Using Mandates and Incentives to Promote Sustainable Construction and Green Building Projects in the Private Sector: A Call for More State Land Use Policy Initiatives

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I. Introduction

Green building technology has arrived. Green, or high performance,[1] building practices primarily involve the design, construction, and operation of buildings and other facilities in ways that preserve natural resources and protect the environment for generations to come. Policy, technical, and legal journals convincingly argue the merits of both sustainable development in general and specific sustainable building standards.[2] A discernable movement is also afoot, urging government to play a significant role in promoting green building projects.[3] At this moment, however, there is no agreement on what this role should be.[4] In particular, green building standards have not yet found their place within the realm of land use regulation.[5]

Building codes, comprehensive planning, and other land use regulations would seem to present the most direct means to achieve green building standards. In the United States, however, building codes and most other land use control devices are normally adopted, implemented, and enforced at the local level, where they are subject to local political debates and variations.[6] Municipalities alone cannot bring about a green building revolution. Likewise, prospects for effective green building initiatives resulting from international or U.S. federal law are dim.[7] This Article argues that timely, meaningful progress toward sustainability in the U.S. building industry requires state-level legislation that promotes, and sometimes even mandates, green building standards at

1. Some prefer the phrase "high performance buildings," which suggests efficiency in the broader economic and business senses as well as in the ecological sense. *See* Charles J. Kibert, *Green Buildings: An Overview of Progress*, 19 J. LAND USE & ENVTL. L. 491, 491-92 (2004) (also using the term "high performance green buildings"). I have opted for "green buildings" both because the current literature uses that phrase so widely and because the high performance label begs an important question by implicitly presuming that more ecologically sound building practices will necessarily achieve superior performance from other perspectives.

2. *See, e.g.*, Jim Broughton, *Green Building: What We Have Learned about Costs, Savings and Value*, ENVTL. DESIGN & CONSTRUCTION, Nov. 2006, at 110; Nancy J. King & Brian J. King, *Creating Incentives for Sustainable Buildings: A Comparative Law Approach Featuring the United States and the European Union*, 23 VA. ENVTL. L.J. 397 (2005); Kibert, *supra* note 1, at 491; Robert Cassidy, *Why a White Paper on Sustainability?*, BUILDING DESIGN & CONSTRUCTION, Nov. 2003, at 2; Timothy Beatley & Richard Collins, *Americanizing Sustainability: Place-Based Approaches to the Global Challenge*, 27 WM. & MARY ENVTL. L. & POL'Y REV. 193 (2002).

3. *See infra* Part II.C.

4. *See infra* Part III.

5. *See infra* Part III.B.

6. King & King, *supra* note 2, at 450-51.

7. Traditionally, provincial attitudes prevent international and U.S. federal programs from comprehensively influencing land use practices in this country. *See infra* Parts IV.B-C.

the regional and local levels.

II. Is Governmental Intervention Appropriate?

A. The Ecological Case for Green Buildings

Buildings voraciously consume natural resources, building construction creates vast quantities of waste material, and building operations contribute significantly to environmental pollution.[8] The statistics for the built environment, both globally and specifically in the United States, are overwhelming. In *Buildings and Climate Change*, for example, the United Nations Environment Programme recently reported that on a worldwide basis "30-40% of all primary energy is used in buildings."[9] And the environmental costs extend well beyond energy for building operations. As one recent report explains:

> [t]he built environment, including buildings and other development, plays a substantial role in environmental health, human welfare and economic stability. Building operation accounts for 40% of U.S. energy use; this number increases to an estimated 48% when the energy required to make building materials and construct buildings are included. Building operations alone contribute over 38% of the U.S.'s carbon dioxide emissions and over 12% of its water consumption. Waste from demolition, construction and remodeling makes up over 35% of all non- industrial waste (1996).[10]

Buildings also account for staggering quantities of storm water runoff,[11] and indoor air quality is often significantly more polluted than outdoor air.[12] Moreover, environmental costs continue to accrue over a building's life cycle. A complete accounting must consider not only construction, operations, and maintenance, but also the impact of capital improvements over the building's useful life and demolition and disposal afterward.[13] While many of these factors, such as energy usage, translate

8. *See* Kibert, *supra* note 1, 493-94.

9. PEKKA HUOVILA ET AL., U.N. ENV'T PROGRAMME, BUILDINGS AND CLIMATE CHANGE: STATUS, CHALLENGES AND OPPORTUNITIES v (2007), *available at* http://www.unep.fr/pc/sbc/documents/Buildings_and_climate_change.pdf.

10. MARA BAUM, GREEN BUILDING RESEARCH FUNDING: AN ASSESSMENT OF CURRENT ACTIVITY IN THE UNITED STATES 1 (2007) (footnotes omitted) (a report prepared for the U.S. Green Building Council Research Committee), *available at* http://www.usgbc.org/ShowFile.aspx?DocumentID=2465.

11. *See* Stephen T. Del Percio, Comment, *The Skyscraper, Green Design, & The LEED Green Building Rating System: The Creation of Uniform Sustainable Standards for the 21st Century or the Perpetuation of an Architectural Fiction?*, 28 ENVIRONS ENVTL. L. & POL'Y J. 117, 125-26 (2004).

12. *See* BAUM, *supra* note 10, at 1.

13. *See* Gregory A. Norris, *Integrating Life Cycle Cost Analysis and LCA*, INT'L J.

into direct costs that building owners and occupants pay, society and future generations bear others, such as the long-term costs of greenhouse gas emissions and accumulated solid waste from construction and demolition.[14]

To be sure, the other side of the ledger registers considerable social utility from the construction and real estate industries. That point requires little elaboration: across the globe, buildings advance human happiness[15] and economic prosperity.[16] In purely economic terms, it is enough to note that in countries throughout the world, "[t]he building and construction sector typically provides 5-10% of employment at [the] national level and normally generates 5-15% of the GDP."[17] Given these circumstances, we should view building design, construction, operation, demolition, and disposal as opportunities for each generation to preserve and improve the future rather than as threats to it. Simply put, we need building practices that consume, waste, and pollute less. Environmentalists, policy analysts, developers, design professionals, builders, building owners and occupants, land use planners, politicians, and ordinary citizens overwhelmingly recognize the value of more efficient and ecologically sound building practices.[18] Green building standards, that is to say environmentally sustainable ones, promise these precise results.[19]

B. The Business Case for Green Buildings

The real estate development industry's rapidly growing interest in green buildings confirms that market forces are leading more developers to adopt sustainable building techniques.[20] Indeed, the building design and construction industries themselves have served the most visible role

LIFE CYCLE ASSESSMENT 118-20 (2001), *available at* http://simapro.rmit.edu.au/LIT/LCALCC/NORRISLCCLCA2001.PDF.

14. *See* Kibert, *supra* note 1, at 494-95.

15. "Architecture is one of the great arts. We find proof of this in the depth of emotion that good buildings provoke in us." CESAR PELLI, OBSERVATIONS FOR YOUNG ARCHITECTS 9 (1999). *See also* ALBERTO PEREZ-GOMEZ, BUILT UPON LOVE: ARCHITECTURAL LONGING AFTER ETHICS AND AESTHETICS 4-5 (2006) (espousing a theory of architecture in which building practices "pursue a functionalist utopia" marked by "seductive projects").

16. *See* HUOVILA ET AL., *supra* note 9, at 1.

17. *Id.* The value of construction put in place in the United States in 2006 was over $1 trillion. U.S. CENSUS BUREAU, VALUE OF CONSTRUCTION PUT IN PLACE—SEASONALLY ADJUSTED ANNUAL RATE (2006), *available at* http://www.census.gov/const/C30/totsa2006.pdf.

18. *See infra* Part II.B.

19. *See infra* Part II.B-C.

20. *See* Kibert, *supra* note 1, at 493-95.

in advancing the green building movement in the United States.[21]

The dominant green building strategy in the country today is voluntary compliance with standards promulgated by the U.S. Green Building Council (USBGC), a private organization founded by building design and construction industry interests.[22] The USGBC establishes and administers the Leadership in Energy and Environmental Design (LEED) certification program.[23] The LEED Green Building Rating System "is a voluntary, consensus-based national rating system for developing high-performance, sustainable buildings."[24] USGBC helps owners and builders secure green credentials by publishing distinct rating systems for several different building types.[25] While some industry commentators offer serious criticisms of the USGBC system,[26] the fact that the LEED standards in the United States, and alternative sustainable building design and construction standards in other places,[27] have achieved broad

21. *See* King & King, *supra* note 2, at 406-09.

22. *See* Patricia E. Salkin, *Green Development: Drafting Plans and Regulations to Promote Environmentally-Friendly Projects*, SL005 A.L.I-A.B.A 669, 672 (2005).

23. The U.S. Green Building Council, a nonprofit organization, describes itself as "a community of more than 11,000 organizations from every sector of the building industry united by a common purpose: to transform the building marketplace to sustainability." U.S. Green Building Council, *Who Are We*, http://www.usgbc.org/DisplayPage.aspx?CMSPageID=1498& (last visited Jan. 25, 2008).

24. U.S. Green Building Council, *About USGC*, http://www.usgbc.org/DisplayPage.aspx?CMSPageID=124 (last visited Jan. 25, 2008).

25. For example, LEED-NC identifies fifty-one specific standards for awarding rating points in six major categories applicable to new commercial construction and major renovation projects: Sustainable Sites; Water Efficiency; Energy & Atmosphere; Materials & Resources; Indoor Environmental Quality; and Innovation & Design Process. *See* U.S. GREEN BUILDING COUNCIL, LEED-NC GREEN BUILDING RATING SYSTEM FOR NEW CONSTRUCTION & MAJOR RENOVATIONS (Ver. 2.2, October 2005) [hereinafter LEED-NC2.2], *available at* http://www.outreach.psu.edu/shaverscreek/files/Rating-System-October-2005.pdf. For convenience, this Article frequently refers to the LEED standards to illustrate specific green building practices even though, as noted in the text, other green building standards exist.

26. *See, e.g.*, Patrick Moore et al., *Sustained by Science*, ARCHITECTURE, Sept. 2003, at 112 (reporting criticism that the LEED ratings "are based on political agenda, not sound science"); Nadav Malin, *The Going Rate*, ARCHITECTURE, Apr. 2003, at 45 (characterizing the LEED system as "confusing, cumbersome, and in some cases oversimplified").

27. The Green Globes system is a viable competitor to the LEED standards in North America, although it has achieved greater recognition in Canada than in the United States. In other parts of the world, the Building Research Establishment Environmental Assessment Method (BREEAM) has been especially influential, although other systems now compete for dominance in some regions. *See generally* Raymond J. Cole, *Shared Markets: Coexisting Building Environmental Assessment Methods*, 34 BUILDING RES. & INFO. 357 (2006); Joel Ann Todd et al., *Comparative Assessment of Environmental Performance Tools and the Role of the Green Building Challenge*, 29 BUILDING RES. & INFO. 324 (2001). Another recent set of guidelines claims the advantage of "a rigorous scientific basis" that other systems lack. DIANA BALMORI & GABOURY BENOIT, LAND AND NATURAL DEVELOPMENT (LAND) CODE: GUIDELINES FOR SUSTAINABLE LAND

acceptance in the private sector confirms that the green label serves a recognized business function.

A steady stream of testimonials in trade publications tout the advantages of green buildings for developers,[28] owners,[29] tenants,[30] and other occupants, both for commercial[31] and residential[32] projects. These articles reflect a perception within the design, construction, and development industries that green buildings not only produce substantial operating savings,[33] but also create market value,[34] improve the health of building occupants[35] and increase productivity.[36] While many of these claims are anecdotal[37] or even promotional,[38] they at least bear witness to a growing consensus among designers, builders, developers, and investors that green buildings pass muster when subjected to a cost-benefit analysis.

Drawing on world-wide research, the U.N.'s *Buildings and Climate Change* concludes that the business case has been established, at least for sustainable building practices that increase energy efficiency. It states:

> [c]onstruction costs do not need to increase substantially due to the improvement of the building's energy efficiency. Typically construction costs increase by 3-5% due to the introduction of energy-efficient solutions, although this figure may vary according to construction type. Lowering the overall energy consumption has a direct positive impact upon life-cycle costs. In addition the following benefits can be listed:
>
> - Increase in reliability;

DEVELOPMENT 2 (2007).

28. *See, e.g.*, Patricia Kirk, *Finding the Greenbacks in "Green" Office Space*, NAT'L REAL EST. INVESTOR, Jan. 2005, at 16.

29. *See, e.g.*, Linda Burnett, *Sustain Me*, CONTRACT, Apr. 2006, at 58; Terry L. Belknap, *The Time is Now: A Business Guide*, CONTRACT, Apr. 2002, at 84.

30. *See, e.g.*, Steve McLinden, *Eco-Friendly Apartments Get the Green Light*, NAT'L REAL EST. INVESTOR, Jan. 2004, at 46.

31. *See, e.g.*, Katie Weeks, *It's Easier Being Green?*, CONTRACT, Apr. 2006, at 56.

32. *See, e.g.*, Shyam Kannan, *Unveiling the Green Homebuyer*, URBAN LAND, June 2007, at 106, *available at* http://www.rclco.com/generalpdf/general_Jul172007401_Unveiling_the_Green_Homebuyer.pdf.

33. *See, e.g.*, Jim Broughton, *Costs, Savings and Value: Construction Costs and Operating Savings of Green Buildings*, ENVTL. DESIGN & CONSTRUCTION, Dec. 2006, at 40, 41-42.

34. *See., e.g.*, *Finding the Greenbacks in "Green" Office Space*, *supra* note 28, at 16.

35. *See, e.g.*, Broughton, *supra* note 33, at 42; Anthony Bernheim, *What You Can't See: Improving Comfort and Health in the Built Environment*, Jan. 24, 2006, http://www.aredi.org/_coreModules/content/contentDisplay.aspx?contentID=2080.

36. *See, e.g.*, Burnett, *supra* note 29; Belknap, *supra* note 22.

37. *See, e.g.*, Katie Weeks, *Ready to Bloom*, CONTRACT, Apr. 2005, at 70.

38. *See, e.g.*, Sofia Galadza, *Walking the Line*, CONTRACT, Apr. 2007, at 77.

- Increase in indoor air quality;
- Decrease in natural resource use;
- Considerable decrease of energy costs over the life-time of the building;
- Improving comfort due to improved energy efficiency in buildings. This may also increase productivity in service buildings;
- Creation of employment as a result of increased activity in energy improvements in buildings.[39]

Note, however, that the report's central concern is the relationship between building practices and climate change.[40] As a result, the focus is on energy efficiency and reducing building emissions.[41] The report does not provide a cost-benefit analysis for other sustainable construction practices.[42] It is one thing to conclude that savings in operations justify increased construction costs to improve energy efficiency during a building's useful life, but it is a far different matter to prove the business case for the whole range of eco-friendly building practices that the sustainability movement advocates.

A report commissioned by the city of Boston captures the nearly breathless enthusiasm that many proponents have for the broader business case.[43] In a series of separately captioned sections, the report seeks the attention of investors, developers, and the general public.[44] Under a caption announcing the business advantages of green buildings, the report advises that high performance building "systems are smaller and more efficient, and they last longer and perform better over time, requiring less maintenance and limiting related expenses."[45] In a similar vein, another section claims that green buildings help to create jobs and business opportunities, and predicts that "as Boston becomes a leader in the field, this leadership will reinforce the city's brand as a home to highly skilled workers and a forward-thinking population of residents

39. HUOVILA ET AL., *supra* note 9, at 7-8.
40. *Id.* at 3.
41. *Id.* at 1-3.
42. *Id.*
43. MAYOR MENINO'S GREEN BUILDING TASK FORCE REPORT, EXECUTIVE SUMMARY 4-7 (Fall 2004), *available at* http://www.bostongreenbuilding.org/ (follow "Click here to view the Executive Summary" hyperlink) [hereinafter BOSTON TASK FORCE].
44. *Id.* at 3-7.
45. *Id.* at 4.

and business people."[46]

Turning to global energy concerns, another segment of the report sounds a theme for all energy conscious citizens by noting that "green building presents opportunities both to decrease energy consumption and to create energy with technologies such as wind turbines and photovoltaic arrays. Decreasing our dependence on finite energy sources, such as foreign oil, is a path to increased stability and security."[47]

Yet another section touts the simultaneous advantages green buildings offer to employers and to their employees. The report claims that "[b]uildings with improved air quality, with increased amounts of natural light, with better circulated heat and air conditioning are more pleasant, healthier and more productive places to be," that "[p]eople who live and work in green facilities appear to use fewer sick days," and even that "green buildings spur increases in productivity among their occupants."[48] The Boston report openly aims to sell the benefits of green buildings, and it does not purport to offer extensive empirical support for the claims it makes.[49] It includes only limited data on quantifiable results. For example, it reports that a 50-unit affordable housing development and a research center both showed substantial energy savings in the initial months of operation.[50]

While it is still too early in the green building movement for there to be many long-term studies based on sound methodology, some substantial data support many of the financial claims in favor of green building practices, at least in specific contexts.[51] Further, for many industry experts, the available cost-benefit studies are sufficiently persuasive to move green building practices into the mainstream of project design.[52]

An extensive 2003 study concluded that green buildings can produce life cycle benefits valued at approximately ten times the additional costs involved.[53] The results are far less impressive (although still significant), however, if one discounts the estimated value of

46. *Id.* at 5.
47. *Id.*
48. *Id.* at 5-7.
49. *Id.* at 1-14.
50. *Id.* at 3, 5.
51. *See* KATS ET AL., *infra* note 53; ATHENS, *infra* note 55.
52. *See, e.g.*, Burnett, *supra* note 29, at 58; Weeks, *supra* note 30, at 70.
53. GREG KATS ET AL., THE COSTS AND FINANCIAL BENEFITS OF GREEN BUILDINGS: A REPORT TO CALIFORNIA'S SUSTAINABLE BUILDING TASK FORCE ii (2003), *available at* http://www.cap-e.com/ewebeditpro/items/O59F3259.pdf or http://www.ciwmb.ca.gov/GreenBuilding/Design/CostBenefit/Report.pdf.

anticipated health and productivity benefits to building occupants.[54]

In 2005, the city of Seattle released a five-year report on its sustainable building program for the city's public facilities.[55] This report includes the results of a cost-benefit study that purport to "indicate that the City's investment of an additional $2.64 million to obtain LEED credits for the Justice Center and McCaw Hall projects is cost-effective when examined over a 25-year period."[56] Once again, however, it does not appear that these results stem entirely from direct operational savings. The report implicitly acknowledges this by explaining that: "[w]hen secondary impacts such as productivity benefits were included, the net present value was positive, particularly for buildings with large numbers of staff."[57]

Some of the most compelling evidence of the business case for green building standards involves life cycle studies.[58] As the name implies, life cycle studies take into account building costs that extend well beyond the initial construction.[59] One authority distinguishes between two different life cycle approaches, explaining:

> Life Cycle Assessment evaluates the relative environmental performance of alternative product systems for providing the same function. This environmental performance is assessed as holistically as possible, aiming to consider all important causally-connected processes, all important resource and consumption flows, regardless of whether or not they eventually impact anyone. Life Cycle Cost compares the cost-effectiveness of alternative investments of business decisions from the perspective of an economic decision maker such as a manufacturing firm or a consumer.[60]

Life cycle studies are important to any cost-benefit analysis of green building practices because they recognize that while the additional costs of green buildings may relate to isolated parts of a building's life cycle,

54. The study calculated the total net present value of the benefits of green buildings over a twenty year period, after taking into account the extra costs involved, at $48.87 per square foot for a LEED Certified or Silver building, of which productivity and health benefits accounted for $36.89. *Id.* at ix.

55. LUCIA ATHENS, CITY OF SEATTLE, SUSTAINABLE BUILDING PROGRAM 5-YEAR REPORT 2000-2005: BUILDING A BETTER CITY (2005), *available at* http://www.seattle.gov/dpd/stellent/groups/pan/@pan/@sustainableblding/documents/web_informational/dpds_007594.pdf [hereinafter SEATTLE 5-YEAR REPORT].

56. LUCIA ATHENS, CITY OF SEATTLE, SUSTAINABLE BUILDING PROGRAM 5-YEAR REPORT 2000-2005: BUILDING A BETTER CITY: APPENDICES 9 (2005), *available at* http://www.seattle.gov/dpd/stellent/groups/pan/@pan/@sustainableblding/documents/web_informational/dpds_007595.pdf.

57. SEATTLE 5-YEAR REPORT, *supra* note 55, at 12.

58. *See* Norris, *supra* note 13.

59. *Id.*

60. *Id.*

the corresponding savings accrue over much longer periods.[61] As one authority notes:

> green buildings make economic sense, not always on a capital or first cost basis, but virtually always on a life cycle basis. Sophisticated energy conserving lighting systems and air-condition systems with exceptional response to building and outdoor conditions will cost more than their conventional, minimal code-compliant counterparts. . . . [M]ost of the key features of a green building will provide a payback on their original investment within a relatively short time. As energy and water prices rise due to increasing demand and diminishing supply, the payback period will become much shorter. Life Cycle Costing (LCC) is an important evaluation technique that provides a consistent framework for evaluating alternative systems to determine their life cycle performance.[62]

In light of these and similar studies, along with the undeniable momentum toward green building standards throughout the building design and construction industries, one could argue that unless a construction project uses public funds, it is best to leave sustainability to the marketplace. But are market forces sufficient to achieve the optimal level of sustainability in building design and construction? Some of the literature suggests this possibility.[63] To the extent that is correct, perhaps government should take an extremely limited role, such as providing funding for sustainability research and adopting light-handed interventions that merely assist rather than drive private developers to build green.

Yet even those who most ardently press the cost-benefit argument for green buildings recognize that the marketplace is not fully persuaded.[64] *Buildings and Climate Change* is especially blunt in concluding that "the major impediments to increase energy efficiency in the building sector are institutional barriers and market failures rather than technical problems."[65] Builders do not necessarily profit from long-term operational savings, and the other market players do not always have sufficient information to inform their judgments. *Buildings and Climate Change* asserts that the arguably inaccurate perception that green building practices add substantial costs to projects deters builders because their "interest is not to keep running costs low; their interest is to

61. *See* Kibert, *supra* note 1, at 495.

62. *Id.* (footnote omitted).

63. *See generally* Brian D. Anderson, *Legal and Business Issues of Green Building*, 79 WIS. LAW 10 (2006).

64. *See* CHARLES J. KIBERT, SUSTAINABLE CONSTRUCTION: GREEN BUILDING DESIGN AND DELIVERY 17-18 (2005).

65. HUOVILA ET AL., *supra* note 9, at 44.

keep investment costs low as their profit depends on them. As the actors responsible for the operational phase differ from those involved in the building process, there is usually a conflict of interests which can hamper the introduction of energy-efficient technologies.[66]

Some industry participants go further and question whether the data currently support the business case for green building standards.[67] The most cynical among the detractors even claim that the green building movement fosters fraudulent claims or at least a special form of hype that they label "greenwashing."[68]

The Boston report sums up one significant problem in the private sector's green building movement. It concludes that the greatest challenge is "lack of awareness about the benefits and opportunities of green building."[69] The otherwise exuberant task force seems momentarily despondent about certain market failures when it concludes that

> [a]lthough green buildings can offer significant operational savings and benefits, lenders seldom consider these benefits during loan analysis. For a builder who expects to be out of the project shortly after completion, it is a challenge to justify additional up front costs, even when reductions in operating costs produce a quick payback and long term savings. Presently, with only a few green buildings completed, there is insufficient market history to demonstrate the higher value of a green building.[70]

While we can hope that research, technological advances, and experience will eventually persuade all the relevant stakeholders that the most important green building practices will produce savings that exceed the costs involved, we should acknowledge that we have not yet reached that happy state. At least for now, the most enticing claims of cost effectiveness are inconclusive.[71] Under these circumstances, we must

66. *Id.* at 43.

67. *See, e.g.*, Jennifer Popovec, *The Tipping Point*, NAT'L REAL EST. INVESTOR, Nov. 2006, at 25; Toccoa Switzer, *Altruistic or Opportunistic?* NAT'L REAL EST. INVESTOR, July 2006, at 105.

68. Cathy Lang Ho, *"Green Buildings" Might Not Be All They're Made Out to Be*, ARCHITECTURE, July 2003, at 31.

69. BOSTON TASK FORCE, *supra* note 43, at 8.

70. *Id.* at 9.

71. The overall financial benefits of green buildings calculated on a theoretical basis do not necessarily equal the financial benefits that a particular project owner reaps, especially if the owner cannot effectively enjoy the present value of calculated life-cycle savings or does not ascribe the same value as green building advocates do to the estimated productivity and health benefits of green buildings. *See generally supra* notes 53-54 and accompanying text. Moreover, the extent to which these calculations are valid depends on the accuracy of many key assumptions and complex cost determinations. *See* KATS, *supra* note 53, at 8-13. Finally, a rational, self-interested developer or building

address an important policy matter: should we depend on the construction and design industries and the real estate development market to be the primary forces for sustainable design and construction, or should the government intervene?

C. Green Buildings as Social and Political Policy

Political theory has long respected the idea that each generation should preserve resources for future generations.[72] As environmental concerns crept more fully into the public consciousness beginning in the 1960s, federal, state, and local regulations naturally focused increasingly on the impact that all forms of human activity have on the natural environment.[73] Local environmental laws in particular used land use regulations to attempt to protect and preserve the environment from the deleterious effects of real estate development.[74] In 1987, the United Nations' Brundlandt Commission enunciated what has become the fundamental concept of sustainable development: development is sustainable only if it "meets the needs of the present without compromising the ability of the future generations to meet their own needs."[75]

In time, land use policy makers began to adopt the language of sustainability.[76] Green building standards eventually evolved in the public consciousness out of the sustainable development movement.[77] It was perhaps not until the 1992 Rio Earth Summit, however, that a global call sounded for standards to be organized around the objective of supporting ongoing economic development while preserving the earth's resources for future generations.[78] At about that time, environmental

owner would not necessarily adopt a complete package of green building practices that produces net cost savings if only discrete components of the package, such as energy efficient equipment, account for the savings involved.

72. "*[T]he earth belongs in usufruct to the living. . . .*" Letter from Thomas Jefferson to James Madison (Sept. 6, 1789), *in* 7 THE WRITINGS OF THOMAS JEFFERSON, at 454 (Andrew Lipscomb ed., 1905). Although Jefferson made this observation in discussing whether the French monarch could legitimately bind future generations of French citizens to bear excessive public debt, the sentiment transfers neatly to environmental costs imposed by one generation on successive ones.

73. *See generally* JULIAN CONRAD JUERGENSMEYER & THOMAS E. ROBERTS, LAND USE PLANNING AND DEVELOPMENT REGULATION LAW 522-23 (2d ed. 2007).

74. *See* John R. Nolon, *Historical Overview of the American Land Use System: A Diagnostic Approach to Evaluating Governmental Land Use Control*, 23 PACE ENVTL. L. REV. 821, 846-47 (2006).

75. OUR COMMON FUTURE: WORLD COMMISSION ON ENVIRONMENT AND DEVELOPMENT, 8 (Oxford Univ. Press 2003).

76. *See* John R. Nolon, *Comparative Land Use Law: Patterns of Sustainability*, 37 URB. LAW. 807, 808-20 (2005).

77. KIBERT, *supra* note 64, at 3.

78. *See* United Nations Conference on Environment and Development, Rio de

advocates and industrial leaders alike began to articulate an eco-efficiency theme.[79] Today, nearly all policy quarters support some sustainable development principles,[80] although opinions vary on the exact breadth of the concept as well as the best routes to sustainability in building design and construction.[81]

In its broadest form, the contemporary sustainable development movement promotes ecologically friendly and socially responsible land use and development.[82] As others have observed:

> [s]ustainable development is based on economic activity that recognizes the finite or vulnerable nature of the Earth's resources and the need to use them judiciously. It seeks to place development in a manner that does not jeopardize the ability of future generations to meet their own needs. It seeks ecologically sustainable and socially just development world-wide.
>
> Sustainable development is a process rather than an outcome. . . . Even without a precise definition, businesses and governments can use the concept of sustainability to generate strategies that promote economic development in a socially responsible manner while protecting the environment. . . . Sustainable development standards should attempt to address important social and political issues related to the inequitable allocation of the world's resources.[83]

If one accepts the conclusion that sustainable development standards should address such overarching social and political issues,

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Janeiro, Brazil, June 3-14, 1992, *Rio Declaration on Environment and Development*.

79. *See* WILLIAM MCDONOUGH & MICHAEL BRAUNGART, CRADLE TO CRADLE 51-53 (2002). The authors of *Cradle to Cradle* argue that eco-efficiency does not go far enough in service of sustainability. They assert that the movement that emerged in the 1990s sought only to make economic activity less bad rather than ecologically good. *See id.* at 61-67. They promote "eco-effective" methods rather than merely efficient ones. "[W]e conceived the idea for a building and its site modeled on the way a tree works. We imagined ways that it could purify the air, create shade and habitat, enrich soil, and change with the seasons, eventually accruing more energy than it needs to operate." *Id.* at 138. These ideals remain radical in the sustainable construction literature, and they are not essential to the current discussion. But they suggest the intriguing argument that mere sustainability is unimaginative. McDonough and Braungart suggest that we should completely rethink current environmental approaches that "are limited to efforts to slow the destruction of the natural world while we sustain the current industrial system of production and consumption for a few hundred years more. . . . But how exciting is sustainability? If a man characterized his relationship with his wife as sustainable, you might well pity them both." *Id.* at 155.

80. *See supra* Parts II.A-B.

81. *See* KIBERT, *supra* note 64, at 12-17.

82. *See* STEVEN C. HACKETT, ENVIRONMENTAL AND NATURAL RESOURCES ECONOMICS: THEORY, POLICY, AND THE SUSTAINABLE SOCIETY 323 (3d ed. 2006).

83. King & King, *supra* note 2, at 400-01.

then a significant role for government seems unavoidable. In simplest terms, the argument is that as long as sustainability depends on private business judgment, progress toward broad social and political objectives will remain slow, spotty, inconsistent, and incomplete. One commentator rather pessimistically concludes that the "currency and relevance of sustainability in American society are dismally low."[84] Even those who tout the recent growth of the green building movement offer statistics that count new green buildings merely in the hundreds.[85] Those concerned with sustainability as a public policy may be disillusioned because it seems that the private real estate development community is still weighing the costs of sustainability against its economic benefits for individual projects.[86] "An important barrier to adopting sustainable business practices for commercial buildings is the perceived negative impact that sustainability will have on businesses' bottom line."[87] Accordingly, proponents of aggressive government action argue that there is no evidence that the majority of developers and building owners will voluntarily embrace standards that invite them to internalize significant environmental and social costs that remain externalities in their competitors' projects.[88]

This Article principally asks what role government should play in promoting sustainable building practices in the private sector. That question involves a narrow band of sustainable development strategies. While the sweeping and sometimes controversial political and social norms of sustainability theory frequently spill over into the green building discussion here, my central proposals presume only a relatively limited and largely non-controversial value judgment—our buildings should use raw materials and energy far more efficiently, and they should pollute far less.[89] But does this modest judgment necessarily suggest that government should play a dominant role in achieving these objectives?

D. The Legal Justification for Governmental Intervention

The police power amply justifies governmental interventions of the kind most commonly proposed to promote green buildings.[90] The police power broadly authorizes regulation of land use and development. The

84. Beatley & Collins, *supra* note 2, at 193.
85. *See* Kibert, *supra* note 1, at 492-93.
86. *See* King & King, *supra* note 2, at 399.
87. *Id.*
88. *See id.* at 452-53; Beatley & Collins, *supra* note 2, at 222-23.
89. Because my immediate concern is the built environment's ecological effects, I deliberately leave for another day the debate over the social responsibility goals of the sustainable development movement.
90. *See* JUERGENSMEYER & ROBERTS, *supra* note 73, at 46-47.

U.S. Supreme Court made this point in a case decided early in the history of land use regulation:

> [i]t is to be remembered that we are dealing with one of the most essential powers of government, one that is the least limitable. It may, indeed, seem harsh in its exercise, usually is on some individual, but the imperative necessity for its existence precludes any limitation upon it when not exerted arbitrarily.[91]

Contemporary courts routinely invoke the police power to justify development regulations intended to conserve natural resources and protect the environment.[92] For a particularly apt analogy, consider regulations that set strict standards for development of wetlands.[93] Also, at least since the earliest growth management cases, courts have recognized that public health and welfare objectives, including environmental protection, justify state and local regulations that broadly seek to curb unsustainable land development even when they impose significant burdens on the landowner.[94] Unlike wetlands controls and growth management plans, green building standards rarely threaten to prevent the economic development of a parcel, although they may make development more costly.[95] The public health and welfare category should easily encompass specific design and construction standards intended to promote such fundamental values as clean air and water and the conservation of natural resources.[96] Addressing a key objective of the green building movement, the Supreme Court of Washington recently

91. Hadacheck v. Sebastian, 239 U.S. 394, 410 (1915) (upholding an ordinance prohibiting the operation of brickyards within the city of Los Angeles).

92. *See, e.g.*, Daddario v. Cape Cod Comm'n, 780 N.E.2d 124, 130-31 (Mass. App. Ct. 2002) (upholding sustainable development regulations aimed at protecting Cape Cod environment).

93. *See, e.g.*, Claridge v. N.H. Wetlands Bd., 485 A.2d 287 (N.H. 1984) (upholding an order denying a fill permit even though the denial would leave the property suitable only for seasonal uses). *See generally*, EDWARD H. ZIEGLER, JR., ARDEN H. RATHKOPF, & DAREN A. RATHKOPF, 1 RATHKOPF'S THE LAW OF ZONING AND PLANNING § 7:44 (2001).

94. *See, e.g.*, Steel Hill Dev., Inc. v. Town of Sanbornton, 469 F.2d 956 (1st Cir. 1972) (unenthusiastically upholding a 6-acre minimum lot size requirement based in part on testimony that the large lot size protected the rural area from ecological harm); Golden v. Planning Bd. of Ramapo, 285 N.E.2d 291 (N.Y. 1972) (upholding comprehensive plan amendments that severely limited residential development in the town by conditioning further development on the availability of public facilities and services); *cf.* Reinhart v. Lincoln County, 482 F.3d 1225 (10th Cir. 2007) (upholding growth management regulations attacked under the Fair Housing Act).

95. *See* KIBERT, *supra* note 64, at 12-19.

96. *See* Palazzolo v. Rhode Island, 533 U.S. 606 (2001) (upholding regulations restricting development of wetlands); Keystone Bituminous Coal Ass'n v. DeBenedictis, 480 U.S. 470, 488 (1987) (holding Pennsylvania statute that significantly restricted certain coal mining activities a valid exercise of the police power "to protect the public interest in health, the environment, and the fiscal integrity of the area").

declared that "combating global warming is a general government purpose."[97]

Several LEED standards illustrate that many green building requirements fit comfortably within customary police power applications.[98] For example, certain LEED standards address such matters as reducing or eliminating chlorofluorocarbon refrigerants,[99] using specific design features to reduce heat islands,[100] and prohibiting or regulating tobacco smoke in and around buildings.[101] Indeed, because most green building standards fundamentally address matters of environmental quality or conservation of natural resources,[102] the police power should justify even relatively aggressive standards that may not yet have achieved widespread acceptance. This might include, for example, such requirements as monitoring carbon dioxide concentrations in buildings that exceed certain occupation densities[103] and providing "individual lighting controls for 90% (minimum) of the building occupants to enable adjustments to suit individual task needs and preferences."[104] Given the current police power jurisprudence, with the possible exception of theorists who advocate reversing decades of established precedent,[105] few authorities would question the legal justification for regulations that promote green buildings.

This is not to say that the police power will necessarily justify all building standards that legitimately serve green objectives. Some strategies simply identify optional alternatives a developer might elect in

97. Okeson v. City of Seattle, 150 P.3d 556, 558 (Wash. 2007) (striking down a plan to pass on to utility ratepayers a city utility's costs in paying others to reduce greenhouse gas emissions because the objective was a general governmental purpose to be funded by all taxpayers rather than a proprietary one to be funded by utility ratepayers).

98. While the LEED standards are widely recognized and readily accessible, they are not the only green building guidelines extant. *See* King & King, *supra* note 2, at 438-43; *see also supra* note 26. This Article neither advocates nor opposes the LEED standards.

99. LEED-NC2.2, *supra* note 25, EA-Prerequisite 3: Fundamental Refrigerant Management.

100. *Id.*, SS Credit 7.1: Heat Island Effect: Non-Roof.

101. *Id.*, EQ Prerequisite 2: Environmental Tobacco Smoke (ETS) Control (compliance with this standard does not earn any points but rather is required for LEED certification).

102. KIBERT, *supra* note 64, at 9-12.

103. LEED-NC2.2, *supra* note 25, EQ Credit 1: Outdoor Air Delivery Monitoring.

104. *Id.*, EQ Credit 6.1: Controllability of Systems: Lighting.

105. *See* Richard A. Epstein, *How to Create—or Destroy—Wealth in Real Property*, 58 ALA. L. REV. 741, 748-53, 755-57 (2007). Professor Epstein would reverse decades of constitutional land use precedent and, as a general principle, require the government to compensate a landowner when public regulation reduces the land's value. *See id.* at 757-63. But for problems such as air pollution, "which involve the creation of many simultaneous nuisances that do harm to many private individuals," he does not rule out "direct systems of enforcement, which may well involve complex schemes of direct regulation." *Id.* at 756.

specific circumstances.[106] For example, under the LEED standards a developer can earn one point toward certification by locating a commercial project "within ½ mile of an existing, or planned and funded, commuter rail, light rail or subway station."[107] Other green building criteria advocate subjective values in the form of aspirations rather than requirements, as in the case of the LEED standard that allows certification points for innovations in design.[108] Standards of this nature are not good candidates to incorporate into building codes or other mandatory regulations and are best left to voluntary industry initiatives.[109] Indeed, the U.S. Green Building Council promulgates its LEED standards primarily as cutting edge practices rather than as minimum requirements suitable for building codes, a fact that is now underscored by USGBC's pending work on an alternative project to develop a model green building code.[110]

The primary limitation on police power regulation of land use involves the constitutional takings jurisprudence, which requires the government to pay just compensation when a regulation, although a valid police power exercise, amounts to taking property from the landowner.[111] Few green building standards currently under discussion threaten to cross the takings boundary line.[112] But this does not mean that the government

106. *See* KIBERT, *supra* note 64, at 12-17.

107. LEED-NC2.2, *supra* note 25, SS Credit 4.1: Alternative Transportation: Public Transportation Access.

108. *Id.* at ID Credit 1-1.4: Innovation in Design (allowing up to 4 points for technologies and strategies that "substantially exceed a LEED-NC performance credit such as energy performance or water efficiency.").

109. "Building and development codes can be challenged on the basis that they are so vague that they constitute an unlawful delegation of legislative power." JUERGENSMEYER & ROBERTS, *supra* note 73, at 309.

110. USGBC, together with the American Society of Heating, Refrigerating and Air-Conditioning Engineers and the Illuminating Engineering Society of North America, is co-sponsoring Proposed Standard 189, Standard for the Design of High-Performance Green Buildings Except Low-Rise Residential Buildings. The new standard is being designed to be incorporated into building codes and to "provide a baseline that will drive green building into mainstream building practices." Press Release, U.S. Green Building Council, New Standard to Drive High Performance Building Practices to the Mainstream (Feb. 15, 2006), *available at* http://communicate.usgbc.org/press/2006/02.15.06_ashrae/standard189.html.

111. *See generally* A LAND USE ANTHOLOGY 143-298 (Jon W. Bruce ed., 1998).

112. The jurisprudence involved emanates from the Takings Clause. *See* U.S. CONST. amend. V., cl. 4. The Supreme Court has not provided a simple test for identifying a regulatory taking. Two famously indefinite pronouncements signal that the constitutional standards are difficult to apply. According to Justice Holmes, "while property may be regulated to a certain extent, if regulation goes too far it will be recognized as a taking." Pa. Coal Co. v. Mahon, 260 U.S. 393, 415 (1922). A few years later, in its landmark opinion upholding a classic zoning ordinance as a valid exercise of police power, the Court openly declined to devise a clear test. "The line which in this field separates the legitimate from the illegitimate assumption of power is not capable of precise

is free to impose every building design or construction control that advances sustainability. In this regard, consider a requirement not to develop a commercial project on land that was previously public parkland "unless land of equal or greater value as parkland is accepted in trade by the public landowner."[113] While the public benefits of that standard are evident, it could scarcely be demanded retroactively after a developer purchases a site free of any use restriction in an arm's length transaction with a public entity (or its successor in title).[114]

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delimitation." Village of Euclid v. Abler Realty Co., 272 U.S. 365, 387 (1926). Subsequently, in *Penn Central Transportation Co. v. New York City*, 438 U.S. 104 (1978), the Court identified several factors of particular significance for resolving regulatory taking claims.

> The economic impact of the regulation on the claimant and, particularly, the extent to which the regulation has interfered with distinct investment-backed expectations are, of course, relevant considerations. So, too, is the character of the governmental action. 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.

Id. at 124 (citations omitted). Applying these considerations in *Penn Central*, which arose under a comprehensive state historic landmarks preservation scheme, the Court held that a New York City landmarks agency did not take property from a landowner by denying permission to build an office tower over Grand Central Station. *Id.* at 136-38. The authority of *Penn Central* is sufficient to justify typical green building standards that restrict only how and not what an owner builds. More recent takings cases govern circumstances in which regulatory action requires a landowner to trade a physical right relating to the land for development approval. *See* Nollan v. California Coastal Comm'n, 483 U.S. 825, 834-42 (1987) (when a state agency required the owner of beachfront property to grant a pedestrian easement over the property as a condition to permission to build a larger house on the property, a taking occurred because the condition lacked an essential nexus to a legitimate state interest that the proposed project affected); Dolan v. City of Tigard, 512 U.S. 374, 391 (1994) (even if a required dedication is related to legitimate purposes, the government must show "some sort of individualized determination that the required dedication is related both in nature and extent to the impact of the proposed development"). *Id.* at 395. These constitutional limits on development dedication conditions have no direct application to regulations that would simply require sustainable design and construction practices. *Cf.* City of Monterey v. Del Monte Dunes at Monterey. Ltd., 526 U.S. 687, 703 (1999) (explaining that the *Nollan* and *Dolan* principles have not been extended "beyond the special context of exactions-land-use decisions conditioning approval of development on the dedication of property to public use"). Another takings principle that should have limited relevance to most proposed green building regulations is that a taking occurs "where regulation denies all economically viable use of land." Lucas v. South Carolina Coastal Council, 505 U.S. 1003 (1992). While the regulatory takings jurisprudence will, no doubt, impose some limits on green building regulations, it is not central to the justification question at issue here.

113. LEED-NC2.2, *supra* note 25, SS Credit 1: Site Selection (the referenced requirement is one of several relating to site selection).

114. *See generally* Dolan v. City of Tigard, 512 U.S. 374, 387 (1994) (observing that a development exaction that amounts to extortion is not a valid land use regulation but

Green building regulations must also respect other constitutional limits on the police power, including equal protection,[115] procedural due process,[116] and substantive due process.[117] In the land use field, these considerations generally prohibit only irrational or arbitrary regulations,[118] unusual procedural flaws,[119] or actions that discriminate in especially offensive ways.[120] Therefore, adherence to these principles should be no more burdensome to green building objectives than they are for more traditional police power purposes.

In sum, well-established legal principles allow government substantial freedom to regulate the design and building industries to achieve green building objectives.[121] To conclude that the legal justification exists, however, is merely to predict that courts will commonly uphold sustainable building standards for which the regulator articulates a plausible public health and welfare basis. The more important questions concern the policy justifications for government intervention.

Economic analysis provides an extremely useful tool for evaluating the efficacy of land use regulations.[122] Green building regulations are essentially environmental protection regulations.[123] Most economic theorists recognize that some level of environmental regulation is necessary because environmental problems frequently involve significant externalities, require solutions that carry high transaction costs, and concern threats to a public good, all factors that may contribute to market failures.[124] We have seen enough environmental regulations to know that some are relatively effective and efficient while others are neither.[125]

instead is a taking).

115. *See, e.g.*, Village of Willowbrook v. Olech, 528 U.S. 562 (2000) (per curiam); City of Cleburne v. Cleburne Living Center, 473 U.S. 432 (1985).

116. *See, e.g.*, Tri County Inds., Inc. v. District of Columbia, 104 F.3d 455 (D.C. Cir. 1997).

117. *See, e.g.*, Village of Arlington Heights v. Metropolitan Housing Dev. Corp., 429 U.S. 252, 264 (1977) (recognizing the "right to be free of arbitrary or irrational zoning actions").

118. *See, e.g.*, Woodwind Estates, Ltd. v. Gretkowski, 205 F.3d 118 (3d Cir. 2000) (claim of bad faith delays and denial of permit).

119. *See, e.g.*, *Tri County Inds. Inc.*, 104 F.3d at 460-62 (indefinite suspension of building permit announced during a public meeting without allowing the applicant an opportunity to challenge the factual basis for the suspension denied due process).

120. *See City of Cleburne*, 473 U.S. at 446-50 (where the Court held that an ordinance excluding a group home for the mentally disabled could not withstand attack even under the rational basis test).

121. *See supra* notes 90-120 and accompanying text.

122. *See infra* Part III.B.

123. *See* King & King, *supra* note 2, at 404-05.

124. *See* DANIEL H. COLE & PETER Z. GROSSMAN, PRINCIPLES OF LAW AND ECONOMICS 314-18 (2005).

125. *See id.* at 331-40. Even the most severe critics of current environmental policy

Although we presently have too little experience with green building regulations to justify one specific proposal or to reject another with confidence,[126] we can at least begin to evaluate competing proposals by drawing on a vast body of economic theory and research concerning other environmental regulations. Part III eventually turns to just such an exercise, albeit of a preliminary nature.

For now, it is enough to recognize a few general principles. First, even in matters of critical environmental policy, we can look to economic models to help predict whether market forces will more efficiently serve the desired public good.[127] Second, even where market failures justify governmental intervention, policy makers should carefully weigh the wide variety of means available.[128] For example, in some cases economic instruments designed to correct market failures will be more appropriate than command-and-control regulations.[129] In all events, policy strategists must be mindful that well-intentioned governmental interference in the marketplace may produce seriously problematic and unintended consequences.[130]

We cannot now definitively outline the optimal steps government should take to advance specific green building objectives. But governments at various levels are already so extensively involved that we can confidently predict that governmental interventions will continue to figure significantly into the green building movement for the immediate future.[131] Even private industry interests seem to presume and expect that the government should play some role, although perhaps only to encourage and support businesses that voluntarily choose green

concede that some environmental regulations are appropriate. "There is no question that the early environmental laws seemed to work well . . . . The initial generation of environmental policy was effective principally because it was plucking low-hanging fruit; removing lead from gasoline and preventing the disposal of raw sewage into rivers were relatively easy issues to address." Jonathan H. Adler, *Free & Green: A New Approach to Environmental Protection*, 24 HARV. J.L. & PUB. POL'Y 653, 658-59 (2001) (footnotes omitted).

126. *See* KIBERT, *infra* note 64, at 17-18.

127. *See, e.g.*, Klaus Conrad, *Voluntary Environmental Agreements vs. Emission Taxes in Strategic Trade Models*, 19 ENVTL. & RESOURCE ECON. 361 (2001); Chongwoo Choe & Iain Fraser, *On the Flexibility of Optimal Policies for Green Design*, 18 ENVTL. & RESOURCE ECON. 367 (2001).

128. *See supra* note 129 and accompanying text.

129. *See* COLE & GROSSMAN, *supra* note 124, at 333-36.

130. *See, e.g.*, Samuel R. Staley, *Institutional Considerations for Sustainable Development Policy Implementation: A US Case Study*, 24 PROP. MGMT. 232, 241 (2006); Jose Luis Moraga-Gonzalez & Noemi Padron-Fumero, *Environmental Policy in a Green Market*, 22 ENVTL. & RESOURCE ECON. 419, 437 (2002).

131. *See* King & King, *supra* note 2; Beatley & Collins, *supra* note 2; Salkin, *supra* note 22; Christopher D. Montez & Darren Olsen, *The LEEDTM Green Building Rating System and Related Legislation and Governmental Standards Concerning Sustainable Construction*, 25 CONSTRUCTION LAW 38 (2005).

alternatives.[132]

In *Buildings and Climate Change*, the United Nations Environment Programme urges governments to act:

> [I]t is obvious that there is no single universal solution or recommendation that can be given for improving the energy efficiency in buildings. However, it seems universally true that in most countries the solution requires active involvement of the government to create a suitable framework for energy efficient buildings. In other words, leaving to the private sector to address energy efficiency without any external signals is in most cases not feasible. . . . The behavior of the building sector is influenced by a wide range of signals from authorities, customers, financiers, researchers etc. covering virtually any aspect of building activities. Governmental policies have a special role in that they often not only influence the building sector itself, but also the behavior of customers, financiers, researchers and other stakeholders.[133]

As Part III demonstrates, those observations from *Buildings and Climate Change* also reflect the growing sentiment of policy makers in the United States.[134] From this perspective, the challenge is to determine what role governmental jurisdictions in the United States should play at this crucial time in the green building movement. To that issue we now turn.

III. Mandates, Incentives, or Both?

A. An Overview of Contemporary Green Building Policies

Drawing on global data, *Buildings and Climate Change* concludes with recommendations for policy initiatives in seven key areas.[135] Although the U.N. report expresses these recommendations in terms that reflect the report's limited focus on energy-efficient buildings, the strategies involved correspond closely with the range of interventions that governmental units and agencies across this country are currently using or proposing to promote the broader objectives of the green building movement.[136] The seven policy initiatives that *Buildings and Climate Change* recommends are: creating benchmarks and standards for energy efficient buildings, imposing regulations on construction

132. *See e.g.*, Anderson, *supra* note 63.

133. HUOVILA ET AL., *supra* note 9, at 54, 56.

134. *See generally infra* Part III (demonstrating what the statement in the text says that portion of this Article demonstrates).

135. *Id.* at 56-58.

136. *See infra* notes 151-221 and accompanying text.

activities, employing incentives and other economic tools, providing education and increasing public awareness, conducting or supporting research into human behavior relating to the use and performance of buildings, applying energy efficient building policies in the public sector, and supporting technology transfer.[137]

As the discussion that follows demonstrates, green building programs in this country extend into each of those recommended areas.[138] Some involve relatively obvious governmental functions.[139] In this category we may safely include governmental programs that are designed to develop benchmarks and standards, provide education, sponsor research, or facilitate technology transfers in support of green buildings. Other interventions require further examination.

Consider first why *Buildings and Climate Change* calls for governments to apply progressive building policies in the public sector. More is at stake than simply improving the performance of publicly funded buildings. Because governments are significant building investors and users, they "should seek to explore this opportunity to influence the building sector not only as a regulator, but also as an actor."[140] In other words, in many markets, governments have the purchasing power to transform the building design and construction industries. For example, if local construction and design firms must have LEED-certified personnel for public projects, then they will bring green building expertise and awareness to their private sector projects as well.

The rationale offered by *Buildings and Climate Change* for policies that employ economic tools merits an especially thorough airing. This is because, as we will see, incentives and other economic instruments play a dominant role in green building programs in the United States.[141] According to *Buildings and Climate Change*, the economic tools employed "may be constraining ones; taxes, fees, price levies etc., enabling ones; rebates, preferential lending opportunities, tax breaks, or tools considered as cost neutral, such as the feebate system."[142] Because economic factors are likely to control project design decisions, "economic tools are often extremely powerful in changing the behavior

137. HUOVILA ET AL., *supra* note 9, at 54-58.
138. *See infra* notes 151-221 and accompanying text.
139. *See, e.g.*, *infra* notes 158-62 and accompanying text.
140. HUOVILA ET AL., *supra* note 9, at 58.
141. *See infra* notes 180-88 and accompanying text.
142. *Id.* at 57. A "feebate system" as used in *Buildings and Climate Change* is a theoretically revenue-neutral economic instrument under which "revenues are collected from high pollutant emitting sources and rebated to sources that use cleaner, more costly technologies." Steven Ferrey, *Sustainable Energy, Environmental Policy, and States' Rights: Discerning the Energy Future through the Eye of the Dormant Commerce Clause*, 12 N.Y.U. ENVTL. L.J. 507, 538 n. 149 (2004).

[of] the stakeholders."[143] As a result, it is essential to "ensure that suitable economic signals are sent to the building sector, creating market conditions that provide quantifiable economic advantages to buildings that are built and operated so as to achieve energy efficiency."[144] It is especially important to send the right signals to investors, who might otherwise opt for a design that sacrifices green objectives for construction cost savings. A homebuilder, for example, "is likely to prefer that the house is equipped with the most cost effective energy system (as opposed to the most energy efficient one)."[145]

Additionally, consider the important function that *Buildings and Climate Change* assigns to regulation,[146] which is the area that will undoubtedly foster the greatest controversy in the green building policy debate that is beginning to emerge in this country. Because most countries regulate the construction industry extensively, "regulations provide an important yardstick and reference to what is considered minimum standards in the national context."[147] To address the problems of climate change, therefore, regulations should "provide relevant signals on the desired reduction in energy consumption and associated emissions,"[148] should "cover the energy use over the entire life span of buildings, and [should] be applicable to new buildings as well as existing ones."[149] For these reasons, *Buildings and Climate Change* recommends "that governments consider to adopt through legislation realistic and measurable energy efficiency standards for new and existing buildings."[150]

In the United States, governmental support for green buildings corresponds to all the policy recommendations identified in *Buildings and Climate Change*.[151] This Article, however, is primarily concerned with two major policy devices that require rigorous analysis. The first involves direct regulation through mandates for green building standards. The other employs incentives and other market-based interventions to encourage green building alternatives rather than requiring them.[152] These interventions are the ones that *Buildings and Climate Change*

143. HUOVILA ET AL. *supra*, note 9, at 57.
144. *Id.*
145. *Id.*
146. *Id.*
147. *Id.*
148. *Id.*
149. *Id.*
150. *Id.*
151. *See generally* King & King, *supra* note 2, at 409-27; *supra* note 132 and accompanying text.
152. *See generally* King & King, *supra* note 2, at 410-27; Salkin, *supra* note 22, at 674-82.

labels "economic tools" and what economists and policy analysts more commonly call "economic instruments."[153]

Currently, although many jurisdictions have committed to using green building standards for public projects,[154] the dominant governmental green building tactics aimed at the private sector in the United States fall into the economic instruments category.[155] To be sure, sustainable development advocates in the United States recognize that jurisdictions have the option to amend building codes and planning ordinances to mandate green building standards in the private sector.[156] But most jurisdictions that have enacted mandatory standards to date apply them primarily to public projects and those that use public funds.[157] While these green building programs for public projects represent important steps, sustainability in building construction ultimately requires that the private sector comprehensively adopt green building standards. For that reason, the remainder of this Article focuses especially on governmental policies to advance the green building movement for private projects. There are many examples.

The Energy Star program,[158] which began in 1994 and is administered by the Department of Energy and the Environmental Protection Agency, is one of the earliest federal incentive programs for energy efficiency in building designs.[159] Energy Star is "a voluntary program to identify and promote energy-efficient products and buildings in order to reduce energy consumption, improve energy security, and reduce pollution through voluntary labeling of, or other forms of communication about, products and buildings that meet the highest energy conservation standards."[160] The federal government also offers energy tax credits for businesses that incorporate solar or geothermal

153. *See* COLE & GROSSMAN, *supra* note 124, at 331-32.

154. A 2005 study counted at least nineteen state programs that address green building standards in public facilities and over forty city and county level initiatives that incorporate LEED standards into their public projects. INDUSTRIAL ECONOMICS, INC., ANALYSIS OF GREEN BUILDING PROGRAMS 1, 7 (2005) (prepared for Massachusetts Executive Office of Environmental Affairs and the Massachusetts Sustainable Design Roundtable), *available at* http://www.mass.gov/envir/Sustainable/initiatives/PDF/IEc%20Final%20Report.pdf.

155. *See infra* notes 180-88 and accompanying text.

156. *See* King & King, *supra* note 2, at 450-53; Salkin, *supra* note 22, at 676-78.

157. *See, e.g.*, Energy Efficiency in State Facilities and Operations, Mich. Exec. Dir. No. 2005-4 (Apr. 22, 2005), *available at* www.michigan.gov/gov/0,1607,7-168-21975_22515-116177—,00.html; ME. REV. STAT. ANN. tit. 38, § 343-H.1 (2001); MINN. STAT. § 16B.325 (2004).

158. 42 U.S.C.A. § 6294a (West Supp. 2007).

159. *See* Eric W. Orts, *Reflexive Environmental Law*, 89 NW. U. L. REV. 1227, 1285-86 (1995).

160. *Id.* § 6294a(a).

energy technology in building projects.[161] In addition, federal agencies are extensively involved in voluntary green building design initiatives in cooperation with industry groups and nongovernmental organizations.[162]

Other long-standing federal laws and programs contribute indirectly to the green building movement without expressly addressing design and construction standards. For example, although building design is not a main focus of federal environmental law, building design, construction, and operation are subject to such overarching federal controls as the waste management provisions of the Resource Conservation and Recovery Act[163] and the waste prevention provisions of the Pollution Prevention Act.[164] Additionally, those who build, own, or operate private projects of all kinds must do so against the pervasive background of such other federal stalwarts as the Comprehensive Environmental Response, Compensation, and Liability Act,[165] the Clean Water Act,[166] and the Clean Air Act.[167] Construction debris may also be subject to special federal environmental requirements.[168] Furthermore, federal laws and regulations may govern design and construction in more immediate ways if a project site or an existing improvement includes friable asbestos[169] or lead[170] or if construction activities threaten a release of other hazardous substances.[171] Many other federal environmental regulations may also affect building construction in particular circumstances.[172]

A similarly wide range of state environmental laws and regulations applies to construction activities, but the focus of those laws is either environmental protection in the broad sense or specific resource conservation, rather than sustainable building design and construction.[173] State energy efficiency codes, which have been in place in some states

161. 26 U.S.C.A. § 48 (West Supp. 2007).

162. A partial overview from the Environmental Protection Agency's perspective is available at www.epa.gov/greenbuilding/.

163. 42 U.S.C.A. § 6902 (West 2003).

164. 42 U.S.C.A. §§ 13101-13109 (West 2005).

165. 42 U.S.C.A. §§ 9601-9675 (West 2005 & Supp. 2007).

166. 33 U.S.C.A. §§ 1251-1387 (West 2001 & Supp. 2007).

167. 42 U.S.C.A. §§ 7401-7642 (West 2003 & Supp. 2007).

168. *See, e.g.*, Molokai Chamber of Commerce v. Kukui (Molokai), Inc., 891 F. Supp. 1389, 1400-02 (D. Haw. 1995).

169. *See* 29 C.F.R. § 1926.1101 (2006).

170. *Id.* § 1926.62.

171. *See, e.g.*, Kaiser Aluminum & Chem. Corp. v. Catellus Dev. Corp., 976 F.2d 1338, 1341-42 (9th Cir. 1992).

172. *See generally* PHILIP L. BRUNER & PATRICK J. O'CONNOR, JR., 2 BRUNER AND O'CONNOR ON CONSTRUCTION LAW §§ 7:89-7:105, *available at* Westlaw, BOCL §§ 7:89-7:105 (2007); *see also* Frank Leone, Jr., *Environmental Compliance for the Construction Industry*, CONSTRUCTION BRIEFINGS, Feb. 2001, at 1, *available at* Westlaw, Conbrief No. 2001-2.

173. *See generally* Frank Leone, Jr., *supra* note 172.

for more than thirty years, are perhaps the most notable direct regulations in this category.[174] While these codes have achieved significant success in governing one important aspect of building design and construction,[175] even the most stringent energy efficiency codes do not contemplate a holistic sustainable building regime.[176]

More recently, several states and local governments have developed comprehensive initiatives specifically to promote green building standards.[177] The most common feature of these contemporary green building programs is a commitment to, and frequently mandatory standards for, green building design and construction practices in publicly owned or funded projects.[178] While a few local jurisdictions have imposed green building mandates in the private sector,[179] most employ economic instruments to influence rather than to regulate residential and commercial design and construction practices.[180]

These modern green building programs, many of which have already been reviewed in detail by others,[181] include the entire range of economic tools recommended by *Buildings and Climate Change*.[182] For example, New York offers state income tax credits to those who build in accordance with specified energy and material criteria,[183] and Maryland offers similar income tax credits and also a sales tax exemption for

174. By one account, at least half of the states have enacted "modern energy codes for new homes and commercial buildings that require minimum energy efficiency standards to be met." *See* WILLIAM PRINDLE ET AL., ENERGY EFFICIENCY'S NEXT GENERATION: INNOVATION AT THE STATE LEVEL iv (2003), *available at* http://www.aceee.org/pubs/e031full.pdf.

175. *See id.* at 5-12.

176. California's Title 24 Energy Code is one of the oldest and most demanding energy efficiency codes in the nation, although several other states now have similar codes. *Id.* at 9; INDUSTRIAL ECONOMICS, INC., *supra* note 154, at 16. As the name indicates, energy efficiency codes impose design or performance standards for the important but limited purpose of moderating "the impact of new buildings on home energy bills, business costs, electricity grids, and even air pollution." PRINDLE ET AL., *supra* note 174, at 6. After a few states demonstrated the value of energy efficiency codes, model building codes eventually picked up the concept and helped to spread efficiency codes nationally. *Id.* at 6-7. In general, these codes "address basic thermal performance ratings for such components as windows, ceiling, wall, and basement insulation; and heating and cooling systems." *Id.* at 7.

177. *See* King & King, *supra* note 2, at 412-27.

178. *See* Peter J. May & Chris Koski, *State Environmental Policies: Analyzing Green Building Mandates*, 24 REV. POL'Y RES. 49, 49-52 (2007); INDUSTRIAL ECONOMICS, INC., *supra* note 154, at 6-7.

179. *See infra* notes 194-213 and accompanying text.

180. *See* King & King, *supra* note 2, at 410-27; Salkin, *supra* note 22, at 674-82; Montez & Olsen, *supra* note 131; PRINDLE ET AL., *supra* note 174, at 32-35.

181. *See id.*

182. *See supra* notes 137-50 and accompanying text.

183. N.Y. TAX LAW § 19 (McKinney Supp. 2008).

certain energy-efficient equipment.[184] A few other states also offer tax incentives for green building practices.[185] Some states and local jurisdictions provide direct subsidies to cover or defray qualifying costs incurred to meet green building standards.[186] Others also reduce the burden of land use regulation for developers or building owners who adopt sustainable building techniques by expediting the environmental permitting process or reducing reporting requirements.[187] Other jurisdictions, such as in the City of Arlington, Virginia, even make concessions with regard to height and density limits for projects that receive LEED certification.[188]

While some of these green building initiatives, such as certain tax incentive programs, are targeted for relatively specific outcomes, more and more U.S. jurisdictions are developing or considering holistic programs to promote green building practices.[189] So many state and local governments are now engaged in this process that it is neither practical nor useful to attempt to describe the initiatives comprehensively. For the purposes of this Article, it is sufficient to note the details of a few programs that illustrate the range of governmental interventions in the private sector currently being used or proposed in a selected sampling of jurisdictions.

The Commonwealth of Massachusetts and the City of Boston provide especially apt examples of jurisdictions that are beginning to embrace the full array of available regulatory and economic devices.[190] The year 2005 saw the publication of a report commissioned by the Massachusetts Executive Office of Environmental Affairs and the Massachusetts Sustainable Design Roundtable.[191] The report focuses on

184. MD. CODE ANN., TAX-GEN. § 10-722 (LexisNexis 2004) (income tax credit); MD. CODE ANN., TAX-PROP. § 9-242 (LexisNexis 2007) (property tax credit).

185. *See* King & King, *supra* note 2, at 419-23; PRINDLE ET AL, *supra* note 174, at 33-34.

186. Seattle's program offers a good example. *See infra* notes 201-06 and accompanying text; *see also* King & King, *supra* note 2, at 422-25.

187. *See* King & King, *supra* note 2, at 423-27.

188. Arlington, Virginia, Dep't of Environmental Services, Green Building Incentive Program, *available at* http://www.arlingtonva.us/Departments/EnvironmentalServices/epo/EnvironmentalServicesEpoIncentiveProgram.aspx; *see* King & King, *supra* note 2, at 427. Arlington's zoning ordinance requires that every applicant for a use permit for a new building provide "a completed LEED Scorecard or other comparable reporting mechanism. . . . The applicant shall analyze the LEED credits for various components of sustainable design and describe how and/or why each credit can or cannot be achieved." ARLINGTON COUNTY, VA., ZONING ORDINANCE, § 36, par. G.5, J.1 (2007), *available at* http://www.co.arlington.va.us/Departments/CPHD/Documents/7617adminreg_411_04.pdf.

189. *See* King & King, *supra* note 2, at 412-27.

190. *See infra* notes 191-200 and accompanying text.

191. INDUSTRIAL ECONOMICS, INC., *supra* note 154.

green building programs for the public sector. Within this realm, its recommendations contemplate initiatives in all the areas identified by *Buildings and Climate Change*.[192] These include: "funding for long-term support of local academic centers that can provide continuous research and technical services;" extensive education and training efforts; developing benchmarks and sustainable design metrics; exploring "the feasibility of updating the existing state energy code to ensure that it promotes energy efficiency;" and using "utility-funded energy conservation monies" and grants as incentives to "promote energy efficiency in public building."[193]

Also in 2005, Boston released a major green building study. The Mayor's Green Building Task Force issued a report enthusiastically proposing a green building initiative for the city.[194] Its wide-ranging recommendations include: support for public awareness and educational efforts; cooperative programs with local utilities; a branding strategy for green residential projects in the city; public awards and recognition for successful green projects; and efforts to attract green building manufacturers and related businesses to the city and to work with local trade and labor organizations and retailers to promote green products and standards.[195]

Beyond these relatively mild incentives for green building practices, Boston's Green Building Task Force also endorses economic instruments to ease the perceived cost burdens of green building standards.[196] One of these recommendations suggests "a revolving loan fund to help capitalize green building projects."[197] Another recommendation calls for "federal and state tax-based incentives to support green building lending."[198] What is more significant is that the concluding recommendations propose mandatory green building standards not only for city facilities and city-sponsored projects, but also for certain private sector projects.[199] In 2007, Boston's Zoning Commission amended the Boston Zoning Code to require that all projects subject to the city's "Large Project Review" process "be LEED Certifiable under the most appropriate

192. The Massachusetts report includes one or more recommendations for each of the seven areas *Buildings and Climate Change* lists except that it does not, at least expressly, call for research to understand the relationship between human behavior and building use and performance. *See id.* at 3-5.

193. *Id.* at 3-4.

194. BOSTON TASK FORCE, *supra* note 43.

195. *Id.* at 8-9.

196. *Id.*

197. *Id.* at 9.

198. *Id.*

199. *Id.*

LEED building rating system."[200]

Seattle's sustainable building program also illustrates a comprehensive approach. The program commits the city to implement green building standards in projects owned or funded by the city, especially by obtaining LEED certification.[201] Seattle also offers an incentive program to encourage commercial projects to obtain LEED certification. The program "provides up-front, soft-cost assistance to projects which commit to LEED and hold at least one LEED workshop or charrette."[202] The amount of assistance is either $15,000 or $20,000, depending on the LEED certification level involved.[203] Seattle also cooperates with green building programs and incentive initiatives offered by local utilities.[204] The city's efforts to support green building standards in the residential market include awards and education programs as well as incentive funding for soft costs similar to its support for LEED certification for commercial projects.[205] While these programs do not currently include direct regulation or use of the most forceful economic instruments available, that may change because "[o]ne of the key priorities of the City's Sustainable Building program is to trigger market transformation of the construction industry."[206] One idea the report expressly considers is to create "additional green building incentives through codes and other programs."[207]

200. In effect, this means that the design of most projects over 50,000 square feet must meet standards sufficient for the project to receive LEED certification, but it does not require that the project's owners pursue an application to receive LEED certification from the U.S. Green Building Council. BOSTON, MASS., MUNICIPAL CODE art. 37 (2007). The ordinance allows developers to substitute "Boston Green Building Credits" for up to 4 of the points required toward certification. The special Boston credits are for an on-site electrical power and heat generation system for projects in certain locations, historic preservation in designated areas, groundwater recharge, and meeting specific "Transportation Demand Management" requirements that support public transportation options or that otherwise encourage use of environmentally friendly means of transportation. *Id.* § 37-4 & App.

201. SEATTLE 5-YEAR REPORT, *supra* note 55, at 5-8.

202. *Id.* at 9.

203. *Id.*

204. *Id.* As a matter of state utility law, the city went too far in this initiative. A recent taxpayer's suit successfully challenged a Seattle city council resolution pursuant to which the city's electric utility agreed to make payments to others for reducing greenhouse gas emissions as a way to offset the utility's own emissions. The basis of the ruling was that the utility did not have the statutory power to pass the costs of those contracts to the ratepayers. Okeson v. City of Seattle, 150 P.3d 556 (Wash. 2007) (striking down a plan to pass on to utility ratepayers a city utility's costs in paying others to reduce greenhouse gas emissions because the objective was a general governmental purpose to be funded by all taxpayers rather than a proprietary one to be funded by utility ratepayers).

205. SEATTLE 5-YEAR REPORT, *supra* note 55, at 10-11.

206. *Id.* at 15.

207. *Id.*

Santa Monica, California was an early leader in sustainable development, and its broad program, which includes a significant green building component, has been the subject of both qualified acclaim[208] and criticism.[209] For purposes of green building practices, Santa Monica's approach, which has evolved over more than a decade, has explored both incentives and a degree of direct regulation.[210] One study found Santa Monica's approach to be an especially noteworthy application of a land use model. The study states, "[g]iven its openness to planning and citizen activism, the city in effect 'collectivized' decisions about resource use by expanding the legislative prerogative of local government and bringing decision-making over appropriate technologies, land use, transportation, and energy use into the public sphere."[211] Features cited to support this characterization include those applied to the public sector, such as opting to power city facilities with renewable electricity, as well as at least one direct regulation imposed on the private sector "that requires new commercial and multifamily construction to adopt building methods that reduce energy consumption."[212] This same study characterizes the city's approach as radical:

> In some cases, such as adopting renewable electricity technologies, the city has actively pursued approaches that conventional wisdom in the private economy suggests is [sic] uneconomical or unproductive. The city is also aggressive in manipulating the private sector. For example, it sets goals for private building to become certified under the Green Building Program.[213]

208. Ian G. Theaker and Raymond J. Cole, *The Role of Local Governments in Fostering "Green" Buildings: A Case Study*, 29 BUILDING RES. & INFO. 394, 408 (2001).

209. Staley, *supra* note 130, at 237-41.

210. *See* Theaker & Cole, *supra* note 208, at 395-403.

211. Staley, *supra* note 130, at 238.

212. *Id.* at 239; *see also* SANTA MONICA, CAL. MUNICIPAL CODE, § 8.108.020, *available at* http://www.qcode.us/codes/santamonica/. Santa Monica adopted "green building design and construction standards . . . to reduce human exposure to noxious materials; conserve non-renewable energy and scarce materials; minimize the ecological impact of energy and materials used; use renewable energy and materials that are sustainably harvested; and protect and restore local air, water, flora and fauna." SANTA MONICA, CAL. MUNICIPAL CODE, § 8.108.010. Among other things, the standards provide for plan checking on a priority processing basis for certain categories of projects registered for certification under the LEED standards, and they authorize fines for projects that received priority processing under the standards but that failed to achieve LEED certification. *Id.* § 8.108.050.

213. Staley, *supra* note 130, at 239. The city's sustainability plan, which was first adopted in 1994, was revised in 2006, and it currently includes a green construction target that "100% of all buildings greater than 10,000 square feet eligible for LEED certification constructed in Santa Monica in the year 2010 shall achieve LEED certification or its equivalent." CITY OF SANTA MONICA, SANTA MONICA SUSTAINABLE CITY PLAN 8 (2006),

Chicago has also considered nearly the full range of options to promote a green building program. Like many other cities, Chicago began its green building initiative by committing to apply sustainable building practices to city projects.[214] In 2004, the city adopted "The Chicago Standard," which it derived from the LEED rating system, "to guide the design, construction and renovation of municipal facilities in a manner that provides healthier indoor environments, reduces operating costs and conserves energy and resources."[215] Subsequently, Chicago adopted a private sector agenda with a broad mission statement: "[t]o develop policy, codes, and regulations that promote sustainable development in Chicago, and to stimulate demand for green buildings, green roofs and renewable energy technologies through incentives and education campaigns targeted at developers, construction professionals and citizens."[216] The program's action list for 2006 proposes direct subsidies, which include providing a limited number of solar hot water collectors for certain affordable housing and other projects, weatherization materials for 100 units on Chicago's west side, energy and water audits for local industry groups, and even low-interest loans.[217] As incentives for private developers, the agenda proposes to explore "expanding density bonuses to developers who build LEED certified buildings" in certain downtown areas, "[p]ilot a program to provide tax increment finance (TIF) dollars for the construction of green roofs in the downtown area," and continue "a fast track permitting process for green building."[218]

These programs, along with similar ones adopted or under consideration in many other jurisdictions, reflect that support for governmental interventions has been growing throughout the country in the environmental, land use, and sustainable development movements. Researchers and commentators have roundly embraced use of economic instruments, while they have asserted[219] and noted[220] considerable skepticism or resistance against mandatory green building regulations in the private sector. Green building policies are, however, still in the

available at http://www.smgov.net/epd/scp/pdf/SCP_2006_Adopted_Plan.pdf.

214. *See* Montez & Olsen, *supra* note 131, at 41.

215. CITY OF CHICAGO, THE CHICAGO STANDARD 1 (2002), *available at* http://egov.cityofchicago.org/webportal/COCWebPortal/COC_ATTACH/ChicagoStandard.pdf.

216. CITY OF CHICAGO, ENVIRONMENTAL ACTION AGENDA: BUILDING THE SUSTAINABLE CITY 15 (2006), *available at* http://egov.cityofchicago.org/webportal/COCWebPortal/COC_EDITORIAL/ActionAgenda.pdf.

217. *Id.* at 17.

218. *Id.; see also* Christopher P. Perzan, *What You Should Know about Green Building*, CHI. B.A. REC., Nov. 2006, at 38, 42.

219. Popovec, *supra* note 67.

220. May & Koski, *supra* note 178, at 53.

formative stage,[221] and even with an apparent consensus building around a primary reliance on economic instruments and a more limited role for mandatory regulations, serious questions remain.

At a fundamental level, the alternative approaches raise important theoretical and policy issues. For instance, can any intrusive regulatory solution survive in our system of private property and free markets? Why should the government fund subsidies to encourage private investors to follow green building standards that advance legitimate state interests in a clean, efficient, and sustainable built environment any more than government should pay for sound structural engineering, safe electrical design, and sanitary plumbing for private sector buildings? Should government use incentives and other economic interventions to spur private developers and building owners to invest their capital for the good of the public order?

There are also empirical questions. For example, while economic incentives may encourage developers to consider building green for their own business and economic reasons, will incentives alone be adequate to convince an otherwise reluctant developer to opt for greener building standards? How do we determine whether a particular incentive uses public resources efficiently and wisely? Which specific incentive programs are effective, and how can we confirm that they produce results that justify their costs? All these questions deserve rigorous analysis as matters of public policy and legal theory, empirical inquiry, and economic review.

B. The Brewing Debate: Mandates, Incentives, or Both?

In the politically charged, profit-driven world of private real estate development, the battle lines are beginning to emerge. Some will argue for mandates simply because greater compliance with green building standards significantly serves the public health and welfare.[222] From this perspective, a mandatory sustainable development regime based on a land use model is not only appropriate, it is essential.[223] As Professor Haar asserts: "[t]he legal impact of planning is significant only as it imports governmental control of physical development."[224] In contrast, the opposite side of the political and theoretical spectrum not only has much popular appeal, but also claims support from experience and

221. *See* KIBERT, *supra* note 64, at 17.

222. *See* King & King, *supra* note 2, at 450-53.

223. "The usual way to tackle pollution is by telling people to stop it." Costing the Earth; Making Polluters Pay, THE ECONOMIST, Sept. 2, 1989, at 6.

224. Charles Haar, *The Master Plan: An Impermanent Constitution*, 20 L. & CONTEMP. PROB. 353, 366 (1955).

research concerning the effectiveness of centralized governmental controls over land use.[225] Indeed, judging from the current literature, it may seem radical to propose governmental mandates for green building standards.[226] It could, in fact, be inappropriate to suggest that building codes should adopt existing green building standards in a wholesale manner. For example, some LEED standards are only intended to be relevant in limited circumstances.[227] Other green building proposals are unsuitable for building codes because they are aspirations and guidelines rather than objective standards.[228] Nonetheless, the fact that existing green building standards might not provide the necessary raw material for green building codes does not necessarily mean that mandatory green building codes are always beyond reach or that they are otherwise inappropriate in all situations.

In these circumstances, what we need is obvious. We must gather the best data and research that design and construction professionals, environmental scientists, and economists and other social scientists can provide. We must develop, test, and evaluate the most promising tools we can imagine. Finally, we must not delay implementing those that hold significant promise, even though we cannot know in advance how effective or efficient they may be. An important observation that *Buildings and Climate Change* makes about energy efficiency applies equally to nearly the whole field of sustainable building practices:

> Regardless of the energy consumption in absolute numbers, there almost always exist considerable opportunities to drastically reduce the energy use in buildings. Such reductions can often be realized through proven and commercialized technologies (many times making use of low-tech and/or traditional solutions).
>
> The challenge to achieving energy efficiency, and reduced climate change impact, in buildings is therefore usually not a lack of access to technical solutions, but a lack of signals to the building sector stakeholders to adopt such solutions.[229]

In other words, we know what we need to do, and we know what

225. *See* EBAN S. GOODSTEIN, ECONOMICS AND THE ENVIRONMENT 299-309 (3ed. 2002); Jonathan H. Adler, *Free & Green: A New Approach to Environmental Protection*, 24 HARV. J.L. & PUB. POL'Y 653, 657-61 (2001). *See generally* Richard A. Epstein, *How to Create—or Destroy—Wealth in Real Property*, 58 ALA. L. REV. 741 (2007).

226. Daniel H. Cole & Peter Z. Grossman, *When Is Command-and-Control Efficient? Institutions, Technology, and the Comparative Efficiency of Alternative Regulatory Regimes for Environmental Protection*, 1999 WIS. L. REV. 887, 887-90.

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

228. *See supra* notes 107-10 and accompanying text.

229. HUOVILA ET AL., *supra* note 9, at 54.

tools we have available to us. We have not yet learned how best to use those tools for the optimum results. In the fortunate circumstances of the productive democracy in which we live, we should race full throttle into the public debate with less concern about consensus-building and more enthusiasm for the opportunity a vigorous debate will provide to experiment with feasible solutions and to stimulate further research, analysis, and debate.

A growing body of literature helps to advance the debate and inform policy makers.[230] To begin with, decades of experience with environmental policy provide some broad principles that should help identify economic instruments most likely to be effective and efficient. That experience also suggests the circumstances under which direct regulation is appropriate. Existing research offers much on the impact of government regulations in general[231] and more specifically on the efficacy of current environmental laws and policies.[232] Many studies expose the relative merits of imposing regulations and other government mandates on markets versus using incentives and other economic instruments to adjust market forces.[233] Among other things, we know that economic instruments carefully designed to work with market forces are often effective,[234] but we also know that direct regulation may be essential in the face of market failures or in light of institutional and historical factors.[235] Several studies explore the relationship between

230. *See infra* notes 231-39 and accompanying text.

231. *See, e.g.*, John W. Dawson, 60 KYKLOS 15 (2007) (investigating the macroeconomic impact of government regulations in general); Giuseppe Nicoletti & Stefano Scarpetta, *Regulation, Productivity & Growth: OECD Evidence*, 18 ECON. POL'Y 10 (2003) (tracking product market regulation in eighteen countries).

232. *See, e.g.*, John W. Maxwell & Christopher S. Decker, *Voluntary Environmental Investment and Responsive Regulation*, 33 ENVTL. & RESOURCE ECON. 425 (2006) (investigating the relationship between regulatory actions and voluntary investments to improve environmental performance); Conrad, *supra* note 127 (explaining why industries may voluntarily agree to reduce polluting emissions when they anticipate emissions taxes and fees); J. CLARENCE DAVIES & JAN MAZUREK, POLLUTION CONTROL IN THE UNITED STATES: EVALUATING THE SYSTEM (1998) (providing a comprehensive review of the effectiveness and efficiency of the U.S. pollution control regulatory system).

233. *See, e.g.*, Staley, *supra* note 130; Choe & Fraser, *supra* note 127; Theaker & Cole, *supra* note 208, at 402.

234. Staley, *supra* note 130, at 246 (stating that "[u]nderstanding the role prices play in influencing incentives and decisions about investments in alternative technologies can greatly improve the prospects for sustainable development."); *see also* PRINDLE ET AL., *supra* note 174, at 32-35 (concluding that certain tax incentive programs can be especially effective in improving the energy efficiency of buildings); *see* COLE & GROSSMAN, *supra* note 124, at 333-36.

235. *See, e.g.*, PRINDLE ET AL., *supra* note 174, at 5-12 (discussing the effectiveness of state building energy codes in light of market barriers in the building industry); Cole, *supra* note 226, 892-95 (arguing that the contemporary view that broadly favors economic incentives over command-and-control regimes for environmental protection purposes oversimplifies the empirical data, in part because it often ignores history and

environmental regulations and business behavior.[236] We also have early studies on the effects of sustainable development policies.[237] Moreover, researchers from different disciplines are beginning to investigate the consequences of specific green building programs[238] and the circumstances that contribute to sustainable building practices.[239] It is for others to explore, evaluate, and advance the research most relevant to green building policies. The point here is simply to note that empirical research must inform the green building policy debate, and the debate must, in turn, evolve to frame the specific inquiries for further research.

In the end, of course, the issue is not essentially a matter of environmental science, economics, or any other scholarly or scientific field, nor even a matter of law. This is politics. However one analyzes the policy debate, the climate change problem and other environmental risks are so serious and immediate that it would be irresponsible to ignore the need for effective, consistent, and comprehensive governmental initiatives to ensure that the private sector develops and implements timely, comprehensive, and effective green building practices. For these purposes, policy makers should consider all of the reliable empirical data and research that they can secure from design professionals, environmental scientists, economists, and other qualified social scientists. They also need to recognize that green building policies must be flexible enough to be effective in a wide variety of geographic, social, and economic circumstances. The next logical question, therefore, is which governmental institutions are best suited to achieve the desired results.

context).

236. *See, e.g.*, Maxwell & Decker, *supra* note 232; Conrad, *supra* note 127; Armin Schmutzler, *Environmental Regulations and Managerial Myopia*, 18 ENVTL. & RESOURCE ECON. 87 (2001).

237. *See, e.g.*, May & Koski, *supra* note 178, at 63 (concluding that "state energy agencies provide an attention-focusing role in drawing attention to green-building practices"); PHILIP BERKE & MARIA MANTA, PLANNING FOR SUSTAINABLE DEVELOPMENT: MEASURING PROGRESS IN PLANS (1999), *available at* http://www.lincolninst.edu/pubs/PubDetail.aspx?pubid=58 (Lincoln Institute of Land Policy Working Paper reviewing how the sustainable development movement has influenced land use planning) (follow "Planning for Sustainable Development" hyperlink.).

238. *See, e.g.*, May & Koski, *supra* note 178; PRINDLE ET AL., *supra* note 174, at 32-35.

239. *See, e.g.*, Terese Fiedler, *Motivations for Environmental Collaboration within the Building and Construction Industry*, 22 MANAGERIAL AUDITING J. 410 (2007); Maxwell & Decker, *supra* note 232; Moraga-Gonzalez & Padron-Fumero, *supra* note 130.

IV. What Level of Government Will Be Most Effective?

A. The Limitations of Local Policy

In the United States, land use controls are predominantly the business of local government.[240] Why not, therefore, leave green building standards primarily to local control? Without a doubt, cities, counties, and other local governmental units could modify their economic development programs, building codes, comprehensive plans, subdivision ordinances, and zoning regulations to introduce a higher degree of sustainable development strategies into the real estate development and building construction processes. But will they do so? And if they do, how effective will local regulation be in achieving the appropriate green building objectives?

One major concern is that local governments will sometimes approach green building objectives reluctantly, incompletely, inefficiently, and ineffectively.[241] To be sure, some cities and other political subdivisions have already embraced sustainable development in a thoughtful and enthusiastic manner.[242] But in the final analysis, green building principals are global, national, and regional, as well as local.[243] The green building movement presents sweeping policy issues that require thorough study, expert evaluation, and an unusually broad perspective.[244] The competing solutions require sophisticated professional, scientific, economic, and political analyses, and some of them involve comprehensive legislative initiatives.[245] Few cities or counties have the resources to address these concerns adequately.[246] Fewer still can bring to bear the broad policy perspective needed to give proper weight to all the countervailing considerations.[247] For the same reasons that other major environmental initiatives have found legal voice at international, national, and regional levels, the issues involved here require legislative solutions beyond what municipal governments can comfortably manage.

240. *See* FRED BOSSELMAN & DAVID CALLIES, THE QUIET REVOLUTION IN LAND USE CONTROL 1-4 (1972); Amnon Lehavi, *Intergovernmental Liability Rules*, 92 VA. L. REV. 929, 935-36 (2006).

241. *See infra* notes 255-57 and accompanying text.

242. *See supra* notes 191-218 and accompanying text. *See generally* Anderson, *supra* note 63; Montez & Olsen, *supra* note 131; Salkin, *supra* note 22, at 672-82; King & King, *supra* note 2, at 409-28.

243. *See, e.g.*, KIBERT, *supra* note 64, at 1-6; Salkin, *supra* note 22, at 674.

244. *See, e.g.*, Salkin, *supra* note 22, at 671-74.

245. *Id.*

246. *See* Kibert, *supra* note 64, at 17-18.

247. *See* Beatley and Collins, *supra* note 2, at 214-27.

The land use literature offers one especially apt analogy for shifting at least some significant authority over local development away from local control. This analogy is the often cited "quiet revolution"[248] that gained momentum more than a generation ago and that inspired several progressive states to impose on their political subdivisions "some degree of state or regional participation in the major decisions that affect the use of our increasingly limited supply of land."[249]

Consider these observations and conclusions that explain the shift from local to state-wide control over land use to achieve regional and state-wide environmental and conservation objectives. First, there was the underlying problem of parochialism. "The *ancien regime* being overthrown is the feudal system under which the entire pattern of land development has been controlled by thousands of individual local governments, each seeking to maximize its tax base and minimize its social problems, and caring less what happens to all the others."[250]

Additionally, the specific need for governmental intervention stemmed primarily from circumstances that transcended local boundaries and perspectives:

> For many decades, controls over the use of land were exercised at the local level—or not at all. But, beginning about 1970, this long-settled institutional arrangement began to change. By 1974 a number of states, including California, Delaware, Florida, Maine, New York, Oregon, and Vermont, had passed legislation giving state government itself a direct role in approving important changes in land use.
>
> In some cases, the state's concern was limited to critical areas, such as the seacoasts in California and Delaware or the Adirondack region in New York. In others, the state reviewed all construction projects beyond a certain size and all subdivisions with more than a specified number of lots, no matter where the project was located. In still others, the state mandated planning and regulatory criteria to be followed by local and regional governments.[251]

In the years that followed, this historic refocus in land use controls helped to transform traditional land use planning into the more

248. BOSSELMAN & CALLIES, *supra* note 240, at 1-4 (recounting the events that gave birth to the movement toward state intervention in land use regulation generally, which the text argues may serve as an analogy for a shift toward state intervention in land use tactics to achieve sustainable construction.).

249. *Id.* at 1.

250. *Id.*

251. ROBERT G. HEALY & JOHN S. ROSENBERG, LAND USE AND THE STATES 1 (2d ed. 1979).

comprehensive strategy of growth management.[252] Although state-wide control is not required to bring about growth management, in several leading jurisdictions, state legislative directives provided the driving force.[253] A particularly instructive comparison appears between the problems that gave rise to these state-led growth management initiatives and the problems that the sustainable development and green building movements now address.[254] A seminal study of state land use planning initiatives notes:

> [A]s the public has become more knowledgeable about the workings of natural ecological systems, it has learned that changes in land use can have profound effects on the environment and that these effects are not limited to the parcel of private property whose use has changed. As the tributary areas of creeks and rivers become paved over for urban development, for example, the slow seepage of storm runoff through the soil becomes replaced by the rush of water off asphalt, carrying with it oil, lead, animal wastes, and other pollutants. As shopping centers, factories, and housing tracts are built on the urban fringe, the traffic they generate begins to foul the air. As prime agricultural land is converted to urban use, farmers begin to move to less fertile lands, where larger amounts of fertilizers and pesticides are needed to produce the same amount of food. In the economist's jargon, the public has become more sophisticated about the negative external effects, or "negative externalities," that land uses can create.[255]

Under these circumstances, parochial perspectives proved inadequate for evolving societal needs. The same report goes on to explain:

> Local governments have found the tax revenues from a new shopping center or a high rise too attractive to be ignored. Funds for public purchase of open space have been inadequate to protect even the areas of exceptional beauty. Zoning maps, many prepared during a period when economic development was seen as an overriding duty of local government, have often allowed development densities far in excess of current use. In many rural places, there are no land use

252. *See* ROBERT H. FREILICH, FROM SPRAWL TO SMART GROWTH: SUCCESSFUL LEGAL, PLANNING, AND ENVIRONMENTAL SYSTEMS 209-41 (1999).

253. *See, e.g.*, FLA. STAT. ANN. §§ 163.3161-163.3247 (West 2006 & Supp. 2007); MINN. STAT. ANN. §§ 473.851-473.871 (West 2001 & Supp. 2007); OR. REV. STAT. §§ 199.410-199.534 (2003); WASH. REV. CODE ANN. §§ 36.70A.010-36.70A.902 (West 2003 & Supp. 2008).

254. *See infra* notes 255-60 and accompanying text.

255. HEALY & ROSENBERG, *supra* note 251, at 4-5.

regulations at all.[256]

Moreover, the problem is not confined to "well-publicized cases of corruption and venality"[257] because:

> [E]ven the most honest and well-informed local governments face situations in which the interest of the local community and the interest of the society as a whole are not the same. A shopping center or a power plant can mean a healthy addition to a community's tax rolls—the environmental costs (but not the taxes) are shared with the entire region. The increasing mobility of the population has made the use of land in one local area the concern of a wider and wider segment of the population.[258]

Early on in these developments, advocates for increased state involvement recognized that local control would yield only with respect to discrete aspects of land use planning.[259] The fundamental economic justification offered in the 1970s for partially withdrawing local control from matters of environmental quality rings true today with reference to the green building movement:

> One of the stated goals of our society is to achieve a high degree of economic prosperity, a purpose difficult to achieve if our land resources are not efficiently allocated. Efficiency, however, should be interpreted to include the consideration of externalities arising out of the use of land. It is doubtful that land is used efficiently if its owner can pass the costs of his air pollution or his erosion on to others. Nor is it efficient to allow builders to save on land costs at the expense of higher public sector outlays for the extension of water and sewer lines.[260]

By this same logic, it is not efficient to bypass reasonably achievable green building standards because purely local interests might not justify internalizing the long-term costs that less sustainable building methods distribute over a much larger region.

For all these reasons, local land use controls alone cannot adequately fulfill government's proper role in the green building movement. The far more promising prospect is for local governments to implement or administer green building standards pursuant to sustainable development policies that emanate, at least in part, from some higher level or levels of legal authority. Although the preceding discussion

256. *Id.* at 5.
257. *Id.*
258. *Id.* at 5-6.
259. David L. Callies, *The Quiet Revolution Revisited: A Quarter Century of Progress*, 26 URB. LAW. 197, 198 (1994); HEALY & ROSENBERG, *supra* note 251, at 1.
260. HEALY & ROSENBERG, *supra* note 251, at 34-35.

forecasts that the states should provide the necessary impetus, we should also consider what contributions international and national initiatives might play.

B. International Law

International law has played a significant role in the sustainable development and green building movements, and it will continue to do so:

> International law considers sustainable development an obligation of both business and government. The Rio Declaration, issued by the United Nations Environment Programme (UNEP) following a conference held in June 1992, states: "In order to achieve sustainable development, environmental protection shall constitute an integral part of the development process and cannot be considered in isolation from it." The United Nations created a Commission on Sustainable Development in December 1992 and continues to be involved in international efforts to promote sustainable development. UNEP sponsored the 2002 World Summit on Sustainable Development in Johannesburg, South Africa, which issued a declaration reaffirming its commitment to sustainable development.[261]

Although international law does not require nations to impose sustainable development regulations for private sector building practices,[262] we can expect that sustainable development will continue to be a topic of international legal development through important treaties and conventions over the coming decades. In that sense, international law may indirectly serve to advance the green building movement within the United States.

What is far more doubtful is that international law will directly affect building construction in the United States at any time in the near future. One especially pessimistic assessment is that the promises from the 1992 Rio conference[263] "have been ignored and unfulfilled" and that the Johannesburg commitments[264] "were fairly modest in scope and new United States commitment is unimpressive."[265] Whether or not these conclusions are entirely accurate, we can still comfortably predict that U.S. notions of individualism and private property[266] will not soon yield

261. King & King, *supra* note 2, at 428-29 (footnotes omitted).
262. *Id.* at 429.
263. United Nations Conference, *supra* note 78.
264. *See* World Summit on Sustainable Development, Johannesburg, S. Afr., Aug. 26-Sept. 4, 2002, *Report of the World Summit on Sustainable Development*, U.N. Doc A/CONF.199/20.
265. Beatley & Collins, *supra* note 2, at 194.
266. *Id.* at 212.

significant ground to the influence of international law in matters of land use planning or real estate development.

C. United States Federal Law

As previously noted, federal environmental laws currently affect building codes and apply to construction practices in many important ways.[267] None of these laws and regulations, however, either alone or in combination with others, amounts to a national regulatory structure for green building standards. What, then, are the prospects for U.S. policy to expand sufficiently to implement green building objectives?

Some federal environmental statutes and regulations have special application to relatively limited aspects of land development and construction practices that specifically affect sustainability.[268] To that extent, these features of federal environmental law either actually impose construction standards that serve the green building agenda or they suggest a framework for doing so. For example, the National Pollutant Discharge Elimination System (NPDES) program's regulation of storm water runoff applies to many construction sites.[269] Significant federal regulations also govern development of wetlands,[270] even to the extent that construction activities affecting wetlands may require a federal permit.[271]

Do these federal programs suggest that the sustainable development community should lobby national political leaders to enact a new federal green building agenda? The idea is not entirely fanciful. The Americans with Disabilities Act demonstrates that national policy decisions have the potential to control building design and construction.[272] At a minimum, because green building standards often overlap with significant federal environmental policy,[273] we should expect further federal regulatory initiatives to implement important, isolated objectives.

The prevailing view is that federal policies will support and encourage green building initiatives, but that federal law will not implement green building standards.[274] Some fundamental considerations validate this conclusion. Contemporary green building strategies require design and construction standards based on a

267. *See supra* notes 158-72 and accompanying text.
268. *Id.*
269. 40 C.F.R. §§ 122-24 (2006).
270. *See* 40 C.F.R. §§ 230.1- 233.71 (2006).
271. *See, e.g.*, U.S. v. Van Leuzen, 816 F. Supp. 1171 (S.D. Tex. 1993).
272. 42 U.S.C. §§ 12101-12213 (West 2005); *see* King & King, *supra* note 2, at 450.
273. *See supra* notes 158-72.
274. *See, e.g.*, King & King, *supra* note 2, at 458; *see also* Beatley & Collins, *supra* note 2, at 214.

comprehensive policy applicable to a wide array of building projects.[275] Neither the existing federal regime of environmental laws nor any realistically achievable prospective federal programs have the potential to implement a national green building policy that governs building design and construction to the extent necessary.

History offers an important lesson for anyone tempted to argue for a comprehensive national solution simply because the issues at stake are truly national in scope. Federally mandated green building standards are impractical for the same reasons that a national land use policy, once enthusiastically proposed and predicted, ultimately proved unachievable.

> Strong forces have been aligned on both sides of the debate about the propriety and wisdom of a federal land use bill. So far, the forces of opposition to such legislation have prevailed. . . .
>
> The proponents of federal intervention into the land use planning process base their case mainly on the failure of widespread planning on the state and regional levels, which is blamed for much of the preventable environmental damage occurring daily; also, leaving planning to local initiative is seen as no solution to regional problems. The opponents see federal support of state land use planning as the first step in a process that would lead next to federal demands for such planning and eventually to federal takeover of planning and even worse, federal implementation of plans through controls administered by a federal agency.[276]

Similar attitudes would curtail public tolerance for direct federal control over building codes and the development process. Indeed, even if, as a political matter, Congress were to move in that direction, some would question whether it has the power to do so to the extent required to implement truly effective green building standards.[277] Moreover, as important as the national and regional considerations are, they do not overcome the strong historical reasons for maintaining a boundary between national environmental policy and land use planning and real estate development controls. As has been noted:

> Land use law has always been a creature of state and local law. The reason for this is three-fold. First, the permanent nature of land—its immovability—makes its uses far more relevant to those who are nearby than those who are far away. Second, how land is used is an

275. *See* KIBERT, *supra* note 64, at 7-17.

276. MORTON GITELMAN ET AL., LAND USE CASES AND MATERIALS 257-58 (6th ed. 2004).

277. *See id.* at 253 (noting the "power of the states to control land use, secured by the Tenth Amendment").

> essential ingredient for communities to develop their character and to pursue shared purposes. Land use law is one of the key ways that communities come together to set priorities, to establish their character, and to meet fiscal, aesthetic, and lifestyle needs. Third, by keeping land use law local, citizens have more direct access to their representatives (than if those representatives were national) and a proportionally larger voice in the land use process that directly affects them. Land use law is enacted by the state and local governing bodies and implemented by locally elected or appointed boards, with publicized public hearings an integral component in altering the law and in applying it.[278]

In sum, the unique U.S. experience of federalism and democracy dictates that national environmental policy should influence rather than control how individual projects are designed and approved.[279] We must anticipate that future initiatives at the federal level will be most important in the areas of research, education, and limited financial incentives.[280]

D. Interstate Compacts

Sustainable development objectives transcend state boundaries in ways that require coordination and cooperation between states.[281] The fact that many large metropolitan regions overlap state boundaries[282] strongly suggests that even state-wide green building strategies often will prove to be too local. If one state has more demanding standards than a neighboring state, the cities and counties in the first state might suffer adverse economic consequences if developers elect to build and companies decide to relocate in the cities and counties on the other side of the state line.[283] These observations merely reflect that the same contrasting perspectives of localism and regionalism that often affect governmental structures also apply to sustainable development and green building design.[284]

Interstate compacts offer a feasible solution, and it is one that states have used in other situations involving land use impacts that cross state lines. For example, California and Nevada entered into the Tahoe

278. Marci A. Hamilton, *Federalism and the Public Good: The True Story Behind the Religious Land Use and Institutionalized Persons Act*, 78 IND. L.J. 311, 335 (2003) (footnotes omitted).
279. *See supra* Part IV.C.
280. *See* King & King, *supra* note 2, at 450-59.
281. *See* Richard Briffault, *Localism and Regionalism*, 48 BUFF. L. REV. 1, 3 (2000).
282. *See id.* at 4 n.8 (2000).
283. *See id.* at 9.
284. *See id.* at 4.

Regional Planning Compact "to provide for the region as a whole the planning, conservation and resource development essential to accommodate a growing population within the region's relatively small area without destroying the environment."[285] The Port Authority of New York & New Jersey offers another example of an interstate approach that can significantly affect regional land use and development.[286] Similar interstate arrangements should be useful to address some common situations that would otherwise deter the effectiveness of mandatory green building standards, but these arrangements will be appropriate only to address limited and specific circumstances.[287]

E. State Policy

As already discussed, a number of states superimpose regional and state-wide policies on the local governmental units that have traditionally maintained considerable autonomy in land use and real estate development matters.[288] State-wide legislative initiatives also hold the most promise for effectively advancing a green building agenda. A state-level strategy is especially appropriate to address "problems arising when local interests diverge from the interests of a broader public."[289]

The states that created the revolution in land use control did so to fill a critical void.[290] "The states acted because of the relative lack of planning at the local level, together with a disregard of the regional and statewide implications of such unplanned local land-use decision making."[291] As Part IV.A. of this Article demonstrates, a similar void threatens to block effective green building policies.[292] Moreover, green building objectives emanate from the same fundamental concerns that drove states to wrest some land use policy from local control.[293] "[P]rotection of natural areas and resources was a primary goal of the

285. People *ex rel.* Younger v. County of El Dorado, 487 P.2d 1193, 1195-96 (Cal. 1971).

286. *See* Gregory M. Stein, *Doomed to Re-Repeat History: The Triangle Fire, the World Trade Center Attack, and the Importance of Strong Building Codes*, 21 ST. JOHN'S J. LEGAL COMMENT. 767, 780-82 (2007).

287. In other words, future sustainability programs might be able to draw on the concept of regional compacts, such as those discussed in the text, to advance green building programs that serve regional interests, such as the desire to establish consistent green building standards within a multi-state metropolitan area.

288. *See supra* notes 248-60 and accompanying text. One source counts 10 states that merit discussion. Callies, *supra* note 259, at 199-211.

289. HEALY & ROSENBERG, *supra* note 251, at 7.

290. Callies, *supra* note 259, at 197.

291. *Id.*

292. *See supra* Part IV.A.

293. *See* Callies, *supra* note 259, at 212.

original revolution."[294]

As we have also seen, state intervention has sometimes led to the more radical regimes of growth management and smart growth.[295] These state-wide schemes have generated considerable controversy and some legitimate criticisms,[296] but they have also shown that state-wide land use initiatives can sometimes achieve what local planning alone cannot.[297] One of the most controversial descendants of growth management is the smart growth strategy, which commonly incorporates sustainability concepts into land use planning.[298] Professor Salkin has noted the common underpinnings of the green building and smart growth movements, stating,

> [h]owever a municipality chooses to define "green development" or environmentally friendly development, a host of voluntary programs and tools abound to assist in designing and implementing regulations to meet the identified needs and goals of individual jurisdictions. While the phrase "green development" may be trendy now and accepted and somewhat embraced by the building and real estate communities, this is, in essence, the marriage of local land use regulation with local environmental regulation supported by state and federal agencies and a host of non-governmental organizations that support the public and private sector interests. For the time being, it appears as though developers and builders are increasingly supportive of efforts to promote and recognize green development, perhaps, anecdotally, more so than embracing these concepts under the rubric of "smart growth"—a phrase that has become a political hot button in many circles.[299]

This observation further suggests a significant opportunity for state policy makers who are serious about sustainable building design and construction. At least under the circumstances of many jurisdictions, green building policies, like growth management and smart growth, can be implemented more effectively and uniformly when based on legislative initiatives at the state level,[300] which are less beholden to

294. *Id.*

295. *See supra* notes 252-60 and accompanying text.

296. *See* DANIEL P. SELMI & JAMES A. KUSHNER, LAND USE REGULATION: CASES AND MATERIALS 510-17 (2d ed. 2004).

297. *See* Callies, *supra* note 252.

298. *See* Brian W. Ohm, *Reforming Land Planning Legislation at the Dawn of the 21st Century: The Emerging Influence of Smart Growth and Livable Communities*, 32 URB. LAW. 181 (2000).

299. Salkin, *supra* note 22, at 682 (footnotes omitted). Professor Salkin refers to green development in a way that indicates a broader meaning than simply green building practices, but the narrower concept is necessarily derivative of the broader one.

300. *See generally* AMERICAN PLANNING ASSOCIATION, PLANNING FOR SMART GROWTH: 2002 STATE OF THE STATES (Summary Report 2) (reporting on the states that

purely local politics and economic motivators. Even where the larger revolution has not taken root, legislatures should be able to find ways to promote green building objectives at the state level because these objectives are more limited and less controversial than other state land use policies.[301]

Building on such state-wide legislation as the Vermont Environmental Control Act,[302] the California Coastal Act of 1976,[303] and Florida's Environmental Land and Water Management Act of 1972,[304] as well as more contemporary growth management and smart growth strategies, a few states have already moved toward state-wide sustainable development programs. The Oregon Sustainability Act,[305] enacted in 2001, creates a state-wide administrative agency with the responsibility to propose and recommend sustainability legislation. It does not, however, mandate specific green building standards for private construction projects.[306] The legislatures in Vermont[307] and Washington[308] have also established state-wide frameworks to encourage sustainable development. A Minnesota statute requires a state agency to prepare and distribute to local governmental units a planning guide and a model ordinance for sustainable development.[309] Although the statute does not mandate adoption of the model ordinance, it does provide: "When adopted by a local unit of government, the model ordinance is the minimum regulation to guide sustainable development that may be adopted."[310] A similar approach might be appropriate for the more limited task of establishing state-wide green building practices.

We have heard calls for the organizations that promulgate building codes to develop a model sustainable building code to stimulate and facilitate widespread adoption of green building standards.[311] If that occurs, it will certainly help many jurisdictions, both state and local, to

have adopted smart growth statutes), *available at* http://www.planning.org/growingsmart/states2002.htm.

301. Consider Georgia's "bottom-up" growth management strategy, noted as "better suited to Georgia, which is a strong private property rights state with a home rule provision in its state constitution." JUERGENSMEYER & ROBERTS, *supra* note 73, at 380 (footnote omitted).

302. 10 VT. STAT. ANN. TIT. 10 §§ 6001-6093 (2006).

303. CAL. PUB. RES. §§ 30000-30900 (West 2007).

304. FLA. STAT. §§ 380.012-.10 (West 2000 & Supp. 2007).

305. OR. REV. STAT. §§ 184.421-423 (2005).

306. *Id.*

307. *See* VT. STAT. ANN. tit. 10, § 280 (1998).

308. *See* WASH. REV. CODE §§ 43.330.005, 43.330.120 (2007).

309. *See* MINN. STAT. ANN. § 4A.07 (West 2005).

310. *Id.* at subdiv. 4.

311. *See* King & King, *supra* note 2, at 458. As previously noted, at least one significant effort to create standards for a model green building code is underway. *See supra* note 110 and accompanying text.

move forward with green building policies. With or without the aid of model building codes, approaches similar to the sustainability statutes mentioned above offer the distinct advantage of putting state legislative policy in the lead.

F. Local Policy Revisited

Proposing that states aggressively take responsibility for green building programs will be controversial in some quarters. In some states, strong home rule provisions for local jurisdictions may constrain state programs to some extent.[312] Moreover, traditional property rights advocates may argue that state control threatens fundamental principles of individualism and democracy. Indeed, proponents for mandatory green building standards at any level of government must recognize the potential influence of the resurgent private property rights movement.[313] "Land-use planning and effective growth management have always been difficult in the American context, with its history of abundant land, emphasis on private property, and anti-government predilections."[314] Any proposal that intensifies and centralizes controls that govern the free use and economic exploitation of private land challenges the American perception of land development and use as economic commodities incident to land ownership. "With the exception of the body of nuisance law, we accept that individual landowners rightly ought to be vested with decisions about how best to use these personal commodities."[315]

Even some sustainability advocates believe that local control offers the most promising route, arguing that local sustainable policy choices have been especially successful in achieving green building progress to date.[316] One interesting explanation for this conclusion is that a local community perspective is necessary to bring sustainable development policies into American culture:

> [w]hat, more specifically, are the elements of an *American* approach to sustainability? Emphasis on actions, policies, and programs at the local (and to some degree state) level is critical, indeed inevitable. While there are many things that can be done at the national or federal level, the policy levers there are simply unlikely to be as easy or free to apply as they have been in, say, Western European

312. *See generally* Richard Briffault, *Home Rule for the Twenty-First Century*, 36 URB. LAW. 253 (2004).

313. *See generally*, Carol M. Rose, *A Dozen Propositions on Private Property, Public Rights, and the New Takings Legislation*, 53 WASH. & LEE L. REV. 265 (1996) (critiquing the property rights movement in relationship to contemporary takings jurisprudence).

314. Beatley & Collins, *supra* note 2, at 205.

315. *Id.* at 212.

316. *See id.* at 216-17.

nations. . . .

> At the heart of this new task is the need to fundamentally *localize* the sustainability effort; to show clearly and convincingly how community sustainability can be undertaken, and how sustainable communities and places can also be inherently more livable and still retain their local identity. Place-based approaches are the ones most likely to work in the American context. Yet much can and is being done here. Local actions and initiatives can, taken together, move American society in the direction of becoming more resource-conserving and sustainable, as well as contributing to a more just and sustainable world.[317]

These observations indicate that mandatory green building standards should be predicated on local public consensus in favor of sustainability. But once sufficient public acceptance of sustainable development values exists in a given state, a primarily local focus could severely restrict progress toward sustainable building design and construction standards. Only a relatively small number of communities on their own will have the foresight, broad perspective, and resources required for the purpose.

The proposition that local control facilitates innovation, experimentation, and flexibility, however, deserves careful attention. Only local governments can adequately reflect the unique attributes and needs of the communities that must absorb the immediate effects of green building policies.[318] Local governmental units also have the infrastructure required to review and approve plans for specific building projects and to administer comprehensive building codes and planning objectives.[319] For these reasons, states can only hope to enact or promote green building standards with significant support from local communities.

V. A Call to Action

Now is the time for state policy makers to implement meaningful and effective green building policies for the private sector. In the United States, a comprehensive program adopted under the authority of national and international law currently is not politically feasible. While building codes and land use controls offer the most direct, comprehensive, and effective solutions, action spearheaded solely at the local level will lack the required perspective and consistency. State land use policy

317. *Id.* at 194-95.
318. *Id.*
319. *See* JUERGENSMEYER & ROBERTS, *supra* note 73, at 46-53.

initiatives offer the best hope. But we cannot expect state legislatures acting independently to achieve this vast and enormously important objective.

We need a national green building agenda, at least for the limited purposes of stimulating nationwide interest and providing indirect guidance and support. We cannot now identify all the best strategies, but Washington can immediately help to refocus the national dialogue. As a first step, the government must provide support to bridge the critical research gap concerning effective sustainable design and building practices.[320] The federal government is best positioned to fund the most significant research required to establish baselines and to determine what specific green building standards and practices will achieve optimal results.[321] The federal government may also support work on model standards and codes.[322] Federal, state, and local agencies can all collaborate to educate the building design, construction, and investment industries, as well as ordinary citizens, on the benefits of building green.

Every level of government should also provide appropriate political forums in which to debate the need for governmental action and the relative merits of direct regulation and economic instruments. Not every green objective justifies government intervention. Many green building practices, especially those that enhance energy efficiency, are demonstrably cost-effective.[323] We should not use command-and-control regulations or costly incentives to promote these practices. In some cases, modest temporary incentives may be appropriate to hasten acceptance in the marketplace of these proven practices. In other circumstances, where true market failures interfere with progress, we can look to economic theory and case studies to help guide the debate about which more potent devices promise the optimal combination of advances in sustainability and respect for market efficiencies.

If the facts justify market corrections, economically efficient incentives may often be appropriate to increase the number of projects that voluntarily adopt green building practices. Depending on the nature of the economic instrument indicated, incentives may come from every level of government. As previously noted, tax deductions and credits, direct subsidies or favorable financing for soft or incremental costs,

320. *See* BAUM, *supra* note 10, at 29-31 (a report published by the U.S. Green Building Council Research Committee that concludes that funding for green building research is far too meager in light of the significant impact that buildings have on the environment and the overall economic significance of the construction industry).

321. *See id.*

322. Just such federal support led to the widespread adoption of state zoning enabling acts. *See* BOSSELMAN & CALLIES, *supra* note 240, at 2.

323. *See supra* notes 28-62 and accompanying text.

accelerated or simplified permit processes, land use concessions, and a wide range of more sophisticated economic instruments may all hold promise, but only if they derive from valid fiscal and economic analysis.[324]

Where government elects to promote the more controversial objectives of the sustainability movement, the public debate should openly acknowledge the threat to private property rights.[325] But when legislative findings indicate that a green building practice strikes the appropriate balance between present and future generations, mandates should not be taboo. Developers and building owners sometimes profit by externalizing significant costs of long-term ecological damage.[326] In some cases, green building code requirements may be the most efficient and expedient tools to assure that only projects meeting certain green design thresholds receive building permits or plan approval in the first instance.[327] Opponents of regulation must offer more than free market and property rights theories; with future ecological balance at stake, they should bear the burden of convincing regulators that a proposed action will be ineffective or inefficient. Absent that, government should no more recoil from green building mandates than it does from sanitary codes. For this, it has both the power and the right.

For reasons already discussed,[328] state legislatures should enthusiastically take the lead to determine which standards to mandate within their own states or regions, which to encourage with sound

324. *See supra* notes 135-220 and accompanying text.

325. Consider a standard that seeks to advance "community connectivity" giving "preference to urban sites with pedestrian access to a variety of services." LEED-NC2.2, *supra* note 18, SS Credit 2: Development Density & Community Connectivity, at 10 (broadly intended to "[c]hannel development to urban areas with existing infrastructure, protect greenfields and preserve habitat and natural resources"). Or consider that, at some cost, architects and engineers may one day develop building designs that not only protect the environment but that affirmatively promote ecological balance. *See* MCDONOUGH & BRAUNGART, *supra* note 64, at 138. When that day comes, perhaps government should offer significant subsidies to encourage developers and landowners to construct and operate buildings that provide those public benefits.

326. The most obvious example is that buildings are significant sources of greenhouse gas emissions that contribute to global warming. *See* HUOVILA ET AL., *supra* note 9, at 1. While many energy-efficient practices are also cost-effective on an individual project life-cycle basis, it is not yet clear that those practices alone will necessarily reduce emissions to appropriate levels. That is, emission reductions produced by energy efficiencies that are cost-effective for a project do not necessarily equate to the optimally acceptable level of emissions for the project that society might properly set from an ecological perspective.

327. *See* Cole, *supra* note 226, at 888-89 (concluding that "in some cases, given the marginal costs of pollution control, technological constraints, and existing institutions, command-and-control can be the *most* efficient means of achieving a society's environmental protection goals.").

328. *See supra* Part IV.E.

economic instruments, and which merely to promote as guidelines and aspirations. The approaches will vary based on the history, culture, and other circumstances of each state and region.[329] At these early stages, states will, no doubt, take vastly different approaches. Some will lead aggressively, perhaps even rashly.[330] Others will only follow hesitantly.[331] The nation will benefit when individual states serve as the laboratories for our remarkably resilient democracy to achieve equilibrium on this vitally important topic.[332]

There is little risk that these experiments will create permanent imbalances. Preliminary results indicate significant public support for green building practices.[333] Moreover, there has not yet been any evidence that even the most progressive green building programs will repel economic development. Developers continue to build in places like Seattle, Boston, and Chicago because demand remains strong due to the attractive location, demographics, economic activity, and image of each of these places.[334] Indeed, some of the most vigorous green building initiatives evidence a belief that in the near future a public commitment to sustainability will enhance, not diminish, a locale's economic development image.[335]

329. *See* Callies, *supra* note 259, at 199-212.

330. Nevada's legislature recently enacted and repealed an unusually generous property tax incentive program that made green projects eligible for up to 50% tax abatement for as long as 10 years. NEV. REV. STAT. § 361.0775 (2005), *repealed by* 2007 Nev. Stat. 3389. The fiscal impact of the tax abatement program apparently far exceeded what the legislature had reckoned, and probably offered a completely unjustifiable windfall to developers. *See* Amanda Fehd, *Revenue-Preserving Plan Suspends Nevada's "Green" Tax Breaks*, LAS VEGAS SUN, May 2, 2007, *available at* http://www.egreenideas.com/news.php?view=613.

331. *See* King & King, *supra* note 2, at 457-58.

332. To stay experimentation in things social and economic is a grave responsibility. Denial of the right to experiment may be fraught with serious consequences to the Nation. It is one of the happy incidents of the federal system that a single courageous State may, if its citizens choose, serve as a laboratory; and try novel social and economic experiments without risk to the rest of the country.

New State Ice Co. v. Liebmann, 285 U.S.262, 311 (1932) (Brandeis, J., dissenting).

333. *See supra* Part II.B.

334. At least up to this time, it does not appear that these cities have tarnished their reputations as magnets for economic development by promoting green agendas. *See* URBAN LAND INSTITUTE & PRICEWATERHOUSECOOPERS, EMERGING TRENDS IN REAL ESTATE 2007, 30-39 (2006), *available at* http://www.officetimes.com/EmergTrends2007.pdf.

335. A leading industry survey seems to confirm the positive image that the green building movement engenders. *Id.* at 13. Chicago officials boast that the city's environmental initiatives "are about much more than doing the right thing for the environment: they are also about improving the bottom line. They help the City stretch taxpayer funds during tight budgetary times. They help residents save money on energy

All these efforts need to remain sufficiently flexible to allow local governments to adopt and administer green building standards in ways that recognize and respect uniquely local considerations. Finally, we must not allow deep philosophical, normative, and political battles over the more controversial aspects of sustainable development theory to retard progress toward those building practices that will do the most to assure that what we build tomorrow will consume, waste, and pollute less.

costs. They make the City a great place to live. And they contribute to increased property values for Chicago homeowners." CITY OF CHICAGO, *supra* note 216, at 2.