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SunSmart Community Partnerships: Summary and Lessons Learned Report

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Executive Summary

Through a working partnership with the Florida Municipal Electric Association (FMEA), the Florida Solar Energy Center (FSEC), the Florida Municipal Power Agency (FMPA), the Legal Environmental Assistance Foundation (LEAF), and FMEA member utilities, the SunSmart program offers a unified, low-cost solution to providing municipal electric customers with a solar energy option. It also provides its member utilities with a high level of technical and administrative support to alleviate concerns about working with an unfamiliar electric generation technology. It relies on a core team to develop a standardized marketing and public outreach plan which can be utilized by all participants, and uses a central purchasing agent to streamline and simplify hardware purchases.

The program includes an intricate website, which allows Florida consumers to learn more about solar energy, calculate the environmental benefits of displacing conventional technologies with clean energy choices, and provides information on each utility's green program. Customers may sign up to participate in their local green energy program on-line as well. Through the development and maintenance of its one of a kind comprehensive photovoltaic information management system, the program will also provide participating utilities with access to instantaneous data on all of their installed PV systems as well as performance tracking, economic performance analysis and life-cycle costing data. Each utility will have its own password to enter information into an on-line data log so that the systems can be easily maintained. Daily, monthly and yearly performance reports will be made available to end-users in an easy-to-read downloadable format right from the Internet. This site also includes a comprehensive online curriculum unit that can be used with the data and reporting capabilities of the PV information management system. It can easily be integrated into honors level middle school and high school teaching standards. The Florida Solar Energy Center provides hands-on training workshops for teachers that wish to use the curriculum materials and data acquisition systems.

Introduction

In 2000, the Florida Solar Energy Center, (FSEC), teamed up with several partners, including the Florida Municipal Electric Association (FMEA), the Florida Municipal Power Agency (FMPA), the Florida Solar Energy Research and Education Foundation (FLASEREF), the Legal Environmental Assistance Foundation (LEAF) and several of Florida's municipal electric utilities, to form the SunSmart Community Partnerships Program. The Program received funding through an American Public Power Association DEED Grant as well as additional matching funds through the Florida Energy Office (FEO) of the Florida Department of Community Affairs and the U.S. Department of Energy. Its goal was to enhance prospects

for the successful deployment of a sustainable solar market in Florida by developing strong partnerships within local communities throughout the State. These partnerships were to be molded around FMEA member utilities and would include interactions with local businesses, schools, builders, homeowners and grassroots community leaders. The SunSmart program planned to utilize this network of partnerships to help meet the State of Florida's commitment of installing 20,000 PV systems and 140,000 solar water heating systems by the year 2010, and to encourage greater reliance on native fuel sources like solar and biomass for electricity production.

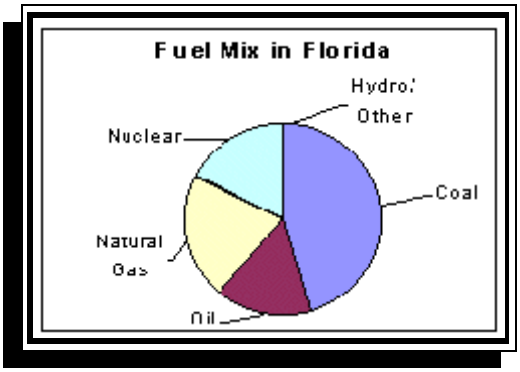

Figure 1. Florida's Fuel Mix

Background

In a period of regulatory upheaval and challenging energy supply and security issues, municipal electric utilities across the nation are beginning to diversify their energy portfolios and offer value added products to their list of services.

National surveys and utility research specific to the marketing and promotion of renewable energy consistently reveal strong levels of support for products and services that improve environmental quality. In response to this consumer demand, and as a means of gaining knowledge and experience with alternative energy sources that might offer a hedge against fluctuating fossil fuel prices, some utilities across the nation have developed green pricing programs as a value-added product option. Unfortunately, many of these programs have experienced less than desirable levels of participation from consumers. Currently, solar energy makes up less than half of one percent of Florida's electricity sources. The majority of Florida's electricity market is dependent on fossil fuel-based and nuclear energy technologies such as coal and natural gas. Given that Florida is an electrical island with no native sources of coal, oil or natural gas, it is particularly vulnerable to fossil fuel price fluctuations in today's volatile energy market.

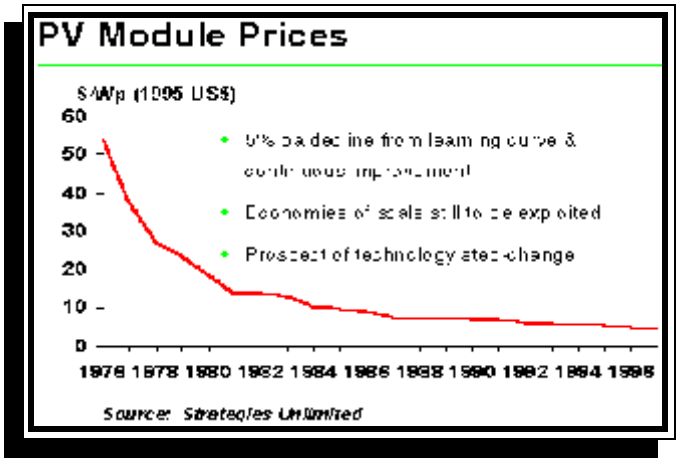

Figure 2. Module Prices for PV.

One energy resource that is plentiful in Florida in solar power. Florida is ranked in the top ten in the United States for its solar resource availability. It has the Nation's largest state-operated solar research center, based in Cocoa, FL. Based on Florida's energy characteristics and geography, greater investment in solar energy seems to be an obvious choice for Florida's electric utilities and consumers. There are, however, legitimate barriers for consumers and electric utilities to making a significant investment in solar technologies, especially photovoltaics or PV.

The biggest barrier to increasing Florida's renewable energy generating capacity is cost. On average, PV systems cost at least three times as much as convention generation technologies. Even though the fuel is free, solar systems require the use of semiconductor materials and other cost-intensive balance of system components to generate electricity. Over the past 20 years, manufacturing processes for solar technology have improved greatly, thus reducing the cost to produce solar modules from more than $50 per watt to around $3 per watt. Over the last 5 years, the PV market has grown by about 35 percent each year. Even with these amazing reductions in price, PV technology has not reached a retail price that is cost-competitive with other available electricity technologies.

Though many electric utilities across the nation have a strong interest in cleaner, local fuel sources like PV and landfill gas, they have difficulty finding the funds necessary to pay the incremental costs of generating electricity from these sources. Even municipal electric utilities and rural cooperatives that are owned by the local community find it challenging to justify rate increases to pay for these cleaner energy alternatives. Instead of forcing these additional costs onto their entire rate base, many utilities have opted for an alternative financing mechanism – green pricing. Green pricing programs allow utilities to make incremental investments in more costly renewable energy technologies by offering electricity from these sources to their customers for an optional premium. Customers that wish to support investments in clean, renewable technologies then have an option to choose to pay more for these products without burdening others in their communities that don't support these investments. Since Florida is still a non-competitive market, this optional product may represent the only opportunity for a consumer to have control over his or her electricity choices. This market-based approach to selling green power appropriate values the non-cost benefits associated with these cleaner electricity sources, while simultaneously stimulated the growth of the renewable energy market without the use of government-based subsidies.

Review of Green Pricing Concepts

There are essentially three types of green pricing programs being offered to utility customers – contribution, capacity-based, and energy-based. These programs are described below. In addition, a few electric utilities also offer their customers the opportunity to lease or

purchase renewable energy equipment.[1]

Contribution programs allow customers to contribute to a planned or recently built renewable energy facility. The majority of contribution programs target solar energy facilities and some offer customers a tax deduction. Contribution programs usually allow the customer to decide the amount of the donation, although some programs do require a specific amount per month. These programs are easy to enact, because they require no "electron accounting." They also reduce risk to the utility, since many programs build a facility only after donations have been received, and can limit its capacity accordingly. There is no limit to the number of customers that can donate to a project. In 1998, Florida Power and Light collected more than $93,000 through a customer contribution program, and used this funding to install a ten-kilowatt PV system at one of their power plant facilities. FPL received mixed reviews of this program, however.

One problem with contribution programs is product tangibility. Consumers may have difficulty understanding what they are contributing towards, or may not feel ownership of the product they are supporting financially. Distrust of the utility may also limit participation. Many consumers are wary of a utility that asks for a "hand-out" to pursue clean energy projects. Utilities that use this method to install renewable energy equipment on schools generally fare best, since the local community can also benefit from the project's educational value.

Capacity-based programs provide customers with fixed blocks of electric capacity generated from renewable energy sources. They are collected in a dollar/Watt format and limit the number of participants to the project of the system being installed. These programs are usually solar-based and provide only a limited portion of the customer's electricity need. The product premiums seem to vary depending on utility, but generally range from $3.00 to $7.00 per a specified block of energy capacity. Participants usually receive recognition at the installation site as a sponsor of the program.

The benefits of this method to utilities include reduced financial risk and simplified accounting procedures. A utility can offer the green power product to customers and ensure participation levels for a specific capacity prior to equipment procurement and installation. They can also avoid tedious electron accounting associated with an energy-based program since the premium amount is not tied to a specific energy output. This can be a drawback, however, from the viewpoint of the customer, since it reduces tangibility of the product. Since only a limited number of customers can purchase blocks of capacity, cost recovery for the utility can

[1]As examples, the Utilities Commission of New Smyrna Beach allows customers to purchase PV equipment at a subsidized rate of $1.82 per Watt and JEA offers utility customers rebates toward the purchase of solar equipment.

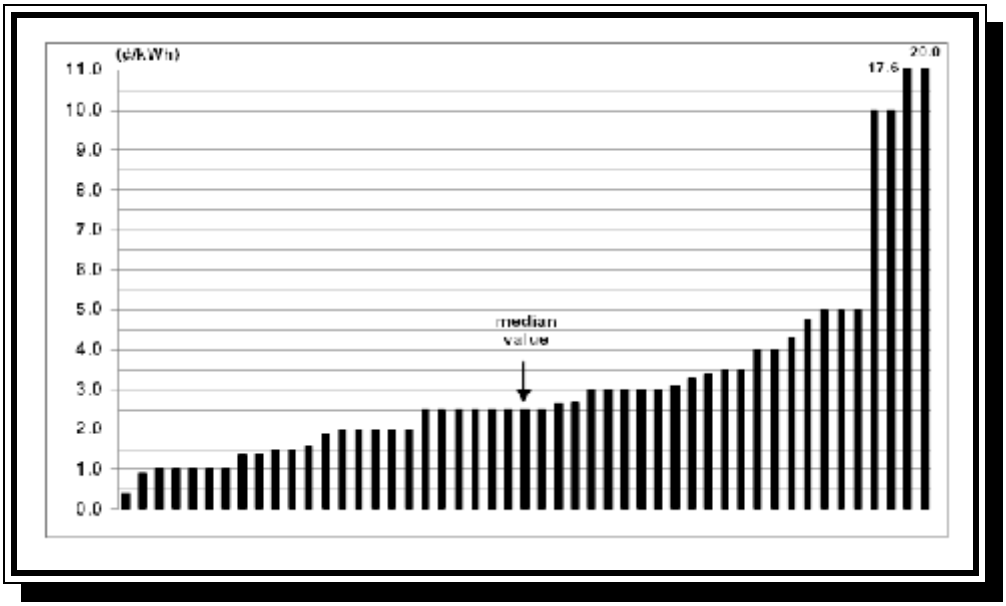

Figure 3. Premiums for energy-based green pricing programs (Source: NREL)

also take much longer.

Energy-based programs are by far, the most common approach for green pricing programs in the United States. This type of program allows the consumer to purchase a specific amount of electricity produced from renewable energy sources. The energy generally carries a premium ranging from $.01 to as much as $.17 above the retail price for electricity in the utility's service territory. The utility must estimate the output of the system for a specified period and can only sell the amount of power that the system actually produced during that period. The premium is generally shown as a line item on the customer's bill at the higher rate in cents per KWH. Although a few programs allow the consumer to purchase all of their energy at the 'green power' rate, most utilities sell the power produced in small blocks or allow only a percentage of the consumer's electricity usage to be met with green power.

This program style is easier to market than the others because customers are offered a tangible product. It also provides for an easier transition to retail choice if a state restructures its electric market. Utilities offering small solar programs may find this method of marketing challenging, however, since it requires electron accounting and advanced accounting software to make changes to the customers monthly bill.

Review of Existing Green Power Market Research

As of December 2001, 85 electric utilities across the country offer a green pricing product to

their customers. Participation in these programs has led to the installation of more than 110 megawatts (MW) of new renewable resources, with an additional 172 MW planned or under development.[2] The majority of this capacity (82.5%) has been focused on wind energy development, and has occurred in the Western and Midwestern sections of the United States. It is important to note that this number does not reflect regions with access to green power through retail electric markets.

A recent study by the National Renewable Energy Laboratory indicates that the most successful green pricing programs tend to share a number of common characteristics and best practices. A list of NREL's recommendations is provided below.

- Seek out the best renewable resources for your area.
- Offer power from new renewable energy projects as opposed to existing plants.
- Keep it simple. (One message is best for each target group)
- Create value for the consumer. (i.e. tax deductions, community projects, protection from rate increases or customer recognition)
- Look for opportunities to reduce the premium.
- Make program participation easy.
- Make program information readily available.
- Work with environmental and community groups.
- Include nonresidential customers.
- Seek out business and civic champions.
- Take advantage of free advertising.
- Track your customers.

Individual utilities seem to offer results that concur with the NREL study. For instance, the Sacramento Municipal Utilities District (SMUD) has long indicated that free advertising has been the key to keeping their marketing costs down. A report on Traverse City's Wind program indicated that many of the items on this list including a low premium, support from the environmental community and heavy reliance on commercial customers were contributing factors to the success of their program, which boasts one of the highest participation rates in the country even though its population is only around 8,000[3].

It should also be noted that publicly owned electric utilities account for 9 of the 10 green pricing programs with the highest rates of participation. This suggests that public utilities may have

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[2]Blair Swezey and Lori Bird, *Utility Green Pricing Programs: What Defines Success?*, National Renewable Energy Laboratory, NREL/TP.620.29831, September 2001.

[3] From the Renewable Energy Policy Project research report, "Green Power for Business: Good News for Traverse City," by Ed Holt published July 1997.

more credibility with their customers. Smaller utilities also tend to have higher customer participation rates, indicating that personalized community marketing efforts may have a significant role in recruiting green pricing participants.

The Electric Power Research Institute indicates that customers will also pay more for energy products that provide additional value[4]. In response, many utilities offer "value added" features to their green pricing program to make them more attractive. Included are perks such as tax deductions, personal recognition in dedication ceremonies or newsletters, educational benefits for local schools, and protection from fuel price increases. As an example, in 2000, Austin Energy's GreenChoice subscribers, who pay the lowest green power premium in the country, enjoyed electricity rates below the retail rate because they were exempt from the utility's fuel adjustment charges.

Finally, utility programs that minimize the premium while maximizing the amount of green power supported seem to have greater levels of success. This can be challenging with a solar-only program, however. Many utilities that offer solar as a component of their program attempt to reduce the product premium by blending this resource with other renewable energy products such as landfill gas or wind. The tradeoff of this approach is a more complicated product, but at a lower price. Several utilities, including TVA, the Salt River Project and Austin Energy have taken this approach and have achieved moderately high participation rates.

The Need for SunSmart

In a recent report published by the National Renewable Energy Laboratory on the success of green pricing programs, the authors note that one of the most important determinants of a meaningful green pricing program is the quality of the product and how well it is marketed to customers. Investment in consumer awareness and education are essential to creating a viable program. This report also notes that other program attributes such as ease of participation, a marketing message that is simple to understand, and marketing support from community and/or environmental groups play a considerable role in the success of a green pricing program[5]

Many of Florida's municipal electric utilities indicated an interest in attempting a green pricing program, but very few had a great deal of experience successfully marketing new product offerings to their customers. Marketing staff seemed to be limited or non-existent for the

[4] From EPRI's, "Winning Customers in Competitive Energy Markets," April 25, 2000.

[5] More detail about research on successful green pricing programs is available from the NREL document by Swezey and Bird, "Utility Green Pricing Programs: What Defines Success?," September 2001

majority of FMEA's members. Budget constraints also presented a challenge in developing a successful program.

So how might these willing utilities overcome these barriers? The SunSmart partnership chose a unified approach by supplying a central staff and budget to develop the necessary marketing materials and recruit local community support for green pricing programs.

Program Partners and Roles

The SunSmart program is made up of a variety of Florida stakeholders, but centers around Florida's public utilities.

Each member utility is responsible for participating in SunSmart workshops and developing its own green power program based on the unique demographic characteristics of its service territory and financial constraints. At each quarterly workshop, utility members provide the group with an update of green power activities in their local area and share their concerns or questions with other members. Utility members also take turns hosting quarterly workshops.

FMEA and FSEC jointly administer SunSmart program activities, but with different areas of focus. FMEA primarily works with its network of directors and board members to inform utilities of the opportunities available to them through the SunSmart program. They meet with individual utility managers to present the SunSmart concept and discuss how the utility might benefit from participation. They also publish information about the SunSmart program in their bi-monthly periodical, RELAY Magazine and at annual conferences.

During workshops, FMEA focuses on assisting utility members in overcoming business or administrative barriers to developing a green power program. These barriers might include upper-level management support for a program, dealing with key accounts, or obtaining capital for a project.

FSEC provides technical assistance to SunSmart members with regard to interconnection, metering options, PV and solar thermal system design, training and certification. FSEC operates the PV Performance and Reliability Database for utility members and actively monitors utility installed systems. They also maintain the SunSmart website and toll-free number for the group. In addition, FSEC led the development of the creation of standard marketing materials for the group, and completed all reporting requirements. Workshops are also usually facilitated by FSEC.

LEAF works with FSEC to organize local grassroots volunteers once a utility has developed a green power program. LEAF has actively participated in the design process for three of the

four utility partners that have developed green power programs to date. The focus of this effort has primarily been with the City of New Smyrna Beach.

FMPA has agreed to act as a central purchasing agent for the SunSmart group. To date, none of the SunSmart utility partners have taken advantage of this option, although it is expected to become much more important in the coming years.

Program Objectives

The primary goal of this project was to enhance the preponderance of solar technologies in Florida through the creation of green power marketing partnerships within Florida's public utility sector and regional stakeholder groups. These stakeholder groups include environmental organizations, academic institutions, commercial businesses, builders and developers and local government agencies. Consequently, the program would likely increase the demand for these technologies, and thus reduce their initial costs. By providing consumers with adequate knowledge to make an educated decision about their energy choices.

The program focused on reducing costs to utilities in offering these programs to their customers by creating a single marketing approach that would suit the needs of several different demographic groups. Materials could be customized as desired, but could also be used in their existing format. It was also intended to reduce a utility's apprehension about working with a "new" technology (photovoltaics in this case) by providing technical training and quality assurance.

SunSmart Program Activities

The SunSmart Program consists of many activities all geared toward promoting the development of green pricing programs by its member utilities. A description of the various activities and their relative impact on the program's primary goal are provided below.

Recruiting Utility Partners

FMEA was primarily tasked with rounding up its members to participate in the SunSmart program. FMEA sent invitations for each SunSmart workshop and plugged the program at FMEA events. The FMEA Board of Directors was also presented with information about the SunSmart Program and encouraged to participate in the program.

Many of the original participants became program partners because of an existing interest in green pricing or solar technology. A few others joined after the initial program launch because

they were faced with issues regarding PV interconnection or net metering. Currently, the program has eight member utilities including: JEA, City of Tallahassee, Gainesville Regional Utilities, Ocala Electric Utility, Fort Pierce Utilities Authority, Orlando Utilities Commission, Lakeland Electric and Utilities Commission of New Smyrna Beach.

Figure 4. A sample of the SunSmart marketing materials

Members of FSEC and FMEA's staff also traveled to meet with individual utilities and sell the program to the utility's upper management. At these meetings, many of the utilities expressed concerns about marketing and hardware costs. Many also did not have the manpower to assign to a green pricing project. FMEA and FSEC encouraged them to attend at least one of the SunSmart workshops before making the decision not to participate. Six utilities were approached in this fashion, with five of these six becoming program partners[6].

Recently, only a limited amount of effort has been put into recruiting new partners for the program. The focus has instead been on developing successful green power programs in the existing partners' service territories. Once a few programs have been launched, FMEA and FSEC will present these members' success stories to other Florida municipal utilities and encourage a greater level of participation among FMEA's constituents.

SunSmart Workshops

A total of nine SunSmart marketing and technical workshops were held at varying locations. After the introductory meeting, each workshop was sponsored by a member utility, who provided lunch and a meeting venue.

These workshops varied in content, but primarily focused on learning the basics of green power marketing, developing concepts for generic marketing materials, and gaining technical information about green power technologies and policies.

Technical topics of specific interest to member utilities included negotiating with renewable energy merchants and contractors, developing interconnection procedures and policies, metering options and PV and solar thermal technology basics. SunSmart program managers

[6] The appendix to this report contains several presentations that were used to promote the SunSmart program to municipal utilities.

attempted to answer any additional technical needs or questions as they surfaced during meetings. On occasion, guest speakers from the renewable energy industry were brought in to make presentations on their respective technologies, or programs that they were involved with from other parts of the country.

The SunSmart workshops also provided its members with green power marketing presentations and guest speakers with expertise in the field of green pricing. SunSmart staff provided members with templates for estimating program size and payback as well as published reports on other green power programs operating successfully throughout the nation. Each member utility was encouraged to outline its own green power program concept and discuss it with SunSmart staff members. In retrospect, this approach seemed somewhat flawed, since the utility staff sent to attend these workshops generally had minimal experience in marketing, or were not in a high enough position within their utility to effectively implement a green power program.

One productive aspect of these workshops was the development of generic marketing materials that could be used by any member utility. Each utility provided input for developing the content of the brochures, and presented the draft products to their marketing or public relations staff for review. Although the process was time intensive, it ensured that the products would be useful to all members of the group.

Figure 5. A SunSmart Workshop at JEA

Another benefit of the workshops was the impact they had on providing technical information about solar technologies to participants in a streamlined fashion. Many member utilities indicated that they were hesitant to take on a solar project because of a lack of familiarity with the technology. Having FSEC as a partner allowed the SunSmart program to successfully address these concerns via the workshops.

One problem with the quarterly workshops cited by its participants was the travel costs associated with attendance. This will be addressed in a second phase of the program by allowing many of the workshops to be held via internet groupware programs. Those who can't travel can sit at their desks and participate in discussions as well as review and comment on presentations.

Standard Marketing and Outreach Materials

One of the SunSmart Program's primary functions is to create a group of marketing materials that could be used by any of its members to promote green power. This was accomplished, but not without a great deal of frustration and hardship on the part of the program's administrators.

Early in the program, a poll was taken to determine what types of marketing materials would be most useful to the group. The poll also focused on whom the potential target groups would be, what the average income of potential participants would be and what message should be conveyed to the target groups. For this portion of the program, SunSmart hired an environmental marketing firm. The firm reviewed demographic information for each member utility and developed a few marketing approaches for the group to review together. Market research seemed to indicate that college educated women ages 25-59 would be the primary target group, although some of the materials would be developed to appeal to a more universal audience.

Utility members would have the option to customize several portions of the print material as desired, but the overall message would remain the same for everyone using the materials. A single toll-free number and website URL were purchased for the SunSmart program and are predominately featured on all of the marketing materials.

SunSmart members chose a marketing design that would appeal to women, but could be understood by those with eighth grade reading capabilities. The colors and design were bright and feminine, and used simple icons as descriptors as opposed to color photographs or detailed diagrams. The message chosen was, "choose energy for life." This message focused on providing clean energy options for healthy living today, while offering the promise of clean energy for tomorrow's generations.

Figure 6. A SunSmart sign up booth

The print materials developed included a door hanger with an attached refrigerator magnet, a four-page direct mail brochure, three bill inserts, a series of posters for

display, and a ten-page consumer information brochure. All used varying forms of the same message and the same icons and graphic design.

The marketing firm also developed a 60-second radio public service announcement featuring a generic ending as well as tag lines for each member utility. It employed a simple nursery rhyme tune for the background music, and featured a young boy and girl discussing green energy available from their local power company. Negotiations are underway to feature the PSA on two statewide radio broadcast networks.

The total cost of developing these materials was approximately $23,000. Printing of the materials is to be paid for by each utility as needed. Members were provided with electronic copies of all of the marketing materials so that each utility could customize them if they chose to do so. They were also provided with several copies of CDs containing their radio public service announcements.

It may have been more effective to develop a few concepts for the marketing materials and limit the number of choices the utilities were offered. SunSmart program managers should have also conferred more closely with each utility's marketing department to make sure that the opinions received from each member accurately reflected the feelings of its entire utility staff. A few of the utility's marketing departments did not have the opportunity to view or comment on these materials prior to their development, since the person sent to attend the SunSmart workshops was from more technical division. This has led to less use of the marketing materials by a few of the participating utilities.

The SunSmart Website

Early in the program's development, the participants selected www.sunsmart.org as the member's universal URL. The website has been a key feature of the program's public outreach strategy. It provides access to each participating partner's website as well as basic information about energy resources and green pricing. It also offers links to educational materials for teachers and students about renewable energy. In addition, it provides consumers with downloadable fact sheets, brochures, and links to related sites such as the U.S. Department of Energy's green power network and the Million Solar Roofs website.

Consumers can also sign up for their utility's green power program, or find out more information about a specific utility program from the SunSmart website. This portion of the site is still under development, since many of the participating utilities have not released their programs to the public. There is also a general inquiry section of the site that allows consumers to provide feedback and ask specific questions about green power or a utility's program.

The website has recently been altered to match the appearance of the SunSmart marketing materials. All of the SunSmart consumer marketing brochures are available in PDF format from the site. There is also a link for utility members to the PV Database, which provides specific cost and performance information about any grid-connected PV installations that have been installed in Florida.

Consumer Questionnaires and Focus Group Materials

Even though the SunSmart participants were supplied with a plethora of data on consumer willingness to pay for green electricity, many of the utility members wanted SunSmart to develop a series of tools that could be used to gauge consumer response to green power offerings in their local service territories. In response to this request, SunSmart's administrators worked with NREL and the University of Central Florida's marketing teams to develop a set of survey instruments that could gauge local consumer response to green energy offerings.

Figure 7. The SunSmart Website.

The instruments included a short questionnaire, a longer questionnaire, an educational presentation for focus groups and a guide for hosting focus groups. The City of Tallahassee's electric utility offered to test out the materials in their service territory once they were completed.

SunSmart staff assisted with organizing three focus groups in the Tallahassee area, each made up of about 8-12 participants and representing three different consumer audiences.

The first group consisted of residential consumers, the second group contained commercial key account representatives, and the final group was made up of local environmental or community activists. Each group was led through the education and feed back phases of the focus group by a professional facilitator. The approach varied slightly from the generic focus group platform in that the participants were provided with a short power point presentation prior to provide feedback about green pricing program offerings.

Each focus group meeting began with a review of energy options available to consumers in Florida. It included benefits and drawbacks of different fuel types including fossil fuels and several types of renewables. The presentation was reviewed carefully to avoid providing biased information to focus group participants.

After the presentation was made, the facilitator asked each focus group member for their opinion or answer to a series of questions related to energy and the environment. This was done in a round table fashion so that each participant provided a response to each question or statement.

The participants were then given the short version of the consumer questionnaire to complete. A door prize was offered to attendees via a drawing. The door prize used was a new DVD player. Each attendee was also paid $20 for attending the 2 hour focus group session. Participants were randomly selected from the electric utility's billing department.

The results of the program were tallied by the facilitator and SunSmart staff members and a report was created for the City of Tallahassee with each group's responses. Tallahassee allowed the results of the three focus groups to be shared with other SunSmart utility members so that they could all benefit from the experience. The report is provided in the appendix of this document.

Figure 8. A teacher-training workshop hosted by JEA

The process received scrutiny from the UCF and Florida State University's marketing departments for its non-traditional approach. Generally, consumers are not provided with specific information about the product being researched, but it was decided that green power was too difficult and unfamiliar of a concept to use the traditional method of focus group analysis.

Student and Teacher Educational Materials

Another important deliverable associated with the SunSmart program was the development and dispersal of K-12 educational materials for solar for schools projects. FSEC worked with the Florida Solar Energy Research and Education Foundation to provide curriculum units and teacher training to all interested SunSmart utilities.

The resulting products included several educational tools such as a one day workshop for middle and high school teachers, a classroom laboratory kit for middle and high school science classes, an honor's level curriculum and text book for high school students and a series of online activities and problems that could be used in conjunction with FSEC's PV Information Database.

Figure 9. Children in New Smyrna Beach learning about solar power.

To date, the SunSmart program has offered teacher training workshops for two of its utilities, JEA and Lakeland Electric. It also plans to offer two additional teacher training workshops in 2003, sponsored by the Orlando Utilities Commission and The Utilities Commission of New Smyrna Beach.

Most of the utilities in the SunSmart program have added value to their solar projects by installing them on schools. Four of eight participating utilities have installed photovoltaic systems on schools as part of their green power programs. Of these utilities, only one, New Smyrna Beach, has attempted to recover hardware funding for a school PV installation through green pricing. The other three, JEA, Lakeland and OUC, have installed PV systems on schools as research or pilot programs and have no intention of recovering the costs for these systems through green pricing.

Other member utilities are currently investigating the installation of school systems that offer multiple advantages to the local community such as disaster shelters. Ocala Electric Utility is currently considering a small PV system on a school shelter as part of a potential green pricing program. The application of solar technology is predicted to become more popular in coming years because of the added value to the community.

The PV Database

In order to assist member utilities that have made investments in PV technology, FSEC has created a PV information database that provides information on system performance, reliability and costs. The database also features several graphing and analysis options that help utilities to identify the value of this technology.

The database can be accessed from a link on the SunSmart website as well as directly from the FSEC website at www.fsec.ucf.edu/pvt. Utilities can make their data publicly available or password protected. The database also includes menu options that allow utilities to enter performance, cost or maintenance information from their desktop PCs and then provides immediate access to analysis tools to work with the entered data.

Figure 10. A curious customer in New Smyrna Beach

A special section of the database was also created to provide specific information on all PV school systems installed in Florida. This site includes an interactive, clickable map containing each solar school location and general information about these systems. Links to the SunSmart curriculum materials and online problems are also available from this site.

Community Marketing Efforts

The SunSmart program enlisted the assistance of the Legal Environmental Assistance Foundation (LEAF) to develop a community consumer marketing and outreach methodology that could be used by any of the SunSmart participants. The plan was for LEAF to work within each utility's community to identify grassroots leaders that would be willing to organize local environmental and community organizations in the area to conduct word of mouth marketing efforts.

LEAF planned to meet with these community leaders and provide them with background information about the utility's green power program via presentations at monthly membership meetings or one on one meetings. The SunSmart program would then provide the necessary marketing tools, including handouts and poster displays that could be used by community groups to promote the program.

Unfortunately, only one utility, the Utilities Commission of New Smyrna Beach, was able to take advantage of this community marketing strategy. None of the other members were far enough along in the development of their green energy programs to work with in this capacity. In many respects, this limited test of SunSmart's community marketing approach was beneficial. UCNSB acted as the group's guinea pig, and provided ample opportunity to learn and improve the SunSmart grassroots marketing technique.

What we did learn from the test case with UCNSB was definitely useful. We found two major benefits to this marketing approach. The first benefit is the increased level of credibility that can be added to the program. Gaining credibility with customers can be a difficult task for utilities, although publicly-owned municipal utilities seem to have a better relationship with their customers that investor-owned utilities. UCNSB is a small utility with only about 20,000 customers, so support from the small, but close-knit environmental community quickly shed a positive light on their program. One community member even wrote editorials and conducted news interviews with local television stations and newspapers in support of the program.

It also became apparent that grassroots marketing costs much less than traditional marketing approaches, though both are really necessary to launch a successful program. UCNSB only spent money on a few print materials and bill stuffers. All of the press that the program received was free. UCNSB also plans to use community volunteers to host booths at community events and popular local venues to promote their program and sign up customers. Other than the brochures being distributed, the utility will experience no out of pocket expenses with this approach. The SunSmart program even provided the posters for each sign up booth, and plans to man a few of these booths with its own staff to help the program along.

One notable drawback to this approach is that it can't work alone. A utility can definitely benefit from grassroots marketing efforts to help promote their program, but they shouldn't depend on it alone to sell green power. UCNSB was wary about spending marketing dollars on their program, so they focused on the grassroots approach with only minimal effort using traditional marketing methods. This limited the number of customers that could be reached and didn't allow for reinforcement of the program.

Figure 11. The Coronado Elementary School PV System

Case Study: Utilities Commission City of New Smyrna Beach

The Utilities Commission of New Smyrna Beach was the first of SunSmart's municipal utilities to launch a green pricing program in their service territory. They have provided others within the SunSmart group with a hard example of what it takes to get a green pricing program up and running. They were also the first utility to have the opportunity to test out the SunSmart marketing materials in their community.

Things started off slowly with UCNSB. They installed their first public PV system in June of 1999, but made only a minimal effort in promoting their green pricing program at that time.

Figure 12. A residential PV system in New Smyrna Beach

The four KW system is located on the grounds of the Coronado Beach Elementary School and has been functioning well since its installation, despite a few lighting strikes and inverter difficulties. The utility did an initial bill stuffer and hosted a barbeque at the site to promote the system, but received only three customer sign ups to support it. At that time, customers had the option to donate $5 or $10 each month to help the utility recover its additional expenditures.

The program received some initial free media coverage thanks to the support of the local Audubon Society and a local newspaper, but UCNSB did not invest in any paid marketing or advertisements. They did place a solar display in the hallway of their utilities building, which received a small amount of attention.

Instead, the Utilities Commission chose to focus on selling PV systems to their residential customers through their highly successful "Renewable Rooftops" program. This program has lead to the installation of nine PV systems on area homes, with two more expected to be completed by the end of 2003. The Utilities Commission received $100,000 contract from the State of Florida to help defray the costs of these systems. UCNSB used the grant funds to cover one third of the system costs, the utility covered one third of the system costs with their own funds, and the customer end up paying $1.82 per Watt for the system. The average system size installed through the program is 2.4 kilowatts.

Customers were also offered the benefit of net metering and utility financing through the program at the prime rate. Both of these value added benefits were well received by UCNSB customers. The utility's policy of simple net metering (one meter spinning backwards when the system produces excess electricity), though seemingly an insignificant benefit, was applauded by grassroots community groups throughout the state.

Once the utility's grant funds dried up, they began to focus again on their public green pricing program. They installed a new PV system on a local municipal golf course in March of 2002 and decided to utilize the newly create SunSmart marketing materials to promote their program on a larger scale.

The 4.8 kilowatt golf course system provided UCNSB with a total of 8.850 kilowatts of public green power to sell to their customers. After the system was installed, they planned a second "kickoff " celebration for their green pricing program, simply referred to as 'SunSmart'. This

time, however, they worked with SunSmart staff and LEAF, using the new materials to develop a strong community-based marketing plan.

The golf course kickoff, which was held on July 11th, 2002, was well attended by local city officials and receive a fair amount of free press coverage. Several members of local grassroots organizations also came out to support the program. The utility also received its first commercial customer sign up from the president of a local bank. This customer was formally recognized at the event for his commitment. Beginning in August of 2002, UCNSB plans to release a series of bill inserts, door hangers and direct mailers to their utility customers to promote the program. They will also continue to work with FSEC and LEAF to promote their program at the grassroots level.

Deb Swim, an attorney with LEAF, has agreed to organize local environmental organizations to man booths to promote the program at local events and high traffic locations. Deb also plans to make presentations at local community meetings and canvas local area businesses with the help of community volunteers in the area to distribute the SunSmart consumer information brochures and encourage commercial customer sign ups. FSEC will also help with this process whenever possible.

Though the program will continue to be contribution-based until their billing department can make the necessary adjustments, the utility has added descriptors that allow the consumer to understand how much electricity each contribution level supports. They also added a lower contribution level of $2 per month for subscribers and now reward subscribers at the $5 and $10 levels with a free 25 Watt compact fluorescent light fixture.

The utility is also considering changing its program to an energy-based approach that will allow its residential customers to purchase 10KWH, 25KWH or 50KWH or solar power. Commercial customers will have the option to purchase larger blocks of power at the rate of $.20 per KWH, in increments of 50 KWH, 100 KWH or 250 KWH. Commercial supporters will also receive public recognition within the community and possibly, free advertising time on the utility's website.

Figure 13. New Smyrna Beach ribbon cutting ceremony

Currently, UCNSB has installed 29 kilowatts of PV with plans to install at least 10 more kilowatts by 2003. With only 20,000 utility

customers, they are making significant progress toward their goal of becoming Florida's premier solar city.

Other Program Successes

Although UCNSB is the only utility that has launched a green pricing program since joining the SunSmart program, a few other member utilities are steadily advancing. JEA, GRU, Lakeland Electric, Orlando Utilities Commission and City of Tallahassee have all installed solar systems in their service territories and are working with the SunSmart program to successfully promote their green power investments.

Figure 14. JEA's PV parking garage system

To date, more than 100 grid-connected photovoltaic systems are operational and being monitored through the Florida Photovoltaic Buildings Program. Here is a review of current utility PV activity in Florida among SunSmart member utilities:

JEA is currently offering rebates for PV and solar thermal installations installed in their service territory. The PV rebate is $4 per installed Watt. FSEC will be conducting a design review for rebated PV systems. It is also in the process of installing several new PV systems on area colleges. They are also planning to host a training course for code officials and utility personnel on the proper installation and inspection of PV and solar water heating systems. The Florida Solar Energy Center will be teaching the course, which will be held near a new PV installation at the Florida Community College at Jacksonville Campus on August 20th, 2002.

Lakeland Electric recently experienced its first residential PV customer. The utility is in the process of refining its interconnection and metering procedures to accommodate the four-kilowatt grid-tied PV system. It is also still marketing its residential solar water-heating program, and has completed the installation of 17 PV portable classrooms as part of a joint effort with UPVG, FlaSEREF and FSEC. It has a total installed capacity of 39 kW.

Orlando Utilities Commission (OUC) recently interconnected its first residential PV system. The 2700-watt system received partial funding from the Florida PV Rebate Program. The utility will offer net metering to the customer. OUC also recently completed the installation of four-kilowatt photovoltaic systems on five Orange County public schools in its service area. OUC purchased and installed the systems and will maintain ownership. Electricity produced from the PV systems will be credited to each of the participating schools since the systems will be connected to the grid on the customer's side of the meter.

Gainesville Regional Utility (GRU) recently interconnected its first residential PV system. The model home, built by All American Homes, received a PV rebate from the state of Florida and was featured in this year's parade of homes. GRU is also working on a landfill gas green pricing program. In 1996, GRU installed a 10 kW system through a utility green pricing program.

The City of Tallahassee launched their green pricing program in the fourth quarter of 2002. They have chosen to out source their marketing labor to a national green power-marketing group called Sterling Planet. The utility recently conducted focus groups with its customers to aid in the development of their program. Tallahassee recently installed a new 10 kW PV system on a local aquatic center. They also took ownership of an existing 18-kilowatt electric car charging station located at the Florida Public Service Commission building. The City also interconnected its first grid-connected PV customer in January of 2002. The utility is offering net metering for PV systems that are five kilowatts or smaller in size.

Figure 15. Tallahassee's Truesdell Aquatic Center.

Lessons Learned

Since the SunSmart program began in 1999, many lessons have been learned about working with electric utilities to promote the development of renewable energy resources. The approach of working with several public utilities as a group instead of focusing financial and labor resources on individual utility projects has definitely proven to be beneficial. SunSmart utilities have been able to share their concerns and methodologies with one another, thus reducing the anxiety of taking on a green power program on their own. They have also been supplied with the technical resources necessary to make informed decisions about how to develop a solar or renewable energy program. SunSmart's program managers have also identified a few drawbacks to the approach taken that others pursuing a similar project may be able to learn from as well.

Listed below are our recommendations based on the SunSmart experience:

Make sure you are speaking with the right people. Although the participants in our SunSmart workshops were helpful and enthusiastic, a few utilities sent representatives that had no authority to make decisions about their own green power program. Only the utilities that had

strong upper level management support moved forward with plans for a green power program. We strongly recommend that you meet with upper level management of a potential utility participant and work with them directly to develop a preliminary green power program plan prior to attending the workshops. This allows the utility person sent to attend workshops to have a roadmap to work from, and clearly establishes a desire to move forward.

Develop a lucid green power marketing plan from the beginning. Participants need to have a direction, so help them clearly establish what they hope to gain from attending workshops and participating in the program. At a bare minimum, define a specific green power installation goal that the utility can shoot for, and define the costs associated with meeting that goal. Make sure to set up a realistic marketing budget and identify your target groups ahead of time.

Review all of the technology options. Make sure you understand what is involved with each technology, including environmental implications, start up costs and operation and maintenance costs. Utilities should be aware of all of the options in their region. Meet with technical experts and ask questions before requesting bids for a specific green power project. In some cases, a seemingly good green power product might not be a cinch to develop. Regulatory requirements, rabid environmental opponents or lack of resource availability can stop a program in its tracks.

Use grassroots marketing whenever possible. Grassroots marketing directly involves the community in your project and gives it credibility. It also saves you money. Engage local community groups and get them involved in the development phase of your program. This will give them a sense of ownership once the program is released and will reduce the potential for antagonistic relationships after the program has already been released.

Include value-added features in your program. Offer the customer something other than just the option to pay more. Environmental benefits can be difficult to grasp, so you are much more likely to gain the attention of a larger percentage of your customers if you offer them something more tangible with the green energy purchase. Protection from fuel adjustment charges, a tax deduction, a free home energy survey or energy efficient products are all wonderful thank-you gifts.

Don't forget your commercial customers. Commercial customers really help you get more bang for your marketing buck. Most programs seem to focus all of their marketing attention on the residential sector, but overlook the commercial sector. This can be a costly mistake. Commercial customers are always looking for good free press and possibly, free advertising. Many are also very interested in being stewards of the environment.

Use your schools. Schools are a great location for green power installations. They are especially great sites if they can also function as an emergency shelter. The SunSmart program provided a curriculum unit and teacher training for utilities that installed systems on schools. These materials, along with countless other educational tools, are available to the public and are usually free of charge. Just make sure you identify a champion at each school that will be willing to point out the renewable energy installation and use it in the classroom as a teaching tool.

Use centralized purchasing whenever possible. When utilities work together to purchase solar or other renewable energy hardware, the costs and time involved with those purchases can be greatly reduced. Look for an agency or utility that can act as a central purchaser and try to go in with others to purchase larger quantities of equipment.

Future Implications

The SunSmart program has plans to continue quarterly meetings and work with its members to produce successful green power programs. In 2003, it will host the majority of its meetings via the internet. Now that the SunSmart marketing materials have been created and tested, it is expected that at least three member utilities will launch green pricing program sometime in the next two years.

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