ENVIRONMENT & ENERGY COMMITTEE

Position Paper on Energy Policy

Issue

There is a direct link between energy consumption of all types and sources and the U.S. economic output. In addition, America's increasing dependence on oil from unstable foreign nations threatens our energy security. Efficiencies in energy production and consumption due to technology and operational improvements have reduced the relative energy use per dollar of the GDP, however per capita energy use is stable or slightly increasing.

While technology is expected to move the U.S. economy to increasing efficiencies, the nation will still consume significantly increased amounts of energy as our population and economy continues to expand. The importance of the relationship between population and energy use should not be understated. The current Census Bureau estimate of the U.S. population is 303 million, an increase of 34 percent over the last 27 years. Even assuming the U.S. population increases remain the same over the next 27 years and we maintain a flat per capita energy use, we will still need 34 percent more energy just to maintain our domestic economy. It will take a robust, diverse, and innovative approach to energy development to meet the nation's future needs.

By sectors, annual transportation energy consumption, composed largely of liquid petroleum fuels, is predicted to rise to 33 quadrillion BTUs by 2030. Enhancing the nation's energy independence will require the reduction of U.S. consumption of transportation fuels and the increased domestic production of oil, natural gas, and alternative fuels. In addition, new technologies such as plug-in hybrid electric vehicles employing developing technologies, as well as strategies such as multi-modal freight movement and mass transportation will enhance efficiency, improve performance, and reduce emissions.

Annual industrial consumption will approach 28 quadrillion BTUs by 2030, while residential and commercial energy use will exceed 24 quadrillion BTUs. Energy-efficient buildings use less energy, cost less to operate, and improve efficiency as well as comfort. Significant returns can be achieved by adopting energy-efficient materials, technologies, and practices in building new structures, retrofits, and maintenance. In every sector of the economy, there are significant opportunities for energy savings in all types and uses of buildings and structures.

In addition to escalating energy consumption, the cost of energy is increasing at a substantial rate, particularly in the last several years. Such costs place inflationary pressures on the U.S. economy, as well as potentially slowing economic growth that would otherwise occur in a lower energy price environment.

Electricity production is comprised of the following energy fuel sources – coal, natural gas, nuclear energy, hydropower, renewables, and petroleum-based liquids. Coal,

currently the largest fuel source for generating electricity, is expected to provide over one-third of the fuel for electric power plants by 2030. The continued domestic development and production of each of these conventional fuel sources helps secure national security and America's economic well-being.

Renewable energy sources are increasingly playing a larger role in the country's energy portfolio. Since 2001, electricity generated from wind power in the U.S. has grown 550 percent and photovoltaic solar power has grown by 525 percent; and overall, renewable power has nearly doubled. The U.S. led the world in new wind capacity in 2006 and 2007 and currently leads the world in geothermal electricity generation. Federal incentives for production and continuing research and development of renewable energy sources are critical.

In addition, a renewable portfolio standard (RPS) uses market mechanisms to ensure that a growing percentage of electricity is produced from renewable sources. It also provides consistency in the development of renewable technologies and will result in more certainty regarding utility capital spending for developing technologies. The RPS diversifies the power supply by developing domestic renewable energy resources that not only help shield consumers from future spikes in energy prices, but also decentralize our energy infrastructure, providing relief to utility delivery systems.

The U.S. and Canadian electricity transmission grid consists of more than 200,000 miles of high-voltage lines delivering electricity to more than 300 million people. A robust system of transmission lines is critical to our national security. Because of electrical resistance, typical transmission lines lose a percentage of the electricity passing through them. "Superconducting" materials used to transmit electricity can significantly reduce the losses and make transmission systems far more efficient. As our country's demand for electricity continues to increase, and as renewable energy sources connect to transmission networks, the system must be expanded and upgraded to meet the needs of our growing population and economy.

Position

Engineering firms will be at the forefront of implementing energy policies enacted by the U.S. Congress. The ACEC Environment and Energy Committee supports the following energy policy concepts:

- Incentives for alternative energy development should consider and improve the overall energy security of the country. Transportation energy policy should focus on balancing cost with efficiency improvements as well as incentives for additional biofuels development and increased use of electricity for transportation.
- Energy policy incentives addressing plug-in hybrid vehicles must be coordinated as to desired effects on the transportation and electric utility sectors.
- Energy policy should recognize hydrogen as an energy storage and transportation option, but not as an energy source. Hydrogen incentives should focus on transportation fuel improvements and fuel cells.

- Energy policy should encourage additional capacity on electric transmission lines and balance initiatives for new facilities to be added to the transmission grid. In addition, there should be effective and efficient regional operation of all transmission facilities.
- Since electricity distribution systems can be the source of significant electrical losses, effective energy policy should address technology initiatives and standards that reduce inherent losses.
- Energy efficiency in the utility sector should focus on utility infrastructure as well as customer usage. "Smart" buildings, "smart" appliances, and intelligent utility infrastructure should be components of an integrated system.
- A national renewable portfolio standard for utilities should be adopted, allowing states the flexibility to implement more aggressive standards.
- Although building efficiencies have been a target of LEED building design for a number of years, retrofitting has been slow and much remains to be done to improve building energy efficiency. Energy policy should address incentives for new construction as well as retrofits, upgrades, and operational improvements.
- Energy policy must recognize that U.S. energy and security needs require use and development of domestic energy resources in an environmentally sensitive fashion, including coal, oil, natural gas, shale oil, tar sands, nuclear, and renewables.
- The potential for increased efficiency from coordinated and integrated water, wastewater, and electricity systems should be encouraged, developed, and enhanced. In addition, incentives for the production of renewable energy from such systems should be adopted.
- Climate change policy affecting the electricity sector should include diverse and broadly deployed technology options including:
    1) Efficiency of generation production, transmission and distribution. Consumption should be addressed at the residential, commercial, and industrial retail level.
    2) Renewable technologies balancing nearer-term technologies (wind, bio mass, solar, small-scale hydroelectric, etc.) with longer term R&D (ocean thermal, wave, tidal, etc.).
    3) Clean coal technologies including carbon capture and storage.
    4) New nuclear plant development.
- Energy policy should not be solely driven by climate change concerns, but should include components addressing a fully functioning and efficient marketplace particularly in those areas of market evolution such as electricity. Any attempt to address climate change through legislation and regulation of greenhouse gas emissions must necessarily have a coordinated approach to underlying energy policy.

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