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March 12, 2021

VIA ELECTRONIC FILING
Adam Teitzman, Commission Clerk
Division of the Commission Clerk and Administrative Services
Florida Public Service Commission
2540 Shumard Oak Boulevard
Tallahassee, FL 32399-0850

Re: Docket No. 20210015-EI
Petition by FPL for Base Rate Increase and Rate Unification

Dear Mr. Teitzman:

Attached for filing on behalf of Florida Power & Light Company ("FPL") in the above-referenced docket are the Direct Testimony and Exhibits of FPL witness Matthew Valle.

Please let me know if you should have any questions regarding this submission.

(Document 12 of 69)

Sincerely,

R. Wade Litchfield
Vice President & General Counsel
Florida Power & Light Company

RWL:ec

BEFORE THE FLORIDA PUBLIC SERVICE COMMISSION

FLORIDA POWER & LIGHT COMPANY

DIRECT TESTIMONY OF MATTHEW VALLE

DOCKET NO. 20210015-EI

MARCH 12, 2021

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I. INTRODUCTION AND SUMMARY

Q. Please state your name and business address.

A. My name is Matthew Valle. My business address is Florida Power & Light Company, 700 Universe Boulevard, Juno Beach, Florida 33408.

Q. By whom are you employed and what is your position?

A. I am employed by Florida Power & Light Company ("FPL" or the "Company") as the Vice President of Development at FPL.

Q. Please describe your duties and responsibilities in that position.

A. I am responsible for leading new generation development for the company across technologies including solar, batteries, electric vehicles ("EVs"), hydrogen and natural gas. I have been in this role since November 2015.

Q. Please describe your educational background and professional experience.

A. Prior to my current role, I was Vice President of Development at NextEra Energy Transmission where I was responsible for the competitive development of transmission across the U.S. and Canada. Prior to joining NextEra Energy, I held the position of Principal with The Boston Consulting Group in its Dallas office from 2007 to 2011. In this role, my responsibilities included running project teams for Fortune 500 clients in the energy and technology sectors. Prior to The Boston Consulting Group, I served five years as a nuclear submarine officer in the U.S. Navy. I received a Bachelor of Science with Merit from the U.S. Naval Academy in Systems Engineering and a Master of Business Administration from Harvard Business School.

Q. Are you sponsoring any exhibits in this case?

A. Yes. I am sponsoring the following exhibits:

- MV-1 Consolidated MFRs Sponsored or Co-sponsored by Matthew Valle
- MV-2 Supplemental FPL and Gulf Standalone Information in MFR Format Sponsored or Co-Sponsored by Matthew Valle
- MV-3 2022 and 2023 Solar Projects Details
- MV-4 Layout of Major Solar Center Equipment Components
- MV-5 Property Held for Future Use
- MV-6 Electric Vehicle Pilots
- MV-7 Battery Storage Pilot
- MV-8 Green Hydrogen Pilot

I am co-sponsoring the following exhibit:

- REB-12 Solar Base Rate Adjustment Mechanism, filed with the direct testimony of FPL witness Barrett.

Q. Are you sponsoring or co-sponsoring any consolidated Minimum Filing Requirements ("MFRs") in this case?

A. Yes. Exhibit MV-1 lists the consolidated MFRs that I am sponsoring and co-sponsoring.

Q. Are you sponsoring or co-sponsoring any schedules in "Supplement 1 – FPL Standalone Information in MFR Format" and "Supplement 2 – Gulf Standalone Information in MFR Format"?

A. Yes. Exhibit MV-2 lists the supplemental FPL and Gulf standalone information

in MFR format that I am sponsoring and co-sponsoring.

Q. What is the purpose of your testimony?

A. My testimony addresses new solar generation projects that will be put into service between 2022 and 2025, building on the success of FPL's solar programs to date. For 2024 and 2025 solar projects, I describe the proposed cost recovery mechanism, a Solar Base Rate Adjustment ("SoBRA"), that is a part of the Company's proposed multi-year rate plan. I also address property held for future use in connection with FPL's generation planning and development. Finally, my testimony addresses investments made and to be made under several pilot programs including EV charging pilots, battery storage pilots, and a new green hydrogen pilot project at our Okeechobee Clean Energy Center.

Q. How will you refer to FPL and Gulf when discussing them in testimony?

A. When discussing operations or time periods prior to January 1, 2019 (when Gulf was acquired by FPL's parent company, NextEra Energy, Inc.), "FPL" and "Gulf" will refer to their pre-acquisition status, when they were legally and operationally separate companies. For operations or time periods between January 1, 2019 and January 1, 2022, "FPL" and "Gulf" will refer to their status as separate ratemaking entities, recognizing that they were merged legally on January 1, 2021 and consolidation proceeded throughout this period. Finally, operations or time periods after January 1, 2022 are referred to as FPL only, because Gulf will be consolidated into FPL. Therefore, unless otherwise noted, my testimony addresses requests for the consolidated company.

Q. Please summarize your testimony.

A. Since its last rate case in 2016, FPL has continued to lead the state in the development of clean, cost-effective solar generation. FPL leads the industry as the largest owner-operator utility of large-scale solar projects and is currently Florida's largest generator of solar power – operating 33 solar power plants (representing approximately 2,345 MW of large-scale solar capacity). Building on that success, FPL proposes to continue the expansion of solar in its generation fleet by adding an additional 2,980 megawatts of cost-effective solar for the period from 2022 through the end of 2025. In addition to its efforts in deploying fuel-free solar generation since its last rate case, FPL also has been a leader in battery storage applications that have provided and will continue to provide FPL information on how batteries can further increase the performance of FPL's grid and the deployment of renewable energy. Further, FPL has been engaged in piloting EV programs that have allowed and will continue to allow FPL to efficiently plan, adapt and react to the growing use of electric vehicles by our customers. Finally, and consistent with FPL's track record as a leader in innovative technologies that benefit our customers, FPL is seeking approval of a "green hydrogen" pilot project that will allow FPL to test the use of hydrogen as a fuel for its natural gas-powered combined cycle unit at the Okeechobee Clean Energy Center. This exciting new pilot will test FPL's ability to produce hydrogen from water to be used as a fuel source in our combustion turbines at Okeechobee, while at the same time emitting only clean oxygen into the air as a byproduct of the process. In summary, FPL's

innovative and effective deployment of solar generation; battery storage pilots; EV pilots; and new green hydrogen pilot program will all continue to benefit FPL's customers and continue to make Florida a national leader in clean, renewable, and innovative technologies.

II. NEW SOLAR GENERATION

Q. In general, what is the current state of solar power generation in Florida?

A. Constructive regulatory policies, such as the approval and implementation of the SoBRA mechanism, has put Florida in a leadership position in new solar development. For FPL, this includes the successful construction of 223 MW_{AC} of solar in 2016, and 1,192 MW_{AC} of solar facilities under the SoBRA cost recovery mechanism approved by the Commission in Order No. PSC-16-0560-AS-EI. Implementing the SoBRA-based solar program resulted in significant cumulative present value revenue requirements ("CPVRR") savings to customers ($172 million); the creation of 3,200 construction jobs; and over $27 million paid in property taxes through 2020. Further, FPL's SolarTogether community solar program was approved by the Commission in 2020 and is on track to provide an additional 1,490 MW_{AC} of solar to the state. Today, Florida ranks fourth in the nation for installed solar, up from ranking ninth in 2016. In addition, at its current pace, Florida is forecasted to claim the number three spot by 2023.

Q. Would you please describe the solar generation projects that the Company plans to address through its four-year base rate plan?

A. Yes. In 2022, the Company plans to place 447 MW_{AC} of solar energy into service by building 6 new solar facilities throughout Florida. In 2023, the Company plans to place an additional 745 MW_{AC} of solar energy into service via 10 more new solar facilities. Details on each of the facilities planned for 2022 and 2023 are contained in Exhibit MV-3 to my testimony. As referenced in the testimony of FPL witness Bores, the revenue requirement associated with the planned solar generation scheduled to be in service in 2022 and 2023 is reflected in the filed MFRs and cost of service for each of those years.

In 2024 and 2025, the Company currently plans to place an additional 1,788 MW_{AC} of solar energy into service. As discussed by FPL witness Barrett, cost recovery for these projects is an essential element of FPL's multi-year rate plan and, at a later date, will be requested via a SoBRA mechanism that is similar to the mechanism approved by the Commission in Order No. PSC-16-0560-AS-EI. I discuss this proposed mechanism in further detail later in my testimony, and it is also addressed in the testimony of FPL witnesses Fuentes and Cohen.

Q. What witnesses discuss the proposed solar energy centers that will be placed into service in 2022 and 2023?

A. In his direct testimony in this matter, FPL witness Sim provides details on the cost-effectiveness of these solar energy centers. In my testimony, I provide operational details for the proposed solar sites for 2022 and 2023 that are

included in Exhibit MV-3 to my testimony.

Q. What about the solar that the Company is proposing for 2024 and 2025?

A. Like the solar energy centers slated for 2022 and 2023, FPL witness Sim's Exhibit SRS-12 shows that 894 MW_{AC} of solar is currently projected as a cost-effective resource addition in each of the years 2024 and 2025. My testimony discusses the operational parameters and process proposed by the Company for SoBRA additions in 2024 and 2025.

Q. Please describe FPL's experience designing and constructing solar generation.

A. FPL's extensive experience in designing and building universal solar generation facilities places it among the leaders in the U.S. Since 2009, FPL has completed 33 universal solar centers totaling approximately 2,344 MW_{AC}. The existing FPL universal solar energy centers range in size from 10 MW_{AC} to 74.5 MW_{AC}. These 33 PV universal solar energy centers were constructed and placed into service an average of 7 days early at a total cost of $3.2 billion, nearly $107 million below the cumulative budget.[1] By the end of 2021, as the remaining FPL SolarTogether solar sites are placed into service, FPL expects to have 44 universal solar centers in service with total nameplate rating of 3,164 MW_{AC}.

Q. Why are the foregoing factors important to FPL's customers?

A. Over the past five years, FPL has developed a track record of consistently developing solar projects on time and at or under budget, providing our

[1] Additionally, FPL's non-solar generation projects have, on average, come in approximately 5 percent under budget over the last 15 years.

customers with reliable and cost-effective new emissions-free generation. That track record now includes 33 solar projects in 20 different counties across our service area. Our process starts with early site identification and due diligence and leverages the expertise of our internal team as well as local planners and other consultants to determine whether a site is suitable for future solar construction and to understand local stakeholder issues. Addressing concerns and working to problem-solve in advance can save difficulties later in the permitting or construction process. FPL also works closely with national, state and local organizations from early stages of design and development, and through the operational life of the plant, to determine suitability of prospective solar sites and to ensure compatibility with the surrounding area.

Q. Please describe how FPL's integrated approach to monitoring and optimizing solar fleet performance benefits customers.

A. FPL has developed and continues to improve advanced monitoring technology and performance analysis tools for its solar energy centers. These tools optimize plant operations, drive process efficiencies, and facilitate the deployment of technical skills as demand for services grows. For example, the Company's Fleet Performance and Diagnostics Center ("FPDC") in Juno Beach, Florida, provides FPL with the capability to monitor every plant in its system. The FPDC uses advanced technology to identify potential problems earlier than traditional detection methods, which allows the operating teams the opportunity to prevent or mitigate the effects of failures. FPL compares the performance of like components on similar generating units and determines

how to make improvements, which often prevents problems before they would otherwise occur, resulting in improved service reliability for FPL customers. Live video links can be established between the FPDC and plant control centers to immediately discuss challenges that may arise, thus enabling FPL to prevent, mitigate, or solve problems.

Additionally, in 2017, FPL established a Renewable Operations Control Center ("ROCC") to serve as the centralized remote operations center for all FPL PV solar and energy storage facilities. The ROCC provides a mechanism to efficiently manage daily work activities and ensure effective deployment of best operating practices at all of FPL's renewable energy centers. The FPL team has leveraged these capabilities along with its broad range of experience to develop robust operating plans that deliver high levels of reliability and availability at some of the lowest costs in the industry, as discussed in the testimony of FPL witness Broad.

Q. Please describe the solar PV generation technology that FPL plans to use for the 2022 and 2023 solar projects.

A. The 2022 Project will consist of six individual solar energy centers, each with a nameplate capacity of 74.5 MW_{AC}. The 2023 Project will consist of 10 individual solar energy centers, each with a nameplate capacity of 74.5 MW_{AC}. The 2022 and 2023 Projects will utilize a combination of silicon crystal and thin-film solar PV panels that convert sunlight to direct current ("DC") electricity. In addition, the 2022 and 2023 Projects will consist of a mix of both

fixed-tilt and tracking configurations, based on local code requirements. In general, FPL's solar site portfolio is a mix of fixed tilt and tracking technology. All other factors being equal, the use of tracking technology can offer higher generation output as well as a higher firm capacity value. This is especially true for using tracking technology in the Gulf footprint, which benefits from a higher firm capacity value due to the western geographic location as compared to the rest of FPL's service area.

It is important to note however that not every location within Florida is currently suitable for the use of trackers. Tracker technology as designed today provides more benefit to the customer in areas where the wind loads fall below certain thresholds defined by current wind loading maps or individual site wind load studies. In extremely high wind load environments, the overall cost of the material and labor needed to meet the design criteria for such high wind loads is not cost effective. In addition, tracker technology requires a larger land footprint than a fixed site, which sometimes makes this option infeasible at certain space constrained sites.

The panels for these projects will be linked together in groups, with each group connected to an inverter, which transforms the DC electricity produced by the PV panels into alternating current ("AC") electricity. It should be noted that the inverters will be mounted with a medium voltage transformer on an equipment skid called a Power Conversion Unit ("PCU"). The voltage of AC

electricity coming out of each inverter is increased by a series of transformers to match the transmission interconnection voltage for each solar center.

FPL used baseline designs to establish the cost and performance projections for the centers, and FPL continues to evaluate potential optimization opportunities as work moves forward. Design optimization activities review the type of support system and selection of other major components to ensure high yields of output, availability and reliability, and the highest overall benefit to the customer. Details of the final designs for the solar centers would differ from the baseline only if such changes result in a greater benefit to FPL's customers. Exhibit MV-4 provides a typical block diagram depicting the basic layout of major equipment components.

Q. What are the proposed commercial operation dates for the 2022 and 2023 Projects?

A. As reflected in more detail in Exhibit MV-3 to my testimony, the 2022 Project started construction activities in December 2020. For the 2023 facilities, the projects are expected to begin construction in mid-2021. The period necessary to complete engineering, permitting, equipment procurement, contractor selection, construction, and commissioning is typically between twelve and eighteen months. This construction period includes the time necessary to prepare each of the sites, construct roads and drainage systems, install the solar generating equipment, erect fencing, and build the interconnection facilities. The construction schedules support the proposed commercial in-service dates.

Q. What is FPL's estimated cost for the 2022 and 2023 Projects?

A. FPL estimates that the total cost of the 2022 Project (6 sites) will be $560 million, at an average price of $1,254/kW$_{AC}$. The 2023 Projects (10 sites) are projected to cost $916 million, at an average price of $1,229/kW$_{AC}$. The 2022 and 2023 Projects are expected to deliver a total of $397 million in CPVRR savings to our customers, as demonstrated by FPL witness Sim.

Q. Are the cost estimates for equipment, engineering, and construction for the proposed solar generation reasonable?

A. Yes.

Q. What is the basis for your conclusion?

A. The selected solar sites for the 2022 Project and 2023 Projects are well into permitting and have undergone extensive diligence. Thus, we have confidence that we will be able to construct them on-time and on-budget. Further, the costs for all surveying, engineering, equipment, materials and construction services necessary to complete the centers have been established through competitive bidding processes specific to the 2022 and 2023 Projects, ensuring that 100% of the project costs for procurement of construction goods and services are subject to competitive solicitation.

Q. Please describe the competitive solicitations associated with the 2022 and 2023 projects.

A. Like prior SoBRA projects, FPL followed a similar process for procurement of equipment and contractors for the 2022 Project. This includes having solicited proposals for the supply of the PV panels, PCUs, and step-up transformers, as

well as the engineering, procurement and construction services required to complete the proposed solar energy centers. FPL requested proposals from industry leading suppliers for the procurement of PV panels, inverters, PCUs, and step-up transformers, as well as the engineering, procurement and construction ("EPC") services required to complete the proposed solar energy centers for the 2022 Project.

FPL requested proposals for PV panels from nine large, industry-leading suppliers. Six suppliers submitted bids that satisfied the requirements of the request for proposals ("RFP"). The six conforming bids were evaluated. In addition to offering the lowest cost and highest efficiency, the selected supplier has demonstrated that they have among the highest product quality programs in the industry and was able to provide strong financial performance security.

FPL solicited proposals from six PCU suppliers. All the proposals met the requirements of the RFP and the award was made to a single supplier. Further, the solicitation for the step-up transformers has been completed. FPL solicited proposals from six industry-leading manufacturers of step-up power transformers and secured the supply of the required transformers from the best evaluated as well as the lower cost bidder.

EPC service proposals for the Projects were solicited from six industry-recognized contractors. Four of the six contractors submitted bids and the proposals were evaluated. FPL has finalized a contract with the EPC contractor

that submitted the best proposal for the construction of the 2022 Project. The scope of services for the EPC solicitations included the supply of the balance of equipment and materials. Proposals for the construction of the substation and interconnection facilities will be solicited from industry-recognized contractors. Bids will be evaluated for the requirements of the proposal, and the best bidder will be selected to construct the substation and interconnection facilities. A similar competitive procurement process is being followed for the 2023 Projects in mid-to-late 2021.

Q. Can you describe how FPL acquired the property for the 2022 and 2023 Projects?

A. Yes. FPL screens candidate parcels by using criteria including each property's proximity to a transmission system interconnection point, availability of transmission capacity, and assessment of whether the property provides sufficient acreage to accommodate the expected permitting requirements and the construction of the solar centers. FPL evaluates the features of each property as a whole for factors such as the presence of wetlands and flood plains, environmental constraints, and cultural restrictions, and FPL develops designs that optimize the land use for each parcel. In addition, FPL also reviews its land portfolio to ensure that the site development timeline is in line with expected in-service dates for the Projects.

Q. Do FPL's cost estimates include the costs associated with transmission interconnection?

A. Yes. The estimated capital construction cost for each of the projects includes

the projected cost for its unique interconnection configuration.

Q. Are upgrades to the existing FPL bulk transmission system required to accommodate the proposed solar energy centers?

A. No network upgrades to FPL's bulk transmission are required and, as a result, there are no costs associated with transmission system upgrades. Any incremental capital costs resulting from affected system impacts and upgrades are covered in capital cost projections.

Q. Are there other benefits associated with the 2022 and 2023 Projects?

A. Yes, there are several other benefits associated with the projects. For example, approximately 200 individuals will be employed at each of the centers at the height of construction, creating about 1,200 jobs for the 2022 Project and approximately 2,000 jobs for the 2023 Projects. The contractors building the solar energy centers are required to exercise reasonable efforts to use local labor and resources. The jobs associated with the construction of the centers will therefore provide a secondary benefit by boosting the economy of local businesses. Additionally, the local communities will benefit from increased property tax revenues following the completion of the solar energy centers. For instance, prior FPL SoBRA projects resulted in over $27 million in property taxes paid through 2020.

Q. How does the Company propose that the SoBRA mechanism for the years 2024 and 2025 will operate?

A. This process is detailed in FPL witness Barrett's exhibit REB-12. In summary, FPL is proposing that the SoBRAs in 2024 and 2025 operate consistent with

the methodology approved in Order No. PSC-16-0560-AS-EI and FPL's previous SoBRA filings in Docket Numbers 20170001-EI, 20180001-EI, and 20190001-EI. FPL would file a request for cost recovery approval of the solar generation project at the time of its final true-up filing in the Fuel and Purchased Power Cost Recovery Clause docket in the year prior to the solar generation project going into service. In that proceeding, as with prior SoBRA proceedings, the Commission will determine whether the solar project lowers FPL's projected CPVRR compared to the projected system CPVRR without the project, and the amount of revenue requirements and appropriate percentage increase in base rates needed to collect the estimated revenue requirements. The method of calculating revenue requirements for the 2024 and 2025 SoBRAs is described in the testimony of FPL witness Fuentes and FPL witness Cohen describes the associated adjustment in rates and riders. If the solar project is approved, FPL will calculate and submit for Commission confirmation the amount of the SoBRA for each such solar project using the annual Capacity Clause projection filing for the year that solar project is scheduled to go into service. As explained by FPL witness Cohen, base rates then would be adjusted consistent with that amount upon commercial operation of the respective solar project(s).

In the prior multi-year plan, there were limitations on the amount of solar megawatts that can be recovered through the SoBRA mechanism as well as

$/kW$_{AC}$ price limits[2] for the projects. For the 2024 and 2025 SoBRAs, FPL is proposing a $1,250/kW$_{AC}$ recovery cost cap, or roughly 30% ($500/kW$_{AC}$) below FPL's 2016 SoBRA cap of $1,750/kW$_{AC}$. Further, FPL proposes a "not to exceed" SoBRA limit of 1,788 MW$_{AC}$ for 2024 and 2025 combined, with no more than 894 MW$_{AC}$ for 2024, as reflected in FPL witness Sim's Exhibit SRS-12[3].

III. PROPERTY HELD FOR FUTURE USE

Q. Can you please describe what property the Company is holding to develop solar and other generation projects in the future?

A. Yes. Exhibit MV-5 to my testimony shows property that the Company is holding for future solar and other generation project development, as of December 31, 2020.

Q. Did the Company reasonably and prudently acquire these sites for future generation facility development?

A. Yes. Exhibit MV-5 to my testimony provides details on each site held for future use. Each of these properties will be evaluated for use with the 2024 and 2025 solar projects that I discussed earlier in my testimony.

[2] FPL may also have the ability to deploy some of the 2024 and 2025 SoBRA projects with battery storage and would seek to do so as long as the total project cost cap was not exceeded, and so long as solar plus storage was cost effective versus solar alone.

[3] FPL also requests the ability to carryover any megawatts that do not come into service in 2024 into 2025.

Q. Does the property that you are holding for future solar use align with the assumptions for solar generation facilities that will be needed in the future?

A. Yes. FPL's most recent Ten-Year Site Plan identified a total of 6,854 MW_{AC} of new solar additions between 2022 and 2029 – roughly ninety-two (92) new solar energy centers. As a consequence of this shift in generation mix and the increasing levels of solar generation, there will be a commensurate increase in utility property held for future use balances to meet future resource needs. Given the continuing development pressure within the state of Florida, it is prudent to acquire land now to ensure that FPL can cost effectively meet these future resource planning needs. Increases in the amount of land set aside for conservation areas combined with ongoing residential and commercial development pressure means that finding and obtaining land suitable for future solar sites will become more difficult and ultimately will be more expensive. All these elements contribute to reducing the overall amount of available, suitable land in Florida making it increasingly important to identify, acquire, and obtain the necessary permits for future solar sites. A key component of FPL's success in solar development hinges on the early execution of a land acquisition plan in recognition of the underlying macroeconomic conditions and development constraints noted above.

Suitable land must possess very specific locational and environmental attributes, including factors such as: (1) non-residential land, preferably agricultural; (2) land close to existing FPL transmission lines with available

injection; (3) land screened for minimum wetlands, species, and other environmental impacts; (4) large land parcels with one owner (if possible) to reduce the administrative burden to develop land with various owners; and (5) land dispersed throughout FPL's service area.

Finally, FPL's preferred process is to enter into purchase options with landowners to minimize upfront purchases and allow the opportunity for better alignment of the purchase of the land with the development timeline. However, there are instances where landowners will not enter into options, in which case, as explained above, FPL evaluates the site benefits and decides whether to purchase the land.

IV. PILOT PROJECT PROGRAMS

Q. What investments made in conjunction with the pilot projects are you sponsoring?

A. In Exhibit MV-6 to my testimony, I detail certain investments that have been made to effectuate EV Pilots and, in Exhibit MV-7 to my testimony, I describe the investments made under the Battery Storage Pilot that the Commission approved in Docket 160021-EI. My testimony demonstrates that the EV investments are reasonable and prudent expenditures and that the battery storage projects meet the standard for prudence in Order No. PSC-16-0560-AS-EI.

Q. Please discuss the investments made for EV Pilots.

A. FPL began implementation of the new FPL EVolution pilot program in 2019 to support the growth of EVs with the goal to install more than 1,000 charging ports. The primary objective of this pilot program for FPL is to gather data and learnings ahead of mass EV adoption to ensure future EV investments enhance service and reduce costs. The FPL EVolution Pilot focuses on three key areas: a) infrastructure build-out impacts of EV adoption rates; b) rate structures and demand models; and c) grid impacts of fast-charging.

Installations under the pilot encompass different EV charging technologies and market segments, including level 2 workplace and fleet charging at public and/or private workplaces; destination charging at well-attended locations; residential charging at customers' homes; and DC fast charging in high-traffic areas like bus depots and strategically-located sites along highway corridors and evacuation routes. This pilot program is conducted in partnership with interested host sites. Exhibit MV-6 to my testimony provides a breakdown of ports, charger types and market segments; but the number of charging ports and segmentation will be dependent on final site selection.

FPL anticipates the Company's total investment in the FPL EVolution pilot program to be $30 million through the end of 2022, which has been included for base rate recovery as part of this proceeding. A portion of this investment will be offset by any revenues received under FPL's UEV tariff. The UEV

tariff, approved by the Florida Public Service Commission in Docket Number 20200170-EI, establishes a rate for utility-owned public EV fast charging stations. The UEV tariff enables FPL to charge drivers directly at certain FPL EVolution fast charging stations. The UEV tariff took effect in January 2021 and will last for a period of five years.

Q. Please discuss the investments made under the Battery Storage Pilot that the Commission approved in Docket 160021-EI.

A. FPL was authorized in Order No. PSC-16-0560-AS-EI to deploy up to 50 MW_{AC} of battery pilot projects to analyze the future potential of battery storage technology. FPL has invested in ten separate projects as part of the 50 MW_{AC} pilot. Each project is designed to provide unique learnings on how the battery and the system operate as reflected in Exhibit MV-7. For example, two of the storage pilots involved pairing battery storage with existing universal PV facilities, designed to capture curtailed (or "clipped") solar energy from the solar panels during high solar insolation hours and release the energy in other hours. Other pilots were designed to shift PV output from non-peak times to peak times and to provide "smoothing" of solar output and regulation services. The data and lessons gathered from these pilots have resulted in more optimized design configurations for solar-paired battery projects as well as improved operational parameters for economic dispatch. Additional projects include: deploying a 10 MW_{AC} battery in a dense urban area to examine the use of batteries to support the distribution system; deploying a battery alongside an existing solar PV system to create a micro grid; Electric-Vehicle-to-Grid

("EV2G") batteries using electric school buses that will be able to discharge electricity to the grid when needed; and deploying a battery at the Dania Beach Clean Energy Center Unit 7 to provide an opportunity to test using battery storage for black start capability of large generating units. FPL is also developing a battery augmentation pilot at existing battery storage locations to evaluate battery degradation and evaluate various solutions. As reflected in exhibit MV-7, each of these pilot projects are at or under the $2,300/kW$_{AC}$ cost cap in FPL's 2016 settlement agreement.

Q. Earlier in your testimony, you mentioned a new "green hydrogen" pilot project at the Okeechobee Clean Energy Center ("OCEC"). Please explain what is meant by "green hydrogen" and provide a summary of this proposed pilot project.

A. FPL is constantly searching for ways to integrate state-of-the-art technologies that will further enhance the diversity of clean energy solutions that benefit our customers. FPL's recently announced hydrogen pilot project is a further example of how the Company is incorporating innovative technologies to help usher in the next era of Florida's clean energy future. As the use of solar energy increases in the future, there may be times when solar production will need to be curtailed to accommodate electric grid load requirements. Rather than curtailing that solar energy production, it could be possible for that energy to be rerouted to produce what is known as "green hydrogen" that can be stored as a fuel for combustion turbine power generators. This proposed pilot would allow FPL to assess how our combustion turbine units operate with a hydrogen

fuel mix and also will allow us to learn how a hydrogen fuel production and storage facility can be effectively used on site with combustion turbine units. With minor modifications, we believe that the existing combustion turbine units at the Okeechobee site could operate on a fuel blend of up to 5% hydrogen and 95% natural gas. Expected learnings from this pilot include lessons from design, procurement, construction, commissioning, operations, and maintenance during a variety of operational scenarios on the grid. With the addition of the hydrogen, less natural gas will be needed for the combined cycle unit to produce power; the total carbon dioxide ("CO_2") emissions of the unit will be reduced; and fuel diversity will be increased, which can help mitigate the impacts of supply shortages and disruptions.

To provide a source of hydrogen to burn for this pilot, FPL proposes to build an approximate 25 MW electrolyzer and a storage facility for the production and on-site storage of hydrogen at Okeechobee. The electrolyzer would be interconnected with generation at the Okeechobee site so that electrical energy can be used in the electrolyzer to separate water into hydrogen and oxygen gases. The oxygen is released into the air while the hydrogen is compressed and stored on-site where it can later be used as fuel in the combustion turbine units at the Okeechobee site. A graphic representation of the configuration of this equipment is included in Exhibit MV-8 to my testimony.

Q. When would this Hydrogen Pilot be placed into service and what is the estimated project cost?

A. If approved in this case, FPL estimates that the pilot project can be put in service in 2023 at an estimated cost of $65 million.

Q. Is this Hydrogen Pilot a reasonable and prudent investment?

A. Yes. FPL continues to look for ways to provide clean, reliable, and affordable energy. Similar to our previous approach on battery storage and solar energy, we are starting with a small proposed pilot program to gain knowledge. Part of that effort is to search for ways to integrate state-of-the-art technologies that will further enhance the diversity of clean energy solutions that benefit our customers. Hydrogen power is part of that vision moving forward and could, in the long term, help us reduce our carbon footprint and provide reliable, cost-effective and carbon-free energy. This project is a first step in learning about how hydrogen technology can benefit customers and potentially help unlock a day when electricity is 100% carbon free. Given the relative small scope of the pilot compared to the size of FPL's fleet and the wealth of data and information that FPL can obtain from this pilot, along with the exciting possibilities that this project could offer for the future, the proposed pilot is a reasonable and prudent investment for FPL's customers.

Q. Does this conclude your direct testimony?

A. Yes.

Florida Power & Light Company

CONSOLIDATED MFRs SPONSORED OR CO-SPONSORED BY MATTHEW VALLE

MFR	Period	Title
CO-SPONSOR:		
B-12	Prior Test Subsequent	PRODUCTION PLANT ADDITIONS
B-15	Test Subsequent	PROPERTY HELD FOR FUTURE USE - 13 MONTH AVERAGE

Florida Power & Light Company

SUPPLEMENT 1 - FPL STANDALONE INFORMATION IN MFR FORMAT SPONSORED OR CO-SPONSORED BY MATTHEW VALLE

Schedule	Period	Title
CO-SPONSOR:		
B-12	Test Subsequent	PRODUCTION PLANT ADDITIONS
B-15	Test Subsequent	PROPERTY HELD FOR FUTURE USE - 13 MONTH AVERAGE

Florida Power & Light Company

SUPPLEMENT 1 - GULF STANDALONE INFORMATION IN MFR FORMAT SPONSORED OR CO-SPONSORED BY MATTHEW VALLE

Schedule	Period	Title
CO-SPONSOR:		
B-12	Test Subsequent	PRODUCTION PLANT ADDITIONS
B-15	Test Subsequent	PROPERTY HELD FOR FUTURE USE - 13 MONTH AVERAGE

2022 and 2023 Solar Project Details

2022

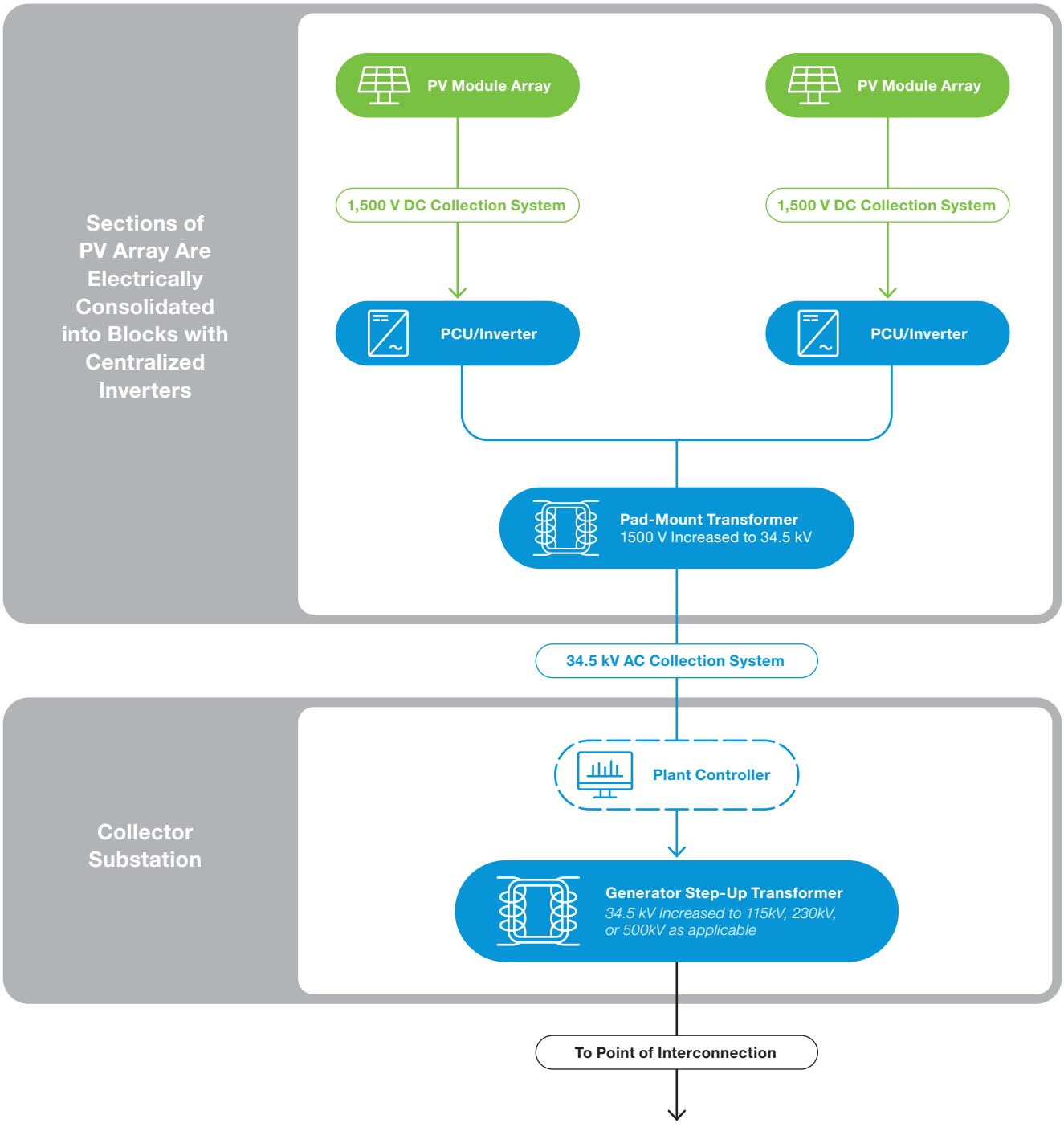
	ELDER BRANCH	GHOST ORCHID	GROVE	IMMOKALEE	SAWGRASS	SUNDEW
Commercial Operation Date	1/31/2022	1/31/2022	1/31/2022	1/31/2022	1/31/2022	1/31/2022
Capital Cost ($ millions)						
PV Array Costs [1]	$78,888,277	$79,262,921	$76,719,829	$76,042,009	$79,249,597	$75,511,204
Transmission Interconnection and Integration [2]	$3,730,000	$10,035,000	$8,450,000	$8,440,000	$8,155,000	$5,665,000
Land and Easements	$5,500,000	$3,588,022	$5,924,150	$5,950,000	$7,423,076	$3,355,000
AFUDC	$3,023,505	$3,210,990	$3,065,289	$3,112,727	$3,171,580	$2,934,890
Total	**$91,141,782**	**$96,096,933**	**$94,159,268**	**$93,544,736**	**$97,999,253**	**$87,466,094**
$/kWac	$1,223	$1,290	$1,264	$1,256	$1,315	$1,174
$/kWdc	$927	$928	$903	$897	$946	$839

2023

	ANHINGA	APALACHEE	BLACKWATER	BLUEFIELD	CAVENDISH	FLOWERS CREEK	CHIPOLA	EVERGLADES	FIRST CITY	WHITETAIL
Commercial Operation Date	1/31/2023	1/31/2023	1/31/2023	1/31/2023	1/31/2023	1/31/2023	1/31/2023	1/31/2023	1/31/2023	1/31/2023
Capital Cost ($ millions)										
PV Array Costs [1]	$78,579,822	$78,979,694	$76,088,001	$74,599,538	$79,104,035	$78,968,039	$78,750,804	$75,447,265	$74,947,265	$74,342,206
Transmission Interconnection and Integration [2]	$5,039,000	$4,950,000	$5,675,000	$1,035,000	$300,000	$4,095,000	$7,100,000	$11,685,000	$7,125,000	$8,390,000
Land and Easements	$3,435,750	$4,472,500	$2,829,900	$4,730,000	$3,100,000	$7,456,000	$5,456,500	$19,110,642	$3,231,204	$8,198,645
AFUDC	$2,864,928	$2,875,572	$2,819,907	$2,589,824	$2,718,896	$2,844,185	$2,941,354	$3,177,694	$2,818,820	$2,832,857
Total	**$89,919,500**	**$91,277,766**	**$87,412,808**	**$82,954,362**	**$85,222,931**	**$93,363,224**	**$94,248,658**	**$109,420,601**	**$88,122,289**	**$93,763,708**
$/kWac	$1,207	$1,225	$1,173	$1,113	$1,144	$1,253	$1,265	$1,469	$1,183	$1,259
$/kWdc	$832	$845	$772	$733	$789	$995	$872	$966	$778	$828

[1] PV Array includes: Panels, Racking & Posts, Collection Cables, EPC Contractor, and Development & Project Management Expenses.
[2] Transmission Interconnection & Integration includes: Generator Step-up Transformers and Substation materials and contractor scope.

Typical Solar Energy Center Block Diagram



Property Held for Future Use

Data provided as of December 2020

TYPE	TERRITORY	PROJECT NAME	COUNTY	COST	ACRES	TARGET COD
Solar	FPL	Magnolia Springs Solar Energy Center	Clay	$6,183,932	850	Mar-21
Solar	FPL	Palm Bay Solar Energy Center	Brevard	$5,357,656	486	Mar-21
Solar	FPL	Pelican Solar Energy Center	St Lucie	$4,317,556	544	Mar-21
Solar	FPL	Rodeo Solar Energy Center	Desoto	$532,127	700	Mar-21
Solar	FPL	Rodeo Solar Energy Center - Additional Land	Desoto	$335,656	688	Mar-21
Solar	FPL	Sabal Palm Solar Energy Center	Palm Beach	$9,722,277	485	Apr-21
Solar	FPL	Willow Solar Energy Center	Manatee	$4,905,632	802	May-21
Solar	FPL	Fort Drum Solar Energy Center	Okeechobee	$3,098,436	837	Jun-21
Solar	FPL	Orange Blossom Solar Energy Center	Indian River	$4,521,241	607	Jun-21
Solar	Gulf	Blue Springs Solar Energy Center [1][2]	Jackson	$3,885,500	444	Dec-21
Solar	Gulf	Cotton Creek Solar Energy Center[1][2]	Escambia	$5,163,600	645	Dec-21
Solar	FPL	Elder Branch Solar Energy Center	Manatee	$5,500,000	894	Jan-22
Solar	FPL	Ghost Orchid Solar Energy Center	Hendry	$3,588,022	465	Jan-22
Solar	FPL	Grove Solar Energy Center	Indian River	$5,189,150	574	Jan-22
Solar	FPL	Sawgrass Solar Energy Center	Hendry	$7,423,076	527	Jan-22
Solar	FPL	Sundew Solar Energy Center	St. Lucie	$3,055,000	495	Jan-22
Solar	FPL	Anhinga Solar Energy Center	Clay	$3,434,060	471	Jan-23
Solar	FPL	Cavendish Solar Energy Center	Okeechobee	$3,098,436	578	Jan-23
Solar	FPL	Everglades Solar Energy Center	Miami Dade	$13,439,907	350	Jan-23
Solar	Gulf	Blackwater River Solar Energy Center[1]	Santa Rosa	$2,169,585	364	Jan-23
Solar	Gulf	First City Solar Energy Center[1][2][3]	Escambia	$1,549,845	341	Jan-23
Solar	Gulf	First City Solar Energy Center - additional land[1][2]	Escambia	$1,058,000	208	Jan-23
Solar	Gulf	Big Juniper Creek Solar Energy Center[1]	Santa Rosa	$4,523,875	522	TBD
Solar	FPL	Caloosahatchee Solar Energy Center[1]	Hendry	$4,726,526	555	TBD
Solar	FPL	Clyman II	Miami Dade	$9,763,025	264	TBD
Solar	FPL	Fawn Solar Energy Center[1]	Martin	$8,198,645	631	TBD
Solar	FPL	Hawthorne Creek Solar Energy Center[1]	DeSoto	$3,684,480	694	TBD
Future Gen	FPL	Hendry - Future Gen (North)	Hendry	$25,726,600	2,618	TBD
Future Gen	FPL	Hendry - Future Gen (South)	Hendry	$11,682,893	993	TBD
Solar	FPL	Hendry III (North)	Hendry	$5,389,493	805	TBD
Solar	FPL	Hendry IV (South)	Hendry	$15,330,467	1,607	TBD
Solar	FPL	Hendry V (North)	Hendry	$5,389,493	805	TBD
Solar	FPL	Hurston Solar Energy Center	St Lucie	$2,517,046	319	TBD
Solar	FPL	Ibis Solar Energy Center	Brevard	$4,730,199	673	TBD
Solar	FPL	Jebbie LLC II	Brevard	$4,730,199	673	TBD
Solar	FPL	Jebbie LLC III	Brevard	$4,730,199	673	TBD
Solar	FPL	Jebbie LLC IV	Brevard	$4,730,199	673	TBD
Solar	FPL	Lakewood Park Farm I	St Lucie	$6,666,103	679	TBD
Solar	FPL	Lakewood Park Farm II	St Lucie	$6,666,103	679	TBD
Solar	FPL	Lakewood Park Farm III	St Lucie	$6,666,103	679	TBD
Solar	FPL	Little Pine Solar Energy Center	Baker	$6,873,189	806	TBD

TYPE	TERRITORY	PROJECT NAME	COUNTY	COST	ACRES	TARGET COD
Solar	FPL	Meadowlark Solar Energy Center	St. Lucie	$4,813,038	564	TBD
Solar	FPL	Nail Ranch[1]	Brevard	$4,026,364	572	TBD
Solar	FPL	New River Solar Energy Center	Union	$4,053,327	417	TBD
Future Gen	Gulf	North Escambia - Future Gen[1][2][3]	Escambia	$4,864,332	1,747	TBD
Solar	Gulf	North Escambia II[1][2][3]	Escambia	$5,985,765	1,317	TBD
Solar	FPL	Orchard Solar Energy Center	St. Lucie	$2,975,579	387	TBD
Solar	FPL	Pink Trail Solar Energy Center	St Lucie	$4,717,224	764	TBD
Solar	FPL	Rayonier Atlantic Company	Nassau	$9,374,018	494	TBD
Solar	FPL	Rayonier Atlantic Timber Co	Nassau	$4,061,031	405	TBD
Solar	FPL	Ridge Farms South II	St Lucie	$2,966,578	428	TBD
Solar	FPL	Roper II[1]	DeSoto	$3,684,480	694	TBD
Solar	FPL	Sambucus Solar Energy Center	Manatee	$3,856,394	649	TBD
Solar	FPL	Silver Palm Solar Energy Center	Palm Beach	$9,610,455	644	TBD
Solar	FPL	Southeast Groves I	St. Lucie	$5,768,438	708	TBD
Solar	FPL	Southeast Groves II	St Lucie	$5,768,438	708	TBD
Solar	FPL	Southeast Groves III	St. Lucie	$5,768,438	708	TBD
Solar	FPL	Southeast Groves IV	St. Lucie	$5,768,438	708	TBD
Solar	FPL	St Lucie River Farms I	Palm Beach	$4,444,644	313	TBD
Solar	FPL	St Lucie River Farms II	Palm Beach	$16,416,352	969	TBD
Solar	FPL	St. Joe Company I	Leon	$4,975,731	662	TBD
Solar	FPL	St. Joe Company II	Leon	$4,975,732	662	TBD
Solar	FPL	Sunrock II[1]	Hendry	$4,726,526	555	TBD
Solar	FPL	Sunrock III[1]	Hendry	$4,726,526	555	TBD
Solar	FPL	Terrill Creek Solar Energy Center[1]	Clay	$4,795,936	717	TBD
Solar	FPL	Three Creeks Solar Energy Center	Manatee	$5,443,403	922	TBD
Solar	FPL	Turkey Point[1]	Miami Dade	$2,750,211	340	TBD
Solar	FPL	Turnpike Solar Energy Center	Indian River	$3,259,409	559	TBD
Solar	FPL	Village Solar Energy Center	Martin	$5,217,773	548	TBD
Solar	FPL	Village Solar Energy Center - Additional Land	Martin	$1,693,827	140	TBD
Solar	FPL	White Tail Solar Energy Center[1]	Martin	$8,198,645	631	TBD
Solar	Gulf	Wild Azalea Solar Energy Center[1]	Gadsden	$2,858,000	572	TBD
Solar	FPL	Woodlands I[1]	Madison	$2,373,386	623	TBD
Solar	FPL	Woodlands II[1]	Madison	$2,373,386	623	TBD
			Total	**$407,545,357**		

Notes:

(1) Represents properties purchased but not currently reflected on FPL Accounting's Property Held for Future Use report.

(2) Represents properties on Gulf Power's Land Held for Future Use report.

(3) A portion of this amount is being disallowed for recovery purposes as supported by Witness Fuentes' testimony. At the time of construction start for the First City and North Escambia II projects, the respective acres and costs will be moved to the rate base.

Electric Vehicle Pilots

FPL EVolution Electric Vehicle Pilot Program

CHARGING SEGMENT	CHARGER TYPE	CHARGE SPEED[1]	EXPECTED PORT DEPLOYMENT	AVERAGE COST PER PORT[2]	TOTAL ESTIMATED COSTS
Workplace	Level 2	7 kW; 7 hours	850	$5,500	$6.2 MM
Destination			250		
Residential			50		
Highway	DC Fast	50 - 350 kW; 0 minutes	90	$100,000	$23.8 MM
Metro			48		
Fleet			80		

[1] *Charging times will vary based on vehicle type*
[2] *Actual costs will vary by location and technology*

FPL EVolution Electric Vehicle Pilot Program Installations expected thru 12/31/2022

CHARGING SEGMENT	CHARGER TYPE	INSTALLED PORTS[1]	2021 TARGET INSTALLATIONS	TOTAL
Workplace	Level 2	186	664	850
Destination		76	174	250
Residential		2	48	50
Highway	DC Fast	52	38	90
Metro		0	48	48
Fleet		0	80	80
TOTAL		**316**	**1052**	**1368**

[1] *Installed Ports through 12/31/2020*

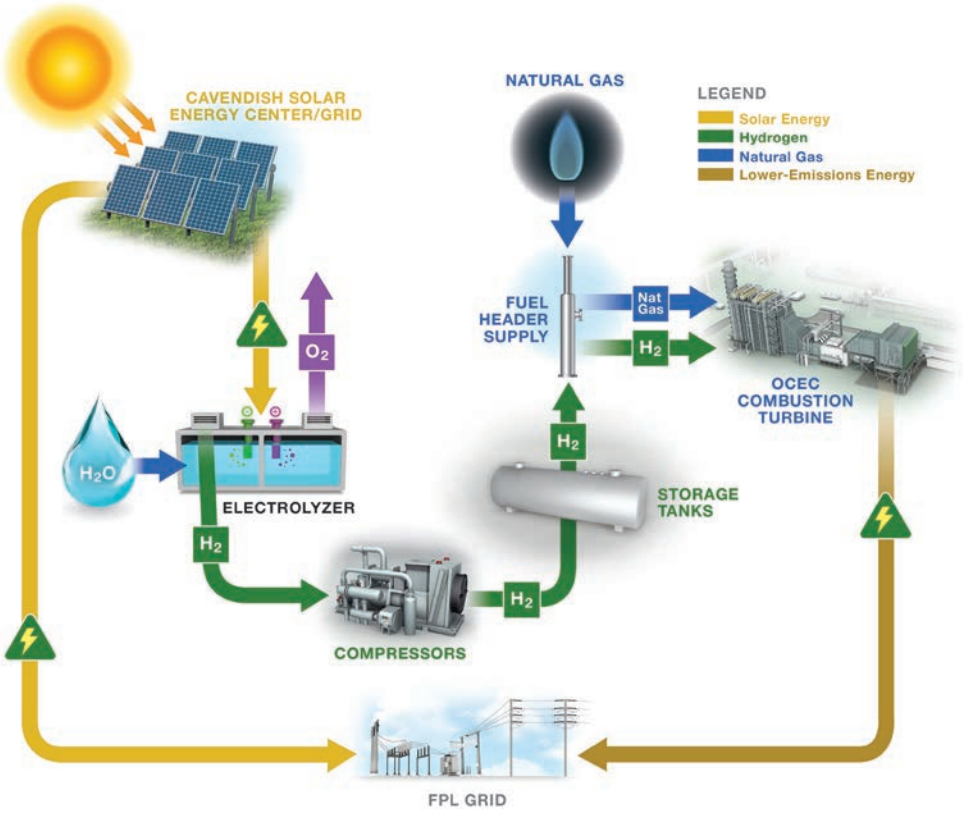
Battery Storage Pilot

List of Battery Storage Projects

ASSET	LOCATION	STATUS	IN-SERVICE DATE	NAMEPLATE CAPACITY (MW-AC)	PROJECT LEARNINGS	PROJECT COST (MM)	$/KW
Babcock	Punta Gorda, FL	Operational	3/23/2018	10.00	AC-coupled Solar + Storage	$15.30	$1,530/kW
Citrus	Arcadia, FL	Operational	3/15/2018	4.00	DC-coupled Solar + Storage	$6.70	$1,675/kW
Wynwood	Miami, FL	Operational	12/20/2019	10.00	Application stacking and urban design and integration	$23.00	$2,300/kW
Dania Beach	Fort Lauderdale, FL	Operational	9/2/2020	11.50	Black Start Lauderdale Unit 6 peakers tied to 230 kV line	$26.20	$2,280/kW
FIU Microgrid	Miami, FL	Operational	10/23/2020	3.00	Solar + Storage microgrid - for chiller plant and building	$6.90	$2,300/kW
Augmentation Pilot	Punta Gorda, Florida	Construction	12/31/2020	1.00	NEE-first augmentation; test new battery technologies	$2.03	$2,030/kW
V2G	Multiple Locations in West Palm Beach, FL	Construction	1/31/2021	1.25	Utility controlled Vehicle to Grid (V2G) charging	$1.07	$856/kW
EV+ Storage Wildlight	Yulee, FL	Development	5/30/2021	0.35	Resiliency, reduced T&D upgrades, load smoothing	$0.70	$2,000/kW
EV+ Storage FDOT	Lake City, FL	Development	5/30/2021	0.35	Resiliency, reduced T&D upgrades, load smoothing	$0.70	$2,000/kW
FPL EVoluton Hub (45th street)	West Palm Beach, FL	Development	12/31/2021	8.55	Solar, storage & EV Microgrid; mobile fast charging	$13.60	$1,590/kW
			Total MW_{AC}	**50.00**		**Pilot $/kW**	**$1,920/kW**

Green Hydrogen Pilot

FPL's proposed hydrogen pilot will enable testing of technology at scale



Okeechobee Clean Energy Center (OCEC) Hydrogen Pilot Project

» **Construct and operate a solar and hydrogen system at the existing OCEC site**

– *Capital cost of ~$65 MM*

» **Hydrogen Pilot Operation**

– *Electric grid connection powers the electrolyzer*

– *Electrolyzer separates water into Hydrogen and Oxygen*

– *Oxygen released harmlessly*

– *Hydrogen is compressed and stored in tanks and released on demand*

– *Hydrogen is blended with natural gas in the combined cycle plant*

» **Commercial Operation Date 12/2023**

Green Hydrogen Pilot

Testing the technology at scale should provide valuable insight and operational learnings – laying groundwork for zero-carbon future

Okeechobee Clean Energy Center (OCEC) Hydrogen Pilot Project

» **Expected learnings from the project:**

- *Grid connection for demonstration of critical integration functions, including voltage stabilization and power ramp-rate controls*
- *Performance of electrolyzer with an intermittent resource*
- *Fuel blend impact on turbine performance*
- *Operational synergies*

» **Long-term solution for using existing natural gas combined cycle infrastructure to operate on clean hydrogen**