A Letter from the Sponsors:
Building and Construction Trades Department (AFL-CIO),
Industrial Union Council (AFL-CIO), International Brotherhood
of boilermakers, United Association of Plumbers and Pipefitters,
and Environmental Defense Fund

The United States today faces two major challenges and a choice of two futures. Our challenges: An economic downturn occurring at the same time we are seeing the early impacts of unchecked global warming. Our futures:

1. take no action on climate and follow business as usual, a future which is already being altered significantly by the cost of relying on imported oil and one which will entail huge costs related to the impacts of droughts, floods and other climate-related disruptions; or

2. put American ingenuity and skills to work to solve climate change, creating a huge market driver in the United States for climate solutions—with all the necessary labor and materials to make it happen.

The U.S. Congress is considering various legislative proposals to stabilize greenhouse gas (GHG) emissions and prevent the dangerous consequences of global warming. These proposals would catalyze a national transition to a low-carbon economy. A frequent concern for workers and business is “What are the economic implications of this transition?” Manufacturing Climate Solutions describes the economic opportunity inherent in a carbon-constrained world, a world where massive investments in climate solutions and related infrastructure will be needed.

Climate Solutions=Jobs
While some seek to pit the environment against economic growth, we see economic opportunity in the solutions to the climate crisis. Many business analysts agree. They believe the economic leaders of tomorrow will be companies that manage their resources efficiently and take the lead in developing and commercializing innovative clean technologies. These will also be the companies most able to create well-paying jobs and ensure that current jobs are secure.

The demand for climate solutions will create—very directly—manifold job opportunities in many sectors, from core industries such as renewable and energy efficiency businesses to traditional areas such as construction trades, pipefitting and electrical jobs. Equally important, though, is the vast supporting cast of industries that make these low carbon end products possible. Consider just one example: Demand for wind turbines is rising, and that’s good for turbine manufacturers. But the economic benefits don’t stop there: A wind turbine contains 8,000 parts, so demand for each one of these parts is rising, too. Following the links in the “value chain” for low carbon technologies reveals that these technologies have vast potential to grow sectors of our economy that aren’t traditionally associated with environmental protection.

The McKinsey 250—A Road Map of Economic Opportunity
Much at What Cost? Nearly 80% of these solutions are commercially available today. Together, they provide a road map for solving climate change. The McKinsey 250 also paints a picture of vast economic opportunity, given that each climate solution creates significant positive ripple effects throughout the economy in the labor and materials needed to supply low carbon technologies and products.

Technologies and Products for Reducing Greenhouse Gas Emissions

U.S. MID-RANGE ABATEMENT CURVE – 2030


Hidden Economic Opportunities: Value Chains
To illustrate the economic opportunities “hidden” in the value chains for low-carbon technologies, we engaged Duke University’s Center on Globalization, Governance & Competitiveness. They mapped out the value chains of five low carbon technologies and products: LED lighting, high performance windows (for energy efficiency), anti-idling technology for heavy duty trucks, concentrated solar, and Super Soil Systems (for hog waste management). This report provides detailed information on how these different climate solutions—all of them with the exception of Super Soil Systems commercially available today—are manufactured. Additional value chain studies in this series will be forthcoming and available at: http://www.cggc.duke.edu/environment/climatesolutions.
Real-World Success Stories
These new technologies and products may be funded by Silicon Valley and Wall Street, but the bricks and mortar jobs will be in the manufacturing heartland of America, where hundreds of companies are already benefitting from demand for renewable energy and energy efficiency. Success stories highlighted in this report include Cree, Inc. in Durham, NC, the U.S. leader in LED lighting, an energy efficient lighting technology. Cree has experienced tremendous growth in recent years, and the company’s revenue grew from $228 million in 2003 to $493 million in FY2008. Cree holds patents on a large number of LED technology improvements, and as demand for its innovative products has increased, the company’s work force has nearly quadrupled, from 893 people in 2002, to nearly 3,200 regular full and part-time employees in 2008. Thermo King Corporation, headquartered in Bloomington, MN, manufactures auxiliary power units (APUs), a key anti-idling technology for trucks. They are one of the top U.S. APU manufacturers, with 3,900 employees and $2.9 billion in sales for 2007. Infinia Corporation is an energy technology company that developed an innovative solar dish system, called the Infinia Solar System, specifically designed to be mass manufactured by U.S. auto manufacturers.

A U.S. Manufacturing Renaissance?
The transition to a low carbon economy may provide the best hope for a U.S. manufacturing renaissance. Some estimate the opportunity to be over 5 million jobs. Other studies focus on traditional skill sets that will be needed. We hope the value chain studies provided here add to the growing understanding of economic opportunity in a carbon constrained world.

In the end, jobs are created by individual businesses. Focusing on potential new market opportunities for businesses that already exist—which can be combined with energy efficiency strategies to help those same firms manage energy costs—can open a clear pathway to job security.

2 Apollo Alliance, http://apolloalliance.org/blog/?p=149
4 Three areas in particular shape how businesses can strategically respond to climate change: the ability to identify new market opportunities, the effectiveness of energy efficiency initiatives, and the re-tooling of logistics and transportation. This report illustrates the first of these three areas. But energy efficiency and logistics management offer equally important opportunities to enhance competitiveness. See The Council on Competitiveness, Energy Security, Innovation & Sustainability Initiative and Harvard Business Review, “Forethought: Climate Business, Business Climate,” October, 2007.