



# CLEAN ENERGY PARTNERS

Solutions for Energy Security  
and Economic Growth

# Energy Efficiency

# Renewable Energy

# Natural Gas

Reliable and affordable energy is a fundamental part of our lives. Energy is needed to provide heat, light and cooking in our homes; it is used for communication, transportation and industrial processes; and is the engine that supports our country's economy.



Energy efficiency, renewable energy and natural gas support millions of jobs today in every state of the country and present the opportunity to create millions more U.S. jobs with the appropriate market conditions.

---

**Readily-available clean energy options solve two of our nation's most pressing challenges: economic growth and energy security.**

---

The Business Council for Sustainable Energy's coalition of industries—energy efficiency, renewable energy and natural gas—together provide a portfolio of readily-available options to solve two of our nation's most pressing challenges: economic growth and energy security. Clean energy solutions are protecting consumers from sharp increases in energy prices, making government, businesses and homes more energy efficient and competitive, while making our nation more energy independent and secure.

Commercially-available clean energy options also have significant job creation power.

Government can help improve our energy security at home and unleash clean energy's economic power by establishing a level playing field for clean energy technologies to compete and by providing a consistent policy framework to inform investment decisions. Making greater use of these domestic resources will put more money back in homeowner and business budgets, create jobs, and result in a more productive energy system and national economy for years to come.

---

**Clean energy technologies need a level playing field to compete and a consistent policy framework to inform investment decisions.**

---

Working in a clean energy partnership, natural gas, energy efficiency and renewable energy each play an important and complementary role.

# Energy Efficiency: A Cost Saver

Energy is so much a part of life that we often use it without thinking, especially when it is in the form of electricity or energy used to heat our homes and businesses. Our homes and businesses account for 40 percent of the energy we consume and 30 percent of total energy usage comes from the industrial sector.

Policies to expand the deployment and financing of energy efficiency technologies and services, on both the supply-side (producing energy) and the demand-side (using energy), will save consumers money and mitigate the impact of spikes in energy prices.

Further, energy efficiency lowers overall energy demand and reduces the need to build costly new power plants or rely on risky sources of supply. Energy efficiency also includes “smart” technologies that empower households and businesses to choose the most affordable time to draw upon energy resources.

**Energy efficiency and demand response help consumers and businesses reduce their energy costs—pumping more money into the economy for investment and job creation.**

A McKinsey & Company study,<sup>1</sup> sponsored in part by the U.S. Department of Energy, identified opportunities for energy efficiency that could result in up to \$700 billion in savings to the U.S. economy. In a budget-constrained economy, these savings are priceless. The study also found that elevating energy efficiency to a national priority could produce 600,000 to 900,000 jobs.

Energy efficiency also makes our country more secure by reducing our reliance on imported energy, and is the quickest, cleanest, and most cost-effective way to meet our energy needs with a domestic resource.



## Saving Money through the Retro-fit of an American Icon

Johnson Controls, Inc. based in Milwaukee, Wisconsin, is part of an innovative collaboration to bring large-scale energy efficiency retrofits to the Empire State Building in New York City, New York. This multi-phase project will reduce the building's energy use by up to 38 percent and its energy costs by \$4.4 million annually.

*Improvements to infrastructure and tenant energy use are making the Empire State Building more efficient.*

Energy efficiency technologies in the BCSE coalition include: advanced batteries, combined heat and power (CHP) and recycled energy, demand response, heating, ventilation and air conditioning systems (HVAC), information communication technologies, insulation, industrial efficiency processes, and commercial and residential building products and services.

# Renewable Energy: A Job Creator

Renewable energy is a free source of energy that is clean to capture and generate. Once the equipment is installed—a solar panel, wind turbine, hydroelectric facility, or geothermal well—the only on-going costs are for operation and maintenance.

As our energy infrastructure ages and demand continues to grow, renewable energy provides a practical and domestic power supply with significant job creation benefits. Integrated with energy efficiency investments and domestic natural gas, the deployment of renewable energy technologies will result in a U.S. energy portfolio that is diverse, reliable and secure.

**Together, energy efficiency, renewable energy and natural gas can meet our nation's growing energy needs while adding millions of family-supporting jobs across the country.**

The Council's broad portfolio of renewable energy technologies produce more than just megawatts—they produce jobs. For example:

Wind generation accounted for 39 percent of all new generating capacity added in 2009. With a major national commitment to clean energy, wind energy could potentially provide 20 percent of our electricity<sup>2</sup> while creating 500,000 jobs in the wind sector.

The United States has some of the best solar resources in the world, with enough suitable roof space to provide 20 percent of our electricity and water heating and enough suitable land to power the country several times over. The solar industry currently employs almost 100,000 Americans across all fifty states, and is projected to support over half a million American jobs by 2016.<sup>3</sup>

Hydropower currently provides 6-8 percent of all U.S. electricity generation<sup>4</sup>, with a 60,000 megawatt (MW) potential capacity increase by 2025, and a 400,000 MW technical potential.<sup>5</sup> With strong policies in place, the U.S. hydropower industry can add 1.4 million cumulative family-supporting jobs in all regions by 2025, adding to the 300,000 jobs the industry currently provides.<sup>6</sup>

It has been estimated that 72-325 jobs per billion cubic feet (Bcf) of renewable bio-gas can be created, depending on the source. Given a market potential of 1,800 Bcf<sup>7</sup>, the job creation potential would be 516,000 new jobs across the country.

Renewable energy is represented in the BCSE coalition by manufacturers of technologies that use bio-gas, biomass, geothermal, hydrogen and fuel cells, hydropower, solar, and wind resources as well as project developers and utilities that purchase renewable energy.



## Renewable Energy for the Military—Cuts Costs, Supports Logistics and Saves Lives

SkyBuilt Power of Arlington, Virginia, provides rapidly deployable, renewable energy power stations for military and commercial markets. For the U.S. military, these stations in the field supply more reliable communications power, allow for more efficient use of energy and logistics and reduce an external threat to deployed troops. For every 24 fuel-delivering convoys, one soldier dies or is injured; and for every 1 percent of fuel saved, over 6,000 convoys can be eliminated.

*SkyBuilt Power's SkyTower—Solar, wind power—no fuel needed.*

# Natural Gas: Flexible, Efficient and Reliable

Natural gas is a clean, domestically abundant fuel, which can be used efficiently to produce both electricity and high quality thermal energy to heat and provide other services to homes, businesses, and government buildings.

Natural gas is a flexible resource and is well suited to help expand renewable energy generation across the country. Natural gas power plants can quickly and efficiently change their level of output, which makes them ideally suited for accommodating variability in electricity supply and demand on the grid, including that associated with renewable resources.

Further, in typical home appliances, direct use of natural gas reduces energy consumption on a full-fuel-cycle basis, more than 25 percent compared to a similar all-electric home.<sup>8</sup>

**Natural gas is a flexible energy resource that supports greater integration of renewable energy.**

Natural gas power plants are also a low-cost source of capacity for meeting electric demand; and in optimal designs, natural gas-fired CHP plants can achieve thermal efficiencies of 70 to 90 percent while conventional methods of producing usable heat and power separately is typically only 45 percent efficient.

Stationary fuel cells, powered by biofuels or natural gas are also a source of efficient, clean, reliable power that can be generated on-site, providing both thermal energy and electricity for commercial and industrial companies as well as government and utilities.

With at least one hundred years of reserves available in the United States<sup>9</sup> and technological advances in natural gas extraction, natural gas offers a reliable domestic resource. These technological advances result in a production process that leaves a smaller footprint, involves less land and well pads, and reduces air pollution.<sup>10</sup> An essential



## Transforming Waste to Energy and Delivering Natural Gas to Homes

In February 2011, Southern California Gas Company, a subsidiary of Sempra Energy, partnered with the city of Escondido, California to launch a demonstration project that purifies methane gas from wastewater treatment plants for potential use in homes and businesses. By employing this new process, the city of Escondido can produce enough natural gas to serve about 1,200 homes and reduce the amount of gas flared by over 90 percent.

*Methane produced on-site will be captured and purified to meet stringent California gas-quality standards at a resource recovery facility in Escondido, CA.*

element of unlocking the benefits of natural gas is ensuring that the production is done in an environmentally sustainable manner that protects public health.

Natural gas industries included in the BCSE coalition include load distribution companies, natural gas-fired electricity generators, natural gas pipelines, natural gas suppliers and leading natural gas research organizations.

## About the BCSE

The Business Council for Sustainable Energy (BCSE) is a coalition of companies and trade associations from the energy efficiency, natural gas and renewable energy sectors, and also includes independent electric power producers, investor-owned utilities, public power, commercial end-users and project developers and service providers for environmental markets. Founded in 1992, the Council advocates for policies at state, national and international levels that increases the use of commercially-available clean energy technologies, products and services. The coalition's diverse business membership is united around the revitalization of our economy and creation of a secure and sustainable energy future for America. For more information, please visit the Council's website at <http://www.bcse.org>

## REFERENCES

- <sup>1</sup>McKinsey & Company, Inc. (2009). *Unlocking Energy Efficiency in the U.S. Economy*. July 2009. Available at <http://www.mckinsey.com/USenergyefficiency>.
- <sup>2</sup>U.S. Department of Energy.(2008). *20% Wind Energy by 2030: Increasing Wind Energy's Contribution to U.S. Electricity Supply*. May 2008. Available at <http://www.eere.energy.gov>.
- <sup>3</sup>Solar Energy Industries Association, Online: <http://www.solarworksforamerica.com/>.
- <sup>4</sup>U.S. Energy Information Administration. (2011) *Electric Power Monthly*. February 2011. Available at: <http://www.eia.doe.gov>.
- <sup>5,6</sup>National Hydropower Association. (2010) *Job Creation Opportunities in Hydropower*. April 2010. Available at <http://www.hydro.org>.
- <sup>7</sup>Milbrandt, A., "A Geographic Perspective on the Current Biogas Resource Availability in the United States," NREL/TP-560-39181, December 2005. Table 10.
- <sup>8</sup>Geothermal Energy Association. 2010. Geothermal Industry Interim US Market Update. October 2010. Available at: <http://www.geo-energy.org>.
- <sup>9,10</sup>Navigant Consulting. (2009) "An Unconventional Future." World Gas. July 2009. Available at: <http://www.navigantconsulting.com>.