

A photograph of several high-voltage electrical transmission towers and power lines stretching across a clear blue sky.

**Smart
Grid**

A photograph of an industrial manufacturing setting, showing robotic arms and machinery working on a car chassis, with bright sparks emanating from a welding point.

**Industrial
Efficiency**

A circular graphic with a white center and a dark blue border decorated with white stars. The text is written in a red, cursive font.

***Energy
Efficiency &
Economic
Growth***

A photograph of a busy city street at night, with multiple cars and a bus in motion, their headlights and taillights blurred.

**Intelligent
Transportation
Systems**

A photograph of a modern, multi-story building with a glass facade, viewed from a low angle looking up.

**High
Performance
Buildings**

High Performance Buildings

Buildings consume 40% of the primary energy and 70% of the electricity in the U.S. annually.¹ Recent advances in building equipment, lighting, sensors, controls, and integrated systems now make it possible to achieve a significant reduction in a building's energy use, transforming older inefficient buildings into high performance buildings (HPBs). In addition, through automation, individual buildings and groups of buildings can interact with the power grid to manage peak demand. HPB products make buildings smarter, safer and more efficient, while contributing to energy security and creating jobs.

Residential Energy Efficiency

Just as the electric grid, buildings, highways, and factories are getting smarter and more efficient, so are America's homes. According to the Dept. of Energy, over 50% of a typical home's energy is used for heating and cooling the occupant space, 18% to heat water, and 6% for lighting.² Reducing these amounts can significantly reduce the monthly financial burden on homeowners, which strengthens their purchasing power and the overall economy. NEMA members manufacture Energy Aware™ Programmable thermostats, highly efficient zonal heating systems, lighting controls, smart meters, and home energy management systems that integrate electricity, gas, and water utility distribution with energy storage systems, smart appliances, rooftop solar panels, and electric vehicle charging.

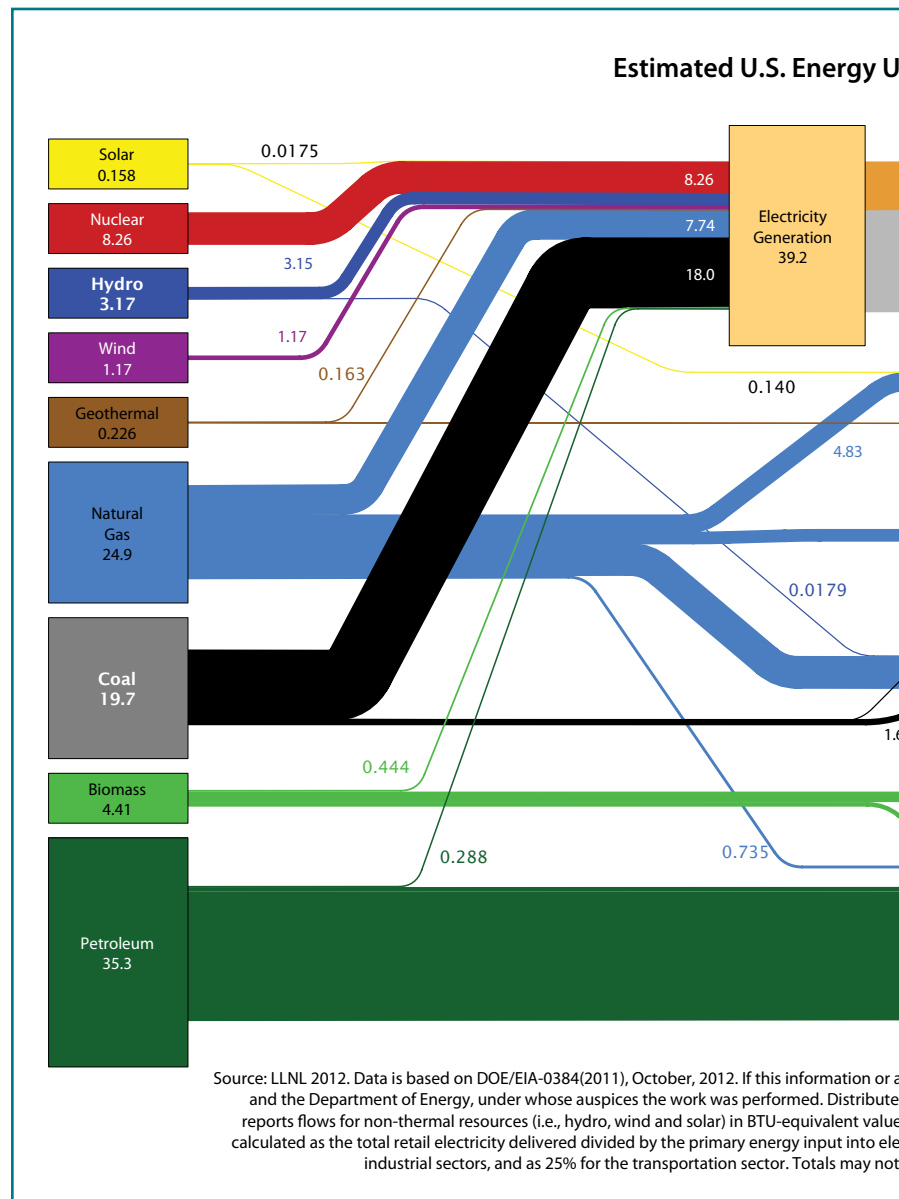
Industrial Energy Efficiency

According to the Dept. of Energy, in 2010 the industrial sector used 21% of the nation's total energy consumption, and 23% of the nation's electrical energy.³ When high-efficiency drives and NEMA Premium® motors are combined with sensors, intelligent process controls and monitoring systems, it is estimated that 15-30% energy savings are attainable in most industrial environments.⁴ These savings go directly to a company's bottom line, resulting in more efficient productivity, less cost per unit produced, and lower prices to consumers—all of which improve international competitiveness.

Fact: In 2011, the U.S. wasted

Greater Energy Efficiency will boost economic productivity

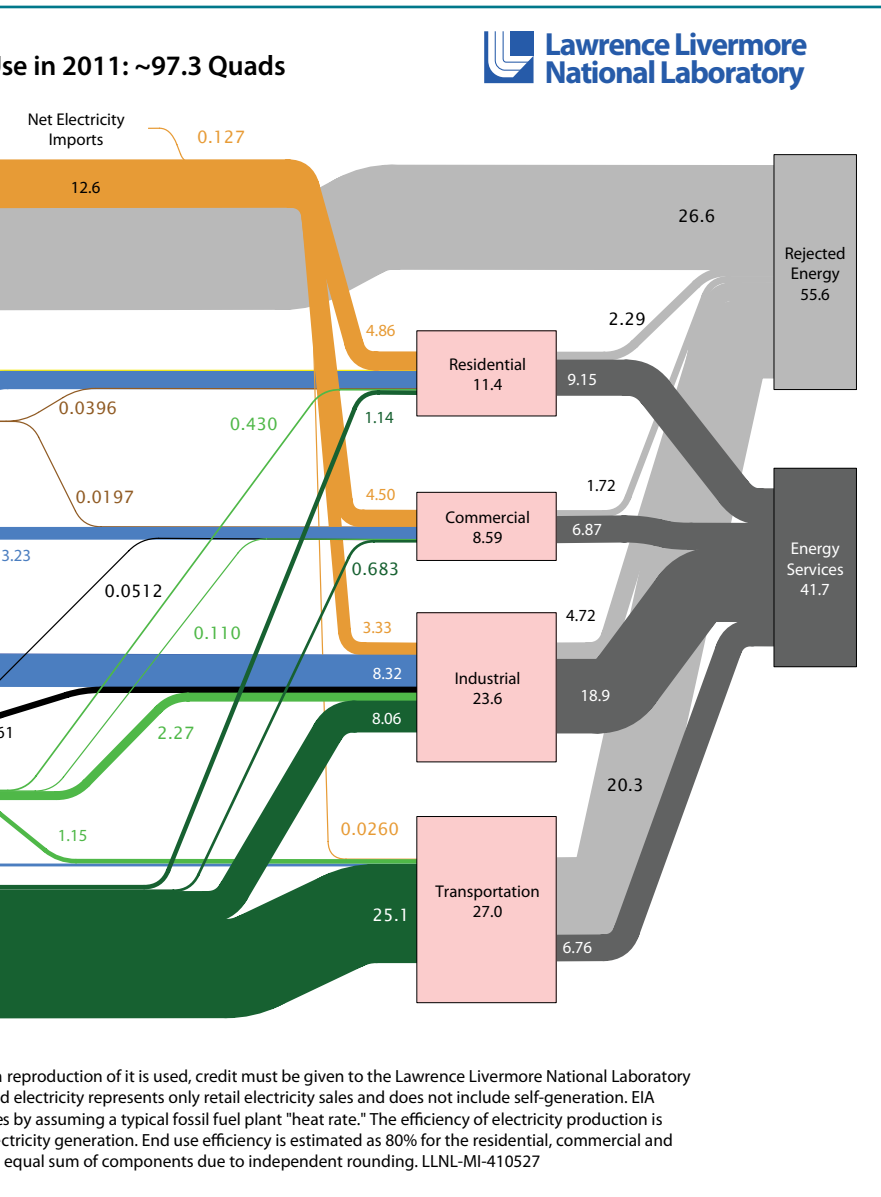
The chart below shows: U.S. energy sources on the left side in quadrillions of BTUs; their respective contributions to "electricity generation" in the middle box; the amounts of electricity and other sources used by the four categories of energy usage in the pink boxes on the right; and the gross amount of energy used and wasted ("rejected energy") in the U.S.



more energy than it consumed.

and competitiveness and enhance U.S. energy security.

NEMA's member manufacturers, covering 50-plus industry sectors, are in the business of electrical products that lead to greater energy efficiency and less waste: a smarter electric grid; high performance buildings in the commercial sector; smart homes in the residential sector; factory automation and control in the industrial sector; and intelligent transportation systems (ITS).



Smart Grid Efficiency

NEMA members manufacture equipment that will build America's Smart Grid—a 21st century electric grid that uses information and communications technologies, such as smart meters and high-tech sensors to isolate problems and repair them remotely; recover more quickly from extreme weather outages; and maximize the efficiency, reliability and affordability of electricity. Smart Grid solutions consume less energy through energy storage technologies, micro-grids, and combined heat & power (CHP) applications; allow energy efficient buildings and residences to sell power to the grid; and accommodate a growing number of electric vehicles—all of which contribute to energy efficiency and economic growth.

Intelligent Transportation Systems

The future of transportation and traffic management is at a turning point and NEMA members are leading the way with high-tech traffic controllers, dynamic messaging signs and advanced traffic signals—in short, intelligent transportation systems (ITS). U.S. energy efficiency, as well as traffic congestion, safety, and the environment, are all improved with deployment of ITS technologies on U.S. highways and high-volume roads.


For example, proper signal timing and real-time traffic information reduce volume-related congestion and prevent accidents that lead to more delays. Less congestion means lower emissions, less wasted fuel and higher productivity. In addition, making smarter use of existing capacity means fewer new roads need to be constructed, road-widening becomes less necessary, and more resources are available to ensure physical integrity and safety of existing roads and bridges.

¹ U.S. Dept. of Energy, *Buildings Energy Data Book (2011)*

² U.S. Dept. of Energy, *Buildings Energy Data Book (2011)*

³ U.S. Energy Information Administration, *Annual Energy Review (2011)*

⁴ Collated from Siemens, Eaton, and Rockwell case studies.



The U.S. currently wastes more energy than it consumes. Greater energy efficiency will boost economic productivity and competitiveness and enhance U.S. energy security. NEMA members are leading the way on high tech solutions to achieve greater efficiency.

High Performance Buildings: High efficiency lighting, sensors and controls; integrated building systems, automation.

Industrial Energy Efficiency: High efficiency systems involving proper combinations of: drives, motors, generators and insulating material; industrial automation and control products; and efficient lighting.

Residential Energy Efficiency: Energy Aware™ Programmable thermostats, zonal heating systems, lighting controls, smart meters and sub-metering, home energy management systems, energy storage systems, electric vehicle charging (EVSE).

Smart Grid Efficiency: Smart meters, sensors, energy storage, micro-grids, combined heating & power (CHP).

Intelligent Transportation Systems (ITS): Traffic controllers, dynamic messaging signs, advanced traffic signals, sensors, detectors, central systems.

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Useful Links:

- For information on electricity restoration, see www.nema.org/afterthestorm
- For information on NEMA and Energy Efficiency, see www.nema.org/policy/energy/efficiency
- For information on Smart Grid Return on Investment (ROI), see www.nema.org/Smart-Grid-ROI
- For information on Policy Briefs, see www.nema.org/Policy-Briefs
- For information on NEMA's initiatives, see www.nema.org/Saving-Energy-and-Saving-Lives