



Landmark International Green Building Study Finds Benefits of Building Green Outweigh Cost Premium

Highlights:

The largest international study of its kind, *Greening Buildings and Communities: Costs and Benefits*, is based on extensive financial and technical analysis of 150 green buildings across the U.S. and in 10 countries and provides the most detailed findings to date on the costs and financial benefits of building green. Among the study's key findings:

- Green buildings cost roughly 2% more to build than conventional non-green buildings and provide a wide range of financial, health and social benefits.¹
- Green buildings reduce energy use by an average of 33%, resulting in significant cost savings.
- Green buildings create roughly \$1/square foot of value in increased employment by shifting spending from fossil fuel-based energy to more labor intensive domestic jobs in energy efficiency, renewable construction and new green industries.

Washington, D.C. – November 19, 2008 – A landmark international study on the costs and benefits of green buildings finds that energy and water savings alone outweigh the initial cost premium in most green buildings and that green buildings cost roughly 2% more to build than conventional non-green buildings. This stands in contrast to public perception, such as a 2007 survey by the World Business Council for Sustainable Development, which found that business leaders believe green buildings to be on average 17% more expensive than conventionally designed buildings.

The study, *Greening Buildings and Communities: Costs and Benefits*, also finds that an average size green office creates at least one-third of a permanent job per year, equal to \$1/square foot (sf) of value in increased employment, compared to a comparable non-green building, and that the continued rapid growth in green building is creating tens of thousands of new jobs. Additionally, the study found that productivity and health benefits are a major motivating factor for building green.

"This report provides the first large-scale data resource on the cost and benefits of green buildings and sustainable community designs," said Henry Kelly, President of the Federation of American Scientists. "The careful research and documentation provides powerful evidence that major reductions of energy and water use in buildings can be achieved at costs far lower than new supplies of energy. It will be an invaluable resource for years to come."

"The deep downturn in real estate has not reduced the rapid growth in demand for and construction of green buildings," said Greg Kats, the study's lead author and a Managing Director of Good Energies. "This suggests a flight to quality as buyers express a market preference for buildings that are more energy efficient, more comfortable and healthier."

¹ The median increase in cost is 1.6% and the mean increase is 2.5%.



With buildings currently consuming 40% of the world's energy, including two-thirds of its electricity, the marginal cost increase associated with green buildings is typically partially offset by savings elsewhere. For example, a more efficient building envelope can reduce the size of heating or cooling systems needed to provide a comfortable indoor temperature; hi-tech waterless urinals reduce plumbing requirements; and technologically advanced daylighting and window systems can decrease lighting cost while improving light quality.

Additional highlights from the study include important findings regarding the potential for significant cost reductions in the shift from conventional sprawl to a sustainable design approach. The report also evaluates both the financial and spiritual benefits for religious institutions that decide to build green.

This report was supported by Good Energies, a leading global investor in renewable energy and energy efficiency industries. Select findings from the study can be found at: www.goodenergies.com. The complete findings of the study will be published as a book in the summer of 2009.

Key findings in the *Greening Buildings and Communities: Costs and Benefits* study include:

Conclusion #1 -

Most green buildings cost 0% - 4% more than conventional buildings, with the largest concentration of reported "green premiums" between 0% - 1%. Green premiums increase with the level of greenness but most LEED buildings, up through gold level, can be built for the same cost as conventional buildings. This stands in contrast to a common misperception that green buildings are much more expensive than conventional buildings.

Conclusion #2 -

Energy savings alone make green building cost effective. Energy savings alone outweigh the initial cost premium in most green buildings. The present value of 20 years of energy savings in a typical green office ranges from \$7/sf (certified) to \$14/sf (platinum), more than the average additional cost of \$3 to \$8 per square feet for building green.

Conclusion #3 -

Green building design goals are associated with improved health and with enhanced student and worker performance. Health and productivity benefits remain a major motivating factor for green building owners, but are difficult to quantify. Occupant surveys generally demonstrate greater comfort and productivity in green buildings.

Conclusion #4 -

Green buildings create jobs by shifting spending from fossil fuel-based energy to domestic energy efficiency, construction, renewable energy and other green jobs. A typical green office creates at least one-third of a permanent job per year, equal to \$1/(sf) of value in increased employment, compared to a similar non-green building.

Conclusion #5 -

Green buildings are seeing increased market value (higher sales/rental rates, increased occupancy and lower turnover) compared to comparable conventional buildings. CoStar, for



example, reports an average increased sales price from building green of more than \$20/sf providing a strong incentive to build green even for speculative builders.

Conclusion #6 -

Roughly 50% of green buildings in the study's data set see the initial "green premium" paid back by energy and water savings in five years or less. Significant health and productivity benefits mean that over 90% of green buildings pay back an initial investment in five years or less.

Conclusion #7 -

Green community design (e.g., LEED-ND) provides a distinct set of benefits to owners, residents and municipalities, including reduced infrastructure costs, transportation and health savings and increased property value. Green communities and neighborhoods have a greater diversity of uses, housing types, job types and transportation options and appear to better retain value in the market downturn than conventional sprawl.

Conclusion #8 -

Annual gas savings in walkable communities can be as much as \$1,000 per household. Annual health savings (from increased physical activity) can be more than \$200 per household. CO² emissions can be reduced by 10% - 25%.

Conclusion #9 -

Upfront infrastructure development costs in conservation developments can be reduced by 25%, approximately \$10,000 per home.

Conclusion #10 -

Religious and faith groups build green for ethical and moral reasons. Financial benefits are not the main motivating factor for many places of worship, religious educational institutions and faith-based non-profits. A survey of faith groups building green found that financial cost effectiveness of green building makes it a practical way to enact the ethical/moral imperative to care for the Earth and communities. Building green has also been found to energize and galvanize faith communities.

Methodology:

Approach

This report assesses the costs and benefits of green building based on substantial new research and a compilation and analysis of recent research on green buildings and the built environment. The study presents data on initial cost premiums, energy and water use reductions and other impacts reported by architects and building owners. This information, along with the results of other recent research, is used as the basis for evaluating financial impacts of green building design. Long-term benefits to occupants, building owners and surrounding communities are discussed and, where possible, modeled on a dollars per square foot (\$/sf), or dollars per unit (\$/unit) basis. The intent is to provide a useful analytic framework for making cost effective decisions relating to green design.

About the *Greening Buildings and Communities: Costs and Benefits Study*

The report aggregates data on cost, LEED certification, green incentives, energy and water savings and sustainable materials use from 150 recent green buildings in 33 U.S. states and 10 countries, built from the period of 1998-2008. Impacts on health, property value, employment



and brand are evaluated based on a synthesis of recent research on green, high performance buildings, with report contributions by leading researchers and practitioners in the field. The report's primary funder is the Adam Joseph Lewis Foundation. Sponsors include the American Institute of Architects, American Public Health Association, BOMA International, Enterprise Community Partners, Federation of American Scientists, National Association of Realtors, National Association of State Energy Officials, Real Estate Roundtable, U.S. Green Building Council and World Green Building Council.

About Good Energies:

This report was supported by Good Energies, a leading global investor in renewable energy and energy efficiency industries. The firm invests in solar, turbine-based renewables, green building technologies and other emerging areas within clean energy. Guided by the "3-P" principle of People-Planet-Profit, Good Energies looks for meaningful, long-term investments in companies with outstanding growth potential. The firm's mission is to accelerate the global transition to a low-carbon economy. www.goodenergies.com.

Contacts:

Good Energies - U.S. Media Contact

Kenny Juarez and Dana Gorman
The Abernathy MacGregor Group
kwj@abmac.com, dtg@abmac.com
Tel. +1 212 371 5999

Good Energies – European Media Contact

Bettina Fries
Hering Schuppener Consulting
bfries@heringschuppener.com
Tel. +49 211 430 79 70

Good Energies – UK Media Contact

Nadine Slater
The Maitland Consultancy
nslater@maitland.co.uk
Tel. +44 20 7379 5151