

## **Transitioning Florida to Clean and Renewable Energy**

by Diane Gow McDilda

Moving the state from our current dependency on non-renewable energy to one that's both renewable and clean is a complicated task. A successful transition would move research out of the laboratory and into the hands (and homes) of Florida's citizens.



In an effort to do just that, the Florida Energy and Climate Commission (FECC), Florida's primary organization overseeing state energy programs and climate change policies, asked the Florida Energy Systems Consortium (FESC) to review existing statutory incentives supporting the deployment of energy efficiency and renewable energy in the state of Florida. The review needed to be comprehensive and also include review of current incentives, analysis of renewable portfolio standards, and development of strategies to overcome barriers to commercialization and project finance.

The goal of the report was to provide the Florida legislature and Florida Energy and Climate Commission with a springboard of information that would help move the state toward legislating and implementing energy efficiency and renewable energy programs. Multiple researchers were involved in the report and two of the areas studied included an objective review of the current mix of incentives offered by the state and federal government and financial barriers that deter clean sector technology development and large-scale commercialization.

### **Reviewing incentives**

Principal investigator, Dr. Julie Harrington, Director for the Center for Economic Forecasting and Analysis (CEFA) and Institute for Energy Systems, Economics, and Sustainability (IESSES) at Florida State University, investigated the current mix of incentives available to homeowners and business-owners in Florida who installed energy efficient or renewable energy systems. Harrington worked with Dr. Bassam Awad, a former researcher at CEFA, and Zafar Siddiqui and Stephen Muscarella, both current researchers with CEFA.

There are multiple benefits to offering incentives, even on what might be considered a small-scale basis. As the name implies, by incentivizing Floridians to install energy efficient and renewable energy systems; power demands on the grid are reduced, and less greenhouse gases are produced. And businesses tend to locate near their clients, as the demand for renewable energy sources increase in Florida, so will the number of associated industries, bringing with them jobs and energy stability.

“If the demand is there,” Harrington says. “There need to be additional funding mechanisms in place.”

In considering the energy-related incentives offered by the state and federal government, Harrington and her group tallied up eight different state programs: the corporate tax credit; renewable energy production tax credit; renewable energy technologies investment tax credit; renewable energy property tax exemption; solar energy systems equipment sales tax exemption; renewable energy equipment sales tax exemption; renewable energy technologies grants program; and, the solar energy system incentives program. On a federal level, the group looked at the federal production tax credit along with deductions, depreciations, tax, credits, grants, and loans. The team looked at programs scheduled to sunset, and evaluated programs to determine where funds had been depleted or where a significant amount of money remained.

“The two areas that really rose to the top were renewable tax credits for hydrogen (stationary) fuel cells and rebates under the solar energy system incentive program,” says Harrington. “Incentives for hydrogen fuel cells were all used up. Incentives for solar rebates were used up as well, and there was a long waiting list. On the contrary, funds available for hydrogen vehicles were not being used consistently year to year, and our thought was that it might be more advantageous to transfer those funds to solar rebates where they were in demand.”

Two of the largest demands for solar projects came in the form of solar hot water heaters and photovoltaic systems. And while incentives for these projects do offer rewards, Harrington notes real movement in this direction could be propelled by clean energy standards or renewable portfolio standards (CES or RPSs) requiring utilities to provide electricity generated via renewable energy means. This along with renewing or extending the types of incentives offered could be the carrot that brings manufacturing firms to Florida.

“We need a policy mechanism that brings renewable energies to the state,” says Harrington. “A number of companies will take advantage of incentives offered here in Florida and then go to another state. We need to tie these incentives to production, based on units of output, to better ensure oversight and accountability. Additionally, the state should consider expanding certain state-sponsored programs and incentives already in place.”

### **Defining barriers**

Erik Sander, Director of Industry Programs for the UF College of Engineering and former Associate Director of FESC, was tasked to lead another aspect of the project—to determine the barriers to commercialization and project finance for clean technology projects in Florida. Sander recruited the experience of Jack Sullivan, Jr. and Dr. Aster Adams to partner with him on the project. Sullivan is President of the Florida Research Consortium, a strategic partnership between Florida universities and the state’s business community. Dr. Adams is the Director of Analytical Services for the Ohio Consumers’ Counsel, the advocate agency for residential utility consumers.

Others involved with the project included dozens of individuals from academia, industry, incubators, government agencies, private equity groups, private donors, venture capitalists, investment bankers, and strategic thought leaders.

“At the end of the day,” says Sander. “We want to help create an ‘eco-system’ that supports energy jobs in Florida and to provide unbiased data and recommendations for the legislature and other stakeholders in Florida’s energy future. In order to do that, we have to understand where we as a state stand with relation to the nation in overcoming barriers to bringing renewable energy to the market.”

As a team, they determined that the barriers to clean technology can be divided into three major groups: technology, finances, and policies.

“For the clean technology industry to thrive, the technology, capital, and policy must all be aligned—at all stages of development, for the transition to clean and renewable energy sources to be successful. Moving to alignment today, rather than tomorrow, makes success infinitely more likely in this nascent industry,” says Sullivan.

Clean technology industries have grown over the last several years, due in large part to concerns over rising oil prices, energy security, and climate change. Government initiatives such as the American Recovery and Reinvestment Act which allotted \$83 billion of the \$787 billion package to clean technology, helps to spur industry growth.

When it comes to funding clean technology, developers often rely on their personal assets or those of family and friends to transition through the early stages of the process, from research and development, to demonstration and scale-up. However, outside investment is usually required to take the final leap to full-scale commercial deployment. And while local, state, and federal government incentives do exist in Florida, for the most part, they don’t match those offered in other states, particularly those of similar economic standing.

“Florida has the fourth largest Gross State Product [GSP],” Dr. Adams says. “We looked at the availability of funds and reported on the funding gaps for all stage of clean technology development in Florida compared to what one would expect of a state with the nation’s fourth largest GSP. Here in Florida, we just don’t compare favorably in terms of amounts financed, current assets, and system inputs related to new technologies including clean technology.”

Important issues to institutional investors include a combination of long-term carbon pricing to jumpstart a market for renewable energy resources, stable subsidies,, and tax breaks.

“In our report, we provided a number of recommendations to reduce the barriers to cleantech commercialization and project finance,” says Sander. “From building partnerships between industry and universities, to allowing investors to earn tax credits for high risk investments, and by implementing policies that drive a clean energy demand we can recruit new energy industry to the state and create jobs.”

Creating a sustainable demand for clean energy would provide stability to the market. Whether through implementing a renewable portfolio standard or clean energy standard, the state could enhance its role as a purchaser of clean energy and help drive clean technology market demand.

Florida has some distance to cover when it comes to converting to clean and renewable energy sources. If the state chooses to pursue “cleantech,” it needs to act now to take advantage of strong federal support and the success of clean technology companies currently on the market. By reducing financial barriers, encouraging partnerships between research and industry, or enacting legislation, Florida can still be a pioneer in the clean energy market.