

State of Florida



Public Service Commission

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

DATE: January 13, 2020

TO: Adam J. Teitzman, Commission Clerk, Office of Commission Clerk

FROM: Douglas Wright, Engineering Specialist I, Division of Engineering *DW* *Rob*

RE: Docket No. 20190061-EI - Petition for approval of FPL SolarTogether program and tariff, by Florida Power & Light Company.

Please file the attached Appendix A-AEE Buyers report and AEE-FPL Solar Together Comments from Advanced Energy Economy in the correspondence side of the above mentioned docket file.

Thank you.

DW/jp

Attachments

OPPORTUNITIES FOR MEETING COMMERCIAL AND INDUSTRIAL DEMAND FOR RENEWABLE ENERGY IN FLORIDA

POTENTIAL INVESTMENT, JOBS, AND WAGE BENEFITS
THROUGH 2030

Prepared By Wood Mackenzie

December 2019





ACKNOWLEDGMENTS

This report was prepared for Advanced Energy Economy by Wood Mackenzie, an independent research and consulting firm focused on the energy, chemicals and metals & mining industries. Wood Mackenzie has a track record of more than 40 years providing objective analysis and advice on energy assets, companies, and markets, giving clients in more than 80 countries around the world the insight they need to make better asset investment and portfolio allocation decisions. Wood Mackenzie's diverse, blue chip customer base includes 800+ international and national energy and metals companies, financial institutions, and governments. Wood Mackenzie works with strategy and policy makers, business development executives, market analysts, corporate finance professionals, risk teams, and investors. Wood Mackenzie has approximately 1,400 employees worldwide with primary offices in Houston, Edinburgh, London, Singapore, Dubai and Sydney.

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EXECUTIVE SUMMARY

Demand for renewable energy from commercial and industrial (C&I) customers within the United States has risen significantly over the past decade. As renewable energy technologies such as wind and solar continue to drop in price, these resources are increasingly attractive options for companies seeking to lower costs while protecting against fluctuating fuel prices. At the same time, a growing number of companies have codified their commitment to renewable energy by setting public sustainability and/or renewable energy targets.

C&I customers across the United States have signed agreements facilitating more than 22 gigawatts (GW) of renewable energy to date, including more than 7 GW in 2019 alone.¹ Across the country, Wood Mackenzie estimates up to 85 GW of renewable energy demand from Fortune 1000 companies through 2030.²

While Florida has not seen significant C&I renewable energy procurement to date, this is not a reflection of low demand among C&I customers in the state or lack of cost-effective renewable energy options. On the contrary, the Sunshine State has no shortage of viable solar resources or large C&I energy users. As the C&I sector continues to turn to renewable energy to source its electricity needs, Florida has the potential to stimulate significant market activity by enabling renewable energy procurement.

There are currently limited options for Florida C&I customers to meet their renewable energy demand from projects within the state. The most likely mechanism to unlock future C&I renewable energy purchases in Florida is through renewable energy tariff offerings by utilities, as these constitute the most viable renewable energy purchasing method for C&I customers to date in states with vertically integrated electricity markets.

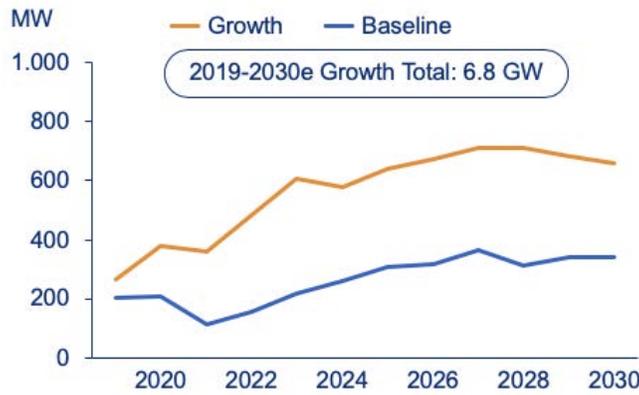
This report explains the findings of an analysis by Wood Mackenzie of the range in potential C&I demand in gigawatts (GW) for renewable energy in Florida, considering both a conservative Baseline Scenario and a Growth Scenario, which reflects the upward trend in market demand. These scenarios result in an estimated demand for renewable energy from large energy users ranging from **3.14 GW to 6.75 GW cumulatively over the next 10 years.**

¹ REBA: Corporate renewable energy buyers set new record in 2019, Renewable Energy World (October 2019), <https://www.renewableenergyworld.com/2019/10/29/reba-corporate-renewable-energy-buyers-set-new-record-in-2019/#gref>

² For more details on the demand outlook across the US, please see Wood Mackenzie's August 2019 report: Analysis of Commercial and Industrial Wind Energy Demand in the United States.



Figure 1: Florida C&I renewable demand potential (MW)



By providing purchasing options like a renewable energy tariff for large energy users, Florida stands to benefit economically from meeting this demand for renewable energy through the investments in new solar projects in the state. (Due to weak onshore resources, wind energy development is not currently competitive in Florida.) From solar energy growth, the state can also benefit economically by attracting thousands of jobs, both full-time and temporary, and hundreds of millions of dollars in investment on an annual basis. Wood Mackenzie estimates that, under the Baseline Scenario, an average of over 2,470 jobs and over \$492 million per year in capital investment are possible from the large-scale purchase of renewable energy. This amounts to a total of 27,170 jobs created from 2019 to 2030. Under the Growth Scenario, this increases to an average of over 5,231 jobs per year, or 57,550 jobs created total, and over \$1 billion per year in capital investment. Total estimated wage creation by renewable development in Florida will be between \$2.35 billion and \$4.97 billion.

Figure 2: Florida job creation from C&I demand



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INTRODUCTION

The market landscape for renewable energy is changing. C&I demand for renewable energy has increased, due to excellent project economics and power price hedging opportunities afforded by wind and solar projects, whose levelized costs continue to decline. Pioneering companies like Microsoft, Google, Amazon and Facebook have blazed a trail for companies seeking to meet ambitious sustainability targets, amplifying the demand for renewables.

The increasing demand from the C&I sector paired with state-level renewable targets will likely be the prime market drivers to support continued wind and solar installations. C&I power buying options are spreading as the financial instruments supporting the sector mature, and the rapidly changing economics of renewable energy are ensuring that these technologies are competitive on the market even after federal tax credits, including the production tax credit (PTC) and investment tax credit (ITC), phase out and expire.

As the fourth largest economy in the United States, Florida is home to a diverse set of companies, including corporate giant Disney, which employs more people at a single location than any other company in the U.S.³ Large companies with regional or corporate headquarters in Florida include Burger King, Office Depot, Siemens, Bank of America, Publix, and many more.⁴ Some of these large companies with operations in Florida, such as Siemens and Disney, are increasingly eager to source their energy needs from projects that are local and renewable. Disney, for example, has set a goal to reduce net greenhouse gas emissions by 50% from 2012 total levels by 2020.⁵ Siemens is aiming to become carbon neutral by 2030; since 2014, it has already cut global CO₂ emissions by 35%.⁶ Moreover, some companies that are not currently tracking toward renewable energy targets may do so in the future.

Companies have a variety of motivations for pursuing advanced energy—ranging from cost savings to price certainty to corporate sustainability goals—and they have varied needs when it comes to key parameters such as resource type, contract length, contract structure, and more. Given the growing interest in renewable energy among C&I customers, as well as among municipalities, universities, and

³ 13 Mind-Blowing Facts About Florida's Economy, Business Insider (May 2019), <https://markets.businessinsider.com/news/stocks/florida-economy-facts-2019-5-1028214563>

⁴ Corporate and Regional/Hemispheric Headquarters Located in Florida, Enterprise Florida, <https://www.enterpriseflorida.com/wp-content/uploads/Florida-Company-Headquarters-map.pdf>

⁵ Disney's Environmental Stewardship Goals and Targets, Walt Disney Company (March 2019), <https://www.thewaltdisneycompany.com/wp-content/uploads/2019/03/2018-CSR-Report.pdf>

⁶ Sustainability Information 2018, Siemens (2019), https://www.siemens.com/investor/pool/en/investor_relations/siemens_sustainability_information2018.pdf



other large customers, those states and utilities that unlock attractive renewable energy purchasing opportunities are better hosts for businesses looking to expand or move their operating footprint.

To date, Florida has not taken advantage of this opportunity. **Florida was recently ranked 45th in the nation in corporate renewable energy procurement options.**⁷ This low ranking is driven not by lack of resource potential, which is actually a strength for the state, particularly with regard to solar and biomass, but rather by lack of purchasing opportunities. Florida is one of 15 states to currently provide few or no options to procure renewable energy through a utility (see Figure 3).⁸

The primary avenue for Florida to improve its ranking is to expand a purchasing option called a renewable energy tariff (RE Tariff, commonly referred to as a “green tariff”). This is an approach taken by utilities across the United States today. Several utilities in vertically integrated markets like Florida’s have introduced RE Tariffs which allow customers to purchase bundled renewable energy and Renewable Energy Credits (RECs) through their utility at long-term, competitive prices. While other states have pursued other methods, like power purchase agreements (PPAs), Florida has an opportunity right now for utilities and large energy users to develop effective RE Tariffs. Indeed, utility Florida Power & Light has proposed a 1,490 MW program that is currently under review before the Florida Public Service Commission.

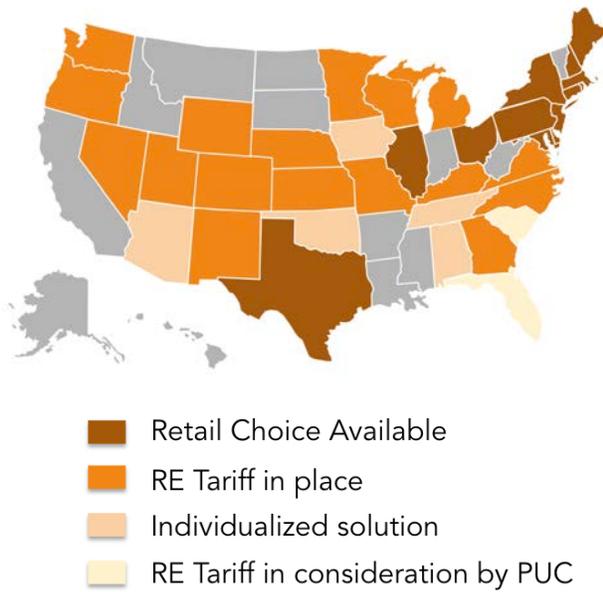
Florida also has an opportunity to be a national leader, as many RE tariff programs in other states have been underutilized. **Of the 22 GW of corporate renewable procurement across the nation, under 3 GW (less than 15%) has been procured through utility offerings.** While numerous states have taken advantage of meeting this demand for renewable energy, there is a major opportunity for states like Florida to expand utility offerings to meet this demand.

⁷ Corporate Clean Energy Procurement Index, Retail Industry Leaders Association and Information Technology Council (January 2017), <https://www.rila.org/sustainability/RetailEnergyManagementProgram/Documents/RILAITICEIndex.pdf>.

⁸ Sources: AEE PowerSuite, <https://powersuite.aee.net/>; Renewable Energy Buyers Alliance, U.S. Electricity Markets: Utility Green Tariff Update (Nov. 2019), <https://rebuyers.org/us-electricity-markets-utility-green-tariff-update/>.



Figure 3: Renewable Energy Procurement Options



Note: A program is considered a RE Tariff for the purposes of this map if it is made available to more than one customer; note that some such programs have, to date, only met the needs of a single customer.

This diagram also does not reflect the Tampa Electric Company’s (TECO) solar tariff offering, given its relatively small size of 17.5 MW. Florida Power & Light’s (FPL) Solar Together, on the other hand, is substantially larger at 1,490 MW and is currently undergoing approval proceedings at the Florida Public Service Commission (PSC).

More information on these tariff options can be found in Section 3 of the report.

With strong in-state corporate demand for renewables as well as strong renewable manufacturing capabilities, Florida has a good foundation for meeting this demand. By creating options for companies to meet their renewable energy demand with new projects built in Florida, rather than looking elsewhere to source renewable energy, Florida should expect to see two primary benefits.

First, by facilitating private investments in renewable energy, Florida will attract new jobs, tax revenue, and local investment while boosting energy independence. As of 2018, the state has a strong employment foundation, with over 174,000 Floridians employed in the advanced energy industry, including more than 36,000 in the advanced electricity sector, which includes solar, bioenergy, natural gas, and nuclear power.⁹ Solar panel installer is currently the fastest growing job in Florida.¹⁰ As this report shows, unlocking opportunities for customer-driven utility-scale solar will allow this already-growing job market to boom. In addition, the state will also benefit economically by attracting thousands of full-time jobs and hundreds of millions of dollars in investment on an annual basis.

Second, by responding to corporate demand for renewable energy, Florida would become a more attractive choice for companies with clean energy targets that are looking to move or expand. Nationally, 71 Fortune 100 companies and 215 Fortune 500 companies (43%) have set renewable

⁹ 2019 Florida Advanced Energy Jobs Fact Sheet, Advanced Energy Economy (October 2019), <https://info.aee.net/florida-advanced-energy-jobs-fact-sheet-1-0-1-0>

¹⁰ “The Fastest-Growing job in each U.S. State,” Yahoo Finance (February 2019), <https://finance.yahoo.com/news/available-jobs-us-143220860.html>.



energy or sustainability commitments.¹¹ Meeting the demand of large C&I energy users for renewable energy will help Florida keep existing companies in the state, but also attract new ones. This could be a valuable opportunity for Florida to gain a competitive advantage over other states looking to attract investment by these companies.

Energy is an important driver of employment in Florida, and the procurement of renewable energy is an increasingly important driver of demand within the C&I segment in the state. The rest of this report takes a deeper look at the demand for renewable energy in the C&I sector of Florida's customer base over the next 10 years. This outlook will be important to consider as utilities, policymakers, and other stakeholders engage on how to meet this coming demand and maximize the multifaceted benefits of renewable energy development in the state.

¹¹ 2016 Corporate Advanced Energy Commitments, Advanced Energy Economy (December 2016), <https://info.aee.net/growth-in-corporate-advanced-energy-demand-market-benefits-report>



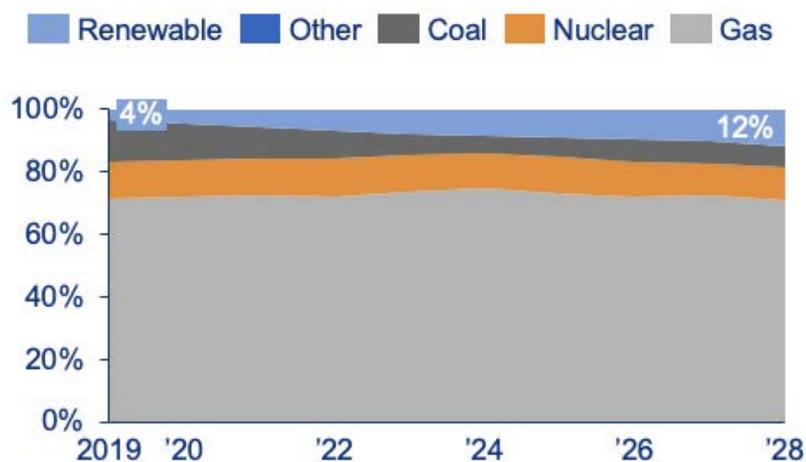
Power Supply and Demand Outlook in Florida

ELECTRICITY GENERATION SUPPLY MIX

Florida is currently heavily reliant on fossil fuels for power generation, with natural gas providing the largest amount of electricity generation, at about 70% of the state's net generation in 2018. Coal-powered electricity generation in the state, on the other hand, has fallen to about 12% of Florida's electricity net generation, with coal used for electricity generation dropping from about 29 million tons in 2008 to about 12 million tons in 2018.¹²

Most of the previous coal generation has been supplanted by cheaper natural gas resources, but a substantial part of it has the potential to be replaced by additional solar energy facilities in conjunction with storage batteries, as Wood Mackenzie expects solar generation in Florida to grow by over 600% in the next 10 years.

Figure 4: Florida power generation supply mix



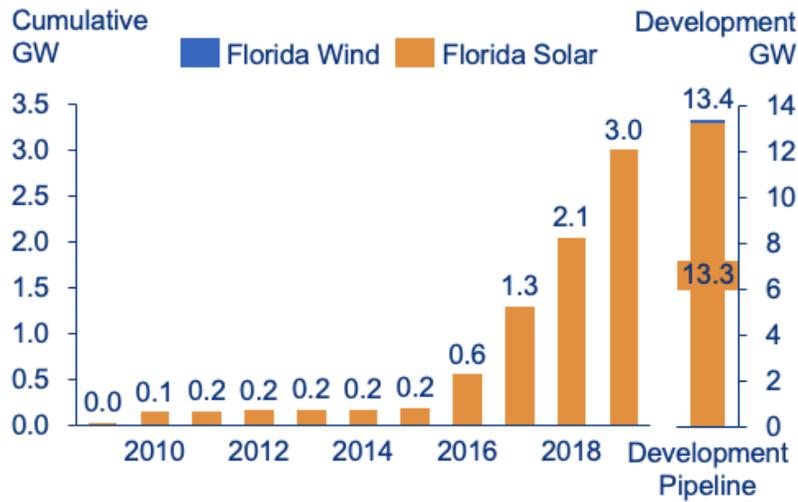
¹² Florida State Overview, United States Energy Information Administration (August 2019), <https://www.eia.gov/state/?sid=FL> - tabs-4



Florida has also seen a sustained increase in cumulative renewable energy capacity, as shown in Figure 4. The state also has a development pipeline of projects awaiting investment and construction that far exceeds the cumulative installed capacity (Figure 5).

In addition, Florida has strong potential for renewable energy and other advanced energy resources. It is third in the nation for rooftop solar potential, fourth for commercial combined heat and power potential, and sixth in potential for biogas generation from landfills, wastewater treatment, and organic waste.¹³ Together, biomass and solar comprise the majority of Florida’s renewable electricity generation today.¹⁴

Figure 5: Florida installed and pipeline capacity¹⁵



¹³ Advanced Energy in Florida: Industry size, trends, and companies, Advanced Energy Economy (June 2015), <http://info.aee.net/hubfs/PDF/Advanced-Energy-in-Florida.pdf>.

¹⁴ Florida Profile Analysis, United States Energy Information Administration (October 2019), <https://www.eia.gov/state/analysis.php?sid=FL>

¹⁵ The 0.1 GW of wind is a single project that has been proposed but not yet developed. Realistically, onshore wind energy is not nearly as (financially) viable a resource in Florida as solar, which is why it has attracted limited investment to date.



COST-COMPETITIVENESS OF RENEWABLE ENERGY TECHNOLOGIES

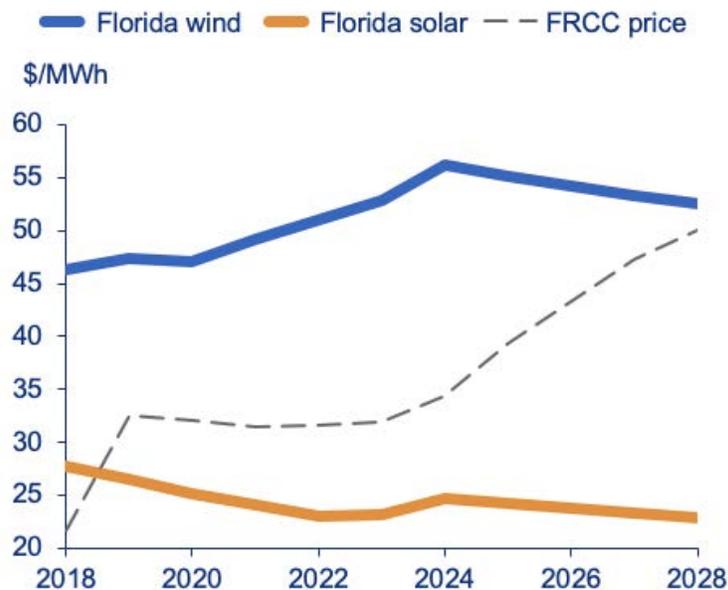
The significant rise in renewable energy deployment is enabled by the cost-competitiveness of these technologies in Florida. Figure 6 illustrates the Levelized Cost of Electricity (LCOE) outlook for wind and solar technologies in Florida.

With a poor wind resource available in the state, the cost of wind energy in Florida is not competitive. 2020 represents the last year of availability for the full value of the wind energy PTC, with the tax credit value phased out to zero by 2024. This subsidy phase-out is shown by a corresponding rise in cost.

Solar energy's cost relative to other generating technologies, on the other hand, is expected to continue dropping. Solar manufacturing economies of scale have enabled sustained cost reductions that are expected to compensate for the phase-down of the solar ITC from 30% to 10% for commercial-scale installations (and zero for residential). This expected cost reduction is the primary driver for solar displacing wind as the most prevalent form of renewable energy installed in the United States.

The LCOEs shown below account for the tax credits currently available for both wind and solar and their phase-down. The figure also illustrates the outlook for energy prices in Florida, based on the Florida Regional Coordinating Council (FRCC) price, relative to these technologies. The prospects of higher electricity prices ensure that solar and wind will remain competitive with wholesale rates for the foreseeable future.

Figure 6: Florida LCOE and wholesale price outlook

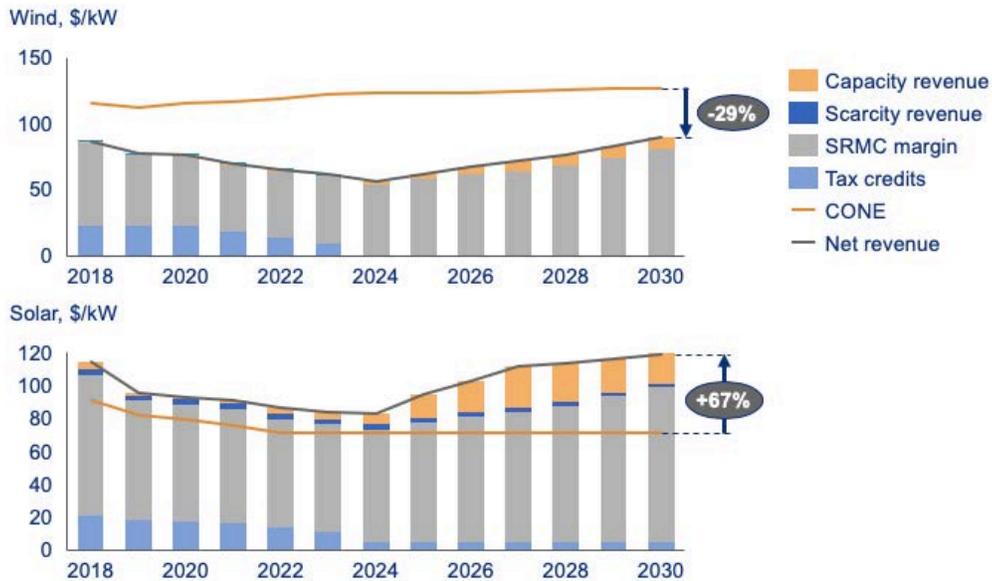


Source: Wood Mackenzie. 2019 H1 Federal Carbon Case.



In addition to a competitive LCOE, solar also has a favorable Net Cost of New Entry (Net CONE) in Florida. Net CONE goes one step beyond LCOE, introducing the impacts of renewables penetration and the subsequent impact on local power prices. In simplest terms, Net CONE is an estimate of the “missing money” needed by a new generator in its first year of operation to make it economically viable to build a power plant. CONE is primarily based on the technology’s capital, operating and other appropriate costs and its expected operating performance. Net CONE subtracts the energy, tax credit, and ancillary services revenue from CONE to highlight if a project is financially viable.

Figure 7: Net Cost of New Entry for RE in Florida



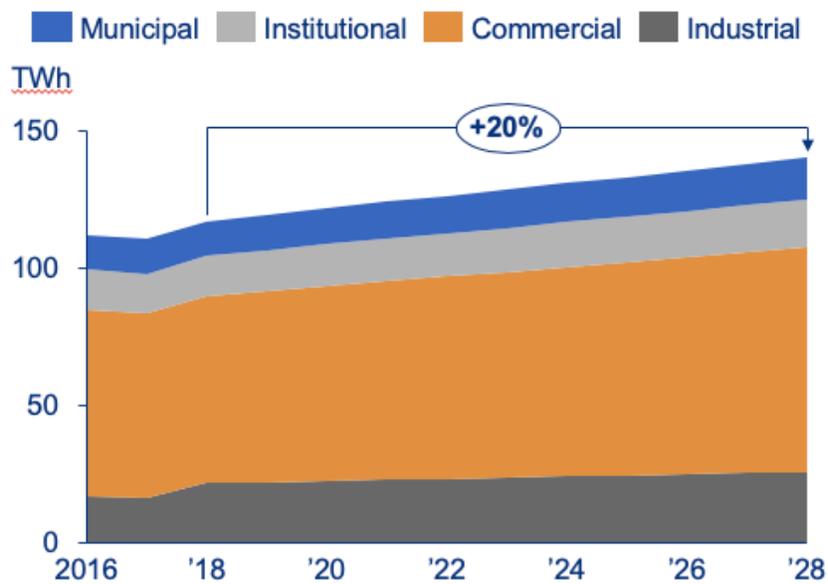
Net cost of new entry for wind and solar in Florida demonstrates positive economic opportunities for solar development in the state, and unfavorable conditions for wind. The SRMC in grey represents the short run marginal cost earned by the resource.



TOTAL ELECTRICITY DEMAND FROM C&I CUSTOMERS

Power demand from C&I customers is expected to increase in Florida, according to Wood Mackenzie's analysis. Florida has a significant portion of demand coming from the commercial sector, driven by the high number of corporations, retailers, and service providers operating in the state. Similarly, municipal and institutional demand is high in Florida, due to a growing population and large number of universities and hospitals. Total C&I demand in Florida is expected to rise substantially, as the population continues to grow. The next section will home in on the results of Wood Mackenzie's modeling predicting the extent to which C&I customers will seek to meet their electricity demand with renewable energy.

Figure 8: Florida C&I power demand



POTENTIAL RENEWABLE ENERGY DEMAND FROM C&I CUSTOMERS

Analysis and Results

BACKGROUND: DEMAND SCENARIOS CONSIDERED

To estimate potential C&I demand in Florida, Wood Mackenzie's analysis focused on the Florida-based operations of public and private Fortune 1000 (F1000) companies. The estimated power consumption of F1000 companies represents approximately 48% of total C&I demand in the United States, and these companies are more likely than their smaller peers to set and pursue renewable energy targets. Despite a substantial uptick in renewable energy procurement over the past five years, the overall penetration of renewables in the power mix for F1000 companies remains limited at ~5%, demonstrating significant growth potential.

This set of companies was used to analyze expected future demand for renewable energy on the basis of the observed purchasing behavior of companies with established renewable energy targets (RETs), applied to potential future purchasing behavior of companies both with and without RETs currently. Specifically, a range of estimates of future demand was developed based on different scenarios for how renewable energy purchases would be made (i.e., from RECs only vs. bundled renewable energy plus RECs from PPAs, RE Tariffs, or similar means) and a set of sensitivities, specifically focused around the likelihood of companies setting RETs, and the adoption rates and pace of progress toward RETs.

Two main scenarios were considered in this report: a more conservative Baseline Scenario and a Growth Scenario, each reflecting different speeds of RET adoption and lower or higher average renewable energy targets, respectively. Both scenarios were modeled under the assumption that all new procurements are made via bundled renewable energy plus REC purchase from new renewable energy projects (e.g., from a utility RE Tariff) with no changes to historical purchases (as in, no conversions of REC-only purchases to bundled renewable energy plus REC purchases). Maximum and minimum demand shown in the figures reflect more and less aggressive assumptions for all the variables considered, respectively.

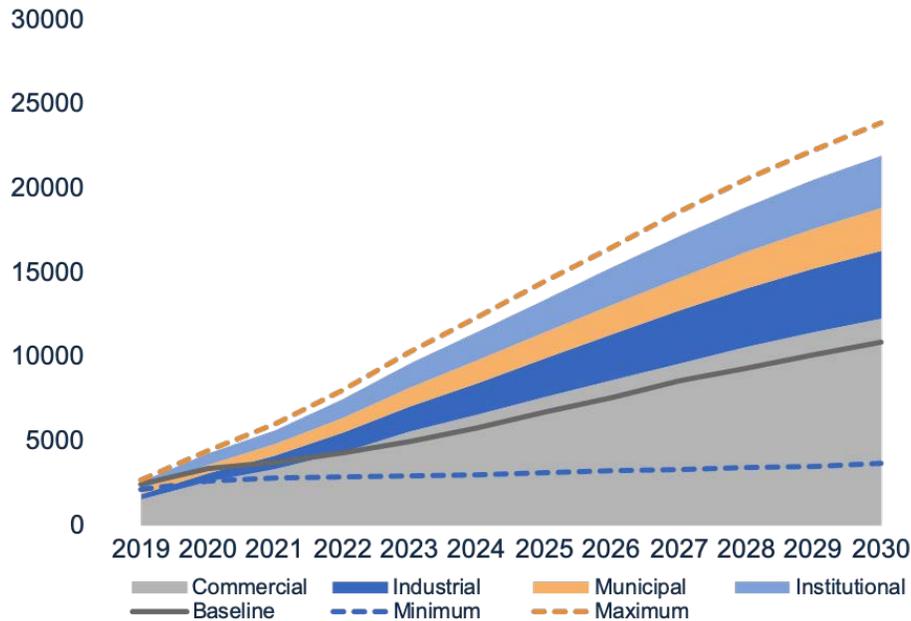
In the Baseline Scenario, the average RET was set at 50%, and in the Growth Scenario, the average RET was set at 80%. Additionally, the Growth Scenario assumed a faster RET adoption and RET begin year than the standard ones applied to the Baseline Scenario.

These scenarios were simulated in the model to yield estimates on the growth in C&I renewable demand and the associated growth in capital investment, jobs, and wages in Florida over the period



between 2019-2030. (For a more detailed explanation on the analysis methodology employed in this report, see Appendix.)

Figure 9: Florida C&I renewable energy demand potential (TWh)



This chart shows both the Baseline and Growth scenarios. The Baseline Scenario is shown by the grey line, while the Growth Scenario is shown by the sum of the different sectors.

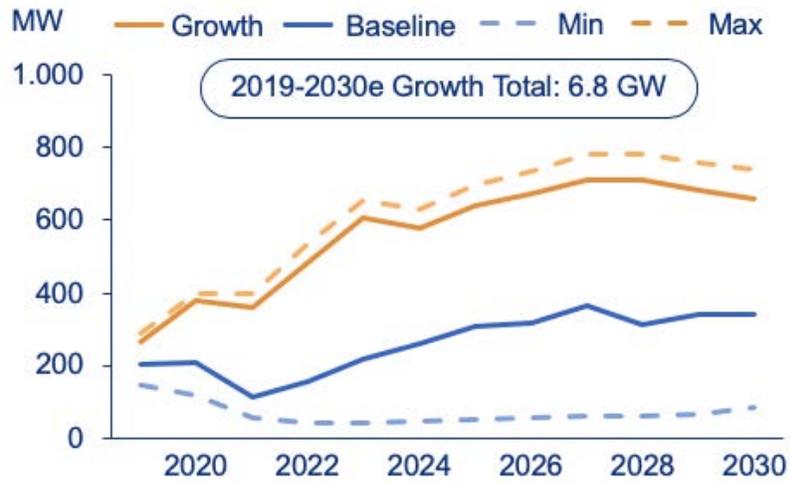
The Baseline Scenario anticipates that demand for renewable energy, measured in terawatt-hours (TWh), will grow to an aggregate of nearly 8,000 TWh by 2030, while the Growth Scenario predicts just over 16,000 TWh in total renewable energy demand in the C&I segment. When demand among municipal and institutional customers is added, renewable energy demand totals over 10,000 TWh in the Baseline Scenario and nearly 22,000 TWh in the Growth Scenario.

RENEWABLE ENERGY DEVELOPMENT TO MEET C&I DEMAND

Based on this analysis, Wood Mackenzie estimates that over 3.1 GW of cumulative capacity additions for renewable energy will need to materialize over the next 10 years to meet demand within the C&I segment under the Baseline Scenario. Under the Growth Scenario, this demand would grow by 119% to nearly 6.8 GW of cumulative demand. If met through capacity additions in Florida, the vast majority of this demand would result in installations in the utility solar sector, due to increasing cost-competitiveness and abundant solar resource.



Figure 10: Florida C&I renewable energy demand potential (MW)



This chart shows both the Baseline and Growth scenarios. Note: The decrease in 2020-2021 is due to the expected solar ITC phase-down.



Current Trends: Consistent with Demand Analysis

INDUSTRIALS ARE ELECTRIFYING OPERATIONS AND HEDGING WITH RENEWABLES

Our analysis projects significant growth in demand for renewable energy among large Florida customers. The situation on the ground corroborates this expectation of growth for industrial, commercial, and the municipal/institutional customer segments that were not included in this report. The next few sections will describe the macro-scale renewable energy trends that can be observed within these segments in Florida.

The cost of renewable energy continues to fall, offering a tremendous long-term hedge against power price inflation for industrial users of power. The energy transition is progressing, and the electrification of transportation, HVAC, and a variety of industrial processes will increasingly focus corporate attention on how companies procure electricity. Virtual Power Purchase Agreements (VPPAs) have been pursued by many companies with large concentrated use of power, including data centers.¹⁶ The advent of new financial instruments to structure VPPAs are allowing smaller corporations to also participate.

Some major industrial users with headquarters or major operations in Florida have already committed to sustainability goals but may not have local mechanisms available to purchase renewable energy. National corporations with significant presence in Florida with stated greenhouse gas emissions reductions goals include Dow, Air Products, Westrock and Cargill. Similarly, major Florida-based companies with stated emissions reduction goals include CSX, Jabil and L3Harris corporation. General Electric Renewable Energy recently adopted a goal to offset 100% of their operational demand with renewable energy, including their largest wind turbine nacelle factory, located in Pensacola.

COMMERCIAL RENEWABLE DEMAND APPARENT FROM SUSTAINABILITY GOALS

Commercial companies around the world have embraced the concept of environmental stewardship and view it as a competitive differentiator for their businesses. Corporate social responsibility (CSR) teams are working to ensure that corporate business practices are well aligned with the values of their client base, thus creating positive stakeholder value through the delivery of sustainable products and services.

¹⁶ Under a VPPA, a customer signs a long-term fixed or escalating price contract (as under a standard PPA), but the electricity is sold on the wholesale market rather than contracted directly by the customer. If the selling price in the wholesale market is higher than the per-kWh rate of the virtual PPA, the customer receives the difference in credit; if the wholesale price received for the renewable energy is lower, the customer pays the difference.



Many national commercial brands that have made renewable energy commitments have major operations within Florida, including Walmart, AT&T and Verizon. Major Florida commercial companies with renewable energy goals include Disney, Hertz, Ryder, and Royal Caribbean. Notably, Royal Caribbean, which has cruise ship terminals in Florida, recently signed a VPPA with a Kansas windfarm to offset their global emissions. The Royal Caribbean example illustrates the purchase of renewable electricity to offset emissions that are largely due to burning fuel for ship propulsion, many of which launch from Florida ports. Wood Mackenzie expects that many more commercial companies in Florida will pursue similar options to procure renewable energy to offset their emissions.

MORE CITIES IN FLORIDA ARE COMMITTING TO RENEWABLES

A growing number of cities in the state have also made commitments to reduce their carbon footprints, driven in large part by constituent interest. Many large cities in Florida have committed to 100% renewable energy, with target dates ranging from 2030 to 2050. Cities in Florida with 100% commitments include Tallahassee, Gainesville, Orlando, Satellite Beach, St. Petersburg, Safety Harbor, Largo, Dunedin, Sarasota, and South Miami.¹⁷ Other cities have signed various climate action pledges, including many municipalities surrounding Miami and Tampa.

Some cities may opt to meet these commitments through the use of RECs, as they are readily available, relatively inexpensive, and simpler than contracting VPPAs. However, Florida has many municipal utilities that may be more inclined to purchase renewable power through a VPPA, as the procurement function for bulk power already exists within these organizations, if state level policies encouraged these transactions.

UTILITIES BEGIN TO OFFER PROCUREMENT OPTIONS TO C&I CUSTOMERS

Due to the structure of the Florida market, local utilities are still the most promising way for C&I customers to purchase renewable energy. Renewable energy purchasing options that are alternatives to RECs can be supplied via RE Tariffs, community renewable installations, or other measures.

Florida utilities have recently made commitments to increasing their use of renewable energy resources. Duke Energy is a major utility active in Florida that has recently pledged to reduce its carbon emissions by 50% by 2030 and be net-zero carbon by 2050.¹⁸ This will likely entail installing more renewables in their regulated utility territories, in addition to early retirement of fossil fuel plants. Florida Power & Light (FPL) has also recently announced a major plan to build solar energy centers

¹⁷ 100% Commitments in Cities, Counties, & States, Sierra Club (2019), <https://www.sierraclub.org/ready-for-100/commitments>

¹⁸ Duke Energy Aims to Achieve Net-Zero Carbon Emissions by 2050, Duke Energy (September 2019), <https://news.duke-energy.com/releases/duke-energy-aims-to-achieve-net-zero-carbon-emissions-by-2050>



across the state. The utility plans to install more than 30 million solar panels to increase its energy mix to 20% solar by 2030, a drastic increase from the current 1%.¹⁹

In the past year, two utilities in Florida have also introduced various types of RE Tariffs, totaling just over 1,500 MW in capacity. Tampa Electric Co. (TECO) introduced the Shared Solar Rider 1 (SSR-1) program, which consists of 17.5 MW of the 32 MW generated in Polk County's Lake Hancock solar facility.²⁰ However, due to the small size of this solar offering, SSR-1 will barely make a dent in addressing the demand of C&I customers in its territory. Even individual companies often sign contracts for renewable energy that exceed 100 MW.

FPL introduced the Solar Together RE Tariff in 2019 and petitioned the Florida Public Service Commission for approval.²¹ Solar Together would constitute a much larger solar offering, totaling 1,490 MW from 20 74.5-MW solar power plants. FPL intends to allocate 25% of program capacity to residential and small business customers, and 75% to C&I and government customers. A proposed settlement agreement between FPL and a few intervenors in the case sets aside 10% of the residential capacity for low-income customers in particular. While the program is still under consideration at the Commission, it is a strong sign of customer interest in the increased development of advanced energy.

Benefits From Meeting Potential Renewable Energy Demand

TOTAL CAPITAL INVESTMENT FROM PROJECT DEVELOPMENT

In order to fulfill the projected C&I renewable energy demand identified in Wood Mackenzie's analysis, significant capital investments would be required. Figure 11 shows the potential capital investment if the in-state demand is satisfied with local renewable energy projects in Florida.

Capital investment from 2019 to 2030 in Florida is expected to reach \$492 million per year, or \$5.4 billion total, under the Baseline Scenario, and just over \$1 billion per year, or \$11.4 billion total, under the Growth Scenario. All of the investment will be in solar, as there is no expected wind development in Florida due to unattractive economics of wind resources in the state.

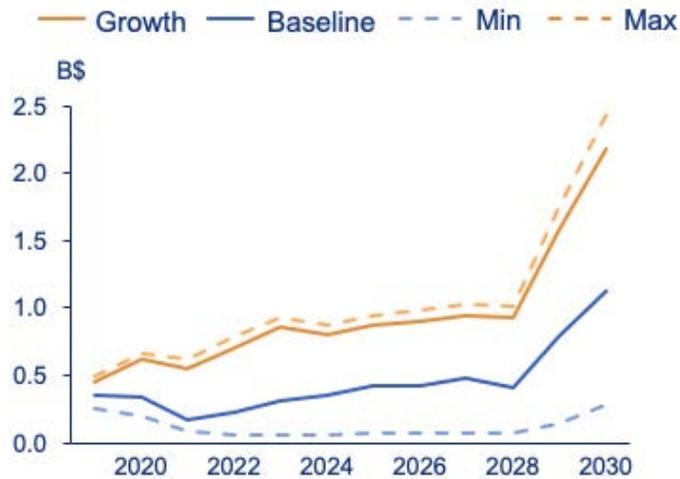
¹⁹ FPL Plans to Add 30 Million Solar Panels in Florida by 2030," Florida Sun Sentinel (January 2019), <https://www.sun-sentinel.com/business/fl-bz-fpl-solar-panel-installation-20190116-story.html>

²⁰ Order Approving Tampa Electric Company's Shared Solar Tariff by the Commission, Florida Public Service Commission (June 2019), <http://www.psc.state.fl.us/library/filings/2019/04707-2019/04707-2019.pdf>

²¹ FPL's Solar Together tariff was pending before the Commission at the time of the publication of this report.



Figure 11: Florida capital investment



JOBS AND WAGES CREATED FROM CONSTRUCTION AND OPERATION

Renewable energy development creates a wide variety of short-term jobs affiliated with project development, including supply chain logistics and Engineering, Construction and Procurement (EPC). Longer-term jobs are also created related to manufacturing, operations, maintenance, and asset management.

Figure 12: Florida job and wage creation





Figure 12 shows the forecasted annual job creation and associated wage growth from renewable energy development in Florida.

If Florida is able to supply locally the tremendous demand available within the C&I segment, it will produce significant benefits on the state’s economy. Solar projects will generate both temporary construction jobs, often solar panel installers and associated contract roles, and full-time jobs in project operation and maintenance.

Wood Mackenzie estimates that, under the Baseline Scenario, an average of over 2,470 jobs per year (570 full-time operations jobs and 1,900 temporary construction jobs) could be created in the state from the large-scale development of renewable energy to meet C&I demand. This totals 27,170 jobs created over the period 2019 to 2030. Under the Growth Scenario, this grows to an average of over 5,231 jobs annually (1,186 full-time operations jobs and 4,046 temporary construction jobs) with a total of 57,550 jobs over the study period. Total estimated wage creation by renewable energy development in Florida will be between \$2.35 billion and \$4.97 billion, for the respective scenarios.



CONCLUSION

Given its ample solar resource, and ever-increasing C&I renewable demand, Florida is primed for a renewable energy transition that will yield both economic and environmental benefits to the stakeholders involved. Given the growing interest in renewable energy among commercial and industrial customers, as well as among municipalities, universities, and other large customers, those states and utilities that unlock attractive renewable energy purchasing opportunities are better hosts for businesses looking to expand or move their operating footprint.

Across the United States, vertically integrated markets have not taken advantage of offering renewable energy projects to customers compared to restructured states. However, there are many solutions to pick from to close the gap. In states like Florida, customers rely on utility partners to meet their renewable energy goals through cost-effective, local projects that do not entail undue financial risk. States just starting on this journey can find that other states have already uncovered many important best practices, and it is possible to learn from and customize many elements of successful solutions and programs in use elsewhere.

Moving forward, Florida utilities and policymakers have the opportunity to improve and expand opportunities for renewable energy procurement, whether the options are in the form of renewable energy tariffs, community solar projects, or other purchasing schemes. Florida will be able to unlock billions of dollars in capital investment and tens of thousands of jobs that will result, in addition to satisfying the needs of its corporate citizens.



APPENDIX: ANALYSIS METHODOLOGY

Analyzing the Renewable Energy Demand of the F1000

DEFINING THE TARGET POPULATION AND SCOPE

The scenario modeling for this analysis projected estimates in demand for the Fortune 1000 companies. First, in order to better understand the potential renewable energy demand of the F1000, procurement preferences were analyzed from over 400 US-based companies reporting into the Carbon Disclosure Project (CDP) 2018 Climate Change Survey, 80% of which are counted within the aforementioned F1000 population. The CDP was chosen over other reporting entities due to the significant electricity use within this target population; for example, companies reporting to RE100, another group of companies with public RETs, only represents ~15% of total U.S. C&I demand. Buyer behavior within the group of companies reporting to CDP was analyzed and segmented and then used to predict behavior of the full F1000.

Among the full CDP population, only 14% have a defined renewable energy target (RET), equal to a total electricity demand of approximately 45 TWh once accounting for existing renewables procurement in the form of RECs, PPAs, RE Tariffs, and other methods. A majority of companies within the CDP have put forth GHG reduction goals instead of RETs. It is feasible that companies with a GHG target but without an established RET may seek to reduce their emissions through the purchase of renewables for the same reasons that a company would set and make progress toward a RET. Corporate emissions reduction goals are generally segmented by the type of GHG emission as scope 1, 2 or 3 (see Figure 5.1, below); this analysis is focused on Scopes 1 and 2 because these are directly linked to electricity use and therefore can be addressed through renewable energy purchases.

Figure 13: Emissions scopes considered

Emission Category	Description	Considered?
Scope 1	Direct emissions from burning of fuels by the emitter	Yes
Scope 2	Indirect emissions from electricity consumed and purchased by the emitter	Yes
Scope 3	Indirect emissions produced by the emitter activity but owned and controlled by a different emitter	No



TRANSLATING KNOWN BEHAVIOR TO FUTURE ACTIVITY

Companies in the CDP database were categorized by industry, geography, and credit-worthiness. The total future electricity demand, emissions reductions goals, and known direct VPPAs were forecasted for all CDP companies. This analysis was then extended to other companies in the F1000 based on the segmentation completed from the CDP database. The credit-worthiness of each of the F1000 companies was analyzed to examine capability to procure renewables, and these companies were subsequently assigned grades of 1-10 on their corporate goals for renewables (considering the target start year, percent renewables, and target adoption rate).

In this way, behavior among F1000 companies with RETs was used to extrapolate future action by companies that have not yet set a RET, but may nonetheless have future demand for renewable energy. For companies who lacked corporate targets, their grades were based off of industry-specific peer companies and stated sustainability commitments. The sum of known demand (from existing targets) and projected demand (from the analysis described above) results in the total projected demand, which is subject to different sensitivities, described below.

Scenarios

A series of scenarios were built into the analysis to account for potential changes in future buying behavior of companies with known RETs as well as for the rest of the companies considered in this analysis. First, the analysis considered how future purchases would be made, and second, the analysis incorporated different assumptions regarding how aggressively companies would adopt and achieve RETs.

RENEWABLE ENERGY CREDIT (REC) VS. VIRTUAL PPA OR RENEWABLE ENERGY TARIFF

Companies have options when it comes to renewable energy procurement, with direct implications for the demand for new renewable energy capacity. Specifically, C&I renewable energy demand will directly result in deployment of new renewable energy when companies purchase renewable energy from PPAs or RE Tariffs. This analysis considered two key variables:

- REC-only share of future renewable energy procurement: As noted previously, 68% of total procurement to date has been executed by means outside of a PPA. However, companies have shown a preference to switch from REC purchases to purchasing options that are more impactful, such as PPAs and RE Tariffs. This variable defines what portion of a company's renewable energy procurement *in the future* will come from non-PPA sources.
- Conversion of REC-only procurements: This variable expands the total available market opportunity for new renewable energy by allowing for conversion of old RECs to PPA- and RE Tariff-sourced renewable energy



A full list of the defined scenarios is shown in Figure 14 below. Both the Baseline and the Growth Scenarios in this report used Scenario D and assumed that all new procurements are made via PPA or RE Tariff with no changes to historical compliance. It is important to note that Florida-based companies currently lack options to pursue renewable energy through PPA/RE Tariff purchases. However, this analysis projects demand and therefore did not consider the current policy landscape as a limitation. Given the growing preference among C&I customers for direct purchases through PPAs and RE Tariffs over unbundled RECs, Scenario D was deemed most realistic.

Figure 14: REC conversion strategy scenarios

Scenario	Description	Considered
A	Assuming historical average non-PPA share for future procurement; no changes to historical compliance	Minimum
B	Assuming reduction of non-PPA share by 25% for future procurement; no changes to historical compliance	No
C	Assuming reduction of non-PPA share by 50% for future procurement; no changes to historical compliance	No
D	Assuming all new procurements are made via PPA or RE Tariff; no changes to historical compliance	Baseline and Growth Scenarios
E	Assuming all new procurements are made via PPA or RE Tariff and 25% of historical non-PPA/RE Tariff purchases are converted to PPA/RE Tariff by end of 2028	No
F	Assuming all new procurements are made via PPA or RE Tariff and 50% of historical non-PPA/RE Tariff purchases are converted to PPA/RE Tariff by end of 2028	No
G	Assuming all new procurements are made via PPA or RE Tariff and all historical non-PPA/RE Tariff purchases are converted to PPA/RE Tariff by end of 2028	Maximum



SENSITIVITY TO RENEWABLE ENERGY TARGETS AND ADOPTION RATES

In addition to considering different options for companies to meet their RETs, the Wood Mackenzie analysis has a number of assumptions on how aggressively companies will set and pursue these targets.

Specifically, the analysis considered the beginning adoption year for renewable energy targets and the speed at which targets are met. These factors significantly impact the timing that renewables are being procured and installed. These factors are adjusted independently in Figure 15.

Sensitivities to the analysis are governed by the following key variables:

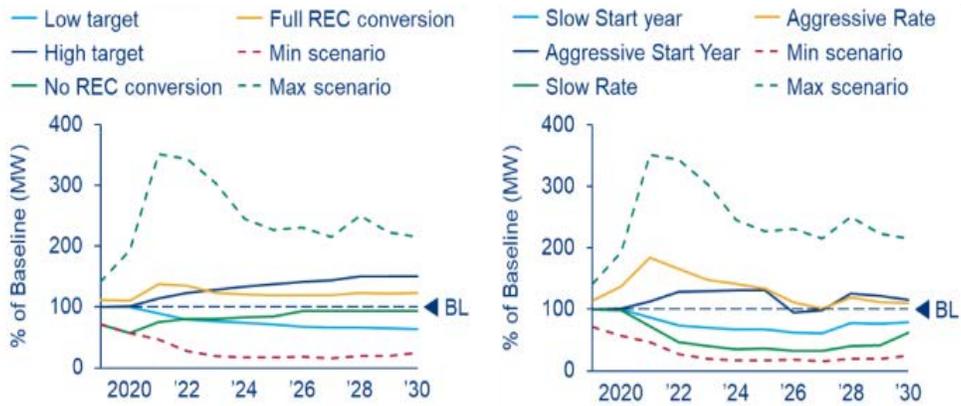
- **Target rating (TR):** The ability for a company to implement a defined RET is largely predicated upon its operating scale and financial strength. As a proxy, the analysis applies the company's credit rating to define a TR. Companies with higher credit ratings receive a higher TR. Companies with a lower TR will not be eligible for a RET.
- **Adoption rating (ADR):** To translate the findings from the CDP population with a RET to Fortune 1000 population without a RET, the buying behavior and climate reduction activities from CDP companies was aggregated by business sector into an ADR and then applied to non-CDP F1000 companies in that same sector. A higher ADR reflects a company's presence in an industry that is strongly engaged in the fight against climate change and/or is highly exposed to power price increases.
- **Average rating (AVR):** Simply the average of the TR and ADR, which is used as a proxy to account for both the company's unique financial characteristics as well as the needs and ambitions of its peer group towards decarbonization. The first three variables listed above are the key inputs into analyses that define the following key outputs that will define a non-CDP company's RET.
- **RE target adoption:** Defined as the number of years it takes for a company to implement a RET. An individual company's year of adoption is governed by the AVR and applied against target adoption scenarios.
- **RE target year:** Defined as the total number of years allowed by a company to achieve its stated RE target following adoption. An individual company's target year is based on its TR and is modified according target-year scenarios.
- **RE target extent:** The total average percentage of the F1000's electricity and Scope 2 emissions to be addressed via renewables. An individual company's target extent is adjusted off this average baseline based on their TR and chosen target extent scenario.

Together with the renewable energy purchase scenarios described above, these adoption targets inform the range of possible results (shown independently in Figure 15, below). In the Baseline Scenario, the average RET extent was set at 50%, and in the Growth Scenario, the average RET extent



was set at 80%. Additionally, the Growth Scenario assumed a faster RET adoption and RET begin year than the standard ones applied to the Baseline Scenario.

Figure 15: Florida sensitivity charts



The chart on the left shows sensitivity to renewable target levels and REC strategy; the chart on the right shows sensitivity to the renewable target start and ramp rate. The Baseline Scenario used in this report is denoted "BL" in both charts.



**BEFORE THE
FLORIDA PUBLIC SERVICE COMMISSION**

In re: Petition by Florida Power & Light
Company for Approval of FPL SolarTogether
Program and Tariff

Docket No. 20190061-EI
Filed: January 9, 2020

**COMMENTS OF ADVANCED ENERGY ECONOMY AND THE ADVANCED
ENERGY BUYERS GROUP**

Advanced Energy Economy and the Advanced Energy Buyers Group appreciate the opportunity to provide comment to the Florida Public Service Commission (Commission) in response to the SolarTogether program proposed by Florida Power and Light (FPL) in the above-captioned docket. Advanced Energy Economy represents a diverse set of businesses in the advanced energy industry, including developers of large scale renewable energy projects for customers seeking 100% renewable energy purchasing options across the United States. The Advanced Energy Buyers Group represents large customers with experience participating in utility renewable energy programs across the country, including several companies with an interest in purchasing renewable energy in Florida. Our companies are evidence of the importance of utility renewable energy purchasing options in meeting the needs and preferences of C&I customers in states with vertically integrated electricity markets. Such programs have proliferated across the country, and the proposed SolarTogether program is an exciting and necessary step forward for Florida customers.

Given our interest in cost-effective renewable energy purchasing options, Advanced Energy Economy and the Advanced Energy Buyers Group support the SolarTogether program and encourage the Public Service Commission to approve the program; however, we do note that there are opportunities to improve certain aspects of the program as proposed. Our comments provide recommendations to bring Phase 1 of SolarTogether into better alignment with customer needs and preferences while addressing further improvements that should be incorporated into future phases of SolarTogether and any other utility renewable energy offerings in Florida.

I. About Advanced Energy Economy and the Advanced Energy Buyers Group

Advanced Energy Economy (AEE) is a national organization of businesses making the energy we use secure, clean, and, affordable. AEE and its state and regional partner organizations, which are active in 27 states across the country, represent more than 100 companies and organizations that span the advanced energy industry and its value chains. Technologies represented include energy efficiency, demand response, natural gas, solar photovoltaics, solar thermal electric, wind, storage, biofuels, electric vehicles, advanced metering infrastructure, transmission and distribution efficiency, fuel cells, hydro power, nuclear power, combined heat and power, and enabling software. Used together, these technologies and services will create and maintain a higher performing energy system—one that among other things is reliable and resilient, diverse and cost effective —while also improving the availability and quality of customer facing services. AEE promotes the interests of its members by engaging in policy advocacy at the federal, state, and regulatory levels, by convening groups of CEOs to identify and address cross industry issues, and by conducting targeted outreach to key stakeholder groups and policymakers.

The **Advanced Energy Buyers Group** (AEBG) is a business-led coalition of large energy users engaging on policies to expand opportunities to procure energy that is secure, clean, and affordable.¹ Members of the AEBG are market leaders and major employers spanning different industry segments, including technology, retail, and manufacturing. Our companies are among the 71% of Fortune 100 companies and 43% of Fortune 500 companies that have established renewable and/or climate targets as part of our corporate sustainability commitments. We share a common interest in expanding our use of advanced energy, including renewable energy like wind, solar, geothermal, and hydropower; demand-side resources like energy efficiency, demand response, and energy storage; and onsite generation from solar, advanced natural gas turbines, and fuel cells. In 2017, members of the AEBG totaled over \$1 trillion in revenue and collectively consumed over 18 terawatt hours (TWh) of electricity, including over 11 TWh of renewable electricity, equivalent to the electricity sales for the states of North Dakota and Delaware, respectively.

II. AEE and AEBG's Interest in SolarTogether

AEE and AEBG members include companies with a significant footprint in Florida, including in FPL's service territory. Members of AEBG have interest in enabling renewable energy access for other electricity customers in Florida; several AEBG member companies have specifically incorporated into their renewable energy goals an aim to open renewable energy pathways for others to follow. According to a recently released report from Advanced Energy Economy, based on analysis by WoodMackenzie, new demand for renewable energy from commercial and industrial customers alone in Florida will reach a cumulative amount of 3.14 to

¹ These comments represent the consensus view of the Advanced Energy Buyers Group (information and membership available at <https://www.advancedenergybuyersgroup.org/>). However, this document does not necessarily reflect the position of any specific member of the AE Buyers Group, and these comments should not be attributed to any individual company or companies participating in the AE Buyers Group.

6.75 gigawatts over the next ten years.² This range is based on the future demand forecasted by today's market situation, but does not account for a variety of variables that may increase renewable energy demand between now and 2030, including market growth, policy changes, and corporate procurement goals. This report is attached as Appendix A.

FPL's SolarTogether program represents a significant opportunity to advance AEE's and AEBG's goal of increasing opportunities for Florida customers to choose renewable energy, and AEE and AEBG applaud FPL for taking the time and effort to consider customer needs and preferences in designing the program. Successful implementation of this program will not only benefit prospective Phase 1 subscribers, but will also inform future phases of the SolarTogether program and provide an example that other utilities in Florida and elsewhere can follow. AEE and the AEBG therefore have a strong interest not only in ensuring approval of SolarTogether, but in addressing some concerns with the process and design of the program as proposed.

III. AEE and AEBG Comments Draw From Significant Collective Experience Advising on and Participating in Utility Programs Across the Country

Across the country, there are more than 20 utility renewable energy programs that have received regulatory approval in 17 of the 37 states that do not allow retail choice, resulting in nearly 2 GW of renewable energy purchases by commercial and industrial (C&I) customers.³ However, several utility programs have gone unused or underutilized, highlighting the importance of ensuring that program design incorporates customers' needs and preferences. Members of AEE and AEBG have participated in these programs as customers and as project developers, and several AEBG member companies have been deeply involved in the design and development of such

² Opportunities for Meeting Commercial and Industrial Demand for Renewable Energy in Florida. (December 2019). Retrieved from <https://info.aee.net/commercial-industrial-demand-for-renewables-fl>.

³ Barua, P., Bonugli, C., Etter-Wenzel, C., Shaver, L., Tawney, L., Perera, A., & Melling, D. Emerging Green Tariffs in U.S. Regulated Electricity Markets. (August 2019). Retrieved from <https://www.wri.org/publication/emerging-green-tariffs-us-regulated-electricity-markets>.

programs. AEE and AEBG as organizations have provided advice, comments, and expert witness testimony in response to multiple utility renewable energy programs, and AEBG in 2019 produced a guide to meeting customers' renewable energy needs in vertically integrated states.⁴

Work on and familiarity with utility programs across the country has made clear that while no two programs are exactly alike, successful ones share certain development processes, design principles, and best practices. Specifically, AEE and AEBG recommend that all utility programs follow certain replicable best practices (adapted from 2019 AEBG paper):

- **Rate Structure:** Select the most appropriate rate design from the several models available, taking into account existing rate structures and customer needs and avoiding adverse impacts on nonparticipating ratepayers;
- **Program Cap & Expansion:** Start with an initial offering large enough to enable C&I customers to make meaningful progress toward their renewable energy goals, and include clear mechanisms for expansion;
- **Customer eligibility:** Ensure that all C&I customers are eligible to participate in at least one renewable energy program that aligns with their needs;
- **Resource Selection:** Rely on competitive procurement for resources to meet program needs, and give customers the option to source projects directly;
- **Term Options:** Give customers a range of options, including mid-range (10-15 years);
- **REC Treatment:** Transfer RECs to customers, or retire them on customers' behalf;
- **Administrative Fees:** Adopt reasonable and cost-based administrative fees; and

⁴ Renewable Energy Offerings That Work. (April 2019). Retrieved from <https://info.aee.net/renewable-energy-offerings-that-work>.

- **Termination and transferability:** Ensure that customers with multiple meters can move their subscriptions between locations if they relocate a facility within the same utility service territory, and include clear, fair, and flexible termination provisions that allow for transfer to a different account.

As explained in our comments, FPL's SolarTogether program complies with many, but not all, of these best practices.

IV. Comments on FPL's SolarTogether Proposal

A review of the SolarTogether proposal makes clear that FPL has made an effort to address the needs and preferences of C&I customers, while also making the program accessible and attractive to governmental, business, and residential customers. Our comments in Section A below outline the various reasons why AEE and the AEBG support approval of the SolarTogether program; in Section B we describe opportunities to improve SolarTogether; Section C summarizes our recommendations.

A. AEE and AEBG Support Approval of the Solar Together Program for Several Reasons

i. Voluntary Subscription Programs Like SolarTogether are an Important Tool to Meet Customer Demand for Renewable Energy and Remain Competitive

AEE and AEBG strongly support states and utilities pursuing the use of voluntary renewable energy programs that allow customers to be served by a higher level of renewable energy than they would under standard service. In our experience, these programs are an important tool for utilities and states to meet customer needs and remain competitive. As noted above, there are now nearly two dozen programs in place across the country, and roughly half of states with vertically integrated electricity markets have approved at least one voluntary renewable energy program, with several others considering or working on such programs currently. Properly

structured programs can serve as an economic development tool for states to maintain existing and attract new companies with renewable energy goals. States that fail to follow suit will be left behind, especially as corporate demand for renewable energy continues to rise. Rejecting the first large-scale C&I renewable energy program to be offered in Florida—especially one with clear customer interest and support—would send a signal to the growing number of C&I customers who have set renewable energy targets that they cannot make progress on these targets in Florida.

Furthermore, voluntary renewable energy subscription programs do not preclude other utility efforts to increase renewable energy for all customers, and to deliver the benefits of these investments to all customers. Voluntary renewable energy programs should be assessed on their merits.

ii. AEE and AEBG Appreciate Many Elements of the SolarTogether Proposal, which Demonstrate that FPL Took Customer Input Into Account

Drawing upon the best practices outlined above, AEE and the AEBG note that the SolarTogether proposal reflects customer needs and preferences while also avoiding adverse impacts to nonparticipants. In particular, the program structure is fair and cost-based; the initial offer is sized to meet customer demand, with potential for future expansion; the program avoids restrictive eligibility requirements; it allows for short, flexible terms and avoids onerous termination requirements; it envisions a timely and expedient implementation; and it takes an innovative approach to ensure that nonparticipants are not only spared undue harm but allowed to share in the benefits of the program. Each of these positive aspects is discussed in turn below.

iii. The Program Structure is Fair, Flexible, and Cost-based

FPL's SolarTogether program gives customers an option to purchase renewable energy from new, local projects at a competitive price that will result in cost savings over time. As such,

it is responsive to the most important structural requirements of large customers seeking to procure renewable energy in partnership with their utility provider.

In particular, the program is structured and priced such that customers must take on an initial premium payment in exchange for savings over time. While rate structures for renewable energy programs vary (as noted above), most consist of two key elements: (1) a charge for the cost of renewable energy; and (2) a credit for the value of the resources to the grid. The SolarTogether program incorporates both the cost and the value of the renewable energy projects into the cumulative present value revenue requirement (CPVRR), and uses this as the basis for the program fees and credits, thereby appropriately reflecting the net value that the SolarTogether projects bring to FPL's system. In addition, the program provides transparent information about the administrative costs, consistent with AEBG's recommendations. Fair, clear, and competitive pricing are fundamental to the success of any utility renewable energy program; with the relatively minor suggested improvements outlined in Section B.ii. below, the SolarTogether program would meet customer needs in this regard.

iv. The Program is Scaled to Meet Initial Customer Demand, With Opportunities for Expansion

One of AEBG's recommended best practices is to "[s]tart with an initial offering large enough to enable C&I customers to make meaningful progress toward their renewable energy goals, and include clear mechanisms for expansion." The SolarTogether program complies with this recommendation, although more could be done to avoid delays in program expansion.

The SolarTogether program has an enrollment cap of 1,490 MW; this size was based on stated demand from prospective customers, with 1,100 MW of the program pre-enrolled prior to

delivery of FPL’s proposal to the Commission. Further, FPL states that it “will offer future phases, subject to customer demand, a determination of cost-effectiveness, and regulatory approval.”⁵

Limited initial program size and a lack of a clear process for program expansion has prevented some other utility renewable energy programs from meeting customer demand and caused undue delays for future customers to participate in programs that have quickly subscribed a first tranche. For example, Xcel Colorado proposed just 50 MW of renewable energy through its Renewable*Connect program, which was subscribed almost immediately; similarly, Georgia Power’s C&I Renewable Energy Development Initiative (REDI) program, which launched in 2017, was capped at 200 MW, and customers are still waiting for a second tranche of the program to become available. AEE and the AEBG therefore applaud FPL’s effort to size the program to meet the scale of initial demand, and appreciate FPL’s willingness to consider future phases.

However, AEE and the AEBG also note that the C&I and governmental portion of the SolarTogether program is already fully subscribed by pre-registered customers.⁶ To ensure that the program is available to additional interested C&I customers and to avoid delays in program expansion, AEE and the AEBG recommend that the Commission require an annual report of enrollment to ensure that future phases are initiated expeditiously as soon as the current phase approaches full enrollment.

v. The Program Eligibility Parameters Avoid Restrictions on Customer Participation

AEE and the AEBG recommend that utility programs be designed such that “all C&I customers are eligible to participate in at least one renewable energy program that aligns with their needs.” This recommendation reflects the fact that some utility programs have restricted customer

⁵ Testimony of Matthew Valle at p.10.

⁶ FPL states that the C&I and governmental portion is 1,117.5 MW, and that more than 200 C&I and governmental customers have reserved approximately 1,100 MW.

eligibility to a narrow subset of interested customers (e.g., customers above a very large peak demand threshold), resulting in a program that works for a select few but leaves other interested customers no better off than they were before. Narrowly defined programs are not inherently bad, but should be accompanied by alternatives that *do* allow a broader set of customers to participate. FPL's SolarTogether program avoids this challenge altogether by avoiding any restrictions on eligibility.

vi. The Program Allows for Flexible Terms and Termination Requirements

For some customers, term length and overly restrictive termination requirements are a barrier to participating in programs that otherwise meet their needs. In particular, many customers are unable to participate in programs that require a commitment beyond 10 or 15 years, timescales that are already often much longer than property leases or other operations-related contracts these customers engage in. In addition, some customers are unable to participate in programs that include onerous or inflexible termination requirements, preferring programs that set clear termination parameters while also allowing for transfer of the subscription between different accounts of the same customer, or to a different customer. As such, AEE and the AEBG recommend that utility programs “[g]ive customers a range of options, including mid-range (10-15 years),” and that they “[i]nclude clear, fair, and flexible termination provisions that allow for transfer to a different account.”

FPL's SolarTogether program meets both of these requirements, allowing customers to terminate their participation at any time after their first billing cycle. Customers are then barred from re-enrolling for a 12 month period; customers that re-enroll presumably start back at the Year One billing schedule. These restrictions are a reasonable price for customers to pay in exchange for the flexibility to terminate participation early. Furthermore, these restrictions set a strong

incentive for customers to remain in the program to receive the benefits of cost savings in later years and will therefore guard against the risk of customers skipping in and out of the program at will. AEE and the AEBG recommend clarifying that customers who re-enroll after leaving the program would do so as a Year One customer (i.e., with a subscription credit of 3.42881¢/kWh).

In addition, FPL's tariff states that, "Upon customer request, if the customer moves within FPL's service territory, program participation may continue at a new service address with no impact the customer's program enrollment date subject to the limitations and terms outlined above." This provision will not impact the program in any way, but is enormously helpful to many customers.

vii. The Program Proposes an Expedient Timeline for Implementation and Delivery.

Many businesses are on a strict and tight timeline to meet sustainability targets over the next years and decades; as such, it is important to them that their renewable energy deals move at the speed of business, whether they are pursuing these deals through direct power purchase agreements (PPAs) or through utility partnerships such as the SolarTogether program. FPL's proposal envisions an expedited timeline to deliver renewable energy to participating customers starting in March 2020.⁷ Moving quickly allows customers to make timely progress toward their renewable energy goals while also ensuring that the projects receive higher federal tax credits, maximizing savings for participants and nonparticipants alike.

viii. The Program Ensures No Harm to Nonparticipating Customers

Customers pursuing renewable energy to meet internal sustainability and renewable energy targets are unified and adamant that their purchasing decisions should not adversely impact other customers. FPL's SolarTogether program takes an innovative approach to ensure that

⁷ Application at p. 3.

nonparticipants are not only spared any potential adverse impacts, but are also given shared benefits in the form of long-term cost savings. Specifically, the program leverages the anticipated cost savings of the renewable energy projects to deliver savings to *nonparticipating* customers as well as participating customers; this design element is an innovation not seen in other utility programs, and helps to ensure that nonparticipants will not only not be impacted adversely, but will actually receive benefits as a result of participating customers' decision to invest in the program.

ix. Treatment of RECs Has Been Clarified, and now aligns with AEE and AEBG Recommendations

AEE and the AEBG recommend that all utility programs transfer RECs to customers, or retire them on customers' behalf. Without RECs, customers have no claim to renewable energy, and SolarTogether would have no merit as a renewable energy program. Previously, FPL had appeared to *intend* to comply with this clear and consistent customer requirement, but created ambiguity by making REC retirement optional. However, in the recent settlement agreement, FPL resolved this issue by stating that “participants may elect to have FPL retire on their behalf all [RECs] associated with their subscription” and that “FPL will not utilize RECs generated by the Program”.⁸ This clarifies the treatment of RECs and eliminates the risk that customers are assuming that they are purchasing a renewable energy product when in fact the RECs are being claimed by the utility.

x. Settlement Agreement Expands Access to Renewable Energy

Additionally, AEE supports the Settlement Agreement proposed by FPL, SACE, Walmart, and Vote Solar, which allocates 10% of Solar Together's residential capacity for low-income customers. This is a step in the right direction for the Solar Together program as it expands access

⁸ Settlement agreement, p. 3.

to renewable energy throughout FPL customer classes. FPL has also agreed to extend an option to low-income customers to participate in a free home energy efficiency survey, which marks positive movement on consumer awareness and outreach. FPL will benefit from further engaging with advocacy groups and large energy users during the design of Solar Together Phase 2, as this will allow the utility to continuously improve their offerings to customers.

B. Despite Overall Support of SolarTogether, AEE and the AEBG Have Several Recommended Improvements

While the SolarTogether program has many positive aspects and is overall responsive to customer needs, there are several areas where it could be improved. With respect to process, AEE and the AEBG have concerns regarding the pre-registration process and the lack of a competitive solicitation process to identify SolarTogether projects; the program itself also has some relatively easy-to-fix shortcomings, including the fact that customers are required to bear the performance risk of SolarTogether projects, uncertainty around the treatment of renewable energy certificates (RECs), and a lack of explanation of how investment tax credits are taken into account. AEE and AEBG believe these concerns can all be resolved without undue delay to the SolarTogether program.

i. Future Tranches of SolarTogether Could Achieve More Transparency in the Enrollment Process

Given the importance of sizing programs to meet customer demand, AEE and the AEBG understand and appreciate FPL's instinct to seek pre-enrollment in the SolarTogether program. However, for future tranches of the program, we recommend an approach that provides customers with a greater level of transparency.

First, we note that no matter how robust FPL's private outreach, a full public release is the only way to ensure that *all* potential customers have the opportunity to learn about the program.

To be clear, AEE and the AEBG appreciate and applaud the significant customer outreach that FPL undertook when launching SolarTogether, including email outreach, five educational webinars, and publication of a program website.⁹ Despite FPL's efforts, however, AEE and the AEBG are aware of at least one interested C&I customer that was not made aware of the program through FPL's outreach.

Second, FPL's decision to take customer reservations prior to Commission approval or public announcement of the program is problematic because it put customers in the position of having to make decisions regarding participation without full or final information about the program structure and costs. Given the current lack of alternative options to meet their renewable energy goals in Florida, some customers may have felt pressure to enroll in the program despite discomfort with this lack of certainty and transparency. The fact that customers have flexibility to exit the program at any time alleviates the implications of this lack of upfront transparency.

To alleviate both of these concerns, we recommend that future phases of SolarTogether and future offerings from other utilities give customers a chance to litigate any issues with the program at the PSC prior to making enrollment decisions. Specifically, the Commission should require that such programs undergo a public comment process and Commission review and approval prior to soliciting customer enrollment. To address the question of how to size a program appropriately, utilities could either propose a capacity threshold upfront (e.g., on the basis of expected or informally gathered customer interest) prior to requesting Commission approval of the program (the approach taken by Puget Sound Energy, Consumers Energy, and others), or propose the program structure and format and receive approval prior to accepting enrollments, which would then be used to solicit resources (the approach taken by DTE, Dominion, and others).

ii. SolarTogether Lacks a Competitive Project Solicitation Process

⁹ Application at p.2.

To ensure that customers are getting the lowest possible project cost, AEE and AEBG recommend that utility renewable energy programs “[r]ely on competitive procurement for resources to meet program needs.” FPL instead proposes that the 1,490 MW SolarTogether program would be comprised entirely of self-built solar plants. While the projects appear to be competitively priced, on principle this approach does not guarantee to customers that they are receiving the best possible price. In contrast, renewable energy programs offered by Georgia Power, Dominion Energy, Duke Energy Progress, NV Energy, DTE, and many others have either allowed or entirely relied upon a competitive solicitation process that includes participation by independent power producers.

FPL does not give sufficient justification for its decision to self-build; and indeed, Florida law would require the utility to rely on a competitive solicitation process if the projects were just 0.5 MW larger.¹⁰ Even by FPL’s own description, the 20 small projects appear to operate as five larger projects, ranging in size from 223.5 MW to 447 MW.¹¹ AEE and the AEBG fully support rapid buildout of solar resources and streamlined permitting processes in Florida to ensure the state can offer these resources directly to customers. We recognize that larger projects may trigger additional requirements under the Power Plant Siting Act, and do not want time delays in the buildout of solar resources. However, for future programs, AEE and the AEBG believe a balance can be struck to prioritize expedient project development while also allowing for a competitive procurement process.

Given that pre-enrolled customers have an interest in timely implementation of the program (as noted above in Section V.A.v.), AEE and the AEBG do not recommend cancelling the existing

¹⁰ Power Plant Siting Act.

¹¹ Application at p.3.

projects and initiating a competitive solicitation process for Phase 1. However, AEE and AEBG do strongly urge the Commission to require a competitive solicitation process for future phases of SolarTogether and for all other utility renewable energy programs in Florida.

iii. The Program Puts Project Performance Risk With the Customer, but Straightforward Safeguards can be Introduced

The SolarTogether program places the performance risk of the SolarTogether projects on participating customers; although customers can exit the program if projects underperform, AEE and the AEBG strongly recommend putting in place some simple, straightforward safeguards to reduce this risk.

Specifically, our concern arises from the fact that the SolarTogether program calculates customer subscription charges on a \$/kW basis, and credits customers at a \$/kWh basis. This means that if a project falls short of its projected capacity factor, the customer will still pay the same monthly fee, but will be credited for fewer kWh of production. The 7-year payback that FPL estimates is based on a capacity factor of 26.2%¹²; however, the customer (despite having no control over project operation and maintenance) is left completely vulnerable to underperformance, while the utility (despite having complete control over project operation and maintenance) is not held accountable for project performance in any way. This is in contrast to a typical PPA structure, where the customer pays a \$/kWh price and the developer incurs the \$/kW costs of the project, thus placing the production risk on the developer, who also has the ability to manage the operation of the project. If a SolarTogether project were to get disconnected from the grid during a hurricane, for example, FPL would be responsible for getting the project back online,

¹² Capacity factor as stated by Company Witness Juan E. Enjamio, Testimony at p.4. TECO's SSR-1 proposal assumes a capacity factor (CF) of 25.8%, which is lower than the FPL's 26.2% CF. In Duke's 2017 SoBRA filing, the projected CF for solar projects ranged from 29.7% to 30.8%. The CF assumed by FPL in this proposal is not unreasonable compared to these other utility-scale solar projects.

yet the customer would be the one to face the financial harm caused by any delays. It also unclear whether customers would be credited according to the output of a specific individual project or the averaging production across the SolarTogether portfolio.¹³ Blending the performance of all the projects, if that is not already FPL's intent, would reduce the impact of underperformance or disruption of any individual project.

While the actual likelihood of project underperformance may be very low, customers are ill-equipped to address the risk that it introduces. The fact that the customer can leave the program at any time does give customers significant comfort and protection in this regard, but additional safeguards are readily available. Specifically, without changing the overall program structure, this risk to customers could be reduced significantly by the addition of a requirement for FPL to report project performance to the PSC annually, with an explanation of any deviations from the expected capacity factor of each project. Such an approach would ensure that any issues are identified early, and addressed before adverse impacts to customers are allowed to accrue. In addition, FPL should clarify that customer credits would be allocated on the basis of the output of the entire SolarTogether portfolio rather than assigning each subscriber to an individual project.

iv. Treatment of the Investment Tax Credits earned by SolarTogether Projects is Not Discussed and Should be Clarified

FPL does not appear to have clarified where the benefits of the Investment Tax Credit are flowing, including whether these savings are incorporated into the CPVRR, included elsewhere in SolarTogether, or not incorporated into the program at all. FPL should clarify the treatment of Investment Tax Credits earned by SolarTogether projects.

C. Summary of Recommendations

¹³ Company Witness Matthew Valle at 19 states that customers would be assigned to specific Solar Together projects on the basis of their reservation timestamp. The Company's Application, Exhibit C, states that customers would be credited according to the actual monthly output for the Solar Together Phase to which the customer is subscribed.

AEE and the AEBG appreciate FPL's effort to create a renewable energy offering that meets the needs of C&I customers while also providing opportunities for governmental, business, and residential customers to purchase solar from offsite projects. While we have some concerns with the design of the program, many elements of the program are responsive to customer needs and preferences, and overall we view SolarTogether as a significant step forward and a vital tool to ensure that FPL continues to meet the needs of its customers. We therefore encourage the Commission to approve this important and precedential program.

We further encourage the Commission to consider some minor modifications to Phase 1 of SolarTogether, described below, which we believe would improve the program without requiring any fundamental changes or delays. Should these recommendations jeopardize timely and successful rollout of Phase 1, we would still support approval of the program as proposed. We also ask the Commission to use this opportunity to establish clear parameters and guidelines for future phases of SolarTogether and for C&I renewable energy offerings from other Florida utilities that do address these stated areas of improvement.

First, for Phase 1 of SolarTogether, AEE and the AEBG encourage the Commission to grant approval while considering our recommendations that FPL:

- Submit an annual performance report to the PSC including, at minimum:
 - Data on customer enrollment, by sector, and remaining subscription availability, including plans for expansion as availability shrinks; and
 - Annual performance reports for each SolarTogether project, including an explanation for any deviation from the anticipated capacity factor and a plan to improve performance for any underperforming projects;

- Clarify that each customer's credits will be calculated on the basis of the customer's pro-rata share of the output of the entire SolarTogether Phase 1 portfolio, rather than an individual SolarTogether project;
- Provide an explanation of the treatment of investment tax credits earned by Solar Together projects, and address any concerns raised by the approach taken.

Second, for future phases of SolarTogether and for future renewable energy offerings from other Florida utilities, the Commission should require that such programs not only incorporate the aforementioned improvements, but also:

- Undergo a public comment process and receive Commission approval through a docketed proceeding prior to pre-registration and/or registration of prospective participants; and
- Rely on a competitive project solicitation process to source renewable energy projects to serve customer needs.

This recommended approach will preserve the many positive elements of SolarTogether, deliver improvements to Phase 1 of the program while avoiding delay or disruption for the over 200 customers that have already agreed to participate, and ensure that future programs avoid some of the shortcomings of FPL's initial SolarTogether proposal.

V. Conclusion

AEE and AEBG appreciate FPL's effort to meet customer demand for renewable energy through the SolarTogether program, a first-of-its-kind program in Florida that will quickly turn the state into a leader for customer renewable energy opportunities. We therefore strongly urge the Commission to approve this program in a way that maintains its many positive elements while ensuring that future programs in Florida will be even better suited to meet the needs of all

customers moving forward. AEE and AEBG look forward to working with FPL, the Commission, and other Florida utilities to advance and secure Florida's emerging role as a leader in customer renewable energy options.