

## ENERGY POLICY

Energy production and use have significant implications for our environment, economy, and national security and is a critical and complex policy issue. Federal, state, and local governmental actions help shape U.S. energy production, distribution, and consumption. The ACS acknowledges that currently no single energy technology is simultaneously reliable, affordable, clean, and secure for all people in the United States. Energy policy must balance short-term goals, such as low costs to encourage economic growth, against long-term goals, such as environmental protection, security, and resilience. It is important to develop new and existing energy technologies to support a diversified energy portfolio. Technology innovations drawn from chemical enterprises have elevated U.S. energy independence following the rapid expansion of natural gas and renewable energy sources. The current abundance and stability in the energy landscape presents an opportunity for the U.S. government and industry to develop, promote and adopt clean energy innovations that are not solely based on fossil fuels.

The ACS believes the following core objectives should drive energy policy and use in the United States:

- 1) Provide a stable and sustainable supply of energy from multiple sources.
- 2) Continue development and use of renewable and carbon-free technologies.
- 3) Modernize energy generation, distribution, storage, efficiency and security infrastructure.
- 4) Support responsible land use and environment protection.

### Fossil Fuel Based Energy Resources

Coal, oil and natural gas continue to be an important energy source in the United States, but the full environmental, economic, and security costs associated with using these resources must be factored in to their market prices and national energy decision-making. The negative environmental impacts of burning fossil fuels need to be addressed by implementing better management practices such as further reducing carbon emissions. In addition, methane leaks during gas production, transport, storage and distribution need to be reduced in order to realize the greenhouse gas emission benefits of energy from natural gas in comparison to burning coal. As “clean coal” technology development and demonstration has underperformed in the domestic energy market despite sustained support, ACS urges that continued research in this field promote the transfer of clean coal technologies to developing nations where clean coal may be a more viable option to a lower carbon economy.

The ACS advocates for:

- More aggressive carbon mitigation and sequestration strategies that will reduce harmful environmental effects of fossil fuel combustion.
- The transition from the excessive use of fossil fuels for combustion to their conserved use as feedstock for new materials such as carbon fiber, graphene, and graphite foams for energy capture and storage.

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The American Chemical Society (ACS) Board of Directors Committee on Public Affairs and Public Relations adopted this statement on behalf of the Society at the recommendation of the Committees on Chemistry and Public Affairs, Environmental Improvement, Science, and Corporation Associates. ACS is a non-profit scientific and educational organization, chartered by Congress, with more than 157,000 chemical scientists and engineers as members. The world's largest scientific society, ACS advances the chemical enterprise, increases public awareness of chemistry, and brings its expertise to state and national matters.

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## **Renewable and Carbon-Free Energy Resources**

Renewable energy resources are naturally replenishing, but flow-limited in the amount of energy that is available per unit of time. Renewable sources include biomass, hydro, geothermal, solar, wind, ocean thermal, wave action, and tidal action. Nuclear energy, while not considered a renewable source, provides a more carbon-free source of electricity with high energy density, utilization and reliability. The continued development of next generation reactors is expected to protect the climate, boost the economy, and ensure our global leadership and competitiveness. The ACS recognizes valid public concerns about the safety and potential environmental impact of nuclear energy, while at the same time acknowledging that safe implementation and use can be achieved as has been demonstrated by U.S. military nuclear programs.

The ACS recommends the U.S. government:

- Prioritize long-term, coordinated support for technologies and processes that (1) are transformative and (2) manage resources through their life cycle as defined by the ACS Sustainability statement.
- Make robust investments in the procurement of energy from renewable energy resources and expand efforts to use renewable energy and materials in chemical manufacturing.
- Enact consistent, long-term policies to increase the competitiveness of renewable and sustainable technologies and to reduce greenhouse gas emissions.
- Encourage development of next generation, advanced nuclear reactor designs and preemptively adapt its regulatory stance to be consistent with emerging concepts including small modular and breeder reactors and nuclear waste management.

## **Electric Grid and Other Energy Infrastructure**

Today's complex and changing energy system comprises a range of organizations and infrastructure for extracting, processing, storing and transporting fuel; as well as systems, including distributed resources and the electric grid, for generation, transmission, and distribution of electricity. This energy system is subject to changes in technology, markets, and policies in multiple jurisdictions, which can affect consumers' energy access and costs. It is in the national interest to improve and support the resilience, reliability, flexibility, sustainability, and security of these systems.

The ACS encourages programs that:

- Improve the coordination between government and the private sector to facilitate updating, maintaining, and protecting the nation's energy infrastructure, especially with respect to physical and cyber threats.
- Address concerns about critical material supply and supports research into sustainable alternatives.

## **Conservation & Efficiency**

Improving energy efficiency and conservation is the easiest, least expensive, and most practical ways to make positive impacts on fuel consumption and energy use, particularly in the short term. Developing energy technologies to foster safe, secure, efficient, and innovative use of resources should align with a sustainable food-energy-water system.

The ACS recommends:

- To continue government leadership in energy efficiency, implementing and periodically strengthening mandatory fuel-efficiency standards for light-duty, heavy-duty and fleet vehicles and supporting more energy efficient building codes and standards.

- Adopt measures such as efficiency labeling, and tax incentives to encourage the sale of more efficient vehicles and buildings. Incentives and regulations must be predictable and ongoing to encourage efficiency and conservation at the residential and commercial level.
- Voluntary standards and assessment systems be continued and expanded.

### **Electrification**

The move to truly renewable electricity supply holds great promise to reduce the fossil energy supplied to buildings and transportation, the two largest current users. Renewable electricity used in heating and transportation will reduce fossil fuel use and cut greenhouse gas emissions.

The ACS supports:

- Incentives that promote electric vehicles and the infrastructure to support their use.
- Continued development of better renewable electricity production technology, low resistance super conducting materials, improved batteries, heat pumps and other technologies using carbon-free electricity.
- Programs that support better grid integration and the transition to renewable resources.