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# Welcome

**W**elcome to the sixth biennial ACEEE Summer Study on Energy Efficiency in Industry. The theme of this year's conference is *Sustainability and Industry: Increasing Energy Efficiency and Reducing Emissions*. We chose to address the overarching theme of sustainability in order to explore the links between industrial energy efficiency and some of the larger issues being discussed globally in meetings such as the World Summit on Sustainable Development where tens of thousands of participants—including heads of State, national delegates, leaders from non-governmental organizations (NGOs), and businesses—met in Johannesburg, South Africa last fall. We also chose the theme of sustainability because a growing number of industrial businesses are adopting and pursuing sustainability goals that include increased energy efficiency and reducing emissions. In addition, government policies and programs at the local, state, national, and international level are addressing these key industrial sustainability issues.

At the most abstract level, sustainability is defined as meeting the needs of the present without compromising the ability of future generations to meet their own needs. Translated more concretely with respect to industry, sustainability means not only using natural resources wisely and efficiently, but also providing products that minimize waste and pollution. This conference will focus on issues related to increasing the sustainability of the industrial sector, with an emphasis on improving energy efficiency and reducing related atmospheric emissions throughout the entire life-cycle of manufactured products. The sessions will highlight energy-efficiency technologies, policies, and actions that contribute to more sustainable industrial production both in the U.S. and internationally.

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The industrial sector consumes about 40 percent of the world's primary energy and is responsible for nearly the same share of the world's energy-related carbon dioxide (CO<sub>2</sub>) emissions. When all greenhouse gases are considered, industry's share is closer to 30 percent. Of course, there are significant differences in industrial energy use and emissions levels between countries, with the United States and China leading the world in total energy consumption and related emissions, respectively.

In the U.S., industrial sector primary energy consumption was 35 Quads (36 exajoules) in 2000, 35 percent of the country's total. For the first time, U.S. greenhouse gas emissions fell between 2000 and 2001, led by large declines in emissions from the industrial sector. Not only did energy-related CO<sub>2</sub> emissions drop, but also emissions of all six Kyoto Protocol gases declined, with the most significant reductions in the emissions of perfluorocarbons (PFCs) and sulfur hexafluoride (SF<sub>6</sub>). What fraction of these declines is related to specific energy-efficiency and emissions-reduction programs as compared to structural changes and economic factors is an area ripe for research and discussion.

The industrial sector in developing countries consumes close to 45 percent of their primary energy. In China, which is rapidly building its infrastructure and relies heavily on the industrial sector for basic materials such as steel and cement, this sector consumes nearly 75 percent of the country's primary energy. However, energy-related greenhouse gas emissions from China's industrial sector, as well as from the country as a whole, have been declining since they peaked in 1996 due to a combination of many factors including strong energy-efficiency programs, using higher quality coal, fuel-switching away from coal, and economic reforms throughout China that have led to structural changes in the industrial sector. While many of the energy-efficiency and greenhouse-gas-mitigation technologies and programs used in the U.S., Europe, and other industrialized countries can assist developing countries with moving toward a more sustainable energy path, the significant gains that some developing countries have already made must be acknowledged and built upon.

The goals of this Summer Study are to enhance communication between academic and government experts who conduct research in the field of industrial energy efficiency and sustainability, and the private sector who must ultimately implement energy efficiency and sustainability practices in addition to stimulating additional research on the technologies, products,

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social aspects, and policies required to achieve industrial energy efficiency and sustainability. Paper presentations each morning will provide detailed and practical information on subjects related to sustainability, organized into six panels: Industrial Energy Efficiency and Sustainability Issues; Leadership and Management Practices in Industrial Energy Efficiency and Sustainability; Policies and Programs to Achieve Industrial Energy Efficiency and Sustainability; Industrial Energy Efficiency Measures and Technologies; Combined Heat and Power and Distributed Power; and Data, Analysis, and Modeling. Afternoon informal sessions led by workshop participants will further explore research and activities related to industrial energy efficiency and sustainability.

In addition to the morning and afternoon sessions designed around these objectives, we will be featuring “Partnerships to Address Sustainability” on Wednesday. A “roundtable” discussion during lunch will introduce conference attendees to nearly a dozen organizations that bring together businesses that are leaders in the area of energy efficiency and sustainability. These multi-stakeholder groups provide myriad services to their business members and often require specific commitments to be made or actions to be taken related to improving energy efficiency or reducing greenhouse gas emissions. An evening Partnerships poster display session will provide a forum for the Partnership organizations to more fully discuss their programs with conference attendees.

Participants from around the world and from industry, government, academia, consulting firms, and utilities will spend three days sharing information and ideas on sustainability and energy efficiency. This mix of backgrounds and perspectives is critical to achieving the objectives of the Summer Study. We encourage all participants to actively engage in the discussions.

We welcome you to the 2003 ACEEE Summer Study, *Sustainability and Industry*, and trust that you will find your time and effort to participate rewarding.

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