

CLIMATE ISSUES

Meeting Electric Demand Requires the Right Mix

In order to meet growing demand for electricity, every available energy option - coal, nuclear, natural gas and renewables such as wind and solar - must be considered.

Electricity is produced as base-load power and peaking power. Base load power is the energy necessary to keep the electricity grid energized and meet customers' constant demand. Peaking power is energy that comes on and off for several hours throughout the day, when electricity usage and energy demand goes up. Peaking power is much more expensive than base load.

Fuel sources for base-load power include those that are economical and readily available, such as coal and nuclear. Peaking fuel is predominantly natural gas. Intermittent resources like solar and wind, that produce electricity only when there's sufficient direct sunlight or sufficient sustained wind speed, are other options.

Coal

Coal is our most abundant, affordable fuel source for electricity. A quarter of all of the known coal in the entire world is here in America—in fact, America has more than 250 billion tons of recoverable coal reserves, the equivalent of 800 billion barrels of oil, or more than three times Saudi Arabia's proven oil reserves.

Large coal deposits can be found in 38 states. At the current rate of consumption, we are capable of meeting domestic demand for more than 250 years. Currently, coal provides half of America's electricity generation and more than twice as much as the next-highest contributor, nuclear. It is used to power base load generating plants—those facilities that run throughout the day to provide the electric supply that is constantly required.

Given the huge role coal plays in meeting our electricity demands, it is important that we make sure it is a clean energy source. Over the last 30 years, America's coal-based electricity providers have invested over \$50 billion in technologies to reduce emissions. As a result of that commitment, today's coal-based generating fleet is 70 percent cleaner on the basis of regulat-

ed emissions per unit of energy produced.

Because coal is abundant in America and less expensive than other fuels used to generate electricity, the economics of using coal to generate electricity makes sense. Without it, America would be forced to rely more upon imported energy sources to meet our electricity needs.

Natural Gas

Although a fossil fuel like coal, natural gas burns cleaner and the facilities required to convert natural gas to electricity are less complex but more expensive to build. However, the supply of natural gas, and its resulting prices, have been highly unstable over the past five years, making it very expensive to use for generating electricity.

Mississippi has a number of gas-fired facilities built during the past ten years that are infrequently used because they're not economical compared to other generation sources. Other states have rejected proposals for natural gas-fired plants because of price concerns.

Balancing cost becomes one of the electric power industries greatest challenges. How much risk can we assume moving forward, knowing that rising natural gas costs will mean higher costs to members?

The availability of natural gas is also a concern. The U.S. Energy Information

Administration estimates that if natural gas consumption continues at current known rates, domestic reserves will be depleted in about 10 years. There have been renewed questions lately about whether the U.S. should begin more domestic drilling to provide additional gas production.

The United States currently imports liquefied natural gas (LNG) from Trinidad, the Caribbean, Egypt, Nigeria, and Algeria. LNG is essentially methane that has been cooled and liquefied for easier long-distance transport. Double-hulled tanker ships bring the resource to specially designed terminals dotting the U.S. coastline—six are currently receiving imports. Another 40 such projects are being discussed, according to the Federal Energy Regulatory Commission.

Unfortunately, gas markets around the world are trading at much higher prices than in North America, and with LNG, foreign sellers can divert a tanker at sea to higher-paying customers anywhere on the globe. Even if LNG supply grows enough to meet our needs, it is possible that Japan, India, China, and Europe will have first shot at the shipments because they're closer to the key sources in the world.

Nuclear

While nuclear plants account for about 20 percent of the electricity generated in the U.S., no new plants have been built in this

country for the past 30 years. Today, nuclear plants have again become part of the discussion about how to meet our generation needs because they are emissions free and operate from a virtually limitless fuel source. Such plants are extremely expensive to build, but their overall operating costs are low and are excellent sources of base load power because they are very efficient and reliable.

In 1973, when Arab countries withheld oil supplies, France made the decision to use nuclear technology to reduce its dependence on foreign energy. Since then France has constructed 59 nuclear power plants—it now generates 78 percent of its overall electricity output from nuclear and enjoys some of the lowest rates in Europe.

In the United States, utilities and manufacturers have been working the past seven years with the federal government to develop a uniform permitting and design process. Their goal is to minimize the time and stabilize the costs involved in constructing new nuclear facilities. Even those efforts would not bring a new plant on line before 2015 at the earliest, and Congress will need to show a greater commitment to a new generation of nuclear plants to achieve that date.

Reprinted with permission from South Mississippi Electric Power Association.

