ENERGY SAVINGS THROUGH AMERICAN CHEMISTRY

The U.S. business of chemistry is unique: we use energy to save energy. We are the principal supplier of materials that make the U.S. economy more energy-efficient. From insulation materials, roof coatings, lightweight vehicle parts and energy-saving tires; to appliances, light bulbs and materials for wind and solar power, our industry is essential to the nation's efforts to save energy and reduce greenhouse gas emissions. At the same time, as one of America's most energy intensive sectors we're improving energy efficiency and reducing greenhouse gas emissions in our own operations.

We Use Energy to Save Energy

American chemistry uses large quantities of energy as raw materials or "feedstocks" in the production process. Petroleum and natural gas contain hydrocarbon molecules that are split apart during processing and recombined into chemistry products, including a variety of energy-saving materials. Energy saved by the use of these materials equals lower greenhouse gas emissions throughout the U.S. economy. Here are a few examples of the energy-saving materials contributed by American chemistry:

- Building insulation materials made from chemistry save as much as 40 BTUs of energy for every BTU of energy consumed to make the material. House wraps save 360 BTUs of energy for every BTU used to make the material, and foam insulation can make a home up to 70% more energy efficient.
- Every pound of plastics and composites used to "lightweight" an automobile produces 2-3 pounds of weight savings in that vehicle.
- "Low rolling resistance" tires are made by adding chemistry products – silica and polysulfidosilanes – to tire tread to help increase fuel efficiency.
- Automotive and industrial lubricants rely on chemistry products to help reduce friction and energy usage.
- Solar power relies on silicon-based materials and other chemistry products.
- Wind power blades contain many chemistry products, including polyester and resin additives.
- Chemistry-intensive roof coatings help reflect solar heat away from the rooftop, promoting cooler indoor spaces.
- Compact fluorescent light bulbs, made with chemistry to "fluoresce" (give off light), use 70% less energy than conventional light bulbs and last 10 to 20 times longer.
- Appliances such as refrigerators and air conditioning equipment contain chemistry, including insulation and coolants, that have helped improve their energy efficiency by 30 to 50% since the 1970s.
- Vinyl windows have excellent thermal performance properties, while vinyl-coated wire and cable have high electrical resistivity, helping to prevent energy losses.

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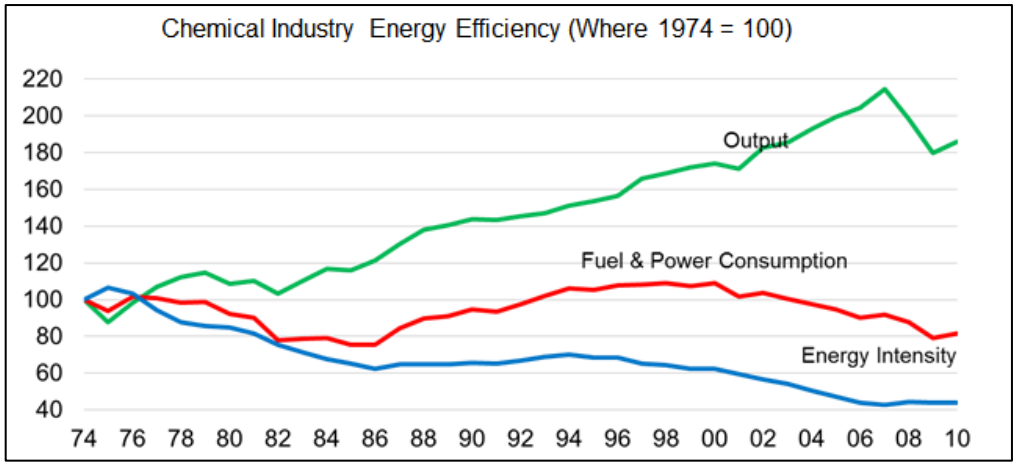
Improving Energy Efficiency

The U.S. business of chemistry has achieved significant energy efficiency gains. Since 1974, the business of chemistry has reduced its fuel and power energy consumed per unit of output by 56%. Since 1990, it has improved nearly 33%, which is the equivalent of a 2.0% annual gain in efficiency.

One way that the business of chemistry is improving its energy efficiency is through the use of combined heat and power (CHP), also known as cogeneration. CHP is the simultaneous generation of electricity and heat from a facility located near the manufacturing facility. Because most CHP facilities use natural gas and create two forms of energy (electric power and steam) with the same amount of fuel, they are often twice as efficient as older, coal-burning electric utilities. CHP is responsible for nearly 25% of our industry's power requirements.

Through the Responsible Care® program, a global chemical industry performance initiative implemented in the United States through the American Chemistry Council, we require members to report energy efficiency and greenhouse gas emissions intensity data to ACC. Through its website, www.responsiblecare-us.com, these companies are making available the most performance information of any private sector industry group.



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Reducing Greenhouse Gas Emissions

Between 1990 and 2010, the U.S. business of chemistry's greenhouse gas (GHG) emissions fell dramatically.

Direct Greenhouse Gas Emissions

Excluding indirect (or embedded) carbon dioxide emissions from purchased electricity, the chemical industry's greenhouse gas emissions fell 20% in absolute terms between 1990 and 2010, a reduction that would have exceeded the Kyoto Protocol target for the United States (7%) and the European Union (8%). At the same time, chemical industry production rose 29%. As a result, greenhouse gas emissions intensity fell (improved) 43%.

Reporting direct greenhouse gas emissions is consistent with the approach of many greenhouse gas emissions-related programs, including the Chicago Climate Exchange, U.S. Environmental Protection Agency's Climate Leaders Program, the California Climate Action Registry (CCAR), and the European Union's Emissions Trading Scheme (EU ETS), as well as the relevant elements of the GHG Protocol Corporate Standard (see www.ghgprotocol.org).

Indirect Greenhouse Gas Emissions (generated by other sectors)

Including indirect (or embedded) carbon dioxide emissions from purchased electricity, the chemical industry's greenhouse gas emissions fell 21% between 1990 and 2010. At the same time, chemical industry production rose 29%. As a result, greenhouse gas emissions intensity fell (improved) 39%.

The American Chemistry Council:

The American Chemistry Council (ACC) represents the leading companies engaged in the business of chemistry. ACC members apply the science of chemistry to make innovative products and services that make people's lives better, healthier and safer. ACC is committed to improved environmental, health and safety performance through Responsible Care®, common sense advocacy designed to address major public policy issues, and health and environmental research and product testing. The business of chemistry is a $674 billion enterprise and a key element of the nation's economy. It is one of the nation's largest exporters, accounting for ten cents of every dollar in U.S. exports. Chemistry companies are among the largest investors in research and development. Safety and security have always been primary concerns of ACC members, and they have intensified their efforts, working closely with government agencies to improve security and to defend against any threat to the nation's critical infrastructure.

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