State of Florida

Public Service Commission

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-M-E-M-O-R-A-N-D-U-M-

DATE: December 7, 2007

TO: Office of Commission Clerk (Cole)

FROM: Office of the General Counsel (Gervasi, Miller)
Division of Economic Regulation (Hinton, Webb, Colson, Futrell, Graniere, Hewitt, Kummer)

RE: Docket No. 070674-EI – Proposed amendment of Rule 25-6.065, F.A.C., Interconnection and Net Metering of Customer-Owned Renewable Generation.

AGENDA: 12/18/07 – Regular Agenda – Interested Persons May Participate

COMMISSIONERS ASSIGNED: All Commissioners

PREHEARING OFFICER: McMurrian

RULE STATUS: Proposal May Be Deferred

SPECIAL INSTRUCTIONS: None

FILE NAME AND LOCATION: S:\PSC\GCL\WP\070674.RCM.DOC

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Case Background

In May of 1981, the Commission established Rule 25-17.087, Florida Administrative Code (F.A.C.) (QF Interconnection Rule), to govern the interconnection of qualifying facilities (QFs) to the electric grid. The rule was established in response to the federal Public Utility Regulatory Policies Act (PURPA) which required electric utilities to purchase power from QFs at rates that do not exceed avoided cost. QFs include cogeneration facilities that meet certain efficiencies and small power producers that do not exceed 80 megawatts (MW) and use a renewable fuel source. The rule addresses a variety of issues associated with interconnection including safety, liability, insurance and metering. While the rule is aimed at large cogenerators and small power producers, the rule has provided guidance for customers seeking to interconnect smaller systems to the electric grid.

The Commission established Rules 25-17.200 through 17.310, F.A.C, in 2007, on renewable energy contracts as a result of the enactment of Section 366.91, Florida Statutes (F.S.). Rule 25-17.230(3), F.A.C., requires investor-owned electric utilities to interconnect with renewable generating facilities in accordance with the QF Interconnection Rule. Together, these rules reflect the ongoing Commission policies on the interconnection of non-utility generation and encouraging renewable generation.

In 2002, the Commission promulgated Rule 25-6.065, F.A.C. (Small PV Rule), for the purposes of standardizing and expediting the interconnection of small solar photovoltaic (PV) systems of 10 kilowatts (kW) or less. The Small PV Rule requires investor-owned utilities (IOUs) to submit for Commission approval a Standard Interconnection Agreement for interconnecting small PV systems. The rule also provides two metering options for excess energy provided to the grid. An IOU may either install 1) a dual meter and pay for any customer-generated excess at the avoided energy rate; or 2) carry forward credit for excess energy to the next billing period. Credits may accumulate and be carried forward for a 12-month period, after which time the customer grants any remaining excess credits to the utility.

In its 2005 session, the Florida Legislature enacted section 366.91, F.S., requiring utilities to offer contracts for the purchase of renewable energy. Section 366.91(1), F.S., states:

> The Legislature finds that it is in the public interest to promote the development of renewable energy resources in this state. Renewable energy resources have the potential to help diversify fuel types to meet Florida's growing dependency on natural gas for electric production, minimize the volatility of fuel costs, encourage investment within the state, improve environmental conditions, and make Florida a leader in new and innovative technologies.

Additionally, section 366.92, F.S., was enacted in 2006 to establish renewable energy policy for Florida. Section 366.92(1), F.S., states:

> It is the intent of the Legislature to promote the development of renewable energy; protect the economic viability of Florida's existing renewable energy facilities; diversify the types of fuel used to generate electricity in Florida; lessen Florida's dependence on natural gas and fuel oil for the production of electricity; minimize the volatility of fuel costs; encourage investment within the state; improve environmental conditions; and, at the same time, minimize the costs of power supply to electric utilities and their customers.

In January 2007, the Commission held a workshop to further explore the opportunities for development of renewable energy in Florida. The Commission collected information from a wide range of interested persons, including: renewable generators, environmental groups, Florida utilities, and financial experts. Two issues came to light during the workshop that could assist in encouraging renewable energy: 1) expedited interconnection and 2) net metering of customer-owned renewable generating facilities. Staff workshops were held in April 2007 to gather further information on these issues and whether the Small PV Rule should be expanded to

include the interconnection of larger customer-owned renewable generators, including technologies in addition to photovoltaic systems.

Following the April workshops, staff reviewed the post-workshop comments submitted and began drafting a rule that addressed both interconnection and net metering of customer-owned renewable generators. The draft rule was provided to interested persons and discussed at an August 30, 2007, Commission rule development workshop. Following the workshop, staff reviewed written comments filed September 18, 2007, and revised the draft rule. This was followed by a staff rule development workshop on October 15, 2007 where further refinements to the draft rule amendments were discussed. Written comments were submitted by stakeholders[1] on October 26, 2007.

This recommendation addresses staff's recommended amendments to Rule 25-6.065, F.A.C., included as Attachment A. The Commission has jurisdiction pursuant to sections 366.04, 366.05, 366.81, 366.82, 366.91, and 366.92, F.S., and rulemaking authority pursuant to sections 120.54, 350.127(2), and 366.05(1), F.S.

[1] Written comments were received from the following parties: Gulf Power Company; Tampa Electric Company; Progress Energy Florida; Florida Power & Light Company; The Vote Solar Initiative; The Solar Alliance; The Interstate Renewable Energy Council; The National Renewable Energy Laboratory; City of Tampa, Florida; Florida Industrial Cogeneration Association; Solid Waste Authority of Palm Beach County, Florida; All Source Energy; Advanced Green Technologies; and, various concerned citizens.

Executive Summary

The purpose of staff's recommended amendments to Rule 25-6.065, F.A.C., Interconnection of Small Photovoltaic Systems (Small PV Rule), is to promote the development of customer-owned renewable generation. This will serve to offset electric consumption and help diversify the types of fuel used to generate electricity in Florida, thereby decreasing Florida's dependence on fossil fuels and minimizing the volatility of fuel cost and supply. In addition, encouraging the development of customer-owned renewable generation will stimulate investment within the state and improve environmental conditions. The development of customer-owned renewable generation also effectively acts as a conservation measure by reducing the amount of electricity purchased from utilities. The recommended amendments would expedite interconnection of customer-owned renewable generation and minimize costs that customers might experience when attempting to interconnect to their utility. In addition, the recommended amendments would permit customers to offset electric consumption through net metering, further mitigating costs associated with self-generation.

Staff's recommended amendments would replace the existing Small PV Rule in its entirety. Although similar in their intent to address interconnection and net metering of small customer-owned systems, there are several differences between the Small PV Rule and the amendments. Most notably, the recommended amendments would effectively expand the Small PV Rule to cover all types of renewable generation resources and increase the size of systems covered under the rule from 10 kW to 2 megawatts (MW). This is accomplished through the creation of three generating capacity eligibility tiers.

The capacity limit contained in the Small PV Rule, 10 kW, would be incorporated into the first Tier. In doing so, the recommended amendments would remove certain obligations currently applied to small PV systems, such as requirements for liability insurance and costs associated with application fees and manual disconnect switches. The second Tier would include systems over 10 kW up to and including 100 kW, while the third Tier would include systems over 100 kW up to and including 2 MW. Tiers 2 and 3 have varying obligations and requirements over and above those applied to Tier 1 systems.

The recommended amendments recognize that customers may contract with a third party for the purchase, lease, operation, or maintenance of on-site renewable generation, provided the terms of that contract do not include the retail purchase of electricity. It is staff's intent to encourage, to the extent permissible by Florida law, the use of third-parties to facilitate the installation and operation of customer-owned renewable generation. Any third-party arrangement, however, must be consistent with PW Ventures, Inc. v. Nichols, which held that the retail sale of electricity to a single customer makes the provider a public utility subject to the Commission's regulation.[2]

Similar to the Small PV Rule, staff's recommended amendments would require IOUs to file a Standard Interconnection Agreement for Commission approval, and specify certain provisions that must be addressed in the Agreement. However, to help facilitate expedited

[2] 533 So. 2d 281, 284 (Fla. 1988).

interconnection of customer-owned systems, the amendments are more specific regarding customer qualifications and the certification of customer equipment by incorporating nationally recognized standards for interconnection and safety: IEEE 1547, IEEE 1547.1, and UL 1741. In addition, the amendments provide explicit directions for the application and interconnection process, detailing specific due dates for action by the utility and the customer. The amendments also require the IOUs to submit for Commission approval all fees and charges related to interconnecting customer-owned renewable generation.

Both the Small PV Rule and staff's recommended amendments contain provisions addressing net metering and the treatment of excess energy. A customer who owns a generating system, such as solar PV, primarily benefits by self-generating electricity that would otherwise be purchased from a utility, thereby reducing their monthly bills. During times when the customer's system produces more energy than they consume, the excess energy is delivered to the utility's grid. The Small PV Rule allows an IOU to install an additional meter, at the IOU's expense, to measure that excess energy separately from the customer's consumption (dual metering). The value of the excess energy is credited to the customer's bill each month based upon the IOU's avoided cost rate. If the IOU does not install an additional meter, it must permit the customer to utilize a single meter that runs backward when a customer puts energy back on the grid (net metering). By virtue of the meter running backward, net excess energy in any billing period would automatically be carried forward into the next billing period to offset consumption.

The IOUs currently implement the Small PV Rule by installing an additional meter so that they can credit the customer for energy sent to the grid at their avoided cost rate. However, the recommended amendments would require net metering of customer-owned renewable generating systems interconnected to the IOU pursuant to this rule. Excess energy delivered to the grid would be credited to the next month's bill as a direct offset for the customer's energy consumption. Credits would accumulate and be used to offset the customer's electric usage for a period of no more than 12 months, with any credits remaining at the end of the calendar year purchased by the IOU at an average annual avoided cost rate.

Finally, the recommended amendments include new provisions addressing the ownership of Renewable Energy Certificates, reporting requirements, and dispute resolution. Although the interconnection and net metering requirements only apply to IOUs, the amendments require all electric utilities, including municipal and cooperative utilities, to report relevant information about interconnection and net metering activity each year.

The recommended rule amendments meet the intent of Florida Statutes to encourage the development of renewable generation by: 1) expanding the size of eligible systems from 10 kW to 2 MW; 2) expanding the type of eligible systems from solely PV to all renewable technologies; 3) expediting the interconnection of customer-owned renewable generation; and 4) allowing customers to offset consumption through net metering. The increased development of renewable generation expected as a result of the amended rule will enhance fuel diversity and reliability, benefitting utilities and ratepayers.

Discussion of Issues

Issue 1: Should the Commission propose amendments to Rule 25-6.065, F.A.C.?

Recommendation: Yes. The recommended amendments would encourage the development of renewable energy by allowing all types of customer-owned renewable generation up to 2 MW to benefit from expedited interconnection procedures that recognize established national safety standards. Renewable generation would be further encouraged by requiring net metering where any excess customer generated energy is carried forward to the next billing cycle to reduce customer bills. At the end of the calendar year, any remaining excess energy would be purchased by the utility at the avoided energy rate. (Hinton, Webb, Gervasi)

Staff Analysis: Staff based the attached draft amendments to Rule 25-6.065, F.A.C., on discussions at two rulemaking workshops along with the comments provided by interested persons. Staff also reviewed the policies of other states. The substantive recommended amendments are discussed below.

(1) Application and Scope (Attachment A, page 26, lines 4 through 10) – Subsection (1) of staff's recommended amendments adopts language similar to that used by the Legislature in section 366.92, F.S., when stating its intent to promote the development of renewable energy.

The interconnection and net metering requirements in staff's recommended amendments would be applicable to investor-owned utilities (IOUs). Reporting requirements contained in subsection (10) of the recommended amendments would apply to the municipal and cooperative utilities as well as to the IOUs, under the Commission's authority to require reports from all electric utilities to assure the development of adequate and reliable electric grids pursuant to section 366.05(7), F.S.

(2) Definitions (Attachment A, page 26, line 11 through page 27, line 6) – Subsection (2) defines certain terms used within the recommended amendments. The following is a discussion of several of those definitions, upon which there was disagreement among the stakeholders.

Customer-Owned Renewable Generation

Customer-owned renewable generation is defined as an electric generating system located on a customer's premises that is primarily intended to offset part or all of the customer's electricity requirements with renewable energy. Some stakeholders have argued that the rule should define eligible systems as "customer-sited" instead of "customer-owned," which would allow for third-party ownership of renewable generating systems on a customer's premises.

The Interstate Renewable Energy Council (IREC) stated, in their post-workshop comments, that the success of distributed renewable energy programs largely depends upon commercial solar development. IREC explained that the larger commercial arrays cost less per kW, are easier to manage, and are more reliable due to ongoing professional maintenance. IREC stated that if Florida wants to spur development of solar energy it must clear the way for

commercial systems, which would include removing any prohibition on third-party ownership of customer-sited generators.

The Solar Alliance and Vote Solar Initiative (Solar Alliance), in their joint post-workshop comments, agreed, stating that in active solar markets the use of third-party structures have become commonplace. Solar Alliance explained:

> Under this type of structure, the host customer enters into a service contract, lease arrangement, or power purchase agreement with a firm that is willing to design, own, and maintain the system. This structure allows the host customer to avoid large capital outlays, and concerns about maintenance and performance risk. The ability to leverage these mechanisms has been a primary driver of the commercial solar electric market and allowed for the addition of significant solar capacity to the grid.

Solar Alliance stated that big box retailers have used this model recently to deploy PV systems on their stores in other states. For example, according to Solar Alliance, Wal-Mart has contracted for a total of 10 MW of PV on 22 stores this year, while Kohl's and Macy's have contracted for 20 MW and 30 MW, respectively.

IREC stated in their comments that the barrier standing in the way of commercial solar development in Florida is "a purported prohibition on third party ownership of generators based on a broad reading of PW Ventures, Inc. v. Nichols." The PW Ventures decision makes it clear that the retail sale of electricity to any member of the public makes the electric provider a public utility, and thus subject to Commission regulation.[3]

IREC argued that third-party ownership has become a driver of large scale solar development, and the Commission can and should allow it. In their post-workshop comments, IREC proposed two possible options for approving third-party ownership in light of the PW Ventures decision. First, IREC suggested that the Commission reinterpret its enabling statute in the context of renewable generation and decide that the retail sale of electricity in this particular situation does not rise to the level of being a public utility. Second, IREC stated that the Commission could consider these third-party owners public utilities as PW Ventures suggests, but then establish that the Commission will not regulate them. IREC recommended the Commission include language stating "the Commission shall not pursue regulatory oversight of third party owners of distributed renewable energy systems on the basis that those owners might be considered public utilities."

The IOUs argued in their post-workshop comments that "the Commission is without authority to ignore the holding of PW Ventures and cannot, through rulemaking, exempt from regulation certain entities providing retail electric service." The IOUs explained that the "holding of the Florida Supreme Court in PW Ventures affirming the Commission's interpretation of section 366.02(1), F.S., makes that interpretation the law that must be followed until changed by the legislature." Further, the IOUs argued that the Commission cannot carve

[3] PW Ventures, Inc. v. Nichols at 282-283.

out an exemption based upon the technology involved in the generation of electricity, because it is the retail sale of that electricity that triggers the finding in PW Ventures.

Staff agrees that the Commission cannot overrule or ignore PW Ventures. Neither can the Commission rewrite legislative policy in a rulemaking proceeding. As such, staff believes that PW Ventures is controlling in this situation, and that the retail sale of electricity to a customer by a third-party owner of renewable generation located on the customer's premises would designate that third party as a public utility subject to Commission regulation. However, staff also recognizes the potential for development in the renewable energy market that could be lost if third-party contractual relations are prohibited altogether. Therefore, staff's recommended amendments explain that the term "customer-owned" does not preclude the customer of record from contracting for the purchase, lease, operation, or maintenance of an on-site renewable generating system with a third party, provided the terms and conditions of that contract do not include the retail purchase of electricity from the third party. Staff believes this language would encourage customers to pursue contracts for the purchase, lease, operation, or maintenance of renewable generating systems under terms that do not trigger PW Ventures. For example, a customer may contract with a third party to build a PV array on the customer's premises and lease the equipment to the customer. The customer would then use the equipment to generate electricity for the customer's own use.

Gross Power Rating

Gross power rating, as defined in subsection (2)(b) of staff's recommended amendments, identifies the total AC generating capacity of the customer-owned renewable system. The gross power rating is used to determine if a renewable system qualifies under the size limits in the rule. During the October 15, 2007, workshop, IREC identified a potential problem with basing the gross power rating solely upon the AC nameplate of the customer's renewable system. In particular, PV systems generate electricity in DC, and then utilize an inverter to convert the electricity from DC to AC for use in the customer's home as well as exporting to the electric grid. PV systems do not have a "manufacturer's AC nameplate" capacity as other generating systems have. The DC nameplate could not be used due to the fact that the conversion process leads to a certain amount of energy loss, resulting in the DC nameplate overestimating the amount of energy that could potentially be used by the customer or exported to the grid. Neither can the AC capacity of the inverter be used because the inverter could be oversized and not truly represent the capacity of the generating system. To address this, staff has adopted language proposed in post-workshop comments by IREC and Advanced Green Technologies which would calculate the gross power rating of a DC generating system by multiplying the DC nameplate by .85 to account for loss of energy during the conversion process.

Renewable Energy

Subsection (2)(d) of staff's recommended amendments adopts the definition of renewable energy found in section 377.803, F.S. Section 366.92, F.S., establishes the intent of the Legislature to promote the development of renewable energy, and in so doing refers to section 377.803, F.S., to define renewable energy. Staff believes it is appropriate to adopt the same definition in the recommended amendments. The Florida Alliance for a Clean Environment

urged staff in their post-workshop comments to exclude "municipal solid waste or any other materials or processes that contribute to environmental degradation through emissions or the mismanagement of natural resources." They argued that municipal solid waste is not a renewable resource and has been removed from that designation in proposed federal energy legislation. However, staff believes the Commission must act in accordance with its empowering legislation, and it is therefore appropriate to adopt the definition of renewable energy currently established by the Legislature. Although section 377.803, F.S., does not specifically define the term biomass, staff would note that section 366.91(2)(a), F.S., includes municipal solid waste within the definition of biomass.

(3) Standard Interconnection Agreement (Attachment A, page 27, lines 7 through 20) – Subsection (3) of the recommended amendments requires IOUs to file, for Commission approval, a Standard Interconnection Agreement for customer-owned renewable generation up to 2 MW.

Uniform Tariff

In their post-workshop comments Solar Alliance suggested that the Commission require the IOUs to file a "Simplified Interconnection Agreement" for Tier 1 customers (up to 10 kW), and a "Standard Interconnection Agreement" for all other systems up to 2 MW. Solar Alliance, along with IREC, also requested during the October 15, 2007, workshop and in their comments that the Commission provide the IOUs with a common document to use for developing the Interconnection Agreements. They recommend either the NARUC or IREC models, which contain a simplified application and agreement for smaller systems and a more comprehensive application and agreement for larger generators. They believe the Commission should direct the IOUs to work together to develop a single set of applications and agreements, utilizing the NARUC or IREC models, in order to facilitate the Commission's approval process and ensure uniformity and equitable legal treatment across the state.

Staff agrees in principle that the Standard Interconnection Agreements should be as uniform as possible, and staff encourages the IOUs to work together to propose Interconnection Agreements that are similar in approach and simplicity. The IOUs should review the models that have been developed by NARUC and IREC, and consider incorporating those models in the interconnection process. However, more Florida-specific experience in the deployment and interconnection of customer-owned renewable generation would be beneficial prior to establishing state-wide models for implementation by all utilities. The IOUs should be granted a measure of flexibility in the development of their Standard Interconnection Agreements, with the understanding that staff will be looking for the principles of uniformity and simplicity when reviewing those Agreements for approval by the Commission.

National Codes

Staff's recommended amendments do require adherence to three national codes and standards developed by the Institute of Electrical and Electronics Engineers, Inc. (IEEE) and Underwriters Laboratories Inc. (UL): IEEE 1547, IEEE 1547.1, and UL 1741. IEEE 1547 establishes criteria and requirements for interconnection of distributed resources with electric

power systems at the distribution level, focusing on the interaction at the point of common coupling—the interface point between the customer and utility. IEEE 1547.1 provides detailed procedures for the tests and requirements defined in IEEE 1547. IEEE 1547.1 includes design tests for verifying the suitability of a particular model, production tests performed on each unit manufactured, commissioning tests for evaluating a newly completed system, and periodic interconnection tests to assess ongoing interconnection system health. The IEEE series of standards and guides are developed in an open, collaborative process involving utilities, equipment manufacturers, national labs, end users and other individuals. UL 1741 addresses safety testing and certification of inverters, converters, charge controllers, and interconnection system equipment intended for use in stand-alone or utility-interactive power systems. UL is a private, not-for-profit organization that has evaluated products, materials and systems in the interest of public safety since 1894. All stakeholders involved in the process of drafting staff's recommended amendments were in agreement with the incorporation of these standards.

(4) Customer Qualifications and Fees (Attachment A, page 27, line 21 through page 29, line 7) – Subsection (4) of staff's recommended amendments establishes the customer qualifications and fees. To qualify for expedited interconnection, the customer-owned renewable generating system must have a gross power rating that meets two criteria. First, the system's gross power rating must not exceed 90% of the service rating for the utility's distribution lines connecting to the customer. This language was suggested by the Florida Solar Energy Industries Association, in comments following the August 30, 2007, workshop, as a way to address safety and grid performance standards while still expediting interconnection. This provision ensures that the customer-owned renewable generation system does not exceed the capacity of utility facilities to which it will interconnect. This language also ensures that a customer will not intentionally oversize their system for the primary purpose of selling energy to the utility.

Second, the customer's gross power rating must fall within one of three Tiers: up to and including 10 kW, greater than 10 kW up to and including 100 kW, or greater than 100 kW up to and including 2 MW. The Tiers have been developed to carve out different levels of customer-owned renewable generation that can be treated differently for purposes of fees, testing, interconnection studies, and insurance. This is consistent with the "tier" levels within Federal Energy Regulatory Commission (FERC) Order No. 2006, Final Rule on Small Generator Interconnection.

FERC Order No. 2006 established a *10 kW Inverter Process* for inverter-based systems up to and including 10 kW, and a *Fast Track Process* for systems up to 2 MW. The FERC also established a *Study Process* for small generators up to 20 MW that do not fall within either the *Fast Track* or *10 kW Inverter Processes*, but that capacity is beyond the scope of staff's recommended amendments. FERC Order No. 2006 only applies to small generators that interconnect with facilities subject to Open Access Transmission Tariffs, and therefore does not apply to the customer-owned renewable generators interconnected at the distribution level addressed by staff's recommended amendments.

Tier 1 would incorporate systems up to 10 kW, including those that are addressed in the current Small PV Rule. Tier 1 systems would be exempt from several requirements discussed later in staff's recommendation. However, instead of a second Tier that goes all the way to 2

MW, such as FERC's *Fast Track Process*, it is appropriate to account for a lack of experience interconnecting larger customer-owned systems within Florida and staff recommends two additional Tiers with slightly different obligations.

The primary difference between the three Tiers involves the fees an IOU is permitted to charge for interconnecting the customer-owned renewable generation. Subsection (4)(e) exempts Tier 1 customers from all fees associated with interconnection. From discussion during workshops it was generally agreed that Tier 1 would largely capture the residential market. Staff has also recommended exempting Tier 1 from application fees and interconnection study charges in order to remove potential barriers and costs related to homeowners installing renewable generation. Subsection (4)(f) permits IOUs to propose an application fee for Tiers 2 and 3, while subsection (4)(g) permits interconnection study charges for Tier 3. Larger renewable systems are more likely to require an interconnection study to determine if additional facilities are required to integrate energy produced by these systems into the grid.

Fee Waiver

Gulf Power Company and Progress Energy Florida argued in post-workshop comments that fees for the interconnection of Tier 1 customer-owned renewable generation should not be waived. They suggest that such a waiver shifts costs to remaining customers, and that there is no compelling need for a waiver of interconnection fees. However, as stated previously, the purpose of the recommended amendments is to promote the development of customer-owned renewable generation.

Staff proposes waiving fees for Tier 1 customers in order to facilitate residential customers' deployment of renewable self-generation. The costs saved by customers would prove to be of benefit to the customer, while potential cost shifting to the general body of ratepayers would be negligible.

Tier Levels

Advanced Green Technologies (Advanced Green) suggested in their post-workshop comments that the Tiers be adjusted to go up to 25 kW for Tier 1, and up to 250 kW for Tier 2. Advanced Green stated that Tier 3 should only include systems that are "out of the ordinary," which may occur on large retail stores or warehouses, but that Tier 2 should include systems up to 250 kW because they would pose no negative effect or risk if allowed expedited interconnection. However, the IOUs argued in post-workshop comments that their interconnection experience lies primarily with customer-owned systems up to 10 kW, and that interconnection of larger installations is more complicated. The IOUs suggest that the Commission at least wait to expand Tier 2 until IEEE enacts standards for interconnection of facilities over 100 kW, which they stated IEEE is currently working on.

Staff believes that the Tiers in the recommended amendments represent a good starting point from which to examine the development of the market. Staff will monitor the implementation and effects of this rule. If, after a few years of experience, the Commission determines that the Tiers should be adjusted, the Commission can then further amend the rule.

Screens

In their post-workshop comments, IREC suggested that the Commission include a series of thirteen screens within subsection (4) of the recommended amendments. IREC explained that interconnection standards adopted by FERC and other states consistently apply a series of screens for review of interconnection applications, and the screens presently contained within subsection (4)(a) would not be enough in some situations to assure grid safety and reliability, forcing utilities to undertake upgrades at their own expense. IREC stated that to accommodate cost recovery, a more detailed screening process would move lower Tier applicants into the interconnection study process, currently applied only to Tier 3 customers, if the screens reveal that upgrades may be necessary. IREC explained in its comments:

> As an example of the necessity of these screens, a Tier 2 applicant proposing to interconnect an 80 kW solar energy system to an area network should be reviewed by a utility (and that review can justifiably be assessed to the applicant). On the other hand, a Tier 3 applicant proposing a 150 kW system on a radial distribution circuit is likely to pass all of the screens, in which case no further study or upgrades would be appropriate.

IREC believes that the screens would better evaluate the need for interconnection studies, as opposed to simply applying interconnection studies to all large systems. Again, in principle staff agrees that screens could lend clarity and transparency to the application process, as well as capture lower Tier customer-owned systems that could potentially require costly modifications to the IOU's facilities, or higher Tier systems that would not. However, the screens proposed by IREC are highly technical in nature, and it is unknown at this time whether these screens would be appropriate for wholesale adoption in Florida.

Staff recommends that the IOUs review and consider these screens in developing their Standard Interconnection Agreements, and make any appropriate proposals during the Commission's review of those Agreements. However, Florida-specific experience interconnecting customer-owned systems would be beneficial prior to adopting a set of screens to be applied by all utilities. The addition of standardized screens may be a topic for consideration in the future.

(5) Contents of Standard Interconnection Agreement (Attachment A, page 29, line 8 through page 30, line 18) – Subsection (5) of staff's recommended amendments establishes certain terms and conditions that shall be included in each IOU's Standard Interconnection Agreement. The provisions in this subsection are similar to those contained in the Small PV Rule, with a few exceptions. First, in subsection (5)(b) staff has clarified that the IOU has the right to have personnel present when the customer-owned renewable generation system is initially "placed in service." The Small PV Rule states that the utility may have personnel present "at the initial test" of customer equipment, which led to some confusion during the workshop because a PV system, for example, would not undergo an initial test.

Annual Inspections

In post-workshop comments, the IOU's requested the right to conduct periodic inspections of customer-owned renewable systems, proposing the following language be included in subsection (5)(b): "Upon reasonable notice and at reasonable times, the utility may, at its own expense, inspect the customer equipment and protective apparatus." However, the provisions of this subsection, taken in total, adequately address inspection concerns. Specifically, subsection (5)(a) of staff's recommended amendments requires customer-owned renewable systems be inspected for compliance with local codes. Subsection (5)(b) permits IOUs to inspect the customer-owned system prior to running in parallel with the IOU. Subsection (5)(c) states that the customer is responsible for ensuring that their renewable generation equipment is inspected, maintained, and tested in accordance with the manufacturer's instructions to ensure it is operating correctly and safely.

If the customer-owned renewable generation equipment is not maintained properly by the customer, and as a result does not generate the level of electricity that it could otherwise produce, higher electricity bills from the IOU will be incentive enough for the customer to repair and maintain its system. In addition, if the IOU detects power quality problems caused by the customer-owned renewable system that adversely affect the IOU's facilities, the IOU would have the right to disconnect the customer-owned equipment from the electric grid pursuant to subsection (6) of the recommended amendments. Although at first blush the IOUs' proposed language appears to be reasonable, in the context of other provisions within staff's recommended amendments, the need for additional inspections by the IOU seems extraneous and potentially disruptive to the customer.

IREC stated during the October 15, 2007, workshop that annual inspections are generally not included in standard interconnection agreements around the nation. However, IREC explained that agreements usually do require the customer to notify the utility prior to making changes to their customer-owned equipment.

The only reason periodic inspections by the IOU may be necessary is to ensure the customer has not modified their equipment in a way that would change the conditions of the interconnection agreement. Therefore, staff recommends language in subsection (5)(b) that would require the customer to notify the IOU, by submitting a new application, of any modification to the customer-owned generation equipment that would result in an increased gross power rating.

Indemnification

Another departure from the language of the Small PV Rule is contained in subsection (5)(d) of staff's recommended amendments addressing indemnification. The Small PV Rule states that the IOU may require a written statement that the customer shall hold harmless and indemnify the IOU from all losses resulting from the operation of the PV system, except when the loss is a result of the IOU's negligence. IREC suggested during the October 15, 2007, workshop that indemnification language should be symmetrical and clarified that the loss in question is to third parties. The IOUs argued in post-workshop comments that language

requiring the utility to indemnify the customer is not needed because it "is already covered in existing retail service tariffs and the extent of liability should be the same regardless of whether there is on-site generation."

Even though IOU service tariffs may already contain some language addressing indemnification, staff believes it is appropriate to explicitly address indemnification in the context of customer-owned renewable generation. Staff believes the customer should indemnify the IOU for loss to third parties caused by the customer-owned generation equipment. Staff also believes it is reasonable for the IOU to provide the same protection to the customer, who may be open to additional risk due to the presence of electric generation equipment on their property. Therefore, staff has recommended indemnification language reflecting the responsibility of both parties to indemnify the other.

Liability Insurance

Subsection (5)(e) of staff's recommended amendments requires the customer to carry certain levels of general liability insurance. The Small PV Rule requires no more than $100,000 in liability insurance for systems up to 10 kW. Staff's recommended amendments would exempt Tier 1 systems (up to 10 kW) from the requirement to carry liability insurance, although the IOU may recommend that they do so. The recommended amendments do require, however, Tier 2 and 3 customers to carry liability coverage of $1 million and $2 million respectively. There were three areas of discussion involving liability insurance: the need, the size, and the type.

The IOU's stated in post-workshop comments that it is appropriate to require customers in all Tiers to carry insurance in order to protect the utility, the customer, other utility customers, and the public. They explained that indemnity provisions alone do not obviate the need for insurance which ensures there will be funds to pay claims against the customer. Without that insurance, an injured party would likely look for payment from the "deep pocket" of the utility and in effect the ratepayers. IREC argued in their post-workshop comments that the insurance requirements in subsection (5) do not reflect the remote risk that smaller renewable generators pose. IREC knows of no claim for damages resulting from the operation of a solar energy generator ever having been filed in the United States, which now has over 30,000 systems in operation. Advanced Green agreed in their comments, stating that inverter-based systems have never been shown to produce harm.

IREC also argued that no state with an active solar program requires insurance for systems under 100 kW. In addition, for systems over 100 kW, the greatest possible risk to property is of damaging a transformer worth up to $100,000. IREC further explained that risk to line worker safety is virtually non-existent for inverter-based systems because they shut down automatically when the grid goes down. IREC suggested the Commission exempt Tiers 1 and 2 from liability requirements, and that a limit of $500,000 be established for Tier 3. The IOU's, on the other hand, stated in post-workshop comments that maintaining the $100,000 limit for Tier 1 is reasonable, available, and affordable.

During the October 15, 2007, workshop and their post-workshop comments Advanced Green raised the concern of whether the liability insurance requirement was for a general liability

policy, or some special interconnection liability policy that named the utility as an insured. Advanced Green stated that if the requirement was for general liability policies, then the language was acceptable, though not necessary. IREC agreed, stating in their comments that requiring more than general liability insurance is likely to stifle development. The IOUs stated in their post-workshop comments that general liability insurance should be sufficient for purposes of the rule, so long as the policy does not exclude the renewable generation system, and that there should be no need to name the utility on the policy. All Source Energy suggested at the workshop and in comments that customers be permitted to self-insure in lieu of carrying liability coverage. The IOUs agreed in post-workshop comments that self-insurance would be acceptable, as long as the customer demonstrates the ability to cover losses in the same amount as the required insurance.

Staff agrees with the IOUs that liability insurance is appropriate to ensure that customers with renewable generation have the ability to pay any claims that may be filed against them. Although PV systems appear to have an excellent safety record, there are other renewable technologies covered by the recommended amendments. In general it is wise to carry liability insurance to protect against unforeseen events or occurrences, especially if customers intend to generate electricity on their property. Staff agrees with the IOUs that in the absence of liability coverage by the customer, the IOU would be left vulnerable, due to their "deep pockets," to claims that were neither caused nor preventable by the utility. However, staff also recognizes that there is limited risk of damage or harm posed by smaller generators. Therefore, staff recommends an exemption for Tier 1 customers, while maintaining requirements of up to $1 million and $2 million for Tiers 2 and 3 respectively. Staff agrees with the IOUs that general liability coverage is sufficient for purposes of this rule provided the customer-owned renewable generation is not specifically excluded from the policy. Staff also agrees that the customer should be permitted to self-insure, and recommends language that would allow this method as long as the customer can provide guarantee and proof of sufficient assets.

Based upon staff's research, the amount of liability insurance required in the recommended amendments is available, affordable, and reasonable. General homeowner's and business liability insurance does not presently exclude customer-owned renewable generation systems from coverage, nor does it currently require additional premiums due to the presence of these systems. As with other insurance policies, however, this may be subject to change as more customers deploy these systems and the insurance companies perceive additional risk. Although a number of states do not require liability insurance, the levels of coverage contained in the recommended amendments are reasonable in comparison with states that do have insurance requirements.

(6) Manual Disconnect Switch (Attachment A, page 30, line 19 through page 32, line 2) – Subsection (6) of staff's recommended amendments addresses the installation of manual disconnect switches. The Small PV Rule provides that an IOU may require a customer to install, at the customer's expense, a manual disconnect switch of the visible load break type to provide a separation point between the AC power output of the customer's PV system and any customer wiring connecting to the utility. IREC argued in post-workshop comments that utilities and states with extensive solar experience do not require manual disconnect switches for inverter-based systems. IREC explained:

> PG&E leads the nation in terms of solar installations and discovered that its line workers never utilized the switch, so it dropped the requirement for small solar energy systems. SMUD [Sacramento Municipal Utility District] has done the same thing. The State of New Jersey has the second most solar installations in the country and expressly does not require a manual disconnect switch for inverter-based systems of any size.

IREC advocated in comments for Florida to drop the requirement all together, or at least take the initial step of not requiring a manual disconnect switch for Tier 1 systems. The IOUs explained during the October 15, 2007, workshop that the important part of this requirement is having a visible disconnect. Inverters may provide isolation automatically when the grid goes down, but there is no visible break that the utility can observe to confirm the customer-owned generation system has been disconnected. There was conversation during the workshop about whether pulling the meter to disconnect the customer would serve the same purpose as a manual disconnect switch. The IOUs explained, however, that pulling the meter would disconnect the customer's service altogether, whereas the manual disconnect switch would allow the customer to continue receiving electric service from the utility by only disconnecting the renewable generation equipment.

Staff agrees that a visible disconnect can be an important safety measure, especially in a state frequented by large thunderstorms and hurricanes. Staff also agrees that pulling the meter is not an acceptable alternative, because that would not allow the customer to continue receiving electric service. Staff's recommended amendments would allow the IOU to require installation of a manual disconnect switch, at the customer's expense. However, the recommended amendments would exempt Tier 1 inverter-based systems from this requirement, unless the IOU bears the cost of installation. Staff believes this would allow the utility to still have access to a visible disconnect switch if they feel it is necessary, while at the same time relieve homeowners of the cost involved with installing equipment that, based upon California's experience, may never be utilized.

Some concern was raised about the additional cost involved in locating the manual disconnect switch in close proximity to the meter. Mr. Gordon Hansen, a customer who participated in staff's October 15, 2007, workshop, requested that customers be permitted to install the manual disconnect switch in more cost-effective locations and then simply attach a map to the meter that depicts the location of the switch. While a map located at the meter could alleviate the cost of running electrical wires to a location that is distant from the generation equipment for the sole purpose of installing a switch, it may also lead to unintended problems such as map quality, maintaining reasonable access to the switch, and additional time needed to locate a remote switch in an emergency. For these reasons staff did not include this alternative in the recommended amendments. However, exempting Tier 1 customers from bearing the cost of manual disconnect switch installation, as staff has recommended, should satisfy Mr. Hansen's concerns.

Finally, a customer contacted staff to express a concern that because there is no requirement in the Small PV Rule to inform the customer, customers may not know about a

disconnection until higher electric bills arrive at the end of the month. In addition, the Small PV Rule contains no requirement for the IOU to reconnect the customer's system. It is appropriate to address both of these concerns, and staff has included in the recommended amendments language requiring the IOU to notify the customer of disconnection with a simple door hanger, as well as a requirement to reconnect the customer after problems necessitating disconnection have been remedied.

(7) Administrative Requirements (Attachment A, page 32, line 3 through page 33, line 4) – Subsection (7) addresses the process of filing an application for interconnection and time frames for executing an interconnection agreement. Staff has recommended this language, not currently contained in the Small PV Rule, in order to better establish the time tables and obligations of both the customer and the IOU during this process. The one area of contention during discussions of this subsection was an IOU proposal to include a requirement for the customer to execute the Interconnection Agreement within 180 days after the IOU executes the Agreement. At the October 15, 2007, workshop the IOUs stated that they simply wanted to ensure that the customer executes the Agreement within a reasonable time frame. They explained that a deadline was needed in order to limit the potential of circumstances occurring, between the time the IOU signs the Agreement and the time the customer signs, that would otherwise necessitate modifications to the Agreement. However, consensus was reached in post-workshop comments that 1 year would be a reasonable time limit, and staff has included that language in the recommended amendments.

(8) Net Metering (Attachment A, page 33, line 5 through page 34, line 16) – Staff's recommended amendments address the following issues associated with net metering: 1) meter cost responsibility; 2) type of meter required; 3) method for crediting excess generation; 4) rate paid for excess generation at the end of the calendar year; 5) charges the customer is responsible for paying; 6) standby rates; and, 7) conjunctive billing.

Meter Installation Costs

Subsection (8)(b) of staff's recommended amendments establishes that each IOU shall install, at no additional cost to the customer, metering equipment capable of making all necessary measurements to enable net metering. Progress Energy Florida (Progress) and Gulf Power Company (Gulf) state in post-workshop comments that meter costs should be paid by the customer. Progress and Gulf maintain that these costs, if not paid by the customer, would essentially be subsidized by other utility customers. The IOUs are currently implementing the Small PV Rule by installing metering equipment, the cost of which is borne by the utility, to measure energy delivered back to the grid. Staff's recommended amendments would continue current treatment of meter installation costs under the Small PV Rule. Also, 12 states out of the 18 that specifically indicate responsibility for meter installation costs currently place the responsibility on the utility.

Meter Type Required

The Solar Alliance, Regenesis Power and IREC each requested in their post-workshop comments that more specific language identifying the meter type be required. The Solar

Alliance requested that the language be clarified to allow for a single bi-directional meter when available. However, inclusion of such language would require the use of older technology, while forsaking newer or future technologies that may perform the measurements more efficiently. Regenesis Power indicated during the October 15, 2007 staff workshop that a five-dial bi-directional meter cannot measure the difference between electricity supplied to the customer from the utility and the electricity generated by the customer, but instead provides the net difference and not two distinct cumulative totals. Regenesis indicated that the rule language should require dual metering or separate meters. Staff recommends that non-specific language be used regarding the meter type required for two reasons: 1) so as not to preclude any future technologies that might serve the customer and utility more efficiently; and, 2) so as not to require the utilities to incur additional costs for metering if the currently installed equipment would suffice for these purposes. The recommended language requires only that the equipment be capable of measuring the difference between the electricity supplied to the customer from the IOU and the electricity generated by the customer and delivered to the IOU's electric grid.

The most administratively practical and cost-effective means of handling this matter is to allow the IOUs to employ existing equipment if it satisfies the expectations outlined in the rule, and to allow the utilities to implement newer technologies as they become available. It would not be administratively efficient to continuously negotiate rulemaking as technologies change, nor would it be cost-effective for utilities, and thus the general body of ratepayers, if the rule should require unnecessary modifications to the IOU's existing metering equipment. This is consistent with the Commission's policy of establishing standards that utilities must meet, without specifying how each utility accomplishes the standard.

Crediting and Payment Cycles for Excess Generation

Subsections (8)(e) and (f) of staff's recommended amendments would require energy delivered to the grid during any billing cycle to be credited to the customer's consumption for the next month's billing cycle. Energy credits for excess generation would be permitted to accumulate and offset a customer's consumption in subsequent months for a period of not more than twelve months. At the end of the calendar year, the utility would pay the customer for any remaining energy credits. The rates at which these credits and end of year payments would be made are discussed in detail in the next section.

Florida Power & Light (FPL), Progress, Gulf, Soil and Water Technologies, Inc. and the coordinator for the Florida Department of Agriculture and Consumer Services' Conservation and Water Policy Federal Programs state that payment for excess generation should occur on a monthly basis. However, the carry-forward of excess generation to the next month's bill provides the customer-owned renewable generator with an additional incentive, as compared to monthly payment for excess generation. Carry-forward of excess generation recognizes the seasonal nature of some renewable generation and allows the customer to capture all of the benefits of such systems. Solar PV, for example, may produce excess generation in the fall through spring months, which can be used to lower the customer's bill during the summer months. With monthly payment as proposed by the parties, the customer would effectively receive less than staff's recommended amendments. Monthly payment for excess generation would not provide the balance between encouraging renewable generation and ratepayer

protection that the recommended amendments would provide. Twenty-nine states of the 37 states with net metering legislation perform monthly crediting and carry-forward for net excess generation, just as staff now recommends for Florida's net metering program.

Rate Paid for Excess Generation

Subsection (8)(f) of staff's recommended amendments would require that for any excess customer-owned renewable generation, the IOU should compensate the customer for any unused energy credits at the end of the calendar year at an average annual rate based on the IOU's COG-1, as-available energy tariff.

FPL indicated a preference in written comments for monthly crediting of net excess energy at the applicable retail base and clause energy rate. Progress and Gulf indicated in comments that monthly payment should occur at the as-available rate with no carryover to subsequent months. Progress and Gulf expressed concern that payment at a full retail rate represents a subsidy to the renewable generator from the general body of ratepayers. Three concerned citizens and a representative from All Source Energy indicated a preference for retail payment for all net excess energy generated regardless of billing period. The Solar Alliance indicated their desire for retail crediting from month to month, but that a granting to the utility of any remaining credits at year end would be an acceptable compromise. The existence of a subsidy is questioned by IREC, All Source Energy, and Advanced Green Technologies in written comments submitted in response to staff rule workshops. The combination of monthly retail crediting with an as-available payment at year end is a suitable compromise between the opposing arguments presented by interested parties. The year end payment at the as-available rate was included by staff for the purposes of assuaging the utilities' concerns of a subsidy, thereby providing balance between encouraging renewable generation and offering ratepayer protection. As mentioned previously, the carry-forward of excess generation recognizes the seasonal nature of some renewable generation and allows the customer to capture all the benefits of such systems.

Soil and Water Engineering Technology, Inc. expressed a desire for a negotiated rate to be paid between the utility and the customer, a preference that is echoed by the Conservation & Water Policy Federal Programs Coordinator with the Florida Department of Agriculture and Consumer Services. Conversely, a representative from the federal Environmental Protection Agency has repeatedly indicated that clarity is more helpful than leaving the customer to negotiate his terms with the utility. It is important to clearly specify the rates for both monthly crediting and year-end payment, as it reduces confusion for customers and standardizes what could become a considerable administrative undertaking.

Customer and Demand Charges

Staff recommends in subsection (8)(h) that the customer shall continue to pay the applicable customer charge and applicable demand charge regardless of whether excess energy is delivered to the utility's grid. The customer charge generally recovers the costs of metering and billing that are present regardless of the customer's electricity usage. Commercial and industrial customers with a demand greater than 20 kW, typically, may utilize a rate schedule with separate

demand and energy charges. Few objections to this were raised in workshop discussion and in post-workshop comments, excepting a written comment made by a representative of the City of Tampa, Florida, the Florida Industrial Cogeneration Association and the Solid Waste Authority of Palm Beach County, who requested that demand charges be limited to the net demand incurred during the billing period, fully reflecting any reduction due to customer-owned renewable generation.

This change is not appropriate, because from a cost of service perspective, a demand charge recovers 1) the cost of capacity; and, 2) the associated transmission, both of which must be built or purchased by the utility to serve the system's expected maximum demand. The demand charge is assessed on the customer's highest 30-minute kW demand that is measured during any given billing cycle. For commercial and industrial customers, these costs of capacity and associated transmission are recovered through a separate line-item demand charge. Capacity is an instantaneous measure; therefore, "netting" is not appropriate because the capacity must be available at the time it is needed. Past or future surpluses do not assist in supplying maximum demand at any given moment. Because the renewable generation reduces the customer's maximum peak demand during the billing cycle, the demand costs assessed for that renewable generating customer would also be reduced. If the customer expects the utility to supply the customer's level of demand without accounting for the customer's renewable generation, then that customer should pay for the cost of that additional capacity through the demand charge on that customer's maximum demand during the billing period.

Standby Rates

At the October 15, 2007, workshop, there was considerable discussion about the application of the Standby Rate Schedules to customers installing renewable generation. Concerns were expressed by renewable energy advocates that if customers were required to take service under the standby rate, this would significantly increase cost and reduce the incentive to install renewable generation. Staff has proposed rule language in subsection (8)(h) to address these concerns, by creating a "safe harbor" and applying an exemption to Tier 1 and Tier 2 customers, and also to Tier 3 customers whose renewable generation capacity is less than 20% of the customer's total electric load. Under this exemption, smaller capacity customers may choose to take service under the IOU's standby or supplemental service rate if such a rate is available. Customers should be provided this choice, since the owners of intermittent generating facilities may benefit from a different rate structure compared to the owners of renewable facilities with more constant generation.

The Solar Alliance requested safe harbor language that would exempt all net metered solar systems from standby rates. IREC indicated that each utility has different standby tariffs and that it is not clear what the impact of these tariffs would be on intermittent generators such as solar and wind energy systems, particularly with regards to solar customers, for whom utilities are not "standing by" during dark hours, but are actively providing electricity to those customers. Further, the National Renewable Energy Laboratory requested exemptions from standby rates on smaller generators, which staff believes is satisfied with the proposed language.

Standby rates were established by the Commission in 1986 (in Order 17159, "Standby Order"[4]) in response to a requirement in PURPA to encourage generation by QFs. The basis for the standby rate comes from the same cost of service rate design methodology used by the Commission to set rates for all customers. As discussed above, a utility must stand ready to supply capacity and transmission to meet its customers' expected demands, whenever that demand occurs. However, in the Standby Order, the Commission recognized that a customer who self-generates part or all of his load on a continual basis imposed different cost characteristics on the system than would a customer who does not self-generate.

Standby rates were established to accommodate large cogenerators who were expected to generate continually while they were using power, thereby reducing their daily demand on the system. Any failure of this self-generation would place an unexpected load on the utility's system, and would likely create an impact on the general body of ratepayers in the form of reliability concerns or short term costs for additional capacity. Therefore, it was established that any customer who provided 20% or more of his normal load through self-generation would be required to take service on the utility's standby rate schedule in order to protect ratepayers. The Standby Order established a reservation charge which reflects the expectation of low outage rates for QF generation. Under the current standby rates, reservation charges are 10% of the demand charge. This very low reservation charge is assessed every month for the amount of generation normally supplied by the customer's self-generation, along with a higher charge for more frequent or prolonged reliance on utility resources to supplant self-generation. The monthly reservation charge includes an allowance of approximately two days of outage per month before the higher charges apply.

The potential for a self-generating customer to place an unexpected and sudden increased demand on the utility's system when that customer's generating facility experiences an outage remains a concern, regardless of the source of generation. There is insufficient information currently to accurately determine how many installations will occur as a result of the recommended rule amendments, how large those installations may be, how such installations will be dispersed throughout the utility's system and how reliable those systems will be. The original rationale for requiring standby service for large systems to protect the general body of ratepayers remains valid. Also, it is possible that smaller systems may have local or regional impacts, depending on their location and the existing utility facilities.

The desirability of encouraging renewable generation must be balanced against pure cost causation concerns. Staff does not believe that any incremental unexpected load from a Tier 1 or Tier 2 customer due to failure of self-generation is likely to impose material negative impacts on a utility's system. Any unexpected load from the larger Tier 3 systems, however, could have a material impact on the utility system if that Tier 3 system were to cease operations. Therefore, staff's recommended amendments would require customers owning Tier 3 systems, whose renewable generation capacity is greater than 20% of the customer's total electric load, to take service under the IOU's standby or supplemental service rate. Customers in Tiers 1 and 2, and Tier 3 customers whose renewable generation capacity is less than 20% of the customer's total

[4] Order No. 17159, issued February 6, 1987, in Docket No. 850673-EU, In re: Generic Investigation of Standby Rates for Electric Utilities.

electric load, may request standby service if they perceive benefits from doing so, but are not required to do so. This provides a so-called "safe harbor" for smaller systems to ensure that their rates will not increase simply due to the standby requirement.

The recommended rule amendment satisfies the other articulated concerns from Florida's renewable generators, who expressed through a representative in written comments that a customer engaging in net metering pursuant to this rule should be permitted to choose to receive standby service either under the IOU's standby tariff or under the IOU's retail tariff.

Conjunctive Billing

Numerous interested parties, including Soil and Water Engineering Technology, Inc., a representative of Florida's renewable generators, the Conservation & Water Policy Federal Programs Coordinator with the Florida Department of Agriculture and Consumer Services, and one concerned citizen, requested the rule allow for conjunctive billing at a remote site, or also to allow for totalized metering for agricultural customers. As defined in Rule 25-6.102, F.A.C., conjunctive billing is defined as "totalizing metering, additive billing, plural meter billing, conjunctional metering, and all like or similar billing practices which seek to combine, for billing purposes, the separate consumptions and registered demands of two or more points of delivery serving a single customer." Conjunctive billing is not permitted under Rule 25-6.102, F.A.C., so as to ensure that the cost causer pays for his impact on the utility system. A customer with multiple service drops is not permitted to pay one bill and avoid paying the charges associated with individual service locations. However, a customer may request a single point of delivery as defined in Rule 25-6.102(4)(a),(b),(c), F.A.C., and such request shall be complied with by the utility providing that the customer assumes responsibility to provide the electrical facilities necessary for distributing the energy beyond the single delivery point. This would allow a customer to take advantage of a net metering program.

(9) Renewable Energy Certificates (Attachment A, page 34, line 17 through line 22) – A Renewable Energy Certificate (REC) is generally defined as a tradable financial instrument representing the environmental attributes associated with 1,000 kWh of energy. Allowing the customer to own any RECs created as a result of the renewable generation, and to sell the RECs in the open market provides the customer an additional benefit for investing in renewable generation. Fifteen states currently include assignment of REC ownership within their net metering laws.

Staff recommends that customers retain any RECs associated with the electricity produced by their customer-owned renewable generation equipment. As discussed previously, existing metering equipment supplied by the utility for purposes of net metering may not suffice for measurement of total customer generation. Staff recommends that any cost of equipment required to certify RECs that are retained by the customer should be borne by that customer. Customers may negotiate with the utility for the sale of their RECs along with payment of any associated metering costs.

The IOUs state that provisions for RECs should not be included in this rule, but should be addressed as part of a comprehensive policy on promoting the development of renewables. The

IOUs reiterate their contention of a subsidy by non-generating customers. Soil and Water Technologies, Inc. and the Florida Department of Agriculture and Consumer Services' Office of Agricultural Water Policy indicated their preference in written comments to award RECs to the utilities, in exchange for a an elevated rate of payment for the generating customer. Advanced Green submitted its written support of staff's recommendation, that RECs belong to the customer, not to the utility.

(10) Reporting requirements (Attachment A, page 34, lines 23 through page 35, line 19) – Staff recommends that investor-owned, municipal and cooperative utilities provide progress reports to the Commission for purposes of statewide reporting on customer-owned renewable generation. No objections were raised by the parties to this requirement. The Commission has authority under section 366.04(2)(f), F.S., to prescribe and require the filing of periodic reports and other data as may be reasonably available and as necessary to exercise its jurisdiction hereunder. This provision will allow the Commission to monitor the development of customer-owned renewable generation and the effectiveness of the rule.

IREC stated in their written comments that to avoid the possibility that this requirement would force utilities to install additional metering, the language should be modified to allow for estimated generation data based on installed capacity and available generation data from customers' inverters and production meters. It is not clear to staff that such estimates would be reliable for purposes of reporting. No additional metering equipment is required to provide accurate data.

(11) Dispute Resolution (Attachment A, page 35, lines 20 through 22) – Staff recommends that in the event of a dispute between a customer and an IOU, the customer should utilize the processes in existing Commission rules (Rule 25-22.032, F.A.C., Customer Complaints, and Rule 25-22.036, F.A.C., Initiation of Formal Proceedings). IREC and the Solar Alliance requested in their written comments that a more simplified means of resolution be provided. The inclusion of these two pertinent rules: 1) allows complaints to be addressed through an informal, expedited process that can be resolved quickly by the customer and utility; and, 2) allows the customer the option to initiate a formal proceeding to resolve any dispute.

Cost Impacts of the Recommended Rule Amendments - A Statement of Estimated Regulatory Costs (SERC) was prepared by the Division of Economic Regulation. A copy is included as Attachment B. In summary, the SERC concludes that the rule amendments should result in no significant implementation or enforcement cost to the Commission, and will have no significant impact on Commission revenues. The additional proposed interconnection agreements and possible dispute resolution would add some additional Commissioner and staff time. The IOUs would have additional reporting requirement and compliance costs associated with the amendments. In particular, the IOUs would have additional costs related to billing modifications, processing applications, meter installation and other interconnection costs. Customers of the IOUs would be able to interconnect their qualified renewable generating systems to the electric grid and benefit by having their energy consumption offset by their own generation.

Conclusion - Staff recommends that the Commission propose the amendments to Rule 25-6.065, F.A.C., as shown in Attachment A. The recommended rule amendments meet the intent of Florida Statutes to encourage the development of renewable generation by: 1) expanding the size of eligible systems from 10 kW to 2 MW; 2) expanding the type of eligible systems from solely PV to all renewable technologies; 3) expediting the interconnection of customer-owned renewable generation; and 4) allowing customers to offset consumption through net metering. The increased development of renewable generation expected as a result of the amended rule would enhance fuel diversity and reliability, benefitting utilities and ratepayers.

Issue 2: Should this docket be closed?

Recommendation: Yes, if no requests for hearing or comments are filed, the rule amendments as proposed should be filed for adoption with the Secretary of State and the docket should be closed. (Gervasi)

Staff Analysis: Unless comments or requests for hearing are filed, the rules as proposed may be filed with the Secretary of State without further Commission action. The docket may then be closed.

(Substantial rewording of Rule 25-6.065 follows. See Florida Administrative Code for present text.)

25-6.065 Interconnection and Net Metering of Customer-Owned Renewable Generation

(1) Application and Scope. The purpose of this rule is to promote the development of small customer-owned renewable generation, particularly solar and wind energy systems; diversify the types of fuel used to generate electricity in Florida; lessen Florida's dependence on fossil fuels for the production of electricity; minimize the volatility of fuel costs; encourage investment in the state; improve environmental conditions; and, at the same time, minimize costs of power supply to investor-owned utilities and their customers. This rule applies to all investor-owned utilities, except as otherwise stated in subsection (10).

(2) Definitions. As used in this rule, the term

(a) "Customer-owned renewable generation" means an electric generating system located on a customer's premises that is primarily intended to offset part or all of the customer's electricity requirements with renewable energy. The term "customer-owned renewable generation" does not preclude the customer of record from contracting for the purchase, lease, operation, or maintenance of an on-site renewable generation system with a third-party under terms and conditions that do not include the retail purchase of electricity from the third party.

(b) "Gross power rating" means the total manufacturer's AC nameplate generating capacity of an on-site customer-owned renewable generation system that will be interconnected to and operate in parallel with the investor-owned utility's distribution facilities. For inverter-based systems, the AC nameplate generating capacity shall be calculated by multiplying the total installed DC nameplate generating capacity by .85 in order to account for losses during the conversion from DC to AC.

(c) "Net metering" means a metering and billing methodology whereby customer-owned renewable generation is allowed to offset the customer's electricity consumption on-site.

(d) "Renewable energy," as defined in Section 377.803, Florida Statutes, means electrical, mechanical, or thermal energy produced from a method that uses one of more of the following fuels or energy sources: hydrogen, biomass, solar energy, geothermal energy, wind energy, ocean energy, waste heat, or hydroelectric power.

(3) Standard Interconnection Agreements. Each investor-owned utility shall, within 30 days of the effective date of this rule, file for Commission approval a Standard Interconnection Agreement for expedited interconnection of customer-owned renewable generation, up to 2 MW, that complies with the following standards:

(a) IEEE 1547 (2003) Standard for Interconnecting Distributed Resources with Electric Power Systems;

(b) IEEE 1547.1 (2005) Standard Conformance Test Procedures for Equipment Interconnecting Distributed Resources with Electric Power Systems; and

(c) UL 1741 (2005) Inverters, Converters, Controllers and Interconnection System Equipment for Use With Distributed Energy Resources.

(d) A copy of IEEE 1547 (2003), ISBN number 0-7381-3720-0, and IEEE 1547.1 (2005), ISBN number 0-7381-4737-0, may be obtained from the Institute of Electric and Electronic Engineers, Inc. (IEEE), 3 Park Avenue, New York, NY, 10016-5997. A copy of UL 1741 (2005) may be obtained from COMM 2000, 1414 Brook Drive, Downers Grove, IL 60515.

(4) Customer Qualifications and Fees.

(a) To qualify for expedited interconnection under this rule, customer-owned renewable generation must have a gross power rating that:

1. does not exceed 90% of the customer's utility distribution service rating; and

2. falls within one of the following ranges:

Tier 1 - 10 kW or less;

Tier 2 – greater than 10 kW and less than or equal to 100 kW; or

Tier 3 – greater than 100 kW and less than or equal to 2 MW.

(b) Customer-owned renewable generation shall be considered certified for interconnected operation if it has been submitted by a manufacturer to a nationally recognized testing and certification laboratory, and has been tested and listed by the laboratory for continuous interactive operation with an electric distribution system in compliance with the applicable codes and standards listed in subsection (3).

(c) Customer-owned renewable generation shall include a utility-interactive inverter, or other device certified pursuant to subsection (4)(b) that performs the function of automatically isolating the customer-owned generation equipment from the electric grid in the event the electric grid loses power.

(d) For Tiers 1 and 2, provided the customer-owned renewable generation equipment complies with subsections (4)(a) and (b), the investor-owned utility shall not require further design review, testing, or additional equipment other than that provided for in subsection (6). For Tier 3, if an interconnection study is necessary, further design review, testing and additional equipment as identified in the study may be required.

(e) Tier 1 customers who request interconnection of customer-owned renewable generation shall not be charged fees in addition to those charged to other retail customers without self-generation, including application fees.

(f) Along with the Standard Interconnection Agreement filed pursuant to subsection (3),

each investor-owned utility may propose for Commission approval a standard application fee for Tiers 2 and 3, including itemized cost support for each cost contained within the fee.

(g) Each investor-owned utility may also propose for Commission approval an Interconnection Study Charge for Tier 3.

(h) Each investor-owned utility shall show that their fees and charges are cost-based and reasonable. No fees or charges shall be assessed for interconnecting customer-owned renewable generation without prior Commission approval.

(5) Contents of Standard Interconnection Agreement. Each investor-owned utility's customer-owned renewable generation Standard Interconnection Agreement shall, at a minimum, contain the following:

(a) A requirement that customer-owned renewable generation must be inspected and approved by local code officials prior to its operation in parallel with the investor-owned utility to ensure compliance with applicable local codes.

(b) Provisions that permit the investor-owned utility to inspect customer-owned renewable generation and its component equipment, and the documents necessary to ensure compliance with subsections (2) through (4). The customer shall notify the investor-owned utility at least 10 days prior to initially placing customer equipment and protective apparatus in service, and the investor-owned utility shall have the right to have personnel present on the in-service date. If the customer-owned renewable generation system is subsequently modified in order to increase its gross power rating, the customer must notify the investor-owned utility by submitting a new application specifying the modifications at least 30 days prior to making the modifications.

(c) A provision that the customer is responsible for protecting the renewable generating

equipment, inverters, protective devices, and other system components from damage from the normal and abnormal conditions and operations that occur on the investor-owned utility system in delivering and restoring power; and is responsible for ensuring that customer-owned renewable generation equipment is inspected, maintained, and tested in accordance with the manufacturer's instructions to ensure that it is operating correctly and safely.

(d) A provision that the customer shall hold harmless and indemnify the investor-owned utility for all loss to third parties resulting from the operation of the customer-owned renewable generation, except when the loss occurs due to the negligent actions of the investor-owned utility. A provision that the investor-owned utility shall hold harmless and indemnify the customer for all loss to third parties resulting from the operation of the investor-owned utility's system, except when the loss occurs due to the negligent actions of the customer.

(e) A requirement for general liability insurance for personal and property damage, or sufficient guarantee and proof of self-insurance, in the amount of no more than $1 million for Tier 2, and no more than $2 million for Tier 3. The investor-owned utility shall not require liability insurance for Tier 1. The investor-owned utility may include in the Interconnection Agreement a recommendation that Tier 1 customers carry an appropriate level of liability insurance.

(f) Identification of any fees or charges approved pursuant to subsection (4).

(6) Manual Disconnect Switch

(a) Each investor-owned utility's customer-owned renewable generation Standard Interconnection Agreement may require customers to install, at the customer's expense, a manual disconnect switch of the visible load break type to provide a separation point between the AC power output of the customer-owned renewable generation and any customer wiring connected

to the investor-owned utility's system. Inverter-based Tier 1 customer-owned renewable generation systems shall be exempt from this requirement, unless the manual disconnect switch is installed at the investor-owned utility's expense. The manual disconnect switch shall be mounted separate from, but adjacent to, the meter socket and shall be readily accessible to the investor-owned utility and capable of being locked in the open position with a single investor-owned utility padlock.

(b) The investor-owned utility may open the switch pursuant to the conditions set forth in subsection (6)(c), isolating the customer-owned renewable generation, without prior notice to the customer. To the extent practicable, however, prior notice shall be given. If prior notice is not given, the utility shall at the time of disconnection leave a door hanger notifying the customer that their customer-owned renewable generation has been disconnected, including an explanation of the condition necessitating such action. The investor-owned utility shall reconnect the customer-owned renewable generation as soon as the condition necessitating disconnection is remedied.

(c) Any of the following conditions shall be cause for the investor-owned utility to disconnect customer-owned renewable generation from its system:

1. Emergencies or maintenance requirements on the investor-owned utility's electric system;

2. Hazardous conditions existing on the investor-owned utility system due to the operation of the customer's generating or protective equipment as determined by the investor-owned utility;

3. Adverse electrical effects, such as power quality problems, on the electrical equipment of the investor-owned utility's other electric consumers caused by the customer-owned

renewable generation as determined by the investor-owned utility;

4. Failure of the customer to maintain the required insurance coverage.

(7) Administrative Requirements.

(a) Each investor-owned utility shall maintain on its website a downloadable application for interconnection of customer-owned renewable generation, detailing the information necessary to execute the Standard Interconnection Agreement. Upon request the investor-owned utility shall provide a hard copy of the application within 5 business days.

(b) Within 10 business days of receipt of the customer's application, the investor-owned utility shall provide written notice that it has received all documents required by the Standard Interconnection Agreement or indicate how the application is deficient. Within 10 business days of receipt of a completed application, the utility shall provide written notice verifying receipt of the completed application. The written notice shall also include dates for any physical inspection of the customer-owned renewable generation necessary for the investor-owned utility to confirm compliance with subsections (2) through (6), and confirmation of whether a Tier 3 interconnection study will be necessary.

(c) The Standard Interconnection Agreement shall be executed by the investor-owned utility within 30 calendar days of receipt of a completed application. If the investor-owned utility determines that an interconnection study is necessary for a Tier 3 customer, the investor-owned utility shall execute the Standard Interconnection Agreement within 90 days of a completed application.

(d) The customer must execute the Standard Interconnection Agreement and return it to the investor-owned utility at least 30 calendar days prior to beginning parallel operations and within one year after the utility executes the Agreement. All physical inspections must be

completed by the utility within 30 calendar days of receipt of the customer's executed Standard Interconnection Agreement. If the inspection is delayed at the customer's request, the customer shall contact the utility to reschedule an inspection. The investor-owned utility shall reschedule the inspection within 10 business days of the customer's request.

(8) Net Metering.

(a) Each investor-owned utility shall enable each customer-owned renewable generation facility interconnected to the investor-owned utility's electrical grid pursuant to this rule to net meter.

(b) Each investor-owned utility shall install, at no additional cost to the customer, metering equipment at the point of delivery capable of measuring the difference between the electricity supplied to the customer from the investor-owned utility and the electricity generated by the customer and delivered to the investor-owned utility's electric grid.

(c) Meter readings shall be taken monthly on the same cycle as required under the otherwise applicable rate schedule.

(d) The investor-owned utility shall charge for electricity used by the customer in excess of the generation supplied by customer-owned renewable generation in accordance with normal billing practices.

(e) During any billing cycle, excess customer-owned renewable generation delivered to the investor-owned utility's electric grid shall be credited to the customer's energy consumption for the next month's billing cycle.

(f) Energy credits produced pursuant to subsection (8)(e) shall accumulate and be used to offset the customer's energy usage in subsequent months for a period of not more than twelve months. At the end of each calendar year, the investor-owned utility shall pay the customer for

any unused energy credits at an average annual rate based on the investor-owned utility's COG-1, as-available energy tariff.

(g) When a customer leaves the system, that customer's unused credits for excess kWh generated shall be paid to the customer at an average annual rate based on the investor-owned utility's COG-1, as-available energy tariff.

(h) Regardless of whether excess energy is delivered to the investor-owned utility's electric grid, the customer shall continue to pay the applicable customer charge and applicable demand charge. The investor-owned utility shall charge for electricity used by the customer in excess of the generation supplied by customer-owned renewable generation at the investor-owned utility's otherwise applicable rate schedule for non-generating customers. Tier 3 customers, whose customer-owned renewable generation capacity is 20% or more of the customer's total electric load, shall be required to take service under the investor-owned utility's standby or supplemental service rate. Tier 1 and 2 customers, and Tier 3 customers whose customer-owned renewable generation capacity is less than 20% of the customer's total electric load, may at their sole discretion choose to take service under the investor-owned utility's standby or supplemental service rate, if available.

(9) Renewable Energy Certificates. Customers shall retain any Renewable Energy Certificates associated with the electricity produced by their customer-owned renewable generation equipment. Any additional meters necessary for measuring the total renewable electricity generated for the purposes of receiving Renewable Energy Certificates shall be installed at the customer's expense, unless otherwise determined during negotiations for the sale of the customer's Renewable Energy Certificates to the investor-owned utility.

(10) Reporting Requirements. Each electric utility, as defined in Section 366.02(2),

Florida Statutes, shall file with the Commission as part of its tariff a copy of its Standard Interconnection Agreement form for customer-owned renewable generation. In addition, each electric utility shall report the following, by April 1 of each year.

(a) Total number of customer-owned renewable generation interconnections as of the end of the previous calendar year;

(b) Total kW capacity of customer-owned renewable generation interconnected as of the end of the previous calendar year;

(c) Total kWh received by interconnected customers from the electric utility, by month and by year for the previous calendar year;

(d) Total kWh of customer-owned renewable generation delivered to the electric utility, by month and by year for the previous calendar year; and

(e) Total energy payments made to interconnected customers for customer-owned renewable generation delivered to the electric utility for the previous calendar year, along with the total payments made since the implementation of this rule.

(f) For each individual customer-owned renewable generation interconnection:

1. Renewable technology utilized;

2. Gross power rating;

3. Geographic location by county; and

4. Date interconnected.

(11) Dispute Resolution. Parties may seek resolution of disputes arising out of the interpretation of this rule pursuant to Rule 25-22.032, F.A.C, Customer Complaints, or Rule 25-22.036, F.A.C., Initiation of Formal Proceedings.

Specific Authority 350.127(2), 366.05(1), 366.92, FS. Law Implemented 366.02(2),

366.04(2)(c), (5), (6), 366.041, 366.05(1), 366.81, 366.82(1),(2), 366.91(1)&(2), 366.92, FS.

History–New 8-15-07, Amended _____.

State of Florida

Public Service Commission

CAPITAL CIRCLE OFFICE CENTER • 2540 SHUMARD OAK BOULEVARD
TALLAHASSEE, FLORIDA 32399-0850

-M-E-M-O-R-A-N-D-U-M-

DATE: December 6, 2007

TO: Office of General Counsel (Smith)

FROM: Division of Economic Regulation (Hewitt)

RE: Proposed Rule amendments to Rule 25-6.065 Interconnection of Small Photovoltaic Systems (Interconnection and Net Metering of Customer-Owned Renewable Generation)

DETAILED DESCRIPTION OF THE PROPOSED RULE AMENDMENTS

1. Why it is being proposed?

Expanded renewable energy policy encouraged by statute and edict

Proposed Rule amendments to Rule 25-6.065 Interconnection of Small Photovoltaic Systems further implements changes to Section 403.519, Florida Statutes. Section 403.519 requires the Commission to explicitly consider "the need for fuel diversity and supply reliability" in generation need determinations. Renewable energy generation furthers fuel diversity. Also, Section 366.91(1), F.S. states that it is in the public interest to promote the development of renewable energy resources in this state.

2. What does the rule do and how does it accomplish the goals?

The current rule gives detailed requirements for customer interconnection of solar photovoltaic systems to the electric grid of investor-owned electric utilities (IOUs).

The proposed amendments to Rule 25-6.065 expand the rule to include other renewable generation systems qualified to be interconnected and allow net metering of the energy generated. The rule title would be revised to reflect the expanded scope of the rule changes. The level of generation would determine which of three tiers a customer would qualify for up to 2 Mega Watts (MW) maximum. It would also encourage fuel diversity from traditional energy sources and fulfill the policy that the Commission encourages renewable energy sources and technologies. Municipal electric utilities (Munis) and electric cooperatives (Co-ops) would have to annually report to the Commission information on the implementation and impacts of their net metering and interconnection policies.

IMPACT ON THE PSC

Rule implementation and enforcement costs and impact on revenues for the agency and other state and local government entities

There should be no significant implementation or enforcement cost. There should be no significant impact on Commission revenues. However, as the number of renewable self-generators expands, there would be a slight slowing of utility electricity sales growth and subsequently a slight slowing of regulatory assessment fees to the Commission. There would be no impact on other state and local governmental agencies.

Incremental costs

The additional utilities' proposed interconnection agreements and possible dispute resolutions would add some additional Commissioners' and staff time. An additional incremental cost to the Commission would be the usual costs of promulgating a rule.

Incremental benefits

There should be no incremental benefits for the FPSC. Other state and local government would be impacted to the extent they install renewable generation facilities under a certain size.

WHO BESIDES THE PSC WILL BE AFFECTED BY ADOPTION OF THE PROPOSALS

Estimated number of entities required to comply and General description of individuals affected

Utilities

Any of the five IOUs in Florida would be required to interconnect customers with qualified renewable generator systems. The 18 electric cooperatives and 34 municipal operated electric companies would have to file reports of interconnections and net metering programs. The utilities sell electricity to industrial, commercial, and residential customers throughout the state.

Customers

Customers throughout the state would be affected if they install renewable generating systems and interconnect to the electrical grid. They would have to meet the installation standards of the utilities and safety codes. The costs would vary by customer and system.

Impact on small businesses, small cities, or small counties

There should be no impact from the rule changes on small businesses, small cities, or small counties unless they install small renewable generating systems and interconnect to the electrical grid. If they did, they would be impacted by the requirements of the rule to have their systems inspected and be in compliance to electrical codes.

Outside business and local governments

There should be no impact from the rule changes on businesses, cities, or counties unless they install small renewable generating systems and interconnect to the electrical grid.

HOW ARE THE PARTIES ABOVE AFFECTED BY THE ADOPTION OF THE PROPOSAL

Estimated transactional costs to individuals and entities

Utilities

Electric utilities would have additional costs because of the rule changes. There would be some additional reporting and compliance costs associated with the amendments. Other, more significant costs are listed below.

Florida Power & Light Company (FPL) estimates that full compliance with current rule proposal to implement system-based solution for net metering would entail:

a. Apply excess energy to current consumption and bill for the difference
b. Bank remaining excess energy for application to future billings
c. Credit any excess generation remaining at the end of 12 months at the average avoided cost rate
d. Allow residential and small commercial customers to take service on Standby/Supplemental rate

Total cost for implementation: $3.6 - $5.1 million, 3 - 4 years.

FPL estimates that the metering costs including parts and labor would be: Tier 1, $55; Tier 2, $170; and, Tier 3 $360 - $1,330.

Net metering pricing impact would be; Tier 1, 4.291¢ per kWh; Tier 2, 3.095¢ per kWh; Tier 3, no existing customers at this time.

Five year revenue impact projection:

Existing customers (98 residential and 6 small commercial customers) $2,783 x 5 = $13,915 lost revenues.

New customers (200 residential customers added per year) ($108,641) 1st year, ($214,499) 2nd year, ($317,574) 3rd year, ($423,432) 4th year, and ($532,074) 5th year; Total is $1,596,220 lost revenues.

Cost of reviewing applications for Tier 1 customers: approximately $200-$300 per customer.

Cost of installing a manual disconnect switch:

Safety switch	$801.73
Distribution lock	$ 35.40
Labor	$416.00
Total	$1,253.13

FPL identified the following benefits from the proposed rule:

- Requirement that customer-owned renewable generation include a utility-interactive inverter or other certified device that performs an automatic isolation function in the event the electric grid loses power
- Ability to perform an interconnection study and propose an interconnection study charge for Tier 3 systems
- Ability to propose a standard application fee for Tier 2 and 3 customers
- Ability to inspect the customer-owned system and component equipment prior to the customer placing the system in-service
- Requirement that the customer notify the utility if the system is modified to increase the gross power rating
- Ability to require Tier 2 and 3 customers to install manual disconnect switch at their expense

Progress Energy Florida (PEF) estimated the potential incremental costs to comply with the proposed rule requirements.

- Application fees - approximately $95 per customer
- Net metering incremental cost - approximately $115 per customer
- Meter reading - approximately $2.27 per visit
- Modifications to billing, processing, etc., 8,485 hours @ $50 per hour = $424,250
- Energy credit subsidy cost - 5¢-7¢ per kWh depending on time/circumstances.

PEF is not aware of any significant benefits from the proposed rule compared to the existing rule.

Tampa Electric Company (TECO) states that the incremental cost for manually billing renewable generating customers is $60 per month or $720 annually. Metering to meet new reporting requirements would be $100 over the cost of standard meters plus installation. Although TECO currently has 8 renewable energy generating customers, it estimated that the proposed rule changes would cost $1 million for reprogramming to automate billing with the Customer Information System (CIS) if the number of renewable energy generating customers reached 250. Other costs to comply with the propose rule changes would be $15,000 to $20,000 for additional insurance premiums, $4,000 for engineer training for additional inspections, and additional personnel to coordinate meter installations, inspections, and interconnect agreements would cost $150,000 annually. The rule would require that TECO install a disconnect switch for Tier 1 customers at $500-$1,000 each, and with 100 new customer per year, a total of $50,000 to $100,000 annually. The annual report preparation and filing cost for the proposed new report requirement would be $2,000 per year with a one time cost to recalculate the database of $2,000. Elimination of the Tier 1 application fee would cost TECO $89 per application to cover application processing costs. Finally, the estimated cost to cover paying higher than avoided cost to customers with excess energy would be approximately $5,000 per year with 100 customers eligible.

Summary of TECO estimated costs:

- One-time costs of $1,002,000, including reprogramming CIS and database expenses
- On-going costs of $188,900-$193,900 annually
- One-time, per unit cost of $600-$1,100 for each renewable generator for metering and disconnect switch
- On-going costs of $199 per year for each renewable generator for billing, lost application fee, and excess energy payment (100 new customers per year)

Gulf Power Company (GULF) estimates that the cost to comply with each of the proposed rule requirements would be (most costs apply to Tier 1 customers):

- One-time costs of $432,000, including reprogramming CIS and regulatory expenses
- On-going customer accounting administrative costs of $2,600
- One-time, per unit cost of $1,615 for each renewable generator for metering issues, consulting, processing, and inspections
- On-going costs of $42 per year for each renewable generator

GULF states that it is possible that there could be the benefit from the proposed rule of providing an incentive for the development and investment in customer-owned renewable generation in Florida; but, at the same time, the likely cost of subsidization of these customers by the general body of ratepayers.

Florida Public Utilities Company estimated that the most significant incremental costs associated with the proposed rule changes involve the existing CIS used for customer billing purposes. Their current CIS is not programmed to handle metering for a single bi-directional meter or two meters that are arranged to capture credit and/or payment for excess energy from the customer. Their software provider estimates between $70,000 and $175,000 to customize the

software to comply with the rule. The estimated incremental cost for the most typical, average installation would be $120.

Florida Municipal Electric Association (FMEA) estimated the following costs:

- Incremental cost per interconnected customer ranges from $125-$300.
- If 0.1% of their 1.3 million municipal electric utility customers participate, these costs would range from $162,500 to $390,000. If 1% of their customers participate, the cost would range from $1,625,000 to $3,900,000.
- If all potential costs for implementing a net metering and interconnection program are included, FMEA estimates the range to be $1.6 million to $39 million per year.

The wide range would depend on likely changes to billing/customer information systems (CIS), which for most utilities does not automatically account for negative balances or credits. Costs would include installing special metering for recording both customer consumption and renewable energy output. Costs would include payments and/or credits to customers depending on the local municipal utility's policy.

FMEA had great difficulty identifying quantifiable benefits, but considered possible fuel savings and renewable energy credits as well as other speculative avoided costs.

Customers

As a result of these rule amendments, electric utility customers, including local government entities and small businesses, would be able to interconnect their qualified renewable energy generators to the electric grid and benefit by having their electricity consumption from the utility be offset by their own generation. In addition, if their generation exceeds their consumption, excess renewable generation would be credited to the customers energy consumption for the next month's billing cycle. Excess energy credits would accumulate and at the end of the year, any unused energy credits must be paid for at their IOU's COG-1, as-available energy tariff rate.

Outside business including specifically small businesses

Outside businesses or small businesses would have the same benefits and costs complying with the rule as the other ratepayers that choose to install a renewable generation system in their rate class.

Local governments

Small cities or small counties would have the same benefits and costs complying with the rule as the other ratepayers that choose to install a renewable generation system.

ANY OTHER PERTINENT COMMENTS REGARDING THE APPLICATION OF THE PROPOSED RULE

The rule amendments should encourage renewable electric generation in the state, thereby increasing fuel diversity and lowering various gas emissions.

CH:kb
cc: Mary Andrews Bane
Chuck Hill
Casey Hinton
Hurd Reeves