

BEFORE THE FLORIDA PUBLIC SERVICE COMMISSION

In Re: Customer-Owned Renewable Generation

Docket No. 20200000

Filed: October 8, 2020

**FLORIDA POWER & LIGHT COMPANY AND GULF POWER
COMPANY'S POST-WORKSHOP COMMENTS**

Florida Power & Light Company (“FPL”) and Gulf Power Company (“Gulf”) submit these comments to supplement the presentations made at the Commission’s September 17, 2020 workshop. As stated by Chairman Clark at the beginning of the meeting, the workshop was intended to be a fact-finding mission, and an opportunity to explore how customer-owned renewable generation is impacting Florida’s electric utility system. It is to that end, and to respond to certain issues raised by Commissioners, that FPL and Gulf provide these comments.

FPL and Gulf appreciated the opportunity to participate in the workshop through presentations made by former Commissioner Terry Deason¹ and William Ashburn of Tampa Electric Company (“TECO”).² These presentations were prepared to address the stated purpose of the workshop as it was described in the agenda provided with the Commission’s notice. As noted on the agenda, participants were asked to address: (a) statutory and rule background; (b) development of customer-owned renewable generation in Florida; (c) interconnection issues, including (i) system capacity sizing and (ii) insurance requirements; and (d) net metering, including (i) extent of excess energy and (ii) credit components.

FPL has attached a number of exhibits in support of these comments, and for perspective, as follows:

Exhibit A: PowerPoint Presentation of Terry Deason

¹ Mr. Deason presented on behalf of FPL, Gulf, and TECO.

² Mr. Ashburn presented on behalf of FPL, Gulf, TECO, and Duke Energy Florida (“Duke”).

- Exhibit B: Letters from State Representative Lawrence McClure to Florida’s Investor Owned Utilities dated February 13, 2020, and the Utilities’ March 2020 Responses
- Exhibit C: Letter from State Representative Lawrence McClure to Florida Public Service Commission Chairman Gary Clark dated May 22, 2020
- Exhibit D: Letter from Chairman Gary Clark to Representative Lawrence McClure dated August 6, 2020
- Exhibit E: Screenshots of FPL NEM Web Pages
- Exhibit F: Screenshots of Gulf NEM Web Pages

Statutory and Rule Background

Based upon the public posting of Staff’s presentation prior to September 17, 2020, Mr. Deason was aware of the fact that Staff, through Matt Vogel, planned to address the statutory and rule background of customer-owned renewable generation, and specifically net metering. Mr. Vogel’s presentation was thorough and comprehensive. As a result, Mr. Deason only briefly discussed this agenda item to avoid repeating what the Commission had just heard from Mr. Vogel. However, as reflected on page 2 of Exhibit A, the following high-level points are worth noting in these comments.

First, it is important to note that Florida has come a long way in terms of solar development during the past decade. In fact, Florida is now one of the leading states in terms of installed solar generation. While much of Florida’s solar generation is currently large-scale universal solar, the number of rooftop systems has also continued to increase at a significant rate, now more than ever. The pace of increased customer-owned rooftop solar will be addressed in the next section of these comments.

As indicated by Mr. Vogel, Florida’s current net metering construct was created in April of 2008 with the adoption of revisions to Rule 25-6.065, F.A.C.³ At that time, with customer-owned renewable generation in its infancy, and at a time when rooftop systems were considerably more expensive than they are today,⁴ the Commission determined that it could help jumpstart the growth of rooftop solar by requiring utilities to provide a retail credit for energy produced by the customer’s solar panels. This retail credit by definition reduces the electric bill of the net energy metered (“NEM”) customer, which thereby reduces that customer’s contribution to the construction, operation, and maintenance of the electric grid, with those costs then being borne by other customers. When there were only a handful of these systems, the cost shift or cross-subsidy resulting from this “start-up approach” was de minimis, with virtually no impact on those non-NEM customers, whose electric bills necessarily subsidized the reduction in the financial responsibility of NEM customers for the cost of the electric infrastructure required to serve all customers, including NEM customers. But, with the initial NEM subsidized-design remaining in place, as the number of NEM customers has grown, and as that number continues to grow at a rapid pace, the amount of the cross-subsidy paid by non-NEM customers continues to increase.

This growth in rooftop solar, and the cross subsidy inherent in the current NEM rate design, makes this increasingly an issue of basic fairness. Customers who for any number of reasons cannot or do not install rooftop solar to take advantage of the NEM retail credit should not be

³ Rule 25-6.065, F.A.C., Interconnection of Small Photovoltaic Systems, was initially adopted in February of 2002 as the Rule governing “Interconnection of Small Photovoltaic Systems”. That precursor to the current formulation of the Rule, in addressing excess kilowatt-hours produced by the customer’s system, measured by a second meter, and delivered back to the utility, indicated as follows: “The value of such excess generation shall be credited to the customer’s bill based on the host utility’s COG-1 tariff, or by other applicable tariffs approved by the Florida Public Service Commission.”

⁴ According to NREL data, for residential systems less than 10 kW, the cost of solar in 2008 was approximately \$8 per Watt. In 2020 the cost of solar for the same sized system is lower than \$3 per Watt.

required to pay more than their fair share of the fixed costs required to generate, transmit, and distribute electricity.

Development of Customer-Owned Renewable Generation in Florida

Page 3 of Exhibit A provides a simple but illustrative view of the development of customer-owned renewable generation in Florida. The four IOUs addressed by this chart⁵ had a total of 378 NEM customers in 2008, a number that had expanded to 60,144 NEM customers by the end of June 2020 – an increase of more than 150 times over this period, with a compound annual growth rate (“CAGR”) of 55%. In 2008, installed capacity from NEM customers totaled 1.7 MWs. By June of 2020, that total had increased to 535.0 MWs – an increase of more than 300 times over this period, with a CAGR of 65%. These exceptionally rapid rates of growth tell us two things. First, as already observed, the subsidized costs are increasing commensurate with the growth in NEM customers and installed capacity. Second, with growth rates like this, the need for a “start-up” subsidized rate design to promote customer adoption of rooftop solar is no longer necessary. Indeed, the most important factor in driving increased consumer participation has not been the NEM rate (which has remained constant since its inception), but the significant reduction in the installed cost of rooftop solar over the last several years.

A closer look at the data bears this out. Where FPL had just under 17,000 NEM customers at the end of 2019, the system added nearly 4,000 new NEM customers from January through June 2020. Gulf ended 2019 with just over 2,200 NEM installations. By the end of June 2020, that number had nearly doubled to more than 4,000. From the end of 2019 through June of 2020, TECO’s NEM installations increased from approximately 5,200 to more than 6,400. During the same six months, Duke saw an increase from approximately 21,300 to more than 29,000 NEM

⁵ FPL, Gulf, TECO, and Duke.

systems.⁶ Thus, notwithstanding comments submitted by the solar groups, both the number and the rate of increase of NEM systems installed in Florida continue to grow at an ever increasing pace. This growth has been driven by the declining cost to install solar, which has fallen more than 70% over the last decade⁷, and by increased availability of leasing and financing options.⁸

Net Metering, including the Extent of Excess Energy and Credit Components

The extent of excess energy and credit components associated with net metering is directly related to the growth in the number of NEM systems. In addressing this issue, Mr. Deason relied upon a number of publicly available documents which are attached as Exhibit B, along with Wood Mackenzie's September 2020 forecast of Florida residential solar for 2019 through 2025. From the information included in the utilities' responses to Representative McClure, Mr. Deason concluded that in 2019, the annual cost shift or cross-subsidy created by the operation of the approximately 45,000 NEM systems served by FPL, Gulf, TECO, and Duke at that time was \$39 million. To estimate how this cross subsidy is likely to grow over the next several years, he relied on forecasts of residential solar capacity in Florida, as projected by Wood Mackenzie, a recognized and respected expert in the field. These projections, which predict a CAGR, of 29% between 2019 and 2025, provide a solid foundation for the ever increasing cross subsidy.⁹ Assuming that

⁶ Mr. Deason's comments at the September 17, 2020 workshop, and the number of NEM systems included in the presentation attached as Exhibit A and recited in text above, were based on data through June 2020. July 2020 data is now available. According to data from the U.S. Energy Information Administration, in July alone, FPL, Gulf, TECO, and Duke together added approximately 1,700 NEM systems.

⁷ Solar Energy Industries Association (SEIA). *Solar Industry Research Data*. <https://www.seia.org/solar-industry-research-data> (date accessed: October 7, 2020). See also footnote 4.

⁸ Although the lease of solar systems has been explicitly authorized by Rule 25-6.065, F.A.C., since 2008, a number of solar companies have recently made public their interest in this financing mechanism as a way to grow their respective businesses in Florida. Sunrun, Inc. (Docket No. 20170273-EQ); Vivint Solar Developer, LLC. (Docket No. 20180124-EQ); Tesla, Inc. (Docket No. 20180221-EQ); and IGS Solar, LLC. (Docket No. 20190040-EQ) have all sought and obtained from the Florida Public Service Commission declaratory statements concerning the propriety of leasing solar equipment to Florida consumers.

⁹ It should be noted that the CAGR for NEM customers since 2008 was 55%. During just the six months from December 31, 2019 through June 30, 2020, the number of NEM customers grew 32%, which is equivalent to an annualized growth rate of 64%.

the \$39 million cross-subsidy increases proportionately to residential solar capacity, Mr. Deason estimated it will reach \$179 million by 2025. Based on these projections, the cumulative cross-subsidy that will be absorbed by the non-NEM customers of these four utilities from 2020 through 2025 is more than \$700 million, as follows:

2020:	\$62 million
2021:	\$88 million
2022:	\$108 million
2023:	\$129 million
2024:	\$153 million
<u>2025:</u>	<u>\$179 million</u>
Total:	\$719 million

These projections support Representative McClure’s concerns about the creation of “a situation like California where is (sic) non-net metered customers are currently paying hundreds of millions of dollars per year in extra costs.”¹⁰

Interconnection Issues, including System Capacity Sizing and Insurance Requirements

William Ashburn of TECO is submitting comments related to Net Metering Interconnection Issues on behalf of FPL, Gulf, TECO, and Duke. FPL and Gulf adopt those comments as if fully set forth herein.

¹⁰ See pages 1-2 of Representative McClure’s letters to the utilities, included in Exhibit B. Independent research performed on behalf of FPL, Gulf, and TECO confirmed that the cross-subsidy paid by California’s non-NEM customers has in fact been hundreds of millions of dollars, if not more.

Commissioner Questions Raised During the Workshop

During the workshop, questions arose regarding the demographics of electric consumers who have adopted NEM, who is benefitting from the current policy, and who is bearing the costs. On that issue, FPL and Gulf have identified the following demographic information regarding their NEM customers:

	<u>FPL</u>	<u>Gulf</u>
Average Age	54 years	47 years
% Homeowners (vs. Renters)	96%	80%
Average Length at Residence	12 years	9 years
% Household Income > \$50,000	67%	59%
% Household Income > \$100,000	34%	22%

These statistics speak directly to the question of who is benefitting from the current policy, and who is bearing the costs that must be paid when NEM customers receive full retail credit for the energy they generate from their rooftop solar systems. As stated earlier, a retail credit for energy generated by the NEM customer simply does not reflect or include the full costs of building, maintaining, and operating the electric grid. While NEM customers rely on the infrastructure to generate and deliver electricity when they are not self-generating at all, or not self-generating enough to satisfy their full demand, they are not paying their fair share of those infrastructure costs which are largely recovered through volumetric charges related to consumption. The increasing number of customers with NEM systems is disproportionately shifting more and more of the costs to build, operate, and maintain the electric grid to those customers who either cannot – for financial reasons, because they live in a multi-unit building like a condominium, because they rent, or their

home is in a heavily treed area, or for any number of other reasons - or choose not to install rooftop solar.

A related question raised at the workshop involved the value of the electricity generated by the NEM system, depending on the time of day and the season it is produced, whether on peak or off peak. FPL's system burns natural gas at approximately the same system heat rate at the margin for virtually every hour of the year. Thus, there is relatively little difference in FPL's energy costs at the margin from one hour to the next.

In the 2009, 2014, and 2019 demand-side management ("DSM") goals filings, rooftop solar was evaluated by FPL using all three cost-effectiveness tests recognized by the state of Florida. The results of the analysis showed that rooftop solar was not cost-effective under any of the tests. Again in July 2020, FPL undertook an updated cost-effectiveness analysis of NEM. In that analysis, FPL accounted for the DSM aspect of NEM (serves home load) and the generation aspect of NEM (provides electricity to the grid). The result was the same: rooftop solar was not cost-effective. The projected net metering credits to NEM customers alone exceeded the projected benefits to the general body of FPL's customers.

The utilities must maintain a level of generation, plus a reserve margin, to satisfy the electricity needs of all its customers, whether or not the sun is shining.

Another series of questions raised at the workshop included interconnection issues, including insurance requirements. As indicated above, William Ashburn addressed many of those issues at the workshop. Additionally, TECO is submitting a summary of Mr. Ashburn's presentation on behalf of FPL, Gulf, TECO, and Duke. FPL and Gulf fully support Mr. Ashburn's comments, and stand ready to provide company-specific experience with respect to all of the issues addressed by Mr. Ashburn, including but certainly not limited to the safety and insurance provisions, and the

need for utility system upgrades corresponding with the increase in NEM systems, that were the subjects of discussion at the workshop.

Utility participants at the workshop were also asked to address issues regarding the drivers of solar penetration, and the efforts that are being made to promote current net metering policy. On the first question, FPL and Gulf strongly believe that the price of electricity – the cost to the consumer – is a key factor impacting this decision. The relative economics, which directly impact the payback period and the amount of money a consumer believes he or she can save, likely has a significant impact on the decision to install rooftop solar. Customers no doubt also have any number of subjective considerations that factor into their decision. And as stated above, many customers simply don't have the option of making the decision, whether based upon financial considerations or otherwise.

FPL has actively supported and facilitated the ability of customers to install rooftop solar and to interconnect within a matter of days. FPL's net metering process, including the forms required to complete the interconnection process, is prominently displayed on its website. During the past few years, FPL has continued to invest in the development of its on-line portal while at the same time growing the size of the department handling NEM applications. This approach has enhanced the customer experience and greatly facilitated and expedited the ability of customers to obtain fast and efficient approval for and interconnection of their NEM systems. FPL's process allows the NEM customer to designate his or her solar contractor as the individual to complete all forms needed to interconnect, further simplifying the process for the customer.

From January through September of 2020, the average number of days for FPL to approve an application for interconnection was between one and four days. Thereafter, the bidirectional meter required to net meter was installed within an average of three days.

Gulf similarly supports and facilitates renewable interconnections for residential and business customers. The Company has added resources to support timely processing of applications and interconnection agreements as the requests have dramatically increased over the past three years. Gulf has been proactive in providing information on the Company's website to help customers with the most commonly asked questions as well as offering additional educational resources about solar energy. Gulf has also utilized social media to educate customers on solar interconnections and the roles of the company and contractors.

In addition to these internal tools, FPL's website provides direct access to NREL's PVWatts Calculator. This tool estimates the energy production and cost of energy of grid-connected PV energy systems throughout the world. It allows homeowners and others to easily develop estimates of the performance of potential PV installations for the unique circumstances experienced by each customer. This tool provides the customer invaluable information when considering the sale or lease option being offered by a solar contractor.

Screenshots of the user-friendly FPL and Gulf NEM web pages are attached as Exhibits E and F.

FPL and Gulf appreciated the opportunity to participate in the Commission's fact-finding workshop. In the event the Commission continues this process, we look forward to further discussions with Staff and the Commission regarding customer-owned renewable generation, its growth in Florida, and the resulting impacts on all customers and on the utility's ability to fairly and equitably finance the construction, operation, and maintenance of the electric infrastructure that serves all Florida customers.

Respectfully submitted this 8th day of October 2020.

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Exhibit A

FPSC Customer-Owned Renewable Generation Workshop

Florida Power & Light Company
Gulf Power Company
Tampa Electric Company

Terry Deason

September 17, 2020

Presented by Terry Deason at the FPSC Workshop on Customer-Owned Generation.
Presenting on behalf of FPL, Gulf, and TECO. The numbers referred to during my remarks
are publicly available, unless otherwise noted.

Solar has come a long way in Florida

Customer-owned Renewable Generation in Florida

- ▶ Florida is now one of the leading states for solar energy
- ▶ When solar was in its infancy in Florida, and rooftop solar systems were significantly more expensive than they are today, the Commission determined that it could help jumpstart its growth by requiring utilities provide a retail credit as an incentive
 - ▶ The challenge presented is that customers who don't have rooftop solar are paying more than their fair share of fixed costs required for the generation, transmission, and distribution of electricity to customers
- ▶ When there were only a handful of these systems, this cost shift – or cross-subsidization – was very small, but that is no longer the case
 - ▶ As the number of rooftop solar systems increases, the cross-subsidy continues to grow

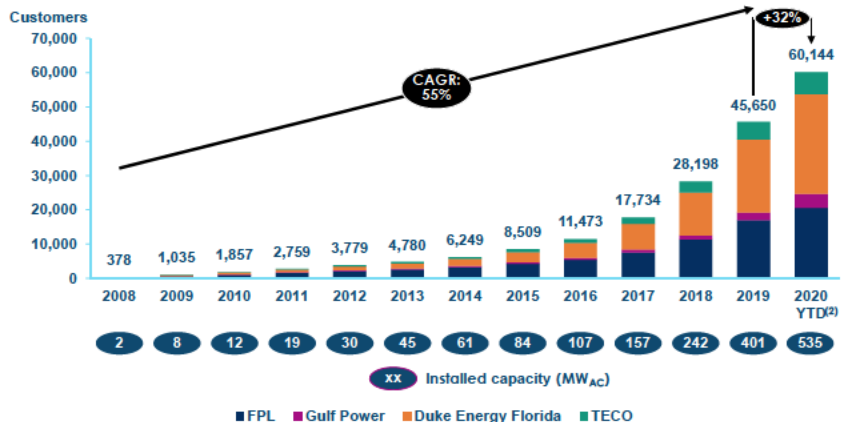
Promoting the development of rooftop solar does NOT mean subsidizing the development of rooftop solar

2

- Florida is now one of the leading states for solar energy
- When solar was in its infancy in Florida, and rooftop solar systems were significantly more expensive than they are today, the Commission determined that it could help to jumpstart their development by requiring a retail credit for energy produced by the rooftop solar system [Cost of solar in 2008 ~ \$8/W and in 2020 less than \$3/W (for residential systems less than 10kW) (Source- NREL <https://www.nrel.gov/docs/fy13osti/56776.pdf> and <https://www.nrel.gov/docs/fy20osti/77010.pdf>)
 - The challenge presented is that customers who don't have rooftop solar are paying more than their fair share of fixed costs required for the generation, transmission, and distribution of electricity to customers
- This policy by definition means that customers who don't have rooftop solar are paying more than their fair share of the fixed costs required for the generation, transmission, and distribution of electricity to customers
- When there were only a handful of these systems, this cost shift – or cross-subsidization – was very small, but that is no longer the case
 - As the number of rooftop solar systems increases, the cross-subsidy continues to grow
- Promoting the development of rooftop solar does NOT mean subsidizing the development of rooftop solar

Florida IOUs had 60K net metering customers as of June 2020 and a 55% CAGR between 2008 and 2019

Total Net Metering Customers: Florida IOUs⁽¹⁾



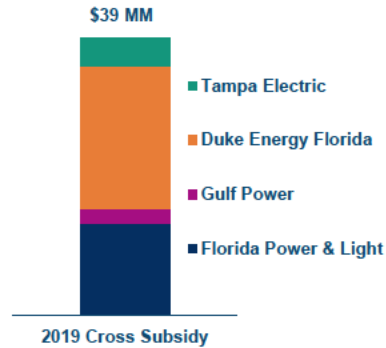
1) Includes residential and commercial/industrial NEM customers. FPL, Gulf Power, Duke Energy Florida and TECO
 2) Through June 2020
 Source: Interconnection and Net Metering of Customer-Owned Renewable Generation reports (FPSC), 2008-2019.
 U.S. Energy Information Administration, June 2020.

- Growth of NEM Systems in FL
- Chart of FPL, Gulf, Duke, and TECO growth through year end 2019 and June 2020
- From 2008 to 2019, the compound annual growth rate in net metering installations was 55%, and it seems to be accelerating:
 - In the three years between 2013 and 2016, it grew at an average rate of 34%
 - But, between 2016 and 2019, it grew at 58%
- In just the first six months of the 2020, net metering installations grew by 32%, the equivalent of 64% annually
 - **FPL:** 16,971 in 2019, up to 20,624 by 6/30/2020 (added nearly 4,000)
 - **Gulf:** 2,229 in 2019, up to 4,035 by 6/30/2020 (nearly doubled in 6 months)
 - **TECO:** 5,173 in 2019, up to 6,436 by 6/30/2020 (24% increase)
 - **Duke:** 21,277 in 2019, up to 29,049 by 6/30/2020 (37% increase)
- As of 12/31/2019, these 4 companies had 45,650 rooftop solar systems.
- In just 6 months that number has increased to 60,144 (based on June data from U.S. Energy Information Administration (EIA))

The annual subsidy is the cost shift borne by the general population of electric customers to support full cost recovery from net metered customers

Annual Subsidy from Residential Net Metering

Estimated 2019 Cost Shift from Residential NEM Customers⁽¹⁾



- ▶ The majority of kWh energy charges are intended to recover utilities' fixed costs, such as generation capacity and T&D infrastructure
- ▶ Net energy metering results in an under recovery of these costs from customers with rooftop solar, who still depend on the grid for reliability
 - ▶ Estimated monthly short fall is \$65-\$80 per NEM customer
- ▶ In 2019, an estimated **\$39 million** of costs were borne by the general population of customers to subsidize net-metered residential customers
- ▶ The cumulative subsidy during the period of 2020 to 2025 is projected to total **\$700 million**⁽²⁾

1) Based on IOUs' responses to Representative Lawrence McClure's inquiries on net metering.
 2) Cumulative subsidy for 2020-2025 assumes the 2019 subsidy of \$39 MM, reported above, continues to grow pro rata to Wood Mackenzie's forecast of Florida residential solar for 2019-2025 (September 2020).

- In January of 2020, State Representative Lawrence McClure asked the Florida IOUs to identify the number of NEM customers on each system, the estimated cross-subsidy that is being paid by non-NEM customers within each utility's body of customers, the costs to serve a typical customer, and the costs to serve a typical customer with rooftop solar or other renewable generation
- Amount of cross-subsidy or cost-shift borne by the general population of electric customers to support full cost recovery from net metered residential customers
 - IOUs estimated the following cost shift attributable to residential NEM in 2019:
 - **TECO:** \$4 MM (~\$66 monthly per NEM customer)
 - **Duke:** \$20 MM (~\$82 monthly per NEM customer)
 - **Gulf:** \$1.9 MM (~\$77 monthly per NEM customer)
 - **FPL:** \$13 MM (~\$68 monthly per NEM customer)
 - As of 12/31/2019, the 4 utilities reported total cross subsidy of **\$39 million** (averages \$75 monthly per NEM customer)
- The subsidy is growing.
 - Wood Mackenzie forecasts Florida's cumulative capacity of residential solar to grow at a CAGR of 29% between 2019 and 2025.
 - Applying the growth rate to the \$39 MM subsidy for 2019 implies the annual subsidy will increase to \$179 MM by 2025, with a cumulative total of **\$700 million** between 2020 and 2025.

- 2019: \$ 39 MM
- 2020: \$ 62 MM (+60%)
- 2021: \$ 88 MM (+41%)
- 2022: \$108 MM (+23%)
- 2023: \$129 MM (+20%)
- 2024: \$153 MM (+19%)
- 2025: \$179 MM (+17%)

All customers benefit from the energy grid

Net Metering Policy Issues

- ▶ A basic fairness issue
- ▶ Retail credits for NEM customers do not reflect the costs of building and maintaining the energy grid
- ▶ Fixed costs to build and operate power plants, transmission, distribution, and infrastructure are not being fully recovered from NEM customers
- ▶ NEM customers rely on the infrastructure to deliver electricity when their systems are not generating electricity
- ▶ While 100% of subsidies in many situations cannot be eliminated, the goal should be to minimize those subsidies, on the principle that the cost-causer should pay the costs of the service they receive
- ▶ Cost-shift occurs – the contribution to fixed assets/infrastructure that serves all customers
- ▶ There is a growing concern that customers who don't have rooftop solar are bearing a disproportionate cost of building and maintaining the infrastructure that serves ALL customers

The majority of fixed costs are recovered through charges related to consumption

5

- Policy issues with net metering policy
 - A basic fairness issue
 - Retail credits for NEM customers do not reflect the costs of building and maintaining the energy grid
 - Fixed costs to build and operate power plants, transmission, distribution, and infrastructure are not being fully recovered from NEM customers
 - NEM customers rely on the infrastructure to deliver electricity when their systems are not generating electricity
 - While 100% of subsidies in many situations cannot be eliminated, the goal should be to minimize those subsidies, on the principle that the cost-causer should pay the costs of the service they receive
 - The majority of fixed costs are recovered through charges related to consumption, so this could be addressed by a variety of approaches, none of which I am here to promote or address today
 - Cost-shift
 - Explanation of how cost-shift occurs – contribution to fixed assets/infrastructure that serves all customers
 - There is a growing concern that customers who don't have rooftop solar are bearing a disproportionate cost of building and maintaining the infrastructure that serves ALL customers

California and Louisiana are examples of other states addressing subsidies

Other State Examples

- ▶ California's statistics show increasing cost shift
 - ▶ San Diego Gas & Electric stated that residential NEM caused an annual cost shift of \$395 million (as of Feb. 2019) and Southern California Edison calculated the NEM cost shift for residential customers at approximately \$460 million (in 2018)
 - ▶ The NEM cost shift or cross subsidy for these two southern California companies alone exceeded \$850 million
- ▶ Louisiana no longer allows a retail credit to offset NEM usage
 - ▶ In 2015, Louisiana PSC initiated a several years-long multi-phased rule making proceeding
 - ▶ In late 2019, the PSC approved crediting NEM customers' energy sold back to the grid at the avoided cost. This addresses a \$2 million annual subsidy for Louisiana utilities.

6

- Examples of NEM cross shift at other IOUs/other states
- California statistics show increasing cost shift
 - San Diego Gas & Electric stated that residential NEM caused an annual cost shift of \$395 million (as of Feb. 2019) and Southern California Edison calculated the NEM cost shift for residential customers at approximately \$460 million (in 2018)
 - The NEM cost shift or cross subsidy for these two southern California companies alone exceeded \$850 million

<https://www.sdge.com/sites/default/files/regulatory/A.17-12-013%20Stein%20-%202018%20RDW%20Testimony%203%2029%2019.pdf>

[http://www3.sce.com/sscc/law/dis/dbattach5e.nsf/0/B5B462A79CF49F4D882583E4006F8BD4/\\$FILE/A1904XXX-SCE%202020%20COC%20EXH.%20SCE-01%20Testimony-Various%20SCE%20Witnesses.pdf](http://www3.sce.com/sscc/law/dis/dbattach5e.nsf/0/B5B462A79CF49F4D882583E4006F8BD4/$FILE/A1904XXX-SCE%202020%20COC%20EXH.%20SCE-01%20Testimony-Various%20SCE%20Witnesses.pdf)
- Louisiana no longer allows a retail credit to offset NEM usage
 - In Dec. 2015, LA PSC initiated a several years-long multi-phased rule making proceeding (triggered by exceeding a 0.5% cap of retail peak demand). FL is 2 MW cap system capacity.
 - In Sept. 2019, the PSC approved NEM customers being credited at the avoided cost (instead of retail rate) for any energy sold back to the grid. This addresses a \$2 million annual subsidy for all LA utilities combined. \$2m subsidy based on

2015 COS study; estimated to increase from \$5 million to \$31.4 million in 2020.
https://www.energy-louisiana.com/net_metering/

Customers who cannot or choose not to install solar, are subsidizing NEM customers who receive a full retail credit for excess energy sent to the grid

Regressive Policy

- ▶ Customers who own homes and have the necessary financial resources may install NEM systems to offset their energy consumption and thereby receive the full retail credit, increasing the cost shift of fixed costs to all other customers
- ▶ Renters, low income customers, people who cannot or choose not to install rooftop solar (e.g., structural condition of their home, local environmental conditions, lack of exposure to the sun, finances, etc.) must pay for the cost shift created by providing a full retail credit to customers with rooftop solar

7

- Regressive policy
 - Customers who own homes and have the necessary financial resources may install NEM systems to offset their energy consumption and thereby receive the full retail credit, increasing the cost shift of fixed costs to all other customers
 - Renters, low income customers, people who cannot or choose not to install rooftop solar (e.g., structural condition of their home, local environmental conditions, lack of exposure to the sun, finances, etc.) must pay for the cost shift created by providing a full retail credit to customers with rooftop solar
- Florida solar demographics are based on a 2018 analysis conducted by the Lawrence Berkeley Laboratory on behalf of the U.S. Department of Energy.
<https://emp.lbl.gov/solar-demographics-tool>.

There exists a growing subsidy as a result of the current net metering rule

Conclusion

- ▶ In 2008, the rule adopted a retail rate credit for net metering customers as a tool to help jump start what was then a nascent emerging solar rooftop industry
- ▶ Things have changed dramatically over the last decade
 - ▶ The amount of customer-owned solar generation in Florida is now more than 100 times what it was in 2008
- ▶ This growth has contributed to a substantial and growing subsidy paid by those customers without rooftop solar

We strongly support the sustainable growth of solar in Florida

8

In 2008, the rule adopted a retail rate credit for net metering customers as a tool to help jump start what was then a nascent emerging solar rooftop industry

Things have changed dramatically over the last decade

The amount of customer-owned solar generation in Florida is now more than 100 times what it was in 2008

10 MWdc in 2009 to 505 MWdc in 2019

This growth has contributed to a substantial and growing rate subsidy paid by those customers without rooftop solar

Exhibit B



Florida House of Representatives

Representative Lawrence McClure

District 58

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February 13, 2020

Dear Eric Silagy,

I read with great interest a January 2020 report from Energy Fairness entitled [Net Metering-Costs, Customers, and a Smarter Way Forward for Florida](#). Based on the report, it is highly probable that Florida consumers are paying more on their electricity bill than they should so their neighbors can have solar panels on their rooftops.

Clearly this is a case of wealthy consumers installing rooftop solar panels, and take advantage of tax incentives, while those who cannot afford to do so pay higher price to keep our state's electric grid operating. This is totally unacceptable.

As noted in the report, "with investment tax credits, property taxes waived, and no sales tax assessed on solar equipment, Floridians are already paying more than their fair share for the rooftop solar systems of those customers who can afford them." I recognize that it was the Florida Legislature and the Florida Public Service Commission that in 2008 enacted laws and policies to help jumpstart the use of renewable energy in our state. Net metering and the associated retail rate credit have remained unchanged for over a decade. It appears such policies are now ripe for review. Floridians cannot afford to allow policies to stay in place and create a situation like California where is



Florida House of Representatives

Representative Lawrence McClure

District 58

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and would not allow less-affluent Florida consumers to subsidize those that can afford such systems.

Your cooperation in providing my office this information is sincerely appreciated. Please do not hesitate to contact me or my office with any questions. I look forward to your response.

Sincerely,

A handwritten signature in black ink, appearing to read "Lawrence McClure", written in a cursive style.

Lawrence McClure
State Representative, District 58



Eric Silagy
President and CEO
Florida Power & Light Company
700 Universe Boulevard
Juno Beach, FL 33408

March 6, 2020

Representative Lawrence McClure
Florida House of Representatives
1301 The Capitol
402 South Monroe Street
Tallahassee, FL 32399

Dear Representative McClure:

Thank you for your interest in issues related to net energy metering. Florida Power & Light agrees that the growth of affordable renewable generation is important to Florida's future, and we share your commitment to ensuring that all electric customers are treated equitably.

Net energy metering began in Florida with the amendment of Sec. 366.91, F. S. in 2008 and the Florida PSC's implementing rule (25-6.065) developed and adopted in that same year. As confirmed by the record in the rulemaking proceeding, the rule adopted a retail rate credit for net energy metering customers as a tool to help jump start what was then a nascent emerging rooftop solar industry. Things, of course, have changed dramatically over the last decade. The amount of customer-owned solar generation in the State of Florida has grown nearly 5000% from 10 MWdc in 2009 to 505 MWdc in 2019¹. This growth has contributed to a substantial and growing rate subsidy paid by those customers without rooftop solar panels as detailed below.

I have reviewed the questions you posed in your February 13 Letter and hereby provide the following responses:

Please provide the number of net metering customers as of December 31, 2019

As of December 31, 2019 FPL had 16,971 active net metered accounts including 15,988 residential and 983 commercial and industrial customers.

The average residential solar system in FPL's service territory has a generating capacity of 7 kW and cost \$30,000 to install. The typical net metering customer lives in a single-family home. Although FPL's typical residential customer uses approximately 1,000 kWh per month, customers capable of installing rooftop solar tend to have larger than average homes and consume an average of 1,750 kWh per month. The average residential solar system generates 900 kWh per month offsetting 51% of the customer's usage.

¹ Wood Mackenzie Power & Renewables. "U.S. P.V. Market Forecasts." (2020)

Please provide the cost to serve a typical residential customer and the components that are embedded in those costs (i.e. energy, transmission, distribution)

The monthly cost to serve an FPL residential customer using 1,750 kWh is approximately \$178, comprised of \$46 of variable energy costs and \$132 of fixed costs. Variable energy costs consist primarily of fuel and are directly related to how much energy a customer pulls from the grid. Fixed costs on the other hand, are not directly linked to energy consumption and include long-term investments such as power plant capacity, transmission and distribution infrastructure, and customer service related costs such as smart meters and billing.

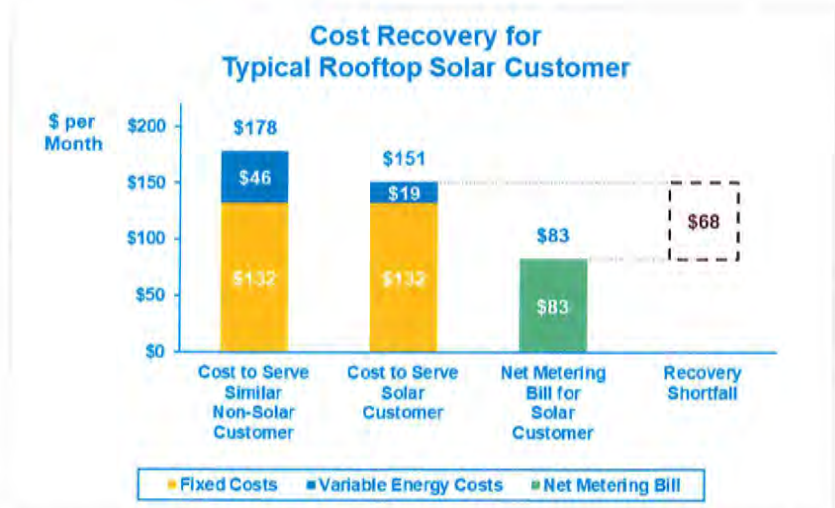
Please provide the cost to serve a typical residential customer who also has rooftop solar or other forms of net metered renewable energy

While the energy generated by customer-owned solar installations and other forms of net-metered renewable energy effectively offset fuel and other variable costs, the vast majority of fixed costs described above must be incurred by the utility regardless of the solar installation. Even if the installation is capable of generating an amount of energy equivalent to 100% of the customer's consumption, the utility is still required by law to incur costs to build and maintain distribution, transmission, and production infrastructure necessary for providing full service to the customer when the sun is not shining or the customer-owned generation is offline or otherwise unavailable.

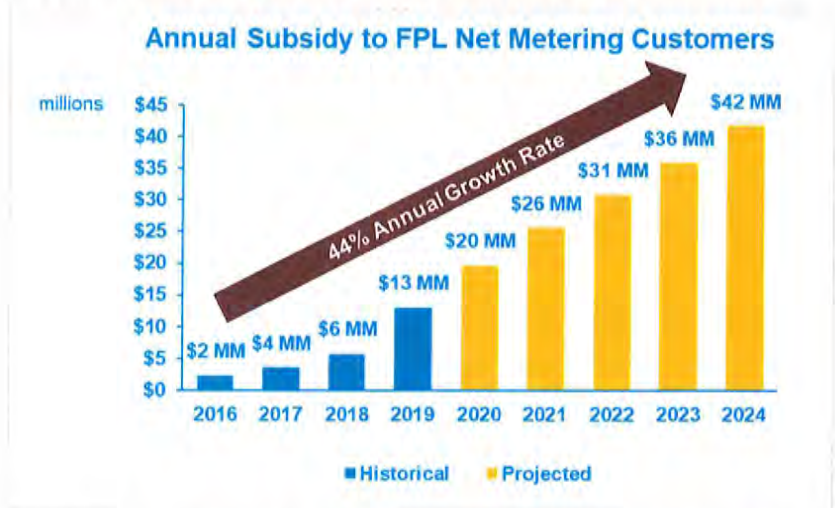
As a result of the solar generation, the monthly fuel and variable costs incurred by the utility for serving the average residential customer with rooftop solar are reduced from the \$46 above to \$19. However, the fixed costs associated with serving this customer are nearly the same as those for serving a similar non-solar customer: about \$132 per month. This brings the total cost of serving a typical residential customer with rooftop solar to \$151 per month.

The amount of cross-subsidy or cost-shift being borne by the general electric customer population to support full cost recovery from rooftop or other net-metered residential customers who engage in net metering

As discussed above, the cost of serving a typical net metering customer is approximately \$151 per month. However, because the current net metering policy compensates customer-owned generation at the full retail rate, the typical monthly bill for a net metering customer is only \$83. This creates a shortfall of \$68 per month that must be shifted to the general population of customers through higher rates in order to support full cost recovery. This issue is illustrated in the chart below.



In aggregate, the amount of subsidy paid by all FPL residential customers without rooftop solar is currently over \$13 million per year (\$68 subsidy above x 15,988 residential customers x 12 months). Moreover, this annual subsidy has averaged 70% growth per year over the past three years, and current projections are that it will exceed \$40 million within the next five years.



I hope this response is helpful in assisting your analysis. Please feel free to contact me if you have any additional questions.

Sincerely,

Eric Silagy



Florida House of Representatives
Representative Lawrence McClure
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Lawrence.McClure@myfloridahouse.gov

February 13, 2020

Dear Marlene Santos,

I read with great interest a January 2020 report from Energy Fairness entitled [Net Metering-Costs, Customers, and a Smarter Way Forward for Florida](#). Based on the report, it is highly probable that Florida consumers are paying more on their electricity bill than they should so their neighbors can have solar panels on their rooftops.

Clearly this is a case of wealthy consumers installing rooftop solar panels, and take advantage of tax incentives, while those who cannot afford to do so pay higher price to keep our state's electric grid operating. This is totally unacceptable.

As noted in the report, "with investment tax credits, property taxes waived, and no sales tax assessed on solar equipment, Floridians are already paying more than their fair share for the rooftop solar systems of those customers who can afford them." I recognize that it was the Florida Legislature and the Florida Public Service Commission that in 2008 enacted laws and policies to help jumpstart the use of renewable energy in our state. Net metering and the associated retail rate credit have remained unchanged for over a decade. It appears such policies are now ripe for review. Floridians cannot afford to allow policies to stay in place and create a situation like California where is



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non-net metered customers are currently paying hundreds of millions of dollars per year in extra costs.

Questions and concerns raised in this report require, in my judgement, further research and investigation. To assist my office in facilitating this analysis, I am requesting you and the other investor owned utilities in Florida provide me with data that quantifies the following:

- The number of net metering customers as of December 31, 2019
- The cost to serve a typical residential customer and the components that are embedded in those costs (i.e., energy, transmission, distribution)
- The cost to serve a typical residential customer who also has rooftop solar or other forms of net metered renewable energy
- The amount of cross-subsidy or cost-shift being borne by the general electric customer population to support full cost recovery from rooftop or other net-metered residential customers who engage in net metering

To be clear, I fully recognize that users of rooftop solar or other systems that deliver electricity to the state's electric grid should have the right to install these systems. And, we certainly desire to have renewable energy systems continue to grow in Florida. My only concern is to ensure that electricity consumers who sell power via net metering do not add additional costs to non-net metering consumers. I trust you and your company share this view



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and would not allow less-affluent Florida consumers to subsidize those that can afford such systems.

Your cooperation in providing my office this information is sincerely appreciated. Please do not hesitate to contact me or my office with any questions. I look forward to your response.

Sincerely,

A handwritten signature in black ink, appearing to read "Lawrence McClure".

Lawrence McClure
State Representative, District 58



NET METERING

COSTS, CUSTOMERS, AND A SMARTER WAY FORWARD FOR FLORIDA

**REPORT BY ENERGY FAIRNESS
JANUARY 2020**

**CONTRIBUTORS
DAVID GATTIE, PHD
LISA P. EDGAR, ESQ.
KIMBERLY ARRIAGA, ENGINEERING STUDENT**



Marlene Santos
President

March 9, 2020

Representative Lawrence McClure
Florida House of Representatives
1301 The Capitol
402 South Monroe Street
Tallahassee, FL 32399

Dear Representative McClure:

Thank you for your interest in issues related to net energy metering. Gulf Power agrees that the growth of affordable renewable generation is important to Florida's future, and we share your commitment to ensuring that all electric customers are treated equitably.

Net energy metering began in Florida with the amendment of Sec. 366.91, F. S. in 2008 and the Florida PSC's implementing rule (25-6.065) developed and adopted in that same year. As confirmed by the record in the rulemaking proceeding, the rule adopted a retail rate credit for net energy metering customers as a tool to help jump start what was then a nascent emerging rooftop solar industry. Things, of course, have changed dramatically over the last decade. The amount of customer-owned solar generation in the State of Florida has grown nearly 5000% from 10 MWdc in 2009 to 505 MWdc in 2019¹. This growth has contributed to a substantial and growing rate subsidy paid by those customers without rooftop solar panels as detailed below.

I have reviewed the questions posed in your February 13 Letter and hereby provide the following responses:

Please provide the number of net metering customers as of December 31, 2019

As of December 31, 2019 Gulf Power had 2,229 active net metered accounts including 2,096 residential and 133 commercial customers.

The average residential solar system in Gulf Power's service territory has a generating capacity of 7 kW and costs an estimated \$30,000 to install. The typical net metering customer lives in a single-family home. Although Gulf Power's typical residential customer uses approximately 1,000 kWh per month, customers capable of installing rooftop solar tend to have larger than average homes and consume an average of 1,700 kWh per month. The average residential solar system generates 900 kWh per month offsetting 53% of the customer's usage.

Please provide the cost to serve a typical residential customer and the components that are embedded in those costs (i.e. energy, transmission, distribution)

¹ Wood Mackenzie Power & Renewables. "U.S. P.V. Market Forecasts." (2020)

The monthly cost to serve a Gulf Power residential customer using 1,700 kWh is approximately \$225 comprised of \$62 of variable energy costs and \$163 of fixed costs. Variable energy costs consist primarily of fuel and are directly related to how much energy a customer pulls from the grid. Fixed costs, on the other hand, are not directly linked to energy consumption and include long-term investments such as power plant capacity, transmission and distribution infrastructure, and customer service related costs such as meters and billing.

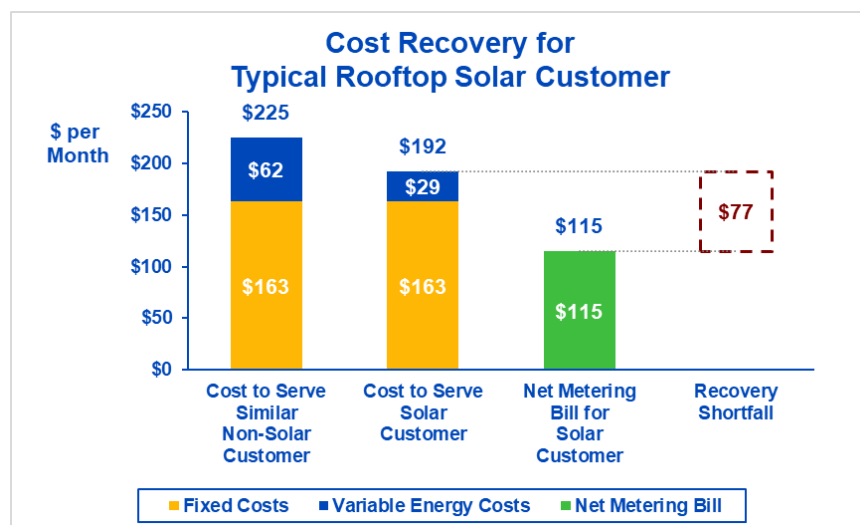
Please provide the cost to serve a typical residential customer who also has rooftop solar or other forms of net metered renewable energy

While the energy generated by customer-owned solar installations and other forms of net-metered renewable energy effectively offset fuel and other variable costs, the vast majority of fixed costs described above must be incurred by the utility regardless of the solar installation. Even if the installation is capable of generating an amount of energy equivalent to 100% of the customer’s consumption, the utility is still required by law to incur costs to build and maintain distribution, transmission, and production infrastructure necessary for providing full service to the customer when the sun is not shining or the customer-owned generation is offline or otherwise unavailable.

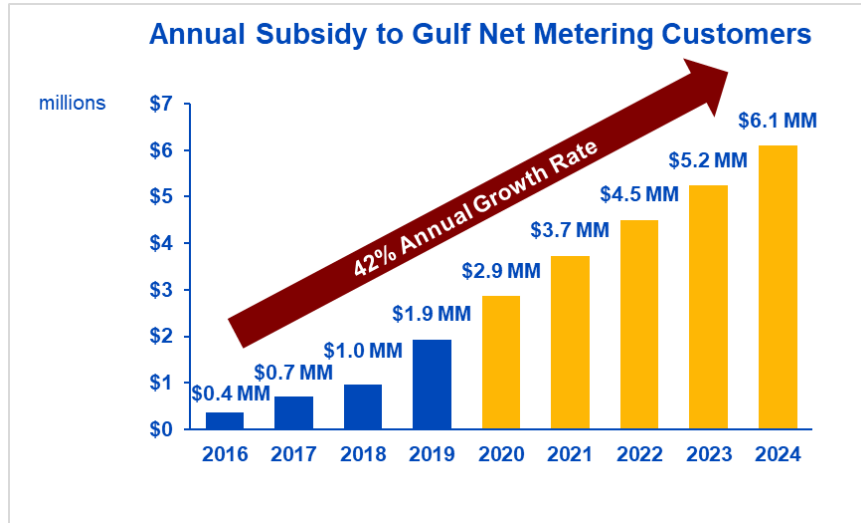
As a result of the solar generation, the monthly fuel and variable costs incurred by the utility for serving the average residential customer with rooftop solar are reduced from the \$62 above to \$29. However, the fixed costs associated with serving this customer are nearly the same as those for serving a similar non-solar customer: about \$163 per month. This brings the total cost of serving a typical residential customer with rooftop solar to \$192 per month.

The amount of cross-subsidy or cost-shift being borne by the general electric customer population to support full cost recovery from rooftop or other net-metered residential customers who engage in net metering

As discussed above, the cost of serving a typical net metering customer is approximately \$192 per month. However, because the current net metering policy compensates customer-owned generation at the full retail rate, the typical monthly bill for a net metering customer is only \$115. This creates a shortfall of \$77 per month that must be shifted to the general population of customers through higher rates in order to support full cost recovery. This issue is illustrated in the chart below.



In aggregate, the amount of subsidy paid by all Gulf Power residential customers without rooftop solar is currently \$1.9 million per year (\$77 subsidy above x 2,096 residential customers x 12 months). Moreover, this annual subsidy is projected to be over \$6 million within the next five years.



I hope this response is helpful in assisting your analysis. Please feel free to contact me if you have any additional questions.

Sincerely,

Marlene Santos



Florida House of Representatives
Representative Lawrence McClure
District 58

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Lawrence.McClure@myfloridahouse.gov

February 13, 2020

Dear Nancy Tower,

I read with great interest a January 2020 report from Energy Fairness entitled Net Metering-Costs, Customers, and a Smarter Way Forward for Florida. Based on the report, it is highly probable that Florida consumers are paying more on their electricity bill than they should so their neighbors can have solar panels on their rooftops.

Clearly this is a case of wealthy consumers installing rooftop solar panels, and take advantage of tax incentives, while those who cannot afford to do so pay higher price to keep our state's electric grid operating. This is totally unacceptable.

As noted in the report, "with investment tax credits, property taxes waived, and no sales tax assessed on solar equipment, Floridians are already paying more than their fair share for the rooftop solar systems of those customers who can afford them." I recognize that it was the Florida Legislature and the Florida Public Service Commission that in 2008 enacted laws and policies to help jumpstart the use of renewable energy in our state. Net metering and the associated retail rate credit have remained unchanged for over a decade. It appears such policies are now ripe for review. Floridians cannot afford to allow policies to stay in place and create a situation like California where is



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non-net metered customers are currently paying hundreds of millions of dollars per year in extra costs.

Questions and concerns raised in this report require, in my judgement, further research and investigation. To assist my office in facilitating this analysis, I am requesting you and the other investor owned utilities in Florida provide me with data that quantifies the following:

- The number of net metering customers as of December 31, 2019
- The cost to serve a typical residential customer and the components that are embedded in those costs (i.e., energy, transmission, distribution)
- The cost to serve a typical residential customer who also has rooftop solar or other forms of net metered renewable energy
- The amount of cross-subsidy or cost-shift being borne by the general electric customer population to support full cost recovery from rooftop or other net-metered residential customers who engage in net metering

To be clear, I fully recognize that users of rooftop solar or other systems that deliver electricity to the state's electric grid should have the right to install these systems. And, we certainly desire to have renewable energy systems continue to grow in Florida. My only concern is to ensure that electricity consumers who sell power via net metering do not add additional costs to non-net metering consumers. I trust you and your company share this view



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and would not allow less-affluent Florida consumers to subsidize those that can afford such systems.

Your cooperation in providing my office this information is sincerely appreciated. Please do not hesitate to contact me or my office with any questions. I look forward to your response.

Sincerely,

A handwritten signature in black ink, appearing to read "Lawrence McClure".

Lawrence McClure
State Representative, District 58



Nancy Tower
President and CEO
Tampa Electric Company

March 13, 2020

Representative Lawrence McClure
Florida House of Representatives
1301 The Capitol
402 South Monroe Street
Tallahassee, FL 32399

Re: Responses to net metering questions from February 13, 2020 correspondence

Dear Representative McClure:

Tampa Electric appreciates your interest in the important issue of net metering.

Net metering of customers who install their own private solar generation has been the policy in Florida since 2008, when the Legislature amended Section 366.91, Florida Statutes. Following that change, the Florida Public Service Commission (“Commission”) adopted rules requiring investor-owned utilities (“IOU”) to provide a net metering billing arrangement for customers who install private solar.

The goal twelve years ago was to encourage the development of the private solar market. The Commission recognized the costs of residential solar were high and designed the rule to subsidize residential solar installation. The net metering subsidy is borne by the remaining ratepayers who do not, or cannot, install their own private solar.

Since 2008, the cost of solar has decreased and consequently, so has the need for a solar subsidy. As solar has become cost effective, Tampa Electric Company (“TEC” or “Tampa Electric”) and other IOUs have begun installing utility scale solar facilities so that all ratepayers can benefit from solar development. Tampa Electric has installed 600 MW of solar generating capacity and recently announced plans to install another 600 MW over the next four years. The current cost profile, growth, and availability of solar generation throughout Florida make this an ideal time to revisit whether private solar owners should continue to be subsidized by the general body of ratepayers through net metering.

The following are TEC’s responses to the questions in your letter dated February 13, 2020:

Please provide the number of net metering customers as of December 31, 2019:

As of December 31, 2019, TEC provided net meter service to a total of 5,169 metered customers (5,006 of which were residential). The total represents a 375% increase in net metered customers since 2016, with an average annual growth rate of 68% each year since that time. In 2006, the company only had four net metered customers.

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ntower@tecoenergy.com

These net metered customers enjoy the subsidy inherent in the net metering rule. The subsidy is “paid” by utility customers who have not installed private solar. The subsidy arises because a utility’s fixed costs to provide service (like power plant investment, poles, lines, and such) are generally recovered through a consumption charge (i.e., kWh) and because net metering customers get credit for the electricity they generate at the utility’s full retail price. The combination of lower than average usage and the price at which solar generation is credited to net metering customers drives the subsidy. Net metering customers do not pay their share for the fixed assets used to provide power to them when their solar isn’t producing energy.

Please provide the cost to serve a typical residential customer and the components that are embedded in those costs (i.e. energy, transmission, distribution):

With the exception of net metering, the Florida Public Service Commission has been consistent over the decades in setting base rates consistent with the cost of providing service as is found in the approved cost of service study produced in each base rate case by the utilities. That philosophy means that in general, base rates can be called “cost based.”

As a starting point, the following chart shows the total rates and charges that make up a TEC residential customer bill for the first 1,000 kWh as of January 2020:

TEC Residential Bill – 1,000 kWh (\$/MWh)		
Charges	Energy Charge Components	Billed Amount
Customer Charge		\$15.05
Base Energy Charge	\$52.71	
Capacity Charge	0.10	
Environmental Charge	2.44	
Conservation Charge	2.32	
Total Energy Charge		57.57
Fuel Charge		27.02
Gross Receipts Tax		2.32
Total Charge		\$101.96

The Customer Charge above is a base rate charge which is designed to recover costs that are typically incurred independent of consumption. The Customer Charge is designed to recover the costs of service drops, meters, meter reading, billing, customer information systems, and, in Tampa Electric’s case, a percentage of connection-related costs in poles, conductors, and transformers. The Customer Charge paid by typical customers was designed to recover certain costs that are caused exclusively by net metered customers, such as the costs of: (1) system mapping of solar panel array installations to make their location and size known to the

distribution design engineers and (2) studies and upgrades required to assure safe installation of the PV at the customer's home for those customers.

The company's Energy Charges were designed to recover other types of costs, the majority of which are the costs of building and operating power plants. Approximately 68% of the residential energy charge is intended to recover the non-fuel costs of producing electricity. The remaining portions of the Energy Charge (10% and 22%, respectively) were designed to recover the costs of transmitting (i.e., high voltage power lines and substations) and distributing (i.e., lower voltage local distribution lines and substations) electricity. The Energy Charge is recovered from the customer based on consumption (kWh used) and net metering customers use less electricity than others; therefore, they do not pay their share of the costs intended to be recovered through the Energy Charge. This is the case even though net metering customers rely on the company's entire system of generating, transmitting and distribution electricity at nights and cloudy days when a private solar system does not provide enough electricity to power a home.

Please provide the cost to serve a typical residential customer who also has rooftop solar or other forms of net metered renewable energy:

The current rates to serve a net metered residential customer are the same as the typical residential customer listed in the chart above.

The Customer Charge is the same charge for a net metered customer and a non-net metered customer. For these reasons, the full customer costs related solely to net metered customers that are included in the Customer Charge have not been fully applied as yet to net metered customers. As noted above certain costs specific to net metered customers are included in the Customer Charge and are socialized to all customers.

The consumption related charges (e.g., base energy, fuel, various clauses such as conservation, capacity, environmental, etc.) that are netted against by the net metering billing mechanism reflect a mix of variable and fixed cost recovery.

The base energy rate includes nearly all fixed costs and any netting that occurs results in a reduced cost recovery associated with the cost of providing service to a net meter customer. Production cost is the one element where an argument can be made that there is some cost avoided by the customer installing their own solar generation. Solar however is not a firm resource to meet winter loads since the winter loads are on cold mornings often before the sun comes up. Florida is seeing more winter peaking needs for generation and private solar provides little to no help meeting this peak. As a result of netting, the net metering customer could

conceivably make no contribution to these costs in his/her bill despite being highly dependent on the utilities resources to provide power during this morning, winter peak.

Fuel cost recovery is more time dependent and the history of fuel cost during the day in Florida has been that fuel costs rise in the middle of the day as load goes up and more expensive fuel consuming generators are operated. This provided a fuel benefit from private solar operating at times in the middle of the day when fuel costs were high. As utilities install utility scale solar for their fleets, the incremental fuel costs during the middle of the day are coming down and higher cost fuel is consumed in the morning of cold winter days and late afternoons and evenings in the summer months, all times that net metered solar isn't producing much. Net meter customers are thus being subsidized through fuel as they consume more utility fuel when their private solar units generate less and they net more against the higher fuel cost periods.

Please provide the amount of cross-subsidy or cost-shift being borne by the general electric customer population to support full cost recovery from rooftop or other net-metered residential customers who engage in net metering:

Traditional customers are subsidizing costs through the energy charges due to the net metered customers not paying their fair share while remaining connected to the TEC infrastructure for periods when the solar panels do not generate enough energy for the home. The subsidy varies based on whether the usage is above or below 1,000 kWh, the size of the solar panel array, part-time occupancy, the square footage of the home, and the time of the year.

The average reduction of the Energy Charge is approximately \$0.06 per kWh due to net metered residential customers. A TEC pilot program of roughly 80 net metered residential customers have a generating meter on their rooftop solar array. On average, these net metered residential customers pay about 45% less of an Energy Charge from the bill that would have generated had there not been rooftop solar panels installed. Other net metered residential customers that do not have a generating meter on the solar array pay an average of 52% less of an Energy Charge than non-net metered residential customers. Of course, these are averages based on samples, and there is great variation from one customer to another based on what they installed and how large it is compared to their load requirements.

For purposes of this response, TEC calculated an annual 2019 estimated loss of the base energy charge, using assumptions with the inverted rate design, of about \$4 million caused by residential solar net metering.

Representative Lawrence McClure
Page 5
March 13, 2020

Tampa Electric appreciates the opportunity to provide this information. Please contact me if you have any additional questions or wish to discuss this important issue.

Sincerely,

A handwritten signature in blue ink, appearing to read "Nancy Tower", with a long horizontal flourish extending to the right.

Nancy Tower



Florida House of Representatives

Representative Lawrence McClure

District 58

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Lawrence.McClure@myfloridahouse.gov

February 13, 2020

Dear Catherine Stempien,

I read with great interest a January 2020 report from Energy Fairness entitled [Net Metering-Costs, Customers, and a Smarter Way Forward for Florida](#).

Based on the report, it is highly probable that Florida consumers are paying more on their electricity bill than they should so their neighbors can have solar panels on their rooftops.

Clearly this is a case of wealthy consumers installing rooftop solar panels, and take advantage of tax incentives, while those who cannot afford to do so pay higher price to keep our state's electric grid operating. This is totally unacceptable.

As noted in the report, "with investment tax credits, property taxes waived, and no sales tax assessed on solar equipment, Floridians are already paying more than their fair share for the rooftop solar systems of those customers who can afford them." I recognize that it was the Florida Legislature and the Florida Public Service Commission that in 2008 enacted laws and policies to help jumpstart the use of renewable energy in our state. Net metering and the associated retail rate credit have remained unchanged for over a decade. It appears such policies are now ripe for review. Floridians cannot afford to allow policies to stay in place and create a situation like California where is



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non-net metered customers are currently paying hundreds of millions of dollars per year in extra costs.

Questions and concerns raised in this report require, in my judgement, further research and investigation. To assist my office in facilitating this analysis, I am requesting you and the other investor owned utilities in Florida provide me with data that quantifies the following:

- The number of net metering customers as of December 31, 2019
- The cost to serve a typical residential customer and the components that are embedded in those costs (i.e., energy, transmission, distribution)
- The cost to serve a typical residential customer who also has rooftop solar or other forms of net metered renewable energy
- The amount of cross-subsidy or cost-shift being borne by the general electric customer population to support full cost recovery from rooftop or other net-metered residential customers who engage in net metering

To be clear, I fully recognize that users of rooftop solar or other systems that deliver electricity to the state's electric grid should have the right to install these systems. And, we certainly desire to have renewable energy systems continue to grow in Florida. My only concern is to ensure that electricity consumers who sell power via net metering do not add additional costs to non-net metering consumers. I trust you and your company share this view



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Tallahassee, FL 32399
(850) 717-5116

Lawrence.McClure@myfloridahouse.gov

and would not allow less-affluent Florida consumers to subsidize those that can afford such systems.

Your cooperation in providing my office this information is sincerely appreciated. Please do not hesitate to contact me or my office with any questions. I look forward to your response.

Sincerely,

A handwritten signature in black ink, appearing to read "Lawrence McClure".

Lawrence McClure
State Representative, District 58

A silhouette of a person holding a child up against a bright, glowing sun. The person's arm is extended upwards, and the child's hair is blowing in the wind. The background is a warm, orange-yellow gradient, suggesting a sunrise or sunset. The overall mood is one of hope and achievement.

NET METERING

COSTS, CUSTOMERS, AND A SMARTER WAY FORWARD FOR FLORIDA

**REPORT BY ENERGY FAIRNESS
JANUARY 2020**

CONTRIBUTORS

DAVID GATTIE, PHD

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KIMBERLY ARRIAGA, ENGINEERING STUDENT



Catherine S. Stempien
State President - Florida

Duke Energy Florida:
299 First Avenue North
St. Petersburg, FL 33701

Catherine.Stempient@duke-energy.com

March 11, 2020

The Honorable Lawrence McClure
1301 The Capitol
402 South Monroe Street
Tallahassee, Florida 32399

Dear Representative McClure,

Thank you for your letter and interest in fair, comprehensive and modernized energy policies for the state of Florida. At Duke Energy Florida (DEF), our customers are always top of mind when we plan our investments including renewables, a smarter power grid, lower-carbon natural gas resources, and energy storage and we appreciated your recognition of our efforts.

DEF is committed to providing safe, reliable, affordable and increasingly clean electricity to over a quarter of Florida's population; our customers and communities depend on us every minute of every day. We are a strong supporter of renewable energy and are advancing solar energy markets, creating jobs, and making Florida a leader in innovative clean energy investments.

DEF has over 500 MW of cost-effective universal solar power plants online or under development across our 13,000 square mile Florida service area and we have plans to install more than 1,500 MW of universal solar generation by 2028 that will provide benefits for all our Florida customers. Recently, we installed our [one-millionth Florida solar panel](#) at our universal [solar power plant in Columbia County](#) as we continue to deliver clean, renewable energy that our customers value and have told us that they want. DEF's universal solar power plants are creating hundreds of construction jobs and new local tax revenue, and as good neighbors, we are also supporting new community relationships. For example, we are collaborating on local solar site pollinator advancement and vegetation buffering which are important to our customers.

It is clear our customers are also very interested in having private rooftop solar generators at their homes and businesses. At the end of 2009, when Florida's customer-owned renewable generation interconnection and net metering policies were just over a year old, DEF already had 281 private solar customers connected to the power grid. Next month, DEF will file its annual net metering report at the Florida Public Service Commission ("FPSC") showing over a 7,000% increase in the past decade in the number of DEF customers utilizing the state's net metering subsidy, while they continue to utilize the power grid every minute of every day. DEF will report its total number of customers with

private solar generators to be a little over 21,200 as of December 31, 2019. Further, our residential customers are now installing private solar generators that are 7.1 kilowatts on average in size versus an average of 5.6 kilowatts a decade ago. The [2018 year-end FPSC report on net metering](#) showed Florida had 317,466 kilowatts of electric consumers utilizing Florida's interconnection and net metering policy. DEF forecasts this same report for year-end 2019 for all utilities in Florida will show that total has reached well over 475,000 kilowatts; that's a 50% increase in one year.

Connecting private solar into our overall system requires technical analysis, solar facility and grid infrastructure verification, special metering with individual meter change-outs by our technicians, complex billing software support, and a uniquely trained and robust Duke Energy workforce to support the growing number of incoming calls and questions we are seeing from our customers with regard to the state's net metering policy. Nevertheless, DEF has kept pace with the increasing demand for interconnections. From 2009 through 2013, DEF interconnected an average of 23 private solar customers per month. By January 2020, we've been able to interconnect over 1,000 private solar customers per month. On average for the past 4 years, DEF has accomplished a 75% increase each year in the number of private solar net metering interconnections. I'm proud that we have met this challenge by implementing a Renewable Service Center, a new company Website Portal for automated interconnection application, and continuing to review and test metering technologies that can support automated net solar data collection and billing requirements. It is important to note that the costs of these efforts are borne by the entire customer base at DEF, not by the individual private solar owner.

Respectfully, given this rapidly changing situation, simply providing an approximate "cost to serve" snapshot does not capture the challenges and investments that DEF has made and is continuing to make to effectively manage and successfully carry out the FPSC's net metering rule, 25-6.065 F.A.C. We still have much work to do as our customers look to us for answers on understanding solar technology capabilities, the generator interconnection process, and how their solar power generator or distributed resource impacts their bill. We've seen an increase in the number of customer requests to verify their billing meter accuracy as some customers are expecting much lower electric bills after installing private solar than is currently practical with existing technology. Similar to other investor owned utilities, DEF's socialized cost to its general customer population attributed to its 2019 *residential* net metering customers totals a little over \$110 per kilowatt (about \$20M was subsidized by all customers in 2019 for all DEF net metering customer groups) but is expected to grow exponentially as the interconnection rate increases and customers install larger private solar facilities.

We are looking hard at longer-term distributed generation resources, net metering forecasts, and power grid benefits and costs. For example, we are analyzing clusters of customers with private solar installations within the same vicinity loading common or near-

by power grid infrastructure. These clusters may result in the need for further grid investments to handle intermittent power needs. Also know, we are carefully studying the interest and design of a new customer solar program that utilizes low cost universal solar facilities and delivers solar energy efficiently to and for the benefit of ALL of our customers. This type of program benefits all DEF customers and the state of Florida as we continue to increase fuel diversity, lower emissions, encourage renewable investments in our state, and offers customers another choice with access to clean energy.

Thank you again for your interest and engagement,

A handwritten signature in blue ink that reads "Catherine Stempien". The signature is fluid and cursive, with the first name being more prominent than the last.

Catherine Stempien
State President
Duke Energy Florida

Exhibit C



Florida House of Representatives
Representative Lawrence McClure
District 58

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Lawrence.McClure@myfloridahouse.gov

May 22nd, 2020

The Honorable Gary Clark
Chairman
Florida Public Service Commission
2540 Shumard Oak Blvd
Tallahassee, FL 32399

Dear Chairman Clark:

I recently read a January 2020 report from Energy Fairness entitled Net Metering-Costs, Customers, and a Smarter Way Forward for Florida. Based on the report, I requested our Florida Investor Owned Utilities provide me with data that quantifies the following for each of their companies:

- The number of net metering customers as of December 31, 2019
- The cost to serve a typical residential customer and the components that are embedded in those costs (i.e., energy, transmission, distribution)
- The cost to serve a typical residential customer who also has rooftop solar or other forms of net metered renewable energy
- The amount of cross-subsidy or cost shifting being borne by the general electric customer population to support full cost recovery from rooftop solar residential customers who engage in net metering

It is clear to me from the Energy Fairness report and data presented by the IOUs that there are two likely scenarios facing Florida consumers today. First, it is highly probable low and middle-income families are paying more on their electricity bills than they should so their



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wealthy neighbors can have solar panels on their rooftops. The exponential growth of solar panels since 2008 would not be possible without lower income families subsidizing the electricity costs of wealthier families who can afford them. Second, I believe this exponential growth also could not occur without unscrupulous installers preying on families who cannot afford solar with promises of dramatically lower electric bills or even \$0 monthly bills. It has been relayed to me such practices routinely occur in the sunshine State from anecdotal instances I have heard.

The data I received from IOUs is revealing.

As I expected, those that have solar installed have larger homes and are therefore presumed to be wealthier households. According to FPL and Gulf Power, their typical residential customer uses approximately 1,000 kWh per month, but customers capable of installing rooftop solar tend to have larger than average homes and consume an average of 1,700 to 1,750 kWh per month. Additionally, the monthly fixed cost to serve these customers is \$132 to \$163.

Duke Energy advises that as of December 31, 2019, they provided net meter service to a total of 21,200 metered customers. The total represents a 7,000% increase in net metered customers in the last decade, with a 75% annual increase for net metering interconnections.

It is obvious that solar offsets some of the fuel costs that a utility would have to purchase to supply a customer with a solar installation. However, as Tampa Electric explained in describing its energy charges, utilities must also recover the costs of building and operating power plants, as well as transmitting and distributing electricity. Since the energy charges are based on customer use of electricity than others, they do not pay their fair share of the costs to provide reliable service to the entire system.



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Taken together, FPL, Gulf Power, TECO and Duke residential customers without solar are paying approximately \$40 million in annual subsidies to cover the fix costs of serving those customers with solar installations. This subsidy is projected to grow far beyond \$50 million annually within the next five years.

It has been more than 10 years since the Florida Public Service Commission and the Florida Legislature took action on the regulatory framework concerning customer-owned renewable energy. As Lisa Edgar, one the report's co-authors and former Florida PSC Chair noted, "during public discussion, the Commission noted it was trying to reach a balance with the information then available, and that '...there will be opportunities to revisit some of these issues at a future point.'"

I believe the tie for that review is long overdue. When Florida's net metering rules were established in 2008, they were designed to foster growth in this emerging market. Immediate past PSC Chairman Art Graham said it best in July 2019 press release, "after a decade of use, our interconnection rules have more than proven their effectiveness at 'priming the pump' for growing customer-owned rooftop solar."

With the mission of 'priming the pump' accomplished, it is now time to inject more fairness and consumer protection in the market.

I am asking the that the Florida Public Service Commission immediately begin an in-depth and thorough review of applicable rules and appropriate regulatory policies related to customer-owned renewable energy facilities, including the cost arising from net metering that are shifted to the general body of customers and the associated retail rate credit. It is imperative that we ensure that all consumers of electricity in Florida are treated fairly and that the costs are not shifted from the "haves to the have nots." Consumers in states such as California where regressive rate structures and net metering policies have been left unchecked for too long are now experiencing significant operational issues along with



Florida House of Representatives
Representative Lawrence McClure
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sustaining long-term economic damage through the payment of hundreds of millions of dollars per year in extra costs.

I fully support Florida consumers with rooftop solar that deliver electricity to the state's electric grid. They should be treated fairly and have the right to install these systems on property they own. I also want economically viable renewable energy systems to continue to grow in Florida. However, I want to ensure that electricity consumers who choose to use rooftop solar do not add additional costs to non-net metering consumers. I trust you share this view.

I share in PSC's mission "to facilitate the efficient provision of safe and reliable utility services at fair prices." With many of my constituents and consumers around the state suffering real economic hardship, it is imperative to eliminate costly subsidies that burden Florida's low and middle-income families. This is an important opportunity for the PSC to protect Floridians from regressive and unfair electric policies, and bad actors in the marketplace taking advantage of our families. I strongly urge you to act in the best interest of all Floridians and address the issues of fairness I have put forth.

Your cooperation is sincerely appreciated. Please do not hesitate to contact me or my office with any questions. I look forward to your response and action.

Sincerely,

A handwritten signature in black ink, appearing to read "Lawrence McClure".



Florida House of Representatives
Representative Lawrence McClure
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Lawrence McClure
State Representative, District 58

Cc: The Honorable Julie Brown
The Honorable Andrew Fay
The Honorable Art Graham
The Honorable Donald Polmann

Exhibit D

STATE OF FLORIDA

GARY F. CLARK
CHAIRMAN



Capital Circle Office Center
2540 Shumard Oak Boulevard
Tallahassee, FL 32399-0850
(850) 413-6038

Public Service Commission

August 6, 2020

The Honorable Lawrence McClure
Florida House of Representatives
110 West Reynolds Street, Suite 204
Plant City, FL 33563-3379

Dear Representative McClure,

As you know, I am in receipt of your May 22nd letter re: Net Metering, and I appreciate you taking time out of your busy schedule to bring attention to this issue. Since the inception of the state's policy in 2008 on customer-owned renewable generation, including net metering, and its implementation by the Florida Public Service Commission (PSC), we have been closely monitoring the issue, and the public policy underlying it. The PSC has recently intervened and filed comments with the Federal Energy Regulatory Commission in regards to the petition by the New England Ratepayers Association currently pending with the FERC. The PSC's comments urged the FERC to deny the petition in order to preserve state authority over all aspects of retail electric service, including net metering.

During our July 28th Internal Affairs meeting, I raised your concerns, and my own, with the my fellow Commissioners and the PSC will be holding a workshop in September to begin working towards a path forward for consumer owned renewables in Florida.

We are continuing to watch this issue in our efforts to ensure the efficient provision of safe and reliable utility services at fair prices. I look forward to future discussions with you.

Sincerely,

Gary F. Clark
Chairman

Cc: Commissioner Art Graham
Commissioner Julie Brown
Commissioner Don Polmann
Commissioner Andrew Fay

Exhibit E



Log In

LOG IN

Remember my User ID

Forgot [Email/User ID](#) or [Password](#) | [Register](#)

[← Back To Clean Energy](#)

Net Metering

What is Net Metering?

Net metering allows FPL customers who connect approved, renewable generation systems such as solar panels to the electric grid to buy and sell electricity to FPL.

When you generate electricity from your solar array for your home or business, it reduces the amount of energy you purchase from FPL. It also lowers your monthly electric bills. If your system produces more energy than you need, the excess power is sold back to FPL's grid. That amount of energy is deducted from your monthly bill or credited toward a future bill in the same calendar year.

Eligible Energy Sources

Several types of renewable energy systems are eligible for net metering:

- Solar energy (photovoltaic)
- Wind energy
- Biomass (landfill gas or methane)
- Hydroelectric power
- Ocean energy (tidal power or ocean currents)
- Hydrogen
- Waste heat
- Geothermal energy

To be eligible for net metering, complete the online application process below and FPL will replace your current electric meter with an appropriate meter to correctly measure excess power supplied to the grid. This is needed to calculate the net impact on your bill.

It is important you review our [Net Metering Guidelines](#) for customer-owned renewable generation grid interconnections before you install your system.

Other Ways to Save

[Energy Saving Programs and Rebates](#)

[SolarTogether](#)

[SolarNow](#)

[FPL Budget Billing](#)

Renewable System Size

View guidelines and download applications to participate in the net metering program.

[Steps to Participate](#)

Quick Links

[Net Metering Guidelines](#)

[How Net Metering Works](#)

[Net Metering FAQs](#)

[Alternative Energy](#)

[More Resources](#)

For More Information

Email: netmetering@FPL.com

Phone: (305) 387-6614

7:30 a.m. – 4:00 p.m. (Mon. – Fri.)

Apply for Net Metering

Connect approved, renewable generation systems, such as solar panels, to the electric grid to buy and sell electricity to FPL.



Customers

Installing a new renewable system or just moved in and want to activate net metering?

[Get Started](#)



Contractors

Help your customers in submitting and tracking the net metering application.

[Get Started](#)

Interested in Solar?

Did you know about these other FPL Solar Options?



FPL SolarTogether

FPL SolarTogether is a convenient, hassle-free option that makes solar energy accessible and affordable - whether you rent or own your home or business.

[Learn More](#)



FPL SolarNow

With the support of dedicated participants, FPL SolarNow is bringing solar power into our communities through hundreds of solar arrays across the state.

[Join Now](#)

Related Links

- [PV Watts Solar Calculator](#)
- [Florida Interconnection and Net Metering Rule](#)



Welcome to the FPL Net Metering Contractor Portal

We are making it easier for customers to buy and sell electricity to FPL's grid. Collaborate with your customer to complete and submit a net metering application, check the status and more.

HOW IT WORKS



Training

Only have a few minutes? Start using Net Metering Portal with 5 easy steps. Find all the training you need right here.

GET STARTED



Guidelines

View the guidelines to participate in FPL's Net Metering Program.

LEARN MORE

Top Features

Explore top features of the Net Metering Contractor Portal.



Manage Applications

Manage net metering applications in one place.

Learn More >



Track Status

Track applications' status, view details and take action.

Learn More >



Get Pre-Approved

Help your customers select the right system size and get pre-approved.

Learn More >

Application Status



[APPLICATION FORM](#)
[MESSAGES](#)
[STATUS HISTORY](#)

CUSTOMER INFORMATION

NAME & ADDRESS

 [REDACTED]

CONTACT INFORMATION

 [REDACTED]

 [REDACTED]

[More +](#)

CONTRACTOR INFORMATION

CONTRACTOR NAME



 [REDACTED]

SYSTEM INFORMATION


EQUIPMENT	7.62 kW AC
 Hanwha Q CELLS Q.PEAK DUO-G7 320 28 Solar Panel(s) 320 W each Generator Information >	7.62 kW AC Preapproved
INVERTERS	6.72 kW AC
 Enphase Energy Inc. IQ7-60-x-US [240V] 28 Inverter(s) 240 W (240 V) each	6.72 kW AC Preapproved

DOCUMENTATION

DOCUMENTS


 Interconnection Agreement	DOWNLOAD
 Electrical Passed Permit	DOWNLOAD

TOTAL SYSTEM COST

 [REDACTED]

[More +](#)

SYSTEM CHECK

 System Size Check 12 Month Usage Proj. Annual Production	Successful 19,661 kWh 13,954 kWh
---	---

CUSTOMER INFORMATION

NAME & ADDRESS



CONTACT INFORMATION



Redacted email address @.com

[More +](#)

SYSTEM INFORMATION

EQUIPMENT

15.54 kW AC



LG Electronics Inc.
LG345N1C-V5
34 Solar Panel(s)
345 W each
[Generator Information >](#)

9.97 kW AC
Preapproved



LG Electronics Inc.
LG345N1C-V5
9 Solar Panel(s)
345 W each
[Generator Information >](#)

2.64 kW AC
Preapproved



LG Electronics Inc.
LG345N1C-V5
10 Solar Panel(s)
345 W each
[Generator Information >](#)

2.93 kW AC
Preapproved

INVERTERS

15.37 kW AC



Enphase Energy Inc.
IQ7PLUS-72-x-US [240...
53 Inverter(s)
290 W (240 V) each

15.37 kW AC
Preapproved

SYSTEM CHECK



System Size Check Successful
12 Month Usage 36,068 kWh
Proj. Annual Production 27,501 kWh



Transformer Check Successful
Available Transformer Capacity 45 kW AC
Connected System Size 15 kW AC

CONTRACTOR INFORMATION

CONTRACTOR NAME



DOCUMENTATION

DOCUMENTS



One-Line Diagram

[DOWNLOAD](#)



Insurance Certificate

[DOWNLOAD](#)



Interconnection Agreement

[DOWNLOAD](#)



Inverter Specification Sheet

[DOWNLOAD](#)



Electrical Passed Permit

[DOWNLOAD](#)

TOTAL SYSTEM COST



[Less -](#)

Exhibit F



Services



Explore



Support



< Back to Programs

Solar Energy

Harnessing the power of the sun

Solar energy is a great way to complement the reliable electric service Gulf Power provides you every day. From solar panels to community energy share programs, we offer several options for home and business owners who are interested in renewable energy solutions. Together, we can all conserve energy and create a more sustainable future for the next generation.

Install solar panels

Invest in putting the sun's energy to work for you and enjoy ongoing savings.

If you're considering using solar panels to provide energy to your home or business, you probably have questions — about installation, cost, maintenance, return, and more.



Can I install solar photovoltaic (PV) panels at my home or business? +

How do solar panels generate electricity? +

How can I use solar panels to power my house at night? +

What size PV system do I need to power my home or business? +



Services



Explore



Support



How much money will I save by installing solar on my home or business?

How long does a typical solar panel last?



Is maintenance required for PV systems?



Where can I find a licensed contractor to install my solar panels or solar water heater?



Connect to the grid

Customers who have installed “grid-tied” renewable energy systems — up to 2 megawatts — can benefit from Net Metering, which allows Gulf Power to provide credit for any excess electricity their renewable system generates.

Read on to find requirements, how to sign up, and answers to common questions.

If I install some type of renewable generation, what will "net metering" mean to me as far as my generation, usage and billing goes?



How does the Net Metering interconnection process work?



What are the requirements for Net Metering?



How do I apply for interconnection and Net Metering?



Where can I download all application documents?



What is meant by the term "customer-owned renewable generation"?



Can I net meter with my whole house generator?



Are there specific regulations and billing requirements that I should know about before installing renewable generation at my home?





Services



Explore



Support



How will Net Metering credits be applied to my bill? +

Why does Gulf Power recommend a manual disconnect switch for Tier 1 renewable generation interconnected customers, even though it is not required? +

What is the purpose of the application fee required for Tiers 2 and 3 on the Standard Interconnection Application for Customer-Owned Renewable Generating Systems? +

Still have questions?

You can also contact our energy experts for help in finding the right solar energy solution for you.

(877) 655-4001

Other helpful websites

[Florida Solar Energy Industries Assoc.](#) >

[U.S. Dept. of Energy: Energy Efficiency and Renewable Energy](#) >

[Database of State and Federal Incentives for Renewables and Efficiency](#) >

Through our solar energy centers, we're advancing solar power in Northwest Florida.

LEARN HOW



Services



Explore



Support



Safety

Career

Community

Scams and Fraud

Rates and Your Bill

Customer Support

Gulf Power Foundation

About Gulf Power



About Energy



Partner Resources



A NextEra Energy Company | [Terms & Conditions](#) | [Privacy Policy](#) | [Safety Policy](#) | [Feedback](#)

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