DUKE ENERGY FLORIDA

Dianne M. Triplett
Deputy General Counsel

May 29, 2020

VIA ELECTRONIC FILING

Adam Teitzman, Commission Clerk
Florida Public Service Commission
2540 Shumard Oak Boulevard
Tallahassee, Florida 32399-0850

Re: *Duke Energy Florida, LLC's Petition for Limited Proceeding to Approve Third Solar Base Rate Adjustment*; Docket No. _____

Dear Mr. Teitzman:

Enclosed for filing on behalf of Duke Energy Florida, LLC ("DEF") is DEF's Petition for Limited Proceeding to Approve Third Solar Base Rate Adjustment, along with the following:

- Direct Testimony of Matthew G. Stout with Exhibit No. ___(MGS-1), redacted Exhibit No. ___(MGS-2), Exhibit No. ___(MGS-3), redacted Exhibit No. __(MGS-4), Exhibit No. ___(MGS-5), redacted Exhibit No. ___(MGS-6), Exhibit No. ___(MGS-7), redacted Exhibit No. __(MGS-8), Exhibit No. __(MGS-9), redacted Exhibit No. __(MGS-10) and Exhibit No. ___(MGS-11);
- Direct Testimony of Benjamin M. H. Borsch with Exhibit No. ___(BMHB-1), Exhibit No. ___(BMHB-2), Exhibit No. ___(BMHB-3) and Exhibit No. ___(BMHB-4); and
- Direct Testimony of Thomas G. Foster with Exhibit No. ___(TGF-1).

Thank you for your assistance in this matter. Please feel free to call me at (727) 820-4692 should you have any questions concerning this filing.

Sincerely,

s/ Dianne M. Triplett

Dianne M. Triplett

DMT/mw
Enclosures

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BEFORE THE FLORIDA PUBLIC SERVICE COMMISSION

In re: Duke Energy Florida, LLC's Petition for a limited proceeding to approve third solar base rate adjustment	Docket No. Filed: May 29, 2020

DUKE ENERGY FLORIDA, LLC'S PETITION FOR A LIMITED PROCEEDING TO APPROVE THIRD SOLAR BASE RATE ADJUSTMENT

Duke Energy Florida, LLC ("DEF"), pursuant to Sections 366.076(1) and 366.06(3), Florida Statutes ("F.S."), Rule 28-106.201, Florida Administrative Code ("F.A.C."), and the 2017 Second Revised and Restated Settlement Agreement approved by the Florida Public Service Commission ("Commission") in Order No. PSC-2017-0451-AS-EU[1] (the "2017 Settlement"), hereby petitions the Florida Public Service Commission ("FPSC" or the "Commission") for a limited proceeding to approve DEF's third solar base rate adjustment. Specifically, pursuant to Paragraph 15 of the 2017 Settlement, DEF is authorized to request approval from the Commission, for cost recovery, up to 700 MW of solar generation during the term of the 2017 Settlement.

DEF presents five solar projects, the Twin Rivers Solar Power Plant ("Twin Rivers Project"), the Santa Fe Solar Power Plant ("Santa Fe Project"), Charlie Creek Solar Power Plant ("Charlie Creek Project"), Duette Solar Power Plant ("Duette Project"), and Archer Solar Power Plant (Archer Project"), for approval in this third and final group of projects filed pursuant to Paragraph 15. The Twin Rivers Project and the Santa Fe Project are expected to go into service in early 2021, and the Charlie Creek Project, Duette Project, and

[1] Docket No. 20170183-EI, issued on November 20, 2017.

Archer Project will come into service in the fourth quarter of 2021. As explained further below and in the supporting testimony filed with this Petition, DEF's solar projects meet the requirements set forth in the 2017 Settlement; namely, they are under the $1,650/ kW_{ac} cap, they are cost effective, and their costs meet the reasonableness requirements set forth in the Paragraph 15(a). Accordingly, DEF respectively requests that its solar projects be approved for rate recovery. At this time, DEF is not including tariff sheets to reflect the rate increase for the Twin Rivers Project, Santa Fe Project, Charlie Creek Project, Duette Project, or Archer Project, but as explained below, it will file tariff sheets later to reflect the Twin Rivers Project, Santa Fe Project, and the multi-year rate increase authorized by Paragraph 12(b) and 12(c) of the 2017 Settlement, and DEF will file another set of tariff sheets to reflect Charlie Creek Project, Duette Project, and Archer Project.

In support of this Petition, DEF states:

Introduction

1. DEF is a Florida limited liability company with headquarters at 299 1st Avenue North, St. Petersburg, Florida 33701. DEF is an investor-owned utility operating under the jurisdiction of this Commission pursuant to the provisions of Chapter 366, Florida Statutes, and is a wholly-owned subsidiary of Duke Energy Corporation. DEF provides generation, transmission, and distribution service to approximately 1.8 million retail customers in Florida.

2. Any pleading, motion, notice, order, or other document required to be served upon DEF or filed by any party to this proceeding should be served upon the following individuals:

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3. This Petition is being filed consistent with Rule 28-106.201, Florida Administrative Code. The agency affected is the Florida Public Service Commission, located at 2540 Shumard Oak Boulevard, Tallahassee, Florida 32399. This case does not involve reversal or modification of an agency decision or an agency's proposed action. Therefore, subparagraph (c) and portions of subparagraphs (b), (e), (f), and (g) of subsection (2) of that rule are not applicable to this Petition. In compliance with subparagraph (d), DEF states that it is not known at this time which, if any, of the issues of material fact set forth in the body of this Petition may be disputed by any others who may plan to participate in this proceeding.

2017 Settlement Requirements and DEF's Proposed Solar Facilities

4. Paragraph 15(a) of the 2017 Settlement authorizes the Company to seek Commission approval of up to 700 MW of solar projects during the term of the 2017 Settlement Agreement, provided that no rate adjustment for solar projects be implemented in 2018. The cost of the solar projects subject to Paragraph 15(a) of the 2017 Settlement shall be reasonable and cost effective, and the average cost of all projects submitted in a particular filing shall not exceed $1,650 per kilowatt alternating current ("kW_{ac}").

5. For projects not subject to the Power Plant Siting Act (i.e. less than 75 MW), Paragraph 15(c) of the 2017 Settlement obligates DEF to file a separate proceeding for approval of the solar projects and determination of the following issues: (a) the reasonableness and cost effectiveness of the solar generation projects (i.e., will the projects lower the projected system cumulative present value revenue requirement "CPVRR" as

compared to such CPVRR without the solar projects); (b) the amount of revenue requirements; (c) and whether, when considering all relevant factors, DEF needs the solar project(s). DEF has filed this Petition for the purpose of resolving these three issues.

6. As explained further in the testimony of Matthew G. Stout, filed simultaneously with and incorporated by reference into this Petition, DEF is proposing five new solar facilities for approval in this third group. The Twin Rivers Project is a 74.9 MW facility located in Hamilton County, Florida and the Santa Fe Project is a 74.9 MW facility located in Columbia County, Florida. They are expected to go into commercial service in early 2021 at a cost of approximately $100 million or $1,336/ kW_{ac} and approximately $109 million or $1,454/ kW_{ac}, respectively. The Charlie Creek Project is a 74.9 MW facility located in Hardee County, Florida. The Duette Project is a 74.5 MW facility located in Manatee County, Florida. The Archer Project is a 74.9 MW facility located in Alachua County, Florida. Only the costs associated with 56.6 MW of the Archer Project will be included in rates for SOBRA recovery. These three projects are expected to come online by the last quarter of 2021. The Charlie Creek Project, Duette Project, and Archer Project are projected to cost approximately $98 million or $1,308/kWac, approximately $109 million or $1,457/$kW_{ac}$, and approximately $109 million or $1,457/$kW_{ac}$, respectively. The total MW for the third group of DEF's solar generation base rate adjustment is 355.8 MW.

7. The weighted average cost for the facilities in this filing is $1,402/$kW_{ac}$, which is below the $1,650/ kW_{ac} cap set forth in the 2017 Settlement. Mr. Stout explains in his testimony the process the Company undertook to ensure that the project costs are reasonable. He also explains how DEF met the requirements in Paragraph 15(a) of the 2017 Settlement, that the selection of contractors and the procurement of equipment were obtained

using a reasonable competitive solicitation process. Mr. Stout further explains how DEF considered buying out existing potential projects.

8. As explained in the testimony of Benjamin M. H. Borsch, filed simultaneously with and incorporated by reference into this Petition, the proposed solar projects in DEF's third group are cost-effective and needed. Specifically, the projects, when considered together, will lower DEF's CPVRR when compared to the CPVRR without the projects. Mr. Borsch also explains the benefits of fuel diversity and other attributes that contribute to the Company's need for the facilities.

9. The 2017 Settlement specifically Paragraphs 15(e) and (f) contain detailed requirements as to the calculation of revenue requirements to implement the solar base rate adjustment. DEF's request complies with these requirements, as demonstrated in the testimony of Thomas G. Foster, filed simultaneously with and incorporated by reference into this Petition. Applying the 2017 Settlement, DEF requests approval of approximately $63.2 million in total annual revenue requirements associated with this third group of solar projects.

Effective Date of Requested Changes

10. The solar projects in the third group have differing commercial in-service dates. The revenue requirements and resulting estimated residential base rate impact for each of the five projects are set forth in Mr. Foster's testimony and exhibits. DEF would request that it be allowed to increase base rates, for the Twin Rivers and Santa Fe Projects, by the above-referenced amounts with the first billing cycle of February 2021, so that rates will increase after the January 2021 in-service date for the Twin Rivers and Santa Fe Projects. DEF is not filing tariff sheets with this Petition. DEF will be filing tariff sheets later in 2020 to reflect both the rate increase for the Twin Rivers and Santa Fe Projects and the multi-year

rate increase authorized by Paragraph 12(b) and 12(c) of the 2017 Settlement. DEF will also file a rate exhibit, in September 2020, that utilizes the sales forecast in DEF's Capacity Cost Recovery (CCR) Clause projection filing. This exhibit will include the rates to be effective February 2021 for the Twin Rivers and Santa Fe Projects, as well as the multi-year increase. DEF is combining these rate increases into one tariff sheet filing to avoid the potential confusion of competing/multiple tariff sheets. DEF will file a set of tariff sheets to reflect the Charlie Creek Project, Duette Project, and Archer Project, with an effective date for the first billing cycle of January 2022, concurrent with DEF's 2021 CCR projection filing for 2022 rates.

11. Because DEF cannot file its tariff sheets with this filing, as explained above, DEF requests that the Commission give its Staff authority to administratively approve the tariff sheets, for both the Twin Rivers and Santa Fe Projects as well as the Charlie Creek, Duette, and Archer Projects, at the dates set forth in Mr. Foster's testimony.

Conclusion

WHEREFORE, DEF respectfully requests that the Commission enter an order approving the revenue requirements associated with the third group of its solar projects, as presented in this filing, and provide its Staff authority to administratively approve the tariff sheets for the Twin Rivers and Santa Fe Projects, and the Charlie Creek, Duette, and Archer

Projects, at the appropriate time.

Respectfully submitted,

s/Dianne M. Triplett

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IN RE: DUKE ENERGY FLORIDA, LLC'S PETITION FOR A LIMITED PROCEEDING TO APPROVE THIRD SOLAR BASE RATE ADJUSTMENT

FPSC DOCKET NO. _____

DIRECT TESTIMONY OF MATTHEW G. STOUT

MAY 29, 2020

Q. Please state your name and business address.

A. My name is Matthew G. Stout. My business address is Mail Code ST-14A, 400 South Tryon Street, Charlotte, NC 28202.

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

A. I am employed by Duke Energy as a Managing Director of Business Development for Wind and Solar Development.

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

A. I am responsible for the development of new solar facilities in Florida on behalf of Duke Energy Florida, LLC ("DEF" or the "Company"). I lead a team that conducts solar development activities including project siting, land acquisition, resource assessment, permitting, obtaining interconnection rights, project layout and design and arranging contracts for engineering, procurement and construction services, as well as originating, structuring, and executing transactions to acquire rights to existing solar development projects.

Q. Please describe your educational background and professional experience.

A. I received a BA degree in Economics from Connecticut College in 1998. I began my career as a management consultant for PricewaterhouseCoopers and later worked as an investment banking associate for Morgan Joseph. In 2007, I earned an MBA from the Ross School of Business and an MS in Environmental Policy from the School of Natural Resources at the University of Michigan with a focus on renewable energy. During graduate school, I managed business development at STM Power, Inc., a start-up manufacturer of renewable power generation equipment. Upon finishing graduate school, I joined Catamount Energy Corporation, a renewable energy development company, where I helped site new wind energy facilities across the United Sates. I joined Duke Energy in 2008 and have had several positions focused on renewable energy development, including Manager of Business Development for Solar and Wind, Managing Director of Project Acquisitions, and most recently Managing Director of Wind and Solar Development for the regulated utilities. In total, I have over 21 years of professional work experience, including 13 years of renewable energy business development.

Q. What is the purpose of your testimony?

A. My testimony is provided to support DEF's request for cost recovery approval of the third group of solar power plants or projects authorized under the approved 2017 Second Revised and Restated Stipulation and Settlement Agreement ("2017 Settlement"), under Docket Number 20170183-EI. My testimony describes the solar power plants that DEF plans to build to serve its customers and includes an overview

of the process DEF has used to ensure that the project costs meet the requirements of the 2017 Settlement. My testimony supports the reasonableness of the proposed project costs.

Q. Are you presenting exhibits in this proceeding?

A. Yes. They consist of the following exhibits:

Exhibit No. ___ (MGS-1) Twin Rivers Solar Power Plant Site Plan;

Exhibit No. ___ (MGS-2) Twin Rivers Solar Power Plant Costs;

Exhibit No. ___ (MGS-3) Santa Fe Solar Power Plant Site Plan;

Exhibit No. ___ (MGS-4) Santa Fe Solar Power Plant Costs;

Exhibit No. ___ (MGS-5) Charlie Creek Solar Power Plant Site Plan;

Exhibit No. ___ (MGS-6) Charlie Creek Solar Power Plant Costs;

Exhibit No. ___(MGS-7) Duette Solar Power Plant Site Plan;

Exhibit No. ___(MGS-8) Duette Solar Power Plant Costs;

Exhibit No. ___(MGS-9) Archer Solar Power Plant Site Plan;

Exhibit No. ___(MGS-10) Archer Solar Power Plant Costs; and

Exhibit No. ___ (MGS-11) Cost Comparison to Other Utilities.

These exhibits are true and accurate.

Q. Did DEF use the same methodology for selecting and evaluating potential projects as was used to select its previous Sobra projects?

A. Yes, DEF used the same methodology to select and evaluate potential projects as was used to select its previous Sobra projects. I discuss the specific process DEF used to

select the Twin Rivers, Santa Fe, Charlie Creek, Duette, and Archer sites for development later in my testimony.

Q. What solar projects is DEF proposing for approval in this filing?

A. DEF is proposing the following projects: (a) the Twin Rivers Solar Power Plant ("Twin Rivers Project"), (b) the Santa Fe Solar Power Plant ("Santa Fe Project"), (c) the Charlie Creek Solar Power Plant ("Charlie Creek Project"), (d) the Duette Solar Power Plant ("Duette Project"), and (e) the Archer Solar Power Plant (Archer Project").

Q. Please describe the Twin Rivers Project.

A. The Twin Rivers Project is a 74.9 MWac / 98.3 MWdc solar single-axis tracking PV project, yielding an expected capacity factor of approximately 27%, located in Hamilton County, Florida. The project will use a mixture of 415-watt and 420-watt modules, procured from Hanwha Q Cells America Inc. (a leading, Tier I manufacturer) and the single-axis racking system will be procured from Array Technologies, Inc. Inverters will be sourced from Toshiba Mitsubishi Electric Industries Corporation ("TMEIC"), a 50-50 joint venture between Toshiba and Mitsubishi Electric. TMEIC is a $2.0B company, as measured by sales. The facility will be constructed on approximately 515 acres that are under a long-term lease. The site is agricultural land and is relatively flat with minimal sloping that will allow for the use of a tracking system. The point of interconnection is a new DEF 230kV Substation. Wanzek Construction Inc. ("Wanzek") was selected to perform final facility engineering, design and construction. Wanzek is a wholly owned subsidiary of the Mastec Group

("Mastec"), based in Coral Gables, Florida. Mastec is publicly traded on the New York Stock Exchange under the ticker symbol "MTZ". Wanzek is a ~$1.6B annual revenue EPC provider of renewable energy power plants, primarily using wind and solar technology. Wanzek has contracted over 720MWdc of solar projects over the past two years. DEF acquired the early stage development assets of the Twin Rivers Project from Tradewind Energy, Inc., the original developer of the project. Tradewind Energy, Inc. had secured site control and an interconnection queue position and had completed a limited amount of site investigation. DEF acquired the project, as is, on August 17, 2017 and continued to complete all development activities. The project started construction in March 2020 and is expected to achieve placed in-service in January 2021. My Exhibit No. __ (MGS-1) shows the location of the Twin Rivers Project and the general site plan.

Q. What is the projected installed cost for the Twin Rivers Project?

A. The projected cost of the Twin Rivers Project is $100,037,587 or $1,336/kWac. My Exhibit No. __ (MGS-2) shows the categories that make up the total installed cost.

Q. Will the Twin Rivers Project qualify for the statewide property tax exemption?

A. Yes.

Q. Please describe the Santa Fe Project.

A. The Santa Fe Project is a 74.9 MWac / 100.8 MWdc single-axis tracking solar PV project, yielding an expected capacity factor of approximately 29%, and located in

Columbia County, Florida. The project will use 425-, 430-, and 435-watt thin film Series 6 modules, procured from First Solar (a leading, Tier I manufacturer) and the single-axis racking system will be procured from Array Technologies, Inc. Inverters will be sourced from TMEIC. The facility will be constructed on approximately 607 acres that will be purchased before construction. The site consists mostly cattle grazing with a limited amount of timberland and is relatively flat with minimal sloping that will allow for the use of a tracking system. The point of interconnection is a new DEF 230kV Substation. M.A Mortenson Company ("Mortenson") was selected to perform final facility engineering, design and construction. DEF had selected Mortenson as the preferred EPC contractor for the Hamilton (in service December 2018), Trenton (in Service December 2019) and Columbia (in service March 2020) projects. Mortenson has proven to be a reliable and bankable EPC partner, having constructed over 3,700 MW of solar energy facilities. Expertise in energy modeling tools combined with self-perform capabilities enable the company to focus on delivering the lowest cost of energy over the life cycle of projects. DEF acquired the early stage development assets of the project from First Solar Development, LLC. First Solar was responsible for all development and permitting activities, DEF acquired the project following the completion of development activities in June 2019. The project is expected to start construction in April 2020 with an expected placed in-service date in January 2021. My Exhibit No. __ (MGS-3) shows the location of the Santa Fe Project and the general site plan.

Q. What is the projected installed cost for the Santa Fe Project?

A. The projected cost of the Santa Fe Project is $108,910,046 or $1,454/kWac. My Exhibit No. __ (MGS-4) shows the categories that make up the total installed cost.

Q. Will the Santa Fe Project qualify for the statewide property tax exemption?

A. Yes.

Q. Please describe the Charlie Creek Project.

A. The Charlie Creek Project is a 74.9 MWac / 101.1 MWdc solar PV facility located in Hardee County, Florida. The project will utilize solar modules mounted to a tracking system, yielding an expected capacity factor of approximately 29.0%. The project will use 430-watt modules, procured from Hanwha Q Cells America, Inc. and the tracking system will be procured from Array Technologies, Inc. Inverters will be sourced from TMEIC. The facility will be constructed upon approximately 610 acres that will be leased. The site is primarily citrus groves and cattle grazing land and is relatively flat with minimal sloping that will allow for the use of a tracking system. The point of interconnection is a new DEF 230 kV substation located on-site. Wanzek Construction Inc. was selected to perform final facility engineering, design and construction. Wanzek is a wholly owned subsidiary of the Mastec Group ("Mastec"), based in Coral Gables, Florida. Mastec is publicly traded on the New York Stock Exchange under the ticker symbol "MTZ". Wanzek is a ~$1.6B annual revenue EPC provider of renewable energy power plants, primarily using wind and solar technology. Wanzek has contracted over 720MWdc of solar projects over the past two years. The project

anticipates being placed in service in December 2021. My Exhibit No. __ (MGS-5) shows the location of the Charlie Creek Project and the general site plan.

Q. What is the projected installed cost for the Charlie Creek Project?

A. The projected cost of the Charlie Creek Project is $97,950,968 or $1,308/kWac. My Exhibit No. __ (MGS-6) shows the categories that make up the total installed cost.

Q. Will the Charlie Creek Project qualify for the statewide property tax exemption?

A. Yes.

Q. Please describe the Duette Project.

A. The Duette Project is a 74.5 MWac / 96.4 MWdc solar photovoltaic ("PV") facility located in Manatee County, Florida. The project will utilize solar modules mounted to a tracking system, yielding an expected capacity factor of approximately 28%. The project will use 425-watt modules, procured from Hanwha Q Cells America, Inc. and the single-axis racking system will be procured from Array Technologies, Inc. Inverters will be sourced from TMEIC. The facility will be constructed upon approximately 520 acres that will be purchased. The site is primarily citrus groves and is relatively flat with minimal sloping that will allow for the use of a tracking system. The point of interconnection is the existing Dry Prairie 230/69 kV Substation. Moss & Associates ("Moss") was selected to perform final facility engineering, design and construction. Moss is a proven and reliable Engineering, Procurement, and Construction ("EPC") partner, based in Florida, having constructed over 3,500 MW of

solar energy facilities. The project anticipates being placed in service in December 2021. My Exhibit No. __ (MGS-7) shows the location of the Duette Project and the general site plan.

Q. What is the projected installed cost for the Duette Project?

A. The projected cost of the Duette Project is $108,572,491 or $1,457/kWac. My Exhibit No. __ (MGS-8) shows the categories that make up the total installed cost.

Q. Will the Duette Project qualify for the statewide property tax exemption?

A. Yes.

Q. Please describe the Archer Project.

A. The Archer Project is a 74.9 MWac / 97.4 MWdc solar photovoltaic ("PV") facility located in Alachua County, Florida. The project will be a single-axis tracking solar PV project, yielding an expected capacity factor of approximately 28%. The project will use 440-watt thin film Series 6 modules, procured from First Solar (a leading, Tier I manufacturer) and the single-axis racking system will be procured from Array Technologies, Inc. Inverters will be sourced TMEIC. The facility will be constructed upon 630 acres of mostly flat pine timber land that is relatively flat with minimal sloping that will allow for the use of a tracking system. The point of interconnection is the existing DEF Archer 230/69 kV Substation. Overland Contracting Inc., a subsidiary of Black & Veatch ("B&V") was selected to perform final facility engineering, design and construction. B&V has been actively engaged in the EPC and

solar industry since 1973. B&V has executed full EPC services for 1,379 MW of solar PV projects in Florida and has completed 1.8+ GW in design engineering services on solar PV projects. The project anticipates being placed in service by December 2021. My Exhibit No. __ (MGS-9) shows the location of the Archer Project and the general site plan.

Q. What is the projected installed cost for the Archer Project?

A. The projected cost of the Archer Project is $109,117,401 or $1,457/kWac. My Exhibit No. __ (MGS-10) shows the categories that make up the total installed cost.

Q. Why did DEF decide to pursue the Archer Project at 74.9 MW, when that would result in DEF exceeding the 700 MW limit set forth in the 2017 Settlement?

A. The current project design achieves economies of scale and cost savings for customers in several areas, including benefiting from: 1) our standard DC/AC single axis design which increases energy production and lowers the overall construction costs on a $/KWac basis (reduces engineering work to design and bid out the work); 2) greater leverage during the procurement of equipment helping to achieve lower solar PV panel prices; and 3) spreading the fixed costs of interconnection across more capacity and energy production. Given all these benefits, DEF determined that it was better for customers to construct the full 74.9 MW facility, rather than arbitrarily limit it to 56.6 MW. Mr. Foster presents the amount of revenue requirements for the Archer Project that DEF is requesting to be included in this proceeding.

Q. Will the Archer Project qualify for the statewide property tax exemption?

A. Yes.

Q. Please describe the process DEF used to select the Twin Rivers, Santa Fe, Charlie Creek, Duette, and Archer sites for development.

A. Building on the work DEF described in its request for approval of the first and second group of solar projects in Dockets No. 20180149 and 20190072, respectively, DEF continued a comprehensive review of greenfield sites (including sites that it already owns) and projects already in development in DEF's service territory. DEF identified projects already in the interconnection queue with favorable queue positions. DEF is willing to purchase solar projects in various stages of completion from third-party developers, but projects must meet our standards of development and construction and fit into our strategic build plan. The primary factors when considering the purchase of a third-party developed site are interconnection queue position for transmission connection to the grid and expected grid upgrades, environmental impacts, constructability of the site, development status and schedule, overall cost, quality/type of materials (such as panel, inverter and racking, manufacturers), project location, zoning entitlements, experience and competencies of developer, and construction schedule. Charlie Creek is a DEF greenfield project. The Twin Rivers, Santa Fe, Duette, and Archer projects were selected among over 80 projects that have been reviewed for acquisition from existing projects in DEF's service territory. The projects were identified from publicly available information. Additional project details were submitted to DEF by the project developers upon execution of a confidentiality

agreement. Projects that met first round screening criteria were asked to negotiate proposals for the sale of the development assets to DEF. DEF developed a shortlist of proposals to advance into further negotiations, including those for the Twin Rivers Project, Santa Fe Project, Duette Project, and Archer Project. The Charlie Creek Project is a greenfield project that was identified and developed by DEF.

The Twin Rivers Project was acquired from a third-party developer due to its senior queue position, agricultural land with transmission access, and mid stage development status. DEF acquired the early stage development assets of the project from Tradewind Energy, Inc. while it was still being developed. DEF completed the remaining development tasks, including permitting, design, final interconnection rights, and contracting for engineering, procurement, and construction services. All site investigation studies are complete, Hamilton County has issued the required Special Permits and has executed a Large Generator Interconnection Agreement ("LGIA").

DEF selected the Santa Fe Project due to its senior queue position, land holding with transmission access, and mid stage development status. DEF entered into a Membership Interest Purchase and Sale Agreement ("MIPSA") to acquire the early stage development assets of the project from First Solar Development, LLC. Once all project development milestones were achieved DEF acquired the assets and closed on the agreement in September 2019. The project has completed all site investigation studies and has received all county zoning and permitting approvals. The project executed a Large Generator Interconnection Agreement ("LGIA") in October 2019.

The Duette Project is being acquired from a third-party developer due to its favorable characteristics including large land holding, access to transmission and constructability of the project area. DEF entered into an Asset Purchase Agreement ("APA") to acquire the project from Invenergy Solar Development North America LLC. Once all project development milestones are achieved, the parties will close on the agreement which is anticipated to occur in Q3 2020. The project has completed all site investigation studies on the solar site and expects to execute a LGIA in June 2020. The project avoids all wetlands and floodplains within the project area. The project will need a Final Site Plan approval from the Manatee County prior to the start of construction.

The Charlie Creek site was selected due to favorable characteristics including large land holding, access to transmission and constructability of the project area. The project is located in Hardee County and requires a Special Exemption Permit. The project will go before the Planning Board and the Board of County Commissioners in June 2020 for the permit approvals. All site investigation studies are complete and an LGIA is expected to be executed in August 2020. The project avoids all wetlands and floodplains within the project area. A gopher tortoise relocation permit will most likely be required as will avoidance of the burrowing owl.

The Archer site was selected due to favorable characteristics including large land holding, access to transmission and constructability of the project area. The project is located within Alachua County. DEF entered into an MIPSA to acquire the project from First Solar Development, LLC. Once all project development milestones are achieved, the parties will close on the agreement. The project will need to go before

the Alachua County Planning Board and the Board of County Commissioners in order to receive its Special Exemption Permit which is expected in August 2020. All site investigation studies are complete and an LGIA is expected to be executed in July 2020. The project has no wetlands or floodplains within the project area. A gopher tortoise relocation permit will be required as well as a tree mitigation agreement with the county.

Q. Please describe the process DEF used to contract for the construction of the Twin Rivers, Santa Fe, Charlie Creek, Duette, and Archer Projects.

A. DEF conducted separate competitive RFPs (Request For Proposals) to select the EPC contractor for each project. DEF administered each RFP to ensure a fair and transparent process was used for all communication, evaluation and selection. After qualification of EPC contractors, four high quality EPC contractors were invited to provide bids to provide engineering, design, procurement and construction services for the Twin Rivers Project, five high quality EPC contractors were invited to bid for the Santa Fe Project, four high quality EPC contractors were invited to bid for the Charlie Creek Project, four high quality EPC contractors were invited to bid for the Duette Project, and four high quality EPC contractors were invited to bid for the Archer Project. Bidders were provided with all relevant site investigation and design criteria documents applicable to the project. Bidders were instructed to comply with all company design and construction policies. Bids were evaluated on bidder experience, price, schedule, design, risk and ability to deliver the project in a safe, reliable and cost-effective manner.

As a result of these evaluations, for the Twin Rivers Project, Wanzek was selected as the most cost-effective and highest value supplier, and the parties executed an EPC Agreement.

As a result of these evaluations, for the Santa Fe Project, Mortenson was selected as the most cost-effective and highest value supplier, and the parties executed an EPC Agreement.

As a result of these evaluations, for the Charlie Creek Project, Wanzek was selected as the most cost-effective and highest value supplier, and the parties are negotiating an EPC Agreement.

As a result of these evaluations, for the Duette Project, Moss was selected as the most cost-effective and highest value supplier, and the parties are negotiating an EPC Agreement.

As a result of these evaluations, for the Archer Project, B&V was selected as the most cost-effective and highest value supplier, and the parties are negotiating an EPC Agreement.

Q. Why did DEF enter long-term leases for the Twin Rivers and Charlie Creek Projects, rather than purchasing the property?

A. More generally, when there is an option to purchase versus enter into a long-term lease, DEF evaluates the net present value ("NPV") of the costs of each option over the life of the project and chooses the least cost option on a present value basis. With respect to the Twin Rivers Project, the original developer had already signed a long-term lease with the landowner with rent priced in line with the current market (at terms that match

or exceed the useful life of the facilities), so DEF had no ability to purchase those properties. DEF discussed with land owner both a purchase option as well as a lease option with the Charlie Creek landowner. The land owner was only willing to lease and given the location and site condition a lease option was executed. Given the overall value of these projects to DEF's customers, DEF believes it is prudent to move forward with long term leases for these projects.

Q. What is the weighted average cost for the five projects described above?

A. The weighted average cost for the five projects is $1,402/kWac.

Q. Your costs are different from recent costs filed by other utilities in Florida. Can you explain the reasonableness of the differences?

A. Yes. As required by Paragraph 15(a) of the 2017 Settlement, DEF has reviewed publicly available information from Florida Power & Light Company's ("FPL") solar base rate adjustment filing in their 2017, 2018, 2019, and 2020 fuel docket and Tampa Electric Company's ("Tampa Electric") solar base rate adjustment filing in Docket Number 20170260-EI and Docket Number 20180133-EI. My Exhibit No. __ (MGS-11) shows how the Twin Rivers Project, Santa Fe Project, Charlie Creek Project, Duette Project, and Archer Project, compare to costs filed by other utilities, where such information was publicly available to DEF. Generally, the costs for the Twin Rivers Project, Santa Fe Project, Charlie Creek Project, Duette Project, and Archer Project are lower than those filed by other utilities in Florida. DEF also notes that, as explained

above, it competitively solicited all aspects of the projects and therefore its costs are reasonable, cost effective, and at market.

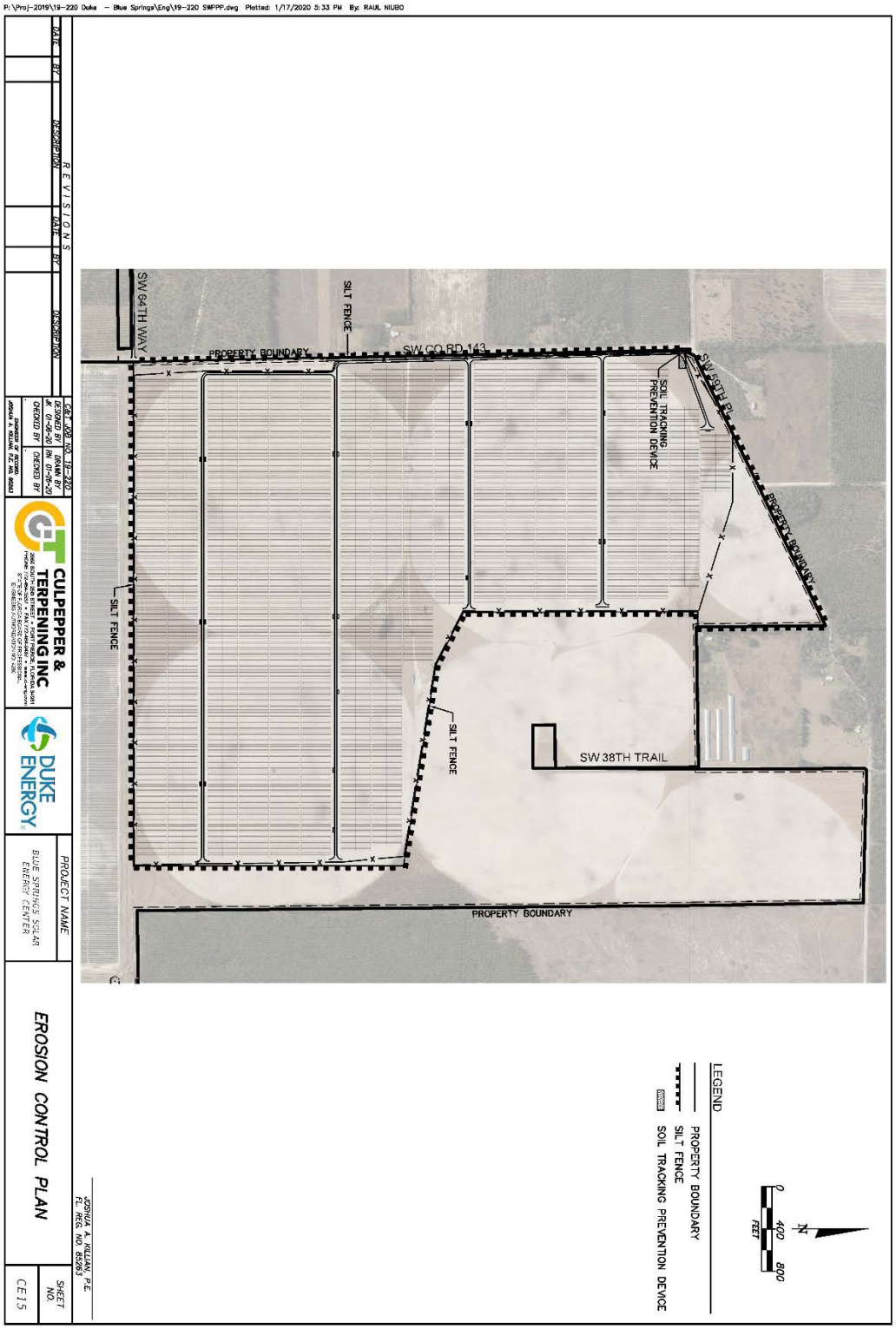
Q. Are the projected costs for the solar projects described in your testimony eligible for cost recovery under the 2017 Settlement?

A. Yes. As demonstrated above, DEF utilized a reasonable competitive process to select its contractors and to procure equipment and material. Its costs are reasonable and within the strict $1,650/kWac cap set forth in the 2017 Settlement. DEF reasonably considered buying out projects in various stages of development. Mr. Borsch will demonstrate the cost effectiveness of, and the need for, these solar projects, as required by the 2017 Settlement.

Q. Does that conclude your testimony?

A. Yes.

Twin Rivers Solar Power Plant Site Plan



REDACTED

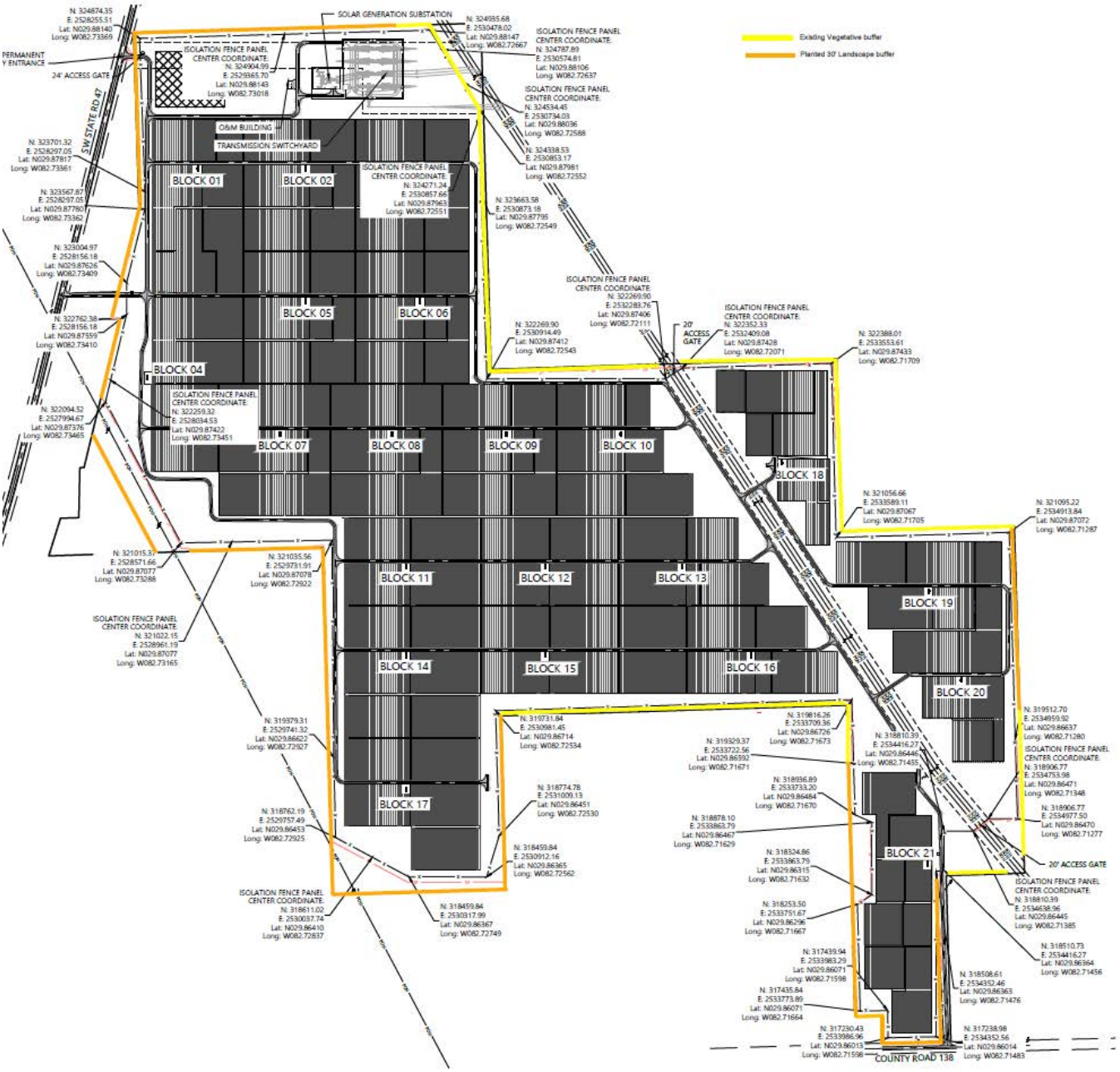
Twin Rivers Solar Power Plant Costs

Twin Rivers Solar Project
Estimated Installed Cost by Category

	Estimated Costs ($MM)
Project Output (MW-ac)	74.9
[redacted]	
Construction Management	1.7
Development and Permitting[3]	5.1
Transmission Interconnect[4]	0.6
Land[5]	0.2
Total Installed Cost	$98.1
AFUDC	2.0
Total with AFUDC	$100.0
Total ($kW-ac)	1,336

1. Includes equipment such as solar panels and project transformer, and any other equipment that was not included in EPC contract.
2. Includes remaining equipment such as racking, posts, inverters, and collection cables and EPC services.
3. Includes items such as lease rental payments during construction, legal fees, development costs, development fees, and title insurance.
4. Includes Interconnection Customer charges identified in the Large Generator Interconnection Agreement and associated with affected third-party systems. Excludes Network Upgrades.
5. Transmission substation located on land purchased by Duke Energy Florida, remainder of solar project occupies land leased to Duke Energy Florida.

Santa Fe Solar Power Plant Site Plan



REDACTED

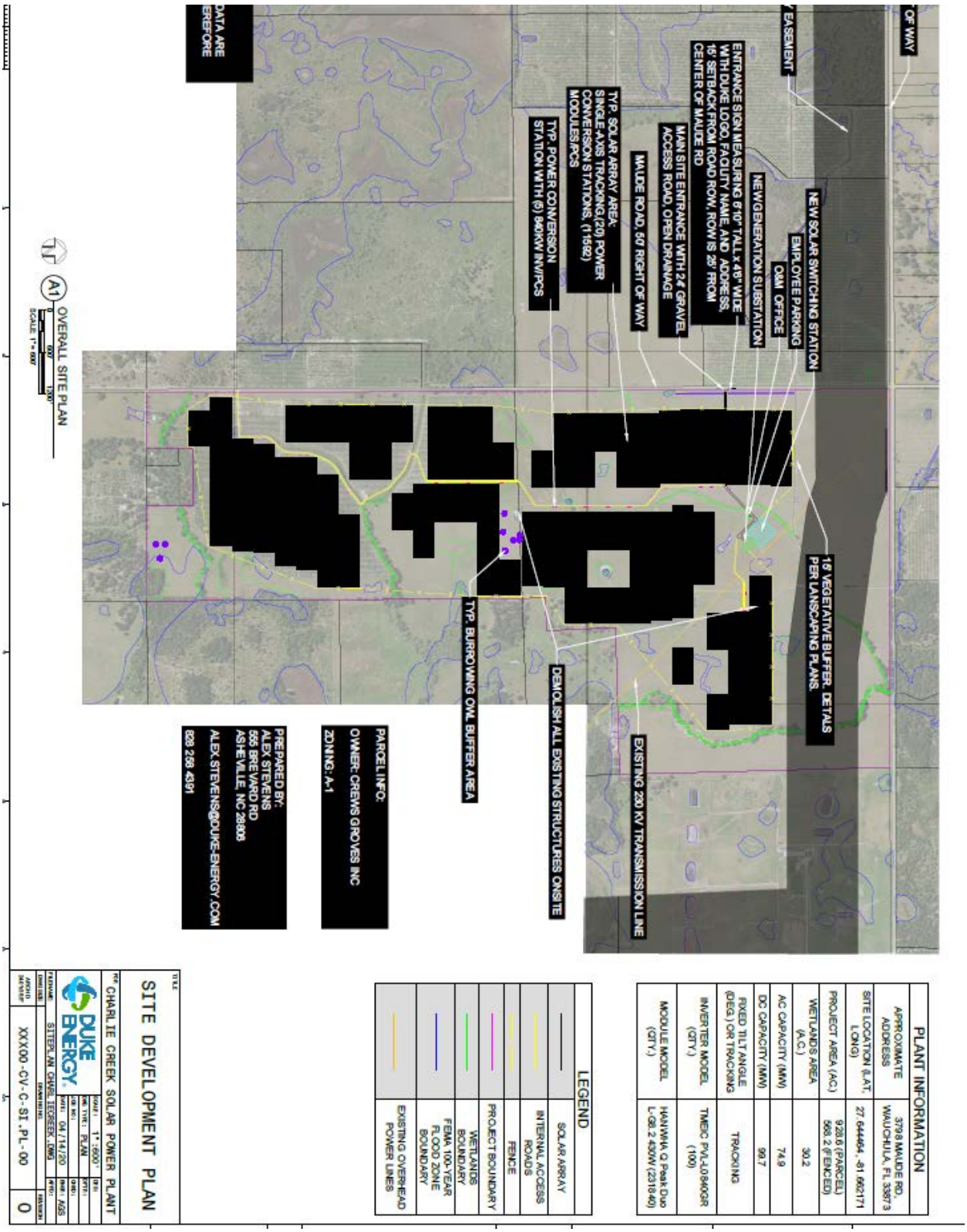
Santa Fe Solar Power Plant Costs

Santa Fe Solar Project
Estimated Installed Cost by Category

	Estimated Costs ($MM)
Project Output (MW-ac)	74.9
[redacted]	
Construction Management	1.2
Development and Permitting[3]	4.6
Transmission Interconnect[4]	2.0
Land[5]	4.2
Total Installed Cost	$108.9
AFDUC	0.0
Total with AFDUC	$108.9
Total ($kW-ac)	1,454

1. Includes equipment such as solar panels and project transformer, and any other equipment that was not included in EPC contract.
2. Includes remaining equipment such as racking, posts, inverters, and collection cables and EPC services.
3. Includes items such as lease rental payments during construction, legal fees, development costs, development fees, and title insurance.
4. Interconnection Customer charges identified in the Large Generator Interconnection Agreement. Excludes Network Upgrades.
5. Project occupies land purchased by Duke Energy Florida.

Charlie Creek Solar Power Plant Site Plan



PLANT INFORMATION	
APPROXIMATE ADDRESS	3798 MAUDE RD, WAUCHULA, FL 33873
SITE LOCATION (LAT, LONG)	27.644454, -81.662171
PROJECT AREA (AC.)	928.6 (PARCEL) 568.2 (FENCED)
WETLANDS AREA (A.C.)	30.2
AC CAPACITY (MW)	74.9
DC CAPACITY (MW)	99.7
FIXED TILT ANGLE (DEG.) OR TRACKING	TRACKING
INVERTER MODEL (QTY.)	TMEIC PVI-L0840GR (100)
MODULE MODEL (QTY.)	HANWHA Q Peak Duo L-G8.2 430W (231840)

LEGEND	
	SOLAR ARRAY
	INTERNAL ACCESS ROADS
	FENCE
	PROJECT BOUNDARY
	WETLANDS BOUNDARY
	FEMA 100-YEAR FLOOD ZONE BOUNDARY
	EXISTING OVERHEAD POWER LINES

TITLE
SITE DEVELOPMENT PLAN

PROJECT
CHARLIE CREEK SOLAR POWER PLANT

DUKE ENERGY.

SCALE:	1" = 600'
DRAWING TYPE:	PLAN
JOB NO.:	
DATE:	04/14/20
DRAWN:	AGS
FILENAME:	SITEPLAN CHARLIECREEK.DWG
DRAWING NO.:	
APPROVED DATE/SIGNATURE:	XXX.00-CV-C-SI.PL-00
REVISION:	0

REDACTED

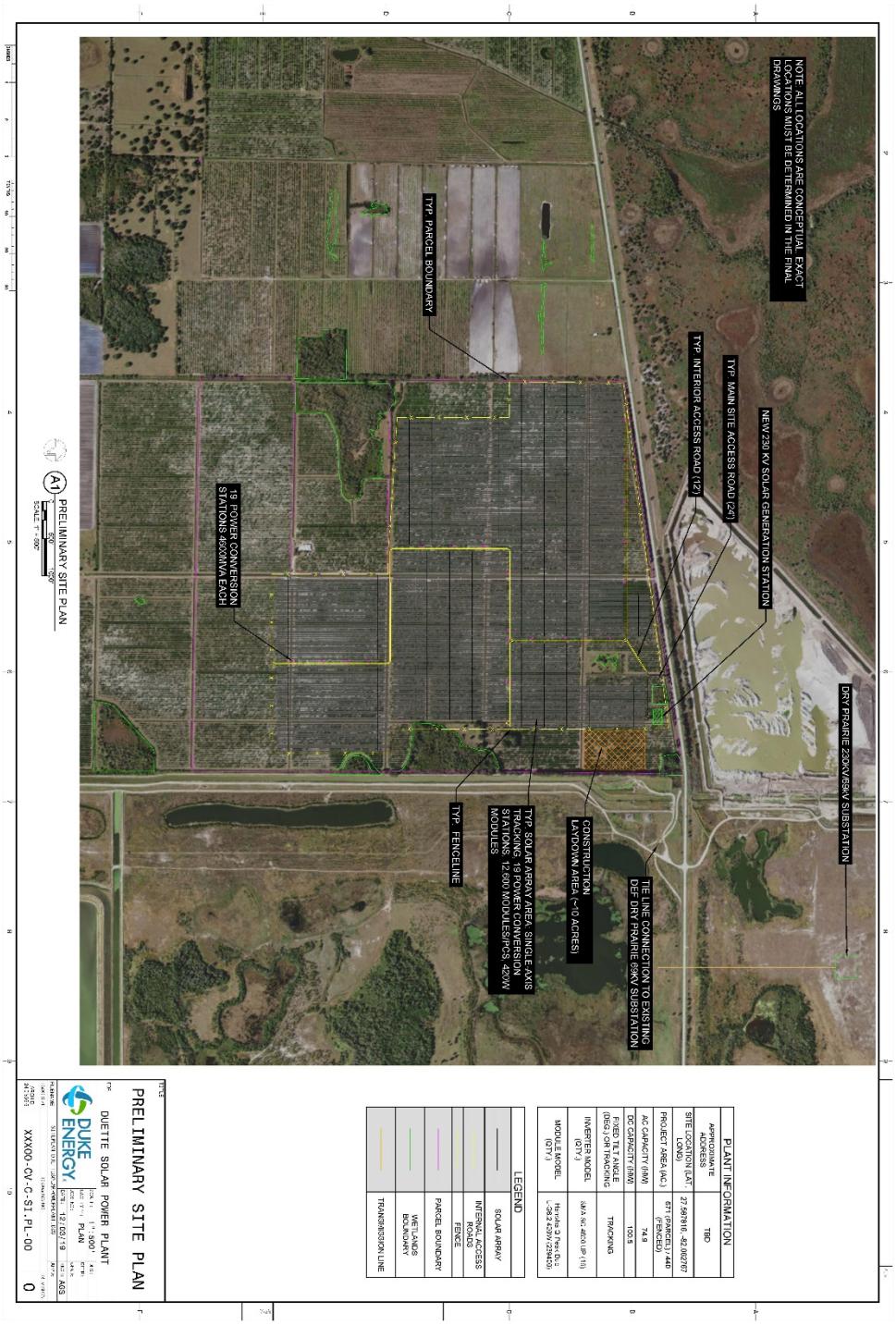
Charlie Creek Solar Power Plant Costs

Charlie Creek Solar Project
Estimated Installed Cost by Category

	Estimated Costs ($MM)
Project Output (MW-ac)	74.9
[redacted]	
Construction Management	1.2
Development and Permitting[3]	3.3
Transmission Interconnect[4]	1.8
Land[5]	0.1
Total Installed Cost	$95.2
AFDUC	2.7
Total with AFDUC	$98.0
Total ($kW-ac)	1,308

1. Includes equipment such as solar panels and project transformer, and any other equipment that was not included in EPC contract.
2. Includes remaining equipment such as racking, posts, inverters, and collection cables and EPC services.
3. Includes items such as lease rental payments during construction, legal fees, development costs, development fees, and title insurance.
4. Interconnection Customer charges identified in the Large Generator Interconnection Agreement. Excludes Network Upgrades.
5. Transmission substation located on land purchased by Duke Energy Florida, remainder of solar project occupies land leased to Duke Energy Florida.

Duette Solar Power Plant Site Plan



REDACTED

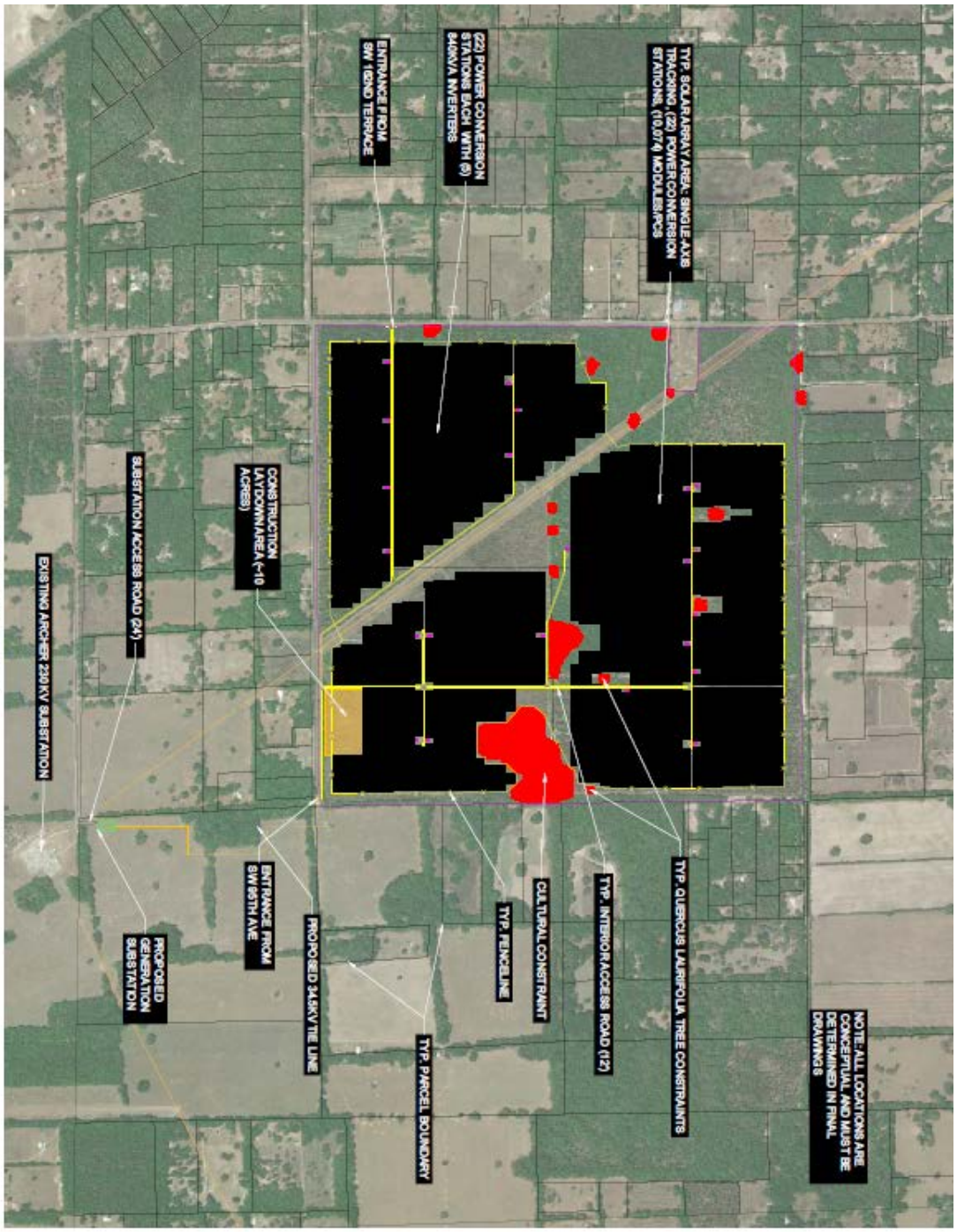
Duette Solar Power Plant Costs

Duette Solar Project
Estimated Installed Cost by Category

	Estimated Costs ($MM)
Project Output (MW-ac)	74.5
[redacted]	
Construction Management	1.2
Development and Permitting[3]	6.1
Transmission Interconnect[4]	2.2
[redacted]	
Total Installed Cost	$105.2
AFUDC	3.4
Total with AFUDC	$108.6
Total ($kW-ac)	1,457

1. Includes equipment such as solar panels and project transformer, and any other equipment that was not included in EPC contract.
2. Includes remaining equipment such as racking, posts, inverters, and collection cables and EPC services.
3. Includes items such as legal fees, development costs, development fees, and title insurance.
4. Interconnection Customer charges identified in the interconnection Facilities Study. Excludes Network Upgrades.
5. Project occupies land that will be purchased by Duke Energy Florida.

Archer Solar Power Plant Site Plan



A1 PRELIMINARY SITE PLAN
SCALE: 1" = 600'

PLANT INFORMATION	
APPROXIMATE ADDRESS	14808 SW 95 AVE, ARCHER, FL 32618
SITE LOCATION (LAT, LONG)	29.567467, -82.597823
PROJECT AREA (AC)	837.2 (PARCEL) 801.2 (FENCED)
AC CAPACITY (MW)	749
DC CAPACITY (MW)	975
FIXED TILT ANGLE (DEG.) OR TRACKING	TRACKING
INVERTER MODEL (QTY.)	TMEIC PVL-L-B240GR (110)
MODULE MODEL (QTY.)	FIRST SOLAR FS-6440 (2274528)

LEGEND	
SOLAR ARRAY	
PROJECT BOUNDARY	
WETLANDS BOUNDARY	
FEMA 100-YEAR FLOOD ZONE BOUNDARY	
EXISTING OVERHEAD POWER LINES	

PRELIMINARY SITE PLAN

ARCHER SOLAR POWER PLANT

DUKE ENERGY.

SCALE:	1" = 600'
DRN:	PLM
CHK:	
APP:	
DATE:	04/21/2020
SITEPLAN_ARCHER.DWG	

XXX00-CV-C-SI_PL-00 | 0

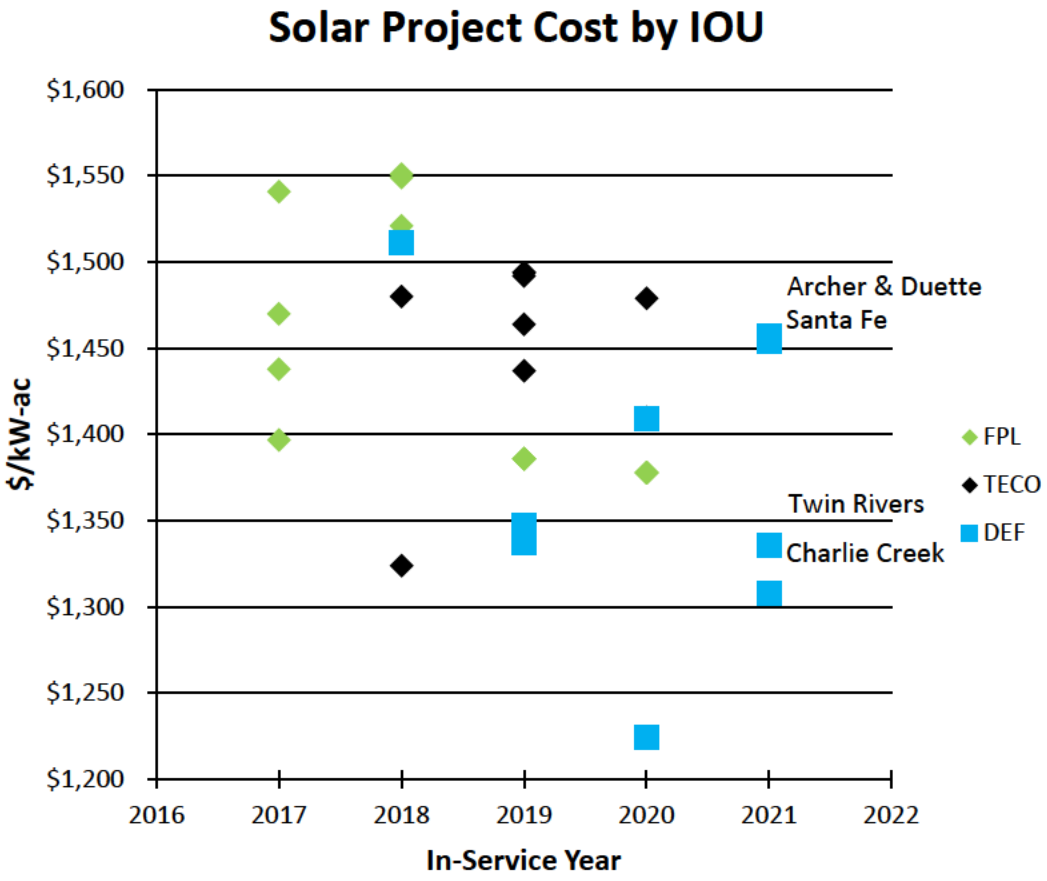
Archer Solar Power Plant Costs

Archer Solar Project
Estimated Installed Cost by Category

	Estimated Costs ($MM)
Project Output (MW-ac)	74.9
[redacted]	
Construction Management	1.2
Development and Permitting[3]	6.1
Transmission Interconnect[4]	2.7
[redacted]	
Total Installed Cost	$106.2
AFDUC	2.9
Total with AFDUC	$109.1
Total ($kW-ac)	1,457

1. Includes equipment such as solar panels and project transformer, and any other equipment that was not included in EPC contract.
2. Includes remaining equipment such as racking, posts, inverters, and collection cables and EPC services.
3. Includes items such as legal fees, development costs, development fees, and title insurance.
4. Includes Interconnection Customer charges identified in the Large Generator Interconnection Agreement. Excludes Network Upgrades.
5. Project occupies land to be purchased by Duke Energy Florida.

Cost Comparison to Other Utilities



IOU	Filing Year	Project	In Service Year	$/kWac[1]
FPL	2017	Coral Farms	2017	$1,438
	2017	Horizon	2017	$1,470
	2017	Wildflower	2017	$1,397
	2017	Indian River	2017	$1,541
	2018	Loggerhead	2018	$1,513
	2018	Barefoot Bay	2018	$1,551
	2018	Hammock	2018	$1,521
	2018	Blue Cypress	2018	$1,549
	2018	Miami-Dade	2019	$1,386[2]
	2018	Interstate	2019	$1,386[2]
	2018	Pioneer Trail	2019	$1,386[2]
	2018	Sunshine Gateway	2019	$1,386[2]
	2019	Echo River	2020	$1,378[3]
	2019	Southfork	2020	$1,378[3]
	2019	Okeechobee	2020	$1,378[3]
	2019	Hibiscus	2020	$1,378[3]
TECO	2017	Payne Creek	2018	$1,324
	2017	Balm	2018	$1,480
	2018	Lithia Solar	2019	$1,494
	2018	Grange Hall	2019	$1,437
	2018	Peace Creek	2019	$1,492
	2018	Bonnie Mine	2019	$1,464
	2018	Lake Hancock	2019	$1,494
	2019	Wimauma	2020	$1,479
	2019	Little Manatee River	2020	$1,410
DEF	2018	Hamilton	2018	$1,511
	2018	Colombia	2020	$1,409
	2019	Lake Placid	2019	$1,347
	2019	Trenton	2019	$1,337
	2019	Debary	2020	$1,224
	2020	Twin Rivers	2021	$1,336
	2020	Santa Fe	2021	$1,454
	2020	Charlie Creek	2021	$1,308
	2020	Duette	2021	$1,457
	2020	Archer	2021	$1,457

[1] $/kWac is not a perfect metric due to the fact that not all utilities report total costs in the same way each project will have a different system design (DC and AC sizing). A higher DC to AC ratio will result in higher costs on a $KW/ac basis but will produce more energy over the life of the project.

[2] Estimated average of $1,386/kWac with a range of $1,289 to $1,460/kWac.

[3] Estimated average of $1,378/kWac with a range of $1,339 to $1,407/kWac.

IN RE: DUKE ENERGY FLORIDA, LLC'S PETITION FOR A LIMITED PROCEEDING TO APPROVE THIRD SOLAR BASE RATE ADJUSTMENT

FPSC DOCKET NO. _____

DIRECT TESTIMONY OF BENJAMIN M. H. BORSCH

MAY 29, 2020

Q. Please state your name and business address.

A. My name is Benjamin M. H. Borsch. My business address is Duke Energy Florida, LLC, 299 1st Avenue North, St. Petersburg, Florida 33701.

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

A. I am employed by Duke Energy Florida, LLC ("DEF" or the "Company") as the Director, IRP & Analytics.

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

A. I am responsible for resource planning for DEF. I am responsible for directing the resource planning process in an integrated approach in order to find the most cost-effective alternatives to meet the Company's obligation to serve its customers in Florida. I oversee the completion of the Company's Ten-Year Site Plan ("TYSP") filed each April.

Q. Please describe your educational background and professional experience.

A. I received a Bachelor of Science and Engineering degree in Chemical Engineering from Princeton University. I joined Progress Energy in 2008 supporting the project management and construction department in the development of power plant projects. In 2009, I became Manager of Generation Resource Planning for Progress Energy Florida, and following the 2012 merger with Duke Energy Corporation, I accepted my current position. Prior to joining Progress Energy, I was employed for more than five years by Calpine Corporation where I was Manager (later Director) of Environmental Health and Safety for Calpine's Southeastern Region. In this capacity, I supported development and operations and oversaw permitting and compliance for several gas-fired power plant projects in nine states. I was also employed for more than eight years as an environmental consultant with projects including development, permitting, and compliance of power plants and transmission facilities. I am a professional engineer licensed in Florida and North Carolina.

Q. Please give an overview of the Company's presentation in this filing.

A. The Company is presenting testimony from three witnesses. My testimony will focus on the Company's demonstration of cost effectiveness for the proposed projects and their compliance with the terms set forth in DEF's 2017 Second Revised and Restated Settlement (the "2017 Settlement"). Two other witnesses will be presenting testimony. The testimony of Mr. Matthew G. Stout focuses on the characteristics of the solar projects presented for approval in this filing. It also provides details as to the Company's competitive solicitation processes, as well as the costs for the solar projects.

The testimony of Mr. Thomas G. Foster presents the revenue requirements for the solar projects.

Q. What is the purpose of your testimony?

A. The purpose of my testimony is to present the results of the economic analysis which shows that DEF's proposed five solar projects presented in this filing are cost effective and consistent with the terms of the 2017 Settlement. My testimony covers several areas. First, I discuss details of the five specific solar projects covered by this filing. Second, I discuss the major assumptions and methodology used to perform the economic analysis. Third, I present the results of the economic analysis, demonstrating that the addition of the proposed solar projects is cost effective and consistent with the terms of the 2017 Settlement.

Q. Are you presenting exhibits in this proceeding?

A. Yes. They consist of the following exhibits which are attached to my testimony:

Exhibit No. __ (BMHB-1), "Solar Power Plant Assumptions;"

Exhibit No. __ (BMHB-2), "Load Forecast;"

Exhibit No. __ (BMHB-3), "Fuel Forecasts;" and

Exhibit No. __ (BMHB-4), "Cost Effectiveness (CPVRR) Analysis Results."

These exhibits are true and accurate.

Q. Please summarize your testimony.

A. Under the terms of the 2017 Settlement, DEF is authorized to request cost recovery for up to 700 MW of solar generation over the course of the 2017 Settlement period including one year following the expiration of the Term of the 2017 Settlement subject to the demonstration of cost effectiveness and other provisions. In this filing, DEF is proposing the construction and operation of 355.8 MW_{ac} of solar PV generation, consisting of five separate projects, two projects coming in service in early 2021 with capacities of 74.9 MW_{ac} each and three projects, two with a capacity of 74.9 MW_{ac} and one with a capacity of 74.5 MW_{ac}, with in-service dates in the fourth quarter of 2021. With respect to one of the last 74.9 MW projects, given the megawatt limitation included in the 2017 Settlement, DEF is only proposing to include costs associated with 56.6 MW of that project into rates at this time. DEF will include the remaining 18.3 MW in its next base rate proceeding. As explained further in the testimony of Matt Stout, the construction and operation of the full 74.9 MW project is the best option for DEF's customers. DEF performed an economic analysis and determined that these projects result in a reduction in the Cumulative Present Value Revenue Requirements ("CPVRR") to DEF customers for a total savings of approximately $237 million.

Q. Please describe the solar projects DEF is presenting for approval.

A. In this filing, DEF proposes five solar facilities. The first is a 74.9 MW facility in Hamilton County, called the Twin Rivers Solar Power Plant ("Twin Rivers Project") which will come into service in early 2021. Next is a 74.9 MW facility located in Columbia County called the Santa Fe Solar Power Plant ("Santa Fe Project"), which will also come into service in early 2021. The next three facilities will all come into

service in the fourth quarter of 2021. The Charlie Creek Solar Power Plant ("Charlie Creek Project") is a 74.9 MW facility located in Hardee County. The Duette Solar Power Plant ("Duette Project") is a 74.5 MW facility located in Manatee County. The Archer Solar Power Plant ("Archer Project") is a 74.9 MW facility located in Alachua County, Florida (and as explained above, only the costs associated with 56.6 MW will be included in rates for SOBRA recovery). Collectively, these projects will generate approximately 876,000 MWhs per year. Key data regarding these projects are provided in Exhibit No. __ (BMHB-1). The projects are described in greater detail in Mr. Stout's testimony.

Q. What will these proposed solar projects cost?

A. DEF anticipates that the Twin Rivers, Santa Fe, Charlie Creek, Archer, and Duette Projects will cost approximately $100 million, $109 million, $98 million, $109 million, and $109 million respectively. Of the $109 million cost of the Archer project, DEF is proposing to recover approximately $82.5 million through this filing. These costs translate to a per kW cost of $1,336/$kW_{ac}$ for Twin Rivers, $1,454/$kW_{ac}$ for Santa Fe, $1,308/$kW_{ac}$ for Charlie Creek, $1,457/$kW_{ac}$ for Duette, and $1,457/$kW_{ac}$ for Archer, respectively. This results in a weighted average per kW cost of $1,402/$kW_{ac}$. The costs are described in more detail in Mr. Stout's testimony.

Q. What does the 2017 Settlement require DEF to demonstrate to obtain cost recovery for the solar projects?

A. DEF must demonstrate that the projected solar projects in each filing meet several required elements. The first demonstrates that the costs are reasonable and beneath a threshold cost of $\$1,650/kW_{ac}$ for the weighted average construction cost of the projects in an individual filing. This element is met, as described above and in Mr. Stout's testimony. DEF must also calculate the annual revenue requirements, as explained in Mr. Foster's testimony. Finally, the solar projects must be limited to certain total MW size through one year following the Term of the 2017 Settlement, be cost effective on DEF's system, and DEF must demonstrate a need for the solar projects. The remainder of my testimony will focus on these last three requirements.

Q. Do the proposed solar projects meet the MW limitations set forth in the 2017 Settlement?

A. Yes. Paragraph 15(a) of the 2017 Settlement states that DEF may install up to 700 MW of solar generation over the term of the 2017 Settlement. Paragraph 15(d) provides cost recovery limitations on those projects such that the installations can be spread across the term in a particular manner, at a rate of up to 175 MW per year except that unused portions of the total may carryover from year to year. Thus, up to a cumulative total of 175 MW may come online by the end of 2018, a cumulative total of up to 350 MW may come online by the end of 2019, a cumulative total of up to 525 MW may come online by the end of 2020, and the full 700 MW of solar projects may come online by the end of 2021 or within one year following the Term of the 2017 Settlement. The solar projects proposed here contribute 355.8 MW in 2021 added to the previously approved 344.2 MW placed in service in 2018, 2019 and 2020, so DEF is within the

limitations set forth in the 2017 Settlement. The table below compares the limitations laid out in the settlement to the projects proposed by DEF in this filing and in our July 2018 and March 2019 filings.

DEF Proposed Solar MW				
Filing	2018 MW	2019 MW	2020 MW	2021 MW
July 2018	74.9		74.9	
March 2019		119.9	74.5	
May 2020				355.8*
Total	74.9	119.9	149.4	355.8
Cumulative Total	74.9	194.8	344.2	700.0
Limitation	175	350	525	700

*Only 56.6 of the 74.9 MW for the Archer Project are included for cost recovery purposes in this proceeding.

Q. Are the proposed solar projects cost effective?

A. Yes. As explained below, DEF analyzed the total system cost of the DEF system with the projects as compared to the total DEF system costs without the projects and found that the solar projects as proposed reduce the total system cost and are thus cost effective for DEF's customers.

Q. How did DEF evaluate the cost effectiveness of the solar projects?

A. DEF calculated the cost effectiveness in the same manner that it performs cost effectiveness evaluations of numerous projects including the development of the Ten-Year Site Plan. DEF calculates the total system cost projected over the life of the solar projects for a scenario with the solar projects and compares it to the total system cost calculated for a scenario without the solar projects. Lower total system costs for the scenario with the solar projects represents savings to DEF's customers. As with our Ten-Year Site Plan, this analysis is performed using the Planning and Risk suite of

modeling tools to evaluate the production cost results. Project specific capital costs come from the project development teams and revenue requirements are then developed. Finally, project specific solar performance projections are developed using the PVSyst model and provided to the production cost model. This data becomes inputs to derive the system costs for the two cases developed with and without the solar projects in service.

In addition to the reference case assuming the base case fuel price projection and a carbon emission cost beginning in 2025, DEF also performed sensitivities based on low and high fuel price projections. Results of these differential CPVRR analyses, the difference between with and without the solar projects are shown below and in Exhibit No. __ (BMHB-4). The fuel price forecasts are shown in Exhibit No. __ (BMHB-3) attached to this testimony.

Q. Please describe the major assumptions used in developing the CPVRR analyses.

- Load Forecast – The analysis uses DEF's most recent official load forecast developed in the fall of 2019, which was presented as the base case load forecast in the DEF 2020 Ten-Year Site Plan ("TYSP") filed with the commission in April 2020. This load forecast is attached as Exhibit No. __ (BMHB-2).
- Fuel Price Forecast – The reference case analyses use DEF's most recent fuel price forecast also utilized in DEF's 2020 TYSP. The base case fuel price forecast was developed using short-term and long-term spot market price projections from industry-recognized sources. The base cost for coal is based on the existing contracts and spot market coal prices and transportation arrangements between DEF and its various suppliers. For the longer term, the prices are based on spot

market forecasts reflective of expected market conditions. Oil and natural gas prices are estimated based on current and expected contracts and spot purchase arrangements as well as near-term and long-term market forecasts. Oil and natural gas commodity prices are driven primarily by open market forces of supply and demand. Natural gas firm transportation cost is determined primarily by pipeline tariff rates. For the low and high fuel price scenarios, DEF developed ranges of natural gas and coal prices around the reference forecast based on the range of prices seen in the Energy Information Administration's high price (Low Oil and Gas Resource and Technology Case) and low price (High Oil and Gas Resource and Technology Case) forecasts.

- CO_2 Emissions Price Forecast – The CO_2 allowance price projections used in this filing are also DEF's latest projections used in the development of the 2020 TYSP. DEF's price projections are a proxy for regulations consistent with the Duke enterprise level goal to reduce CO_2 emissions 50% by 2030 compared to 2005 levels.

Q. What are the results of DEF's cost effectiveness evaluation for these projects?

A. DEF has found that the projects are cost effective for its customers. The total system costs calculated over the project lives when including the projects in the DEF resource plan are lower when compared to the total system costs excluding the projects. The net results of this analysis (system costs with the projects minus system costs without the projects) are summarized in the table below and in Exhibit No. __ (BMHB-4).

CPVRR Net Cost / (Savings) of Proposed Solar Projects
$ Millions (2020)

Low Fuel Sensitivity	Base Case Fuel	High Fuel Sensitivity
(181)	(237)	(378)

Q. What benefits do the proposed solar facilities bring to DEF's system and customers?

A. The primary purpose of the proposed DEF solar projects is to provide customers with cost-effective, clean, renewable energy. These large-scale solar projects will diversify DEF's fuel mix with dependable energy, and provide firm summer capacity, helping to meet DEF's needs for future capacity and satisfy DEF's need for future generation capacity.

Q. Given all these benefits, does DEF have a need for these solar projects?

A. Yes. DEF has a need for cost-effective clean generation that will diversify its fuel mix and defer the need for future gas-fired generation.

Q. Should the Commission approve DEF's request for approval of this first group of solar projects?

A. Yes. As demonstrated above, these solar projects are cost effective and will provide DEF's customers with additional 355.8 MW of clean, reliable, renewable energy to meet its needs.

Q. Does that conclude your testimony?

A. Yes.

Solar Power Plant Assumptions

Solar Energy Centers	In-service date	Name Plate Capacity (Mwac)	Projected 1st Year Net Capacity Factor	Capital Cost ($M)	Capital Cost ($/Kwac)
Santa Fe	Jan-21	74.9	28.6%	$108.91	$ 1,454
Twin Rivers	Jan-21	74.9	27.2%	$100.04	$ 1,336
Duette	Dec-21	74.5	27.6%	$108.57	$ 1,457
Charlie Creek	Dec-21	74.9	28.9%	$97.95	$ 1,308
Archer	Dec-21	56.6	28.4%	$109.12	$ 1,457

Load Forecast			
Year	Summer Firm Peak MW	Winter Firm Peak MW	Net Energy for Load Mwh
2020	8,915	9,406	43,644,906
2021	8,946	8,789	43,939,025
2022	9,007	9,167	44,591,037
2023	8,735	8,922	44,535,781
2024	8,769	9,012	44,880,342
2025	8,588	8,777	44,720,775
2026	8,612	8,880	44,954,812
2027	8,666	8,941	45,267,934
2028	8,759	9,003	45,777,936
2029	8,829	9,038	46,123,759
2030	8,904	9,091	46,525,804
2031	8,940	9,036	45,949,137
2032	9,031	9,222	46,468,945
2033	9,102	9,249	46,838,648
2034	9,191	9,316	47,322,026
2035	9,283	9,379	47,807,095
2036	8,984	9,075	48,371,288
2037	9,067	9,109	48,795,901
2038	9,158	9,173	49,285,725
2039	9,294	9,236	49,776,860
2040	9,405	9,338	50,380,732
2041	9,494	9,358	50,821,460
2042	9,570	9,336	51,310,772
2043	9,679	9,491	51,855,627
2044	9,985	9,594	52,453,876

Fuel Forecasts

Fuel Mid Price Forecast (2020 TYSP)			
Year	Natural Gas Base Cost Regular Supply Z3	CRN Coal	Distillate Oil
	$/MMBTU		
2020	2.41	2.12	14.13
2021	2.45	2.18	13.89
2022	2.52	2.26	14.14
2023	2.60	2.43	14.32
2024	2.75	2.52	14.60
2025	2.99	2.72	14.96
2026	3.28	2.88	15.53
2027	3.68	3.09	16.18
2028	4.20	3.33	16.93
2029	4.58	3.44	17.62
2030	4.80	3.55	18.06
2031	5.08	3.96	18.46
2032	5.37	4.11	18.88
2033	5.34	4.25	19.31
2034	5.57	4.37	19.75
2035	5.78	4.43	20.20
2036	5.86	4.53	20.66
2037	6.26	4.67	21.14
2038	6.56	4.80	21.54
2039	6.68	4.96	21.93
2040	6.97	5.10	22.07
2041	7.21	5.24	22.64
2042	7.47	5.39	23.22
2043	7.65	5.53	23.42
2044	7.95	5.67	24.02
2045	8.39	5.82	24.22
2046	8.71	5.96	24.83
2047	8.85	6.10	25.45
2048	9.14	6.25	25.64
2049	9.36	6.39	26.28
2050	9.45	6.53	26.29
2051	9.69	6.69	26.95

Fuel High Price Forecast (2020 TYSP)			
Year	Natural Gas Base Cost Regular Supply Z3	CRN Coal	Distillate Oil
	$/MMBTU		
2020	2.41	2.12	14.13
2021	2.48	2.18	13.89
2022	2.76	2.26	14.14
2023	3.21	2.43	14.32
2024	3.79	2.53	14.60
2025	4.15	2.75	14.96
2026	4.58	2.93	15.53
2027	5.03	3.16	16.18
2028	5.60	3.40	16.93
2029	6.05	3.51	17.62
2030	6.34	3.65	18.06
2031	6.80	4.04	18.46
2032	7.14	4.18	18.88
2033	7.09	4.33	19.31
2034	7.54	4.47	19.75
2035	7.89	4.51	20.20
2036	7.99	4.61	20.66
2037	8.64	4.77	21.14
2038	9.15	4.91	21.54
2039	9.28	5.09	21.93
2040	9.85	5.26	22.07
2041	10.29	5.42	22.64
2042	10.74	5.58	23.22
2043	11.14	5.75	23.42
2044	11.33	5.92	24.02
2045	11.95	6.04	24.22
2046	12.57	6.21	24.83
2047	13.04	6.40	25.45
2048	13.55	6.56	25.64
2049	13.90	6.72	26.28
2050	14.22	6.88	26.29
2051	14.57	7.06	26.95

Fuel Low Price Forecast (2020 TYSP)			
Year	Natural Gas Base Cost Regular Supply Z3	CRN Coal	Distillate Oil
	$/MMBTU		
2020	2.41	2.12	14.13
2021	2.45	2.18	13.89
2022	2.52	2.26	14.14
2023	2.60	2.43	14.32
2024	2.70	2.52	14.60
2025	2.86	2.71	14.96
2026	3.07	2.85	15.53
2027	3.38	3.05	16.18
2028	3.70	3.28	16.93
2029	3.98	3.38	17.62
2030	4.13	3.51	18.06
2031	4.40	3.91	18.46
2032	4.54	4.04	18.88
2033	4.51	4.18	19.31
2034	4.66	4.33	19.75
2035	4.83	4.37	20.20
2036	4.82	4.45	20.66
2037	5.13	4.59	21.14
2038	5.36	4.71	21.54
2039	5.44	4.86	21.93
2040	5.60	5.01	22.07
2041	5.80	5.18	22.64
2042	5.97	5.35	23.22
2043	6.04	5.51	23.42
2044	6.25	5.64	24.02
2045	6.54	5.75	24.22
2046	6.76	5.91	24.83
2047	6.85	6.03	25.45
2048	6.96	6.13	25.64
2049	7.01	6.25	26.28
2050	7.05	6.39	26.29
2051	7.23	6.55	26.95

Cost Effectiveness (CPVRR) Analysis Results			
CPVRR Through Year 2051 2020$M	**Tranche 3 Cases - Tranche 2 Cases**		
	Low Fuel Prices	**Mid Fuel Prices**	**High Fuel Prices**
Santa Fe	155	155	155
Twin Rivers	144	144	144
Duette	122	122	122
Charlie Creek	132	132	132
Archer	99	99	99
Conventional Generation	(217)	(217)	(217)
Fuel Cost	(379)	(436)	(572)
Variable Costs	(40)	(40)	(39)
Environmental Costs without Carbon	(1)	(1)	(2)
Total Solar Savings before CO2 Costs	**17**	**(40)**	**(176)**
CO2 Cost	(197)	(198)	(203)
CPVRR (Savings)	**(181)**	**(237)**	**(378)**

IN RE: DUKE ENERGY FLORIDA, LLC'S PETITION FOR A LIMITED PROCEEDING TO APPROVE THIRD SOLAR BASE RATE ADJUSTMENT

FPSC DOCKET NO. _____

DIRECT TESTIMONY OF THOMAS G. FOSTER

MAY 29, 2020

Q. Please state your name and business address.

A. My name is Thomas G. Foster. My business address is Duke Energy Florida, LLC, 299 1st Avenue North, St. Petersburg, Florida 33701.

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

A. I am employed by Duke Energy Florida, LLC ("DEF" or the "Company") as Director of Rates and Regulatory Planning.

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

A. I am responsible for regulatory planning and cost recovery for Duke Energy Florida, LLC ("DEF"), including the Company's filing for recovery of its investments in solar projects.

Q. Please describe your educational background and professional experience.

A. I joined the Company on October 31, 2005 in the Regulatory group. In 2012, following the merger with Duke Energy Corporation ("Duke Energy"), I was promoted to my

current position. I have 6 years of experience related to the operation and maintenance of power plants obtained while serving in the United States Navy as a Nuclear Operator. I received a Bachelor of Science degree in Nuclear Engineering Technology from Thomas Edison State College. I received a Masters of Business Administration with a focus on finance from the University of South Florida and I am a Certified Public Accountant in the State of Florida.

Q. What is the purpose of your testimony?

A. The purpose of my testimony is to provide the annualized revenue requirements for the five solar projects included in DEF's third SoBRA filing: Twin Rivers Solar Power Plant ("Twin Rivers Project"), Santa Fe Solar Power Plant ("Santa Fe Project"), Charlie Creek Solar Power Plant ("Charlie Creek Project"), Duette Solar Power Plant ("Duette Project"), and Archer Solar Power Plant ("Archer Project"). I will also present the process for submitting the customer rate impacts and tariff sheets in a subsequent filing. Matthew Stout will present direct testimony describing the solar projects and the reasonableness of the costs, and Benjamin Borsch will present direct testimony demonstrating the cost effectiveness of the solar projects.

Q. Have you prepared, or caused to be prepared under your direction, supervision, or control, exhibits in this proceeding?

A. Yes. I am sponsoring the following exhibit:

Exhibit No. ___ (TGF-1), "SoBRA III First Year Annualized Revenue Requirement." This exhibit is true and accurate.

Q. Please describe the SoBRA filing requirements in DEF's 2017 Revised and Restated Settlement Agreement.

A. Paragraph 15 of the 2017 Revised and Restated Settlement Agreement ("2017 Settlement") provides for solar base rate adjustments. Specifically, Paragraph 15.c. states:

> Solar generation projects not subject to the Florida Electrical Power Plant Siting Act (i.e., fewer than 75 MW), also will be subject to approval by the Commission as follows: (i) DEF will file a request for approval of the solar generation project in a separate docket; and (ii) the issues for determination are limited to: the reasonableness and cost effectiveness of the solar generation projects (i.e., will the projects lower the projected system cumulative present value revenue requirement "CPVRR" as compared to such CPVRR without the solar projects); the amount of revenue requirements; and whether, when considering all relevant factors, DEF needs the solar project(s). Any Party may challenge the reasonableness of DEF's actual or projected solar project costs. If approved, DEF will calculate and submit for Commission confirmation the base rate adjustment for each such solar project, consistent with Subparagraphs 15.e. and 15.f.

Q. Have you calculated the revenue requirements for the solar projects consistent with the 2017 Settlement?

A. Yes. Based on the cost information provided in Mr. Stout's testimony, I have calculated the annualized revenue requirements for the Twins River, Santa Fe, Charlie Creek, Duette, and Archer Projects. The annualized revenue requirements have been calculated in accordance with Paragraph 15.f. of the 2017 Settlement, which requires that the revenue requirements be "calculated using a 10.5% ROE and DEF's projected 13-month average capital structure for the first 12 months of operation, including all specific adjustments consistent with DEF's most recently filed December earnings surveillance report, and excluding the treatment of common equity and rate base (working capital) allowed in Paragraph 18 of the 2013 Settlement Agreement, and adjusted to include an ADIT proration adjustment consistent with 26 C.F.R. Section 1.167(l)-1(h)(6) and adjusted to reflect the inclusion of investment tax credits on a normalized basis." Further, as required by Paragraph 12.c. of the 2017 Settlement, DEF has calculated the revenue requirements using the lower 21% federal income tax rate as a result of the 2017 Tax Cuts and Jobs Act. The following table provides the expected in-service date, rate effective date, projected revenue requirement and estimated residential rate impact for each project.

	Twin Rivers	Santa Fe	Charlie Creek	Duette	Archer
Expected In-Service Date	Jan-21	Jan-21	Dec-21	Dec-21	Dec-21
Rate Effective Date	Feb-21	Feb-21	Jan-22	Jan-22	Jan-22
Est. Revenue Requirement	$13.1 million	$13.9 million	$12.5 million	$13.4 million	$10.3 million
Est. Residential Rate $/1,000 kWh *	$0.40*	$0.43*	$0.39 **	$0.42**	$0.32**

* To be updated at the time of DEF's 2020 Capacity Cost Recovery Clause projection filing for 2021 Rates.
** To be updated at the time of DEF's 2021 Capacity Cost Recovery Clause projection filing for 2022 Rates.

Q. How did you calculate the revenue requirements for the Archer Project?

A. As explained in Mr. Stout's and Mr. Borsch's testimonies, the Company selected the Archer Project as the most cost effective alternative to meet its need. However, since the total project size of 74.9 MW would put the total SoBRA projects over the 700 MW provided for in the 2017 Settlement, DEF is only including the revenue requirements associated with 56.6 MW of the Archer Project in the solar base rate adjustment at this time. The revenue requirement for Archer was calculated in the same manner as the other four SoBRA projects in this filing, however, both the Capital and O&M costs were reduced to reflect 75.6% of the total cost, based on dividing 56.6MW by 74.9MW.

Q. **Does the 2017 Settlement provide for a true-up mechanism to be applied to SoBRA rates?**

A. Yes. Paragraph 15.g. of the 2017 Settlement states, "In the event that the actual capital expenditures are less than the approved projected costs, included in the petition for cost

recovery and used to develop the initial base rate adjustment, the lower figure shall be the basis for the full revenue requirements and a one-time credit will be made through the CCR Clause. In order to determine the amount of this credit, a revised base rate adjustment will be computed using the same data and methodology incorporated in the initial base rate adjustment, with the exception that the actual capital expenditures will be used in lieu of the capital expenditures on which the Annualized Base Revenue Requirement was based. On a going-forward basis, base rates will be adjusted to reflect the revised base rate adjustment. The difference between the cumulative base revenues since the implementation of the initial base rate adjustment and the cumulative base revenues that would have resulted if the revised base rate adjustment had been in-place during the same time period will be credited to customers through the CCR Clause with interest at the 30-day commercial paper rate as specified in Rule 25-6.109, F.A.C." Once the capital expenditures are final, if they are less than the amount approved by the Commission, then DEF will make a true-up filing to reduce base rates going forward and provide a refund through the CCR clause consistent with the provisions in Paragraph 15.g. of the 2017 Settlement.

Q. Have you calculated the solar base rate adjustment factors consistent with the 2017 Settlement?

A. Not at this time. Paragraph 15.e in the 2017 Settlement requires DEF to use the sales forecast in DEF's then-most-current Capacity Cost Recovery (CCR) Clause projection filing; the 2020 CCR projection filing for 2021 rates is expected to be filed on September 3, 2020. Therefore, at the time of DEF's 2020 CCR projection filing for

2021 rates, DEF will file a rate exhibit that includes the rates to be effective January 2021 for the multi-year rate increase pursuant to Paragraph 12.b. and 12.c. of the 2017 Settlement, and the rates to be effective February 2021 for Twin Rivers and Santa Fe. The rates for Charlie Creek, Duette, and Archer, will be effective January 2022 and will be filed with the sales forecast to be used in DEF's 2021 CCR projection filing for 2022 rates.

Q. When will DEF file the tariff sheets?

A. In order to promote efficiency and avoid having multiple sets of tariff sheets outstanding for approval, DEF proposes to file two different sets of tariff sheets at two different times. DEF will file tariff sheets with an effective date of February 1, 2021 after the Commission approves Twin Rivers and Santa Fe, but no sooner than September 3, 2020, concurrent with DEF's 2020 CCR projection filing for 2021 rates. DEF will then file tariff sheets with an effective date of January 1, 2022 to include Charlie Creek, Duette, and Archer after the rates go into effect for Twin Rivers and Santa Fe in 2021, concurrent with DEF's 2021 CCR projection filing for 2022 rates. DEF will file both sets of tariff sheets for Commission confirmation pursuant to Paragraph 15.c. of the 2017 Settlement.

Q. What is the estimated residential base rate impact of Twin Rivers, Santa Fe, Charlie Creek, Duette, and Archer?

A. The estimated residential base rate impacts are shown in the table on page 5 of my testimony. These estimated rate impacts are based on the sales forecast used in DEF's

2019 CCR projection filing for 2020 rates. However, these rates will be updated based on the sales forecast to be used in DEF's 2020 CCR projection filing for 2021 rates for Twin Rivers and Santa Fe and the sales forecast to be used in DEF's 2021 CCR projection filing for 2022 rates for Charlie Creek, Duette, and Archer at the time of those filings, as explained above.

Q. **How will DEF notify the Commission of the commercial operation date of each solar facility?**

A. DEF will submit to the Commission a letter that declares the commercial operation date of each solar facility prior to any Solar base rate changes.

Q. Does that conclude your testimony?

A. Yes.

Duke Energy Florida, LLC
SoBRA 3 First Year Annualized Revenue Requirement
($000)

	Description	Reference	Twin Rivers	Santa Fe	Charlie Creek	Duette	Archer (Note 2)
1	Jurisdictional Adjusted Rate Base	Pages 2 & 3	$ 95,333	$ 103,788	$ 93,346	$ 103,467	$ 78,580
2	Rate of Return on Rate Base	Pages 4 & 5	6.430%	6.430%	6.460%	6.460%	6.460%
3	Net Operating Income Required	Line 1 x Line 2	6,130	6,674	6,030	6,684	5,076
4	Net Operating Income Achieved	Pages 2 & 3	(3,710)	(3,782)	(3,250)	(3,284)	(2,621)
5	Net Operating Income Deficiency/(Excess)	Line 3 - Line 4	9,840	10,456	9,280	9,968	7,698
6	Net Operating Income Multiplier	Note (1)	1.330	1.330	1.344	1.344	1.344
7	Revenue Requirement	Line 5 x Line 6	$ 13,083	$ 13,902	$ 12,475	$ 13,400	$ 10,348

8 Note 1: Net Operating Income Multiplier is based on MFR C-44 in Docket No. 20090079, except federal tax rate changed to 21%, state tax rate 4.458% for 2021, and 5.5% for 2022.
The Florida corporate income/franchise tax rate was reduced from 5.5% to 4.458% for taxable years beginning on or after January 1, 2019 through 2021, and will to revert back to 5.5% on January 1, 2022.
9 Note 2: The SoBRA 3 Revenue Requirements for Archer are based on 56.6MW of the the 74.9MW site costs.

Duke Energy Florida, LLC
SoBRA 3 First Year Annualized Revenue Requirement
($000)

	Net Plant (13 month average):	Twin Rivers Total Company	Twin Rivers FPSC Jurisd.	Santa Fe Total Company	Santa Fe FPSC Jurisd.	Jurisd. Factor
1	Solar Production Plant	$ 98,993	$ 95,929	$ 107,853	$ 104,515	96.905%
2	Accumulated Reserve - Solar Production Plant	(1,650)	(1,599)	(1,798)	(1,742)	96.905%
3	Transmission GSU	1,045	1,012	1,057	1,024	96.905%
4	Accumulated Reserve - Transmission GSU	(9)	(9)	(10)	(9)	96.905%
5	Net Plant	$ 98,378	$ 95,333	$ 107,103	$ 103,788	

	Operating Expenses:	Total Company	FPSC Jurisd.	Total Company	FPSC Jurisd.	
6	O&M	$ 1,303	$ 1,263	$ 1,027	$ 995	96.905%
7	Depreciation Expense - Solar Production Plant	3,300	3,198	3,595	3,484	96.905%
8	Depreciation Expense - Transmission GSU	19	18	19	19	96.905%
9	Dismantlement	193	187	215	209	96.905%
10	Property Insurance	122	118	133	129	96.905%
11	Property Tax	368	356	434	421	96.905%
12	Total Operating Expenses	$ 5,304	$ 5,140	$ 5,424	$ 5,256	
13	Jurisdictional Interest Expense		$ 1,649		$ 1,796	

		FPSC Jurisd.	FPSC Jurisd.	
14	Operating Expenses	$ (5,140)	$ (5,256)	
15	Income Tax - Operating Expenses (Line 12 x tax rate)	$ 1,026	$ 1,033	Blend
16a	Income Tax - Current Interest Expense (Line 13 x tax rate)	74	80	4.458%
16b	Income Tax - Deferred Interest Expense (Line 13 x tax rate)	331	360	20.064%
17	Total Income Tax	$ 1,430	$ 1,473	
18	Jurisdictional Net Operating Income (Line 14 + Line 17)	$ (3,710)	$ (3,782)	

Duke Energy Florida, LLC
SoBRA 3 First Year Annualized Revenue Requirement
($000)

	Net Plant (13 month average):	Charlie Creek Total Company	Charlie Creek FPSC Jurisd.	Duette Total Company	Duette FPSC Jurisd.	Archer (Note 2)		Jurisd. Factor
1	Solar Production Plant	$ 96,751	$ 93,757	$ 107,372	$ 104,049	$ 81,550	$ 79,026	96.905%
2	Accumulated Reserve - Solar Production Plant	(1,613)	(1,563)	(1,790)	(1,734)	(1,359)	(1,317)	96.905%
3	Transmission GSU	1,200	1,163	1,200	1,163	907	879	96.905%
4	Accumulated Reserve - Transmission GSU	(11)	(11)	(11)	(11)	(8)	(8)	96.905%
5	Net Plant	$ 96,328	$ 93,346	$ 106,772	$ 103,467	$ 81,090	$ 78,580	

	Operating Expenses:	Total Company	FPSC Jurisd.	Total Company	FPSC Jurisd.	Total Company	FPSC Jurisd.	
6	O&M	$ 961	$ 931	$ 625	$ 606	$ 514	$ 498	96.905%
7	Depreciation Expense - Solar Production Plant	3,225	3,125	3,579	3,468	2,718	2,634	96.905%
8	Depreciation Expense - Transmission GSU	22	21	22	21	16	16	96.905%
9	Dismantlement	261	253	253	245	204	198	96.905%
10	Property Insurance	119	116	132	128	100	97	96.905%
11	Property Tax	304	294	370	359	406	393	96.905%
12	Total Operating Expenses	$ 4,891	$ 4,740	$ 4,981	$ 4,827	$ 3,959	$ 3,836	
13	Jurisdictional Interest Expense		$ 1,606		$ 1,780		$ 1,352	

		FPSC Jurisd.	FPSC Jurisd.	FPSC Jurisd.	
14	Operating Expenses	$ (4,740)	$ (4,827)	$ (3,836)	
15	Income Tax - Operating Expenses (Line 12 x tax rate)	$ 1,083	$ 1,092	$ 873	Blend
16a	Income Tax - Current Interest Expense (Line 13 x tax rate)	88	98	74	5.50%
16b	Income Tax - Deferred Interest Expense (Line 13 x tax rate)	319	353	268	19.85%
17	Total Income Tax	$ 1,490	$ 1,543	$ 1,215	
18	Jurisdictional Net Operating Income (Line 14 + Line 17)	$ (3,250)	$ (3,284)	$ (2,621)	

($000)

Projects Twin Rivers and Santa Fe

		System Per Sys Per Book	Proration Adjustment	System Per Books Adj'd	Retail Per Books	Pro Rata Adj	Specific Adj	Adjusted Retail	Cap Ratio	Cost Rate	Weighted Cost
1	Common Equity	$7,866,864	$ 587	$ 7,867,451	$ 7,125,001	$ (365,400)	$ (13,612)	$ 6,745,989	43.90%	10.50%	4.61%
2	Long Term Debt	$7,009,924	523	7,010,447	6,348,872	(325,597)		6,023,275	39.19%	4.37%	1.71%
3	Short Term Debt	($80,997)	(6)	(81,003)	(73,359)	3,762		(69,597)	-0.45%	1.86%	-0.01%
4	Cust Dep Active	$199,531	15	199,546	199,546	(10,234)		189,313	1.23%	2.37%	0.03%
5	Cust Dep InActive	$1,680	0	1,680	1,680	(86)		1,594	0.01%		
6	Invest Tax Cr	$215,903	16	215,919	195,543	(10,028)		185,515	1.21%	7.61%	0.09%
7	Deferred Inc Tax	$2,958,651	(1,135)	2,957,516	2,678,415	(137,360)	(249,259)	2,291,796	14.91%		
8	**Total**	$ 18,171,556	$ -	$ 18,171,556	$ 16,475,698	$ (844,943)	$ (262,871)	$ 15,367,884	100.00%		6.43%

Proration Adjustment to Reflect Projected ADFIT Consistent with Projection Year

		Month	ADIT Bal.	Deprec-Related ADFIT Bal.	Deprec-Related ADFIT Activity	Days to Prorate	Future Days in Period	Prorated Deprec-Related ADFIT Activity	Prorated Deprec-Related ADFIT Bal.
9		Feb-21	$ 2,973,506	$ 2,090,218					$ 2,090,218
10	projected	Mar-21	$ 2,974,118	$ 2,098,450	$ 8,231	28	338	$ 7,622	2,097,841
11	projected	Apr-21	$ 2,972,864	$ 2,102,838	4,388	31	307	3,691	2,101,531
12	projected	May-21	$ 2,974,157	$ 2,105,472	2,634	30	277	1,999	2,103,530
13	projected	Jun-21	$ 2,972,297	$ 2,110,499	5,028	31	246	3,389	2,106,919
14	projected	Jul-21	$ 2,951,032	$ 2,112,564	2,065	30	216	1,222	2,108,141
15	projected	Aug-21	$ 2,948,494	$ 2,096,388	(16,176)	31	185	(8,199)	2,099,942
16	projected	Sep-21	$ 2,946,321	$ 2,097,815	1,427	31	154	602	2,100,544
17	projected	Oct-21	$ 2,945,125	$ 2,099,585	1,771	30	124	601	2,101,145
18	projected	Nov-21	$ 2,945,908	$ 2,102,273	2,688	31	93	685	2,101,830
19	projected	Dec-21	$ 2,948,510	$ 2,106,822	4,549	30	63	785	2,102,616
20	projected	Jan-22	$ 2,951,965	$ 2,113,080	6,258	31	32	549	2,103,164
21	projected	Feb-22	$ 2,958,165	$ 2,120,141	7,060	31	1	19	2,103,184
22	13 Mo Avg Bal		$ 2,958,651	$ 2,104,319		365		$ 12,965	$ 2,103,184
23								13 Mo Avg Bal	2,104,319
24								Proration Adj.	$ (1,135)

Duke Energy Florida, LLC
SoBRA 3 First Year Annualized Revenue Requirement
Rate of Return on Rate Base and Accumulated Deferred Income Tax Calculation
($000)

Projects Charlie Creek, Duette, and Archer

		System Per Sys Per Book	Proration Adjustment	System Per Books Adj'd	Retail Per Books	Pro Rata Adj	Specific Adj	Adjusted Retail	Cap Ratio	Cost Rate	Weighted Cost
1	Common Equity	$8,325,711	$ 2,018	$ 8,327,729	$ 7,528,264	$ (320,181)	$ (12,922)	$ 7,195,161	44.21%	10.50%	4.64%
2	Long Term Debt	$7,439,321	1,803	7,441,124	6,726,774	(286,094)		6,440,680	39.57%	4.31%	1.70%
3	Short Term Debt	($118,591)	(29)	(118,620)	(107,232)	4,561		(102,672)	-0.63%	1.82%	-0.01%
4	Cust Dep Active	$199,531	48	199,580	199,580	(8,488)		191,091	1.17%	2.37%	0.03%
5	Cust Dep InActive	$1,680	0	1,680	1,680	(71)		1,609	0.01%		
6	Invest Tax Cr	$247,540	60	247,600	223,830	(9,520)		214,311	1.32%	7.57%	0.10%
7	Deferred Inc Tax	$2,973,655	(3,901)	2,969,754	2,684,656	(114,180)	(234,409)	2,336,067	14.35%		
8	**Total**	$ 19,068,846	$ -	$ 19,068,846	$17,257,552	$ (733,974)	$ (247,331)	$ 16,276,248	100.00%		6.46%

Proration Adjustment to Reflect Projected ADFIT Consistent with Projection Year:

		Month	ADIT Bal.	Deprec-Related ADFIT Bal.	Deprec-Related ADFIT Activity	Days to Prorate	Future Days in Period	Prorated Deprec-Related ADFIT Activity	Prorated Deprec-Related ADFIT Bal
9		Jan-22	$ 2,951,965	$ 2,113,080					$ 2,113,080
10	projected	Feb-22	$ 2,958,165	$ 2,129,782	$ 16,702	31	335	$ 15,329	2,128,410
11	projected	Mar-22	$ 2,964,434	$ 2,139,487	9,705	28	307	8,163	2,136,572
12	projected	Apr-22	$ 2,969,779	$ 2,148,325	8,838	31	276	6,683	2,143,255
13	projected	May-22	$ 2,970,829	$ 2,153,124	4,800	30	246	3,235	2,146,490
14	projected	Jun-22	$ 2,970,328	$ 2,156,466	3,342	31	215	1,968	2,148,458
15	projected	Jul-22	$ 2,970,923	$ 2,160,839	4,373	30	185	2,216	2,150,674
16	projected	Aug-22	$ 2,971,547	$ 2,165,238	4,399	31	154	1,856	2,152,530
17	projected	Sep-22	$ 2,974,504	$ 2,171,830	6,593	31	123	2,222	2,154,752
18	projected	Oct-22	$ 2,977,550	$ 2,178,376	6,546	30	93	1,668	2,156,420
19	projected	Nov-22	$ 2,982,724	$ 2,187,052	8,676	31	62	1,474	2,157,894
20	projected	Dec-22	$ 2,990,717	$ 2,198,379	11,327	30	32	993	2,158,887
21	projected	Jan-23	$ 3,004,046	$ 2,214,850	16,471	31	1	45	2,158,932
22	13 Mo Avg Bal		$ 2,973,655	$ 2,162,833		365		$ 45,851	$ 2,158,932
23								13 Mo Avg Bal	2,162,833
24								Proration Adj.	$ (3,901)