

AIRSPACE AND THE TAKINGS CLAUSE

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ABSTRACT

This Article argues that the United States Supreme Court's takings jurisprudence fails to account for instances when public entities restrict private airspace solely to keep it open for their own use. Many landowners rely on open space above adjacent land to preserve scenic views for their properties, to provide sunlight access for their rooftop solar panels, or to serve other uses that require no physical invasion of the neighboring space. Private citizens typically must purchase easements or covenants to prevent their neighbors from erecting trees or buildings that would interfere with these non-physical airspace uses. In contrast, public entities can often secure their non-physical uses of neighboring airspace without having to compensate neighbors by simply imposing height restrictions or other regulations on the space. The Court's existing regulatory takings rules, which focus heavily on whether a challenged government action involves physical invasion of the claimant's property or destroys all economically beneficial use of the property, fail to protect private landowners against these uncompensated takings of negative airspace easements. In recent years, regulations aimed at keeping private airspace open for specific government uses have threatened wind energy developments throughout the country and have even halted major construction projects near the Las Vegas Strip. This Article highlights several situations in which governments can impose height restrictions or other regulations as a way to effectively take negative airspace easements for their own benefit. This Article also describes why current regulatory takings rules fail to adequately protect citizens against these situations and advocates a new rule capable of filling this gap in takings law. The new rule would clarify the Court's takings jurisprudence as it relates to airspace and would promote more fair and efficient allocations of airspace rights between governments and private citizens.

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INTRODUCTION

Without ever venturing into the open airspace above private land, public entities can use that space to preserve scenic views for government buildings, to deliver sunlight to publicly-owned solar panels, to transmit military radar signals, or to serve other valuable functions.¹ This ability for governments to use private airspace without physically invading it has important implications in the context of takings law. Public entities typically acquire private property through voluntary sales or eminent domain, compensating citizens for the acquired property. However, governments can sometimes secure their non-physical uses of private airspace at far less expense by simply restricting the space rather than formally taking it. Through height restrictions or other land-use controls, public entities can take the equivalent of negative airspace easements tailored to serve their own interests. Such restrictions seek not to govern land use conflicts among private landowners but to conscript specific airspace into government service.

Regulations designed to keep airspace open so it can serve a non-trespassory government use typically are not compensable under existing regulatory takings law. Governments can often impose such restrictions without risking takings liability, even though the effective transfer of property rights resulting from such restrictions often mirrors that of an overt taking through eminent domain. Modern regulatory takings jurisprudence focuses heavily on whether the challenged government action involves a physical invasion of the claimant's property or whether it denies the claimant of all economically viable use of the parcel at issue. These shorthand tests, commonly known as the *Loretto* and *Lucas* rules,² succeed in detecting many types of government actions that warrant the payment of just compensation

1. The protection of natural indoor lighting for public buildings and sunlight access for city-owned urban gardens are examples of other conceivable non-physical government uses of neighboring open airspace. Governments are increasingly recognizing the significant role that natural lighting designs can play in energy efficiency. See, e.g., ARIZ. ADMIN. CODE § R14-2-1802.B.6 (2007) (providing that "solar daylighting," defined as the "non-residential application of a device specifically designed to capture and redirect the visible portion of the solar beam, while controlling the infrared portion, for use in illuminating interior building spaces in lieu of artificial lighting[.]" constitutes a "Distributed Renewable Energy Resource" together with renewable energy devices such as small wind turbines and passive solar energy systems). Government-sponsored urban gardens in blighted areas of major cities have also grown in popularity in recent years. See generally Catherine J. LaCroix, *Urban Agriculture and Other Green Uses: Remaking the Shrinking City*, 42 URB. LAW. 225 (2010) (describing urban garden programs in Cleveland, Ohio, Detroit, Michigan, and elsewhere).

2. *Loretto v. Teleprompter Manhattan CATV Corp.*, 458 U.S. 419 (1982); *Lucas v. S. Carolina Coastal Council*, 505 U.S. 1003 (1992). For a more detailed description of these two regulatory takings rules and why they fail to adequately protect citizens against the regulatory takings of airspace easements discussed in this Article, see *infra* notes 81–105 and accompanying text.

under the Takings Clause. However, neither of these rules accounts for instances when public entities restrict private airspace solely so that they can exploit it in ways that require no physical invasion. Landowners whose properties are subjected to such restrictions are thus left to argue their claims under the nebulous test set forth in *Penn Central*,³ with slim chances of success. The legitimate police power restrictions of airspace upheld in *Penn Central* are materially different from the abuses of regulatory authority aimed at enhancing a public entity's own resource position that are described in this Article.⁴ Unfortunately, most courts have heretofore been unable or unwilling to recognize this distinction when adjudicating takings claims over airspace.⁵

The imprecision of the Supreme Court's takings jurisprudence relating to airspace rights is increasingly problematic in this era of unprecedented competition for airspace. Airspace is a critical resource for renewable energy and sustainable development. Commercial wind turbines must extend hundreds of feet into rural skies to be fully productive.⁶ Solar panels require vast amounts of open airspace to access direct sunlight.⁷ And vertical development that extends high into urban airspace is a significant strategy for combating suburban sprawl.⁸ As airspace grows ever more important in the coming years, conflicts between private citizens and governments over it will likely grow as well. Regulatory takings law in its present form is ill-equipped to fairly and efficiently govern these conflicts.

This Article draws attention to “veiled airspace easement regulations”—government-imposed restrictions that transfer the practical equivalent of negative airspace easements to public entities. Arguing that such regulations are exactly the sorts of government actions that the Takings Clause was intended to protect against, this Article advocates treating these regulations as

3. See *Penn. Cent. Transp. Co. v. City of New York*, 438 U.S. 104 (1978).

4. For detailed examples of such exploitative uses of airspace restrictions, see generally *infra* text accompanying notes 41–68 (describing the potential for government entities to impose height restrictions to protect military radar, create buffers near airports, prevent the shading of municipal solar energy systems, or preserve scenic views for government buildings).

5. For a detailed discussion of *Penn Central*, how its facts are materially distinguishable from the situations that are the focus of this Article, and some possible reasons why the *Penn Central* test fails to adequately protect landowners in these contexts, see *infra* text accompanying notes 100–16 and 154–65.

6. Most commercial wind turbines are well over 300 feet high. See AM. WIND ENERGY ASS'N, WIND ENERGY TEACHER'S GUIDE 4 (2003), <http://www.ocgi.okstate.edu/owpi/EducOutreach/Documents/AWEATeachersGuide.pdf> (noting that modern “utility-scale [wind] turbines can be 100 meters (over 300 feet) high or more”).

7. For a primer on legal issues relating to solar access, see generally Sara C. Bronin, *Solar Rights*, 89 B.U. L. REV. 1217 (2009); Troy A. Rule, *Shadows on the Cathedral: Solar Access Laws in a Different Light*, 2010 U. ILL. L. REV. 851 (2010).

8. Vertical development can be an effective means of increasing urban densities, and greater urban density is often viewed as promoting sustainability. See, e.g., MIKE DAVIS, PLANET OF SLUMS 134 (2006) (noting that “urban density can translate into great efficiencies in land, energy, and resource use”).

compensable takings. Part I of this Article highlights courts' longtime recognition of airspace rights as constitutionally protected property, including such recognition within the parallel context of eminent domain proceedings. Part II describes four specific examples of situations in which governments can abuse their regulatory power to effectively acquire valuable interests in private airspace and explains how the unique attributes of airspace have led courts to overlook these scenarios in their takings jurisprudence. Part III suggests that the Supreme Court should consider adopting an additional, supplemental takings rule that requires just compensation to landowners when regulations (i) deprive them of possessory interests in airspace (ii) for the primary purpose of securing the government's own exploitation of that space. Part III also discusses principles set forth in previous writings by Professors Joseph Sax and Jed Rubenfeld that could assist courts in distinguishing ordinary police power regulations of airspace from regulations involving such direct government exploitation of the restricted space that just compensation would be warranted under the proposed rule. Part IV argues that this new takings rule would add sorely-needed clarity to an ambiguous area of regulatory takings law and would promote more just and efficient allocations of airspace rights between public entities and private landowners.

I. AIRSPACE RIGHTS AND THE POWER OF EMINENT DOMAIN

Airspace, the layer of open space that blankets the earth's surface, is a complex and oft-forgotten natural resource. Airspace is as immovable and unique as land but differs in that it is also totally invisible and intangible.⁹ Given airspace's peculiar attributes, it is unsurprising that courts and legal scholars have long struggled to formulate rules to govern its use.¹⁰

For centuries, neighbors have quarreled over conflicting uses of the airspace above their land.¹¹ Common law doctrines and statutory rules have

9. For a more detailed discussion of the distinct character of airspace as a natural resource, see Troy A. Rule, *Airspace in a Green Economy*, 59 UCLA L. REV. 270, 274–77 (2011).

10. For an excellent historical summary of the painstaking struggle to develop laws in the United States governing airspace rights, see generally STUART BANNER, WHO OWNS THE SKY?: THE STRUGGLE TO CONTROL AIRSPACE FROM THE WRIGHT BROTHERS ON (2008). Other commentators have also remarked on the difficulties and uncertainty associated with airspace rights laws. See, e.g., Colin Cahoon, *Low Altitude Airspace: A Property Rights No-Man's Land*, 56 J. AIR L. & COM. 157, 191 (1990) (noting that decades after the advent of modern flight, "courts have yet to adopt a uniform theory of airspace property ownership"); Mary B. Spector, *Vertical and Horizontal Aspects of Takings Jurisprudence: Is Airspace Property?*, 7 CARDOZO L. REV. 489, 502 (1985) (noting that the "characterization and apportionment of rights in airspace became more complicated with the advent of commercial air travel").

11. See generally Eugene J. Morris, *Air Rights are "Fertile Soil"*, 1 URB. LAW. 247, 253–56 (1969) (describing numerous airspace-related legal disputes adjudicated in the nineteenth and early twentieth centuries).

gradually evolved to address many of these conflicts among private landowners.¹² However, as the function of government has expanded over time,¹³ public entities have increasingly made uses of airspace as well. When a government's use of private airspace clashes with a landowner's use of the space, perplexing legal questions can arise. Should the airspace rights in dispute receive the same property protections commonly afforded to surface land? And under what conditions should the law permit public entities to confiscate or interfere with those rights?

The Takings Clause of the Fifth Amendment is the obvious launching point for analyzing conflicts between governments and citizens over private airspace. Its brief language prohibits governments from taking "private property . . . for public use, without just compensation."¹⁴ A threshold question that arises out of this language is whether the assets at issue in any regulatory taking case are legally cognizable "property" at all.¹⁵ As the following parts show, longstanding case law and more than 70 years of compensated takings of airspace easements through eminent domain are evidence that airspace rights are indeed "property" under the Takings Clause.¹⁶

A. Airspace Rights under Common Law

Landowners have long held common law property rights in the low-altitude airspace above their parcels.¹⁷ The origins of modern airspace law date as far back as the 1300s, when the Italian jurist Cino da Pistoia wrote,

12. A discussion of the *ad coelum* doctrine at common law as it relates to airspace and of modern legislation aimed at addressing various airspace use conflicts arising from modern flight follows in Part I.A of this Article. See *infra* text accompanying notes 18–26.

13. Statistics on the growth of government spending as a percentage of Gross Domestic Product (GDP) evidence the substantial increase in government activities over the past century. See, e.g., ROBERT C. ELLICKSON & VICKI L. BEEN, *LAND USE CONTROLS* 616 (2005) (noting that United States government spending increased from 10 percent of GDP in 1929 to 32.4 percent of GDP in 2003).

14. U.S. CONST. amend. V. Although the Fifth Amendment initially applied only to the federal government, courts have long interpreted the Fourteenth Amendment as making the Fifth Amendment applicable to state and local government as well. See STEVEN J. EAGLE, *REGULATORY TAKINGS* 4 (4th ed. 2009) ("Since 1897, the Supreme Court has interpreted the Takings Clause as applying to states and localities as well.").

15. The Supreme Court has made clear that the Takings Clause "only protects property rights as they are established under state law, not as they might have been established or ought to have been established." *Stop the Beach Renourishment, Inc. v. Fla. Dept. of Env'tl. Prot.*, 130 S. Ct. 2592, 2612 (2010).

16. See *infra* text accompanying notes 37–39.

17. The author recently published an article featuring a more detailed discussion of the nature of airspace and of the history of airspace rights. See Rule, *supra* note 9. Some of the background material in this part draws from that earlier article.

“*Cuius est solum, eius est usque ad coelum*,”¹⁸ or “[to] whomsoever the soil belongs, he owns also to the sky.”¹⁹ This simple “*ad coelum* doctrine” distributes airspace rights based on ownership of the surface land situated immediately below the space. The doctrine appeared in Coke’s commentaries²⁰ and in Blackstone’s commentaries,²¹ securing its place within English and American common law.²² By the early 1900s, courts in the United States were applying it to find trespass for even minor intrusions into neighboring airspace.²³

The United States Congress and the courts clarified the scope of landowners’ airspace rights in the early twentieth century when airplanes began taking to the skies.²⁴ Federal legislation enacted during that period carefully defined “navigable airspace,” which generally encompasses all space situated more than 500 feet above the ground,²⁵ and designated that space as a nationally-shared common area for modern flight.²⁶ Although the Supreme Court acknowledged navigable airspace legislation in *United States v. Causby* in 1946, characterizing navigable airspace as a “public highway” for air travel,²⁷ the Court emphasized that landowners still held property

18. Stuart S. Ball, *The Vertical Extent of Ownership in Land*, 76 U. PA. L. REV. 631 (1928) (attributing the phrase to Cino da Pistoia).

19. BLACK’S LAW DICTIONARY 453 (4th ed. 1968). The full maxim reads, “*cujus est solum, ejus est usque ad coelum et ad inferos*.” *Id.*

20. *See, e.g.*, EDWARD COKE, COMMENTARIES ON LITTLETON, § 4a (1670).

21. *See, e.g.*, BLACKSTONE, 2 COMMENTARIES 8 (1836).

22. *See* ROBERT R. WRIGHT, THE LAW OF AIRSPACE 34 (1968) (“The *usque ad coelum* maxim, as we have seen, was in large measure a child of Coke, as far as its incorporation into English law was concerned.”); *id.* at 35 (“Blackstone’s *Commentaries* . . . reiterated Coke’s viewpoint on ownership of airspace. These *Commentaries* burst upon the scene practically on the eve of American independence, and were accepted as ‘quasi authority’ in America.”) (internal citations omitted).

23. *See, e.g.*, John Cobb Cooper, *Roman Law and the Maxim Cujus Est Solum in International Air Law*, 1 MCGILL L.J. 23, 60 (1952) (citing *Hannabalsen v. Sessions*, 90 N.W. 93, 94 (Iowa 1902) (holding that reaching an arm across a property was a trespass because “[i]t is one of the oldest rules of property . . . that the title of the owner of the soil extends . . . upward usque ad coelum”)); *see also* *Butler v. Frontier Tel. Co.*, 79 N.E. 716 (N.Y. 1906) (finding an action for ejection in connection with telephone wires strung above the plaintiff’s land).

24. For a discussion of the discourse among courts and commentators regarding how to reconcile common law airspace rules with modern aviation, see generally BANNER, *supra* note 10, at 85–100. *See also* Rule, *supra* note 9, at 280–82; Marc R. Poirier, *The Virtue of Vagueness in Takings Doctrine*, 24 CARDOZO L. REV. 93, 178 (2002) (noting that “[a]irplane overflight provides an example where a technological advance that blossomed into widespread social use spawned a new type of property use conflict” and that, “in the early decades of this new resource use conflict, theories blossomed on how to characterize and resolve the dispute”) (citation omitted).

25. The most current legislation relating to navigable airspace is the Federal Aviation Act of 1958. *See* 49 U.S.C.A. § 40103(a)–(b) (West 2012) (providing that United States citizens have a “public right of transit through the navigable airspace” and authorizing the Administrator of the Federal Aviation Administration to develop regulations more clearly defining what constitutes navigable airspace).

26. *See* 14 C.F.R. § 77 (2010).

27. *See* *United States v. Causby*, 328 U.S. 256, 264 (1946).

interests in the non-navigable airspace above their parcels. In the Court's words, a "landowner owns at least as much of the space above the ground as he can occupy or use in connection with the land[,] and the "fact that he does not occupy it in a physical sense—by the erection of buildings and the like—is not material" to determining the scope of ownership.²⁸ In the decades since *Causby*, courts' frequent recognition of private airspace rights in the context of view easements,²⁹ condominium laws,³⁰ and solar access easements³¹ has left little doubt that rights in non-navigable airspace are a legitimate form of property and that sub-adjacent landowners inherently possess those rights.³²

B. Airspace Rights in Eminent Domain Proceedings

Courts' unwavering treatment of airspace rights as property under eminent domain law is further evidence that landowners hold property interests in the non-navigable airspace above their land. Eminent domain authority enables public entities to acquire private property for public use when they are unable to obtain it through a voluntary sale.³³ When appropriately exercised,³⁴ the eminent domain power deters landowners whose properties are needed for a

28. *Id.* at 264 (citing *Hinman v. Pac. Air Lines Trans. Corp.*, 84 F.2d 755 (9th Cir. 1936)).

29. *See, e.g.*, *Schwartz v. Murphy*, 812 A.2d 87 (Conn. App. Ct. 2002) (enforcing a view easement contained in a deed); Karen A. Jordan, *Perpetual Conservation: Accomplishing the Goal through Preemptive Federal Easement Programs*, 43 CASE W. RES. L. REV. 401, 407 n.31 (1992) (citing Andrew Dana & Michael Ramsey, *Conservation Easements and the Common Law*, 8 STAN. ENVTL. L.J. 2, 13 (1989)) (noting that "[m]odern courts have . . . recognized 'view easements'").

30. For a recent discussion of airspace rights in the condominium context, see generally Douglas C. Harris, *Condominium and the City: The Rise of Property in Vancouver*, 36 LAW & SOC. INQUIRY 694, 700–01 (2011) (describing the three-dimensional parceling of airspace in urban areas and emergence of condominium law in the United States and in Vancouver, British Columbia), and Bronin, *supra* note 7, at 1250 (describing how the "scarcity of land and the proliferation of dense, high-rise condominium buildings gave rise to horizontal airspace as a unit of real property—a concept in property law, which had not existed before the advent of skyscrapers").

31. Numerous states have enacted statutes expressly recognizing solar access easements as valid and enforceable real property interests. For a list of these state-level solar access statutes as of 2008, see Tawny L. Alvarez, *Don't Take My Sunshine Away: Right-to-Light and Solar Energy in the Twenty-First Century*, 28 PACE L. REV. 535, 547–48 n.90 (2008).

32. Even some state statutes expressly recognize the rights of landowners in the airspace above their parcels. *See, e.g.*, NEV. REV. STAT. § 493.040 (1923) (providing that the "ownership of the space above the lands and waters of this state is declared to be vested in the several owners of the surface beneath, subject to the right of flight . . .").

33. For a survey of background principles and recurring issues in eminent domain law, see generally RICHARD A. EPSTEIN, *TAKINGS: PRIVATE PROPERTY AND THE POWER OF EMINENT DOMAIN* (1985).

34. Much of the scholarly and popular criticism of the eminent domain power in recent years has related to the scope of "public use" under the Takings Clause in the wake of the Supreme Court's decision in *Kelo v. New London, Conn.*, 545 U.S. 469 (2005). For a primer on these issues, see generally William Woodyard & Glenn Boggs, *Public Outcry: Kelo v. City of New London—A Proposed Solution*, 39 ENVTL. L. 431, 431–43 (2009) (describing *Kelo* and its aftermath).

public use from “holding out” for excessively high sale prices and thereby impeding worthwhile public projects.³⁵ Eminent domain proceedings typically conclude with a private party’s formal conveyance of a property interest to a government party, who pays some agreed-upon or court-determined amount of “just compensation” in return.³⁶

Public agencies routinely pay just compensation to acquire airspace interests through eminent domain, engaging in essentially the same process they use to take interests in surface land. For instance, governments have been condemning airspace easements near airports for flight paths since shortly after the advent of modern aviation. Most airplanes require lengthy stretches of low-altitude airspace for takeoffs and landings, so takings of airspace easements through eminent domain often accompany airport construction and expansion projects.³⁷ Provisions expressly authorizing such takings of airspace easements upon payment of just compensation were included within the Uniform Airports Act of 1935,³⁸ and legislatures in twelve states had enacted laws authorizing the practice by 1941.³⁹ Governments also occasionally use eminent domain to condemn easements for scenic views.⁴⁰ This long history of airspace easement condemnations is further evidence that airspace rights are legally protected property under the Takings Clause.

35. Commentators have long cited eminent domain authority as a means of helping public entities to overcome “holdout problems” in connection with land assemblies for roads and other public projects. *See, e.g.*, STEVEN SHAVELL, FOUNDATIONS OF ECONOMIC ANALYSIS OF LAW 124–25 (2004) (describing how eminent domain can assist in overcoming holdout problems); Thomas W. Merrill, *The Economics of Public Use*, 72 CORNELL L. REV. 61, 75 (1986) (framing eminent domain as a means of mitigating holdout problems in public projects that require the assembly of multiple privately-held parcels).

36. *See* SHAVELL, *supra* note 35, at 182–215 (providing a thorough analysis of issues associated with the “just compensation” requirement and distinguishing between explicit compensation and in-kind compensation).

37. *See* J. Scott Hamilton, *Allocation of Airspace as a Scarce Natural Resource*, 22 TRANSP. L.J. 251, 267 (1994) (noting that the “state or local government developing a public airport may use its power of eminent domain to condemn and purchase both land and aviation easements over land in the vicinity of the airport”) (citation omitted). Specific instances abound of the use of eminent domain to take airspace rights near airports. *See, e.g.*, Emily Donohue, *Tree Stands in Flight Path*, THE TROY RECORD (Jan. 14, 2010), <http://www.troyrecord.com/articles/2010/01/14/news/doc4b4e8784683f0540834863.txt> (describing a county’s plan to take airspace near a municipal airport to prevent interference from a tall tree).

38. *See* Warner Brock, *Constitutionality of a Zoning Regulation Requiring Landowners Abutting on an Airport Not to Build Beyond a Certain Height without Compensation*, 23 TEX. L. REV. 57, 64 (1944) (noting that the “Uniform Airports Act of 1935 gives authority to acquire airspace rights by eminent domain”) (citation omitted).

39. *Id.* at 64 n.49 (citing John M. Hunter, Jr. & Lewis H. Ulman, *Airport Legal Developments of Interest to Municipalities—1941*, 13 J. AIR L. & COM. 116, 137 (1942)).

40. *See* Gideon Kanner, *Making Laws and Sausages: A Quarter-Century Retrospective on Penn Central Transportation Co. v. City of New York*, 13 WM. & MARY BILL RTS. J. 679, 777 (2005) (citing *Kamrowski v. State*, 142 N.W.2d 793 (Wis. 1966)) (noting that “passive easements (such as sight easements for highways, or scenic view easements) are condemned regularly”).

II. VEILED AIRSPACE EASEMENTS AND REGULATORY TAKINGS LAW

Although airspace rights generally enjoy robust protection under property law and within eminent domain proceedings, they are far less respected in the context of regulatory takings claims. This disparate treatment of airspace rights exists in part because modern regulatory takings laws fail to acknowledge that governments can appropriate and even exploit airspace for their own benefit without ever physically invading it. Overlooking the distinctive attributes of airspace, existing regulatory takings rules inadequately protect private citizens against restrictions that effectively take negative easements across their airspace to benefit government entities.⁴¹ Below are four examples of situations when these “veiled airspace easement regulations” have arisen or could arise and a discussion of why such regulations often are not compensable under existing takings law.

A. *Examples of Veiled Airspace Easement Regulations*

1. *Restricting Wind Farms to Protect Military Radar*

Regulations aimed at protecting the United States Armed Forces’ use of private airspace have significantly hindered wind energy development in recent years. Federal Aviation Administration (FAA) regulations allow the Department of Defense (DOD) to challenge proposed commercial wind turbine installations that they believe could interfere with military radar.⁴² The FAA has enforced these regulations against wind farm developers,⁴³ even when the commercial turbines targeted are well within landowners’ privately-

41. At least one other commentator has argued that airspace rights receive inadequate protection under current law. See EAGLE, *supra* note 76, at 943 (arguing that there is “no substantial reason why property interests such as those involving upper-floor condominiums” or “air rights” should be excluded from stronger takings protections than exist under current law).

42. The DOD published a detailed study in 2006 determining that commercial-scale wind turbines can interfere with existing military radar systems. See generally OFFICE OF THE DIR. OF DEF. RESEARCH & ENG’G, REPORT TO THE CONGRESSIONAL DEFENSE COMMITTEES: THE EFFECT OF WINDMILL FARMS ON MILITARY READINESS, 52 (2006), available at <http://www.defense.gov/pubs/pdfs/WindFarmReport.pdf> (concluding that “[w]ind turbines are physically large structures that will block the transmission of radar waves,” and that “[m]ultiple turbines located in proximity of each other will also cause diffraction of radar waves”). The same study notes that the FAA “has the responsibility to promote and maintain the safe and efficient use of U.S. airspace for all users” and that the DOD “stands prepared to assist and support the FAA in any efforts the FAA may decide to undertake in that regard.” *Id.* at 4.

43. See Donald Zillman et al., *More Than Tilting At Windmills*, 49 WASHBURN L.J. 1, 17–18 n.117 (2009) (noting that the DOD’s “Interim Policy on Proposed Windmill Farm Locations” instructed DOD officials to “contest any establishment of windmill farms ‘within radar line of site of the National Air Defense and Homeland Security Radars’”) (citation omitted).

held non-navigable airspace,⁴⁴ and even when the proposed turbines would be sited dozens of miles away from any military base.⁴⁵ According to the American Wind Energy Association, almost as much wind energy generating capacity as was actually built in the United States in 2009 was “abandoned or delayed because of radar concerns raised by the military and the [FAA].”⁴⁶ The FAA’s highly-publicized delay of a \$2 billion wind energy project in Oregon in 2010 showcased how threatening these military radar-focused restrictions have been to the wind energy industry.⁴⁷ In many cases, the DOD could have avoided these conflicts with wind energy developers by installing relatively inexpensive upgrades to its aging radar systems.⁴⁸

Wind energy is an increasingly integral part of the United States’ long-term energy strategy. Wind energy generation helps to reduce the nation’s reliance on fossil fuels, improves trade balances, and provides greater economic stability.⁴⁹ State and federal laws aimed at encouraging renewable energy have helped to drive a significant increase in demand for wind energy over the past decade.⁵⁰ Even in the face of the FAA regulations just described

44. 1.5-megawatt commercial wind turbines typically have blade “tip heights” of less than 400 feet. Even the largest onshore wind turbines with any significant presence on the U.S. market have tip heights of less than 500 feet. *See, e.g.,* SIVA CHOCKALINGAM, GE ENERGY, GE WIND: WIND ENERGY BASICS 3 (2009), available at http://www.ge-energy.com/content/multimedia/_files/downloads/wind_energy_basics.pdf (noting that the tip height of a General Electric 1.5 MW wind turbine is roughly 394 feet and that “taller wind turbines with taller towers or longer blades may stand as high as 150 m (492 feet) from ground level”).

45. *See* Kate Galbraith, *Gulf Coast Wind Farms Spring Up, as Do Worries*, N.Y. TIMES (Feb. 10, 2011), <http://www.nytimes.com/2011/02/11/us/11twind.html#> (suggesting that the “Navy would like wind farm construction to stay outside a 30-mile radius of its facilities”); *see also* Zillman, *supra* note 43, at 19 (stating that, in 2006, the FAA, at the request of the DOD, “began issuing notices of ‘presumed hazard’ to wind project contractors . . . for sites within 60 nautical miles of long-range radar installations”); *see also infra* note 52 and accompanying text.

46. Leora Broydo Vestel, *On the Radar, and That’s the Problem*, N.Y. TIMES, Aug. 27, 2010, at B1.

47. *See* Juliet Eilperin, *Pentagon Objections Hold Up Oregon Wind Farm*, WASH. POST, Apr. 15, 2010, <http://www.washingtonpost.com/wp-dyn/content/article/2010/04/15/AR2010041503120.html> (describing how a developer had “planned to break ground” in two weeks time on a “845-megawatt, \$2 billion” wind farm in Oregon, but was delayed when “Pentagon officials moved to deny the developer its final [FAA] permit”).

48. For a discussion of the potential for relatively inexpensive upgrades to military radar systems to address interference concerns, *see infra* notes 186–87 and accompanying text.

49. The United States Department of Energy cited several of the advantages of wind energy in an executive summary of a 2008 study regarding how to best increase wind energy’s share of the United States energy portfolio. *See* U.S. DEP’T OF ENERGY, 20% WIND ENERGY BY 2030: INCREASING WIND ENERGY’S CONTRIBUTION TO THE U.S. ENERGY SUPPLY 13 (2008), available at <http://www1.eere.energy.gov/windandhydro/pdfs/42864.pdf> (describing such wind energy benefits as avoidance of greenhouse gas emissions and other adverse impacts of fossil fuel-generated electric energy, conserved water supplies, national energy security, new income for rural communities and landowners, and new jobs).

50. For a table summary of federal, state and local renewable energy incentives, *see Financial Incentives for Renewable Energy*, DATABASE OF STATE INCENTIVES FOR RENEWABLES & EFFICIENCY,

and persistent turmoil in the national economy, wind energy development accounted for more than 35% of all new electric generating capacity added in the United States between 2007 and 2011, exceeding the new capacity of nuclear and coal systems combined.⁵¹

In regions that are ideally suited for commercial-scale wind energy projects, an FAA objection that ultimately thwarts a wind farm project can deprive a single rural landowner of hundreds of thousands of dollars of potential income under a wind energy lease.⁵² When the FAA impedes or halts a wind energy project solely to keep private airspace open for military use, it is effectively using its regulatory power to take airspace easements for the DOD without just compensation.

2. *Imposing Height Restrictions to Create Buffers near Airports*

Airport development is another context in which veiled takings of airspace easements arise. Public airport construction and expansion projects inherently involve government acquisitions of real property. If a project requires additional, privately-owned surface land to extend a runway, the public entity engaged in the project generally must exercise its eminent domain power and pay just compensation to the owner to obtain the land.⁵³ Governments also typically purchase aviation easements⁵⁴ for the airport's low-altitude glide paths for takeoffs and landings.⁵⁵ However, existing case law is less clear

<http://www.dsireusa.org/summarytables/finre.cfm> (last visited Nov. 15, 2012).

51. *Industry Statistics*, Am. Wind Energy Ass'n, http://www.awea.org/learnabout/industry_stats/index.cfm (last updated Oct. 18, 2012).

52. A North Dakota University report from 2009 stated that landowners under commercial wind energy lease agreements typically receive between \$4000 and \$6000 per year per megawatt of generating capacity. See DWIGHT AAKRE & RON HAUGEN, WIND TURBINE LEASE CONSIDERATIONS FOR LANDOWNERS 3 (Feb. 2009), available at <http://www.ag.ndsu.edu/pubs/agecon/market/ec1394.pdf>. A single modern commercial wind turbine often has a generating capacity of between one to three megawatts, and commercial wind leases usually have durational terms of 20 to 50 years. Vicki Harding, *Wind Farm Leases: Some Basics*, 35 MICH. REAL PROP. REV. 168, 169–71 (2008).

53. The general legitimacy of the use of eminent domain power to assemble land for airport runways is well settled. See, e.g., Richard A. Epstein, *Heller's Gridlock Economy in Perspective: Why there is Too Little, Not Too Much Private Property*, 53 ARIZ. L. REV. 51, 73 (2011) (stating that "no one disputes that airports and runways often require use of the eminent domain power for land assembly").

54. Aviation easements are easements to "allow aircraft to fly through a given airspace." *Cnty. of Westchester v. Town of Greenwich, Conn.*, 793 F. Supp. 1195, 1204 (S.D.N.Y. 1992), *rev'd sub. nom. Cnty. of Westchester, N.Y. v. Comm'r of Transp. of State of Conn.*, 9 F.3d 242 (2d Cir. 1993).

55. See *supra* text accompanying notes 37–39. It is worth noting that, although takings of aviation easements for flight paths near airports often involve the payment of just compensation, the FAA has challenged wind turbines near airports on some occasions without offering compensation to landowners. See, e.g., Katherine Conti, *Losing Altitude: With the airport nearby, Winthrop's high hopes for a wind turbine, revenue are sinking toward disappointment*, THE BOSTON GLOBE, Mar. 26, 2009, at 1 (describing the FAA's objections to multiple commercial wind turbine installation proposals in Winthrop, Massachusetts, due to concerns about impacts on takeoffs and landings at Logan International Airport and

regarding whether municipalities must compensate landowners in connection with height restrictions imposed to create airspace buffer areas adjacent to those flight paths.⁵⁶ Although airplanes may not regularly traverse these areas, airports must keep them open as a precaution against instances when planes veer outside of flight paths due to weather, aircraft malfunctions, or other unpredictable factors.⁵⁷

Multiple lawsuits arose recently when Clark County, Nevada, imposed new height restrictions to accommodate expanded runways at the McCarran International Airport.⁵⁸ The airport is situated close to the Las Vegas Strip—an area renowned for its glitzy hotel towers and casinos.⁵⁹ Clark County's new "transition zone" height restrictions were specifically tailored to convert airspace above several private parcels near the airport into flight path buffer areas.⁶⁰ The restrictions severely limited the development potential of the burdened properties near the Strip, diminishing property values and imposing substantial financial losses on landowners.⁶¹

Ordinances like those challenged in Clark County that restrict building heights so that private airspace can serve a specific airport function are effectively veiled takings of airspace easements. The economic value transferred from landowners to the government is essentially the same regardless of whether a public entity restricts airspace for a regular aircraft flight path or merely for a buffer or transition zone. Restrictions imposed for either purpose prohibit citizens from occupying their airspace solely so that the government can exploit the space without paying for it.

describing one resident's belief that "if the FAA is preventing the town from acquiring wind power, then it should compensate the town").

56. A more detailed discussion of the ongoing debate in the common law over whether restrictions for airport buffer zones trigger regulatory takings liability follows in Part IV.B below. *See infra* text accompanying notes 190–202.

57. *See, e.g.*, Petition for Writ of Certiorari at *3, *Hsu v. Cnty. of Clark*, 2005 WL 689492 (Nev. 2005) (No. 04-1282) [Hereinafter Petition for Writ of Certiorari, *Hsu*] (describing the "'transition' zone" at issue in that case as "an area adjacent to the runway for pilots to use when they are unable to confine the flight of their aircraft within the approach/departure zone acquired by [the County] for the airport and stray off to the side").

58. *See, e.g., id.*; *McCarran Int'l Airport v. Sisolak*, 137 P.3d (Nev. 2006); *Vacation Vill., Inc. v. Clark Cnty., Nev.*, 497 F.3d 902 (2007).

59. *See* Petition for Writ of Certiorari, *Hsu, supra* note 57, at *6 (describing the area of one takings claimant's property as within "what would be considered a 'high rent' district, being near the famous Las Vegas Strip, and in close proximity to the Luxor, Mandalay Bay, Monte Carlo, Bellagio, Alladdin, and Bailey's casino/resorts").

60. Deposition testimony quoted in an unpublished opinion relating to this dispute suggests that the transition zones at issue were designed to give aircraft "some maneuvering room down close to the runway". *See Cnty. of Clark v. Hsu*, 2004 WL 5046209 at *5 (Nev. 2004).

61. A claimant's attorney in one of the Las Vegas airport cases characterized the county's imposition of the height restrictions as a "naked attempt to have unrelated neighbors shoulder part of the financial burden of operating [the] public airport." Petition for Writ of Certiorari, *Hsu, supra* note 57, at *1–2.

3. *Imposing Height Restrictions to Prevent the Shading of Municipal Solar Energy Installations*

Veiled takings of airspace easements could eventually arise in connection with municipal solar energy installations as well. In recent years, local governments have increasingly installed photovoltaic solar panels and other solar energy systems on publicly owned buildings.⁶² Most solar energy devices need direct sunlight access to be fully productive, and protecting such access often requires that some airspace above neighboring property be kept clear of trees or buildings to prevent shading.⁶³ As government-owned solar energy systems become ever more prevalent, some municipalities could seek to secure solar access protection for their systems through new height restrictions tailored to that purpose.⁶⁴ Although no widely publicized instances of this type of veiled taking of a solar access easement have surfaced yet,⁶⁵ the persistent growth of municipally-owned solar energy systems suggests that such regulations could appear in the coming years.⁶⁶

62. Examples of this growing practice abound. *See, e.g.*, Cesar Neyoy, *Somerton Council OKs Solar Panels*, YUMA SUN, July 29, 2011, <http://www.yumasun.com/articles/city-71794-solar-energy.html> (reporting on the Somerton, Arizona, City Council's approval of a bond issue for solar panels to "provide electricity for the city's public safety building and its senior center"); Rich Lord, *City Installing Solar Panels on Public Works Building*, PITTSBURGH POST-GAZETTE, May 5, 2010, <http://old.post-gazette.com/pg/10125/1055569-53.stm> (describing new solar panel installations on a Pittsburgh Public Works Department building and plans for several other city-owned solar energy systems); Justin A. Rice, *MBTA May Go for Solar*, THE BOSTON GLOBE (July 24, 2011), http://www.boston.com/news/local/massachusetts/articles/2011/07/24/mbta_may_go_for_solar/ (noting plans for the Massachusetts Bay Transit Authority to install solar panels on rooftops of multiple buildings within its transit system).

63. For an informative article on the substantial impact of shading on solar panel productivity, see Ralf J. Muenster, *Shade Happens*, RENEWABLEENERGYWORLD.COM (Feb. 2, 2009), <http://www.renewableenergyworld.com/rea/news/article/2009/02/shade-happens-54551> (stating that even a "10% shading of a solar array can lead to a 50% decline in efficiency and even, on occasion, total system shutdown").

64. Although a handful of state and local jurisdictions have laws that prohibit neighbors from growing trees or buildings that shade nearby solar panels, a greater proportion of states have statutes authorizing citizens to privately negotiate with neighbors for solar access easements. *See supra* note 31.

65. Government-owned solar energy installations are still relatively uncommon, so it is not surprising that height restrictions aimed at securing sunlight access for government solar energy systems have yet to surface. However, public entities have imposed height restrictions in the past to secure other types of government uses of private airspace. At least one state court case, decided long before the Supreme Court embraced its current set of regulatory takings rules, held that a height restriction specifically designed to benefit a government property amounted to a compensable taking. *See Piper v. Ekern*, 194 N.W. 159, 163 (Wis. 1923) (finding that a zoning height restriction near the Wisconsin state capitol building aimed at protecting the building from fire required exercise of eminent domain power because it was "not designed to promote the public welfare of the private owners of property abutting upon the Capitol Square" but was "solely based upon a selfish motive, and is confined to the protection, from fire, of the state's property").

66. For the author's own summary of the recent growth in solar energy development, see Rule, *supra* note 7, at 854–56 (noting, among other things, that "[t]he generating capacity of photovoltaic ("PV") solar collector installations installed in the US in 2008 was triple the amount installed in 2005 and more than ten times the amount installed in 2000").

A hypothetical example helps to illustrate this potential type of veiled airspace easement regulation. Suppose that the fictional city of Suntown had plans to install rooftop solar panels on its two-story city hall in a downtown area that had long been subject to a 120-foot height restriction. Although no existing buildings were tall enough to shade the city's new solar panel array, city officials worried that buildings constructed in the area in future years might shade the panels and dramatically reduce their productivity. Suntown considered protecting against future shading by acquiring solar access easements from nearby landowners through voluntary purchases or eminent domain.⁶⁷ However, the city ultimately determined that it could obtain the same solar access protection at far less expense by tightening the area's height restriction instead. The city thus amended its zoning ordinance to limit building heights on two blocks located immediately south of city hall to just 60 feet instead of 120 feet.

Suntown's new height restriction ordinance would effectively create solar access easements in favor of the city. The ordinance would prohibit landowners from occupying their airspace solely so that the city could use the space to provide sunlight access for its solar panels.

4. *Using Height Restrictions to Preserve Scenic Views for Government Buildings*

Municipalities could conceivably even impose land use restrictions as a means of securing view easements for government properties. Scenic views can substantially bolster a property's value.⁶⁸ Countless private landowners have thus protected valuable views on their properties by purchasing easements or covenants that prevent neighbors from building structures or growing trees that would impair the views. Of course, municipalities also hold title to land, and occasionally they too have an interest in preserving scenic views for their own parcels. Armed with regulatory authority,

67. For a general discussion of solar access easements as a means of securing sunlight access for solar energy installations and for a list of state statutes recognizing the validity of such easements, see generally Bronin, *supra* note 7, at 1228–29.

68. Multiple empirical studies have confirmed that attractive scenic views tend to have positive effects on market prices for real estate. See, e.g., Michael T. Bond et al., *Residential Real Estate Prices: A Room with a View*, 23 J. REAL EST. RES. 129, 135 (2002) (summarizing a study of 1999 tax assessment values of 1,172 lakefront and adjacent properties in Cuyahoga County, Ohio, that concluded that, “after controlling for significant home characteristics, the premium added to homes with a view [of Lake Erie] equals \$256,544.72”); C.Y. Jim & Wendy Y. Chen, *Value of Scenic Views: Hedonic Assessment of Private Housing in Hong Kong*, 91 LANDSCAPE & URB. PLANNING 226 (2009) (describing use of hedonic pricing model to analyze effects of mountain and harbor views on housing values in Hong Kong and determining that a “broad harbor view could increase the value of an apartment by 2.97%, equivalent to . . . [\$]15,173”).

municipal governments could potentially impose height restrictions as a means of protecting scenic views on their properties without having to compensate neighbors.⁶⁹

A fact pattern similar to that described for Suntown above illustrates how veiled takings of airspace easements could arise in the view easement context. Suppose that the hypothetical city of Beachville planned to erect a new government building with large windows specifically designed to showcase picturesque views of a nearby ocean beach. City officials feared that owners of private parcels situated between the building and the beach could eventually build structures that blocked the building's views. Rather than purchasing view easements from the owners through eminent domain,⁷⁰ Beachville decided to secure view protections less expensively by imposing new height restrictions in the area that were tailored to prohibit any new structures from blocking the city building's views. Like Suntown's solar access-driven height restrictions, such laws would transfer the equivalent of negative airspace easement rights to Beachville without any exercise of eminent domain authority or payment of just compensation.

B. Analysis of Veiled Airspace Easement Regulations under Existing Takings Law

When regulations like those described above effectively transfer private property interests to governments, citizens often turn to the law of regulatory takings for a remedy.⁷¹ Regulatory takings law “aims to identify regulatory actions that are functionally equivalent to the classic taking.”⁷² Its rules are

69. In at least one published case, a claimant has argued that a land use regulation was a disguised attempt to impose a view easement on private property near an attractive beachfront. However, it is not clear from the case's opinion whether the alleged view easements would have benefited public property or private property. See *Connor v. City of Seattle*, 223 P.3d 1201, 1204, 1213–14 (Wash. Ct. App. 2009) (describing the regulated property as comprising a “gently sloping hill overlooking Puget Sound” and dismissing for a lack of evidence the claimant's argument that the Seattle Landmarks Preservation Board was “seeking to impose a view easement” by enforcing the city's Landmarks Preservation Ordinance against portions of the property).

70. Cities can, and sometimes do, acquire view easements through eminent domain. See *Kanner*, *supra* note 40, at 777 (citing *Kamrowski v. State*, 142 N.W.2d 793 (Wis. 1966)) (noting that “passive easements (such as sight easements for highways, or scenic view easements) are condemned regularly”).

71. A student note published more than 25 years ago sought to address taking issues associated with airspace. See generally *Spector*, *supra* note 10. However, the note offered only limited analysis of these issues and proposed a very different approach to addressing them. *Id.* at 516 (suggesting that “where a height restriction or other government action has the effect of limiting a landowner's ability to make use of his airspace, courts should ask whether extrajudicial factors created any reasonable preexisting expectations with respect to that airspace” and should decide whether to award compensation based primarily on “whether the government action altered those expectations”).

72. *Lingle v. Chevron U.S.A. Inc.*, 544 U.S. 528, 539 (2005).

intended to prevent public entities from using their regulatory power to “acquire rights in private property which [they] may only acquire by purchase or by the exercise of . . . eminent domain.”⁷³

Modern regulatory takings law traces its beginnings to the 1922 Supreme Court case of *Pennsylvania Coal Co. v. Mahon*.⁷⁴ Justice Oliver Wendell Holmes famously declared in his majority opinion in *Mahon* that, “while property may be regulated to a certain extent, if regulation goes too far it will be recognized as a taking.”⁷⁵ In the 89 years since *Mahon*, the Court has repeatedly grappled with the question of how far is “too far” in the context of a regulatory takings claim. The Court’s much-maligned jurisprudence of this question⁷⁶ is presently distillable into a set of three general categories of compensable regulatory takings that are familiar to practitioners and scholars in land use law.⁷⁷ Two of the three categories, labeled *per se* takings, involve relatively straightforward rules that can greatly simplify the adjudication of claims within their scope.⁷⁸ The third category of regulatory takings involves a cumbersome multi-factor, ad hoc test aimed at identifying those government actions that are functionally equivalent to classic takings but that

73. *Yara Eng’g Corp. v. City of Newark*, 40 A.2d 559 (N.J. 1945); *see also* *Stop the Beach Ren. v. Fla. Dept. of Env’tl. Prot.*, 130 S. Ct. 2592, 2601 (2010) (“[T]hrough the classic taking is a transfer of property to the State or to another private party by eminent domain, the Takings Clause applies to other state actions that achieve the same thing.”).

74. 260 U.S. 393 (1922).

75. *Id.* at 415.

76. Numerous commentators have expressed dissatisfaction at the unsettled state of regulatory takings law. *See, e.g.*, Steven J. Eagle, *Property Tests, Due Process Tests, and the Regulatory Takings Jurisprudence*, 2007 B.Y.U. L. REV. 899, 899 (2007) (declaring that the “United States Supreme Court’s regulatory takings jurisprudence has long been infamous for its incoherence”); Eduardo Moises Penalver, *Is Land Special? The Unjustified Preference for Landownership in Regulatory Takings Law*, 31 *ECOLOGICAL Q.* 227, 228 (2004) (describing modern regulatory takings jurisprudence as a “massive (and growing) swamp of muddled contradictions”); Jed Rubenfeld, *Usings*, 102 *YALE L.J.* 1077, 1078 (1993) (describing the Takings Clause as “engulfed in confusion” and citing similar statements by Professors Bruce A. Ackerman, Allison Dunham, Frank I. Michelman, Jeremy Paul, Andrea L. Peterson, Carol M. Rose, Joseph L. Sax, and John A. Humbach as evidence of widespread dissatisfaction with takings jurisprudence). Even some of the Justices on the Supreme Court have acknowledged the imperfection of modern takings jurisprudence. *See, e.g.*, *Lingle*, 544 U.S. at 539 (“Our regulatory takings jurisprudence cannot be characterized as unified.”); *Lucas v. S. Carolina Coastal Council*, 505 U.S. 1003, 1016 n.7 (1992) (conceding in dicta the ambiguities associated with the “deprivation of all economically feasible use” rule that the Court upholds in the case).

77. The Court summarized all three categories of regulatory takings in its opinion in *Lingle*, 544 U.S. at 538–39. A right to just compensation under the Takings Clause can also arise in the narrow context of land use exactions, but such situations fall outside the scope of this Article. For a primer and thoughtful critique of Takings Clause issues associated with land use exactions, *see generally* Lee Anne Fennell, *Hard Bargains and Real Steals: Land Use Exactions Revisited*, 86 *IOWA L. REV.* 1 (2000) (arguing that Takings Clause limitations on land use exactions can constrain efficient bargaining between municipalities and developers).

78. *See Lucas*, 505 U.S. at 1015 (describing categorical takings as ones that are “compensable without case-specific inquiry into the public interest advanced in support of the restraint”).

fall outside the parameters of the two *per se* rules.⁷⁹ As the following Parts show, many veiled airspace easement regulations like those imposed by the FAA, Clark County, Suntown, and Beachville⁸⁰ are unlikely to fit within any of these three familiar categories of regulatory takings.

1. *Per Se Physical Takings under Loretto?*

Courts are unlikely to view veiled airspace easement regulations as *per se* “physical takings” of airspace rights under current law because such regulations arguably involve no physical occupation or invasion of private property.

*Loretto v. Teleprompter Manhattan CATV Corp.*⁸¹ is commonly cited for the rule that a regulation can effect a *per se* physical taking if it requires an owner to suffer a “permanent physical occupation” of private property.⁸² The permanent physical occupation in *Loretto* resulted from a regulation allowing a television cable company to install cable equipment on the roof and side of a private apartment building.⁸³ Even though the cable equipment occupied only a small area on the claimant’s building and had minimal impacts on the property’s overall value, the *Loretto* Court held that the regulation triggered a taking.⁸⁴ The Supreme Court has since reiterated the *Loretto* rule, emphasizing that it applies “regardless of whether the interest that is taken constitutes an entire parcel or merely a part thereof.”⁸⁵

The Court has similarly classified the regular flying of government airplanes through private airspace as a compensable *per se* physical taking “no matter how small” the airspace invasion at issue.⁸⁶ In *United States v.*

79. See *infra* text accompanying notes 106–08.

80. For descriptions of these types of actual and hypothetical regulations, see *supra* text accompanying notes 42–70.

81. 458 U.S. 419 (1982).

82. *Id.* at 426 (holding that a “permanent physical occupation authorized by government is a taking without regard to the public interests that it may serve”).

83. *Id.* at 421 (stating that the regulation at issue authorized the cable company to install facilities that “occupied portions of appellant’s roof and the side of her building”).

84. Indeed, some commentators have noted that the ultimate determination of *Loretto*’s compensation suggests that the cable equipment on her building may have actually increased its market value. See ROBERT C. ELLICKSON & VICKI L. BEEN, LAND USE CONTROLS 168 (2005) (noting that the Commission on Cable Television charged with determining just compensation in the wake of *Loretto* “made only nominal awards of \$1” to claimants under the statute challenged in the case, “reasoning that the presence of cable television usually increased, rather than decreased, a building’s value”).

85. *Tahoe-Sierra Pres. Council, Inc. v. Tahoe Reg’l Planning Agency*, 535 U.S. 302, 322 (2002).

86. *Id.* (citing *United States v. Causby*, 328 U.S. 256 (1946)); see also *Loretto*, 458 U.S. at 438 n.16 (noting that “whether the installation is a taking does not depend on whether the volume of space it occupies is bigger than a breadbox” and that the “displaced volume” of space at issue in the *Loretto* case was “in excess of 1 ½ cubic feet”).

Causby, the Court awarded just compensation to landowners when recurrent military overflights substantially interfered with their chicken farm.⁸⁷ The *Causby* Court held that the military's use of private airspace as a glide path for airplanes amounted to the compensable taking of an easement, even though the overflights did not totally destroy the value of the claimants' property.⁸⁸ According to the Court, the fact that the overflights "would limit the utility of the land and cause a diminution in its value" was enough to trigger a compensable taking.⁸⁹

Like the military overflights in *Causby*, veiled airspace easement regulations involve governmental use of private airspace and can result in substantial financial injury to owners of that space.⁹⁰ Nonetheless, such regulations likely are not compensable takings under *Loretto* or *Causby* because they involve no physical invasion or occupation of private space.⁹¹ This strong emphasis on actual physical invasion under modern takings jurisprudence has drawn sharp criticism from takings scholars over the years⁹² and is partly to blame for the current shortcomings in regulatory takings law related to airspace. By allowing cases to hinge largely on the question of physical invasion, existing takings rules underprotect citizens against regulations imposed to secure private airspace for non-physical government uses.

2. Total Regulatory Takings under Lucas?

The sorts of airspace restrictions described in Part II.A above are also unlikely to trigger compensable takings under the familiar per se rule set forth by the Supreme Court in *Lucas v. South Carolina Coastal Council*.⁹³ The

87. See *Causby*, 328 U.S. 256.

88. *Id.* at 261–62 (reasoning that there is "no material difference" between a case where government overflights through private airspace prevented any use of the underlying land and a case where "[s]ome value would remain" in the land but it would be worth less by virtue of the overflights).

89. *Id.* at 262.

90. For the earlier description of the FAA regulations at issue, see *supra* text accompanying notes 42–45.

91. A wind energy developer might be able to argue that the military's radar waves themselves are invading private airspace, although such an argument would run counter to the weight of case law that narrowly interprets "physical invasion" when distinguishing nuisance from trespass. See *Adams v. Cleveland-Cliffs Iron Co.*, 602 N.W.2d 215, 67–68 (Mich. App. 1999) (determining that noise, vibrations and dust were not sufficiently tangible for invasions of them onto a landowner's property to give rise to a trespass claim).

92. See, e.g., Andrea L. Peterson, *The False Dichotomy between Physical and Regulatory Takings Analysis: A Critique of Tahoe-Sierra's Distinction between Physical and Regulatory Takings*, 34 *ECOLOGY L.Q.* 381, 384 (2007) (asserting that the Supreme Court's emphasis on physical invasion in its takings jurisprudence is "analytically unsound").

93. *Lucas v. S. Carolina Coastal Council*, 505 U.S. 1003 (1992).

Lucas rule requires that governments justly compensate private citizens whenever their regulations deprive citizens of “all economically beneficial uses” of their property.⁹⁴ At first glance, the *Lucas* rule may seem like a more promising approach to challenging veiled airspace easement regulations than the *Loretto* rule because the *Lucas* rule requires no evidence of a physical invasion. Justice Scalia specifically described the *Lucas* rule as an identifier of restrictions that, “from a landowner’s point of view, [are] the equivalent of a physical appropriation.”⁹⁵ Veiled airspace easement regulations often fit that description.⁹⁶ However, for the reasons that follow, United States courts’ established approach to applying the *Lucas* rule excludes veiled airspace easement regulations from its purview.

The perpetual challenge in applying the *Lucas* rule is that of defining the property to which its “all economically beneficial use” test should apply. The Court had no difficulty defining the relevant property in *Lucas* because the claimant in that case held an undivided fee simple interest in a clearly-defined parcel and the challenged regulation precluded economically viable use of all of it.⁹⁷ Unfortunately, identifying the relevant property for takings analysis under the *Lucas* rule is not always so straightforward. As Justice Scalia famously noted in his majority opinion in *Lucas*:

Regrettably, the rhetorical force of our “deprivation of all economically feasible use” rule is greater than its precision, since the rule does not make clear the “property interest” against which the loss of value is to be measured Unsurprisingly, this uncertainty regarding the composition of the denominator in our “deprivation” fraction has produced inconsistent pronouncements by the Court.⁹⁸

This persistent uncertainty regarding how to determine the appropriate “denominator” for a *Lucas* analysis has been the focus of much legal

94. *Id.* at 1019.

95. *Id.* at 1017.

96. The similarities between veiled airspace easement regulations and physical appropriations of airspace were highlighted in the previous Part. *See also infra* text accompanying note 130.

97. *See Lucas*, 505 U.S. at 1016 n.7 (noting that the Court was able to circumvent the difficult task of the identifying relevant property “in the present case, since the ‘interest in land’ that Lucas has pleaded (a fee simple interest) is an estate with a rich tradition of protection at common law”).

98. *Id.* (citing *Pennsylvania Coal Co. v. Mahon*, 260 U.S. 393, 414 (1922)); *Keystone Bituminous Coal Ass’n v. DeBenedictis*, 480 U.S. 470, 497–502 (1987)). Amidst this uncertainty, some courts have sought to set forth factors for determining the relevant parcel for a takings analysis. *See, e.g.*, *Norman v. United States*, 63 Fed. Cl. 231, 253 (2004) (stating “[t]here is no rigid formula for determining the appropriate parcel in regulatory takings cases,” and listing multiple factors courts may consider in determining what is the relevant parcel), *aff’d*, 429 F.3d 1081 (Fed. Cir. 2005).

scholarship over the years and continues to complicate applications of the *Lucas* rule.⁹⁹

Most veiled airspace easement regulations are unlikely to constitute compensable takings under the *Lucas* rule because courts are reluctant to designate airspace rights alone as the “denominator” when applying the rule. The Court famously declined to isolate airspace rights from the fee estate for purposes of takings analysis in *Penn Central Transportation Co. v. City of New York*.¹⁰⁰ The joint plaintiffs in *Penn Central* were owners of Manhattan’s famous Grand Central Terminal and lessees of rights in the airspace above it. When the City of New York refused to approve a proposal for an office tower above the terminal because of the site’s historic landmark status under a city ordinance,¹⁰¹ the plaintiffs filed a claim arguing that the ordinance took their airspace rights—a “valuable property interest”—without just compensation.¹⁰² The Court ultimately dismissed the claim, effectively rejecting the notion that airspace can be considered separately from the fee estate for regulatory takings analysis. Writing for the majority, Justice Brennan declared:

‘Taking’ jurisprudence does not divide a single parcel into discrete segments and attempt to determine whether rights in a particular segment have been entirely abrogated¹⁰³

In the decades following *Penn Central*, the Court has reiterated that claimants may not “conceptually sever” specific property interests such as airspace rights from the fee estate for purposes of takings analysis.¹⁰⁴ This rule against

99. See, e.g., Eagle, *supra* note 14, at 934 (suggesting that “courts look to the concept of the ‘commercial unit’” under the Uniform Commercial Code in determining the denominator); John E. Fee, *Unearthing the Denominator in Regulatory Taking Claims*, 61 U. CHI. L. REV. 1535, 1538 (1994) (proposing an “independent economic viability” standard for defining the denominator in regulatory takings cases); Marc R. Lisker, *Regulatory Takings and the Denominator Problem*, 27 RUTGERS L.J. 663, 721 (1995) (advocating for a rule that “[i]f the state law applicable to the property at issue recognizes the separate and distinct existence of the estate that one of the litigants seeks to sever (in making the denominator determination), then such severance is appropriate”); Daniel R. Mandelker, *New Property Rights under the Taking Clause*, 81 MARQ. L. REV. 9, 19 (1997) (arguing that the “Court should not make the rules on [defining the denominator] a ‘set formula’ that determines whether a taking has occurred” but should instead “decide takings cases by making explicit value choices in the wide array of land use conflicts in which takings claims arise”).

100. 438 U.S. 104 (1978).

101. *Id.* at 104 (stating that the *Penn Central* case initially arose after New York City’s Landmark Preservation Commission rejected the claimants’ plans for a building project above Grand Central Terminal as “destructive of the Terminal’s historic and aesthetic features”).

102. *Id.* at 130.

103. *Id.*

104. See *Tahoe-Sierra Pres. Council, Inc. v. Tahoe Reg’l Planning Agency*, 535 U.S. 302, 331 (2002) (stating that the claimants’ “conceptual severance” argument was “unavailing because it ignores *Penn Central*’s admonition that in regulatory takings cases we must focus on ‘the parcel as a whole’” and noting

analyzing airspace separately from the fee estate precludes just compensation under *Lucas* for most veiled airspace easement regulations. Because landowners whose properties are burdened by such regulations usually retain some possessory rights in their parcel's surface, the regulations do not destroy all economically viable use of their land and would not ordinarily trigger compensation under the *Lucas* rule.¹⁰⁵

3. *Partial Takings under Penn Central?*

Claimants who cannot establish compensable regulatory takings under *Loretto* or *Lucas* are relegated to arguing their claims under the ad hoc test set forth in *Penn Central Transportation Co. v. City of New York*.¹⁰⁶ Most veiled airspace easement regulations are also unlikely to trigger compensable takings under this *Penn Central* test.

As mentioned above, the regulatory takings claim in *Penn Central* centered on the expensive column of airspace situated directly above New York City's historic Grand Central Terminal.¹⁰⁷ The *Penn Central* court analyzed the claim using multi-factor test that required "essentially ad hoc, factual inquiries"¹⁰⁸ into the "economic impact" of the regulation at issue, the "extent to which it has interfered with investment-backed expectations," and the "character of the governmental action" involved.¹⁰⁹ Upon weighing each of these factors, the Court ultimately held that no just compensation was due for the severe airspace restrictions resulting from the city's landmark preservation ordinance.¹¹⁰

that the Court had "consistently rejected such an approach to the 'denominator' question").

105. See, e.g., *Fitzgerald v. City of Iowa City*, 492 N.W.2d 659, 665–66 (Iowa 1992) (determining that landowners whose properties were subjected to airport height restrictions were not entitled to just compensation under the Takings Clause because their claims were based solely on property value decreases from a resulting loss in development potential and the landowners retained some economically viable use of the property); see also *Kimberlin v. City of Topeka*, 710 P.2d 682, 688 (Kan. 1985) (refusing to award just compensation to landowners whose properties were burdened by airport height restrictions based on principle set forth in *Penn Central* that analysis of such claims requires consideration of the "parcel as a whole" and that the challenged restriction in no way "interferes with the present use of the property").

106. See *supra* note 3. For a discussion of the facts of the *Penn Central* case and how the case impacts the question of whether regulations on wind energy development could ever amount to a compensable taking, see *infra* text accompanying notes 100–04.

107. See *supra* text accompanying notes 100–02.

108. *Penn Central*, 438 U.S. at 124.

109. The Supreme Court summarized *Penn Central*'s multi-factor test in a later court decision. See *Lingle v. Chevron U.S.A. Inc.*, 544 U.S. 528 (2005).

110. See *Penn Central*, 438 U.S. at 138. Among other things, the Court found that the challenged ordinance did not preclude the terminal from continuing to operate as it had done for decades and that its owners reciprocally benefited from the preservation of other historic structures in the city. *Id.* at 134–36.

Some veiled airspace easement regulations could conceivably be deemed compensable takings under the *Penn Central* test. The Supreme Court has emphasized in the years following *Penn Central* that takings that deprived owners of less than all economically viable use of their property were sometimes compensable under the test,¹¹¹ and under the right circumstances a court applying it might determine that a veiled taking of an airspace easement warranted just compensation.¹¹²

However, the basic characteristics of such regulations make it difficult to successfully challenge them under *Penn Central*. For example, courts weighing the “economic impact” of a regulation under the *Penn Central* test tend to consider the entire fee estate rather than looking solely at impacts on airspace or some other discrete stick in the claimant’s bundle of rights.¹¹³ Landowners generally retain surface rights under veiled airspace easement regulations, so the economic impact of such restrictions is often comparatively small, reducing the prospect of just compensation.¹¹⁴ Inquiries into whether a veiled airspace easement regulation substantially interferes with “investment-backed expectations” are also unlikely to favor the awarding of just compensation because in most instances landowners can continue their existing property uses under such regulations.¹¹⁵ And the significant discretion afforded to courts under the *Penn Central* test’s

111. See, e.g., *Palazzolo v. Rhode Island*, 533 U.S. 606, 617 (2001) (citing *Penn Central*, 438 U.S. at 124) (stating that a regulation that “fall[s] short of eliminating all economically beneficial use” can still constitute a compensable taking, “depending on a complex of factors including the regulation’s . . . [interferences] with reasonable investment-backed expectations, and the character of the government action”).

112. For instance, land use regulations that overtly singled out and burdened a very small number of properties would tend to exhibit less reciprocity of advantage and would thus be more compensable in “character” under the test. Likewise, in cases where a claimant had already expended large sums of money on a proposed project only to have a veiled airspace easement regulation halt it, higher “investment-backed expectations” are involved so claimants under *Penn Central* might stand a better chance of success.

113. The *Penn Central* Court adopted this approach of focusing on the “parcel as a whole” when considering economic impacts. See *Penn Central*, 438 U.S. at 130–31 (noting that courts considering the economic impact of a regulation in the takings context must look at the “extent of the interference with rights in the parcel as a whole”).

114. Courts analyzing the “economic impact” of regulations under the *Penn Central* test face the same sort of denominator problem that arises under *Lucas* and may also be reluctant to conceptually sever airspace rights from the surface estate when applying this element of *Penn Central*. See Mandelker, *supra* note 99, at 11 (noting that the segmentation problem with respect to determining the “property interests a land use regulation affects” arises under both *Lucas* and the “balancing test” prescribed under *Penn Central*).

115. For instance, the *Penn Central* Court cited the claimant’s ability to continue operating Grand Central Terminal when finding minimal interference with investment-backed expectations in that case. See *Penn Central*, 438 U.S. at 136 (noting that New York City’s Landmark Preservation Ordinance “not only permits but contemplates that appellants may continue to use the property precisely as it has been used for the past 65 years: as a railroad terminal containing office space and concessions”).

nebulous factors invites uncertainty and expense capable of deterring even the strongest of claimants from seeking compensation under the test.¹¹⁶

Unfortunately, the *Penn Central* test often provides the only plausible line of argument for victims of veiled takings of airspace easements under current law. For the reasons just described, this heavy reliance on the *Penn Central* test to identify veiled takings of airspace easements makes it difficult for modern takings laws to ensure fair and efficient allocations of airspace rights between private citizens and their governments.

III. FILLING THE GAP: A TAKINGS RULE FOR VEILED AIRSPACE EASEMENT REGULATIONS

How could the Supreme Court best address the deficiencies in its takings jurisprudence relating to airspace? As renewable energy and sustainable development strategies steadily increase landowner competition for scarce airspace,¹¹⁷ the temptation for public entities to secure airspace use rights through regulation will only grow. Courts could help to deter this practice by embracing an additional, supplemental takings rule that distinguishes veiled airspace easement regulations from ordinary land use controls and requires governments that impose the former to justly compensate affected citizens. If carefully designed, such a rule could fill a significant gap in takings law without materially disrupting existing takings jurisprudence.

The Court has emphasized on multiple occasions that its regulatory takings rules seek above all to identify government actions that are functionally equivalent to classic takings under eminent domain.¹¹⁸ Regulatory takings can occur in myriad contexts and disguises, and the facts and circumstances that give rise to them are seldom the same from case to case. Crafting a manageable set of rules that is capable of rooting out the full subset of regulations that warrant just compensation under the Takings Clause from a vast spectrum of diverse government activities is thus extremely difficult, if not impossible.¹¹⁹

116. See, e.g., Joel R. Burcat & Julia M. Glencer, *Tahoe-Sierra Preservation Council, Inc. v. Tahoe Regional Planning Agency: Is There a There There?*, 32 ENVTL. L. REP. 11212, 11220 (2002) (declaring that the Supreme Court's "emphasis in *Tahoe-Sierra* on the case-by-case evaluation to be made under *Penn Central* leaves the fate of takings claims more uncertain than ever").

117. For a discussion of the role of airspace in sustainable development and renewable energy, see generally Rule, *supra* note 5, at 285–90.

118. See *supra* notes 72–73 and accompanying text; see also Rubinfeld, *supra* note 76, at 1129 (“[F]rom *Mugler to Lucas*, the [Supreme Court] Justices have repeatedly invoked the language of usings to support . . . [the] takings doctrine, [and know] that the strongest case for compensation is presented by facts closely analogous to exercises of eminent domain . . .”).

119. The majority in *Penn Central* plainly conceded that the “question of what constitutes a ‘taking’

The Court has at least tentatively settled upon its present, imperfect two-part approach to detecting compensable regulatory takings. On the one hand, the Court has set forth the amorphous multi-factor test in *Penn Central*, which gives courts broad discretion to sniff out compensable takings through highly fact-specific inquiries and comparatively loose analysis.¹²⁰ On the other hand, the Court has adopted the *Lucas* and *Loretto* rules—bright-line tests that allow for relatively low-cost identification of the most obvious regulatory takings and thereby spare a large subset of takings claimants from having to argue their claims under *Penn Central*'s cumbersome ad hoc test.¹²¹

A major shortcoming of the Court's two-part approach to regulatory takings law is that it systematically underprotects citizens against compensation-worthy regulations that happen to fall outside the *Lucas* and *Loretto* rules. The only option available to victims of such regulations is risky litigation under *Penn Central*'s ambiguous and discretionary factors. Facing such an uncertain course, some legitimate takings claimants are apt to never file claims at all, allowing government exploitation of private property to continue unchecked.

Over the years, commentators have offered up several broad ideas for improving takings law, and some of those approaches, if adopted, might well have provided for just compensation to victims of veiled takings of airspace easements.¹²² However, the simplest and least disruptive way to improve upon the Supreme Court's existing two-part approach to takings law as it

for purposes of the Fifth Amendment has proved to be a problem of considerable difficulty" for the Supreme Court. *Penn Central*, 438 U.S. at 123.

120. *Id.* at 124 (noting that the Supreme Court had been "unable to develop any 'set formula'" for identifying compensable regulatory takings and that such analysis required "essentially ad hoc, factual inquiries" aimed at finding cases where justice and fairness necessitated an award of just compensation).

121. The *Loretto* Court signaled that its test was intended to be a shorthand rule, arguing that a permanent physical occupation is "of such a unique character that it is a taking without regard to other factors that a court might ordinarily examine." *Loretto v. Teleprompter Manhattan CATV Corp.*, 458 U.S. 419, 432 (1982). The *Lucas* court similarly justified its rule on the ground that any regulation involving total deprivation of all economically beneficial use was "the equivalent of a physical appropriation" of property and thus compensable without further inquiry. *Lucas v. S. Carolina Coastal Council*, 505 U.S. 1003, 1017 (1992). Legal scholars have recognized the Supreme Court's apparent trend toward bright line rules to help complement *Penn Central*'s ad hoc approach. See Penalver, *supra* note 76, at 229 (citing multiple academic articles as defending the view that *Lucas* was a "prime example of the Court's efforts to create clarity out of murkiness" by adopting some concrete takings rules).

122. See, e.g., Richard A. Epstein, *Lucas v. South Carolina Coastal Council: A Tangled Web of Expectations*, 45 STAN. L. REV. 1369, 1374 (1993) (arguing that just compensation under the Takings Clause should be due for any "partial restriction that tracks in content a private restrictive covenant"); John E. Fee, *The Takings Clause as a Comparative Right*, 76 S. CAL. L. REV. 1003, 1007 (2003) (suggesting that just compensation should be payable in any circumstance "where the government legitimately targets merely one or a few owners to bear a unique legal burden for the benefit of the general community"); Rubinfeld, *supra* note 76, at 1127–29 (advocating a jurisprudence of "usings" that awards just compensation whenever property is taken "for some particular use dictated by the state").

relates to airspace would be to introduce an additional carve-out rule to supplement the existing categorical taking rules under *Lucas* and *Loretto*. This new rule could be narrowly tailored to protect citizens against the sorts of regulations described in Part II.A above without unduly constraining governments' legitimate regulation of airspace. Specifically, the new rule could require just compensation for government actions that (i) deprived citizens of possessory interests in airspace to (ii) facilitate a public entity's own exploitation of that space. The following two Parts discuss each element of this proposed rule.

A. Element #1: Deprivation of a Possessory Interest in Airspace

As a threshold matter, any new takings rule for veiled airspace easement regulations would need to require a showing that the challenged government action deprived the claimant of a valuable property interest.¹²³ Proving deprivation of a property interest is admittedly not as straightforward for veiled takings of airspace easements as it is in most other takings cases. Veiled airspace easement regulations involve no government invasion or occupation of private property, so they tend not to produce hard physical evidence of deprivation. Rather, they involve more subtle losses of airspace rights under height restrictions or other land use controls that prohibit possessory use of the restricted space.¹²⁴ The scope of acceptable means for establishing deprivation in the veiled airspace easement regulation context would thus need to be broad enough to encompass cases involving neither physical contact with the restricted space nor interference with existing surface uses. Claimants would need to be able to satisfy this first prong by showing no more than a loss of possessory airspace rights equivalent to those forfeited under a negative airspace easement.¹²⁵

This liberal standard for establishing deprivation of private property would more closely resemble the standard in *Loretto* than that in *Lucas* because it would require only proof of deprivation of airspace rights—rights amounting to less than a fee simple or fully-severed estate.¹²⁶ Admittedly, the

123. The *Penn Central* case, which focused on airspace rights, emphasizes that such evidence of deprivation is a basic requirement under the Takings Clause. *Penn Central*, 438 U.S. at 142–43 (describing the need to determine whether a challenged government action has destroyed valuable “property” and emphasizing that the Court broadly interprets “property” in this context).

124. The FAA, Clark County, Suntown, and Beachville examples above all fit this description. Descriptions of these regulations are found in Part II.A above. See *supra* text accompanying notes 42–70.

125. A negative easement is “[a]n easement that prohibits the servient-estate owner from doing something, such as building an obstruction” on the burdened parcel. BLACK’S LAW DICTIONARY 587 (9th ed. 2009).

126. To review the basic characteristics of these two per se regulatory takings rules, see *supra* text

sorts of permanent physical occupations that can trigger *Loretto* takings tend to make for stronger takings arguments than can be made against veiled airspace easement regulations. Permanent physical occupations not only deprive citizens of possession and physical use of the occupied property; they also effectively divest citizens of rights to exclude another party from those areas. In contrast, veiled airspace easement regulations involve no physical intrusion and would not ordinarily give rise to a trespass claim.¹²⁷ In that sense, the higher deprivation standard in *Lucas* requiring evidence of a loss of economically viable use of an entire fee estate might seem more appropriate.

However, excessive focus on whether a government action involves a physical invasion distracts attention from the basic objective of the *Lucas* and *Loretto* rules. Above all, such rules are intended to be shorthand tools for identifying cases that are functionally equivalent to classic takings,¹²⁸ and the economic transfers resulting from veiled airspace easement regulations can resemble classic takings as much as the physical occupations and total deprivations that trigger just compensation under *Loretto* and *Lucas*. From the perspective of a private landowner, the economic loss suffered from a prohibition on physical airspace uses—no buildings, trees, wind turbines, or anything else within the restricted space—is often the same regardless of whether a government entity ever invades the space.¹²⁹ The burden on a landowner whose property is subjected to a veiled airspace easement regulation closely mirrors that of a servient owner under a negative airspace easement in that neither can make possessory use of the space.¹³⁰ Likewise, the practical benefits inuring to governments under such regulations resemble those of grantees under negative easements.¹³¹ When public entities exercise their eminent domain power to formally take airspace easements for airport flight paths, they must compensate landowners for those rights regardless of

accompanying notes 81–83, and 93–99.

127. At common law, liability for trespass can arise whenever a defendant “enters land in the possession of the other, or causes a thing or a third person to do so.” RESTATEMENT (SECOND) OF TORTS § 158 (1965).

128. Other commentators have emphasized this idea. *See, e.g.*, Rubinfeld, *supra* note 76, at 1127–28 (noting that “taking an easement by eminent domain need not deprive an owner of all beneficial use of his property, yet always has required compensation”); *see also supra* note 121 and accompanying text.

129. The *Lucas* majority clearly embraced this view of the impact of deprivation of use. *See Lucas v. S. Carolina Coastal Council*, 505 U.S. 1003, 1017 (1992) (“[T]otal deprivation of beneficial use is, from the landowner’s point of view, the equivalent of physical appropriation.”). In support of its position, the Court referenced Coke’s famous line: “[F]or what is the land but the profits thereof[?]”. *Id.* (citation omitted).

130. For a definition of “negative easement,” *see supra* note 125.

131. *See Cheyenne Airport Bd. v. Rogers*, 707 P.2d 717, 730 (Wyo. 1985) (stating that the “holder of a negative easement has, by virtue of such an interest, no right to active use; rather the holder can merely insist that the burdened party refrain from certain uses or uses in certain areas”).

whether the private landowner retains some interest in the surface.¹³² Why not, then, award just compensation when a public entity seeks to improve its own resource position by securing similar airspace easement rights under the guise of land use regulation?

Of course, a chief risk of expanding the scope of categorical takings protections is that doing so could open the floodgates for more takings claims that could excessively constrain governments' ability to regulate. From the early stages of its regulatory takings jurisprudence, the Supreme Court has taken great pains to prevent the Takings Clause from unduly stifling land use regulatory authority. Justice Holmes famously encapsulated this caution in his statement in *Mahon* that "government could hardly go on" under regulatory takings rules that too liberally awarded just compensation.¹³³ The second prong of the proposed takings rule for veiled airspace easement regulations described immediately below is expressly aimed at limiting the rule's applicability and thereby mitigating this risk.

B. Element #2: Government Use of the Regulated Space

In addition to showing that the challenged regulation deprived them possessory use of their airspace, claimants under the proposed takings rule for veiled airspace easement regulations would have to prove that the government actually exploited the restricted space for its own benefit. Such non-incidental government use of private property is what makes veiled airspace easement regulations "functionally equivalent to the classic taking" and distinguishes them from ordinary police power restrictions.¹³⁴

Local governments have been using height restrictions and other land use controls for nearly a century to coordinate airspace uses among landowners and thereby promote the general welfare of the citizenry.¹³⁵ Conventional height restrictions compel all landowners in the restricted area to forfeit possessory rights in some of the airspace above their parcels but also benefit all landowners by ensuring open space above neighboring parcels.¹³⁶ This "reciprocity of advantage" among landowners is a familiar characteristic of

132. For a description of some common situations in which governments use eminent domain to acquire rights in airspace, see generally *supra* text accompanying notes 37–39.

133. *Pennsylvania Coal Co. v. Mahon*, 260 U.S. 393, 413 (1922).

134. *Lingle v. Chevron U.S.A. Inc.*, 544 U.S. 528, 539 (2005).

135. For an abstract model illustrating this role of height restrictions in more detail, see Rule, *supra* note 9; see also *infra* text accompanying notes 173–78.

136. Rule, *supra* note 9, at 285 ("Although bulk and height restrictions force landowners to forfeit their rights to occupy the airspace above their land, such restrictions are typically reciprocal in that they require nearly all neighboring landowners to give up those same rights and nearly all landowners get the same general benefit from the restrictions.").

the sorts of legitimate police power regulations that tend not to trigger compensable takings.¹³⁷

Regulatory takings laws seek not to hinder valuable police power regulation but to target those restrictions by which “private property is being pressed into some form of public service under the guise of mitigating serious public harm.”¹³⁸ Restrictions conforming to this description resemble classic takings by eminent domain and warrant the payment of just compensation under the Takings Clause.

1. Previous Calls for a Government Use Test: Enterpriser vs. Arbiter

Professor Joseph Sax highlighted the distinction between ordinary police power regulations and laws that facilitate governmental use of private property in a 1962 law review article that advocated broad use of this distinction in regulatory takings law. In Sax’s view:

[W]hen an individual or limited group in society sustains a detriment to legally acquired existing economic values as a consequence of government activity which enhances the economic value of some governmental enterprise, then the act is a taking, and compensation is constitutionally required; but when the challenged act is an improvement of the public condition through resolution of conflict within the private sector of the society, compensation is not constitutionally required.¹³⁹

Sax expounded on the important difference between the government’s role as an enterpriser and its role as an arbiter of private disputes, noting that the government as an enterpriser:

“. . . operates in a host of areas, requiring money, equipment and real estate. It maintains an army which must be fed and clothed and

137. See *Tahoe-Sierra Pres. Council, Inc. v. Tahoe Reg’l Planning Agency*, 535 U.S. 331, 350 (2002) (citing references to “reciprocity of advantage” considerations in *Penn Central*, *Lucas*, and *Mahon*).

138. *Lucas v. S. Carolina Coastal Council*, 505 U.S. 1003, 1018 (1992).

139. Joseph L. Sax, *Takings and the Police Power*, 74 *YALE L.J.* 36, 67 (1964). A somewhat comparable distinction at common law that is worthy of mention in this context is that between “governmental” and “proprietary” functions. Although many “enterprise” activities under Sax’s test would also be “proprietary” government functions under that common law distinction, at least some enterpriser activities—such as fire protection—would not qualify as proprietary, so the government-proprietary distinction is of limited value in this discussion. For a basic description of this other distinction, see generally OSBORNE M. REYNOLDS, JR., *LOCAL GOVERNMENT LAW* 12 (1982) (describing the difference between proprietary and governmental local government functions and noting that “police and fire protection” were usually classified as governmental functions).

supplied; it builds and maintains bridges and roads and buildings, and for these it must have land and other economic resources . . .”¹⁴⁰

In contrast, the government in its role as an arbiter merely “mediates the disputes of various citizens and groups within society . . . , defining standards to reconcile differences among the private interests in the community.”¹⁴¹

The FAA, Clark County, Suntown, and Beachville restrictions described in Part II.A above¹⁴² would each qualify as compensable takings under Sax’s government use test. Each aims not to resolve conflicts confined within the private sector but to economically benefit some specific government enterprise—the sort of government use that Sax argued made some regulations functionally equivalent to classic takings and worthy of just compensation under the Takings Clause.¹⁴³ However, although Sax’s arguments were a notable contribution to the regulatory takings debate,¹⁴⁴ the Supreme Court ultimately declined to embrace them and instead adopted its current pair of shorthand rules focused on physical invasion and total deprivation, and its ad hoc *Penn Central* test.¹⁴⁵

140. Sax, *supra* note 139, at 62.

141. *Id.* at 62–63. Jed Rubenfeld also proffered a test for identifying compensable government uses. See Rubenfeld, *supra* note 76, at 1116–17 (suggesting that, “[if] the state’s interest in taking or regulating something would be equally well served by destroying the thing altogether . . . , no use–value of the thing is being exploited,” so no compensation would be due under his “usings” test).

142. See *supra* text accompanying notes 42–70.

143. Curiously, Sax observed that compensable takings could sometimes arise under his test even when there was no physical invasion of private property. Without elaborating on when such non-physical takings could occur, Sax wrote:

To be sure, the acquisition of title or the taking of physical possession will be present in the great majority of taking cases under this theory. But—and this is the important point—the presence or absence of a formal title-acquisition and/or invasion will never be conclusive. These formalities are not necessarily present when the government, as an enterpriser, is acquiring resources for its own account.

Id. at 67.

144. In the 1970s and 1980s, some courts in New York and Pennsylvania specifically referenced Sax’s rule. See, e.g., *Loretto v. Teleprompter Manhattan CATV Corp.*, 423 N.E.2d 320, 330 (N.Y. 1981), *rev’d*, 458 U.S. 419 (1982) (citing Sax’s article for the argument that whether a regulatory taking occurs depends on whether the government “acts in its enterprise capacity” and must pay just compensation, or acts in its “arbitrary capacity, as where it legislates zoning or provides the machinery to enjoin noxious use”); *Alco Parking Corp. v. City of Pittsburgh*, 307 A.2d 851, 863 n.14 (Pa. 1973), *rev’d*, 417 U.S. 369 (1974) (describing Sax’s test in detail and concluding that it was “indeed logical” and aided the court’s analysis in takings claim over city’s taxation of private parking lots in competition with publicly-owned lots).

145. The Supreme Court has seemingly recognized the value of Sax’s distinction in the narrow context of one of the factors for assessing the “character of the government action” under a *Penn Central* analysis. See *Penn Cent. Transp. Co. v. City of New York*, 438 U.S. 104, 128 (1978) (citing Sax’s article, *Causby*, and other sources for the general proposition that “government actions that may be characterized as acquisitions of resources to permit or facilitate uniquely public functions have often been held to constitute ‘takings’”).

In 1993, nearly thirty years after Sax published his article, Professor Jed Rubenfeld made a similar case for greater emphasis on government use in regulatory takings law.¹⁴⁶ Rubenfeld argued that current laws paid too much attention to the word “taken” in the Takings Clause and not enough to the phrase “public use.”¹⁴⁷ He advocated requiring just compensation in all cases of what he called government “usings”—situations where “the state ha[d] in effect taken over property and exploited it for some government-dictated use.”¹⁴⁸

Unfortunately, by 1993 the Court had already laid down its rules in *Penn Central*, *Loretto*, and *Lucas*, all of which pay minimal attention to the question of government use of the allegedly taken property.¹⁴⁹ One possible reason for the Court’s rejection of any government use test is that identifying a compensable level of government use involves a more discretionary inquiry than is required to show physical invasion or arguably even total deprivation of economically beneficial use.¹⁵⁰ The *Lucas* and *Loretto* rules are convenient in that they require no government use analysis, allowing courts to quickly identify many types of compensable regulatory takings without any inquiry into whether the government ever used the allegedly taken property.¹⁵¹

Unfortunately, the *Lucas* and *Loretto* rules fail to protect against the sorts of takings of airspace rights that are the focus of this Article. Thus, even though the proposed rule for veiled takings of airspace easements would require a more discretionary government use analysis, such analysis would apply in only the small subset of takings cases involving airspace. The additional complexity in this narrow range of circumstances under the supplemental rule seems justifiable, given that the rule would spare claimants in these contexts from having to rely on arguments under *Penn Central*’s ambiguous factors.

146. See generally Rubenfeld, *supra* note 76.

147. *Id.* at 1149 (advocating greater focus on government “usings” in regulatory takings law).

148. *Id.* at 1129.

149. The *Penn Central*, *Loretto*, and *Lucas* decisions were published in 1978, 1982, and 1992, respectively. *Penn Central*, 438 U.S. 104 (1978); *Loretto v. Teleprompter Manhattan CATV Corp.*, 458 U.S. 419 (1982); *Lucas v. S. Carolina Coastal Council*, 505 U.S. 1003 (1992).

150. As discussed in Part II.B.2 above, difficulties in defining the “denominator” for a *Lucas* analysis can greatly complicate determinations of whether a given government action has caused a total deprivation of all economically beneficial use. For a discussion of this problem, see *supra* text accompanying notes 97–99.

151. A statement taken from the *Penn Central* majority opinion reinforces the notion that the Supreme Court’s heavy focus on physical invasion is an attempt to quickly distinguish regulations that are equivalent to classic takings from those that are not. See *Penn Central*, 438 U.S. at 124 (stating that a “‘taking’ may more readily be found when the interference with property can be characterized as a physical invasion by government than when interference arises from some public program adjusting the benefits and burdens of economic life to promote the common good”) (internal citation omitted).

A rule applying the sort of government use test advocated by Professors Sax and Rubenfeld to the narrow context of airspace restrictions would also arguably be consistent with the Supreme Court's existing jurisprudence. In fact, the *Penn Central* Court specifically made use of this government use distinction to distinguish the facts in *Penn Central* from those in *Causby*. The majority in *Penn Central* noted that, in *Causby*, the "government, acting in an enterprise capacity, . . . appropriated part of [the claimants'] property for some strictly governmental purpose."¹⁵² In contrast, the New York landmark ordinance at issue in *Penn Central* neither "exploit[ed]" the Grand Central Terminal "parcel for city purposes nor facilitate[d] nor ar[ose] from any entrepreneurial operations of the city."¹⁵³

2. *The Distinguishing Power of a Government Use Requirement*

The government use requirement described above would enable the proposed additional takings rule to differentiate ordinary police power regulations of airspace from the sorts of compensation-worthy rules imposed by Suntown, Beachville, Clark County, and the FAA. This distinguishing power is easy to recognize when the rule is applied to the New York City landmark preservation ordinance challenged in *Penn Central*.¹⁵⁴ That ordinance's restriction on building above Grand Central Terminal effectively deprived the *Penn Central* claimants of possessory use of some highly valuable airspace,¹⁵⁵ meeting the first prong of the proposed rule. However, the restriction was motivated by a general public interest in historic preservation,¹⁵⁶ and the city government neither exploited nor sought to exploit the restricted space. The *Penn Central* claimants would have thus been unable to satisfy the government use prong and avail themselves of the proposed takings rule.

Suppose instead that New York City's prohibition on development above the Grand Central Terminal was motivated solely by the city's desire to preserve scenic views for a nearby city government office tower. Under those facts, the city would have been exercising its regulatory power to enable it to exploit private airspace and materially improve the city government's own resource position, so the restriction would have been compensable under the proposed rule. This sort of government exploitation of airspace is more akin

152. *Id.* at 135.

153. *Id.*

154. A brief description of the facts surrounding the famous *Penn Central* case is set forth in Part II.B.2 above. See *supra* notes 100–03 and accompanying text.

155. See *Penn Cent. Transp. Co. v. City of New York*, 438 U.S. 104 (1978).

156. *Id.*

to the action that triggered a compensable taking in *Causby*—a case in which the United States military had not “merely destroyed property” but was “using a part of it for the flight of its planes.”¹⁵⁷

A comparison of two recent restrictions on commercial wind energy further demonstrates how the proposed rule’s government use requirement could differentiate compensable veiled airspace easement regulations from ordinary land use controls. On the one hand, consider the county ordinance recently challenged in *Zimmerman v. Board of County Commissioners of Wabaunsee County*.¹⁵⁸ *Zimmerman* arose when the Board of Commissioner of Wabaunsee County, Kansas, adopted an ordinance prohibiting commercial wind energy development throughout the county.¹⁵⁹ The undisputed impetus for the ordinance was a general concern that wind energy development would compromise the aesthetic appeal of the county’s pristine rural areas, including portions of the scenic Flint Hills.¹⁶⁰ The ordinance effectively deprived rural landowners of possessory use of the airspace above their land and would have thus satisfied the first element of the proposed takings rule.¹⁶¹

157. *United States v. Causby*, 328 U.S. 256, 262–63 n.7 (1946). At least one other commentator has noted the *Causby* Court’s focus on the government’s use of the airspace at issue in that case. See Anne R. Pramaggiore, *The Supreme Court’s Trilogy of Regulatory Takings: Keystone, Glendale, and Nollan*, 38 DEPAUL L. REV. 441, 463 (1988) (noting that the Court’s opinion seemed to recognize “the fact that the government utilized the airspace for its own benefit” and that the government was “acting in its enterprise capacity” in flying planes over the Causbys’ property in ways that “enhance[d] [the government’s] own resource position”).

158. The Kansas Supreme Court partially ruled on *Zimmerman* in 2009, but requested further briefing from the parties on the claimant’s takings claim. *Zimmerman v. Bd. of Cnty. Comm’rs of Wabaunsee Cnty.*, 218 P.3d 400, 405 (Kan. 2009) [hereinafter “*Zimmerman I*”] (stating that, concurrent with the release of the court’s opinion in the case, the court had “ordered the parties to submit supplemental briefs on certain questions . . . originally presented on appeal,” including whether the county board’s broad prohibition on commercial wind energy development “violated the Takings Clause”). The Kansas Supreme Court issued a subsequent opinion in late 2011 analyzing the takings issue and other previously unresolved matters. *Zimmerman v. Bd. of Cnty. Comm’rs of Wabaunsee Cnty.*, 264 P.3d. 989 (Kan. 2011) [hereinafter “*Zimmerman II*”].

159. See *Zimmerman II*, 264 P.3d at 997 (quoting county ordinance language specifying that “Commercial Wind Energy Conversion Systems are not a use that may be approved or permitted as a Conditional Use in Wabaunsee County and are specifically prohibited”). The Flint Hills stretch across several rural Kansas counties, including much of Wabaunsee County, and “contain the vast majority of the remaining Tallgrass Prairie that once covered much of the central United States.” *Id.* at 994. For more information about the Flint Hills and their significance, see Great Plains Nature Center, *The Meadow*, <http://www.gpnc.org/meadow.htm> (last visited Dec. 5, 2011).

160. See *Zimmerman II*, 264 P.3d at 997 (noting that the county’s prohibition on commercial wind farms was based partly on a determination that large wind turbines would be “incompatible with the rural, agricultural, and scenic character of the County”).

161. More particularly, the ordinance prohibited commercial wind energy development. See *Zimmerman I*, 218 P.3d at 407 (describing Wabaunsee County ordinance as prohibiting wind turbine installations exceeding 120 feet in height). Conceivably, cell phone towers could make economically viable use of some very small fraction of the Wabaunsee County’s airspace above 120 feet, but it is difficult to conceive of any other economically viable possessory uses of such space given the county’s

However, the ordinance would not have satisfied the second element of the rule because it was not adopted to enable some government entity to exploit the restricted space for its own benefit. The ordinance did not improve the resource position of the county government or of any other government enterprise and was aimed solely at preserving general aesthetic benefits for the county's citizenry.

In contrast, consider the FAA wind farm restrictions described in Part II.A.1 above, which seek to prevent interference with military radar.¹⁶² Like the ordinance at issue in *Zimmerman*, the FAA restrictions deprive landowners of valuable possessory airspace interests and would thus satisfy the first element of the proposed rule. However, the FAA restrictions differ from the Wabaunsee County ordinance in that they are driven solely by a federal entity's desire to keep the airspace clear to serve the entity's own purposes—an overt government use of the space.¹⁶³ Even if a wind energy developer held all the state and local approvals required to develop its wind farm, an FAA restriction based on a request from the DOD could still hinder the project. Such restrictions are aimed not at governing airspace conflicts among private landowners, but rather at securing privately-owned resources for use by a specific government entity. Restrictions motivated by this sort of government self-interest contrast starkly with conventional police power restrictions like the Wabaunsee County ordinance and merit the payment of just compensation.¹⁶⁴

C. *Measuring Just Compensation*

Successful claimants under the supplemental takings rule advocated in this Article would obviously be entitled to just compensation from the government entity that imposed the challenged regulation. Like landowners in most other types of takings cases, these claimants would bear the burden of

rural character and low population density. As of 2010, only 7,053 people resided in the county. See *QuickFacts: Wabaunsee County, Kansas*, U.S. CENSUS BUREAU, <http://quickfacts.census.gov/qfd/states/20/20197.html> (last updated Sept. 18, 2012).

162. See *supra* text accompanying notes 42–46.

163. As the Supreme Court has made clear, the fact that military radar systems promote homeland security and public safety does not give the government license to take private property rights without compensation in protecting those systems. See *Pennsylvania Coal Co. v. Mahon*, 260 U.S. 393, 416 (1922) (declaring that “a strong public desire to improve the public condition is not enough to warrant achieving the desire by a shorter cut than the constitutional way of paying for the change”).

164. Of course, the Wabaunsee County ordinance and other restrictions falling outside the scope of *Lucas*, *Loretto*, and the proposed veiled airspace easements rule could still potentially be compensable under the *Penn Central* test. The proposed rule would merely expand the subset of instances in which takings claimants could obtain just compensation without having to engage in a *Penn Central* analysis.

establishing the amount of just compensation due.¹⁶⁵ Valuing easements can be difficult, since most types of easements are infrequently bought and sold.¹⁶⁶ However, the compensation amount could be determined through the same sorts of valuation methods commonly used for takings of easements through eminent domain. In those situations, compensation is typically determined by measuring the difference in the value of the burdened landowner's property before and after imposition of the easement.¹⁶⁷ Amounts calculated through such an approach would at least roughly approximate the value of the possessory use rights destroyed by the restriction.

In the context of wind energy development, a compensation amount determined under the "before and after" method just described would roughly reflect the present value of the projected revenue stream that would have accrued to the claimant under a wind energy lease on the restricted property.¹⁶⁸ For height restrictions in urban areas like those in Clark County, Suntime, or Beachtown, the estimated profitability of potential development within the restricted airspace would similarly be reflected in the compensation amount.¹⁶⁹

IV. BENEFITS AND CHALLENGES OF THE ADDITIONAL TAKINGS RULE

Like any article that proposes a significant change to regulatory takings law, this Article would not be complete without a discussion of the likely practical impacts of its proposed rule for veiled takings of airspace easements. Takings laws ultimately influence the allocation of scarce

165. See, e.g., FRANCIS C. AMENDOLA ET AL., PROCEEDINGS TO CONDEMN PROPERTY AND TO ASSESS COMPENSATION, 29A C.J.S. EMINENT DOMAIN § 351 (2011) (stating that, in eminent domain proceedings, the "burden of showing the value of the taking or the damages which the landowner or condemnee will suffer rests on the landowner").

166. See, e.g., APPRAISAL INST., THE APPRAISAL OF REAL ESTATE 86 (12th ed. 2001) (noting that the "value of an easement in and of itself is usually difficult to measure, primarily because easements are rarely sold").

167. JULIUS L. SACKMAN, NICHOLS ON EMINENT DOMAIN § 13.15[1] (3d ed. 2007).

168. The value of such a wind lease is dependent on numerous factors, including the potential productivity of the wind above the subject property and the feasibility of developing a commercial wind project on the site. See Troy A. Rule, *A Downwind View of the Cathedral: Using Rule Four to Allocate Wind Rights*, 46 SAN DIEGO L. REV. 207, 208 n.1 (2009) ("Numerous factors, including average wind speed, wind direction frequency, air temperature, the availability of adequate transmission facilities, permitting issues, and ease of vehicular access can affect a property's attractiveness for wind energy development") (citations omitted).

169. See, e.g., citation from note 57 at 5–6 (describing a lower court jury's awarding of \$13,000,000 in just compensation in connection with an airport height restriction based on evidence that the restriction would prevent development of a "major casino/resort" on the burdened property, which an expert witness testified was the "highest and best use" of the parcel).

resources among governments and private citizens, so fine-tuning such laws can have important impacts on society.¹⁷⁰ If the Supreme Court were to adopt the supplemental takings rule for veiled airspace easements outlined in Part III above, or if Congress were to enact the rule, how might the new rule affect the long-run productivity of the nation's airspace? And what sorts of unintended consequences could result from the rule?

Given the critical role that airspace plays in renewable energy and sustainable development,¹⁷¹ clearer takings protections for airspace have the potential to simultaneously strengthen private property rights and promote sustainability. These dual benefits are particularly noteworthy, given that property rights protection and environmentalism are often at odds in the land use regulatory context.¹⁷² The following parts examine how the rule for veiled takings of airspace easements advocated in this Article would increase the overall productivity of the nation's airspace and clarify an ambiguous area of takings law. They also acknowledge and address some potential criticisms of the rule.

A. *More Efficient Use of Airspace*

The supplemental takings rule proposed in this Article would not only promote more equitable treatment of landowners vis-à-vis the government; it would also encourage more efficient use of private airspace. By compelling public entities to internalize more of the social cost of taking negative airspace easements through regulation, the rule would discourage governments from overregulating airspace solely to secure it for their own use.

A simple equilibrium model is helpful in highlighting the efficiency-promoting benefits of the proposed rule.¹⁷³ The model begins by

170. In the words of one scholar, courts "must decide takings cases by making explicit value choices in the wide array of land use conflicts in which takings claims arise." Mandelker, *supra* note 99, at 19.

171. The role of airspace in renewable energy and sustainable development is described in more detail in the Author's recent paper on private conflicts over airspace. See Rule, *supra* note 9, at 285–90.

172. Richard Lazarus has written about this tension between takings protections and environmental protection on multiple occasions. See, e.g., Richard J. Lazarus, *Celebrating Tahoe-Sierra*, 33 ENVTL. L. 1, 25 (2003) (suggesting that the majority's holding in *Tahoe* "reflects the competing concerns actually at stake in reconciling the nation's need for sound environmental land use planning with its constitutional commitment to the protection of private property rights."); Richard J. Lazarus, *Putting the Correct 'Spin' on Lucas*, 45 STAN. L. REV. 1411, 1412 (1992) (stating that environmentalists feared "that a state or local environmental protection agency would reduce its regulatory efforts if it thought that the Supreme Court had dramatically increased the government's obligation to compensate owners of property subject to environmental protection law[s]" after *Lucas*).

173. The model that follows in this part was first set forth in the author's recent article examining airspace use conflicts between private parties. See Rule, *supra* note 9, at 297–302.

distinguishing rival airspace uses from non-rival uses. Many common airspace uses are largely *nonrival*, meaning that they neither preclude nor increase the cost of several other coincident uses of the same space.¹⁷⁴ For example, a single column of open airspace can simultaneously deliver sunlight to a neighborhood's gardens, skylights, and solar panels, preserve a parcel's territorial views, and carry electromagnetic signals at dozens of different frequencies to satellite dishes, radio receivers, and cell phones.¹⁷⁵ Multiple parties can concurrently enjoy all of these nonrival uses of the same airspace without disrupting each other. In contrast, some airspace uses are primarily *rival*, tending to interfere with or prevent other uses of the same space. For instance, a landowner who grows a tree or erects a structure in airspace imposes costs on neighbors by interfering with their views, sunlight access, or other rival or nonrival uses of the space.¹⁷⁶

Obviously, some airspace is most valuable to society as a place for rival uses such as trees and buildings, while other airspace is more socially valuable as an open space capable of serving various nonrival uses. Height restrictions and other laws prohibiting rival airspace uses can promote the social welfare by preserving certain airspace as a sort of "conservation commons" for nonrival uses—a "commons whose most efficient use is nonuse"¹⁷⁷ in the physical sense.¹⁷⁸ By optimally balancing rival and nonrival airspace uses, airspace restrictions can maximize the productivity of the airspace above a community. Framed more rigorously within microeconomic theory: airspace restrictions in a given area are cost-justified up to some equilibrium height at which the marginal social benefit of allowing rival use of an additional inch of the space (MB_r) equals the marginal social cost to non-rival users of allowing the rival use within that inch of space (MC_r).¹⁷⁹ This equilibrium height is shown as H^* in Figure A below.

174. *Id.* at 294–95.

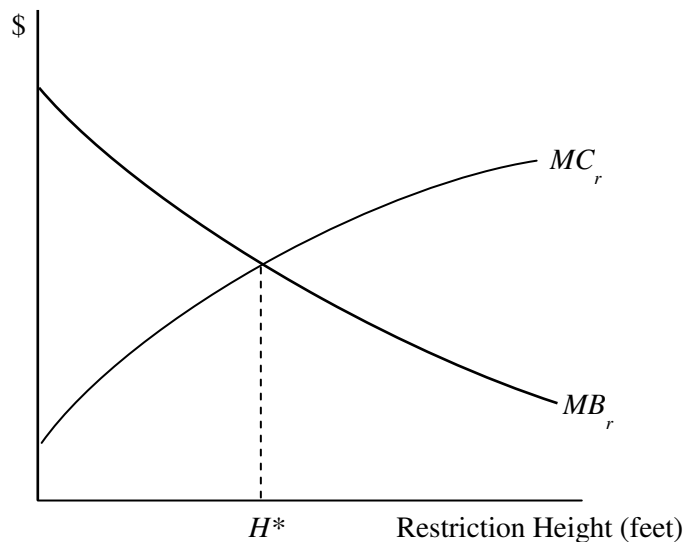
175. *Id.* at 294.

176. *Id.* at 295.

177. Abraham Bell & Gideon Parchomovsky, *Of Property and Antiproperty*, 102 MICH. L. REV. 1, 39 (2003).

178. As explained in the author's previous article, by "nonuse," Bell and Parchomovsky seemed to have meant "only nonrival uses." See Rule, *supra* note 9, at 296 n.124. Bell and Parchomovsky emphasized several non-rival, non-invasive uses for a public park as examples of the benefits accruing to neighbors from a conservation commons (the property owners abutting a public park benefited from using the park as "a panoramic view, an acoustic barrier, and an air freshener"). See Bell & Parchomovsky, *supra* note 177, at 4. They also referred to "conservation" as "non-building" in the context of a conservation commons. *Id.* at 58.

179. For those interested in a full explanation of the model and its primary underlying assumptions, see Rule, *supra* note 9.

FIGURE A: OPTIMAL RESTRICTION HEIGHT¹⁸⁰

Public entities that impose veiled airspace easement regulations like those described in Part II.A above abandon their pursuit of H^* and instead calibrate airspace restrictions based on their own resource needs. To illustrate the inefficiency of such restrictions, reconsider the fictional city of Suntown described in Part II.A.3.¹⁸¹ Suntown had planned to install solar panels on its city hall and feared that future building construction in the area could ultimately shade its panels. Assuming that the existing 120-foot height restriction in the relevant area of Suntown was socially optimal, that restriction height would corresponded to H^* in Figure A. In contrast, securing adequate solar access for Suntown's panels required that construction heights on blocks immediately south of the city hall be limited to just 60 feet, a level corresponding to H_1 in Figure A.

Suppose that the takings rule for veiled airspace easement regulations proposed in Part III above had applied in Suntown. Under the rule, Suntown's only available means of preventing buildings from occupying the airspace between H^* and H_1 would have been to acquire solar access easements from neighbors through voluntary purchases or eminent domain. In either case,

180. The author initially introduced this general model in a previous article. See Rule, *supra* note 9, at 299.

181. See *supra* text accompanying note 67.

Suntown would have had to pay amounts approximating fair market value to obtain the easement rights. Assuming that Suntown's officials acted rationally on behalf of the city and were accurately informed, they would have determined that the city's cost of such easements exceeded the benefits of protecting solar access on the roof of the city hall. Suntown thus would have opted not to purchase the easements. Such a decision would have produced the socially optimal outcome, permitting buildings to occupy the space between H^* and H_I —a rival use for that airspace that was of greater social value than the value of keeping the space open for solar access and other nonrival uses.¹⁸²

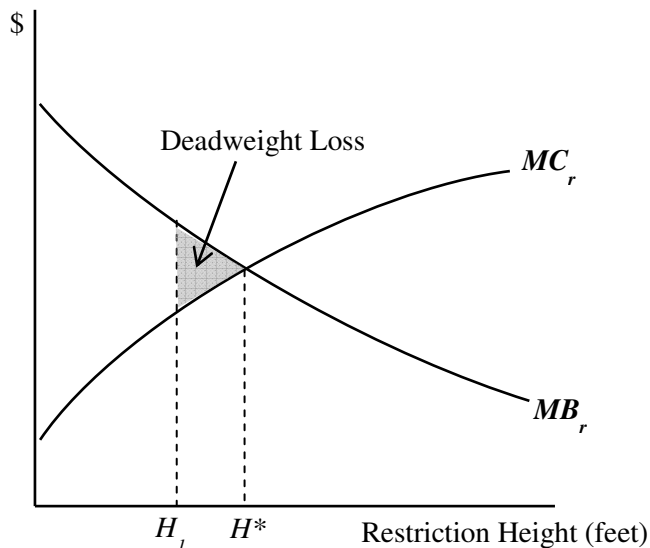
Of course, in the original Suntown example, the proposed takings rule did not apply. Suntown was thus able to acquire solar access protection by amending existing height restrictions to make H_I the new restriction height on those parcels immediately south of the city hall that posed a shading risk. These increased restrictions prohibited development within the airspace between H^* and H_I , even though the marginal benefit of allowing buildings—a rival use—within that space would have exceeded the marginal costs that such development would have imposed on Suntown and other nonrival users. By precluding socially optimal use of the airspace between H^* and H_I , Suntown's ordinance generated a deadweight loss represented by the shaded area in Figure B below. This deadweight loss arose because the potential development value of the airspace between H_I and H^* exceeded the aggregate value of Suntown's solar access and of all other nonrival uses of the space protected by the restriction.¹⁸³ Such deadweight losses are a risk under current regulatory takings laws, which provide no clear rule to compel public entities like Suntown to weigh the social costs of veiled takings of airspace easements.¹⁸⁴

182. Of course, an assumption implicit in this conclusion is that, if Suntown were to seek solar access easements through eminent domain, the court in the eminent domain proceeding would accurately value the easement rights.

183. Indeed, solar access protection often may not be the highest valued use of given airspace since solar resources tend to be of roughly the same quality almost anywhere within a city. To view national solar resource maps, see *Dynamic Maps, GIS Data, & Analysis Tools: Solar Maps*, NAT'L RENEWABLE ENERGY LAB., <http://www.nrel.gov/gis/solar.html> (last updated Oct. 23, 2012); see also Rule, *supra* note 7, at 861–62 (noting that “[a]lthough certain regions of the country have more solar resources than others, the sunlight shining upon a rural field contains roughly as much energy as that shining on a downtown office building or suburban home within the same geographic area”) (citations omitted).

184. A similar analysis would follow in connection with the veiled view easements described in the Beachville scenario from Part II.A.4 *supra*. See *supra* text accompanying notes 68–70.

FIGURE B: EFFECT OF A VEILED AIRSPACE EASEMENT REGULATION



Similar deadweight losses can arise when the FAA restricts wind energy development solely to prevent interference with the DOD's radar systems. The DOD is often the "cheapest cost avoider" in these disputes, capable of preventing radar interference with wind turbines at a lower social cost than the alternative approach of prohibiting the turbines.¹⁸⁵ As mentioned above, FAA restrictions aimed at protecting military radar systems have significantly slowed valuable wind energy development in recent years, even though relatively low-cost radar system upgrades are often available that could prevent wind turbine conflicts.¹⁸⁶ In many cases, the costs of such upgrades

185. Initially conceived by Guido Calabresi, the concept of a cheapest- or least- cost avoider has become commonplace in law and economics literature. GUIDO CALABRESI, *THE COSTS OF ACCIDENTS: A LEGAL AND ECONOMIC ANALYSIS* 135 (1970); see also RICHARD A. POSNER, *ECONOMIC ANALYSIS OF LAW* 190 (7th ed. 2007) (stating that the "lower-cost accident avoider" should take precautions necessary to avoid an accident); STEVEN SHAVELL, *ECONOMIC ANALYSIS OF ACCIDENT LAW* 17 (2007) (using the term "least cost avoider").

186. See, e.g., Vestel, *supra* note 46, at B4 (stating that "many radar systems in use in the United States date back to the 1950s and have outdated processing capabilities—in some cases, less than those of a modern laptop computer"); Elizabeth Burleson, *Wind Power, National Security, and Sound Energy Policy*, 17 PENN. ST. ENVTL. L. REV. 137, 143 (2009) (quoting the United States Department of Energy as stating that "[t]here are a number of technical mitigation options available today, including software upgrades to existing radar, processing filters related to signature identification, [and] replacing aging radar") (citation omitted); Larry Greenemeier, *Wind Turbine or Airplane? New Radar Could Cut Through the Signal Clutter*, SCIENTIFIC AM. (Sept. 3, 2010), <http://www.scientificamerican.com/article.cfm?id=>

are considerably lower than the potential social benefits of wind farm projects that are abandoned or postponed due to the FAA's restrictions.¹⁸⁷ In the context of these conflicts between wind energy development and the DOD, the deadweight loss in Figure B reflects the positive difference between the social benefits lost due to abandoned and delayed wind farm projects and the cost of the military's upgrading of its own radar equipment. By enabling the federal government to hinder wind farm developments in private airspace at little or no expense, current takings laws incentivize the government to excessively obstruct these valuable projects.

Under the supplemental takings rule described in Part III above, such deadweight losses would arise less frequently because the federal government would be obligated to compensate landowners for restrictions of non-navigable airspace aimed at preventing disruption of the DOD's radar. The rule would compel the DOD to either update its radar equipment or purchase airspace easements from landowners sufficient to protect against interference with wind turbines. Assuming that the DOD were acting rationally and with perfect information under such a policy, the DOD would engage in a cost-benefit analysis and ultimately elect to restrict wind energy development only in cases where the cost of upgrading its radar exceeded the potential social value of the wind farm at stake. This ability to incentivize governments to internalize more of the social cost of veiled airspace easement regulations is a primary benefit of the proposed takings rule.¹⁸⁸

wind-farm-radar-clutter (stating that "[o]ne approach to the problem is upgrading radar systems . . . with advanced digital signal processors so they can manage larger amounts of data and thereby identify and filter out the signal scrambling caused by wind turbines"). Ironically, advanced radar systems that were "built to order in the US" are enabling Great Britain to overcome its conflicts between wind farms and military radar. Robert Mendick, *Military Radar Deal Paves Way for More Wind Farms Across Britain*, THE TELEGRAPH (Aug. 27, 2011), <http://www.telegraph.co.uk/earth/energy/windpower/8726922/Military-radar-deal-paves-way-for-more-wind-farms-across-Britain.html>.

187. Empirical studies of this issue have suggested that radar system replacement is often the most cost-effective option. See, e.g., MICHAEL BRENNER ET AL., FED'N OF AM. SCIENTISTS, WIND FARMS AND RADAR 8–9 (Jan. 2008), available at <http://www.fas.org/irp/agency/dod/jason/wind.pdf> ("The cost of a single radar installation was said to be in the range of \$3–8M, to be compared with the \$2–4M cost of a single wind turbine, and the roughly \$0.5M annual electric production of a single turbine (5×10⁶ kWh, at \$0.10/kWh retail). A wind farm can have hundreds of turbines").

188. Requiring compensation when governments effectively take airspace easements can also increase the aggregate social welfare by spreading the costs of public use of that space among all taxpayers rather than a small number of landowners. This principle that cost sharing helps to maximize aggregate social utility is known as "positive allocation theory." At least one commentator has cited these cost-spreading benefits in support of just compensation rules for takings of airspace easements. Robert F. Katz, Comment, *Airport Approach Zoning: Ad Coelum Rejuvenated*, 12 UCLA L. REV. 1451, 1456–57 (1964) (applying the cost spreading theories of Professor Guido Calabresi to support an argument that the social costs of land use restrictions aimed at reserving airspace for airport uses are minimized if burdened landowners receive just compensation) (citing Guido Calabresi, *Some Thoughts on Risk Distribution and the Law of Torts*, 70 YALE L.J. 499, 517 (1960)).

B. Greater Clarity in Takings Law

In addition to promoting more efficient use of scarce airspace, the supplemental takings rule described in Part III above would also provide needed clarity to regulatory takings law as it relates to airspace. The greater clarity afforded under the rule would reduce airspace development risk and thereby encourage more investment in airspace-intensive land uses. Legal scholars have long recognized that increasing citizens' certainty that they will be justly compensated for government takings leads to more optimal levels of property development and investment.¹⁸⁹ Like the *Lucas* and *Loretto* rules, the proposed takings rule would reduce legal uncertainty for an additional category of takings claims without materially impeding conventional land use regulation.

C. Clearer Laws Regarding Airport Height Restrictions

A proposed rule for veiled takings of airspace easements would significantly clarify takings laws as they relate to height restrictions near airports. The strong disagreement among the justices in a recent Nevada Supreme Court case exemplifies the current uncertainty plaguing this area of the law. The claimant in *McCarran International Airport v. Sisolak*¹⁹⁰ sought just compensation from Clark County, Nevada, in connection with the municipal height restrictions discussed in Part II.A.2 above that sought to accommodate expansion of the Las Vegas airport.¹⁹¹ The newly restricted airspace above portions of the claimant's private property was not part of the airport's new runway flight path; it was merely within a "horizontal zone" where planes might pass unintentionally during emergency situations.¹⁹² Nonetheless, the majority in *Sisolak* characterized the county's ordinance imposing height restrictions for this space as a per se physical taking and analyzed it under *Loretto*.¹⁹³ Even though planes only occasionally invade the

189. Frank I. Michelman included these negative impacts on investment within what he called the "demoralization costs" associated with inadequate legal provisions for just compensation. Frank I. Michelman, *Property, Utility, and Fairness: Comments on the Ethical Foundations of "Just Compensation" Law*, 80 HARV. L. REV. 1165, 1214 (1966) (stating that "demoralization costs" included "the present capitalized dollar value of lost future production (reflecting either impaired incentives or social unrest) caused by demoralization of uncompensated losers, their sympathizers, and other observers disturbed by the thought that they themselves may be subjected to similar treatment on some other occasion").

190. 137 P.3d 1110 (Nev. 2006).

191. See *supra* text accompanying notes 58–61.

192. *Sisolak*, 137 P.3d at 1114–15.

193. *Id.* at 1125 (holding that county ordinances permitting planes to travel through the landowner's airspace within 500 feet of the surface "authorize[d] a physical invasion of [the claimant's] property and

burdened airspace, the majority seemed to take the view that the restrictions compelled the claimant to forfeit possessory use of the space so that it could serve a specific public use.¹⁹⁴ Professor Andrea Peterson has suggested that the *Sisolak* majority treated the Clark County ordinance as a physical taking to avoid having to apply *Penn Central*.¹⁹⁵ In Peterson's view, the *Sisolak* majority took that approach to "produce a fair outcome, even though the categorization . . . was inaccurate."¹⁹⁶

Interestingly, the dissenting justices in *Sisolak* vigorously argued that *Loretto* was not applicable in the case because the height restriction at issue involved no authorized physical invasion of private airspace or express transfer of airspace rights. One dissenting justice reasoned that "[a] regulation that simply limits what a landowner can do with his or her property does not amount to a taking under *Loretto*"¹⁹⁷ and that the regulations challenged in *Sisolak* did not, "on their face, establish any easement or other right to use a landowner's property."¹⁹⁸ Both dissenting justices determined that the facts of the case required analysis under *Penn Central*'s multi-factor test.¹⁹⁹

The Nevada Supreme Court's struggle to address takings claims over airport height restrictions is emblematic of a broader court split on these questions that spans across several jurisdictions.²⁰⁰ Some courts have held that compensation is due whenever a height restriction sets aside non-

require[d] [the claimant] to acquiesce to a permanent physical invasion" and that the county had thereby "effectuated a *Loretto*-type per se regulatory taking").

194. *Id.* at 1124 (finding that the challenged ordinances "authorize[d] the permanent physical invasion" of the claimant's airspace because they "exclude[d] the owners from using their property and, instead, allow[ed] aircraft to exclusively use the airspace").

195. Peterson, *supra* note 92, at 426 (asserting that, "[b]y characterizing the ordinance as effecting a physical taking, the court avoided analyzing the effect of the government's action on the 'parcel as a whole,' as *Tahoe-Sierra* requires in a regulatory takings case, and it avoided applying the *Penn Central* test") (citation omitted).

196. *Id.*

197. *Sisolak*, 137 P.3d at 1132 (Becker, J., dissenting) (citation omitted). This statement appears in one of the case's two dissenting opinions. The other dissenting justice took a similar view. *Id.* at 1135 (Maupin, J., dissenting) (concluding that the challenged ordinances had "not operated as a permanent physical ouster" and that *Loretto* was therefore inapplicable in the case).

198. *Id.* at 1132–33.

199. *Id.* at 1131, 1134.

200. See Eagle, *supra* note 14, at 899–900 (citing numerous cases to show that that at least nine states have held that an airport-driven height restriction results in a taking "at least under some circumstances" and that "at least five have held that it does not"); see also Petition for Writ of Certiorari, *Hsu*, *supra* note 57, at *8 (arguing that "there is widespread, direct conflict among state courts on whether government action that puts privately owned, buildable airspace near airports to public use is a physical taking that requires compensation . . ."); see also Major Walter S. King, *The Fifth Amendment Takings Implications of Air Force Aircraft Overflights and the Air Installation Compatible Use Zone Program*, 43 A.F.L. REV. 197, 213 (1997) (stating that the "applicability of the *per se* takings tests remains an issue for flights below 500 feet").

navigable airspace for airport uses.²⁰¹ However, several other courts have proven reluctant to recognize airport zoning height restrictions as compensable takings, even when there is evidence that aircraft sometimes physically invade the restricted space.²⁰² This inconsistent treatment of height restrictions near airports creates uncertainty and investment risk that can lead to suboptimally low levels of development of airspace. The proposed takings rule would mitigate this uncertainty by providing a clearer and simpler means for victims of such takings to obtain just compensation under the Takings Clause.

D. Clearer Takings Rules for Wind Energy Development

The supplemental takings rule advocated in Part III above would also spare parties in private-public disputes over airspace in the wind energy context from having to litigate arcane state property law questions about the severability of wind rights. Wind rights—property interests associated with wind energy production—are increasingly listed alongside oil, gas and mineral rights as valuable attributes of real property.²⁰³ Among other things, wind rights typically include rights to occupy airspace above a parcel with turbines capable of capturing the wind’s kinetic energy and converting it into electric power.²⁰⁴

In recent years, growing interest in the concept of wind rights has given rise to a new theory for challenging wind energy restrictions under the Takings Clause. Takings claimants who argue under the *Lucas* test that a government action has destroyed all economically viable use of a splintered real property interest, such as a mineral estate, have a much greater chance of

201. See Petition for Writ of Certiorari, *Hsu*, *supra* note 57, at *9 n.5 (citing cases in California, Indiana, Kentucky, Minnesota, Mississippi, New Jersey, Ohio, Idaho, and Washington in which a court awarded just compensation to landowners in connection with zoning height restrictions).

202. See, e.g., *Cnty. of Clark v. Hsu*, 2004 WL 5046209 (Nev. 2004) (refusing to find that a per se physical taking had occurred in connection with a height restriction imposed to create a “transition zone” to the side of an airport runway); see also Petition for Writ of Certiorari, *Hsu*, *supra* note 57, at *11 n.6 (describing cases in Florida, Kansas, Illinois, Iowa, and Wyoming in which courts declined to award just compensation in connection with airport height restrictions).

203. See Nathaniel C. Giddings & Laurie Ristino, *Proposal: A Uniform Act for Wind Rights*, 8 ABA ENERGY COMM. NEWSLETTER 1 (2011) (describing wind rights as having two parts: (i) “physical access” to the surface estate to construct and maintain wind energy systems and (2) the “right to make use of the wind that flows across the land and convert it . . . into electricity”).

204. See, e.g., *Zimmerman v. Bd. of Cty. Comm’rs of Wabaunsee Cty. (Zimmerman II)*, 264 P.3d. 989, 995 (Kan. 2011) (quoting language in instruments alleging to transfer wind rights as transferring, among other things, the “exclusive and complete rights, titles, interests, and privileges in all the wind and air above and passing through the land. . . .”). For a more detailed discussion of the role of airspace in wind energy development, see Rule, *supra* note 9.

success when the property interest at issue is “severed”²⁰⁵ from the fee estate.²⁰⁶ Of course, *Penn Central* clearly established that airspace cannot be conceptually severed from the fee for purposes of regulatory takings analysis.²⁰⁷ On the other hand, some landowners in recent years have begun severing wind rights and transferring them separately from surface interests,²⁰⁸ and at least one court has upheld the validity of a severance of wind rights from the underlying fee estate.²⁰⁹ Accordingly, one alternative litigation strategy is to characterize a prohibition on wind energy development as the taking of a severed wind estate.²¹⁰

A regulatory takings argument based on the theory of severable wind rights recently appeared in an amicus brief filed in *Zimmerman*, the case described in Part III.B.2 above involving a county’s prohibition on wind energy development.²¹¹ According to the brief, “[c]ase law . . . shows that

205. The act of separating mineral, oil, or gas rights from the fee simple interest in land by a deed or other instrument is referred to as “severance” and is a well-established practice in real estate law. *See* 58 C.J.S. MINES AND MINERALS § 193 (2011) (stating that the “severance of the surface and mineral rights may be accomplished either by a conveyance of the land with an express reservation or exception of the mines and minerals, or by a conveyance of the minerals or mining rights, retaining the ownership of the surface, or by an instrument conveying the surface rights to one person and the minerals and mineral rights to another person, in severalty”) (citation omitted).

206. *See, e.g., State ex rel. Shelly Materials, Inc., v. Clark Cnty. Bd. of Comm’rs*, 875 N.E.2d 59, 67 (Ohio 2007) (stating that “[a] mineral estate may be considered the relevant parcel for a compensable regulatory taking if the mineral estate was purchased separately from the other interests in the real property”); *Cane Tennessee, Inc. v. United States*, 54 Fed. Cl. 100, 108 (Fed. Cl. 2002) (distinguishing between severed and unsevered coal rights for purposes of regulatory takings analysis); *Penn. Cent. Transp. Co. v. City of New York*, 438 U.S. 104, 127 (1978) (suggesting that the regulation at issue in *Mahon* warranted the payment of just compensation because the regulation “had nearly the same effect as the complete destruction of [all of the coal] rights claimant had reserved from owners of the surface land”).

207. *See supra* note 113 and accompanying text.

208. For more information on this practice, see Christianson Hartman, *Is the Wind Mine to Give Away? Guidance for Testators Wishing to Transfer a Wind Interest*, 1 EST. PLAN. & COMMUNITY PROP. L.J. 399 (2008).

209. *See generally* *Contra Costa Water Dist. v. Vaquero Farms, Inc.*, 58 Cal. App. 4th 883, 894 (Cal. Ct. App. 1997) (holding that the “right to generate electricity from windmills harnessing the wind, and the right to sell the power so generated, is no different, either in law or common sense, from the right to pump and sell subsurface oil, or subsurface natural gas” and that therefore a landowner’s “wind rights” could be legally severed from the surface estate).

210. For more information on the recent debate over the concept of a severable wind estate and related legal issues, see Alan J. Alexander, *The Texas Wind Estate: Wind as a Natural Resource and a Severable Property Interest*, 44 U. MICH. J.L. REFORM 429 (2010); *see also* K.K. DuVivier, *Animal, Vegetable, Mineral—Wind? The Severed Wind Power Rights Conundrum*, 49 WASHBURN L.J. 69 (2009); Hartman, *supra* note 208; Ernest E. Smith & Becky H. Duffen, *Winds of Change: The Creation of Wind Law*, 5 TEX. J. OIL GAS & ENERGY L. 165, 176–81 (2009); Michael J. Stephan, *Wind Severance*, 40 TEX. ENVTL. L.J. 73 (2009).

211. *See* Brief of Amicus Curiae the Wind Coalition at 12, *Zimmerman v. Bd. of Cty. Comm’rs of Wabaunsee Cty.*, 2009 WL 5244584 (No. 98487) (Kan. 2009) [hereinafter “Brief of Amicus Curiae”]. For a detailed recital of the facts surrounding *Zimmerman* and the Kansas Supreme Court’s partial decision on issues other than the takings claim, see *Zimmerman v. Bd. of Cty. Comm’rs of Wabaunsee Cty. (Zimmerman I)*, 218 P.3d 400 (Kan. 2009).

where wind rights have been severed from the surface estate and are the only property interest held . . . , the relevant parcel is the wind rights, not the land.”²¹² The brief thus argued that, “[b]ecause the [c]ounty’s prohibition on commercial wind energy systems eliminate[d] all economically beneficial uses” of the wind developer’s wind leases, “a categorical taking proscribed by *Lucas* [had] occurred.”²¹³

The *Zimmerman* court ultimately dismissed the takings claim in that case, concluding that the claimants held “no property for purposes of a takings claim” because the county had not issued them conditional use permits for commercial wind turbines so they held no legally vested property rights capable of being taken.²¹⁴ By framing its decision as a question of the vesting of rights, the court avoided a takings analysis for wind rights.

However, the *Zimmerman* court’s approach left open an important question: what if commercial wind turbines had previously been permitted uses but the county subsequently prohibited them? Under those facts, the court could not have used a vested rights argument to swiftly dispose of the claimants’ takings claim. The court would have thus had to wrestle with the question of whether the countywide prohibition on wind farms affected compensable takings of the claimants’ “severed wind estates.”²¹⁵ Given the continued rapid pace of wind energy development,²¹⁶ additional takings arguments based on the idea of a severed wind estate are certainly plausible in the future.²¹⁷

212. Brief of Amicus Curiae, *supra* note 211, at 12.

213. *Id.*

214. *Zimmerman v. Bd. of Cty. Comm’rs of Wabaunsee Cty. (Zimmerman II)*, 264 P.3d. 989, 1005 (Kan. 2011).

215. *Id.* at 998. One student commentator has suggested that a fear of having to compensate landowners for future laws that destroyed wind rights was a possible reason for North and South Dakota statutes expressly prohibiting the severance of a wind estate from the surface estate. See Nicholas R. Hoffman, Note, *A Don Quixote Tale of Modern Renewable Energy: Counties and Municipalities Fight to Ban Commercial Wind Power Across the United States*, 79 UMKC L. REV. 717, 732 (2010) (noting that “fear of compensation from eminent domain and other ordinance and zoning issues” was a possible reason for the “legislative discontent with wind energy severance”).

216. The blistering pace of wind energy development in recent years was referenced in Part II.A.1 above. See *supra* note 51 and accompanying text.

217. For example, an attorney for a wind energy developer recently threatened to file a regulatory takings claim if a proposed wind turbine moratorium in Idaho were put into law. See Mitch Coffman, *Wind turbine moratorium killed in House committee*, IDAHOREPORTER.COM (Mar. 22, 2011), <http://www.idahoreporter.com/2011/wind-turbine-moratorium-killed-in-house-committee/> (quoting an attorney for a wind energy developer as stating that if the state legislature’s proposed wind turbine moratorium “bill prohibits the Idaho Wind Farm project from going forward, I don’t like to rattle my saber but I believe my clients will have a powerful regulatory takings claim”). A provision in a recently enacted Wyoming statute also preserves landowners’ rights to claim just compensation for government takings of wind rights even though severing wind rights from the fee estate is no longer permitted in that state. See WYO. STAT. ANN. § 34-27-105 (2011) (providing that “[n]othing in this act diminishes the right of the owner of the surface

The new takings rule advocated in this Article could have easily resolved the claim in *Zimmerman*, even if no vested rights argument had been available for dismissing the claim. The *Zimmerman* claimants likely could have satisfied the first element of the test, establishing that the ordinance effectively deprived them of any possessory use of their airspace, because wind energy development was the only financially viable physical use for the airspace at issue.²¹⁸ However, the claimants would have been unable to satisfy the test's second element because the county's wind farm restrictions were aimed at preserving the "scenic character of the [c]ounty," not at enhancing a public entity's own resource position by facilitating government exploitation of the restricted space.²¹⁹ Without any discussion of the severability of wind rights, the proposed takings rule would have clearly identified the challenged ordinance as a valid, non-compensable police power regulation of airspace.

E. Potential Criticisms of the Proposed Takings Rule

Like the Supreme Court's existing takings rules, the rule for veiled takings of airspace easements proposed in Part III would be far from perfect.²²⁰ However, the Court has proven willing to embrace takings rules that even the Justices themselves have acknowledged have some shortcomings.²²¹ The following are some potential critiques of the rule and initial responses suggesting that the rule's potential benefits would outweigh any costs resulting from its imperfections.

estate to receive compensation . . . for the taking of wind energy rights incidental to the exercise of eminent domain").

218. This assumption seems reasonable, given the highly rural and sparsely populated nature of the county. See *Zimmerman II*, 264 P.3d. at 994 (noting that the county contains "approximately 800 square miles and 7,000 people").

219. The resolution accompanying the challenged Wabaunsee County ordinance justified the prohibition on commercial wind energy upon a determination that such development "would be incompatible with the rural, agricultural, and scenic character of the [c]ounty"). *Id.* at 997; see also Brief of Amicus Curiae, *supra* note 211, at 933.

220. The *Loretto*, *Lucas*, and *Penn Central* rules have all suffered significant criticism over the years. For a launching point into these critiques, see *supra* note 76, and *supra* notes 97–99 and accompanying text.

221. For example, the Supreme Court recognized problems with the *Lucas* rule, which was also intended to be a clear, bright-line rule but has plenty of ambiguity in its application. As described in Part II.B.2 above, Justice Scalia acknowledged the shortcomings of the *Lucas* test when writing for the majority in that case. See *supra* notes 97–99 and accompanying text. Legal commentators have likewise noted the weakness of the *Lucas* rule. See, e.g., Penalver, *supra* note 76, at 229 (stating that "numerous scholars have observed" that "the predictability created by *Lucas* is debatable, at least in part because of the exceptions the *Lucas* Court wrote into its per se rule") (citation omitted).

1. *A New Avenue for Frivolous Takings Claims?*

One plausible criticism of the supplemental takings rule proposed in this Article is that some citizens might file meritless takings claims that misapply its government use standard and thereby impede legitimate government activities.²²² In their capacity as landowners, government entities routinely enjoy views, sunlight, and other benefits of neighboring airspace kept open by conventional land use controls along with the rest of a jurisdiction's landowners. Some claimants may try to argue that these incidental airspace uses satisfy the proposed rule's government use requirement.

Courts could deter most such abuses of the proposed rule by limiting the scope of "government use" under the rule to exclude incidental uses. Jed Rubenfeld aptly recognized the need to limit the meaning of "use" when describing his "usings" test for regulatory takings.²²³ He advocated narrowing the meaning of "government use" to encompass only cases where "some productive attribute or capacity of private property is exploited for state-dictated service."²²⁴ Joseph Sax similarly argued that no compensation should be due when the "government profit[s] only as an incidental beneficiary of a rule enacted to resolve a controversy between private parties."²²⁵ Exempting incidental government uses of restricted airspace would reduce the likelihood of frivolous claims under the proposed rule.

2. *An Incentive to Excessively Restrict Airspace?*

Another potential shortcoming of the proposed rule is that it could prompt some public entities to overregulate airspace as a way to avoid takings liability under the rule. Some public entities might determine that they can better shield their veiled airspace easement regulations from takings challenges under the rule by restricting a larger quantity of airspace than necessary and then trying to characterize their airspace use as "incidental."

222. This sort of critique resembles the "[g]overnment hardly could go on" line of argument that Justice Holmes famously set forth in *Mahon* in the embryonic stages of regulatory takings law and continues to be a significant consideration. See *Pennsylvania Coal Co. v. Mahon*, 290 U.S. 393, 413 (1922).

223. See Rubenfeld, *supra* note 76, at 1114 (providing an example of manipulation of "use" and stating that if "the concept of use were hopelessly manipulable . . . then it would hardly be very useful"). Joseph Sax saw similar challenges with his "government as an enterprise" distinction. See Sax, *supra* note 139, at 70–71 (conceding that "[t]he idea of a government enterprise is not a rigid and mechanical notion, nor is it always crystal clear whether, if there is a government enterprise involved, it is being enriched by the challenged regulation").

224. Rubenfeld, *supra* note 76, at 1114–15.

225. See Sax, *supra* note 139, at 74.

A revisiting of the Suntown fact pattern set forth in Part II.A.3 above helps to illustrate this argument.²²⁶ Suppose that the proposed supplemental takings rule had been adopted in Suntown's jurisdiction and that Suntown officials were well aware of the rule. Recognizing that a new height restriction tailored only to protect solar access for its new solar panel array would fit squarely within the rule, Suntown might opt to impose more severe height restrictions on a large proportion of the city's downtown area rather than height restricting only the two blocks needed for the easement. By restricting heights in this wider area and articulating some police power justification for the new restriction in the public record that was unrelated to the city's solar panels, Suntown could potentially make its veiled taking less vulnerable to challenges under the proposed rule.²²⁷ Unfortunately, the practical effect of this sort of strategic overregulation would be the excessive restriction of an even greater amount of the city's airspace and even larger deadweight losses.

For multiple reasons, this risk of strategic overregulation aimed at avoiding takings liability seems negligible at best. For instance, such a strategy is not even available to most *federal* entities because they lack authority to impose generic land use restrictions on low-altitude airspace and would thus have a difficult time disguising their restrictions as mere police power regulations.²²⁸ Indeed, the FAA seems to openly acknowledge that its restrictions on wind farms are not imposed to address land use conflicts among private landowners but are instead aimed at preventing interference with military radar.²²⁹ Expanding the geographic scope of the FAA's wind farm restrictions would therefore do nothing to disguise the government-as-an-enterpriser motive behind such restrictions.

Even municipalities that can and already do exercise their police power to restrict airspace would encounter practical limitations if they attempted to

226. See *supra* text accompanying note 67.

227. Municipalities have conventionally imposed height restrictions for a wide range of police power purposes. See Peter W. Salsich, Jr., & Timothy J. Tryniecki, *LAND USE REGULATION* 174 (2d ed. 2003) (delineating several common reasons for height restrictions, including the "regulation of overall development density through limitations on building size, provision of open space, light, and air," and "preservation of rural character" of a community) (citations omitted).

228. Such police power authority is specifically reserved to states under the Tenth Amendment to the United States Constitution. See *Patterson v. Kentucky*, 97 U.S. 501, 503–04 (1878) (noting that the police power is reserved to the states under the Tenth Amendment); see also U.S. CONST. amend. X.

229. See Burleson, *supra* note 186, at 142–43 (describing FAA and DOD objections to wind turbines and a "directive" issued by the DOD and Department of Homeland Security to contest "any establishment of windmill farms within radar line of sight of the National Air Defense and Homeland Security Radars") (citing Cindy Skrzycki, *A New Blip on Wind Power's Radar Screen*, WASH. POST, June 20, 2006, at D1, available at <http://www.washingtonpost.com/wp-dyn/content/article/2006/06/19/AR2006061901337.html>).

strategically overregulate under the proposed rule. Such municipalities still face political constraints because overregulating wider swaths of land only increases the likelihood of landowner opposition and backlash. Overregulating a broader area could also diminish property values for more parcels and thereby weaken a greater proportion of the municipality's local property tax base.²³⁰ In summary, the theory that public entities might seek to avoid takings liability by overly restricting excessive amounts of airspace seems too attenuated to justify rejecting the proposed rule.

3. *An Invitation for New Takings Claims Against Airports?*

One other potential argument against the supplemental rule proposed in this Article is that it could spur a new wave of claims for airspace easements taken through existing airport height restrictions. Although some increase in claims against airports could conceivably result under the rule, the prescriptive easement doctrine and statutes of limitations would likely limit their number. In cases where an airport has continually operated for several years, a municipality could argue that it has a prescriptive avigation easement as a defense to a takings claim.²³¹ Particularly where there is evidence of regular physical invasions of the airspace at issue, some courts have held that avigation easements can be attained by prescription.²³² Statutes of limitations would also preclude many claims based on longstanding airspace restrictions in the airport context.²³³

230. Protecting a community's property values and hence its property tax base has long been a common goal of local land use regulation. *See, e.g.*, Symposium, *Developments in the Law—Zoning: The Legitimate Objectives of Zoning*, 91 HARV. L. REV. 1443, 1457–58 (1978) (using case law and state statutory laws to support the notion that a “municipality might zone to maintain or to increase the total value of the property within its borders, presumably in order to limit the property tax burden on its citizens” and that “[c]ourts generally hold that increasing the assessed value of property in a municipality is a legitimate objective” of land use controls) (citations omitted).

231. *See Ventres v. Goodspeed Airport, LLC*, 881 A.2d 937 (Conn. 2005), *cert. denied* 547 U.S. 1111 (2006) (holding that a prescriptive clearance easement existed because the airport had operated continuously for at least 15 years and its use of the landowner's airspace was adverse, open, and visible during that period).

232. *See* 8A AM. JUR. 2D AVIATION § 8 (2009) (noting that “[t]here is a conflict of authority as to whether an avigation easement may be obtained by prescription”). Eclavea and Arsdale identify three cases in which courts did recognize prescriptive avigation easements. *Id.* (citing *Ventres v. Goodspeed Airport, LLC*, 881 A.2d 937 (Conn. 2005), *cert. denied*, 547 U.S. 1111 (2006); *Christie v. Miller*, 719 P.2d 68 (Or. App. 1986); *Peterson v. Port of Seattle*, 618 P.2d 67 (Wash. 1980)). They also cited two cases in which courts refused to recognize such easements. *See* 8A Am. Jur. 2d Aviation § 8 (2009) (citing *Cnty. of Westchester, N.Y. v. Comm'r of Transp. of Conn.*, 9 F.3d 242 (2d Cir. 1993); *Fiese v. Sitorius*, 526 N.W.2d 86 (Neb. 1995)).

233. At least one case has applied a six year statute of limitations to preclude a takings claim for an avigation easement against the United States Government, with the six-year period beginning to toll when

In summary, the benefits from clarifying legal rights and promoting more optimal use of airspace under the proposed takings rule seem to easily outweigh the rule's potential costs. The rule would facilitate simpler adjudication of a subset of restrictions that are "functionally equivalent to the classic taking"²³⁴ without unduly undermining governments' ability to regulate airspace in ways that promote the general welfare.²³⁵

CONCLUSION

Renewable energy and sustainable development are putting more airspace to productive use than ever before. In this era of unprecedented competition for scarce airspace, clearer laws are needed to prevent governments from restricting airspace solely so that they can exploit it for their own purposes. The lack of clear takings law protection against this practice has grown increasingly problematic in recent years, hindering wind energy development and triggering costly disputes near municipal airports. The continued growth of solar energy and sustainable development is giving rise to even more situations in which governments could be tempted to use their land use regulatory authority to effectively take airspace rights.

The Supreme Court's existing regulatory takings rules are inadequately equipped to protect citizens against veiled takings of negative airspace easements. The Court's current takings jurisprudence relies heavily on evidence of physical invasion of the claimant's property or deprivation of all economically viable use to identify compensable regulatory takings. Regulatory takings of negative airspace easements often fall outside the scope of these rules, creating an increasingly troublesome gap in takings law.

The Court could address this problem by supplementing its existing regulatory takings rules with a new rule requiring just compensation for government actions that effectively take airspace easements for use by public entities. The rule could award just compensation upon a showing that the challenged government activity (i) deprived the claimant of all possessory use of private airspace and (ii) enhanced the resource position of some government enterprise by enabling its exploitation of the restricted space. This new takings rule could complement the existing categorical takings rules under *Lucas* and *Loretto*, protecting against regulations that were functionally

aircraft began flying over the subject property. *See generally* *Persyn v. United States*, 106 F.3d 424 (Fed. Cir. 1996).

234. *See* *Lingle v. Chevron U.S.A. Inc.*, 544 U.S. 528, 539 (2005).

235. As already described, Justice Holmes's famous statement in *Mahon* that "[g]overnment hardly could go on" embodies this general constraint on regulatory takings law. *See supra* note 222 and accompanying text.

equivalent to classic takings of negative airspace easements under eminent domain.

As wind energy, solar energy, and sustainable development play an ever larger role in land use, citizens and governments will increasingly be looking to the sky for solutions. If properly tailored, a new takings rule reflecting the unique attributes of airspace could add clarity to an ambiguous area of takings law and promote more fair and efficient use of the nation's precious airspace in the decades to come.