

ENERGY DIVERSITY

A healthy fuel mix benefits economy, stability and reliability of power generation

Editor's Note: Seminole Electric Co-op provides the following story to help members of Clay Electric gain a better understanding of why it's important for generation utilities to have a diverse fuel portfolio. In recent years, elected officials in Florida have tried to curtail some generation fuels they deemed less friendly to the environment, forcing more utilities to depend upon natural gas. Some elected office holders also favor forcing utilities to obtain as much as 20 percent of their power from renewable sources, which would increase the cost of electricity for consumers. Utilities will be dealing with these issues for the foreseeable future.

A common piece of advice many financial experts give is, "Don't put all your eggs in one basket." This is based on the notion that there are many unpredictable shifts in financial markets. When investing, it's best to spread your risk over a range of stocks and bonds.

The same applies to the challenge Seminole Electric Cooperative, (Clay Electric's wholesale energy supplier), faces in producing electricity. Seminole must make choices years in advance among fuel and technology options to best supply the electricity to meet its member-systems' current and future needs. These options include coal, natural gas, nuclear, fuel oil, renewable energy, and buying electrical energy from others when available and af-

fordable.

Under the direction of Seminole's board of trustees (consisting of managers and trustees from its member-systems), Seminole continues to diversify its generation portfolio to protect consumers from changing world fuel markets. Fuel diversity provides a form of insurance against price spikes and events that would threaten electric service reliability.

For example, if Seminole were to put "all its eggs in the natural gas basket," and there was a major hurricane in the Gulf of Mexico, natural gas wells could be closed for weeks. That would cause gas prices to rise, or cut off gas supply, leaving Seminole unable to provide enough electricity.



Seminole's natural gas generation facilities in Hardee County (Southwest Florida).

Similarly, coal supply can be threatened by labor strikes, oil supply can be jeopardized by political turmoil in oil producing regions, and nuclear production can be affected by regulatory intervention. So over-reliance on any fuel could create a shortage that dramatically increases the price of electricity or affects reliability.

That's why Seminole uses a mix of fuels. Currently, Seminole's fuel mix includes domestic coal (59 percent), natural gas (35 percent), renewable (4 percent), nuclear (1 percent) and fuel oil (1 percent). The bulk of Seminole's fuels are from domestic sources which supports the U. S. economy and jobs.

Today, coal provides a stable foundation for Seminole's generation portfolio. As a principle source of fuel, coal is domestic, abundant, readily available, affordable and its price is relatively stable. More than 35 states have coal. Seminole buys about four million tons annually in deep mines in southern Illinois, western Kentucky, West Virginia and Pennsylvania.

In recent years, coal has been a target of environmental special-interest groups who have pressured our state and the federal government to enact expensive environmental legislation restricting carbon emissions. However, Seminole's



Seminole's coal-fired generation facilities just north of Palatka in Putnam County.

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coal plant near Palatka is one of the cleanest in the country.

When Seminole built the Seminole Generating Station in 1984, the cooperative installed almost \$250 million in pollution control equipment. In 2009, Seminole completed a \$280 million environmental improvement project that made it even better. Seminole is also seeking to expand its nuclear energy capacity.

While environmental groups are raising concerns about carbon emissions from coal, natural gas and renewable biomass facilities, nuclear energy has essentially zero carbon or other emissions. While new nuclear units are expensive to build, they are one of the least expensive power sources to operate and should be a part of every utility's energy portfolio. Seminole currently has a small ownership in one Florida-based nuclear plant and is seeking to expand its nuclear diversity through partnering with other utilities.

Like other sources of power, the expansion of nuclear energy is facing challenges, such as construction costs and waste disposal. Yet polls show that 74 percent of Americans favor the use of nuclear energy as one of the options to provide abundant, affordable energy.

Seminole is a leader among Florida utilities in its use of renewable energy. Clay Electric and the other nine electric cooperatives served by Seminole receive about four percent of their electricity from renewable energy sources. This is the highest percentage of any Florida electric utility.

Seminole's renewable energy comes from a combination of municipal solid waste, landfill gas (methane), and wood biomass. Seminole is expanding its renewable resources even further through a new contract to receive all of the electricity produced from a future biomass plant that will produce electricity from an energy crop (sweet sorghum).

Hydroelectric power and wind are two of the most prominent

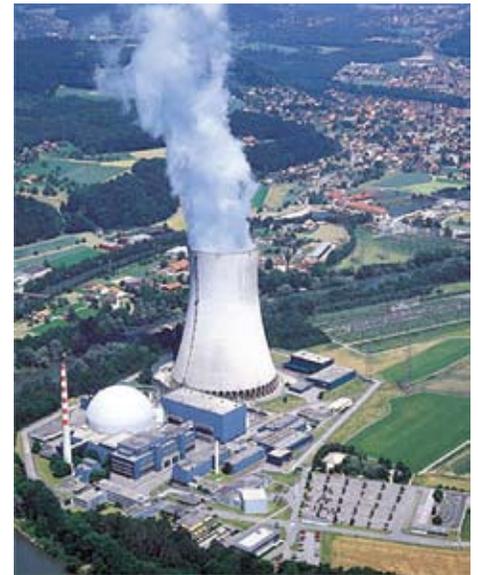
renewable sources in the United States. Unfortunately, Florida is neither hilly enough nor windy enough to allow any significant amount of energy production from hydro or wind sources.

Solar power can provide a supplemental source of electricity. Solar panels operate more efficiently where skies are often clear, like the deserts of Arizona and California. Although Florida is known as the "Sunshine State," its high number of cloudy days means solar power is a less efficient, and therefore more expensive, energy option.

Federal and state energy policy is another major influence on fuel mix. Due to strong lobbying by environmental groups for the past several years to restrict the use of coal, natural gas, and other carbon-based fuels, there has been a push by some in government to restrict these important sources of affordable and reliable energy.

These efforts, if successful, could produce new laws which could limit the diversity that Clay Electric and other utilities build into their electric supply portfolio. The result of such legislation will be to significantly increase consumers' cost of electricity and put service reliability at risk.

In this energy policy debate, Clay Electric has been encouraging local elected officials to avoid over-reacting to unsettled science on climate change, and ensure that electric ser-



Nuclear energy has essentially zero carbon emissions, but the plants are expensive and permitting can take years.

vice remains reliable and affordable. Providing its member-systems with reliable and affordable electric service requires Seminole to consider all viable energy sources.

It's important that members understand the impact energy policies can have on their electricity bills.

Clay Electric will encourage its members to express their concerns to their elected representatives when the passage of energy legislation threatens to push electricity costs higher without any noticeable benefit to the environment.



Seminole obtains a small portion of its generated electricity from municipal solid waste.