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## ENERGY EFFICIENCY IN BUILDINGS: NECESSARY FOR LOW COST CLIMATE CHANGE SOLUTIONS

**Washington**—In 2008, G-8 leaders set a goal of reducing global greenhouse gas (GHG) emissions by 50 percent below current levels by 2050. Reaching this goal demands a wholesale transformation in the world's production, consumption, and use of energy resources. Buildings account for almost 40 percent of total GHG emissions—more than transportation or any other sector. Improving energy efficiency in buildings is considered one of the cheapest ways to reduce emissions and an opportunity for producing high impact at relatively low, and often negative, cost.

A new study by the Peterson Institute for International Economics analyzes the costs involved in revolutionizing energy efficiency in buildings as well as the roadblocks inherent to such a transformation. *The Economics of Energy Efficiency in Buildings*, authored by Visiting Fellow Trevor Houser, utilizes a model developed by the World Business Council for Sustainable Development's (WBCSD) Energy Efficiency in Buildings project, which includes thousands of building types, designs, and technologies.

Key findings of the study are:

- The International Energy Agency estimates it is necessary to reduce 8.2 billion tons of CO<sub>2</sub> from the buildings sector on an annual basis to reach the G-8's 2050 goal, which would require an additional \$1 trillion annual investment between now and 2050 based on the WBCSD model.
- Energy savings at current prices would recover most, but not all, of that investment. Reducing buildings sector emissions in line with global goals would cost an average of \$25 per ton of CO<sub>2</sub>.
- Barriers to improving efficiency in buildings mean that a \$25 per ton carbon price alone is insufficient to bring about the necessary transformation.
- Hence market-based climate policy needs to be coupled with new approaches to financing and stronger building codes to achieve emission-reduction targets.
- Failure to surmount these barriers increases the overall cost of reducing emissions for the global economy by more than \$500 billion per year.

- Increasing efficiency in the buildings sector can help offset the impact of climate change policy on businesses and consumers, preventing higher energy prices from translating into higher energy costs.

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## ABOUT THE AUTHOR

**Trevor Houser**, visiting fellow at the Peterson Institute for International Economics, is a partner at the Rhodium Group (RHG), a New York-based research firm, and adjunct professor at the City College of New York. He is currently serving as senior adviser to the US Special Envoy on Climate Change and will resume his work at the Institute in 2010. The views expressed in the Policy Brief are his alone and do not reflect the views of the US government. Mr. Houser's work focuses on energy markets, climate change, and the role emerging Asian countries play in both. His publications include *A Green Global Recovery? Assessing US Economic Stimulus and the Prospects for International Coordination* (Policy Brief 09-3, 2009), *Leveling the Carbon Playing Field: International Competition and US Climate Policy Design* (2008), and *China Energy: A Guide for the Perplexed* (2007).

## ABOUT THE PETERSON INSTITUTE

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## ABOUT THE WORLD BUSINESS COUNCIL FOR SUSTAINABLE DEVELOPMENT

**The World Business Council for Sustainable Development** (WBCSD) is a CEO-led, global association of some 200 companies dealing exclusively with business and sustainable development. The Council provides a platform for companies to explore sustainable development, share knowledge, experiences and best practices, and to advocate business positions on these issues in a variety of forums, working with governments, non-governmental and intergovernmental organizations. Members are drawn from more than 35 countries and 20 major industrial sectors. The Council also benefits from a global network of some 60 national and regional business councils and regional partners.