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March 16, 2011

VIA ELECTRONIC FILING: FILINGS@PSC.STATE.FL.US

Ms. Ann Cole, Clerk
Office of the Commission Clerk
Florida Public Service Commission
2540 Shumard Oak Boulevard
Tallahassee, FL 32399-0850

Re: **Undocketed**: March 3, 2011, Solar Workshop - Post-Workshop Comments of Florida Public Utilities Company

Dear Ms. Cole:

Attached for electronic filing, please find the Post-Workshop Comments of Florida Public Utilities Company, submitted in response to the PSC Staff's questions arising out of the March 3, 2011, Workshop addressing Investor-Owned Utility Solar Pilot Programs.

Thank you for your assistance with this filing. As always, please do not hesitate to contact me if you have any questions.

Sincerely,

Beth Keating
Gunster, Yoakley & Stewart, P.A.
215 South Monroe St., Suite 618
Tallahassee, FL 32301
(850) 521-1706

MEK

cc: Mr. Larry Harris, Senior Staff Counsel

Questions for Discussion

March 3, 2011 Staff Workshop on Solar Pilot Programs

1. **Allocation of funds**

Public versus private

What is the appropriate allocation of funding between public and private buildings under the solar pilot programs? How should this be determined?

FPUC does not have a policy that differentiates between public and private customers. FPUC treats all customers as equals and has presented its energy conservation programs such that they can be applied to either private or public entities. FPUC supports the education of its consumer base and believes that supporting public schools is one way to exert a positive influence on the community. However, since FPUC does not differentiate between public and private entities, it has no opinion on allocating funds between the two under the solar pilot programs.

Should there be a standard percentage allocation?

FPUC does not have an opinion related to the allocation of funds between public and private entities under the solar pilot programs.

What other types of public facilities should be eligible for incentives? How should these facilities be selected?

FPUC's conservation programs allow all types of public and private facilities to be eligible for incentives, as long as they meet the requirements outlined in the conservation plan and program standards.

Thermal versus photovoltaic

What is the appropriate allocation of funding between thermal and photovoltaic programs under the solar pilot programs? How should this be determined?

As the smallest FEECA utility and not having the resources to conduct a lot of original research, FPUC set the rebate levels for the programs based on the best information available primarily from other utilities at the time FPUC was designing the programs. Based on the rebate levels, FPUC projected penetration between the two programs. The purpose of pilot programs such as these is to test market reaction in areas such as penetration in relation to rebate levels. As such, the rebate levels and the market reaction to them will allocate the funds between the two programs. FPUC will continue to monitor participation levels and adjust rebate levels in the future to increase or decrease participation as needed.

Should commercial/industrial customers be eligible for solar thermal programs?

FPUC has included commercial/industrial customers as eligible for the solar thermal programs in its conservation plan. FPUC is of the opinion that all customers should be eligible for these programs regardless of the customer class.

Low income

What is the appropriate level of funding for low income programs under the solar pilot programs? How should this be determined?

FPUC does not have a policy that differentiates between customers' income levels. FPUC treats all customers as equals and has presented its energy conservation programs such that they can be accessible for all customers. Since FPUC does not differentiate between income levels for customers, it has no opinion concerning the allocation of funds based on income levels.

Should low income funds be used to add thermal hot water heating to existing homes?

Since FPUC does not differentiate between income levels for customers, it has no opinion concerning the use of low income funds in the solar pilot programs.

Residential versus commercial/industrial

What is the appropriate allocation of funding between residential and commercial/industrial customers under the solar pilot programs? How should this be determined?

FPUC has developed conservation programs for both residential and commercial/industrial customers to meet FPUC's conservation goals. As such, FPUC has opportunities for both residential and commercial/industrial customers to participate in conservation programs. For the solar pilot programs, FPUC allocated demand and energy savings associated with the solar pilot programs equally between the residential and commercial/industrial classes. FPUC did not allocate funding between the residential and commercial/industrial classes since the program does not differentiate between the residential and commercial/industrial classes. Actual funding will be allocated based on actual penetration in each class.

2. **Program Monitoring**

Methodologies to monitor and evaluate programs

How should the results of each pilot program be monitored, tracked, and evaluated?

Since the solar programs are pilot programs, FPUC's monitoring and tracking procedures will be a work in progress while the company evaluates participation levels and the amount of work associated with the process. FPUC will conduct pre-installation inspections to evaluate the eligibility and estimate the energy savings potential of the proposed installation. This data will be used to estimate the savings if the customer follows through with the installation. FPUC will also conduct post installation inspections of a minimum of 10 percent of the installations. FPUC will monitor and track purchases of excess energy for the solar photovoltaic installations under the terms of the Northwest Florida Division Rate Schedule REN-1 or Northeast Florida Division Rate Schedule REN-1.Throughout the pilot program, FPUC will continually evaluate the effectiveness of the monitoring procedures to ensure the most efficient tracking methods are being used.

Program Results

What data should be provided to the Florida Public Service Commission (FPSC) in order to evaluate the results of the pilot programs?

FPUC is of the opinion that the FPSC should be provided participation levels, estimated energy and demand savings, value of rebates provided, and administrative costs.

How often should data be provided to the FPSC and in what venue?

FPUC is of the opinion that the FPSC should be provided this data annually with the Annual Conservation Report.

Program success

What criteria should the FPSC use in determining whether the pilot programs meet the intent of Section 366.82(2), F.S . of the Florida Energy Efficiency and Conservation Act (FEECA)?

The FPSC should use the criteria that the FPSC is required to consider in Section 366.82(3), F.S.

3. **Program Design**

To what extent should programs be consistent among utilities?
FPUC is of the opinion that each utility, especially for pilot programs, should be free to utilize a program design that's most appropriate for its customers. It is likely that allowing the utilities to develop their own program designs will provide the FPSC with feedback on which designs are more effective, should the FPSC seek to develop consistent programs in the future.

Rebate levels

Should rebate levels be uniform among utilities?
FPUC is of the opinion that it is less important for rebate levels to be uniform among the utilities, especially while the programs are still in the pilot stage.

Eligibility

Should there be screening criteria for a customer to receive a rebate based on optimum system performance of the solar photovoltaic or solar thermal system? If so, what screening criteria should be used to select sites?

FPUC is using its pre-installation inspection to identify the eligibility of a solar installation and the potential savings. FPUC is of the opinion that it would be inappropriate to limit installation specifications during the pilot phase until more knowledge exists concerning the programs, participation levels, and actual customer installation performance. After more experience is gained, it may be decided that tighter specifications may need to be placed on the requirements for the installations to receive rebates or that the level of rebate provided might depend on the level of installation performance.

Administrative/marketing costs

What level of utility spending on administrative and marketing costs is appropriate in these programs?

FPUC has initially allocated 10 percent of the cap to administrative costs for the pilot programs and is of the opinion that 10 percent is reasonable until further knowledge is gained. FPUC will continue to monitor the pilot program costs to learn the amount of administrative costs that will be associated with these programs. Administrative costs will vary significantly as the penetration levels change. As the number of installations increase, the total amount of overhead should increase slightly, while the cost per installation will drop significantly.

Should administrative costs be included within the incentive cap or recovered within the administrative costs of the entire DSM portfolio?

The administrative costs should be included within the incentive cap. During the Conservation Goals Docket, FPUC testified that the appropriate test to use on conservation or demand-side renewable programs was the RIM test. The solar pilot programs do not pass the RIM test and providing the administrative costs above the cap would only increase the impact on FPUC's customers.

4. **Renewable energy credits**

Ownership

Who should own the renewable energy credits from systems that receive solar rebates or other utility funding?

FPUC is of the opinion that the utilities should not own the RECs.

5. **Utility-owned demand-side renewables**

What business model attracts utility capital to implement renewables on the customer side of the meter?

FPUC does not have a specific recommendation for a business model to attract utility capital to implement renewables on the customer side of the meter. FPUC is of the opinion that such a model would require some type of incentives to its stockholders to earn a return on their investment.

Are there existing models for implementation of utility-owned generation on a customer's property?

FPUC is not aware that there are, or are not, existing models for implementation of utility-owned generation on a customer's property.

Staff's Supplemental Questions for Inclusion in Post-Workshop Comments

March 3, 2011 Staff Workshop on Solar Pilot Programs

Undocketed

Allocation of Funds

Please describe the procedures the utility intends to use to reallocate funds between pilot solar programs.

Since the solar programs are in the pilot stage, FPUC does not plan on allocating funds between programs. Instead, the company is leaving the allocation open to allow for flexibility based on actual participation levels. FPUC does, however, project participation levels for each of the programs. If adjustment of rebate levels is necessary, FPUC will petition the Commission for the necessary changes.

Should the utility notify the Florida Public Service Commission (FPSC) of its intentions to reallocate funds between programs? If so, how should the utility notify the FPSC?

Since the solar programs are in the pilot stage, FPUC does not plan on allocating funds between the solar pilot programs. FPUC has provided the Commission estimates of the cost of each program based on assumed participation levels. Since FPUC has no formal allocation, FPUC does not believe it is necessary to notify the Commission if actual participation varies from projected. If FPUC makes adjustments to rebate levels, it should petition the FPSC for adjustments to its plan with a formal filing notice that describes its reasons and methodology for adjusting its program design.

Program Design

What role should the utility and/or solar installer play in providing information on expected system performance and payback period to pilot solar program participants?

While in the pilot stage, FPUC will be developing a method to calculate expected performance and payback period. Until the actual results are better known, it will be difficult to deliver expected system performance and payback period to the participants with much accuracy.

How should the utility notify the FPSC of its intentions to change rebate levels in the pilot solar programs?

If FPUC makes adjustments to rebate levels, it should notify the FPSC of adjustments to its plan with a formal filing notice that describes its reasons and methodology for adjusting its program design.

Terry A. Davis
Assistant Secretary and
Assistant Treasurer

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GULF POWER
A SOUTHERN COMPANY

March 18, 2011

Mr. Larry D. Harris, Senior Attorney
Florida Public Service Commission
2540 Shumard Oak Boulevard
Tallahassee FL 32399-7019

Dear Mr. Harris:

Gulf Power is a party to the Joint Post-Workshop Comments filed today by the Investor-Owned Utilities in response to the Staff Workshop held March 3, 2011 ("the Joint Comments"). In addition to supporting the Joint Comments, Gulf Power would like to take this opportunity to reiterate its position concerning the ownership of the renewable/environmental attributes associated with systems that receive solar rebates or other utility funding.

Given that Gulf's general body of customers will be funding a significant portion, or in the case of the Solar for Schools and Low-Income Solar Thermal programs, all of the purchase price for the solar systems, Gulf believes that the environmental attributes associated with the energy generated by those systems should belong to Gulf for the benefit of its general body of customers. Even in cases where Gulf Power's general body of customers is not funding the entire purchase price of the systems, Gulf Power's experience with the state of Florida's solar incentive program suggests that the incentive payments were the primary motivating force behind the installation of the systems. During Florida's state-wide solar PV incentive program which began on July 1, 2006 and ended on June 30, 2010, Gulf observed a total of 72 solar PV installations in our service area, 37 of which occurred during the last six months of the incentive program. Since the expiration of the state's solar PV incentive on June 30, 2010, Gulf has observed only two residential solar PV installations. Although nine commercial billboard solar PV installations have occurred since June 2010, these were a

direct result of another incentive, a state funded grant specifically targeted at installing solar PV on billboards. Because the incentive payment effectively "enables" the installation, it is appropriate that the utility's general body of customers should benefit from the environmental attributes associated with all of the energy generated from those installations.

Even if, as Gulf believes is appropriate, customers were required to relinquish rights to renewable/environmental attributes in exchange for receiving an incentive payment, a customer who prefers not to relinquish those rights is still free to retain them, just not at the expense of the general body of customers. Gulf also believes it would be appropriate, given the "pilot" nature of these solar programs to test the Florida market with one or two IOUs to gauge customer acceptance of the idea that customers would relinquish rights to renewable/environmental attributes in exchange for the incentive payment. Gulf does not believe that this position runs afoul of Rule 25-6.065(9), as the rule specifically allows for a utility and a customer to negotiate for ownership of renewable attributes.

Recognizing that there is presently no national or state renewable portfolio standard in place, Gulf does not intend, at this time, to seek ownership of the environmental attributes associated with customer-owned generation installed in connection with Gulf's Solar Pilot Programs. The Company's decision in this regard should not be construed as an acknowledgement that the Company is not entitled to seek ownership of the environmental attributes, or as a waiver of the Company's right to do so at a future time.

Sincerely,

Jerry A. Davis

vm

Enclosure

cc: Beggs & Lane
Jeffrey A. Stone

JOINT POST-WORKSHOP COMMENTS OF FLORIDA POWER & LIGHT, PROGRESS ENERGY FLORIDA, GULF POWER COMPANY, AND TAMPA ELECTRIC COMPANY

Florida Power & Light Company ("FPL"), Progress Energy Florida ("PEF"), Gulf Power Company ("Gulf"), and Tampa Electric Company ("TECO") (collectively, the "IOUs") are pleased to provide joint comments in response to several of the issues raised and questions asked during the Staff Workshop held March 3, 2011, to consider the investor-owned utility solar pilot programs. These comments also address supplemental questions provided by Staff following the workshop.

Allocation of Funds

Several of the issues raised relate to allocation of funding. Specifically, participants considered whether there is an appropriate allocation of funds between public and private customers, between solar thermal technology and photovoltaic ("PV") technology, between low-income customers and the remainder of the customer base, and between residential customers and commercial/industrial customers – and whether such allocations should be standardized among all IOUs. The IOUs are in agreement that standardization is neither necessary nor appropriate. The flexibility and diversity the utilities have incorporated into their renewable pilot designs will provide more information on which to enhance program development in the future.

When considering each of these allocation issues, a few common elements should be recognized. First, it is important to recognize that the portion of an IOU's total solar pilot program funding that would support programs for a particular customer class or technology is simply a projection of funds necessary as a result of an estimated participation level. It is not a set-aside for a particular class or technology. Instead, it is a starting point in the pilot program effort and is based on the IOU's best estimate as to how events will proceed.

Maintaining flexibility over the course of program deployment is essential to maximize the effectiveness of each IOU's solar portfolio as a whole. Each utility should be allowed to react to market dynamics. For example, a particular pilot may have more than projected interest, requiring greater funding, or may be successful with lower incentive costs, requiring less funding. In response, an IOU should be able to shift funds between customer sectors or between technologies as conditions warrant to meet objectives. A set allocation between categories of customers or between technologies may therefore be counterproductive to the effective use of the solar project funds.

Second, it is important to keep in mind that each utility has received approval for *pilot* programs. It is the IOUs' understanding that the purpose of a pilot program is to gather information from the technology, pricing/incentive strategy, and customer demand and acceptance. The information learned may then be used to modify or expand the pilot, and, ultimately, to help determine whether to abandon the pilot or seek to have it converted into a permanent program. In short, there is an expectation to learn and adapt. The IOUs suggest, therefore, that it would be inconsistent with the very nature and purpose of a pilot project to rigidly adhere to initial, projection-based allocations rather than proceeding with a more flexible approach.

Third, and perhaps most importantly, the differences among the utilities, their customer bases, and their total budgets for solar pilot programs vary significantly and require different program development – resulting in a different distribution of funds. A flat percentage allocation to schools, for example, may not be enough to develop a solar pilot project for even one school for an IOU with a relatively lower total budget. Experience with solar programs is also a relevant consideration. A particular IOU may recognize that there is a greater customer demand

for PV within its service area, while another IOU perceives a greater demand for solar thermal water heating. Accordingly, different allocations of funds between customer segments and technologies may be warranted.

Public vs. Private: What is the appropriate allocation? Should there be a standard allocation? What types of public facilities should be eligible for incentives?

For the reasons discussed in the general allocation comments above, it is the joint position of the IOUs that there is no single allocation approach that should be deemed appropriate and applied as a standard for the IOUs. Furthermore, it appears there may be confusion associated with the types of public facilities eligible for incentives. Each IOU has a solar program directed at public schools, and only public schools are eligible to participate in those programs. However, all commercial/industrial customers – whether public or private – are welcome to take advantage of the other commercial/industrial programs, to the extent they meet program eligibility standards. No customer is precluded from participation on the basis of being a public institution or a private institution. Additionally, earmarking funds for another subset of the commercial/industrial customer class would add to the complexity, and perhaps the cost, of program administration.

Thermal vs. Photovoltaic: What is the appropriate allocation? Should there be a standard allocation? Should commercial/industrial customers be eligible for solar thermal programs?

For the reasons discussed in the general allocation comments above, it is the joint position of the IOUs that there is no single allocation approach that should be deemed appropriate and applied as a standard for the IOUs. The popularity of different technologies may vary between IOU customer bases, as may the cost of those technologies. With respect to solar thermal programs for commercial/industrial customers, this too should be an IOU choice based on the applicability and usefulness of such a program in its service area.

Low Income: What is the appropriate level of funding for low income programs? How should it be determined? Should low income funds be used to add thermal hot water heating to existing homes?

For the reasons discussed in the general allocation comments above, it is the joint position of the IOUs that there is no single level of funding that should be deemed appropriate and applied as a standard for the IOUs. The level of funding and types of programs offered for low-income customers is necessarily an IOU-specific issue based on the demographics of its service area, as well as other considerations such as system administrative requirements.

Residential vs. Commercial/Industrial: What is the appropriate allocation of funding? How should it be determined?

For the reasons discussed in the general allocation comments above, it is the joint position of the IOUs that there is no single allocation of funding that should be deemed appropriate and applied as a standard for the IOUs. The level of funding and types of programs offered for residential and commercial/industrial customers is necessarily an IOU-specific issue based on the demographics of its service area, as well as other considerations such as system administrative requirements.

Regulatory Process for Reallocation of Funds

Another topic of discussion at the workshop that lends itself to joint comments was the regulatory process that would apply to an IOU decision to increase or decrease funding for a particular pilot program above or below that which was projected at the time of program approval. The IOUs recognize that they should seek Commission approval of program modifications and Commission Staff approval of program standard changes. This process would apply to the extent an IOU wished to change a technology rebate amount (depending on whether the rebate was specified in the approved program description or the program standards).

However, no such approval is required by law or rule for IOU program administration decisions to refocus or adjust its solar pilot program efforts.

As described above, the approved programs are pilot programs, and the IOUs expect to learn and adapt as more experience is gained through program implementation. Each IOU desires to preserve the flexibility to react to market demand, technology, or cost issues in a meaningful and timely manner. Seeking Commission approval before adjusting program budgets would likely impair the IOUs' ability to react to changing conditions and lead to unnecessary delays in implementation. It is worth noting that retaining this flexibility at the IOU-level is consistent with the manner in which other demand side management ("DSM") programs are managed. Such spending patterns are reported and reviewed by the Commission in the annual Energy Conservation Cost Recovery Clause docket, and it is the position of the IOUs that a similar process should apply to the solar pilot programs.

Information on Expected System Performance and Payback Period

What role should the utility and/or solar installer play in providing information on expected system performance and payback period to pilot solar program participants?

Three of the four Staff supplemental questions for inclusion in post-workshop comments circulated to participants following the workshop are addressed in the above comments. The fourth Staff question asks what role the utility and/or solar installer should play in providing information on expected system performance and payback period to pilot solar program participants.

The IOUs believe that both the individual utility and the solar installer will play a role in educating customers and ensuring they have reasonable expectations regarding the performance and payback of their systems. For example, the utility can provide information on system costs and demand and energy savings generally, while the solar installer can advise the participant

regarding the operation, use and expected performance of the particular system installed. This information can then be used to calculate the customer's payback period. In addition, organizations such as the Florida Solar Energy Center ("FSEC") are an available resource for further knowledge. Together, this information provides the customer with tools necessary to make informed decisions about their investment.

The IOUs appreciate the opportunity to furnish Staff this input and hope it is helpful as we move forward in implementing solar pilot programs.

Response to Questions for Discussion from the FPSC Staff Workshop
for
INVESTOR-OWNED UTILITY SOLAR PILOT PROGRAMS

Held on March 3, 2011
9:30 a.m. — 4:00 p.m.
Betty Easley Conference Center
4075 Esplanade Way, Tallahassee, Florida

Submitted by: Felix Llevada, XunXpert, LLC Orlando. Florida

1. Allocation of funds

Public versus private

What is the appropriate allocation of funding between public and private buildings under the solar pilot programs? How should this be determined?

COMMENT: Public buildings should not enter into the current program as defined. Public buildings should have a separate fund allocation. The funds in the solar pilot program are extremely limited for the purpose for which they are intended. Any further dilution is contrary to that purpose. That purpose being mainly that the general public understand the economics and viability of solar electricity and solar thermal power electricity displacement and be incentivized to install these systems on their own.

Should there be a standard percentage allocation?

COMMENT: No (see above comment).

What other types of public facilities should be eligible for incentives? How should these facilities be selected?

COMMENT: Public buildings should not enter into the current program as defined. (see comment above

Thermal versus photovoltaic

What is the appropriate allocation of funding between thermal and photovoltaic programs under the solar pilot programs? How should this be determined?

COMMENT: Photovoltaic systems cost more yet can be connected to the grid and support the lowering of fossil fuel use by the the general population at large. Thermal systems can essentially pay for themselves in about 5 years if priced appropriately. Therefore, the state should allocated more funds toward PV than thermal and incentivize the solar thermal market mainly by helping thermal installers cut their costs and more marketing aid to those installers who sell systems with 5 year payback.

Should commercial/industrial customers be eligible for solar thermal programs?

COMMENT: Absolutely. The state should concentrate incentives on vendors who sell systems with 5 year or less payback time frames and that they be employed where ever electrical means or fossil fuels are used to heat water and solar thermal is effective for the application.

Low income

What is the appropriate level of funding for low income programs under the solar pilot programs? How should this be determined?

COMMENT: Low income property owners who can benefit from photovoltaics or solar thermal should be mainly given low interest, long term loans since these loans can show a cost per kWh which is lower than current electrical rates when applied to solar thermal or photovoltaic systems.

Should low income funds be used to add thermal hot water heating to existing homes?

COMMENT: Mainly to effect low interest long term loans that can show a cost per kWh which is lower than current electrical rates.

Residential versus commercial/industrial

What is the appropriate allocation of funding between residential and commercial/industrial customers under the solar pilot programs? How should this be determined?

COMMENT: Commercial systems should see a faster rate of return because of depreciation deductions, however funds should be allocated according to the make up of the rate payer, i.e. depending on the percentage of energy use between Commercial vs Residential.

2. Program Monitoring

Methodologies to monitor and evaluate programs

How should the results of each pilot program be monitored, tracked, and evaluated?

COMMENT: Utilities must be required to keep records of all customers who apply for incentives or inquire for help with the installation of solar thermal or photovoltaic systems.

Program Results

What data should be provided to the Florida Public Service Commission (FPSC) in order to evaluate the results of the pilot programs?

How often should data be provided to the FPSC and in what venue?

COMMENT: The number of applicants for incentives or interest in photovoltaic and solar thermal installations must be provided by the Utilities. Of course the amount of electrical power displaced by these systems must also be reported along with the speed at which customers subscribe to and become part of any incentive program.

Program success

What criteria should the FPSC use in determining whether the pilot programs meet the intent of Section 366.82(2), F.S., of the Florida Energy Efficiency and Conservation Act (FEECA)?

COMMENT: There are a number of actions that the utilities can take to ensure that more renewable generation means are attached to the grid. The funds which they are allowed to collect to incentivize these installations can also be used for programs where customers are matched to loans with long payment terms at reasonable interest rates and which result in effective electrical rates on the photovoltaic or thermal system which are similar to what the customer is currently paying. This would help grow the market for renewable energy installations much more than currently envisioned.

3. Program design

To what extent should programs be consistent among utilities?

COMMENT: There is no reason why these programs should be similar among the utilities. To the extent that there may be differences between customers in different utilities, perhaps some differences may apply. Otherwise the main differences between different regions in Florida is one of wind speed which may affect some of the system costs slightly.

Rebate levels

Should rebate levels be uniform among utilities?

COMMENT: Yes, rebate levels should be the uniform among utilities to maintain a consistent system across the state and avoid further confusion by vendors who can operate across utility boundaries.

Eligibility

Should there be screening criteria for a customer to receive a rebate based on optimum system performance of the solar photovoltaic or solar thermal system? If so, what screening criteria should be used to select sites?

COMMENT: Yes, as is done in the Net Metering program for the Gainesville Regional Utilities, the rebate should depend on the amount of energy that is expected from the system, averaged over an entire year. Progress Energy Florida has also instituted a minimum energy production of 1,000-kWh per year for the rebate to be approved. There are several ways of estimating the amount of energy that a photovoltaic or thermal system will produce such as the Sun Path tool, although others based on the same principle can be used. The Florida Solar Energy Center is equipped to provide the PSC with more information in this regard.

Administrative/marketing costs

What level of utility spending on administrative and marketing costs is appropriate in these programs?

COMMENT: Utilities should not be allowed to charge more than 10% for the administrative costs of these programs. Progress Energy Florida is doing most of its marketing through the system vendors. There is no reason to allow any utility (as has happened in the not too distant path) for charging 80% administrative cost for program where customers "bought" renewable energy credits through the utility. Neither is 50% or even 30% administrative costs justifiable.

Should administrative costs be included within the incentive cap or recovered within the administrative costs of the entire DSM portfolio?

COMMENT: If administrative costs are included within the incentive cap it would only reduce a weakly funded program to the point of insignificance.

4. Renewable energy credits

Ownership

Who should own the renewable energy credits from systems that receive solar rebates or other utility funding?

COMMENT: Anyone that contributes towards the purchase of renewable energy generation equipment should receive an amount from the renewable energy credits which is relative to their participation in providing funds for the purchase of said equipment.

5. Utility-owned demand-side renewables

What business model attracts utility capital to implement renewables on the customer side of the meter?

COMMENT: The best model for attracting capital for renewables on the customer side of the meter is to match customers with reasonably priced loans which can be paid in 20 or 30 years. In my general comments below I put forth the reasons why this is a reality today, in light of the price reduction model (i.e. manufacturing Learning Curve) that photovoltaics is living up to.

Are there existing models for implementation of utility-owned generation on a customer's property?

COMMENT: Yes, Duke Energy is implementing a program for leasing thousands of roofs. In the end, however, the lowest cost to the consumers will be when they own the electrical generation source. There is still room for the utilities to provide value added services in many ways, not the least of which is currently night time power generation.

6. General comments on meeting the intent of Section 366.82(2) F.S. of the Florida Energy Efficiency and Conservation Act (FEECA).

What follows are observations from thirty-three (33) years of experience in photovoltaics and related businesses with emphasis on the growth of photovoltaics during the past decade and how it applies to the intent of Section 366.82(2) F.S. of the Florida Energy Efficiency and Conservation Act (FEECA).

The citizens of the State of Florida should not be led to believe that State of Florida incentives have been a major factor in reducing the cost of Photovoltaic (PV) installations in Florida. One can see from the results of the State of Florida rebate program for PV, which ended in June of 2010, that initially the installations were minimal in 2006. As PV costs came down rather quickly in the past three years the number of installed systems increased to the point of causing a $40 million back log of installations waiting for a rebate by the end of the program. The initial funds allocated for the project had been only a few million dollars. The decreases in PV system costs were not due anything that the State of Florida has done to incentivize the industry since these efforts in Florida are orders of magnitude smaller in comparison to other states and even more so when compared with other countries.

This still applies to the current efforts being requested from the Investor Owned Utilities in Florida for an increase in the generation of electricity by renewable means. This does not apply to the efforts currently under way towards increasing efficient energy utilization. Those efforts which are directed towards increased energy efficiency should be and must be continued and widened for maximal program efficacy. The State of Florida's direct incentives for solar power generation and the efforts instituted through the electric utilities are relatively too small for effecting an increase in supply and lowering the cost of PV and thermal systems compared to other states and the rest of the world. However these efforts are still necessary and useful as an educational tool for the population at large and specifically for the training of the labor force required to sustain such systems in the future. Securing a local labor force that can support installations efficiently and at a cost competitive with established methods of electrical power generation should be of paramount importance to the citizens of Florida. Distributed power generation now stands at the threshold of being a method of electricity generation that can be economically widespread and effective at lowering energy costs. It is starting to be seen clearly that concerns over power availability and its high costs could be a thing of the past in the very near future.

The government in Florida should focus more on the management of the stability of the grid while allowing distributed generation to take place in a competitive environment. A competitive model is the best for distributed power generation, since property owners must be able to choose freely from any provider of equipment that has been deemed compatible with the established electrical grid. The established utilities need to change their generation paradigm so as to let the Florida consumer benefit from new technologies which are bringing lower costs to electrical power generation as well as having beneficial environmental side effects.

To get more PV out in the field, the FPSC could establish an environment of education and assistance for those in the institutions of real estate, property appraisal, mortgages, and other legal and government institutions managing and regulating property transactions. Residential property owners would benefit from revised appraisal and banking guidelines which place adequate values on photovoltaic equipment installed on properties and attached to the electrical grid. Loans with 10, 20 and even 30 year amortizations should become the norm for the installation of PV systems in

Florida. At current market prices and currently available incentives out to 2016, these loan terms would show a cost of electricity equal to or lower than the current electrical rates and upon loan maturity the electrical rates for customers would be reduced to small yearly maintenance sums for the remaining 20 or 30 years which the PV panels should last. This is an opportunity for the state government to provide help now to property owners for a healthy revenue source later, since these property owners would enjoy a bonanza once the PV systems are completely paid, out 10 or 20 years hence. Photovoltaics do work in Florida. This is being proven every day that passes and photovoltaic costs keep coming down. Photovoltaic systems in Florida can now be amortized over a 20-30 year period with the result that the kWh cost is lower than what utilities charge.

For example: According to the 2003 Commercial Building Energy Consumption Survey (CBECS) report from the Energy Information Administration of the U.S. Dept. of Energy (DOE), the U.S. has more than 4.4 million non-mall commercial buildings. This report states that these buildings use around 890 billion kWh of electricity, annually. Florida represents about 6% of the population of the U.S. and therefore, Florida non-mall commercial buildings should be using about 54-TWh of electricity, annually. Under the Florida sun, the photovoltaic panels required to meet all of this demand would represent 37-GW. The current cost of this electricity to Fla. businesses is about $5.5 billion per year or $55 billion every decade (assuming no increases in electricity costs). The cost of 37-GW of solar at current market prices would be about $80 billion and this price is on target to drop to about $50 billion by 2015. This only takes into account non-mall businesses. When malls and residential buildings are added to this, the amount of money that can be saved within the State of Florida is in the Tens of Billions of Dollars ($$$) every year. This is a staggering amount that could immensely help the State avoid the $2 billion budget shortfalls of recent times. These shortfalls in the State's budget appears miniscule by comparison to the amounts that could be saved in power generation. Also, these savings would more that provide funds to improve transportation in Florida, as well as to grow jobs, provide funding for education and other critical state functions.

These kinds of energy savings cannot be attained by any other Energy source. Each 1-GW nuclear power unit for electricity generation is currently estimated to cost around $12 billion and costs keep rising. Whereas 5-GW of solar electricity can be installed in Florida for less than the cost of a 1-GW nuclear power unit and yet generate the same amount of energy. More importantly 5-GW of solar electricity would produce energy at peak load periods during the day and so would more quickly create a return on investment. In light of current world events, one can foresee increases in risk costs associated with nuclear plants as well as construction costs. PV is already cheaper than nuclear and similar in cost to natural gas power generation and by around 2015 should be as cheap as coal. The biggest gains in cost savings will be through distributed generation of electrical power since transmission costs will be reduced, real estate use will be optimized and all property owners could benefit from it. The stabilizing effect of this paradigm shift in energy production will be positive and long lasting on our society and the State's economy.

As a recent report from Stanford University stated, the United States can transition to all renewable energy, if it desires, by 2050. In light of recent world events and specially the rate of growth of photovoltaic energy systems, it appears that our energy future is heading in that direction sooner rather than later. It is not technological or industrial obstacles that prevent us from doing so. The main obstacles now are political. The FPSC has an opportunity to educate the population of Florida to the possibilities of photovoltaics and other renewable energy for reducing their energy costs by setting up programs for the electric utilities to profit from property owner participation in a distributed electrical generation system, in an efficient way.

The incumbent utility companies have to be properly incentivized to generate power in a distributed fashion with all property owners allowed to participate in such income producing

activities. We should strive to let the utilities change their business models in a way that we can all benefit and achieve a lower total cost of electricity. Gainesville Regional Utilities is showing how to properly incentivize the infrastructure required for distributed power generation. They are quickly closing in on 10-MW of PV which would be equivalent to Florida Power & Light having about 500-MW of PV in their territory. Gainesville is doing this at a lower cost to their customers that FP&L has been able to achieve with their 35-MW of PV. In addition, if the 400 to 500 acres in Martin Co. which are being used by FP&L for pre-heating boiler water were used for PV power generation, the output would be more than 200-MW; a lot more than the 75-MW of solar power announced by FP&L that the plant will produce. Therefore, it is imperative that the utilities be held accountable as to how they use their customers money for renewable power generation. This is why competition in distributed power generation is so important. Of course utilities should be allowed to make a profit but under an environment of true competition.

As someone who has worked in photovoltaic research and development as well as the manufacture of related components over the past 33 years, I can attest that the technology for manufacturing the silicon photovoltaic panels of today has been available for the last twenty (20) years. The key factor in pricing has always been the availability of solar grade polysilicon in very large quantities. Increasing the availability of polysilicon has needed incentives because there is no other market that requires this material. Solar grade polysilicon, in large quantities, is only economically justifiable for photovoltaics or electronics and electronics requires less than one percent of that which is necessary for solar electricity applications.

Much of the world is starting to understand that since the raw material is effectively limitless, solar electricity mainly needs to process this material economically in very large volumes. Today solar grade polysilicon is becoming available each year in larger and larger quantities, affording the price reductions that economies of scale bring. It is important to remember that raw material for polysilicon can be found anywhere on earth in any amount necessary for the needs of mankind. The key to polysilicon acquisition and cost lies mainly in production know-how and the capital to invest in processing equipment. Almost the entire world wide solar grade polysilicon production has to go to the photovoltaic industry because there is no other application which justifies the quantities of this material which are currently being produced. The second market by volume for polysilicon is electronics manufacture and this market is miniscule in comparison to the quantities required for solar electricity. Polysilicon for electronics is measured in millions of wafers a year whereas polysilicon for photovoltaics is measured in the billions of wafers a year, a thousand fold difference. Currently, more than 5 billion wafers are manufactured annually for photovoltaics.*

Raw silicon has an abundance that is unmatched by any other building material. This, along with rapidly increasing demand for PV energy has given impetus to new entrants to the polysilicon supply business and these have been quick to show material qualities and delivery speeds which are further fueling market growth. Furthermore, this has fueled competition from the long standing market leaders into planned market expansions so as to maintain market leadership. All these forces appear to support a continuance of 20% growth in the PV market, at least up to 2015 when polysilicon capacity is expected to be able to support 100-GW of PV panels installations per year. All this increased production volume will result in reduced prices which follow the long established PV Learning Curve shown in Figure 1 below.

Since the large amounts of polysilicon that are being made available are only justifiable for solar power generation, world wide PV installations have been tracking the amount of polysilicon that suppliers produce. The top eight (8) polysilicon manufacturers in the world had 145,200 tonnes per annum of capacity in 2010. Since there is abundant supply of the raw material for making polysilicon, ample competition can easily be sustained and a downward succession of price drops

followed by increased demand are achieved as grid parity prices are reached in regions around the world. The current polysilicon market production tracks what is required for the current installations of PV power world wide, i.e. 18-GW in 2010. Plans are in place to increase supply by 2013 to support a market of more than double that amount, i.e. 40-GW per year. These plans represent actual capital outlays reported by the manufacturer's such as the 1.5 billion $US by Wacker Chemie and a similar amount by Hemlock Semiconductor, all in the U.S mainland. Therefore as long as the polysilicon supply is there, with the lower prices that have been effected from the economies of scale, the world is on track for a supply of polysilicon by 2015 which is adequate to support 100-GW of annual PV electrical production. This would be enough to supply all the current electrical needs of the State of Florida. Therefore, it behooves the State to enable the business environment for a healthy work force that can support the implementation of large amounts of PV installations, since prices will continue to fall and property owners will be able to generate electricity cheaper than current utility prices, when amortized in a 10-20 year period. This is a much smaller time frame than standard property amortizations and effectively increases property incomes and valuations.

Germany 20 years ago produced more than 50% of the world's polysilicon supply (U.S. companies produced only few percent at the time). This and the lack of fossil fuels drove Germany to richly incentivize the entire photovoltaic industry. Now it has the most PV power generation and the biggest world market penetration in all things solar. More than 50% of all grid-tie inverters come from German companies and all other aspects of the business are richly represented by German companies. Wacker Chemie, which used to supply the world with 50% of its polysilicon needs just 15 years ago, now is only 20% of world supply and fast trying to increase its volumes to remain a market leader. It has announced that it has options at current production plant locations to expand production capacity to up to 150,000MT, should demand dictate. This points to a knowledge and capacity base worldwide that is ready to support greater than 100-GW per year production quantities on relatively short notice. As these volumes rise there will be a concomitant decrease is PV energy costs in the direction of becoming the lowest cost energy source for the world, in relatively short order.

PV installations reached 18.2GW in 2010 which by far exceeded many analysts' expectations in 2010. This is a new record and each year that passes brings a new record in PV power generation. Most factories are financially sound and polysilicon base material producers are expanding even as incentives wane across the globe. Incentives are having their intended results in causing the prices to trend lower, across the world. Other states in the U.S. are leading the way, making good use of Federal incentives and creating demand.

By 2015, the U.S. is projected to become the fastest growing market and Florida has to be prepared to participate as prices are projected to continue to fall with the economies of scale. Planned manufacturing capacity expansions will ensure the industry has adequate supplies over 2011 and 2012. There will be plenty of competition as long as the solar grade polysilicon is available and that is being planned by all producers. The industry has been seeing price reductions of about 20% per year averaged over the last 5 years. The PV market growth of the last 5 years appears to have all the elements for continuance for the next 5 years. Installations of 25-30 GW seem likely for 2011 since the polysilicon suppliers have targeted a production level to support that much in installations and demand is strong. Consistently strong demand over the last five years and again this year have driven PV polysilicon suppliers to expand capacity at a rapid pace. Prices have fallen as new entrants have ramped production and the established major suppliers also continue to add new capacity. In addition, many polysilicon producers are turning to vertically integrated business models. This should once gain lead to price reductions in PV panels. Polysilicon suppliers are learning how to reduce costs and obtain greater marginal profits from increased volumes; thus

stoking a demand which will result in PV energy as cheap as coal produced electricity and complete the economic acceptance of PV energy without incentives.

In light of current international events, demand for solar power generation is likely to increase even more than projected, still this demand appears can be met by the planned capacities which producers have announced. Planned manufacturing capacity expansions will ensure the industry has adequate supplies for 2011 and 2012 projected demands. The balancing of incentive reductions with increases in production will allow the continuance of the downward path of the learning curve and increased demand through lower pricing. This is supported by the expansion investments being made by others around the world such as the GCL-Poly which is increasing capacity from 21,000 Metric Tons (MT) in 2010 to a capacity of 65,000 MT/year by the middle of 2012. As all players in the polysilicon supply market are increasing production on a year over year basis, there is no indication that prices cannot continue to fall and volumes rise for them to stay in business profitably. There has never been a period of time that comes close to the investment levels that the polysilicon supply business is currently experiencing. The marginal decreases in polysilicon prices that are foreseen will more than be made up with increased volumes and those that are vertically integrated will see even greater marginal returns. Current production costs levels for poly silicon are about US$25/kg in large volume and producers are selling everything they produce at close to 100% markups, if not higher. This means that capacity expansion investments should pay for themselves in relatively short order and producers can maintain price reductions which will further fuel market growth and profits. This will drive grid parity in major markets much sooner than it has been previously foreseen. The current demand pace is keeping with the PV Learning Curve shown in Figure 1 below. The point at which the world will reach parity with coal produced electricity is still projected to be around 2015.

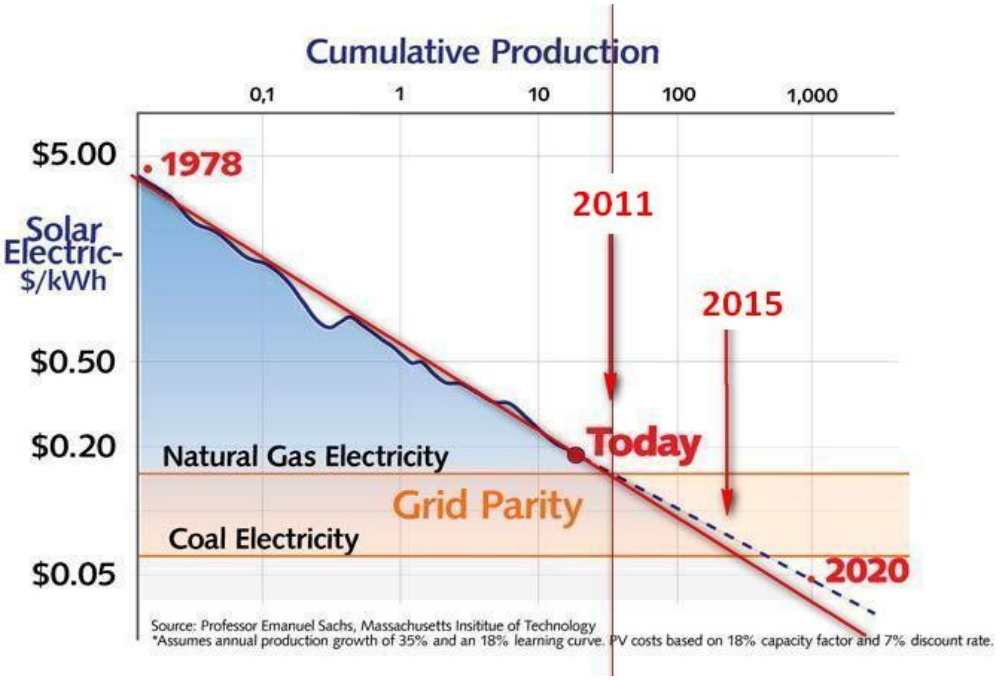

Figure 1: Photovoltaic systems manufacturing learning curve

*-Calculations and references available upon request.

Staff's Supplemental Questions for Inclusion in Post-Workshop Comments

March 3, 2011 Staff Workshop on Solar Pilot Programs
Undocketed

Allocation of Funds

Please describe the procedures the utility intends to use to reallocate funds between pilot solar programs.

The FPSC should only consider re-allocation of funds between programs only after experience has been gained among all the IOUs with running the program as is for one or two years. Since there is no such experience, the FPSC should leave this question to be addressed next year.

Should the utility notify the Florida Public Service Commission (FPSC) of its intentions to reallocate funds between programs? If so, how should the utility notify the FPSC?

Definitely, however this should not be allowed until experience is gained in managing these programs.

Program Design

What role should the utility and/or solar installer play in providing information on expected system performance and payback period to pilot solar program participants?

There are several methods for determining the expected system performance and payback period for photovoltaic and solar thermal systems. The Florida Solar Energy Center should establish guidelines for the acceptable methods for determining the long term output of these solar systems.

Photographic evidence can be gathered and submitted on the actual conditions for solar power generation at customer sites. Installers can gather this information and the utilities can verify their authenticity.

How should the utility notify the FPSC of its intentions to change rebate levels in the pilot solar programs?

Privately initially as well as informing the Public directly of its intentions.

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Comments of the Florida Solar Energy
Regenesis Power, LLC
March 3, 2011 Staff Workshop on Solar Pilot Programs

1. Allocation of funds

Public v. private

What is the appropriate allocation of funding between public and private buildings under the solar pilot programs? How should this be determined?

Should there be a standard percentage allocation?

What other types of public facilities should be eligible for incentives? How should these facilities be selected?

There should not be a specific allocation between public and private buildings. Funding should also not be tied restricted to use by the building owner. Third party ownership of the systems should be encouraged. The third party owner business model assures the long-term operations and maintenance is performed and assures continued performance. The owner of the building is responsible for assuring they are receiving the energy they are paying for and established the check and balance needed for long term performance and reliability. The building owner should be allowed to assign the incentives to the third party owner operators without restrictions. This third party owner model should be key to establishing the effectiveness of a solar service model.

Thermal vs. photovoltaic

What is the appropriate allocation of funding between thermal and photovoltaic programs under the solar pilot programs? How should this be determined?

The intent is to develop greater use of solar energy in Florida. Solar thermal systems cost 1/7 of what PV does and offsets the same kWh annually. As a tax payer, rate payer and solar industry professional I would want the incentive to be the same for either system and let the market decide which of the two technologies to choose from. The solar industry has stated it would prefer PV systems receive the greater portion of funding it is clear higher cost jobs are better for sales and the reason for that preference. That is not the best policy and result for consumers.

Should commercial/industrial customers be eligible for solar thermal programs?

Yes. Each IOU should have a "pure" commercial/industrial solar thermal program, i.e., a program that offers an incentive for the installation of solar thermal equipment without requiring participation in a load management program as well.

Low income

What is the appropriate level of funding for low income programs under the solar

pilot programs? How should this be determined?

Should low income funds be used to add thermal hot water heating to existing homes?

No opinion.

Residential vs. commercial/industrial

What is the appropriate allocation of funding between residential and commercial/industrial customers under the solar pilot programs? How should this be determined?

No opinion.

2. **Program Monitoring**

Methodologies to monitor and evaluate programs

How should the results of each pilot program be monitored, tracked and evaluated?

The measure for evaluation should be the levelized cost of energy for PV and thermal. Solar thermal can be metered as well as PV. Some portion of the total number of systems should have kWh meters. It is important to look at the term of the pilot and both the short term O&M cost and a projection for the long term O&M. Currently the USH2O group is evaluating the O&M cost for solar thermal systems and there is a clear need to evaluate both thermal and PV long term cost. Reasonable product life should be 20 years for evaluation purposes.

Program Results

What data should be provided to the Florida Public Service Commission (FPSC) in order to evaluate the results of the pilot programs?

How often should data be provided to the FPSC and in what venue?

The information for what funds are still available at each utility and for the industry a means of reserving the funds to assure the customer that their cost to install the system is known.

Program success

What criteria should the FPSC use in determining whether the pilot programs meet the intent of Section 366.82(2), F.S., of the Florida Energy Efficiency and Conservation Act (FEECA)?

The success of the pilot program should be to reduce the cost per kWh of solar technologies. As mentioned the solar industry benefits from more and larger system sales and at time the incentives actually increase the cost per kWh and kW. Incentive that are based on performance have the opposite result and decrease the total cost of systems and their levelized cost by requiring the seller and buyer to work toward a durable and cost effective solar system, again PV or Thermal should be incentivized at the same levels in $/kWh

produced (thermal systems have meters for measurement of kWh just like PV systems)

The current price per kW of PV panels in Multi MW installations is near the point where the commodity price of the silicon, glass and aluminum will define the cost. I do not see the cost per kW for an installed residential or small commercial going much lower than $3000/kW. While thermal systems are still in the $1000 to $1600 /kW. Solar thermal system already has the advantage of having greater opportunity for long terms durable jobs from Florida that PV and should receive the attention as a technology it deserves. The Navagant Consulting study of solar potential in Florida was limited in scope to NOT evaluate mass distributed solar thermal systems. The potential energy contribution from solar thermal continues to not be recognized as a significant means of achieving the legislative intent of current laws.

The solar industry with incentives based on total capital cost including development or sales cost will not be motivated to reduce cost to be very competitive with the current incentive structure of treasury grants and or tax credits. This is why the winners in the pilot should be those systems and business models can deliver the <u>lowest long term levelized cost for solar energy.</u>

3. Program Design
To what extent should programs be consistent among utilities?

Rebate levels
To what extent should programs be consistent among utilities?
Reading the filings by utilities, they is relatively consistent and this is good for a unified message. In Europe consistent messaging and programs have been documented as beneficial to the over all program success and consumer understanding. What they have not done is provide incentives based on what we should be trying to achieve is: reducing the cost per kWh form solar system. The utilities should evaluate the estimated levelized cost per kWh for systems and provide transparency to consumer so and informed consumer can choose which technology and supplier.

Eligibility

Should there be screening criteria of a customer to receive a rebate based on optimum system performance of the solar photovoltaic or solar thermal system? If so, what screening criteria should be used to select sites?

A screening to assure the system will achieve greater than 75% of the rating if in full sun with optimal tilt and azimuth.

Administration/marketing costs

What level of utility spending on administrative and marketing costs is appropriate in these programs?
Should administrative costs be included within the incentive cap or recovered within the administrative costs of the entire DSM portfolio?

4. Renewable energy credits

Ownership

Who should own the renewable energy credits from systems that receive solar rebates or other utility funding?

The customer should own the renewable energy credits.

5. Utility-owned demand-side renewables

What business model attracts utility capital to implement renewables on the customer side of the meter?

Are there existing models for implementation of utility-owned generation on a customer's property?

The utility can own system or third party companies can own and operate systems at lower cost to consumers for long terms agreements. The efficiency of a third party ownership in cost to the consumer as a service has been demonstrated in the Lakeland Solar Hot water service. The total cost of ownership and the levelized cot per kWh to the consumer is lower than what is currently offered by solar contractors selling solar system at $4,500 to $11,000/kW for thermal solar and $$6,000 to $12,000/kW for PV.

Supplemental Questions

6. Allocation of Funds

Please describe the procedures the utility intends to use to reallocate funds between pilot solar programs.

Should the utility notify the Florida Public Service Commission (FPSC) of its intentions to reallocate funds between programs? If so, how should the utility notify the FPSC?

Yes, the utilities should notify the FPSC when funds are reallocated among the programs. These filings should be made in the Energy Conservation docket and provided to all parties of record to that docket. Most important, however, is that the utilities make this information available immediately on their website to the contractor community. Allocation of funds should be made to those programs that have a lower participation rate and to programs in which the utility is augmenting customer or third party capitalization.

7. Program Design

What role should the utility and/or solar installer play in providing information on expected system performance and payback period to pilot solar program participants?

As discussed above, the utility and solar installer should provide adequate and accurate information on system performance and the rate of return to solar program participants by use of the Solar Pathfinder or PV Watts software or similar means of performance estimations.

How should the utility notify the FPSC of its intentions to change rebate levels in the pilot solar programs?

The utility should file changes in the Energy Conservation docket and provide notice to all parties of record in that docket.

Comments of the Florida Solar Energy
Industries Association, Inc.
March 3, 2011 Staff Workshop on Solar Pilot Programs
Undocketed

1. Allocation of funds

Public v. private

What is the appropriate allocation of funding between public and private buildings under the solar pilot programs? How should this be determined?

Should there be a standard percentage allocation?

What other types of public facilities should be eligible for incentives? How should these facilities be selected?

Ownership of the building should not be a qualifying criteria for access to solar pilot programs. Thus, an allocation of funding between public and private buildings is not necessary. Solar pilot programs should be available to both public and private buildings that otherwise qualify. However, FlaSEIA does not support providing solar pilot programs for public buildings or private buildings that duplicate programs already available under other federal or state programs, e.g., Solar for Schools program. Nor does FlaSEIA think that a large proportion of the total solar funding should be allocated for the solar for schools program as in the case of Progress Energy Florida, Inc. (PEF) whose current allocation is 31.7% of total funds or $2.05 million. FlaSEIA would cap PEF's Solar for Schools program at 10% of total funding consistent with the allocations of Tampa Electric Company (TECO) and Florida Power & Light Company (FPL).

FlaSEIA's reason for this position is simple. One of the stated reasons for the Commission's decision to provide funds for solar pilot programs was to implement the legislature's directive in §366.82(2), F.S., to increase the development of demand-side renewable energy systems. [Order PSC-09-0855-FOF-EG at 28] FlaSEIA believes that this directive is best met by creating the greatest number of demand-side renewable energy systems using all solar technologies rather than fewer renewable energy systems with larger capacities per system.

Thermal vs. photovoltaic

What is the appropriate allocation of funding between thermal and photovoltaic programs under the solar pilot programs? How should this be determined?

Solar thermal technology is well established and has been extensively studied in Florida by the Solar Energy Center. Solar thermal technology has the benefit of being significantly less expensive than photovoltaic technology. As an established technology, solar thermal system prices are not expected to significantly increase or decrease over the next five years. Due to the lower cost of solar thermal systems a greater number of systems can be installed for the same amount of allocated funds. In contrast, photovoltaic systems are more expensive and will require a stimulus to accelerate the growth of this segment. Photovoltaic system technologies are rapidly developing resulting in a significant drop in the price of photovoltaic systems over the last five years. This decrease in price and improvement in technological quality is projected to continue for the next five years. A greater proportion of the pilot

program funds should be allocated to photovoltaic projects due to the significant equipment price differential.

Should commercial/industrial customers be eligible for solar thermal programs?

Yes. Each IOU should have a "pure" commercial/industrial solar thermal program, i.e., a program that offers an incentive for the installation of solar thermal equipment without requiring participation in a load management program as well.

Low income

What is the appropriate level of funding for low income programs under the solar pilot programs? How should this be determined?

Should low income funds be used to add thermal hot water heating to existing homes?

It is important to provide low income customers with an opportunity to have access to solar equipment. The most practical and efficient means of doing this is through utility installation of solar thermal systems in low income housing at the time of construction. Because all funds are provided by the utility for the installation of the thermal system, the number of units able to be installed for the same amount of funding will be substantially less than under the residential or commercial solar thermal programs. For this reason, FlaSEIA would limit the number of installations to that proposed by the IOUs.

Residential vs. commercial/industrial

What is the appropriate allocation of funding between residential and commercial/industrial customers under the solar pilot programs? How should this be determined?

FlaSEIA would allocate 70% of the funding to residential and 30% to commercial customers.

2. **Program Monitoring**

Methodologies to monitor and evaluate programs

How should the results of each pilot program be monitored, tracked and evaluated?

FlaSEIA agrees with the IOUs that the key components used in the cost effectiveness tests should be tracked: summer demand/winter demand reduction, annual energy reduction and cost of equipment, number of program participants and amount of incentives paid. FlaSEIA does not agree that for solar hot water the data developed by the Solar Energy Center which tracked kilowatt hour consumption based on number of people in the home is completely accurate. The same number of people in a home does not always equate to the same amount of hot water usage. FlaSEIA supports installing end use meters on a 10-15% sample of all solar installations to determine demand and energy savings and the recovery of these costs through the solar program's administrative costs.

Program Results

What data should be provided to the Florida Public Service Commission (FPSC) in order to evaluate the results of the pilot programs?

How often should data be provided to the FPSC and in what venue?

The costs associated with the solar pilot programs are recovered through the Energy Conservation Cost Recovery Clause (ECCR). The most practical way to track the solar pilot programs is through the filings made in the ECCR docket, Docket 110002-EG. Filings are made in this docket in May and

September of each year with the final hearing held in November. While this schedule will track the costs and assess the effectiveness of the programs over time, it does not provide what industry needs most: daily tracking and posting on the utility's website of the amount of incentive money available for each pilot program, i.e., a funding "countdown". Knowing the amount of incentive money available allows the industry to adjust its marketing and insures that accurate information will be given to the public.

Program success

What criteria should the FPSC use in determining whether the pilot programs meet the intent of Section 366.82(2), F.S., of the Florida Energy Efficiency and Conservation Act (FEECA)?

The criteria should include summer demand/winter demand reduction, annual energy reduction, amount of incentives paid/money spent, the number and type of solar installations made, the number of jobs created, the installed cost of solar technologies and viability of the industry as measured by the availability of solar products and installers. The legislative intent of §366.82(2), F.S., is to increase the development of demand-side renewable energy systems and encourage the development of demand side energy resources in Florida. The IOUs argue that the legislative intent is met only if the cost of solar installations decreases as a result of the industry incentives so that solar technologies become more cost effective under the traditional RIM test. While FlaSEIA believes that the cost of photovoltaic technology will decrease and its efficiency will increase over the next five years, cost reduction is not the sole measure of compliance with §366.82(2), F.S. That intent is met if the number of installed solar systems and solar industry jobs created or retained increase over the next five years when compared to the base year, 2010. FlaSEIA will work with the utilities to develop a tracking method to measure job creation, based on installations resulting from the solar pilot programs.

3. Program Design

To what extent should programs be consistent among utilities?

Rebate levels

To what extent should programs be consistent among utilities?

Consistency among the utilities in both the programs offered and the rebates given will maximize the impact of the dollars spent on the solar pilot programs on a statewide basis. The purpose of these pilot programs is to encourage the ratepayer to install solar technology and the success in attracting participants is directly related to the price of the technology and the rebate given, not to the cost of each utility's avoided unit. The cost of both solar thermal and solar photovoltaic systems varies with each supplier and installer and with each service territory. However, the availability of the same amount of incentive money in each utility's service territory will tend to standardize and to lower the price of the technology across the state since it creates a uniform market impact. A review of the solar pilot programs approved by the Commission for each utility does, in fact, reflect consistent programs and consistent incentives. FlaSEIA would also note that if a program is fully subscribed very quickly it does not necessarily mean that the incentive level is too high and should be reduced. It is equally likely that the incentive level has been set correctly and there is a simply a large demand at that level.

Eligibility

Should there be screening criteria of a customer to receive a rebate based on optimum system performance of the solar photovoltaic or solar thermal system? If so, what screening criteria should be used to select sites?

FlaSEIA supports the evaluation by Solar Pathfinder software or PV Watts of each customer's

site for compatibility with photovoltaic technology so that a system can be designed that maximizes electric production for each site. The performance of a solar thermal system is not sufficiently affected by partial shading to disqualify a customer from receiving a solar thermal rebate. Therefore, FlaSEIA would not deny a rebate for photovoltaic technology based on the fact that there is partial shading on the roof if the capacity is still in the 75-80% range of system capacity and produces 1,000 kW per year. FlaSEIA also supports the requirement that licensed solar contractors be used and that those contractors have adequate liability insurance.

Administration/marketing costs

What level of utility spending on administrative and marketing costs is appropriate in these programs?

Should administrative costs be included within the incentive cap or recovered within the administrative costs of the entire DSM portfolio?

Utility administrative costs should be limited to 10% of total allocated funds. No funds should be spent for marketing of these programs since the solar contracting industry will adequately inform the public as well as community college and university solar practitioner training centers. Past experience with the Energy Office's solar rebate program proves that little if any marketing of the program to encourage participation or ratepayer acceptance will be necessary. Further, administration of these programs requires the development of IT software to keep track of the reservations, personnel to conduct the energy audits and personnel to answer questions. Energy audits are already being performed by the utilities, adding another 5 minutes on to the audit to assess or discuss solar program applications shouldn't significantly increase that cost.

4. Renewable energy credits

Ownership

Who should own the renewable energy credits from systems that receive solar rebates or other utility funding?

The customer should own the renewable energy credits from these systems consistent with Rule 17.280, F.A.C.

5. Utility-owned demand-side renewables

What business model attracts utility capital to implement renewables on the customer side of the meter?

Are there existing models for implementation of utility-owned generation on a customer's property?

FlaSEIA does not believe that utility owned renewables on the customer side of the meter advances the Legislature's intent to encourage the solar industry since it does not create jobs in the solar industry. Further, lease payments made by a customer which recover a return on equity as well as equipment and maintenance costs would be greater than the benefit derived from the installation of the solar technology making the program unattractive to customers.

Supplemental Questions

6. Allocation of Funds

Please describe the procedures the utility intends to use to reallocate funds between pilot solar programs.

Should the utility notify the Florida Public Service Commission (FPSC) of its intentions to reallocate funds between programs? If so, how should the utility notify the FPSC?

Yes, the utilities should notify the FPSC when funds are reallocated among the programs. These filings should be made in the Energy Conservation docket and provided to all parties of record to that docket. Most important, however, is that the utilities make this information available immediately on their website to the contractor community. FlaSEIA suggests that allocation of funds be made to those programs that have a high participation rate and to programs in which the utility is augmenting customer capitalization.

7. Program Design

What role should the utility and/or solar installer play in providing information on expected system performance and payback period to pilot solar program participants?

As discussed above, the utility and solar installer should provide adequate and accurate information on system performance and the payback period to solar program participants by use of the Solar Pathfinder or PV Watts software. It serves neither the industry's or the utility's interests for participants to be disappointed in the performance of the installed system and the savings actually realized.

How should the utility notify the FPSC of its intentions to change rebate levels in the pilot solar programs?

The utility should file changes in the Energy Conservation docket and provide notice to all parties of record in that docket. Again, any changes to the amount of rebates offered should be immediately posted on the utility's website so that the contracting community understands the incentives being offered.

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