

Major Energy Efficiency Gains, Carbon Cuts Possible With Greater Use of Mechanical Insulation

Annually, \$4.8 Billion in Energy Savings, 89,000 Green Jobs Achievable

A modest increase in the use of energy-efficient mechanical insulation would allow the U.S. to quickly generate significant energy demand reductions in the commercial and industrial sectors, create tens of thousands of green jobs and help cut the nation's greenhouse gas emissions, according to the National Insulation Association (NIA).

Mechanical insulation improves the operation of heating, ventilation and air conditioning (HVAC) systems, process piping and equipment, and refrigeration in commercial buildings and industrial plants, which are some of the largest energy consumers in the country.

NIA spent months analyzing government and private data to assess the mechanical insulation industry's potential to make the U.S. more energy efficient.

The association worked with Oak Ridge National Laboratory (ORNL) and the Energy Department's Industrial Technologies Program to assess possible gains in large and medium industrial facilities. The team relied on data from DOE's Save Energy Now program*, which conducts energy audits of industrial facilities, to determine the energy and environmental benefits from basic insulation use in large and medium plants. NIA and DOE/ORNL estimate that mechanical insulation could deliver more than \$1.9 billion in energy savings from simple *maintenance* of insulation in large and medium industrial plants. NIA estimated this maintenance work would create 12,000 jobs per year.

Said ORNL's Dr. Tony Wright, an expert on energy efficiency best practices, "Many of the large and medium plant energy assessments sponsored by the U.S. Industrial Technologies Program have identified mechanical insulation improvements as an important savings opportunity. Improvements in mechanical insulation in large and medium U.S. industrial plants are often a cost effective opportunity for reducing energy use and energy costs and should be seriously considered."

While significant, the \$1.9 billion in savings and 12,000 new jobs do not include potential efficiency gains that could be had in small industrial plants, the power sector or the commercial sector — think hospitals, schools and government buildings — which were not included in the universe of the Save Energy Now assessments. {The Save Energy Now assessments were primarily focused on process heating and steam systems. Thus, the above estimates do not represent the total energy or emission reduction potential for large and medium plants. Nor do the estimates consider energy efficiency improvements from increased use of mechanical insulation in new facilities. }

NIA then studied the potential in the small industrial plant maintenance market. When including this segment and the jobs needed to distribute the technology, NIA estimates mechanical insulation could improve industrial energy efficiency considerably more, saving more than \$2.5 billion in energy costs, eliminating 28 million metric tons of carbon dioxide and creating more than 16,500 jobs per year.

As President Obama and Congress work to increase energy efficiency — particularly to reduce the 40 percent of the nation's energy consumed by buildings — the data highlights the potential contribution of mechanical insulation.

To put the \$2.5 billion in energy savings in context — a modest increase in mechanical insulation use would exceed President Obama's goal to save \$2 billion per year from increasing energy efficiency in government buildings using all technologies combined.

“These findings suggest that mechanical insulation truly has been overlooked,” said NIA EVP/CEO Michele M. Jones. “NIA is working to help our nation move toward energy efficiency and independence, protecting the environment, and creating or preserving jobs through increased education about the benefits of mechanical insulation.”

NIA is currently refining estimates for the power/utility sector and preparing data on increasing insulation thickness beyond the ASHRAE 90.1 2007 guidelines for piping and HVAC applications. NIA’s preliminary estimates indicate that when including these areas there is an additional potential of \$2.3 billion in energy savings, a reduction of 15 million metric tons of CO₂ emissions and 73,000 jobs created. The total estimate illustrates the huge energy efficiency opportunity in the industrial and commercial sectors: \$4.8 billion in energy savings, a reduction of 43 million metric tons of CO₂ emissions and 89,000 new jobs. The CO₂ reduction would be the equivalent of shutting down nine coal plants every year.

* The number of plants and size categories were determined from the 2002 Energy Information Administration (EIA) Manufacturing Energy Consumption Survey (MECS-2002) data: 4,014 large (Energy Consumption more than 500 billion Btu/yr) and 112,398 medium (26-500 billion Btu/yr) facilities were included in the data, in addition to 84,298 small facilities (less than 26 billion Btu/yr) not included in the assessment universe.



About NIA

NIA is a not-for-profit trade association representing the contractors, distributors, laminators, fabricators and manufacturers that provide thermal insulation, insulation accessories and components to the commercial, mechanical and industrial markets throughout the nation. Since 1953, the association has been the voice of the insulation industry and is dedicated to keeping the commercial and industrial insulation industry up to date on the latest industry trends and technologies.

For more information, please visit www.insulation.org.

About the NIA Foundation for Education, Training and Industry Advancement

The NIA Foundation for Education, Training and Industry Advancement promotes the benefits of commercial and industrial insulation to end users, including specifiers, architects, energy managers, plant operators, building owners, facility managers, government agencies, and others. Its mission is to establish NIA as the recognized authority in the insulation industry, to increase industry professionalism, to provide educational tools and resources, and to increase awareness of the need for and benefits of insulation. The Foundation has developed training programs, a business presentation series, and many other educational tools and resources. For more information about NIA and the Foundation, please visit www.insulation.org



About The International Union

The International Association of Heat and Frost Insulators and Allied Workers (HFIAW) is over 100 years old. Established in 1903, its members continue to work conserving energy to help reduce the release of greenhouse gases into the atmosphere by insulating mechanical systems. The International Union has 86 Local Unions in the United States and 9 Local Unions in Canada, with approximately 25,000 highly skilled workers who work for 1,200 signatory contractors. All the members in the United States have completed an extensive Apprentice Training Program that includes up-to-date Health & Safety Training and is certified by the Office of Apprenticeship, a division of the U.S. Department of Labor. The International Union's signatory contractors, and members whom they employ, perform work in nuclear and coal-burning powerhouses, refineries, steel mills, water treatment facilities, factories, auto plants, airports, office buildings, schools, hospitals and commercial facilities to name a few. For more information about HFIAW, visit www.insulators.org.

About DOE's Industrial Technologies Program and Save Energy Now

The U.S. Department of Energy's Industrial Technologies Program's (ITP) mission is to improve national energy security, climate, environment, and economic competitiveness by transforming the way U.S. industry uses energy. Save Energy Now is a national initiative of the ITP to drive a 25 percent reduction in industrial energy intensity in 10 years. Companies nationwide can participate in no-cost energy assessments and utilize ITP resources to reduce energy use while increasing profit.

For more information, visit www1.eere.energy.gov/industry/.

For information related to the Save Energy Now data, please contact Dr. Tony Wright at Oak Ridge National Laboratory, wrightal@ornl.org or 865-574-6878.