

CLIMATE ISSUES

Electricity, Climate Change: The Challenge is Balance

Imagine two children balancing one another on a seesaw. If one jumps off the seesaw, the other quickly falls to the ground with no way to balance without his playmate.

The electric energy industry faces this same tough balancing act, yet the stakes are much higher. "We are at a difficult time in history where we must balance the need for electric power generation and a reliable transmission system with climate change legislation," EMEPA General Manager Wayne Henson said.

There is a lot of discussion about climate change legislation. Full participation in these discussions requires an understanding of the basics of electric energy generation, transmission and distribution. Climate-change legislation will shape electric energy's future.

There are three categories of electric energy generation. Generation is much like a pyramid with



Three categories of electric energy generation

base load at the bottom, intermediate in the middle and peaking at the top.

Base load generation is the foundation for electric power generation. These generation plants are large units that run nearly all the time. They are mostly fueled by coal and nuclear because they are the least expensive and most abundant fuel sources. Coal supplies about 50 percent and nuclear about 20 percent of the electric energy in the U.S. With a growth in demand of electricity increasing by 30 percent by 2030, building base load generation in the U.S. is necessary.

Base load generating facilities are currently under the most scrutiny. Environmental legislation and the financial obligations it imposes limit the ability to balance these resources. The foundation of the pyramid will crumble if a balance in legislation between environmental concerns and generation needs isn't reached.

The middle section of the pyramid is intermediate generation. This category of generation is used when additional generation is needed above base load generation. Intermediate generation helps stabilize the system.

These are traditionally smaller units that can start more quickly than base load units.

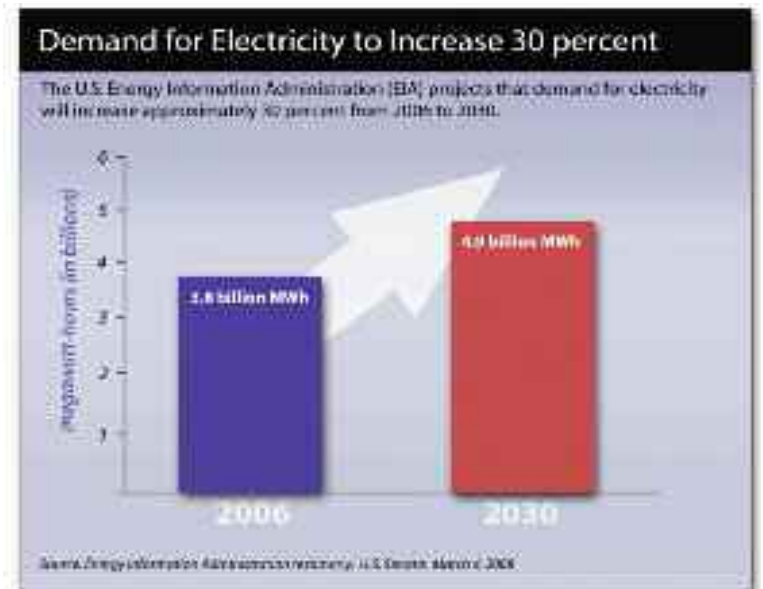
These units are fueled mostly

by natural gas in the Southeast, which makes them more costly to run than base load units.

The top of the pyramid is peaking units. These units are the smallest units, start most quickly and are necessary to meet electricity demand on really cold mornings or hot summer days. Peaking units are fueled by natural gas and are the most costly to run. Electric energy providers are required to have these units so they have enough reserve generation for times of extreme weather.

The next system in the electric energy process is an intricate grid of power lines. Transmission lines are highly rated electric lines that carry electric energy from generating plants to substations. At the substations, transformers step down the electricity to distribution-grade voltage for retail use. Distribution lines carry electric energy from substations to homes and businesses.

Although this section of the electric power system isn't directly affected by climate-change legislation, its reliability must be considered when making an



informed decision that affects generation. For example, the transmission system isn't built to handle immense amounts of wind energy because wind doesn't blow all of the time, causing instability in the system.

Generation and delivery of electric energy requires a delicate balance of reliable fuel sources, diversity in generation units and a dependable transmission and distribution system that delivers electric energy to members. Finding balance in climate-change legislation is critical for having affordable, reliable electric energy generation.

2008 Relay for Life

The EMEPA Relay for Life team raised \$3,918.09 for the American Cancer Society. EMEPA earned the second-place award in the Non-Corporate Division at the Relay by selling barbecue plates, funnel cakes and T-shirts; holding a rummage sale; and selling tribute cards to raise funds. EMEPA also sent a bucket truck for use at the Opening Ceremony for Relay for Life.

