for small turbines through the end of 2016⁷¹ suggests that community officials will see a growing number of requests for their installation for several years to come.⁷²

⁶⁶ See AWEA, 2009 SMALL WIND MARKET STUDY, *supra* note 3, at 3 (noting that half of the one hundred megawatts of domestic generating capacity from small wind turbines have been installed "within the past three years of the industry's 80-year history").

⁶⁷ Unused power that is generated by a small wind turbine may also be transmitted back onto the local power grid and sold to the local utility where net metering is available. At least thirty-five states now have net metering programs. See *Rules, Regulations & Policies for Renewable Energy*, DATABASE OF ST. INCENTIVES FOR RENEWABLES & EFFICIENCY, <http://www.dsireusa.org/summarytables/rpre.cfm> (last visited Oct. 23, 2010) (providing a list of states with net metering programs and links to relevant statutory provisions).

⁶⁸ For an insightful analysis of the problem of "energy sprawl" and how small wind turbines and solar panels can help to address the problem, see Bronin, *supra* note 10, at 15–23.

⁶⁹ See AM. WIND ENERGY ASS'N, POLICIES TO PROMOTE SMALL WIND TURBINES 2 (undated), available at http://www.provenenergy.co.uk/index.php/download_file/view/230/ (stating that wind turbines and photovoltaic solar panels are "natural complements" because "wind resources are strongest in the winter and spring while solar resources are strongest in the summer").

⁷⁰ The total U.S. generating capacity from small wind turbines doubled from January 2007 to December 2009. See AWEA, 2009 SMALL WIND MARKET STUDY, *supra* note 3, at 3 ("[T]he U.S. market for small wind turbines . . . grew 15% in 2009 with 20.3 Megawatts (MW) of new capacity and \$82.4 million in sales. This growth equates to nearly 10,000 new units and pushes the total installed capacity in the U.S. to 10 MW.").

⁷¹ Under the American Reinvestment and Recovery Act, the 30% federal tax credit for small wind systems was extended to all systems placed in service before 2017. See Pub. L.

Unfortunately, despite aggressive government incentives for small wind turbines, local land use restrictions often discourage installation of the devices.⁷³ Local height restrictions are perhaps the most common obstacle to small wind turbine installations.⁷⁴ Height restrictions place limits on the permitted height of any building or structure erected within a zone or jurisdiction.⁷⁵ Municipalities and homeowner associations have imposed height restrictions for decades to promote

No. 111-5, §1603, 123 Stat. 115, 364-66 (2009) (to be codified at 26 U.S.C. § 25D); *id.* §1603(e), 123 Stat. at 365.

⁷² Dozens of states have also implemented renewable energy incentive programs, many of which apply to small wind installations. For a table summarizing state-level financial renewable energy incentives and links to descriptions of state-specific incentive programs, see *Financial Incentives for Renewable Energy*, DATABASE OF ST. INCENTIVES FOR RENEWABLES & EFFICIENCY, <http://www.dsireusa.org/summarytables/finre.cfm> (last visited Oct. 22, 2010).

The wind energy industry has made bold predictions about future growth patterns for small wind energy development. *See, e.g.*, AM. WIND ENERGY ASS'N, SMALL WIND TURBINE GLOBAL MARKET STUDY: YEAR ENDING 2008, at 7 n.6 (2009) [hereinafter AWEA, 2008 SMALL WIND MARKET STUDY] (explaining that the industry projects thirty-fold growth within as few as five years, despite a global recession). Other commentators are similarly predicting continued growth in small wind energy development. *See, e.g.*, Dwight H. Merriam, *Regulating Backyard Wind Turbines*, 10 VT. J. ENVTL. L. 291, 312–13 (2009) (“[W]ith the increased concerns about sustainability, the uncertain cost of fossil fuels, and the availability of federal and state incentives for the installation of renewable energy systems, we are certain to see more small wind turbines in backyards.”).

⁷³ A 2008 report by the American Wind Energy Association estimated that “local permitting practices . . . thwart an estimated 1/3 of all potential small wind turbine installations.” *See* AWEA, 2008 SMALL WIND MARKET STUDY, *supra* note 72, at 10.

Other commentators have bemoaned the disparities between state and local regulatory approaches to small-scale wind energy. *See, e.g.*, Ernest Smith, *Wind Energy: Siting Controversies and Rights in Wind*, 1 ENVTL. & ENERGY L. & POL’Y J. 281, 298 (2007) (“Overly restrictive [local] ordinances clearly run counter to state net-metering regulations, tax incentives, and loan programs that promote the installation of small renewable energy systems.”); Jennifer R. Andriano, Commentary, *The Power of Wind: Current Legal Issues in Siting for Wind Power*, 61 PLANNING & ENVTL. L. 3, 10 n.30 (2009) (noting the “inconsistency in public policy” as it relates to wind power, “with citizens demanding action to mitigate global warming while at the same time petitioning against wind turbines cluttering their horizon” (quoting Brit T. Brown & Benjamin A. Escobar, *Wind Power: Generating Electricity and Lawsuits*, 28 ENERGY L.J. 489, 492 (2007))).

⁷⁴ *See* Jim Green & Mick Sagrillo, *Zoning for Distributed Wind Powers – Breaking Down Barriers* 1, (Nat’l Renewable Energy Lab., Conference Paper No. NREL/CP-500-38167, 2005), available at <http://www.nrel.gov/docs/fy05osti/38167.pdf> (“Prospective distributed wind buyers frequently encounter the dilemma that existing zoning ordinances do not address wind turbines, nor do they typically allow structures taller than 35 ft.”).

⁷⁵ *See* BARLOW BURKE, UNDERSTANDING THE LAW OF ZONING AND LAND USE CONTROLS 89 (2002) (describing the practice of imposing height restrictions within zoning use districts that limit structure heights “to a maximum number of feet”).

fire safety,⁷⁶ and to preserve light, air, and a rural ambiance.⁷⁷ Small wind turbines often must rise well above surrounding buildings and trees to be effective, necessitating heights that exceed local height restrictions,⁷⁸ and can potentially damage a community's aesthetic appeal.⁷⁹ Turbines have also been accused of creating safety hazards,⁸⁰ noise,⁸¹ or flicker effects⁸² that can annoy neighbors and depress surrounding property values.

⁷⁶ Early height restrictions in the United States were at least partly motivated by fire safety concerns. See AM. WIND ENERGY ASS'N, THE U.S. SMALL WIND TURBINE INDUSTRY ROADMAP 22 (2002) [hereinafter AWEA, SMALL WIND TURBINE] ("Most local jurisdictions limit the height of structures in residential and sometimes other zones to 35 feet. This restriction was developed nearly 100 years ago to ensure that the height of structures would not exceed the capability of firefighting equipment to pump water. Today, this height limit is a significant obstacle to siting small wind turbines.").

⁷⁷ See PETER W. SALSICH & TIMOTHY J. TRYNIECKI, LAND USE REGULATION 174 (2003) ("Height restrictions are imposed for several reasons, including regulation of overall development density through limitations on building size, provision of open space, light, and air, preservation of rural character, and safety, such as from aircraft landing and taking off from airports.").

⁷⁸ See AM. WIND ENERGY ASS'N, IN THE PUBLIC INTEREST: HOW AND WHY TO PERMIT FOR SMALL WIND SYSTEMS, A GUIDE FOR STATE AND LOCAL GOVERNMENTS 6 (2008) [hereinafter AWEA, GOVERNMENT PERMIT GUIDE] (stating that the "bottom of the turbine rotor should clear the highest wind obstacle (rooftop, mature tree, etc.) within a 500 foot radius by at least 30 feet" and suggesting that typical small wind turbines are mounted atop towers that are 35 to 120 feet tall); David Mears, *Feasibility of Residential Wind Energy: The Lack of Regulatory Integration for Local Communities*, 37 REAL EST. L.J. 133, 137 (2008) ("Winds are faster at higher elevations, causing wind power to increase by a factor of three as the speed increases. This means that even a small boost in height greatly enhances a turbine's output.").

⁷⁹ See PITT, *supra* note 60, at 29; see also AM. WIND ENERGY ASS'N, PERMITTING SMALL WIND TURBINES: A HANDBOOK 13 (2003) [hereinafter AWEA, PERMITTING HANDBOOK] (arguing that the visibility of small wind turbines on neighboring properties is "unavoidable" and that the right of landowners to install small wind devices on their properties "must be weighed against those who object to turbines on aesthetic grounds").

⁸⁰ The most commonly-voiced safety-concerns over wind turbines relate to the possibility of a turbine falling over or of ice sheets flying from its rotor blades. See, e.g., Stephen Harland Butler, *Headwinds to a Clean Energy Future: Nuisance Suits Against Wind Energy Projects in the United States*, 97 CALIF. L. REV. 1337, 1356 (2009) (analyzing the dismissal of a nuisance claim against a wind power development based in part on a "large piece of ice" the plaintiff suspected had been "thrown" from the turbine (citing *Rassier v. Houim*, 488 N.W.2d 635, 638 (N.D. 1992))). Renewable energy proponents assert that proper small turbine siting and installation can adequately mitigate these safety concerns. See, e.g., AWEA, GOVERNMENT PERMIT GUIDE, *supra* note 78, at 18–21 (refuting claims that properly installed small wind turbines create an attractive nuisance, throw sheets of ice, attract lightning, or create stray voltage); AWEA PERMITTING HANDBOOK, *supra* note 79, at 15 ("No public injuries have been attributed to falls from the thousands of unfenced small turbine towers installed over the past 25 years.").

For these and other reasons, land use regulations in many communities directly or indirectly restrict or prohibit small wind turbine installations within their jurisdiction.⁸³ Even when local zoning and subdivision covenants are silent as to small turbines, landowners' uncertainty over whether local authorities will challenge the turbines can still deter their installation.⁸⁴

2. Solar Energy Systems

Photovoltaic solar panels and other solar energy systems are also an important means of generating renewable energy. Rooftop and ground-mounted solar panels

⁸¹ See Mears, *supra* note 78, at 144–45 (arguing that “small wind turbines tend to be noisier for their size than large turbine machines” but that “well-designed wind turbines are generally quiet in operation, and compared to the noise of road traffic, trains, aircraft, and construction activities . . . the noise from wind turbines is very low”).

⁸² Merriam, *supra* note 72, at 302–03 (“When the blades are turning, there is a flicker to the shadow [of a wind turbine] which can be quite disturbing. It does not happen often, or for long periods, but for nearby properties it can be an annoyance.”). Some have argued that small turbines are less likely to create nuisance-causing flicker effects than large turbines and that these effects can often be avoided through proper turbine siting. See AWEA, GOVERNMENT PERMIT GUIDE, *supra* note 78, at 17 (explaining that “[s]mall turbines . . . spin much faster than utility-scale turbines so that any shadows become essentially invisible at operating speeds. . . . [and] normal setback distances . . . mitigate[], if not entirely eliminate[]” the risk of a nuisance from flicker effects, “especially at U.S. latitudes”).

⁸³ See, e.g., Smith, *supra* note 73, at 298 (citing SARATOGA, CAL., CODE § 15-52.010 to .090 (2002)) (restricting locations within the jurisdiction where small wind turbines may be installed); see also Andriano, *supra* note 73, at 7 (noting that one town prohibits the “installation, erection, or use of a wind energy system, wind turbines, and/or associated towers for wind energy conversion” in all of its zoning districts (citing BLOWING ROCK, N.C., TOWN CODE § 16-149(C)(3) (2007))); Mike Rose, *Residential Wind Turbines Off the Table*, AUSTIN DAILY HERALD (May 18, 2010, 8:00 AM), available at <http://www.austindailyherald.com/2010/05/18/residential-wind-turbines-off-the-table/> (describing new city code amendments in Austin, Texas, that generally prohibit the installation of small wind turbines in residential areas).

⁸⁴ Other scholars have noted this uncertainty problem created by the absence of references to renewable energy development in many local ordinances. See, e.g., Bronin, *supra* note 18, at 253 (“Where relevant language [regarding wind turbines and other renewable energy devices] does not appear in the ordinances, applicants cannot know in advance whether the installation or modification of green technologies is subject to zoning board review. Applicants may review the ordinance, and, seeing no relevant language, proceed with construction, only to be told later that they must dismantle the structure or pay a fine.”); see also Green & Sagrillo, *supra* note 74, at 1 (describing a California legislative committee’s finding that potential buyers of small wind turbines “were ‘thwarted by archaic or even hostile local land-use regulations,’ and as many as ‘half the applicants will give up in disgust’” (quoting Beverly J. Shane, *Solving California’s Energy Crisis: The Answer May be Blowing in the Wind*, 33 MCGEORGE L. REV. 403, 413 (2001))).

convert the radiant energy in sunlight into electric power.⁸⁵ Given the myriad benefits of solar energy development, it is not surprising that new solar panel installations are eligible for many of the same federal tax credits and other incentive programs that apply to small wind turbines.⁸⁶ Solar energy systems offer the unique benefit of being most productive on hot, sunny days when consumers are using air conditioning systems and utility grid demands are near their peak.⁸⁷ The distributed nature of rooftop solar development also curbs energy sprawl, enabling renewable energy development without the need for new transmission lines through pristine rural areas.⁸⁸

However, some landowners view solar energy systems as disruptive to neighborhood aesthetics or as threats to surrounding property values. Aware of popular objections to solar panels, numerous homeowner associations⁸⁹ and local governments⁹⁰ have adopted provisions that prohibit or severely restrict installation of the devices.

⁸⁵ For a discussion of solar energy technologies and recent growth in the rooftop solar energy, see Troy A. Rule, *Shadows on the Cathedral: Solar Access Laws in a Different Light*, 2010 U. ILL. L. REV. 851, 854–56.

⁸⁶ The 30% federal tax credit applicable to small wind turbines also applies to solar panel installations. 26 U.S.C. § 25D(a)(1) (2006). See generally Jason Coughlin & Karlynn Cory, *Solar Photovoltaic Financing: Residential Sector Deployment* 1–18 (Nat'l Renewable Energy Lab., Technical Report, NREL/TP-6A2-44853, 2009), available at <http://www.nrel.gov/docs/fy09osti/44853.pdf> (describing numerous state and local incentives for rooftop solar energy).

⁸⁷ See Bernadette Del Chiaro & Rachel Gibson, *Government's Role in Creating a Vibrant Solar Power Market in California*, 36 GOLDEN GATE U. L. REV. 347, 355 (2006) (“[S]olar power is well-suited to reduce peak demand in California since it generates energy at times it is needed most—during heavy air conditioning use.”).

⁸⁸ See Bronin, *supra* note 10, at 7–11. Recent debates over the commercial-scale solar energy project proposals in the Mojave Desert are emblematic of the pressure that renewable energy needs can place on conservation areas. For a description of the Mojave Desert conflict, see Todd Woody, *It's Green Against Green in Mojave Desert Solar Battle*, YALE ENV'T 360 (Feb. 1, 2010), <http://e360.yale.edu/content/feature.msp?id=2236>.

⁸⁹ See, e.g., Tracy Loew, *Homeowners Fight to Go Green*, USA TODAY, May 13, 2010, at A3 (noting that the homeowner association boards “have a duty to maintain property values” and quoting a Houston-based solar panel installer’s estimate that “20% of [his] potential customers run into problems with [homeowner] associations” when seeking to install solar energy systems); Edythe Jensen, *HOA Denies Homeowner Solar Panel Use Due to Color*, ARIZ. REPUBLIC (Jan. 3, 2008, 11:16 AM), available at <http://www.azcentral.com/12news/news/articles/0103cr-solarinside0102-CP.html?&wired#> (describing a homeowner association’s objection to the installation of a solar panel based on its black color—instead of gray or “terra cotta”). For additional examples of local opposition to solar panels, see *supra* notes 1 and 59.

⁹⁰ See, e.g., PITT, *supra* note 60, at 15–28.

III. ACCOMMODATING DISTRIBUTED RENEWABLES: EXISTING APPROACHES

In spite of state and federal policies aimed at promoting distributed renewable energy, local land use regulations continue to deter many landowners from installing small wind turbines and solar panels.⁹¹ A handful of communities have voluntarily adopted provisions that accommodate these green LULUs,⁹² but most have proven reluctant to do so. Existing state and federal attempts to address communities' reluctance have been either overaggressive or not strong enough to overcome local resistance. The following is a discussion of the merits and deficiencies of several current approaches to combating local resistance to distributed renewable energy, none of which satisfactorily addresses the problem.

A. Deference to Community Governments

Most state governments have done relatively little to address local barriers to distributed renewables. Their "hands-off" approach may preserve the autonomy of local governments, but it also fails to motivate communities to accommodate distributed renewables in their land use policies.

Persuading communities to revise their land use controls to allow for distributed renewables is politically challenging because it requires local landowners to relinquish valuable rights relating to their properties. Zoning ordinances and subdivision covenants give landowners exclusion rights in common airspace, rooftops, and other areas within a local jurisdiction, protecting against countless risks by restricting activities on nearby parcels.⁹³ Landowners are prone to resist forfeiting these exclusion rights without receiving something in return.

A stylized example illustrates this problem. Suppose the developer of the fictional, fifty-lot residential subdivision of Green Acres had recorded a height restriction covenant against the subdivision property years ago. The covenant prohibited lot owners from erecting any structure that extended more than thirty-

⁹¹ See *supra* text accompanying notes 60, 73–74, 83, 89.

⁹² See, e.g., AWEA, SMALL WIND TURBINE, *supra* note 76, at 23–28 (describing zoning ordinances in certain California counties that allow small wind turbines with varying degrees of restrictiveness); Beau Yarbrough, *City Council Approves New Rules for Windmills, Solar Panels*, HESPERIA STAR (Feb. 3, 2010, 5:07 PM), available at <http://www.hesperia.com/articles/city-3169-windmill-solar.html> (describing a new Hesperia, California, ordinance allowing the installation of small wind turbines and solar panels on private properties in compliance with certain height, setback, and other restrictions); Patricia E. Salkin, *Smart Growth and the Greening of Comprehensive Plans and Land Use Regulations 12* (2008) (unpublished manuscript) (citing NORTHAMPTON, MASS., CITY CODE § 195-5(A)(14) (2008)), available at <http://ssrn.com/abstract=1162499> (noting that Northampton, Massachusetts, exempts rooftop solar panel installation from Historic District Commission review).

⁹³ Fennell has utilized this paradigm of land use controls in the context of private community covenants. See LEE ANNE FENNEL, *THE UNBOUNDED HOME* 76–80 (2009).

five feet above a lot's surface. By virtue of the covenant, the lot owners in the subdivision had each relinquished their common law property rights to occupy all usable airspace situated more than thirty-five feet above their respective lots.⁹⁴ In return, each owner received rights to prevent the other forty-nine lot owners from occupying corresponding airspace above their properties.⁹⁵

This sort of reciprocal arrangement, which has been repeated in thousands of subdivision covenants throughout the country, theoretically benefits all lot owners in Green Acres. Each owner voluntarily agreed to be subject to the covenant by purchasing a lot within the subdivision, so presumably most of the landowners prefer the covenant arrangement. The covenant spares landowners from having to negotiate and obtain covenants from each of their forty-nine different neighbors to protect their enjoyment of the neighborhood's views and aesthetic qualities.⁹⁶

Unfortunately, restrictions in subdivision covenants can also result in the underuse of community resources. One could argue that the height restriction covenant encumbering Green Acres creates a sort of "anticommons"—a regime in which each lot owner "owns a right to exclude, and consequently for which no one owns a privilege of entry and use."⁹⁷ If any lot owner in Green Acres sought to construct improvements rising above thirty-five feet, any other owner would have standing to enforce the subdivision covenant and preclude the construction.

⁹⁴ Under prevailing United States common law, fee owners of real property ordinarily hold rights in the airspace above the surface of their parcels under the *ad coelum* doctrine. See *United States v. Causby*, 328 U.S. 256, 264 (1946) (holding that a "landowner owns at least as much of the space above the ground as he can occupy or use in connection with the land. The fact that he does not occupy it in a physical sense—by the erection of buildings and the like—is not material" (citation omitted)).

⁹⁵ Legal scholars have long characterized private subdivision covenants as a reciprocal exchange of interests among lot owners. See, e.g., FENNELL, *supra* note 93, at 77 n.37 ("By purchasing a home in a residential private government community, the owner waives part of the incidents of his title; he is compensated for this diminution of rights, however, by the generally improved living conditions . . . provided for all members of the community." (quoting Uriel Reichman, *Judicial Supervision of Servitudes*, 7 J. LEGAL STUD. 139 (1978))).

⁹⁶ See *id.* (noting that lot owners within a subdivision could theoretically attempt to "construct a community-wide web of reciprocal covenants from scratch" that mirrored a single set of original subdivision covenants but that the "transaction costs" of doing so "would be prohibitive").

⁹⁷ Robert C. Ellickson, *Property in Land*, 102 YALE L.J. 1315, 1322 n.22 (1993). Heller popularized the concept of an "anticommons" with a law review article devoted to it in 1998. See Michael Heller, *The Tragedy of the Anticommons: Property in the Transition from Marx to Markets*, 111 HARV. L. REV. 621 (1998). The airspace at issue might be more precisely classified as a "conservation commons" because landowners still make nontrespassory use of the airspace above their land to preserve sunlight or views. For a general discussion of the concept of a "conservation commons," see Abraham Bell & Gideon Parchomovsky, *Of Property and Antiproperty*, 102 MICH. L. REV. 1, 3–6, 39 (2003) (characterizing Central Park in Manhattan as a conservation commons and defining a conservation commons as a "commons whose most efficient use is nonuse").

Professor Michael Heller famously observed that such anticommons property tends to be underutilized because of the great difficulty of obtaining requisite permissions for its use.⁹⁸ As it relates to small wind turbines, the airspace burdened by height restrictions can potentially be vulnerable to this problem.

Suppose that the Green Acres Homeowner Association was to consider amending its subdivision covenants to exempt small wind turbines from the subdivision's height restriction. Suppose further that if the amendment were approved, five lot owners within the subdivision would install small turbines and save a combined total of \$5,000 in electricity bills, after accounting for the costs of the turbines and their installation. However, the turbines would create noise, aesthetic impacts, and a risk of future turbine installations that imposed aggregate losses of \$4,000 on the other forty-five lot owners.

If transaction costs were sufficiently low, the five landowners hoping to install turbines would reach Coasean bargains with the other forty-five owners by offering to compensate each neighbor for the expected loss in exchange for their permission to install the five turbines.⁹⁹ These five landowners would collectively offer between \$4,000 and \$5,000 and the neighbors would accept the offer, generating a Pareto efficient¹⁰⁰ outcome with a \$1,000 net social benefit.¹⁰¹

Of course, in reality, successful Coasean bargaining in this context would be highly improbable given the large number of parties involved.¹⁰² Even if the five

⁹⁸ See Heller, *supra* note 97, at 624 (“In an anticommons . . . multiple owners are each endowed with a right to exclude others from a scarce resource, and no one has an effective privilege of use. When there are too many owners holding rights of exclusion, the resource is prone to underuse—a tragedy of the anticommons.”).

⁹⁹ Coasean bargaining is voluntary bargaining of the nature described in the famous Coase Theorem. See R.H. Coase, *The Problem of Social Cost*, 3 J.L. & ECON. 1, 2–8 (arguing that if transaction costs between parties are sufficiently low and an entitlement has been assigned to one of them, the parties will negotiate the transfer of the entitlement to its highest-valued user).

¹⁰⁰ A change is Pareto efficient if it makes at least one person better off without making any person worse off. See HARVEY S. ROSEN, *PUBLIC FINANCE* 40 (5th ed. 1999). Pareto efficiency is often contrasted with Kaldor-Hicks efficiency, which requires merely that the aggregate social benefits of a change exceed the aggregate social costs. See Ellickson & Been, *supra* note 62, at 96.

¹⁰¹ The \$1,000 figure is merely the difference between the \$5,000 net benefit accruing to the turbine owners and the \$4,000 in aggregate losses to their neighbors. For the sake of simplicity, this example purposely ignores positive externalities of wind energy generation. For a numerical example incorporating positive externalities, see *infra* text accompanying notes 117–122.

¹⁰² The notion that transaction costs for Coasean bargaining tend to be higher in multiple-party settings seems well-accepted in law & economics literature. See, e.g., James E. Krier & Stewart J. Schwab, *Property Rules and Liability Rules: The Cathedral in Another Light*, 70 N.Y.U. L. REV. 440, 460 (1995) (“When many people have to bargain, their sheer numbers can prevent efficient trades because it takes longer (costs more) for a lot of people to reach accord than it does for a few. Hence high transaction costs might swamp the value of the transaction itself to the parties.”). Among other things, the five lot

landowners could request the height restriction amendment through a homeowner association board that could limit collective action problems, the board would likely reject the proposal. Only board members who planned to purchase and install turbines on their own lot would expect to personally benefit from the amendment and would therefore be inclined to support it, and it is unlikely that such members would comprise a majority of the board.

The political obstacles to bargaining over restrictions on distributed renewables are more severe in the context of a municipal ordinance than under private covenants. Rights held collectively by residents under zoning restrictions are not “ordinary, property-rule-protected entitlement[s] that [residents] can alienate to any willing buyer or on mutually agreeable terms.”¹⁰³ As Professor Lee Fennell has noted, zoning-based rights typically “cannot be sold outright” and can only be “bargained over pursuant to an arcane amalgam of legal rules, entrenched local practices, social norms, and political influence.”¹⁰⁴ Transfers of such rights usually take the form of variances or special exceptions.¹⁰⁵ Negotiated cash or in-kind payments for a landowner’s “purchase” of zoning-based rights from a municipality are essentially development exactions, which are subject to constitutional constraints.¹⁰⁶

B. Vague State Mandates

Recognizing the need to do something to prevent local land use controls from deterring small wind and solar energy installations, some state legislatures have enacted statutes that generically instruct localities to accommodate distributed renewables. For instance, a Pennsylvania statute obligates municipalities to develop strategies in their comprehensive plans to “reduce energy consumption and to promote the effective utilization of renewable energy resources.”¹⁰⁷ A similar law in Connecticut directs local planning commissions to consider “the objectives of energy-efficient patterns of development [and] the use of solar and

owners hoping to install turbines might attempt to free ride by understating their willingness to pay to buy back the covenant rights and the other forty-five lot owners would have incentives to hold out by overstating the amounts of compensation they would require to relinquish their covenant rights. *See id.* (“[T]here are the special problems that arise when an exchange will necessarily benefit many people at once (giving rise to free rider problems) or when many people have to agree to an exchange in order for it to be consummated (giving rise to holdout problems).”).

¹⁰³ FENNELL, *supra* note 93, at 72.

¹⁰⁴ *Id.*

¹⁰⁵ *Id.* at 74 (noting that “some degree of flexibility” in assignments of land use rights under zoning provisions “is imported through mechanisms like variances and special exceptions”).

¹⁰⁶ *See generally* Mark Fenster, *Regulating Land Use in a Constitutional Shadow: The Institutional Contexts of Exactions*, 58 HASTINGS L.J. 729 (2007) (discussing development exactions and constitutional constraints on such devices in the land use context).

¹⁰⁷ 53 PA. STAT. ANN. § 10301.1 (West 1997).

other renewable forms of energy and energy conservation” in the planning process.¹⁰⁸

Although these sorts of general statutory directives from state legislatures are surely better than no state-level encouragement at all, such broad language is insufficient to incite substantial change at the local level. Enforcing vague statutory mandates against municipalities can be difficult and expensive because it requires proving the violation of a provision with few or no specific requirements. As a result, many local governments are likely to continue regulating in their own self-interest in the absence of more specific statutory requirements.

C. Targeted Community Grants

An innovative approach to promoting community acceptance of distributed renewables is to support a select group of municipalities’ experimentation with land use policies aimed at encouraging installation of the devices. For example, the United States Department of Energy’s Solar America Cities program provides grants to twenty-five metropolitan areas to promote development of solar energy programs and policies.¹⁰⁹ The metropolitan areas selected for the program are also eligible for professional and technical assistance to help them formulate new ways of encouraging solar power at the local level.¹¹⁰

Formed in 2007, the Solar America Cities program also funds activities aimed at sharing successful local policy strategies with other cities outside of the core group of twenty-five.¹¹¹ By focusing its funding on a few pioneer cities, the program could make substantial progress in developing workable policies to promote solar energy in urban and suburban settings. Of course, without special funding, outside cities may have comparatively less of an incentive to accommodate distributed renewables within their boundaries. Thus, while such inventive approaches are highly valuable, additional strategies are necessary to eliminate community barriers to distributed renewables on a broader scale.

D. One-Sided Incentive Programs

Increasingly in recent years, governments have used subsidies,¹¹² net metering programs,¹¹³ and other financial initiatives to make distributed renewables a more attractive investment for landowners. While these programs are laudable, they

¹⁰⁸ Salkin, *supra* note 13, at 10 (citing CONN. GEN. STAT. § 8-23(d)(9) (2009)).

¹⁰⁹ See *Solar America Communities – About*, *supra* note 58.

¹¹⁰ For a list of the twenty-five cities participating in the Solar America Cities program, see *id.*

¹¹¹ *Solar America Communities – Outreach Partnership*, U.S. DEP’T OF ENERGY, http://www.solaramericacities.energy.gov/about/technical_outreach/ (last visited June 16, 2010) (describing Solar America Cities’ outreach efforts).

¹¹² For a description of federal subsidies available to installers of distributed renewables, see *supra* note 5 and accompanying text.

¹¹³ See *supra* note 67 for a brief description of net metering.

arguably address only one of the two externality problems afflicting green energy development.

Distributed renewables create *positive* externalities—diffused national and global benefits that often are not fully internalized by owners of the devices.¹¹⁴ Most subsidies and other government incentives seek to address this positive externality problem by reducing landowners' costs of purchasing and installing the devices to encourage more installations.

Unfortunately, governments devote far less attention to addressing the *negative* externality associated with distributed renewables: the costs they can impose on neighbors. As described above, distributed renewables are sometimes perceived to cause aesthetic degradation, noise, flickers, glares, or diminutions in neighboring property values that landowners may not fully consider when deciding whether to install the devices.¹¹⁵ Neglecting these negative externalities can lead to inefficient, lopsided policies.

A numerical example can illustrate the shortcomings of the one-sided incentive approach. Returning to the Green Acres fact pattern from above,¹¹⁶ suppose that the five lot owners who planned to install small wind turbines upon approval of the height restriction amendment would save only \$3,000 in energy bills, rather than the previous \$5,000 amount. The turbines would still impose \$4,000 in aggregate costs on others within the subdivision but would also generate diffuse, net external benefits for individuals residing outside the community totaling \$1,500. Under these assumptions, adopting the turbine-friendly covenant amendment would still be a Kaldor-Hicks efficient move, generating a net social benefit of \$500.¹¹⁷ However, the community's fifty landowners would be unable to capture the \$1,500 of global and national benefits resulting from the turbine installations so, *within the community*, the amendment would generate a \$1,000 net loss. Even if the transaction costs of Coasean bargaining among the fifty lot owners were zero, the height restriction amendment would not pass.

In an effort to correct the market failure created by this positive externality problem, Congress could offer a \$300 Pigouvian subsidy to each of the five lot owners who installed small wind turbines.¹¹⁸ The aggregate net benefit to those

¹¹⁴ For further discussion of the national and global benefits from increased reliance on wind and solar power, see *supra* text accompanying note 61. See also Pursley & Wiseman, *supra* note 11 (providing a detailed description of the national benefits of distributed renewable energy).

¹¹⁵ See *supra* text accompanying notes 80–82 and 89–90.

¹¹⁶ See *supra* Part III.A.

¹¹⁷ \$500 is simply the difference between the aggregate (community-wide and external) benefits that would result from the amendment and the costs it would impose on the community. $(\$3,000 + \$1,500) - \$4,000 = \500 . For a definition of Kaldor-Hicks efficiency and comparison to Pareto efficiency, see *supra* note 100.

¹¹⁸ Federal subsidies are presently available to installers of small renewable energy devices. See *supra* note 5 and accompanying text. A.C. Pigou helped to popularize the concept of externalities and the use of taxation to correct market failures associated with negative externalities. See A.C. PIGOU, *THE ECONOMICS OF WELFARE* 329–35 (4th ed.

owners would increase to \$4,500,¹¹⁹ exceeding the aggregate \$4,000 loss imposed on their neighbors. If transaction costs among Green Acres lot owners were sufficiently low, Coasean bargaining would occur: the five would-be turbine installers would successfully negotiate for a subdivision covenant amendment with their forty-five neighbors and would install the turbines.¹²⁰

Unfortunately, collective action problems would likely still impede bargaining among the fifty landowners in Green Acres and the amendment proposal would likely fail.¹²¹ By offering the full amount of the Pigouvian subsidy solely to the five turbine-installing landowners to address the *positive* externalities associated with renewable energy, Congress failed to address the *negative* externalities the turbines would impose on neighbors.¹²² State and federal programs aimed solely at rewarding landowners who install distributed renewables on their properties will be of limited effectiveness until policymakers confront the community-level negative externalities arising from such installations.

E. Preemption of Local Regulations

The most aggressive means for states or the federal government to counter community resistance to distributed renewables is to invalidate local restrictions

1932). Based on an analogous theory, Pigouvian *subsidies* can correct a market failure generated by a *positive* externality. The use of subsidies to promote the internalization of positive externalities is a basic microeconomics principle and has appeared in other sustainability policy discussions. See, e.g., Carl J. Circo, *Does Sustainability Require a New Theory of Property Rights?*, 58 U. KAN. L. REV. 91, 116 (2009) (stating that Pigou's analysis may "be used to justify government subsidies and regulations calculated to influence economic decisions in circumstances in which natural market forces are inadequate to assure that the externalities of an economic decision properly figure into the cost-benefit analysis" (citing STEVEN SHAVELL, FOUNDATIONS OF ECONOMIC ANALYSIS OF THE LAW 108 (2004))).

¹¹⁹ \$300 per lot owner, multiplied by five lot owners, would equal \$1,500. Adding this sum to the \$3,000 amount of energy savings yields \$4,500.

¹²⁰ Specifically, the five lot owners would collectively offer an amount between \$4,000 and \$4,500 to the other forty-five lot owners to purchase back the covenant rights. The forty-five lot owners would accept the offer amount since it would exceed their expected \$4,000 loss from the amendment.

¹²¹ As mentioned in Part III.A, bargaining among large numbers of parties is commonly viewed as more difficult and expensive and thus more likely to fail.

¹²² Had the height restriction been imposed under a zoning ordinance rather than a private covenant, the analysis would have been largely the same. Fischel and Nelson have long characterized zoning in this fashion. FISCHEL, *supra* note 25, at 54 ("Robert Nelson and I have said for a long time and in many places that zoning is best thought of as collective property rights whose benefit inures to the politically dominant group of the municipality that does the zoning." (citations omitted)). Landowners who choose to live within the jurisdiction implicitly agree to subject their own properties to all applicable land use restrictions, recognizing that they will receive the benefit of being surrounded by other properties that must also comply with applicable ordinances. *Id.* at 58.

that stand in their way. Because most municipalities derive their land use authority from the state,¹²³ state governments often have the power to preempt local regulations in order to advance statewide objectives. State governments can similarly invalidate private subdivision covenant provisions on public policy grounds.¹²⁴

Some researchers advocate the preemption of local land use regulations as the best strategy for overcoming neighborhood resistance to distributed renewables.¹²⁵ State or federal government authorities have already used preemption to combat local opposition to the siting of cell towers,¹²⁶ group homes,¹²⁷ waste disposal sites,¹²⁸ and myriad other LULUs. States have even defeated local resistance to large-scale wind energy projects based on their preemption power.¹²⁹

A growing number of states have enacted laws invalidating local land use ordinances that hinder renewable energy. A Florida law prohibits local governing bodies in that state from adopting any ordinance that “prohibits or has the effect of prohibiting the installation of solar collectors, clotheslines, or other energy devices

¹²³ See BOSSELMAN & CALLIES, *supra* note 22, at 2–3.

¹²⁴ For example, the U.S. Supreme Court case of *Shelley v. Kraemer*, 334 U.S. 1, 20–23 (1948), famously established the governmental power to invalidate racially restrictive covenants. Of course, the limitations on freedom of contract in the private real estate covenant context extend beyond racial restrictions. For a recent discussion of the scope of the power of the federal government and state governments to invalidate private covenants, see Mark D. Rosen, *Was Shelley v. Kraemer Incorrectly Decided? Some New Answers*, 95 CALIF. L. REV. 451, 461–69 (2007).

¹²⁵ For example, researchers at the National Renewable Energy Laboratory have recommended preemption to address local opposition to small wind turbine siting. See Green & Sagrillo, *supra* note 74, at 8 (“[W]e recommend limited state preemption of home rule as being a viable and attractive approach for advocates to pursue in addressing the distributed wind zoning barrier.”).

¹²⁶ The American Wind Energy Association has cited federal preemption of local laws to facilitate cell tower siting as an example of successful use of the preemption power. See AWEA, GOVERNMENT PERMIT GUIDE, *supra* note 78, at 24 (“Federal preemption of home rule for cell phone towers enabled the industry to expand dramatically, which would not have likely occurred without it. Fair zoning for small wind turbines could bring similar economic benefits.”).

¹²⁷ See Vicki Been, *What’s Fairness Got to Do with It? Environmental Justice and the Siting of Locally Undesirable Land Uses*, 78 CORNELL L. REV. 1001, 1068 (1993) (describing how communities throughout the country initially “resisted group homes in their neighborhoods by attempting to zone out such homes” but that “[e]ventually, most states preempted local zoning regulations and prohibited discrimination against group homes”).

¹²⁸ See FISCHER, *supra* note 25, at 179 (explaining that many states in the 1970s and 1980s enacted laws that preempted local land use regulations to defeat local opposition to hazardous and municipal waste sites).

¹²⁹ See, e.g., *Residents Opposed to Kittitas Turbines v. State Energy Facility Site Evaluation Council*, 197 P.3d 1153, 1176–77 (Wash. 2008) (holding that a Washington state law governing the siting of wind energy projects preempted local land use regulations).

based on renewable resources.”¹³⁰ Statutes enacted in California,¹³¹ Delaware,¹³² Indiana,¹³³ Nevada,¹³⁴ New Hampshire,¹³⁵ Vermont,¹³⁶ and Wisconsin¹³⁷ similarly limit municipal land use restrictions on solar panels or small wind energy systems.

At first glance, preemption might seem an appealing means of removing local roadblocks to green energy once and for all. With an estimated twenty-five thousand local zoning jurisdictions scattered across the United States, the costs and time that would be required to contact and persuade each locality to adopt renewable energy-friendly policies are prohibitive.¹³⁸ Even if it were somehow

¹³⁰ FLA. STAT. ANN. § 163.04(1) (West 2006). For the statutory definition of “governing body,” see *id.* § 163.3164(9).

¹³¹ See CAL. HEALTH & SAFETY CODE § 17959.1 (West 2006) (requiring cities and counties to approve permit applications for the installation of solar energy systems unless the municipality “makes written findings based upon substantial evidence in the record that the proposed installation would have a specific, adverse impact upon the public health or safety, and there is no feasible method to satisfactorily mitigate or avoid the specific, adverse impact”); see also CAL GOV’T CODE § 65850.5 (West 2009) (setting forth similar statutory requirements for the local permits necessary for the installation of solar energy devices).

¹³² See DEL. CODE ANN. tit. 29, § 8060 (West 2010) (prohibiting any “county or municipal government” from adopting any restriction more restrictive than certain delineated statutory standards “which prohibits or restricts the owner of a property from using a system for obtaining wind energy for a residential single family dwelling unit”).

¹³³ See IND. CODE ANN. § 36-7-2-8(b) (LexisNexis 2009) (disallowing local government ordinances that have the “effect of prohibiting or of unreasonably restricting the use of solar energy systems other than for the preservation or protection of the public health and safety”).

¹³⁴ See NEV. REV. STAT. ANN. § 278.0208 (LexisNexis 2008) (prohibiting governing bodies from placing unreasonable restrictions on the installation of solar energy devices).

¹³⁵ See N.H. REV. STAT. ANN. § 674:63 (2010) (providing that “[o]rdinances or regulations adopted by municipalities to regulate the installation and operation of small wind energy systems shall not unreasonably limit such installations or unreasonably hinder the performance of such installations” and describing certain restrictions that constitute “unreasonable” limits).

¹³⁶ See VT. STAT. ANN. tit. 27, § 544 (West 2010) (providing that “no deed restrictions, covenants, or similar binding agreements running with the land shall prohibit or have the effect of prohibiting the installation of solar collectors, clotheslines, or other energy devices based on renewable resources,” with exceptions made for patio railings in condominiums, cooperatives and apartments).

¹³⁷ See WIS. STAT. ANN. § 66.0401(1) (West 2003) (prohibiting political subdivisions of the state from placing “any restriction, either directly or in effect, on the installation or use of . . . a wind energy system” that is more restrictive than the state-enacted rules or from placing restrictions on any “solar energy system” or “wind energy system” unless the restriction “(a) [s]erves to preserve or protect the public health or safety[;] (b) [d]oes not significantly increase the cost of the system or significantly decrease its efficiency[;] or] (c) [a]llows for an alternative system of comparable cost and efficiency”).

¹³⁸ See Green & Sagrillo, *supra* note 74, at 3 (stating that there are about 25,000 local zoning jurisdictions in the United States and referencing the American Wind Energy

feasible to separately convince each municipality to amend its ordinances, the resulting patchwork of local regulations could create uncertainty and confusion for turbine and solar panel installers.¹³⁹ A state law preempting municipal restrictions on distributed renewables amends all applicable ordinances in the state in one fell swoop and creates greater regulatory consistency among local jurisdictions.

However, broadly preempting local ordinances to accommodate distributed renewables is an imprecise, one-size-fits-all approach that ignores local issues and concerns.¹⁴⁰ No two neighborhoods are identical. Each has different geographic, topographic, cultural, and socioeconomic characteristics that create unique sets of values, social norms, and problems. Recognizing the vast diversity among local jurisdictions, scholars have long argued that municipal governments are ordinarily better situated to make local land use decisions than their state-level counterparts.¹⁴¹ Local officials typically reside within the jurisdictions they serve and tend to have a more specialized understanding than state officials of a community's unique characteristics and challenges.¹⁴² State statutes preempting

Association's estimate that persuading California's 534 local jurisdictions to adopt wind-friendly ordinances would cost about \$20 million).

¹³⁹ See Bronin, *supra* note 18, at 255 (“[T]his type of piecemeal decision making tends to ignore extralocal effects, exclude low-income outsiders, shift environmental problems to neighbors, and thwart orderly and predictable development.” (citing Carol M. Rose, *Planning and Dealing: Piecemeal Land Controls as a Problem of Local Legitimacy*, 71 CALIF. L. REV. 837, 840–42 (1983))).

¹⁴⁰ A California law that preempted home rule to require communities to accommodate small wind energy systems (and expired under a sunset clause in 2005) was criticized on this ground. See Beverly J. Shane, *Solving California's Energy Crisis: The Answer May Be Blowing in the Wind*, 33 MCGEORGE L. REV. 403, 412–13 (2002) (citing a letter from a frustrated local planning official to argue that the California law “mandates one-size-fits-all siting and installation requirements that ignore local land-use goals and policies rather than provid[ing] guidance to local governments to develop individual standards” (internal quotation marks omitted)).

¹⁴¹ Numerous commentators have emphasized the importance of local government involvement in increasing sustainable land use practices. See, e.g., Long, *supra* note 12, at 21 (“In the context of . . . sustainability, [localized] land-use authority allows each community to make its own determinations about what it should look like, what types of land uses it will prefer, and how it should develop over time.”); Pursley & Wiseman, *supra* note 11 (manuscript at 46) (arguing that the “variability of local conditions cautions against uniform, one-size-fits-all programs that are characteristic of federal action” and “highlights the important role for state or local governments, whose greater familiarity with and expertise regarding local conditions” might be leveraged to create more effectively tailored solutions); Patricia E. Salkin, *Can You Hear Me Up There? Giving Voice to Local Communities Imperative for Achieving Sustainability*, 4 ENVTL. ENERGY & L. POL'Y J. 256, 258 (2009) (“[T]he voices and actions of local governments are critical to achieving truly sustainable communities, especially in the climate change arena.”); see also Nolon, *supra* note 15, at 47 (“[L]ocal governments are among the critical actors whose cooperation must be secured to stabilize CO₂ emissions.”).

¹⁴² Other land use scholars have noted the advantages of local land use policymaking. See, e.g., Bronin, *supra* note 18, at 238 (citing Eric T. Freyfogle, *Land Ownership and the*

local land use authority are thus prone to inefficiencies from inadequate consideration of localized factors in the policymaking process. State laws invalidating subdivision covenant restrictions on distributed renewables¹⁴³ similarly overlook local concerns.

Consider the impact of a preemptive state law on the fictional city of Beachtown, a resort community known for its exceptional views and aesthetic appeal. Suppose that the existing ordinances in Beachtown protected the local ambiance by prohibiting structures (including wind turbines) from rising more than thirty-five feet above any parcel's surface, thereby protecting \$200,000 in total property value premiums within the jurisdiction. If allowing turbines within the municipality would generate only \$20,000 in aggregate social benefits but would diminish the aggregate value of Beachtown's viewshed by \$100,000, then a state law preempting the local height restriction to allow wind turbines would generate an \$80,000 deadweight loss.¹⁴⁴

Decentralized land use regulation mitigates such inefficiencies by empowering community officials with comparatively better information about a proposal's local costs and benefits to make policy decisions. A provision exempting communities from preemption upon a showing of undue hardship might inject some flexibility into a preemption statute but would likely cause additional problems. Such a provision would create incentives for communities to overstate

Level of Regulation: The Particulars of Owning, 25 *ECOLOGY L.Q.* 574, 580 (1999)).

¹⁴³ Several states have laws that invalidate unreasonable restrictions on wind or solar energy devices in private subdivision covenants. *See, e.g.*, ARIZ. REV. STAT. ANN. §§ 33-439, -1816 (2007 & Supp. 2009) (covering only solar energy systems); CAL CIV. CODE § 714 (West 2007) (covering only solar energy systems); COLO. REV. STAT. § 38-30-168 (2010) (covering both solar panels and small wind turbines); FLA. STAT. ANN. § 163.04(2) (West 2008) (covering "solar collectors, clotheslines, or other energy device[s] based on renewable resources"); HAW. REV. STAT. ANN. § 196-7 (LexisNexis 2008) (covering "solar energy devices" on single-family residential dwellings and townhouses); MASS. ANN. LAWS ch. 184, § 23C (LexisNexis 2006); NEV. REV. STAT. ANN. §§ 111.239, .2395 (LexisNexis 2010) (covering both solar panels and small wind turbines); WIS. STAT. ANN. § 236.292 (West 2009) (covering both solar panels and small wind turbines). The Texas and Illinois state legislatures recently considered enacting similar legislation to protect solar panels. *See Tracy Loew, Homeowners Fight to Go Green; Those Wanting to Install Solar Panels are Often Blocked by Association Rules That Push Conformity*, USA TODAY, May 13, 2010, at A3 http://www.usatoday.com/news/nation/environment/2010-05-12-green-conflict_N.htm (describing bills in the legislatures of Texas and Illinois to limit the power of homeowner associations to restrict solar panel installations and indicating that eight states "passed or strengthened" such laws in 2008 or 2009 and eleven other states had such laws prior to 2008).

¹⁴⁴ \$100,000 - \$20,000 = \$80,000. Of course, social benefits resulting from the preemption of height restrictions in other local jurisdictions could offset the losses in Beachtown. However, exempting the height restriction in Beachtown from the state's preemption statute would have still increased the aggregate social welfare without imposing any additional costs. An \$80,000 deadweight loss would thus still exist and is attributable to the imprecision of overbroad preemption.

their degree of potential hardship to qualify for exemption and could engender costly intergovernmental disputes over the issue.¹⁴⁵

An all-or-nothing preemption approach also hinders efficient Tieboutian sorting among the citizenry. The famous Tiebout hypothesis suggests that variations in local laws can increase social welfare by allowing citizens to “vote with their feet” in selecting communities to reside in that best suit their own respective preferences.¹⁴⁶ Some citizens would undoubtedly be willing to pay a premium to live away from the sight of renewable energy systems that they deem aesthetically offensive. Others would gladly live in communities that accommodate distributed renewables, particularly if given financial incentives to do so.¹⁴⁷ Localized policymaking on these issues can enhance the social welfare by enabling more citizens to reside in jurisdictions that regulate sustainable land use in ways that mirror their individual preferences.

Efficiency arguments aside, state laws that broadly preempt local land use restrictions on distributed renewables are probably politically infeasible in some

¹⁴⁵ Legislators have utilized undue hardship provisions in other contexts, and such provisions have sometimes generated debate over the degree of hardship requisite to trigger exemption. See, e.g., Cass R. Sunstein, *Cost-Benefit Analysis without Analyzing Costs or Benefits: Reasonable Accommodation, Balancing, and Stigmatic Harms*, 74 U. CHI. L. REV. 1895, 1897–1904 (discussing interpretations of an undue hardship provision in the Americans with Disabilities Act).

¹⁴⁶ The Tiebout Hypothesis emphasizes the utility-maximizing benefits of neighborhood differentiation, which enables citizens to seek out communities with packages of tax, land use, and other policies that best suit their individual preferences. See generally Charles M. Tiebout, *A Pure Theory of Local Expenditures*, 64 J. POL. ECON. 416, 419 (1956). Citing Tiebout, other commentators have similarly argued that policies allowing communities to pay to avoid state-imposed land use obligations promote efficiency by increasing the breadth of choices available to citizens in selecting a community. See, e.g., Ellickson, *supra* note 35, at 506 (“A suburb should not be prohibited from imposing elite standards for housing construction if it is willing to compensate those injured by the standards. . . . The famous Tiebout Hypothesis suggests that differentiation among suburbs enhances consumer satisfaction by making available a wider variety of packages of public goods.”). Of course, the Tiebout Hypothesis has also drawn its share of criticism for some of its underlying assumptions, such as the perfect mobility of the citizenry and perfect information. For a discussion of some common critiques of the Tiebout Hypothesis, see Vicki Been, *“Exit” as a Constraint on Land Use Exactions: Rethinking the Unconstitutional Conditions Doctrine*, 91 COLUM. L. REV. 473, 515–18 (1991).

¹⁴⁷ Evidence of variation in citizen views regarding the aesthetics and other impacts of renewable energy devices abounds. For descriptions of landowners with particularly strong distaste for small turbines, see *supra* note 63. For an example of a landowner who evidently prefers to live in a green-oriented community, see AM. WIND ENERGY ASS’N, SMALL WIND FACTSHEETS: HOW DO SMALL WIND SYSTEMS AFFECT PROPERTY VALUES? (undated) (describing landowners who “wanted to live in a neighborhood that was concerned about the environment and loved the idea of being next door to a wind turbine”).

states.¹⁴⁸ Preemption statutes can provoke political hostility because they tend to marginalize the distinct interests and characteristics of a state's communities and fail to engage local governments in the policymaking process.¹⁴⁹ Even where state legislatures succeed in passing preemption laws, the laws could prove costly and difficult to enforce amidst weak community support.¹⁵⁰

An ideal regulatory strategy would promote more efficient siting of distributed renewables by allowing for consideration of the costs and preferences unique to each community. Land use restrictions that exempt distributed renewables may be welfare-maximizing in many localities, particularly where aesthetics are of minimal concern. In communities such as Beachtown, however, the aggregate costs to landowners and neighbors from accommodating distributed renewables likely exceed the social benefits. The challenge lies in crafting equitable, low-cost rules that lead to distributed renewables installations only in "least-cost avoider" communities where accommodating the devices makes the most economic sense.¹⁵¹

F. *In Search of a Better Way*

Recognizing the shortcomings of preemption and other strategies, legal scholars have increasingly called for inventive new policies that motivate communities to embrace sustainable land use without diminishing their regulatory authority.¹⁵² Professor John Nolon recently advocated for more "reflexive" legal

¹⁴⁸ Fischel has expressed strong skepticism about the prospect of using preemptive laws to prevent local land use policies from thwarting LULU projects. *See* FISCHEL, *supra* note 25, at 206 ("The state government has the right to override local laws [to facilitate the siting of a LULU], but in practice, such preemptive laws are hardly ever effective. Local governments are simply too strong a force in most statehouses.").

¹⁴⁹ Nolon has emphasized the risk of political backlash from attempting to preempt local law in the name of sustainability. *See* John R. Nolon, Commentary, *Climate Change and Sustainable Development: The Quest for Green Communities*, *PLANNING & ENVTL. L.*, Oct. 2009, at 3, 6 (expressing concern that "a reawakened federal government might repeat past mistakes of ignoring important local functions or violating critical norms and triggering powerful opposition in its haste to create national solutions to the crisis of climate change").

¹⁵⁰ *Id.* at 9 (arguing that if certain proposed federal energy regulations are enacted, "local governments will be forced to implement ambitious energy-efficiency code standards or stand down and watch the Department of Energy attempt to achieve compliance and to prosecute developers, owners, and sellers of buildings built in violation of the national code").

¹⁵¹ A "least-cost avoider" is the party to a conflict that is able to most cheaply bear the cost at issue. *See* Coase, *supra* note 99, at 31–34.

¹⁵² Nearly forty years ago, Bosselman and Callies famously advocated for more state-level land use regulation to further environmental objectives. *See* BOSSELMAN & CALLIES, *supra* note 22, at 1–4. Recently, Bronin made new calls for state involvement in land use law to promote sustainability. *See* Bronin, *supra* note 18, at 231–35.

regimes to promote sustainability,¹⁵³ envisioning programs under which state or federal funds are “allocated to those local governments most motivated to act to support initiatives that suit local conditions and capacities.”¹⁵⁴ Professor Sara Bronin has emphasized the need for states to “find innovative ways to preserve both the environment and local autonomy.”¹⁵⁵ And Professor Patricia Salkin has expressed similar sentiments, arguing that state governments must find ways to “incentivize local action . . . and must be mindful of the importance of local buy-in when developing state-level plans for sustainability.”¹⁵⁶ An optimal legal regime would enable communities to internalize more of the outside gains associated with allowing distributed renewables, draw upon the expertise and resources of state governments, and leverage existing social norms in favor of sustainability.

These called-for solutions to community resistance could conceivably originate at the state or federal level. Commentators seem divided as to whether the federal government is better suited for the task. Federal regulation of renewable energy-related land use would arguably be more equitable¹⁵⁷ and would likely be constitutional.¹⁵⁸ In fact, one recent article advocates a system of federal and local cooperation that would largely preclude state-level involvement.¹⁵⁹ However, some scholars have written resoundingly against federal involvement,¹⁶⁰ arguing that

¹⁵³ See Nolon, *supra* note 149, at 10. (arguing for a legal regime that would “call on the full range of available state and local strategies, respect regional geographical and economic differences, and benefit from the innovation that comes from state and local experimentation”).

¹⁵⁴ *Id.*

¹⁵⁵ Bronin, *supra* note 18, at 272.

¹⁵⁶ Salkin, *supra* note 141, at 259.

¹⁵⁷ Federal government intervention is arguably fairer because many of the benefits of distributed renewable energy accrue at the national or even global level. At least one commentator has made a similar argument in the context of solar energy. See Stephen F. Williams, *Solar Access and Property Rights: A Maverick Analysis*, 11 CONN. L. REV. 430, 458 (1979) (“[I]t seems appropriate that the burden of the aid [to landowners installing solar panels] be borne by the nation’s taxpayers as a whole rather than by [neighbors]. This argument is based on the equitable premise that the beneficiaries of a scheme should normally bear its costs.”).

¹⁵⁸ For a straightforward discussion of the constitutionality of federal land use regulation, see Bronin, *supra* note 18, at 261.

¹⁵⁹ See Ashira Pelman Ostrow & Patricia E. Salkin, *Cooperative Federalism and Wind: A New Framework for Achieving Sustainability*, 37 HOFSTRA L. REV. 1049, 1089–91 (2009) (advocating a federal-local program analogous to the cell phone tower siting scheme under the Telecommunications Act of 1996 to facilitate the siting of wind turbines). See generally Pursley & Wiseman, *supra* note 11 (manuscript at 44) (“[M]ost of the cooperative strategies that have been suggested involve federal-state cooperation and suggest ways to enhance state government decisionmaking authority. . . . We instead emphasize the importance of federal-local cooperation and argue that state authority regarding land-energy rules is detrimental to the goal of fostering distributed renewables.”).

¹⁶⁰ Circo recently argued against the notion of a federal solution. See Circo, *supra* note 56, at 771–73; see also Bronin, *supra* note 18, at 262 (“No serious scholar supports an expanded role for the national government in traditional land use regulation . . .”).

land use issues are distinctively local and are ill-suited for governance by a distant, bureaucratic federal government.¹⁶¹ Regardless, federal legislation seems unlikely in the near future.¹⁶² Thus, this Article evaluates state-level intervention, although much of the analysis could apply to a federal approach as well.

IV. PROPERTY RULES, LIABILITY RULES, AND ENTITLEMENTS TO REGULATE LAND USE

What policy approaches can best motivate communities to embrace distributed renewables without forfeiting the benefits of localized land use decisionmaking? Programs that offer compensation to host communities are a commonly advocated strategy for siting ordinary LULUs,¹⁶³ and a similar approach could increase support for distributed renewables in neighborhoods and towns.¹⁶⁴ Well-crafted compensation schemes can “spread the burden of LULUs without compromising the efficiency or safety of the siting.”¹⁶⁵ Of course, distributed renewables differ from ordinary LULUs in several ways, so an effective compensation-based approach would need to account for the unique issues surrounding these devices.

A. Entitlement Theory and the Power to Regulate

The differences among potential compensation schemes for promoting local acceptance of distributed renewables are clearer when viewed within Guido Calabresi and A. Douglas Melamed’s familiar “Cathedral” model of property and liability rules.¹⁶⁶ Under Calabresi and Melamed’s framework, tensions between

¹⁶¹ See, e.g., Bronin, *supra* note 18, at 262 (“Congress, ruling from Washington, D.C., has little understanding of the myriad site-specific issues considered by tens of thousands of localities.”). Bronin has further noted that state regulation allows more opportunities for valuable policy experimentation. *Id.* at 272 (describing the “benefits of state-by-state experimentation” in promoting sustainable land use that “could not occur at the federal level”).

¹⁶² A Congressional bill has been drafted to combat community opposition to green energy devices, but the bill does not appear likely to pass anytime soon. See American Clean Energy & Security Act of 2009, H.R. 2454, 111th Cong. (1st Sess. 2009). The bill passed in the House in June of 2009, but a year later it had not yet reached the Senate floor. *Id.* (as read for the second time and placed on the calendar, July 7, 2009).

¹⁶³ Vicki Been has prepared an interesting summary of common compensation programs for LULU siting. See Vicki Been, *Compensated Siting Proposals: Is It Time to Pay Attention?*, 21 *FORDHAM URB. L.J.* 787, 792–96 (1994).

¹⁶⁴ See Been, *supra* note 127, at 1040 (stating that “[c]ompensation schemes are academics’ favorite solutions to siting problems” for LULUs).

¹⁶⁵ *Id.* at 1046.

¹⁶⁶ Calabresi and Melamed first published their model in an article appearing in the *Harvard Law Review* in 1972. See Guido Calabresi & A. Douglas Melamed, *Property*

state governments and communities over distributed renewables can be distilled into conflicts over scarce “entitlements” to regulate the use of land.¹⁶⁷

Disputes over distributed renewable energy development directly involve individual landowners and their neighbors, but such development also raises conflicts between communities and higher levels of government. State governments increasingly seek to preempt local land use regulations that restrict distributed renewables.¹⁶⁸ The scarce “entitlement” at the center of these preemption statutes is the regulatory power to exclude or allow distributed renewables within a community.¹⁶⁹ Either localities are entitled to regulate land use in ways that restrict distributed renewables, or states are entitled to invalidate local land use restrictions to allow installation of the devices.

Applying Calabresi and Melamed’s framework to analyze entitlement allocation rules requires designating one of two competing parties or groups as the “polluter” and the other as the “victim.”¹⁷⁰ States that force communities to accommodate distributed renewables in their land use policies can be characterized as “polluters” of community views and aesthetics.¹⁷¹ Communities adversely affected by the state mandates are “victims.”

Rules, Liability Rules, and Inalienability: One View of the Cathedral, 85 HARV. L. REV. 1089, 1089 (1972).

¹⁶⁷ Although entitlement theory may seem somewhat attenuated in the case of zoning, such a paradigm is not new. See FENNEL, *supra* note 93, at 69–72 (noting that Professor “Robert Nelson aptly describes zoning as a set of collective property rights held by the community” and proceeding to analyze zoning entitlements within Calabresi and Melamed’s model).

¹⁶⁸ For greater discussion of the preemption approach, see *supra* text accompanying notes 123–151.

¹⁶⁹ Barron has written in detail about intergovernmental transfers of legal “entitlements” to regulate in specified ways. See Barron, *supra* note 21, at 2367 (describing how states’ transfer to municipalities of three discrete “local legal entitlements” to regulate land use influences policy efforts to combat suburban sprawl).

¹⁷⁰ As Coase recognized, either party to a conflict could theoretically be labeled the “victim.” See Coase, *supra* note 99, at 2 (noting that conflicts between parties over a scarce entitlement are inherently “reciprocal in nature”). Proceeding with analysis under Calabresi and Melamed’s model nonetheless requires “victim” and “polluter” designations. See Lee Anne Fennell, *Property and Half-Torts*, 116 YALE L.J. 1400, 1422 (2007) (noting that Calabresi and Melamed’s Model “framework subtly diverges from a Coasean notion of reciprocity”).

¹⁷¹ As mentioned above, designating the polluter and victim is invariably arbitrary because either party can always be viewed as imposing harm on the other. See *supra* note 170. Such arbitrariness is doubled in the context of state-local conflicts over distributed renewable energy. Assignment of polluter and victim can be viewed in two ways. First, communities that refuse to accommodate green energy in their land use policies may be classifiable as polluters because such communities consequently rely more heavily on energy generated from pollution-emitting fossil fuels to meet their electricity needs. Second, states that invalidate local land use restrictions to permit green energy development arguably “pollute” neighborhoods by jeopardizing views, aesthetics, and the quiet enjoyment of land with distributed renewable energy development. This second

Once the entitlement, polluter and victim are identified, applying Calabresi and Melamed's model generates a two-by-two diagram showing four possible rules.¹⁷² Each rule initially allocates the entitlement to one of the two competing parties and protects the entitlement with either a "property rule" or a "liability rule."¹⁷³ An entitlement has property rule protection if others can acquire it from its holder only through a voluntary purchase transaction at a price acceptable to both parties.¹⁷⁴ In contrast, an entitlement has liability rule protection if parties other than the entitlement holder can unilaterally acquire it by paying some predetermined price.¹⁷⁵

Over the years, legal scholars have expanded the model's original set of four basic rules.¹⁷⁶ Professor Lee Fennell's research in this area seems particularly useful in analyzing land use restrictions on distributed renewables. Professor Fennell has built upon work by Professor Ian Ayres that incorporates the concept

assignment of the state as polluter seems more directly tied to the disputes at issue. Because the polluter/victim designation is arbitrary, this Article proceeds by treating state governments as polluters and communities as victims.

¹⁷² For descriptions of the four conventional rules and application of Calabresi and Melamed's model to two different renewable energy land use conflicts, see Troy A. Rule, *A Downwind View of the Cathedral: Using Rule Four to Allocate Wind Rights*, 46 SAN DIEGO L. REV. 207, 215–16 (2009) (applying Calabresi and Melamed's model to analyze landowner disputes over wind turbine wake interference). See also Rule, *supra* note 85, at 859–60 (applying Calabresi and Melamed's model to analyze solar access conflicts).

¹⁷³ See Calabresi & Melamed, *supra* note 166, at 1093; Lee Anne Fennell, *Properties of Concentration*, 73 U. CHI. L. REV. 1227, 1262 (2006) ("According to Calabresi and Melamed, society must make two decisions about any given entitlement—which party will be allocated the entitlement, and how the entitlement will be protected"); Rule, *supra* note 172, at 215; Rule, *supra* note 85, at 858.

¹⁷⁴ See Rule, *supra* note 85, at 858; see also Calabresi & Melamed, *supra* note 166, at 1092; Rule, *supra* note 172, at 215–16.

¹⁷⁵ See sources cited *supra* note 174.

¹⁷⁶ The volume of scholarship expanding upon Calabresi and Melamed's original two-by-two diagram is too vast to fully catalog here and continues to grow. See, e.g., Ian Ayres & J.M. Balkin, *Legal Entitlements as Auctions: Property Rules, Liability Rules, and Beyond*, 106 YALE L.J. 703, 710–15 (1996) (exploring the concept of "first-order" and "second-order" liability rules); Ian Ayres, *Protecting Property with Puts*, 32 VAL. U. L. REV. 793, 795–800 (1998) (expanding the model to reflect the possibility of put options for entitlement holders); Lee Anne Fennell, *Revealing Options*, 118 HARV. L. REV. 1399, 1433–50 (2005) (incorporating the concept of "entitlements subject to self-made options" to further expand upon Calabresi and Melamed's model); Krier & Schwab, *supra* note 102, at 470–75 (adding a "double reverse twist" rule); Saul Levmore, *Unifying Remedies: Property Rules, Liability Rules, and Startling Rules*, 106 YALE L.J. 2149, 2171–73 (1997) (expanding the set of possible remedies under the model); Frank I. Michelman, "There Have to Be Four," 64 MD. L. REV. 136, 152–58 (2005) (describing rules that would protect against encroachments upon a competing entitlement in "future iterations" of conflict with damages rather than an injunction); Madeline Morris, *The Structure of Entitlements*, 78 CORNELL L. REV. 822, 841–49 (1993) (describing fourteen potential forms of entitlements).

of “put options”¹⁷⁷ into the model to generate six possible rules rather than four.¹⁷⁸ Under their broader conception of the Cathedral model,¹⁷⁹ liability rule protection under Rules 2 and 4 creates “call options”¹⁸⁰ in favor of non-entitled parties. The possibility of giving put options to initial entitlement holders generates Rules 5 and 6.¹⁸¹ Applying this expanded version of the model to the conflict at issue yields six possible rules, delineated in figure 1.¹⁸²

¹⁷⁷ A “put option” is an “option to sell” that gives the “option holder the choice of whether to be paid a non-negotiated amount” in exchange for an entitlement. Ayres, *supra* note 176, at 796.

¹⁷⁸ See Lee Anne Fennell, *Common Interest Tragedies*, 98 NW. U. L. REV. 907, 965–80 (2004). For Ayres’s original description of the six-rule, option-based approach, see Ayres, *supra* note 176, at 797–99.

¹⁷⁹ It should be noted that Calabresi and Melamed acknowledged the possibility of expanding their four-rule model to include put option-like rules allowing entitlement holders to unilaterally sell entitlements to non-entitled parties. See Calabresi & Melamed, *supra* note 166, at 1122 n.62 (mentioning the possibility of a rule for a “voluntary seller and compelled buyer” and the possibility of “eight rules rather than four”).

¹⁸⁰ See Ayres, *supra* note 176, at 796 (stating that a “call option is an option to buy” and that “Rules 2 and 4 have just these ‘call’ qualities”).

¹⁸¹ For a discussion and analysis of Rule 5 in the context of distributed renewables, see *infra* text accompanying notes 210–215. Rule 6 is analyzed in note 205, *infra*.

¹⁸² Figure A is based on a table in Fennell, *supra* note 173, at 1263. Table 2 was ultimately based on a table by Ayres. See *id.* at 1263 n.114. See also Ayres, *supra* note 177, at 798 tbl. 3.

Figure 1.

Rule	The State Holds	Communities Hold	Effect on Distributed Renewable Energy (DRE)
1	Entitlement Protected by a Property Rule	Nothing	Communities cannot unreasonably restrict DRE within their boundaries
2	Entitlement Subject to a Call Option	Call Option	Communities can choose to (i) allow DRE or (ii) restrict DRE and pay a tax or fee
3	Nothing	Entitlement Protected by a Property Rule	Communities can freely restrict DRE within their boundaries
4	Call Option	Entitlement Subject to a Call Option	Communities can restrict DRE unless the State compels them to allow DRE in exchange for State grants or tax credits
5	Less Than Nothing ¹⁸³	Entitlement Plus a Put Option	Communities can choose to (i) restrict DRE or (ii) allow DRE in exchange for State grants or tax credits
6	Entitlement Plus a Put Option	Less Than Nothing	Communities cannot restrict DRE unless the State compels them to purchase authority to restrict DRE by paying a special tax or fee

B. The Alienability of Land Use Authority

Discussions regarding the purchase and sale of entitlements to government authority are not new.¹⁸⁴ It is true that some types of government regulatory power

¹⁸³ Fennell, *supra* note 176, at 1447 n.188 (“Granting one party the entitlement plus a put leaves the other party with ‘less than zero’ because the latter party not only lacks the entitlement but is also exposed to the possibility of a forced purchase of the entitlement. That liability leaves the party with ‘less than nothing.’” (citing Ayres, *supra* note 176, at 799)).

are viewed as inalienable because permitting their free exchange could threaten political stability or offend environmental justice.¹⁸⁵ However, many governmental regulatory powers *are* alienable to some degree. Most states have already transferred many land use regulatory powers to municipalities under state zoning enabling acts,¹⁸⁶ and some such powers have been returned to states through subsequent legislation.¹⁸⁷ In appropriate circumstances, using property or liability rules to allow intergovernmental transfers of regulatory entitlements can facilitate Coasean bargains and promote the allocation of such entitlements to their highest-valued users.¹⁸⁸

Consider, for example, a state agency seeking to site an undesirable hazardous waste facility. The state may theoretically possess the power to preempt local land use laws and site the facility in any local jurisdiction of its choosing. Often, however, political constraints may effectively preclude the state's use of preemption to successfully site the LULU. State agencies faced with these constraints sometimes negotiate the payment of compensation to municipalities to entice their voluntary acceptance of LULUs.¹⁸⁹ In these contexts, the state operates as though municipalities hold the scarce entitlement to regulate land use within their boundaries and such entitlement is protected by a property rule.

When a state agency and local government reach agreement on a compensated LULU siting, the municipality voluntarily sells a discrete portion of its land use

¹⁸⁴ See, e.g., Lehari, *supra* note 31, at 960–92; Erin Ryan, *Federalism at the Cathedral: Property Rules, Liability Rules, and Inalienability Rules in Tenth Amendment Infrastructure*, 81 U. COLO. L. REV. 1, 25 (2010).

¹⁸⁵ For example, environmental justice concerns are commonly cited in opposition to compensation schemes for siting LULUs that may adversely affect the health or safety of neighbors. See Been, *supra* note 127, at 1040. Calabresi and Melamed cited the “widespread existence of moralisms” against certain types of entitlement transfers as a possible justification for protecting an entitlement with an inalienability rule. Calabresi & Melamed, *supra* note 166, at 1123–24.

¹⁸⁶ See *supra* note 20 and accompanying text.

¹⁸⁷ Examples of state reclamations of discrete aspects of land use authority abound. See NOLON, NEW GROUND, *supra* note 22, at 147 (describing the advent of “state legislation protecting wetlands, coastal zones, and other environmentally sensitive areas,” state laws “governing the siting of power plants, hazardous waste facilities, and other structures,” and state statutes drafted to “protect agriculture through the creation of agriculture districts, or to require a state permit for large-scale development”).

¹⁸⁸ Ryan has argued the potential merits of viewing bargaining over government authority within the Cathedral framework and of employing property rule or liability rule approaches to promote more efficient allocations of authority among government entities. See Ryan, *supra* note 184, at 25 (“[T]he uncertainties that pervade intergovernmental bargaining indicate that it suffers even more acutely from the very private law bargaining problems that Calabresi and Melamed urge are best resolved by the use of property and liability rules.”).

¹⁸⁹ Extensive scholarly literature exists on the use of compensation to accomplish LULU siting. For a description of some such possibilities, see, for example, Been, *supra* note 163, at 792–95.

regulatory authority to the state—an efficiency-promoting Coasean bargain. Such bargaining induces information-sharing among the government entities involved and helps to promote efficient allocations of the regulatory entitlements at issue.¹⁹⁰

C. *The Inadequacy of Property Rule Approaches*

Allocations of entitlements to restrict distributed renewables through land use controls are presently governed in most states by Rules 1 and 3, the rigid, property rule–like approaches critiqued in Part II above.¹⁹¹ A majority of those states have a regime that resembles Rule 3—allowing communities to choose for themselves whether to accommodate the devices in their ordinances and covenants.¹⁹² This “hands-off” approach effectively assigns the regulatory entitlement to communities and protects it with a property rule. Communities in Rule 3 states are free to regulate land use inside their jurisdictions, even if their local ordinances deter or prohibit landowners from installing renewable energy devices.¹⁹³

A Rule 3 approach gives communities wide discretion to structure renewable energy-related land use policies in accordance with local interests and facilitates Tieboutian sorting. However, it fails to address the externality problems that have led many communities to excessively restrict distributed renewables. For the reasons set forth previously,¹⁹⁴ communities tend to underconsider the regional, national, or global benefits of distributed renewables when formulating land use regulations and thus overrestrict their installation. Increasing calls for preemption or other state or federal interventions cast serious doubt on the ability of a Rule 3 approach to support distributed renewable energy growth in the coming years.

¹⁹⁰ The concept of a reverse auction or “low-bid auction” for LULU siting exemplifies how least-cost or lower-cost avoiders may be identified through protecting a land use authority entitlement with property rules. Under such schemes, “communities would submit a sealed bid indicating the minimum amount they would need to host a facility.” Don Munton, *The NIMBY Phenomenon and Approaches to Facility Siting*, in ELLICKSON & BEEN, *supra* note 62, at 745.

¹⁹¹ Rule 1 corresponds to the subsection on preemption of local regulation. *See supra* text accompanying notes 123–151. Rule 3 corresponds to the subsection on deference to community governments. *See supra* text accompanying notes 93–106.

¹⁹² The only states falling outside this category are the ones with preemptive laws that invalidate local regulations that restrict distributed renewables. For a list of many such preemption statutes, see *supra* notes 130–137.

¹⁹³ This characterization is concededly attenuated because in many cases states could theoretically preempt local laws at any time. However, in the absence of such state preemption statutes, Rule 3 seems to best describe the allocation of authority because communities have long held the entitlement to regulate land use, there is no express provision for the state’s purchase of the entitlement, and state governments typically must overcome significant political and procedural barriers to reclaim it.

¹⁹⁴ *See supra* text accompanying notes 18–31.

In contrast, statutes in a handful of states seem to embrace Rule 1, preempting and invalidating local restrictions on distributed renewables.¹⁹⁵ Because communities operating under such laws cannot unilaterally pay the state to avoid preemption, these legal regimes assign the scarce regulatory entitlement to the state government and protect it with a property rule.

A Rule 1 approach succeeds in causing communities to adopt land use regulations that allow for distributed renewables, but it does so at the expense of local involvement and flexibility and is thus prone to inefficiency. For example, in the picturesque city of Beachtown, described earlier,¹⁹⁶ the costs to residents of allowing small wind turbine installations far exceeded those in more ordinary communities where views and aesthetics were less valuable. A Rule 1–like statute preempting local restrictions on distributed renewables nonetheless applies equally to all types of communities, ignoring localized differences, preventing Tieboutian sorting, and excluding local involvement from the policymaking process.¹⁹⁷ Moreover, the transaction costs associated with intergovernmental bargaining over entitlements to regulate are often very high, so there is little chance of states voluntarily selling the entitlements to communities under the rule.¹⁹⁸ In the face of such obstacles, an appropriately tailored liability rule–like approach could motivate community acceptance of distributed renewables while harnessing localized information in ways that sustainability law scholars have been clamoring for.¹⁹⁹

¹⁹⁵ A detailed discussion of states' use of preemption to overcome local barriers to distributed renewables is set forth in Part III.E. See *supra* text accompanying notes 123–151.

¹⁹⁶ See *supra* text accompanying notes 144–151.

¹⁹⁷ A state could conceivably attempt to identify unique communities with particular aesthetic sensitivities and exempt them from a broad preemption statute on efficiency grounds. However, any such attempt would pit municipalities against each other in efforts to obtain exemption and would also rely on state-level decisionmaking that failed to solicit local input.

¹⁹⁸ A community and state government operating under Rule 1 could theoretically strike a voluntary bargain under which the community paid some negotiated amount to the state in exchange for the entitlement to continue excluding distributed renewables. The bargain could be implicit, such as a state's assessment of periodic fines for such exclusionary policies with no threat of ever enjoining the community to change them. In practice, however, communities rarely offer compensation to state governments to avoid the preemption of local regulations. The probability of successful Coasean bargaining of this sort would increase if a state enacted legislation expressly inviting it, but even then, the likelihood of efficient entitlement transfers is significantly lower than under some of the option-based approaches described below. See *infra* text accompanying notes 205–214; see also Lehavi, *supra* note 31, at 957 (discussing the difficulties of interjurisdictional bargaining over zoning entitlements).

¹⁹⁹ Commentators have noted the ability of liability rule–based approaches to force parties to share their true valuations of entitlements. See, e.g., Fennell, *supra* note 176, at 1404. Scholars have also observed the unique ability of liability rules to strike a balance between equity and efficiency. Richard R.W. Brooks, *The Relative Burden of Determining Property Rules and Liability Rules: Broken Elevators in the Cathedral*, 97 NW. U. L. REV.

D. Communities as “Best Choosers”

Having determined that the two existing, property rule approaches to promoting community acceptance of distributed renewables are inadequate, our attention turns to the remaining four rules in figure 1. These four rules incorporate option theory to allow greater flexibility in policymaking than is possible under Rule 1 or Rule 3.

Selecting among the remaining four rules requires one to determine which party is most likely to be the “best chooser.”²⁰⁰ The best chooser is the party “in the best position to make the cost-benefit analysis” relating to a locality’s accommodation of distributed renewables.²⁰¹ If one determines that state governments are the best choosers, one would favor Rules 4 and 6, because those rules empower states to compel a transfer of the regulatory entitlement at issue. Conversely, if one determines that communities are the best choosers, Rules 2 and 5 are more attractive, because those rules give greater discretion regarding distributed renewables to communities than to the state. The weight of recent scholarship suggests that communities are the best choosers in this context because they typically are in a better position than state officials to estimate the likely costs of distributed renewables within their jurisdictions.

Most calls for innovative approaches to promoting sustainable land use emphasize the need to harness valuable community-level information and support.²⁰² It has also long been understood that communities that voluntarily accept LULUs are less likely to oppose them than communities that have LULUs thrust upon them.²⁰³ As Professor Fischel has noted, the consent of communities is “best obtained by compensation offered in a system in which local governments

267, 308–09 (2002) (“When justice calls for one property rule and efficiency calls for another, liability rules serve as useful compromises.”).

²⁰⁰ “Best chooser” analysis is well established in the law and economics literature. See, e.g., Guido Calabresi & Jon T. Hirschoff, *Toward a Test for Strict Liability in Torts*, 81 YALE L.J. 1055, 1060 (1972) (advocating the use of rules that place liability on the party who is “in the best position to make the cost-benefit analysis between accident costs and accident avoidance costs and to act on that decision once it is made” (emphasis omitted)); see also Krier & Schwab, *supra* note 102, at 470 (“All other things being equal, when liability rules are used the party who is the best chooser should be confronted with the decision whether or not to force a sale upon the other party” (citing Calabresi & Hirschoff, *supra*)).

²⁰¹ Calabresi & Hirschoff, *supra* note 200, at 1060.

²⁰² See *supra* text accompanying notes 152–153.

²⁰³ See, e.g., Been, *supra* note 163, at 791 (“Studies show that risks a community assumes voluntarily are more likely to be accepted than those foisted upon a community.”). Of course, a community that agrees to adopt green energy-friendly land use policies in exchange for compensation is arguably not “volunteering” at all, but is engaged in a mutually consensual transaction. See ERIC T. FREYFOGLE, ON PRIVATE PROPERTY: FINDING COMMON GROUND ON THE OWNERSHIP OF LAND 117 (2007) (“A volunteer is someone working for free, not someone who gets paid.”).

can decline to accept . . . Schemes that force communities to accept compensation and unwanted [land uses] are apt to meet much more resistance.”²⁰⁴ Because approaches based on Rules 4 and 6 fail in this regard, those rules seem ill-suited for governing allocations of the regulatory entitlement at issue.²⁰⁵

E. Assigning the Entitlement

A presumption that communities are the best choosers in this context leaves just two option-based rules remaining from our original six-rule diagram: Rule 2 and Rule 5. Rule 2 assigns the competing entitlement to the state, while Rule 5 assigns it to communities. Policies implementing either of these rules are appealing in that both would motivate more localities to accommodate distributed renewables while allowing each community to independently and locally decide the issue.

Valid arguments can be made for assigning the regulatory entitlement to the state. Municipalities derive their land use regulatory authority from state governments, and states often have the capacity to take it back or limit its scope, which suggests that the entitlement ultimately rests with states.²⁰⁶ A Rule 2 approach embraces this perspective, but protects the states’ entitlement with a liability rule rather than a property rule. States applying Rule 2 would preempt local land use restrictions on distributed renewables yet allow individual

²⁰⁴ FISCHER, *supra* note 25, at 183.

²⁰⁵ State officials operating under a Rule 4 approach could conceivably identify municipalities that they believed were best suited for distributed renewable energy development, and compel them to adopt ordinances accommodating such development in exchange for cash. Municipalities selected under the rule would be unable to opt out of designation. Such an approach would contravene the goal of preserving local autonomy and would risk invoking political backlash in communities that are singled out and subjected to state mandates.

A legal regime implementing Rule 6 would seem even less appealing. In a state applying a Rule 6 approach, if potential renewable energy productivity were greater in certain windy or sunny regions of a state, the state government could unilaterally require communities in those regions to adopt provisions accommodating green energy. More aesthetically sensitive communities, or areas of the state with the lowest productivity potential for distributed renewables, would pay additional taxes or fees and could freely block renewable energy installations. A Rule 6 approach would require a presumption that *state* governments were better able than *local* governments to discern where within their state distributed renewable energy would be cost-justified. Given the doubtfulness of such a presumption, it is difficult to conceive of a context warranting such a rule.

²⁰⁶ See Bronin, *supra* note 18, at 267–68 (“Through enabling acts relating to zoning and design controls, states dictate how localities may regulate land use. States can expand or contract localities’ decision-making powers by amending these enabling acts or by enacting unrelated legislation.”).

State laws can similarly constrain private covenant-making to further legitimate state interests. See *supra* note 124 and accompanying text (discussing governments’ power to invalidate racially restrictive covenants and other offensive covenants in further of state objectives).

communities to unilaterally evade preemption by paying the state a predetermined tax or fee. Communities whose expected damages from preemption exceeded the amount of the tax or fee would pay the state and continue restricting renewables. Communities whose expected damages were less than the tax or fee amount would voluntarily accommodate distributed renewables in their land use policies to avoid paying the state.

On the other hand, communities have historically possessed and exercised the entitlement at issue. Municipalities in most states have regulated land use for decades in ways that indirectly restrict distributed renewable energy.²⁰⁷ In those jurisdictions, new legislation that effectively assigns the regulatory entitlement to the state government could be perceived as a *reassignment* from communities to the state.²⁰⁸ A Rule 2 approach would require communities in those states to choose between two unattractive options—having their land use controls preempted or paying a new tax. Upsetting the current balance of land use regulatory authority between state and local governments with such a strategy risks provoking the same sort of political resistance that plagues Rule 1’s rigid preemption approach.²⁰⁹

A Rule 5–based strategy is less likely to incite political opposition than one corresponding to Rule 2. Under a Rule 5 approach, communities would retain their entitlement to restrict distributed renewables in their land use controls but would also receive a put option enabling them to sell the entitlement to the state. If Rule 5 applied in Beachtown,²¹⁰ the state would not require that Beachtown pay a tax or fee to protect its existing set of local land use controls against preemption. Instead, the state would offer the city a statutorily-determined amount of cash or tax credits to voluntarily revise its controls.²¹¹ Beachtown could then make a localized estimate of the likely costs of accommodating distributed renewables in its municipal ordinances and weigh that estimate against the value of the state’s offered tax credit or grant to reach its own decision on the issue.

The cost of funding the state’s tax credits or grants under a Rule 5 approach would ultimately be shared throughout the state but would be less conspicuous than a locally-funded tax payment to the state under Rule 2 and less likely to rouse

²⁰⁷ Put differently, most states presently operate under Rule 3, affording communities the entitlement to regulate land use as it relates to distributed renewables. To review the discussion on Rule 3, see *supra* text accompanying notes 192–194.

²⁰⁸ Calabresi and Melamed recognized the potential for significant distributional impacts from the initial assignment of an entitlement. See Calabresi & Melamed, *supra* note 166, at 1098 (“Difficult as wealth distribution preferences are to analyze, it should be obvious that they play a crucial role in the setting of entitlements.”).

²⁰⁹ For a discussion of the political unpopularity of preemption, see *supra* notes 148–149.

²¹⁰ See *supra* text accompanying notes 144–151.

²¹¹ Part V describes a tax credit scheme that would apply Rule 5. See *infra* text accompanying notes 238–250.

political opposition.²¹² A Rule 5 approach would portray a community's accommodation of distributed renewables as a meritorious act,²¹³ providing financial rewards to localities that voluntarily undertake it.²¹⁴ For this reason, as at least one commentator has noted, put option strategies like Rule 5 are often most effective when used to "induce people to engage in socially valuable conduct."²¹⁵

F. Setting the Option Price

A strategy applying Rule 5 would require policymakers to confront the difficult task of determining how to set the put option's exercise price.²¹⁶ Who should determine the amount communities should be eligible to receive from the state for voluntarily accommodating distributed renewables in their land use laws?

Under ordinary liability rules, nontitled parties hold options to acquire the entitlement for a price that equals some third-party estimate of the entitlement's value to its holder.²¹⁷ Conventional liability rules can lead to inefficient entitlement

²¹² The distributional effects under a Rule 5 approach are arguably less likely to raise opposition than would direct taxes because they involve the distribution of concentrated benefits among Green Communities that are funded through modest increases in the collective, diffusely-shared tax burden on the citizenry. For an introductory discussion of the effects of concentrated benefits and diffuse costs, see generally MANCUR OLSON, JR., *THE LOGIC OF COLLECTIVE ACTION: PUBLIC GOODS AND THE THEORY OF GROUPS* (1971).

²¹³ Viewing the longstanding status quo of prohibiting distributed renewables as the baseline, a locality's new commitment to allow these land uses to further statewide objectives is arguably a meritorious or "supernormal" action worthy of compensation. Ellickson and Fischel analogously applied a "supernormal" versus "subnormal" dichotomy in the context of regulatory takings analysis, arguing that a governmental requirement of "supernormal" development warrants just compensation, but a prohibition on offensive "subnormal" development does not. *See* Fischel, *supra* note 65, at 897 ("As both [Robert] Ellickson and I have argued, an appropriate focus for the regulatory takings doctrine is local government regulation that imposes 'supernormal' standards on owners of undeveloped land. Local controls that require developers to forego 'subnormal' (or nuisance-like) development and conform to 'normal' standards for suburbs in their situation do not require compensation." (footnotes omitted)).

²¹⁴ Other scholars have suggested the possibility of compensation for hosting LULUs being framed as a reward rather than as a remedy for the community's expected damages. *See* Been, *supra* note 163, at 792 (citing DAVID MORELL & CHRISTOPHER MAGORIAN, *SITING HAZARDOUS WASTE FACILITIES LOCAL OPPOSITION AND THE MYTH OF PREEMPTION* 164–175 (1982)) (noting that compensation for accepting a LULU can be structured to "serve as a remedy, a preventative measure, or a reward").

²¹⁵ Fennell, *supra* note 176, at 1448.

²¹⁶ Of course, this same challenge arises when structuring any compensatory scheme for LULU siting. *See* Been, *supra* note 127, at 1042 (arguing that the "most important hurdle" faced by compensatory schemes "is the difficulty of translating the risks of a LULU into monetary terms").

²¹⁷ *See* FENNELL, *supra* note 93, at 103 ("Liability rules have traditionally been understood to involve a predetermined price, usually established by a third-party such as a court or administrative agency.").

transfers whenever third-party valuations of entitlements are too low.²¹⁸ Because Rule 5–based approaches involve put options rather than call options, they can lead to inefficiencies whenever such valuations are too high.²¹⁹

Third-party valuations of entitlements are notoriously difficult and imperfect.²²⁰ The costs and benefits of distributed renewable energy development are dynamic and widely diffused effects such as cleaner air, fewer greenhouse gases in the atmosphere, and effects on energy prices—so estimating them is challenging and costly.²²¹ Locating a noninterested third party capable of making such valuations could also be particularly difficult given that both parties vying for the entitlement are government entities.²²²

²¹⁸ To illustrate the undervaluation problem associated with liability rules, suppose that an entitlement holder (X) valued its entitlement at \$1,000 and another party (Y) valued the entitlement at \$900. If the entitlement has liability rule protection and receives a third-party valuation of \$850, Y would purchase the entitlement from X—its highest valued user—for \$850, generating a deadweight loss. For further discussion on undercompensation problems under traditional liability rules, see generally Daphna Lewinsohn-Zamir, *The Choice Between Property Rules and Liability Rules Revisited: Critical Observations from Behavioral Studies*, 80 TEX. L. REV. 219, 249–50 (2001).

²¹⁹ This overvaluation problem is simple to demonstrate. Suppose that Y held an entitlement, valuing it at \$900. X valued the entitlement at \$1000. If the entitlement received a third-party valuation of \$1100 and Rule 5 applied, X—the highest-valued user—would be unwilling to pay that amount to acquire it and a deadweight loss would result.

²²⁰ Numerous scholars have discussed the inherent difficulties of third-party valuations of entitlements under liability rules. See, e.g., Brooks, *supra* note 199, at 296–98 (discussing the administrative burden of third-party valuations under liability rules); Robert Cooter & Melvin Aron Eisenberg, *Damages for Breach of Contract*, 73 CALIF. L. REV. 1432, 1480 (1985) (describing how excessively high judicial valuations of damages can lead to overcompensation); Lewinsohn-Zamir, *supra* note 218, at 249–50 (noting that excessively low valuations can lead to undercompensation problems under liability rules).

²²¹ As far as costs go, each landowner within a community would potentially suffer—to varying magnitudes—from the aesthetic and property value impacts of changing land use restrictions to allow distributed renewables in the neighborhood. Some landowners would end up seeing small wind turbines erected next door in affluent parts of town, while others would perhaps experience no impact at all. Aggregating and attaching a dollar value to these hundreds of unique landowner losses would be prohibitively complex and expensive.

Free riding, holdout problems, and other collective action problems can often become more severe as the number of stakeholders involved in a given transaction increases. For a brief discussion of the positive correlation between the number of parties involved in negotiations over an entitlement and the likely transaction costs associated with such negotiations, see *supra* note 102 and accompanying text.

²²² It is difficult to conceive of a federal entity that would handle such value determinations and any state or local government entity designated to set the put option exercise price would not be a third party.

The entitlement valuation problems just described are avoidable under Rule 5 if the state government itself sets the option price.²²³ Professor Lee Fennell has explored the possibility of using “entitlements subject to self-made options” (ESSMOs) to overcome the challenge of complex entitlement valuations in the context of call options.²²⁴ An ESSMO “requires one party to package her subjective valuation in the form of an option, while allowing the other party to act unilaterally on that option.”²²⁵ In a Rule 5–like regime involving put options, having option-makers set the exercise price affords benefits similar to those under ESSMOs, sidestepping many of the valuation problems that plague ordinary liability rules.²²⁶ The state legislature’s option pricing decisions would serve as a proxy for the state’s collective willingness to pay for land use policies that are friendly towards distributed renewables within a given community. Municipalities and subdivisions could then choose for themselves whether to unilaterally sell their entitlements. Although such an approach would not perfectly address the negative externality problems caused by distributed renewables,²²⁷ it would be a relatively low cost and politically acceptable means of improving upon existing laws.

G. *Dividing Up the Compensation*

Before moving on to practical applications of Rule 5, one important question remains: if a community operating under the rule elects to sell its entitlement to restrict distributed renewables to the state, who should ultimately receive the compensation? Should municipal governments keep the funds, or should the money be distributed to local citizens? Such a question commonly arises when structuring any LULU compensation scheme.²²⁸

²²³ See FENNELL, *supra* note 93, at 103 (“Liability rules have traditionally been understood to involve a predetermined price, usually established by a third party such as a court or administrative agency. But it is also possible to involve the parties themselves in setting the prices . . .”).

²²⁴ Fennell, *supra* note 176, at 1401.

²²⁵ FENNELL, *supra* note 93, at 105.

²²⁶ See Fennell, *supra* note 176, at 1409 (“Option making offers an underexplored way to tap into private valuations in multi-party interactions occurring over time and across space.”); see also FENNELL, *supra* note 93, at 105 (“[T]he ESSMO dodges the primary sources of inefficiency associated with property rules and ordinary liability rules—holdout problems and undercompensated transfers, respectively. It also avoids the need for [third-party] valuation.”).

²²⁷ A perfect solution to the negative externality problem would compensate each neighbor of a newly-installed distributed renewable energy device in an amount equal to that neighbor’s unique costs. Neighbors living adjacent to such devices would typically receive greater compensation than those living a few hundred feet or a few blocks away. In most cases, implementing a regime that sought to perfectly compensate neighbors on a case-by-case basis would be prohibitively costly or impossible.

²²⁸ A common criticism of compensation schemes for the siting of LULUs is that it is often not clear who should actually receive the compensation at issue. See Been, *supra* note 127, at 1044 (“Compensation mechanisms . . . raise difficult questions about who should

A compelling argument can be made for distributing at least some of the compensation directly to a community's landowners. Property owners hold fragmented rights to exclude distributed renewables from the community under the land use regulations at issue and would directly bear most of the financial losses from a community's sale of those exclusion rights.²²⁹ As described in Part V below,²³⁰ landowner compensation could be inexpensively distributed as tax credits through a state's property tax system.²³¹ Local governments should arguably also be eligible to receive some portion of the compensation paid to communities that accommodate distributed renewables. City councils and county commissions would undertake the process of amending local land use regulations to effectuate the "sale" of their regulatory entitlement to the state and would be more motivated to make room on their agendas for the issue if state grant funding were at stake. Allocating some of the compensation directly to municipal governments as a block grant might also foster greater local support among a community's renters, who would receive only indirect benefits from the tax credits.²³²

V. GREEN COMMUNITY TAX CREDITS

A state could create a compensatory scheme corresponding to Rule 5 by enacting legislation that awarded modest property tax credits to landowners in communities that voluntarily accommodated distributed renewables.²³³ Local

receive compensation: residents, property owners, the neighborhood itself, or some combination of the three.").

²²⁹ The conception of zoning as a distribution of fragmented exclusion rights to a community's landowners has existed for decades. *See supra* note 12.

²³⁰ *See infra* text accompanying notes 234–253.

²³¹ Laws in many jurisdictions already afford special designations to certain classes of real property and provide for property tax credits or other forms of differential taxation based on the designations. *See, e.g., Tax Credit Programs & Exemption Information*, MD. DEP'T OF ASSESSMENTS AND TAX'N, available at <http://www.dat.state.md.us/sdatweb/taxcredits.html> (last updated Aug. 31, 2010) (describing state-level tax exemptions or credits in Maryland for agricultural use properties, religious or charitable use properties, educational use properties, and other properties fitting other categories of specified uses).

²³² Of course, renters could receive some indirect benefits from tax credits awarded to their landlords. The proportion of a landlord's tax credit savings that it would pass along to renters would depend on price elasticity of demand for rental housing in the jurisdiction. *See* ELLICKSON & BEEN, *supra* note 62, at 655–56. If there are ample close substitutes to the jurisdiction's rental housing, then landlords would theoretically pass along more of the savings to renters. For a general discussion of the incidence of taxes on real estate and related topics, see *id.* at 654–59 (discussing the incidence of taxes on land itself, construction, and other land improvements).

²³³ A handful of states do not have state-level property taxes. *See* Karen Hube, *Property Taxes Soar to Close Budget Gaps*, FISCAL TIMES (July 27, 2010), <http://www.thefiscaltimes.com/Issues/Taxes/2010/07/27/Property-Taxes-Soar-to-Close-State-and-Local-Budget-Gaps.aspx> (noting that only thirty-seven states have a state-

governments in communities qualifying for these “Green Community Tax Credits” would also receive a one-time grant upon a showing that they had amended their land use laws to welcome distributed renewable energy devices.

A Green Community Tax Credit program would not disturb communities’ long-held entitlement to restrict distributed renewables in their land use regulations because no community would be forced to make any regulatory changes. At the same time, the program would encourage communities to “sell” their entitlement to the state by accommodating distributed renewables if they believed that the aggregate value of the grant and tax credits offered exceeded the cost within their jurisdictions.

A. Structuring the Tax Credit Program

A statute creating a Green Community Tax Credits program would likely have an initial section describing the property tax credits available to landowners within Green Communities. The section could also set forth a simple application process for communities to obtain Green Community status and provide for modest one-time grants to community governments that achieved it.²³⁴

The statute would also include model ordinance provisions and model subdivision covenant amendment provisions for use by municipalities and private neighborhoods to achieve Green Community status. The model ordinance and subdivision covenant for obtaining Green Community designation would include specific provisions that reasonably exempted solar panels and small turbines from local land use restrictions.²³⁵ Parcels of land that were subject to private subdivision covenants would qualify for the tax credits only upon the adoption of amendments at both the municipal and subdivision levels.

The model documents might also require that local land use regulations reasonably accommodate xeriscaping, clotheslines, or other green LULUs.²³⁶ For

imposed real property tax). Tax credits could conceivably be structured to offset local property taxes in those states. Concededly, administrative costs for implementing a tax credit program would be greater in those jurisdictions because the state government would need to reimburse municipalities for resulting reductions in their tax revenue.

²³⁴ To help account for the wide variation in size among localities, the statute could provide for determination of the block grant amount on a sliding scale based on a municipality’s population.

²³⁵ Existing model ordinances of this type may be a useful starting point for drafters of Green Community Tax Credit legislation. *See, e.g.*, CITY OF SAN JOSE, CAL., ORDINANCE No. 28320 (2008), available at <http://www.sanjoseca.gov/planning/pdf/Ord28320.pdf> (exempting solar panels from certain municipal height restrictions and clarifying the extent to which city land use regulations apply to solar panel installations); Merriam, *supra* note 72, at 308–12 (providing a model small wind turbine ordinance); RENEW WIS., SMALL WIND ENERGY SYS. ORDINANCE (undated), <http://www.renewwisconsin.org/wind/Toolbox-Zoning/Small%20Wind%20System%20Model%20Ordinance%2012-06.pdf>.

²³⁶ *See supra* note 59. The program could even apply the more broad definition of “sustainability” and also require the accommodation of a specified amount of affordable

the reasons set forth above,²³⁷ however, the community's adoption of various homevoter-favored or homevoter-neutral sustainability policies should be optional.²³⁸ The tax credit program's primary aim would be to motivate communities to allow green LULUs—a homevoter-feared aspect of sustainable land use policy.

B. Safeguarding Against Strategic Abuses

Tax credits are notoriously prone to strategic abuse,²³⁹ and a system of Green Community Tax Credits would not be immune to such problems. Careful legislative drafting would be necessary to limit opportunistic behavior. For instance, without proper safeguards, some communities might adopt local ordinances friendly to distributed renewables and receive the one-time grant but then deter actual installations through slow and costly permitting processes or other means. A state could discourage such abuses by basing annual tax credit amounts on the actual kilowatts of generating capacity of distributed renewables installed during the previous year.²⁴⁰

housing. *See* Salkin, *supra* note 13, at 131–32 (“[T]he provision of an adequate supply of affordable housing is central to the social equity component of sustainability.”).

²³⁷ *See supra* Part II.C.

²³⁸ Even if these other policies were optional, state-distributed materials relating to a Green Community Tax Credits program could include sample ordinances or covenant amendment provisions to ease their adoption in communities that favor them. In states where support for sustainability is particularly strong, the Green Community Tax Credit statute could mildly encourage adoption of these other policies through a voluntary, flexible minimum-point system comparable to the system for LEED certification, but offering no additional tax credits. *See* Lo Baugh, *supra* note 53, at 26 (describing the flexibility of the United States Green Building Council's point system for LEED certification, under which points are awarded for various types of design elements or materials and the owner of a building is “free to select whatever points best meet the buildings need”).

²³⁹ Examples of abuse of tax credits or other government incentives abound. *See, e.g.*, David H. Hu, *Seed Capital Is Not Enough: Lessons from Hawaii's Attempt to Develop a High-Technology Sector*, 30 U. HAW. L. REV. 401, 405–06 (2008) (describing abuses of Hawaii's Act 221, under which the state issued more than \$100 million in tax credits between 2001 and 2003, but where only an estimated \$70 million was “invested in start-up companies intended to benefit from the program”); *see also* Anne L. Alstott, *Work vs. Freedom: A Liberal Challenge to Employment Subsidies*, 108 YALE L.J. 965, 1031 (1999) (describing the need for “complex rules to combat predictable abuses” of the basic tax credit formula under a former New Jobs Tax Credit program).

²⁴⁰ For example, the statute could provide for a fixed tax credit amount per tax parcel that is based upon the number of kilowatts of installed generating capacity of distributed renewables within the community during the previous twelve-month period. County officers could use inspection and permit records to generate and certify annual reports to the state's department of revenue on new device installations for the state's use in calculating tax credit amounts.

The state legislation would also need to carefully define the scope of communities and parcels that were eligible for tax credits. Credits should not be available to owners of large agricultural or rural parcels that are not subject to conventional zoning ordinances and would be unaffected by the regulatory changes. Fortunately, many states already have land classification systems that could help minimize the cost of identifying eligible parcels.²⁴¹

Even after a municipality adopted ordinances that allowed for distributed renewables, state officials would still have to verify that no relevant private covenants encumbered the parcels seeking Green Community designation. Title insurers could conceivably reduce this administrative burden by investigating titles to insure that the lots within applicant subdivisions were unencumbered by covenants that would violate Green Community requirements.²⁴²

States would also need to adopt monitoring mechanisms to verify that state-designated Green Communities continue to qualify for that status. County recording offices could potentially assist by reporting any newly recorded covenants relevant to a parcel's Green Community designation. Statutory provisions could likewise require municipal governments to annually certify that they had not adopted ordinances that might jeopardize their status as Green Communities.

C. Additional Advantages of a Tax Credit Approach

A Green Community Tax Credit program would accelerate the adoption of local land use policies that facilitate distributed renewable energy development. It would also be relatively invulnerable to political resistance, allow greater Tieboutian sorting among the citizenry, and ensure that unique local costs received adequate attention in the decision-making process.²⁴³ Although it would be far from perfect,²⁴⁴ a tax credit approach would respect local autonomy while strengthening the incentive for communities to amend their regulations when socially optimal to do so. The following are two additional benefits of using tax credits in this context.

²⁴¹ See, e.g., WASH. ADMIN. CODE § 458-53-030(5) (2010) (setting forth rules for land use classification by counties in Washington for use in the stratification of the real property assessment rolls).

²⁴² Title insurers routinely search title records and issue policies insuring against specific title risks. See generally BARLOW BURKE, LAW OF TITLE INSURANCE § 1.02 (3d ed. 2003) (providing general information about the title insurance industry).

²⁴³ Of course, political barriers to small-scale renewable energy siting will still exist in some cases. For instance, local utilities sometimes oppose renewable energy. See, e.g., Burleson, *supra* note 61, at 143–44 (describing the resistance of utilities to renewable energy development based on their perception that it competes with the utilities' established markets).

²⁴⁴ In the words of Vicki Been on ordinary LULU siting, "while compensation may not be sufficient to resolve siting impasses, it can't hurt, and indeed may be one of several necessary elements of a solution." Been, *supra* note 163, at 824.

1. *Promotion of Sustainability Norms*

A system of Green Community Tax Credits would leverage the power of social norms in support of sustainability. Sustainability has enjoyed an increasingly prominent role in popular culture in recent years, and some landowners have even come to view distributed renewables as an “environmental fashion statement.”²⁴⁵ Such positive social norms are indispensable to the sustainability movement, enabling producers of distributed renewables to achieve greater economies of scale and persuading more citizens to go green.

Although recent studies suggest that landowners’ resistance to renewable energy development is decreasing,²⁴⁶ many landowners still fear the potential impacts of distributed renewables on their neighborhoods. A Green Community Tax Credit system would give public recognition to participating “Green Communities,” put pressure on other localities to accommodate distributed renewables, and help to mitigate landowner concerns regarding the devices.²⁴⁷

For similar reasons, a Green Community Tax Credit program could also reduce opposition from individual neighbors in neighborhoods with Green Community status by strengthening intra-community norms in favor of distributed renewables. A landowner whose city council or homeowner association has already officially adopted “Green Community” policies, and who is receiving consequent tax benefits, is relatively less likely to actively oppose a neighbor’s proposed wind turbine or solar panel.

2. *Preservation of Environmental Justice*

A Green Community Tax Credit system has far less propensity to offend environmental justice proponents than compensatory siting schemes for hazardous waste sites or other LULUs that impact neighbors’ safety or health. Advocates of environmental justice have long argued against compensation-based LULU siting regimes on fairness grounds. They contend that such regimes take unfair advantage of poorer communities, which are more likely than wealthy communities to

²⁴⁵ Kate Galbraith, *Assessing the Value of Small Wind Turbines*, N.Y. TIMES, Sept. 4, 2008, at C1. The same article describes a proposal by New York Mayor Michael R. Bloomberg to put small wind turbines “on the city’s skyscrapers and bridges.” *Id.*

²⁴⁶ See, e.g., Christopher W. Fry, *Harvesting the Sky: An Analysis of National and International Wind Power*, 19 COLO. J. INT’L ENVTL L. & POL’Y 427, 457 (2008) (citing public opinion poll results as evidence of “decreasing resistance to wind development” in the United States).

²⁴⁷ One pair of commentators has labeled early adopters of renewable energy technologies and policies as “energy entrepreneurs,” emphasizing their importance to the growth of distributed renewable energy at the local level. See Pursley & Wiseman, *supra* note 11 (manuscript at 50–51) (“Local governments’ endorsement of renewables may help overcome individuals’ worries about and distrust of new energy technologies by adding a ‘stamp of approval’ that people trust.”).

willingly accommodate hazardous LULUs, such as waste disposal sites, in return for compensation.²⁴⁸

Neighborhood opposition to distributed renewables seems driven primarily by fears of adverse impacts on a community's aesthetic ambiance or on property values. So long as communities enforce reasonable safety-based regulations for solar panels and small turbine siting, the health and safety-based arguments that characterize the environmental justice movement lose their persuasiveness when applied to distributed renewable energy devices.

The other common environmental justice argument against compensation-based LULU siting is that, under such regimes, LULUs ultimately end up in the poorest communities who are in greatest need of the compensation.²⁴⁹ Such arguments have merit in discussions over the siting of a hazardous or noxious LULU, but are inapplicable when the LULUs are renewable energy devices.²⁵⁰ Indeed, shiny new solar panels and small wind turbines might actually help to revitalize the image of some deteriorating or blighted areas where there has long been a dearth of new development. Empirical researchers have found that the positive property value effects of community gardens are often magnified when the gardens are sited in poorer neighborhoods.²⁵¹

Green Community Tax Credits would arguably be a progressive taxation strategy, tending to redistribute wealth to less affluent communities. On average, wealthier neighborhoods and towns tend to impose greater land use restrictions than their less-affluent counterparts, suggesting greater price-sensitivity to aesthetics.²⁵² Thus, high-end communities like Beachtown²⁵³ would be comparatively less likely to voluntarily accommodate distributed renewables in exchange for tax credits. More modest localities would be more likely to seek Green Community designation to obtain the accompanying tax credits and would ultimately pay a lower property tax rate than their wealthier counterparts.²⁵⁴ In the

²⁴⁸ For a discussion and critique of environmental justice-based opposition to compensatory LULU siting schemes, see Been, *supra* note 127, at 1040–41.

²⁴⁹ See Been, *supra* note 163, at 824 (“[I]t is likely that the communities that accept LULUs under compensated siting programs will be our poorest communities. . . . The distributional consequences of compensated siting programs therefore raise fundamental questions about our treatment of the poor . . .”).

²⁵⁰ For an analysis of fairness issues in LULU siting, see Been, *supra* note 127, at 1027–76.

²⁵¹ See Voicu & Been, *supra* note 50, at 243.

²⁵² See, e.g., ELLICKSON & BEEN, *supra* note 62, at 28 (citing Stephen Malpezzi, *Housing Prices, Externalities, and Regulation in Metropolitan Areas*, 7 J. HOUSING RES. 209 (1996)) (finding a positive correlation between the level of local land use regulation and market prices of housing).

²⁵³ A description of the fictional city of Beachtown is set forth in Part III.E. See *supra* note 144 and accompanying text.

²⁵⁴ One could argue that low-income citizens are unable to afford distributed renewables and that installations (and resulting community-level tax credits) would be out of reach. Although the affordability of distributed renewables has long been of concern, power purchase agreements, energy finance districts, leasing arrangements, and similar

end, the residents of luxury communities would thus bear a greater proportion of the state's property tax burden under the tax credit program.

VI. CONCLUSION

As the popularity of small wind turbines and solar panels continues to grow, neighborhood conflicts over the devices will become increasingly common. Despite state and federal programs that aggressively encourage landowners to invest in distributed renewable energy systems, local land use laws often deter their installation. A growing number of states have enacted statutes that sweepingly invalidate land use restrictions on distributed renewables. These broad-brush preemption laws tear down local barriers to installing the devices, but they also undermine communities' land use authority and inefficiently ignore local issues and concerns.

Characterizing land use regulatory power as an alienable entitlement within Calabresi and Melamed's Cathedral model offers a new perspective on the debate over how to promote sustainable development at the local level. It revealed an option-based policy approach that could promote more efficient allocations of land use regulatory authority related to distributed renewables between states and communities. A state could apply the approach by offering modest property tax credits to landowners in communities that elect to accommodate distributed renewables in their land use controls. Such a system would incentivize more neighborhoods to remove restrictions on renewable energy devices, yet allow each community to decide the issue for itself, preserving the benefits of localized land use decisionmaking.

Sustainable development continues to generate new and complex policy challenges. Applying the tools of law and economics to analyze these emerging issues helps to unveil the solutions needed to sustain the sustainability movement for generations to come.

programs are beginning to overcome cost barriers. *See, e.g.*, Bruce Allen, *Leasing America's Rooftops for Solar Energy*, MILLER-MCCUNE (Jan. 27, 2009), <http://www.miller-mccune.com/business-economics/leasing-america-s-rooftops-for-solar-energy-3987/#> (describing the growing popularity of solar rooftop leasing, solar power purchase agreements, and solar energy finance districts as a means of making solar power installations more affordable for private landowners).