



Competitive Enterprise Institute

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Advancing Liberty – From the Economy to Ecology

May 12, 2005

No. 96

Green Building Standards Why Mandating a Good Idea can be Bad Policy

By Todd Myers*

“Every hitter likes fastballs, just like everybody likes ice cream. But you don’t like it when someone’s stuffing it into you by the gallon.”
Baseball Hall of Fame Slugger Reggie Jackson on facing fastball pitcher Nolan Ryan

What happens when you take a good idea for some and make it mandatory for all? Jurisdictions across the United States are finding out as they enact laws and executive orders requiring that all new government buildings be built to meet “green building” standards designed by the U.S. Green Building Council.¹ Governments at all levels are promoting the standards, known as Leadership in Energy and Environmental Design (LEED) as a one-size-fits-all strategy to make government buildings more environmentally friendly. Ironically, the standards were not designed to be used this way. LEED mandates are likely to raise the costs of housing for consumers as well as increase tax burdens of citizens in cities and towns that rigidly apply LEED to public projects.

Rather than mandating such standards, governments should allow the ongoing development of a competitive system for voluntary green building standards. LEED mandate advocates seem to believe that without government pressure the standards would not develop or be used. Yet interest in green standards and competition to develop them already exists. Currently, LEED is in competition with green standards from the National Association of Home Builders.² Others are using the standards to create hybrid “high performance building” standards. A dynamic market process will enable standards to

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continually improve by responding to the needs of consumers and builders, adjusting to new technology and experience, using competition to promote a variety of approaches. In addition, a voluntary approach empowers individuals to assess those standards' effectiveness and choose, when, how, and whether to employ them.

Government at all levels could undermine this process by picking winners and losers—by certifying buildings green, offering tax credits, or mandating particular standards for any kind of construction. Such market interventions reduce the incentive and pressure for standards to adapt and change to meet the demands of the market. Shortsighted government policies threaten to impede the more efficient competitive process. As the following case studies reveal, many problems have arisen, and will likely continue to arise, from mandated LEED standards.

Background. The first adjective that the Green Building Council uses to describe LEED is “voluntary.” LEED is designed to provide some flexibility in how architects, builders, and others meet the standards. Builders can earn a total of 69 points—the more points a project earns the higher LEED rating it gets. Potential ratings include Certified, Silver, Gold, and Platinum. In Washington State, Arizona, and elsewhere, some governments are ignoring the standard’s voluntary element and restricting that flexibility, making the standard a requirement, not only for themselves but for other jurisdictions. In Washington State, the new rules apply to any building receiving state funds, meaning that local school districts must meet the standards or lose state funding.

Legislation and executive orders vary in different places. In Washington State, a proposed law would require a LEED silver level when “practicable,” although “practicable” is not defined, which leads to the implication is that most new buildings would be expected to meet the goal. In Arizona, Governor Janet Napolitano (D) signed an executive order this year calling for all new state buildings to meet the LEED Silver standard.³ The city of Scottsdale went further, requiring that, “new, occupied city buildings, of any size, be designed, contracted and built to achieve certification in the Leadership in Energy and Environmental Design (LEED) Program at the Gold certification level.”⁴

The Federal Government is also using LEED. For instance, the General Services Administration’s (GSA) “Environmental Policies and Practices” call for all new GSA buildings to meet LEED Silver certification.⁵

One-Size Does Not Fit All. These and other governments have chosen the LEED standard in an effort to meet their environmental sustainability goals. Sustainability, however, is in the eye of the beholder and frequently these goals are set based on political trends rather than science. When governments choose one standard, they hinder the development of other standards that may prove more appropriate. Arizona may find a standard that encourages solar power, while cities in Washington State are unlikely to use solar power to meet sustainable energy goals. Further, water conservation is less important in Washington than in Arizona.

Governments and agencies can continue to use standards as they choose on individual projects. Efforts to mandate a particular standard, however, may run counter to project goals. Why require government housing or other projects on tight budgets to place those projects at risk in an effort to meet excessive environmental standards? Such a mandate would set up a strange competition of values between affordable housing and environmental standards.

The Cost of Green Building. Even setting those value judgments aside, LEED mandates come with some fundamental financial problems. Advocates argue that it will cost only an additional 0-2 percent in up front costs while cutting energy and other costs dramatically over time. However, the studies that advocates cite for these statistics have some important flaws. They do not take into account the effect of making the standards mandatory. In addition, up front costs are higher than the studies estimate and ongoing savings are likely to be much less than projected.

In fact, most businesses—which are by definition more cost-conscious and efficiency-oriented than government—have shied away from LEED. According to one estimate, 16 percent of new government buildings use LEED, while only 1 percent of new commercial buildings follow the standard.⁶ If LEED’s promise of dramatic energy savings were true, many more businesses would likely incorporate them into their construction.

On its website,⁷ the U.S. Green Building Council features a July 2004 study by Davis Langdon, a construction cost planning firm, which analyzed a number of LEED and non-LEED projects to determine the cost of using the LEED building standards. After comparing a variety of different projects, the authors conclude that, “many projects achieve sustainable design within their initial budget, or with very small supplemental funding.”⁸ However, the study looks only at projects where the owner chose to follow LEED. It does not include cost estimates from projects where LEED was rejected due to cost or other considerations.

For example, the Davis Langdon study analyzes the cost and popularity of each of the potential LEED points.⁹ The study notes that the more a point costs, the less likely it is to be included in a project. The energy points are a good example. The study shows that as the costs of design to “optimize performance” or generate “renewable energy” grow, their use in projects declines. Only used by those projects trying to reach the LEED Silver level or higher LEED Point 2.3, which calls for 20 percent renewable energy. It also notes that on-site energy generation using solar energy “has a substantial construction cost impact.”¹⁰

When presented with this information, one LEED advocate dismissed the findings, telling a Washington State Legislative Committee that he “wasn’t a big fan of studies in particular.”¹¹ Yet advocates use these same studies to justify the standards, arguing that they will save money over time.

Despite environmental advocates' refusal to consider this evidence, LEED costs should be a concern. In Washington State, the Department of Natural Resources (DNR) recently considered using LEED for a new office building and warehouse space. The DNR chose to follow the standards for the office building, but not the warehouse. The reason is that LEED standards are geared toward office buildings and are not suitable for warehouses. If DNR had been required to follow LEED, the costs would have been driven higher than the estimated 2 percent cited by LEED advocates. For instance, the Washington Department of Corrections estimates that following LEED would increase its building costs by 4 to 6 percent.

Ironically, some see these additional costs as a reason to support making LEED standards mandatory. A report by the California Green Building Task force notes that much of the additional up front cost "is due to the increased architectural and engineering (A&E) design time necessary to integrate sustainable building practices into projects."¹² Not surprisingly, architects have been some of the standard's biggest advocates.

Additionally, in Washington State some LEED projects have come with additional long-term maintenance costs not included in up-front building cost estimates. In the Lake Washington School District, the Director of Support Services estimated that costs to meet LEED standards would cost an additional 5 percent for construction,¹³ in exchange for expected energy use savings. For example, one school installed an \$180,000 "light harvesting" system to save energy. The system may ultimately save energy by adjusting the lighting to complement natural light, but at a very steep up-front cost.

This is also an example of longer-term maintenance costs not factored into LEED savings estimates. This complex system requires frequent maintenance, the cost of which will offset some or all of the claimed energy savings. Another example is the school district's attempt to use natural light for heating, which will require hiring window washers at an additional cost of \$5,000 per year at one school.¹⁴

Keeping Green In the Bank? LEED advocates argue that post-construction savings will more than offset any additional up front costs. A study by the California Sustainable Building Task Force goes so far as to claim that LEED will yield "life cycle savings of over 10 times the initial investment."¹⁵ The study looks at savings in a variety of areas including energy savings, reduction of greenhouse gasses and improvements in worker productivity and health. Most of its estimates are based on the premise that LEED projects are 30 percent more efficient than non-LEED buildings. This 30 percent figure is used as the average estimated savings for all LEED buildings, even though it is based on a small sample of five buildings in California, four of which are LEED Gold or higher.

Additionally, these estimates have proven to be significantly inaccurate in practice. It is difficult to find an apples-to-apples comparison because each building is different and there are few instances of similarly sized LEED and non-LEED buildings built in the same area, at the same time, and for similar purposes. However, one such comparison yields observations inconsistent with LEED advocates' claims.

Two Tacoma, Washington middle schools were built at about the same time and of similar sizes; one followed LEED standards, the other did not. LEED advocates claimed that the LEED school “realized energy savings of 35 percent.”¹⁶ But, after operating for a year and a half, the statistics show something different. The LEED school not only uses more gas and electric than the new, non-LEED school, it has the third highest costs for gas and electricity of middle schools in the Tacoma school district.¹⁷ Of the two schools in the district that spend more on energy, one is home to a glass blowing lab and the other is an all-electric 40-year-old building. Interestingly, the LEED school now spends about 25 percent *more* than the average middle school in Tacoma on gas and electricity.¹⁸

This is not to argue that LEED standards actually increase energy costs. It does call into question the accuracy of projected energy savings which, in the case of this Tacoma school, are approximately 60 percent off the mark.

How could the estimates be so wrong? One reason is questionable cost data. The California study uses 11 cents per kilowatt hour as the average cost, calling this a “conservative” estimate they expect to last into the future.¹⁹ But this estimate is more than double the cost of energy in some parts of the country. In the Pacific Northwest, costs have hovered at about 5 cents per kilowatt hour for most of the last 15 years.²⁰ Using a higher energy cost estimate exaggerates the savings that LEED buildings are likely to achieve over time.

Other estimates in the study are equally questionable. The study allocates a savings amount for reduction of carbon dioxide based on estimated future costs of a carbon credit market (though such a market is unlikely to come to pass, since cap-and-trade proposals have been defeated in Congress). They ignore the fact that renewable energy sources, like wind power, cost two or more times the amount of other sources of energy. Those higher costs are not included in their analysis.

Further, approximately 80 percent of the savings in the study come from savings in “Productivity and Health Value,” which is designed to measure improvements in worker productivity and reduction in health costs.²¹ In addition to these savings being speculative, there is no evidence that these benefits are a result of LEED standards as opposed to new buildings in general.

Making a Voluntary System Mandatory. Governments may find unintended consequences when they adopt LEED standards. “Voluntary” is the first adjective that the U.S. Green Building Council uses to describe LEED on its web page.²² But governments are taking a system designed to be voluntary and making it mandatory for taxpayer-funded buildings

The Langdon Davis study notes that LEED standards are geared toward urban construction, and that a larger number of points is more easily available to urban sites than to rural ones.²³ The study also notes that some elements are more suited to dry areas of the country than more humid areas because of concerns about mold.²⁴

Governments may also find themselves committed to values with which they don't agree. For points related to green energy, LEED follows standards set by another group, the Green-e Standard of the Center for Resource Solutions, which defines renewable resources as "solar electric, wind, geothermal, biomass, and small or certified low-impact hydro facilities."²⁵ Green-e, in turn, uses a standard for "low-impact hydro facilities" from the Low Impact Hydropower Institute.²⁶

Inherent in this standard is a contradiction in many environmentalists' priorities. By allowing biomass, which emits greenhouse gases like carbon, but forbidding large hydro power facilities like dams, that do not emit greenhouse gases, green activists make the judgment that the potential threat of dams to salmon and other fish is more important than the alleged threat of global warming—which they routinely claim is the biggest threat facing the world .

Concerns about such unintended consequences led the Washington Legislature to make significant changes to the state's LEED standard, entirely rewriting the sections on certified timber and local products. Ultimately they even removed the requirement to meet LEED, saying it should be used only when "practicable" and exempting schools altogether in favor of a standard created by the schools themselves. These "fixes" are likely to present their own challenges.

For instance, the word "practicable" is not defined. During a legislative hearing on the LEED standards, many who testified were consistently unable to state clearly whether their particular projects met this amorphous standard. In the absence of clarity agencies will likely build nearly all buildings to the strictest and costliest level of the standard.

LEED mandates can create other types of confusion, and possibly rent seeking. For instance, the Washington State Legislature certified the use of timber harvested in Washington as "green," even though Timber from across the Northwest is routinely mixed and there is no system to track Washington timber from the harvest to the mill to the store to the project. And even if such tracking were possible, it would only work to shield local economic interests from out-of-state competition.

Mandating "green building" standards magnifies potential problems by limiting the flexibility of builders to make choices that are appropriate to each particular structure. This flexibility is surely more effective than a one-size-fits-all standard. Choosing or emphasizing one particular standard, through mandates or tax credits, virtually ensures that building planners will be put in a position to fit a square peg into a round hole when designing buildings. The burden of these forced decisions will ultimately fall on consumers and taxpayers.

Sustainability is Like Ice Cream. Building sustainable, energy-efficient buildings is something on which many can agree. Like ice cream or fastballs, it is something people desire. However, making green building standards mandatory for taxpayer-funded buildings is likely to magnify the problems with these standards and reduce the benefits,

making the standards less desirable. Those governments are likely to find that up-front costs are higher than expected, with savings being less than anticipated.

This is not to say that LEED standards should not be used by governments. Applying those standards in a one-size-fits-all manner, however, may end up being as enjoyable for taxpayers as facing Nolan Ryan was for Reggie Jackson.

Notes

¹ On its website (www.usgbc.org), the Green Building Council describes itself as “the nation's foremost coalition of leaders from across the building industry working to promote buildings that are environmentally responsible, profitable and healthy places to live and work.” However, as of April 14, 2005, the membership list page did not list any members.

² National Association of Homebuilders, *NAHB Model Green Home Building Guidelines* (Washington, D.C.: NAHB, 2004), http://www.nahb.org/fileUpload_details.aspx?contentTypeID=7&contentID=1994

³ Executive Order 2005-05: Implementing Renewable Energy and Energy Efficiency in New State Buildings, February 11, 2005, http://www.governor.state.az.us/eo/2005_05.pdf (accessed March 27, 2005)

⁴ “Scottsdale Becomes First City in the Nation to Adopt Gold Standard for Energy and Environmental Design,” City of Scottsdale news release, March 23, 2005, <http://www.ci.scottsdale.az.us/news/2005/March/03-24-05b.asp>

⁵ U.S. General Services Administration, Office of the Chief Architect, “Facilities Standards for the Public Buildings Service”, March 2003, p.17,

http://www.gsa.gov/gsa/cm_attachments/GSA_DOCUMENT/1_General_Requirements_R2-e-n-q_0Z5RDZ-i34K-pR.PDF

⁶ California Green Building Task Force, “The Costs and Financial Benefits of Green Buildings: A Report to California’s Sustainable Building Task Force,” October 2003,

<http://www.ciwmb.ca.gov/GreenBuilding/Design/CostBenefit/Report.pdf>, p.5

⁷ “Research,” U.S. Green Building Council web page,

<http://www.usgbc.org/DisplayPage.aspx?CMSPageID=78&>

⁸ Lisa Fay Matthiessen and Peter Morris, “Costing Green: A Comprehensive Cost Database and Budgeting Methodology,” July 2004, p.3, http://www.dladamson.com/images/pdf_files/costinggreen.pdf

⁹ LEED does not require builders to achieve all points, but instead ranks projects based on the number of the 69 total points they achieve.

¹⁰ Matthiessen and Morris, p. 9

¹¹ In person public statement of Clifford Traisman of the Washington Environmental Council/Washington Conservation Voters, at legislative hearings of the Capital Budget Committee of the Washington State Legislature, March 17, 2005.

¹² California Green Building Task Force, p. viii

¹³ Interview with the author, January 26, 2005

¹⁴ *ibid.*

¹⁵ California Green Building Task Force, p. v

¹⁶ Washington Environmental Council, “Priorities for a Healthy Washington,”

<http://www.environmentalpriorities.org/greenbuildings/greenbuildings1-7-05.PDF>

¹⁷ The statistics regarding the Tacoma School District are from a phone interview with a member of the facilities staff at the Tacoma School District, February 2, 2005

¹⁸ *Ibid.*

¹⁹ California Green Building Task Force, p. 22

²⁰ State of Washington, Department of Community, Trade and Economic Development, “2005 Biennial Energy Report: Issues and Analysis for the Washington State Legislature and Governor,” January 2005, p 4-9

²¹ California Green Building Task Force, p. ix

²² LEED: Leadership in Energy and Environmental Design,
<http://www.usgbc.org/DisplayPage.aspx?CategoryID=19>

²³ Matthiessen and Morris, p. 14

²⁴ Matthiessen and Morris, p. 11

²⁵ Green-e.org, "Overview of standard." http://www.green-e.org/what_is/standard/standard.html

²⁶ "Low Impact Hydropower Institute," <http://www.lowimpacthydro.org/>