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SUSTAINABLE ENERGY STUDY #7

New Study Shows How Florida Can Meet Nearly Half of Its Future Electricity Needs Over the Next Fifteen Years with Efficiency and Renewables:

A major new study released today shows that a combination of energy efficiency and renewable energy can reduce Florida's future electricity needs by almost half (45%) over the next 15 years.

The study shows that implementing energy efficiency policies alone, such as efficient windows, compact fluorescent light bulbs, and ENERGY STAR® appliances, can almost offset the future growth in electric demand.

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"Potential for Energy Efficiency and Renewable Energy to Meet Florida's Growing Energy Demands":

The study, released on February 5, was conducted by researchers at the American Council for an Energy-Efficient Economy (ACEEE) in Washington, D.C. Based on ACEEE research with support from national and Florida experts, the study outlines policies to reduce electricity demand through energy efficiency and to develop renewable energy resources such as wind and solar. The efficiency policies would moderate 2023 electricity demand by 19%, while the renewable policies would reduce conventionally generated electricity by an additional 26%, for a total reduction of 45%.

ACEEE designed its study to assess where Florida gets its energy from, what it costs, how it is used, and what the future might hold if we use existing technology to slow demand without difficult sacrifices for industry or consumers.

Florida's electricity demand is growing faster than the state's population. A particular challenge is peak demand—those times when extreme heat or extreme cold crank up air conditioners and heaters. Peak demand is growing even faster than total electricity usage, and it costs the most to serve. Peak-hour electricity costs several times what consumers see in average rates, because high-cost “peaker” power plants run less efficiently and operate only a few hours a year so that their costs drive up rates.

Today, Florida generates only 0.1% of its electricity from renewable resources, compared to a national average of 2.3%. Florida also has not aggressively implemented energy efficiency policies, even though energy efficiency is the most affordable resource. States from Texas to

Vermont are finding energy efficiency resources available at less than 4 cents per kilowatt-hour, compared to the expected cost of power from new plants of 5 to 10 cents.

“Energy efficiency is the most affordable energy resource in Florida,” said Dr. R. Neal Elliott, Industrial Program Director at ACEEE and lead author of the report. “While 19% efficiency savings may seem challenging, other states are already reducing electricity growth at higher rates than that, at a cost of less than 4 cents per kilowatt-hour. Efficiency resources are available in this cost range in every state, including Florida.”

“Energy efficiency is the first fuel in the race for affordable and clean energy, because it is the cheapest and fastest to deploy,” said Bill Prindle, ACEEE’s Acting Executive Director. “Combined with renewables, efficiency offers Florida a sustainable energy future that provides greater energy security, costs less, pollutes less, and supports economic growth better than its current course.”

The study recommends five key policies as building blocks for this new energy future:

- * An Energy Efficiency Resource Standard that sets savings targets for utilities, as Texas and several other states have done;
- * More stringent building energy codes that make Florida’s buildings much more efficient in the future;
- * An advanced buildings program that changes building practices, reducing energy demand; Onsite renewables policies that help meet much of these advanced buildings’ energy demand with solar energy; and
- * A Renewable Portfolio Standard that sets a target for utilities to procure a share of their power from renewable energy resources such as wind and solar, which more than twenty other states have done.

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Executive Summary:

Florida is among the fastest growing states in the country, and the state’s electricity demand is growing even faster than the state’s population. To sustain economic growth, Florida needs to take action – now – to meet the increased energy demand. A particular challenge is peak demand – those times when extreme heat or extreme cold crank up air conditioners and heaters. Peak demand is growing even faster than Florida’s regular day-to-day electricity demand, and it is the most expensive type of electricity.

Florida’s energy vulnerabilities have become more apparent during the past several years. Florida is one of the most natural gas-dependent states in the country, with more than a third of its electricity generated by natural gas. In December 2005, the natural gas “crisis” drove utility prices from less than \$3 per thousand cubic foot to over \$14, a price that hurt Floridians’

pocketbooks. The pain intensified when Hurricane Katrina disrupted natural gas supplies and jeopardized electricity generation. While the price of natural gas has fallen over the past year, it still costs more than two and a half times more than it did when many of the state's new natural gas power plants were planned. It is not the bargain we once thought. The state now faces plans for major investments in new power plants. While many of the new power plants will be coal- or nuclear-powered, Florida will still need more natural gas plants to meet the peak electricity demand.

The state is currently focused on building new natural gas, coal, and nuclear power plants to meet the growing demand. Little consideration has been given to treating the underlying cause for these energy market challenges – rapid growth in electricity demand.

Opportunities for Energy Efficiency and Renewable Energy

Fortunately, another suite of energy resource options is available – slowing energy demand growth with energy efficiency resources and demand response, and diversifying the supply resources with renewables. This report explores the magnitude of the efficiency and renewable resources that are available to the state, and suggests some specific policies that could be implemented to reduce future energy demands.

If all the policies we recommend were implemented, the state could reduce its projected future use of electricity from conventional sources (i.e., natural gas, coal, oil, and nuclear fuels) by over 45% in the next 15 years. Renewable energy accounts for almost two-thirds of the 2023 total 153,595 Million kWh electricity reductions, with the energy efficiency provisions accounting for the balance.

Policy Recommendations

ACEEE recommends eleven specific policies that the state should consider adopting:

- * Utility Sector Energy Efficiency Policies and Programs (EERS)
- * Appliance and Equipment Standards
- * Building Energy Codes
- * Advanced Building Program
- * Improved CHP Policies
- * Industrial Competitiveness Initiative
- * State and Municipal Buildings Program
- * Short-Term Public Education and Rate Incentives
- * Expanded Research, Development, and Demonstration Efforts
- * Renewable Portfolio Standard
- * Onsite Renewables Program

These policies would establish a foundation upon which the state could build a sustainable energy future, while improving the state's economic health. The most significant energy efficiency recommendation is for a Utility Sector Energy Efficiency Program, in our recommendations an Energy Efficiency Resource Standard (EERS) (a utility savings target

similar to the RPS concept), which accounts for over 20% of the total savings. As would be anticipated because of the importance of buildings-related electric loads, buildings policies (including an improved building energy code and advanced-buildings policies) would contribute another 11.6% toward the total.

These energy efficiency and renewable energy policies can also reduce peak demand for electricity by 22%. A robust suite of demand response measures can reduce the peak even further, countering trend to more rapidly growing peaks.

In addition, ACEEE also recommends that the state consider implementing a robust demand response effort, which could save an additional 8% demand reduction in 2013 and 14% in 2023. While the utilities in the state have had various curtailable tariffs for many years, there is much more that could be done to reduce peak electrical loads, as will be discussed in a following section. Demand response programs combined with energy efficiency and renewable energy policies could slow the rapid growth in peak demand reported by the state's utilities

ACEEE's study objectively proves that energy efficiency, coupled with renewable energy, can slow the future electricity demand. It would also diversify the state's energy resources, making Florida less vulnerable to global markets. The ACEEE study shows that implementing energy efficiency policies alone, such as efficient windows, compact fluorescent light bulbs, and Energy Star appliances can almost offset the future growth in electric demand.

Conclusions

Based on this analysis, ACEEE is confident that it has demonstrated that energy efficiency and renewable energy can change Florida's energy future for the better. Energy efficiency resource policies can offset the majority of projected load growth in the state over the next 15 years. Expanded development of renewable energy resources in the state would further reduce future needs for conventional generation. Combined, these policies can serve over 45% of projected needs for electricity in 2023, deferring the need for many new electric power generation projects in the state.

The economic savings from the policies recommended in this report can cut Florida consumers' electricity bills by over \$7 billion in 2013 and \$84 billion in 2023. While these savings will require substantial investments, they cost less than the projected cost of electricity from conventional sources.

Reducing demand for electricity with efficiency and renewables will also reduce emissions from the combustion of fossil fuels at utility power plants, offering the state a more sustainable environmental future at an affordable cost.

Florida faces important decisions on its energy future. The current course calls for investments in new coal, gas, and potentially nuclear generation to make sure that the state has enough electricity to sustain its economic prosperity. Energy efficiency and renewable energy resources offer a lower cost, cleaner, and more stable energy path, without sacrificing Florida's quality of

life or its economic growth. An upcoming report will examine the possibilities of enhancing economic growth through the clean energy future we have described.

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The Executive Summary of the report, "Potential for Energy Efficiency and Renewable Energy to Meet Florida's Growing Energy Demands" (including one chart and a table), is available at: <http://aceee.org/pubs/e072.htm>.

The full 72-page report is available for free download as a PDF for registered users at <http://aceee.org/pubs/e072.htm>.

A hard copy can be purchased for \$35 plus \$5 postage and handling from ACEEE Publications, 1001 Connecticut Avenue, N.W., Suite 801, Washington, D.C. 20036-5525, phone: 202-429-0063, fax: 202-429-0193, e-mail: aceee_publications@aceee.org.

This report will be followed by a second study that will assess the economic impacts of these investments in energy efficiency and renewable energy resources. Analyses in other states have found that these types of investments typically produce twice the jobs and in-state economic growth that are produced from an equivalent investment in power plants.