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April 9, 2021

ELECTRONIC FILING

Mr. Adam J. Teitzman, Commission Clerk
Office of Commission Clerk
Florida Public Service Commission
2540 Shumard Oak Boulevard
Tallahassee, Florida 32399-0850

Re: Docket 20210034-EI, Petition for Rate Increase by Tampa Electric Company

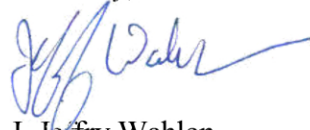
Dear Mr. Teitzman:

Attached for filing on behalf of Tampa Electric Company in the above-referenced docket is the Direct Testimony and Exhibit of C. David Sweat.

Thank you for your assistance in connection with this matter.

(Document 6 of 34)

Sincerely,



J. Jeffrey Wahlen

JJW/ne
Attachment

cc: Richard Gentry, Public Counsel
Jon Moyle, FIPUG



**BEFORE THE
FLORIDA PUBLIC SERVICE COMMISSION**

**DOCKET NO. 20210034-EI
IN RE: PETITION FOR RATE INCREASE
BY TAMPA ELECTRIC COMPANY**

**PREPARED DIRECT TESTIMONY AND EXHIBIT
OF
C. DAVID SWEAT**

1 **BEFORE THE FLORIDA PUBLIC SERVICE COMMISSION**

2 **PREPARED DIRECT TESTIMONY**

3 **OF**

4 **C. DAVID SWEAT**

5
6 **Q.** Please state your name, address, occupation, and
7 employer.

8
9 **A.** My name is Cecil David Sweat. My business address is 702
10 N. Franklin Street, Tampa, Florida, 33602. I am employed
11 by Tampa Electric Company ("Tampa Electric" or "company")
12 as Director of Renewable Energy.

13
14 **Q.** Please provide a brief outline of your educational
15 background and business experience.

16
17 **A.** I have a bachelor's degree in Electrical Engineering and
18 a master's degree in Engineering Management from the
19 University of South Florida. I am a registered
20 Professional Engineer in the state of Florida. I have more
21 than 36 years of service with Tampa Electric working in
22 the Substation, Transmission, Distribution, Meter, Grid
23 Operations, Safety, Lighting, Vegetation Management,
24 Skills Training and Renewable Energy areas.

1 **Q.** Have you previously testified or submitted written
2 testimony before the Florida Public Service Commission
3 ("Commission")?
4

5 **A.** Yes. I filed direct testimony in Docket No. 20000061-EI,
6 which was a complaint against the company involving our
7 commercial/industrial service rider. I have also
8 participated in workshops regarding the company's storm
9 preparedness plans and I participated in the agenda
10 conference on Docket No. 20120038-EI, which involved the
11 company's petition to modify its vegetation management
12 plan.
13

14 **Q.** What are the purposes of your prepared direct testimony?
15

16 **A.** The purposes of my prepared direct testimony are to: (1)
17 explain the company's plans to build 600 megawatts ("MW")
18 of solar photovoltaic ("PV") generating facilities
19 ("Future Solar") to serve its customers; (2) describe the
20 Future Solar projects expected to be in service by
21 December 1, 2021, December 1, 2022, and December 1, 2023,
22 respectively; and (3) provide the projected installed
23 costs for the projects.
24

25 **Q.** Have you prepared an exhibit to support your prepared

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direct testimony?

A. Yes. Exhibit No. CDS-1 was prepared under my direction and supervision. The contents of my exhibit were derived from the business records of the company and are true and correct to the best of my information and belief. It consists of 12 documents, as follows:

- Document No. 1 List of Minimum Filing Requirement Schedules Sponsored or Co-Sponsored by C. David Sweat
- Document No. 2 Magnolia Solar Project Specifications and Projected Costs
- Document No. 3 Mountain View Solar Project Specifications and Projected Costs
- Document No. 4 Jamison Solar Project Specifications and Projected Costs
- Document No. 5 Big Bend II Solar Project Specifications and Projected Costs
- Document No. 6 Laurel Oaks Solar Project Specifications and Projected Costs
- Document No. 7 Riverside Solar Project Specifications and Projected Costs
- Document No. 8 Palm River Dairy Solar Project Specifications and Projected Costs

1 Document No. 9 Big Bend III Solar Project
2 Specifications and Projected Costs
3 Document No. 10 Alafia Solar Project Specifications
4 and Projected Costs
5 Document No. 11 Wheeler Solar Project Specifications
6 and Projected Costs
7 Document No. 12 Dover Solar Project Specifications and
8 Projected Costs
9

10 **Q.** Are you sponsoring any of Tampa Electric's Minimum Filing
11 Requirements ("MFR") schedules?
12

13 **A.** Yes. I am sponsoring or co-sponsoring the MFR schedules
14 listed in Document No. 1 of my exhibit. The contents of
15 these MFR schedules were derived from the business records
16 of the company and are true and correct to the best of my
17 information and belief. MFRs B-11 and B-13 reflect the
18 Future Solar projects described in my testimony.
19

20 **Q.** How does your prepared direct testimony relate to the
21 prepared direct testimony of the company's other
22 witnesses?
23

24 **A.** My direct testimony describes the utility-scale solar
25 generation projects for which cost recovery is requested,

1 as well as the projected in-service dates and installed
2 costs per kW_{ac}. These costs are incorporated in the revenue
3 requirement and Generation Base Rate Adjustment ("GBRA")
4 amounts requested for 2022, 2023, and 2024, as described
5 in the direct testimony of Tampa Electric witnesses A.
6 Sloan Lewis and Jeffrey S. Chronister, respectively, the
7 cost-effectiveness analysis presented by Tampa Electric
8 witness Jose A. Aponte, and the proposed customer rates
9 and miscellaneous charges submitted by Tampa Electric
10 witness William R. Ashburn.

11
12 **TAMPA ELECTRIC'S SOLAR PLANS**

13 **Q.** Please describe the company's plan to install 600 MW of
14 Future Solar.

15
16 **A.** As part of our strategy of transitioning to a cleaner,
17 greener, generating portfolio, Tampa Electric plans to
18 add 1.6 million solar modules in 11 new solar PV projects
19 across its service territory in West Central Florida
20 through 2023. This amounts to a total of 600 MW of cost-
21 effective solar PV energy, which is enough electricity to
22 power more than 100,000 homes. When the projects are
23 complete, about 14 percent of Tampa Electric's energy will
24 come from the sun.

25

1 These solar additions are a continuation of Tampa
2 Electric's long-standing commitment to clean energy. The
3 company has long believed in the promise of renewable
4 energy because it plays an important role in our energy
5 future. As a member of the Emera family of companies,
6 Tampa Electric is committed to transitioning its power
7 generation to lower carbon emissions with projects that
8 are cost-effective for customers. To learn more about how
9 customers want Tampa Electric to invest in a cleaner,
10 greener future, refer to the direct testimony of Tampa
11 Electric witness Melissa L. Cosby.

12
13 As of January 2021, the company has 655 MW of cost-
14 effective solar projects in its generation portfolio. The
15 additional 600 MW of cost-effective solar PV will be added
16 to the company's generating fleet in three tranches.
17 Tranche One projects, consisting of 226.5 MW of solar
18 generation, are planned to be in service by December 1,
19 2021. Tranche Two consists of 224 MW and four projects,
20 which will be in service by December 1, 2022. Tranche
21 Three, 149.5 MW of solar generation, includes three
22 projects and will be in service by December 1, 2023.

23
24 **Q.** What benefits accrue to the company and its customers from
25 the company's plans to build the Future Solar in 2021,

1 2022 and 2023?

2

3 **A.** There are several. First, we have just completed the SoBRA
4 solar and are able to apply the experience we have gained
5 building utility scale solar. Second, purchasing modules,
6 trackers, inverters and generating step up transformers
7 in-bulk has allowed us to procure this equipment at
8 favorable prices and enjoy economies of scale, which
9 lowers the costs to our customers. Third, when possible,
10 staging the construction of projects concurrently or one
11 after another allows our contractors to efficiently
12 manage their labor and equipment resources and minimize
13 the costs they charge the company. Finally, we executed
14 contracts to purchase inverters and tracking systems to
15 secure the 26 percent Investment Tax Credit for all three
16 Tranches. The ITC lowers the cost to our customers and
17 requires all the assets to be in service by 2023.

18

19 **TRANCHE ONE PROJECTS**

20 **Q.** Please describe the Tranche One solar projects.

21

22 **A.** The Magnolia Solar Project ("Magnolia Solar"), Mountain
23 View Solar Project ("Mountain View Solar"), Jamison Solar
24 Project ("Jamison Solar") and Big Bend II Solar Project
25 ("Big Bend II Solar") will be included in the first

1 tranche. The projects use a single axis tracking system
2 and design to optimize energy output for each site's
3 conditions. Magnolia Solar is a 74.5 MW project located
4 in Polk and Hillsborough Counties, Florida on
5 approximately 577 acres of land. Mountain View Solar is
6 a 52.5 MW project located in Pasco County, Florida on
7 approximately 359 acres of land. Jamison Solar is a 74.5
8 MW project located in Polk County, Florida on
9 approximately 695 acres of land. Big Bend II Solar is a
10 25 MW project located in Hillsborough County, Florida on
11 approximately 191 acres of land. My exhibit contains
12 project specifics, a general arrangement drawing, and
13 projected installed costs in total and by category for
14 each project.

15
16 **Q.** When does the company expect the Tranche One projects to
17 begin commercial service?

18
19 **A.** Based on the current engineering, permitting,
20 procurement, and construction schedules, the company
21 expects the projects to be complete and in service on or
22 before December 1, 2021.

23
24 **Q.** What arrangements has the company made to design and build
25 the Tranche One projects?

1 **A.** The company used a competitive process to review
2 qualifications and experience and identify and select
3 full-service solar developers, followed by contract
4 negotiations. To date, three full-service solar
5 developers have been selected to provide project
6 development and Engineering, Procurement, and
7 Construction ("EPC") services for the first tranche of
8 Tampa Electric solar projects.

9
10 Tampa Electric employed a Request for Information ("RFI")
11 process to collect information from the bidders with
12 respect to their qualifications, capabilities, and
13 experience as full-service solar developers. The RFI was
14 provided to more than 10 companies with whom Tampa
15 Electric had met or discussed the development and
16 construction of utility scale solar projects. Tampa
17 Electric received 10 responses from the solar developers
18 or solar EPC companies. The company used the information
19 from the RFI responses to select a shortlist of six full-
20 service solar developers.

21
22 The shortlisted developers were asked to provide pricing
23 for solar PV projects that ranged in size from 25 to 75
24 MW. The pricing information was broken out for engineering
25 and permitting, equipment, balance of system,

1 installation, and interconnection. The projects were
2 based on sites that Tampa Electric has purchased or for
3 which it has site control. The pricing evaluation was
4 conducted during May 2020 and included interviews with
5 each developer.

6
7 In addition, Tampa Electric employed a screening and due
8 diligence process to select its solar sites that includes
9 geotechnical studies, environmental surveys, and wetland
10 delineation. Each of the Tranche One sites was evaluated
11 and selected after considering environmental assessments,
12 size of the project, proximity to Tampa Electric
13 transmission facilities, cost of land, and suitability of
14 the site for solar PV construction, and each site is
15 located within the company's service territory.

16
17 After reviewing the qualifications, experience, safety
18 record, and cost proposals from the EPC contractors, Tampa
19 Electric executed contracts with a full-service solar
20 developer for each Tranche One project.

21
22 Tampa Electric selected Black & Veatch for the Magnolia
23 Solar project, DEPCOM for Mountain View Solar and Big Bend
24 II Solar, and Ecoplexus for the Jamison Solar project.

25

1 **Q.** What safety protocols are in place for contractors
2 involved in constructing the Future Solar Projects?

3
4 **A.** The company's Contractor Safety Program is used to manage
5 contractor safety at the project sites. It details the
6 steps required for the EPC to maintain a safe working
7 environment. Before the project begins, a senior
8 management level meeting is held with the EPC to set
9 expectations for successful implementation of the Health,
10 Safety, and Environmental program. This meeting is
11 followed by safety orientations and review of all EPC
12 safety documentation. Tampa Electric utilizes ISN, an
13 online contractor and supplier management platform, to
14 ensure the EPC is maintaining the Company's minimum safety
15 requirements, including Days Away / Restricted or
16 Transfer rate (DART) and the Total Recordable Incident
17 Rate (TRIR), active insurance, and effective written
18 safety programs. We assign safety professionals to each
19 solar site to assist Construction Supervisors in
20 monitoring project activities for compliance of both
21 Tampa Electric's and EPC Health, Safety, and
22 Environmental programs.

23
24 **Q.** Has the company procured the land necessary for the solar
25 projects?

1 **A.** Yes. Tampa Electric purchased land for the 74.5 MW
2 Magnolia Solar project, the 52.5 MW Mountain View Solar
3 project, and the 74.5 MW Jamison Solar project. The
4 Magnolia Solar site is approximately 577 acres in size,
5 and the Mountain View site consists of about 359 acres.
6 The Jamison site is approximately 695 acres.

7
8 Tampa Electric is using previously purchased land for the
9 25 MW Big Bend II Solar project. This site is
10 approximately 191 acres.

11
12 **Q.** What is the status of project design and engineering for
13 the Tranche One projects?

14
15 **A.** The engineering and design of the Magnolia Solar project
16 is complete. The company received the environmental
17 resource permit in January 2021, and the county permit is
18 expected in early April. Site work will begin immediately
19 thereafter.

20
21 The engineering and design of the Mountain View Solar
22 project is complete. The company received the
23 environmental resource permit, and the county permit is
24 expected in April. Site work will begin immediately
25 thereafter.

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The engineering and design of the Big Bend II Solar project is complete. The environmental resource permit is expected in mid-April, and a county permit is not required. Site work will begin upon receipt of the environmental resource permit.

The engineering and design of the Jamison Solar project is complete. The company received the environmental resource permit in March, and the county permit in February 2021. Site work will begin in April 2021.

Q. Has the company purchased PV modules necessary to construct the projects?

A. Tampa Electric solicited pricing from several module manufacturers and determined First Solar to be the best value based on pricing and performance. Tampa Electric purchased First Solar series 6 and 6 Plus modules for the entire 600 MW of Future Solar. The modules are part of a bulk purchase from First Solar in 2019, which enabled the company to lock in competitive prices and production slots.

Q. What other benchmarks demonstrate that the costs of the projects are reasonable?

1 **A.** A January 2021 NREL report that benchmarks EPC solar
2 costs, "U.S. Solar Photovoltaic System and Energy Storage
3 Cost Benchmark: Q1 2020" shows 100 MW utility scale PV
4 systems with single axis tracking costs average \$1,350
5 per kW_{ac} excluding land costs. Tampa Electric's Tranche
6 One EPC cost, excluding land costs, averages \$1,187 per
7 kW_{ac}.

8

9 **PROJECTED INSTALLED COSTS**

10 **Q.** What are the projected installed costs for the Tranche
11 One projects?

12

13 **A.** The projected installed costs of the Tranche One projects
14 with land are listed in the following table.

15	Magnolia	\$ 1,186 per kW _{ac}
16	Mountain View	\$ 1,333 per kW _{ac}
17	Jamison	\$ 1,336 per kW _{ac}
18	Big Bend II	\$ 1,352 per kW _{ac}

19

20 **Q.** What costs were included in these projections?

21

22 **A.** The projected total installed costs broken down by major
23 category for the Tranche One projects are shown on
24 Document Nos. 2 through 5 of my exhibit.

25

1 The projected costs shown in my exhibit reflect the
2 company's best estimate of the cost of the projects; they
3 include the types of costs that traditionally have been
4 allowed in rate base and are eligible for cost recovery.
5 These costs include EPC costs; development costs
6 including third party development fees, if any;
7 permitting and land acquisition costs; taxes; utility
8 costs to support or complete development; transmission
9 interconnection cost and modules and equipment costs;
10 costs associated with electrical balance of system,
11 structural balance of system; and other traditionally
12 allowed rate base costs.

13
14 **Q.** Are Allowance for Funds Used During Construction
15 ("AFUDC") costs included in your cost estimates?

16
17 **A.** No. Mr. Jose Aponte added AFUDC to the project costs I
18 provided and used the total cost, including AFUDC, when
19 analyzing project cost-effectiveness.

20
21 **Q.** How were the projected cost amounts in your exhibit
22 developed?

23
24 **A.** Tampa Electric worked with developers and suppliers to
25 determine the all-in costs for the Tranche One projects

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and used an iterative approach to update project costs as site due diligence and engineering and design were conducted. This includes negotiating and executing agreements directly with manufacturers and suppliers for modules, inverters, trackers and racking, and Generator Step-up Unit ("GSU") transformers, reviewing equipment specifications and pricing, reviewing the scope of work and balance of system costs, and acquiring land and cost estimates to engineer, permit, and construct the projects. The fixed O&M amounts were developed by our solar operations group based on their experience operating our first 600 MW of solar, i.e., the SoBRA solar.

Q. How did the company calculate the cost of land to be used in the calculation of the project's projected installed cost?

A. The costs of the land for the project sites follow; they are calculated using the actual purchase price of the land. Big Bend II land is \$0 because we used available buffer land at Big Bend Power Station.

Magnolia	\$5,474,886 or \$ 9,489 per acre
Mountain View	\$7,618,517 or \$21,221 per acre

1	Jamison	\$9,708,545 or \$13,969 per acre
2	Big Bend II	\$ 0

3

4 **TRANCHE TWO PROJECTS**

5 **Q.** Please describe the Tranche Two solar projects.

6

7 **A.** The Laurel Oaks Solar Project ("Laurel Oaks Solar"),
8 Riverside Solar Project ("Riverside Solar"), Palm River
9 Dairy Solar Project ("Palm River Dairy Solar"), and Big
10 Bend III Solar Project ("Big Bend III Solar") will be
11 included in the second tranche. These projects will use
12 a single axis tracking system and are designed to optimize
13 energy output for each set of site conditions. Laurel Oaks
14 Solar is a 66.8 MW project located in Hillsborough County,
15 Florida on approximately 515 acres of land. Riverside
16 Solar is a 65 MW project located in Hillsborough County,
17 Florida on approximately 530 acres of land. Palm River
18 Dairy Solar is a 70 MW project located in Pasco County,
19 Florida on approximately 548 acres of land. Big Bend III
20 Solar is a 22.2 MW project located in Hillsborough County,
21 Florida on approximately 93 acres of land.

22

23 My exhibit contains project specifics, a general
24 arrangement drawing, and projected installed costs in
25 total and by category for each project.

1 **Q.** When does the company expect the Tranche Two projects to
2 begin commercial service?

3

4 **A.** Based on the current engineering, permitting,
5 procurement, and construction schedules, the company
6 expects the projects to be complete and in service on or
7 before December 1, 2022.

8

9 **Q.** What arrangements has the company made to design and build
10 the Tranche Two projects?

11

12 **A.** The Tranche Two Solar projects: Laurel Oaks Solar,
13 Riverside Solar, Big Bend III Solar, and Palm River Dairy
14 Solar, were designed and will be built using the same
15 general contractual arrangements and processes and
16 competitive bid process that I described for the Tranche
17 One projects.

18

19 Tampa Electric selected Black & Veatch and executed a
20 contract for project development and EPC services for the
21 Laurel Oaks Solar project. The selection process is
22 currently underway for the remaining Tranche Two
23 projects: Riverside Solar, Big Bend III Solar, and Palm
24 River Dairy Solar.

25

1 **Q.** Has the company procured the land necessary for the solar
2 projects?

3

4 **A.** Yes. Tampa Electric has purchased land for the Laurel Oaks
5 Solar and Riverside Solar projects, and the company
6 employed the same screening and due diligence process to
7 select the Tranche Two project sites as I described for
8 the Tranche One projects. The Laurel Oaks site is
9 approximately 515 acres in size and is located in Tampa
10 Electric's retail service territory. The Riverside Solar
11 site is approximately 530 acres in size and is in the
12 company's retail service territory.

13

14 Tampa Electric is utilizing existing buffer land for the
15 22.2 MW Big Bend III Solar project. The site is
16 approximately 93 acres in size and is in Tampa Electric's
17 retail service territory.

18

19 Tampa Electric has a purchase option on land for the Palm
20 River Dairy Solar project and is completing its due
21 diligence. Once the due diligence is completed the company
22 plans to purchase the land in Q2 2021. The site is
23 approximately 548 acres in size and is in the company's
24 retail service territory.

25

1 **Q.** What is the status of project design and engineering for
2 the Tranche Two projects?

3
4 **A.** The engineering and design of the Laurel Oaks Solar
5 project is underway. The environmental resource permit is
6 expected in May 2021 and the county permit is expected in
7 June 2021. Site work will begin first quarter of 2022.

8
9 The engineering and design of the Riverside Solar project
10 will begin in the second quarter of 2021. Tampa Electric
11 expects to submit permit applications during the second
12 quarter of 2021. Site work will begin first quarter of
13 2022.

14
15 The engineering and design of the Big Bend III Solar
16 project will begin in the second quarter of 2021. The
17 company will submit permit applications during the second
18 quarter of 2021. Site work will begin first quarter of
19 2022.

20
21 The engineering and design of the Palm River Dairy Solar
22 project will begin once the land purchase has been
23 finalized. Tampa Electric expects to submit permit
24 applications in the second quarter of 2021. Site work will
25 begin first quarter of 2022.

1 Q. What other benchmarks demonstrate that the costs of the
2 projects are reasonable?

3

4 A. Tampa Electric's Tranche Two project EPC cost averages
5 \$1,111 per kW_{ac}, excluding land costs. This compares
6 favorably to the January 2021 NREL report benchmark's cost
7 of \$1,350 per kW_{ac} excluding land costs, which I previously
8 discussed.

9

10 **TRANCHE TWO PROJECTED INSTALLED COSTS**

11 Q. What are the projected installed costs for the Tranche
12 Two projects?

13

14 A. The projected installed costs of the Tranche Two projects
15 are as follows.

16

17 Laurel Oaks \$1,170 per kW_{ac}

18 Riverside \$1,241 per kW_{ac}

19 Palm River Dairy \$1,183 per kW_{ac}

20 Big Bend III \$1,275 per kW_{ac}

21

22 Q. Did you include the same types of costs and use the same
23 cost estimation techniques for Tranche Two projects that
24 you described for the Tranche One projects earlier in your
25 testimony?

1 **A.** Yes. The projected total installed costs broken down by
2 major category for the Tranche Two projects are shown on
3 Document Nos. 6 through 9 of my exhibit.

4
5 The project land costs follow.

6		
7	Laurel Oaks	\$4,473,025 or \$ 8,692 per acre
8	Riverside	\$8,835,441 or \$16,671 per acre
9	Palm River Dairy	\$7,830,000 or \$14,288 per acre
10	Big Bend III	\$ 0

11
12 **TRANCHE THREE PROJECTS**

13 **Q.** Please describe the Tranche Three solar projects.

14
15 **A.** The Alafia Solar Project ("Alafia Solar"), Wheeler Solar
16 Project ("Wheeler Solar"), and Dover Solar Project
17 ("Dover Solar") will be included in the third tranche.
18 These are single axis tracking configurations that will
19 be designed to optimize energy output, given site-
20 specific conditions. Alafia Solar is a 50 MW project
21 located in Polk County, Florida on approximately 408 acres
22 of land. Wheeler Solar is a 74.5 MW project located in
23 Polk County, Florida on approximately 464 acres of land.
24 Dover Solar is a 25 MW project located in Hillsborough
25 County, Florida on approximately 177 acres of land.

1 My exhibit contains project specifics, a general
2 arrangement drawing, and projected installed costs in
3 total and by category for each Tranche Three project.
4

5 **Q.** When does the company expect the Tranche Three projects
6 to begin commercial service?
7

8 **A.** Based on the current engineering, permitting,
9 procurement, and construction schedules, the company
10 expects the projects to be complete and in service on or
11 before December 1, 2023.
12

13 **Q.** What arrangements has the company made to design and build
14 the Tranche Three projects?
15

16 **A.** The Tranche Three Solar projects: Alafia Solar, Wheeler
17 Solar, and Dover Solar will be designed and built using
18 the same general contractual arrangements and processes
19 and competitive bid process that I described for the
20 Tranche One and Tranche Two projects.

21 The EPC selection process is ongoing for each Tranche
22 Three project.
23

24 **Q.** Has the company purchased land for the Tranche Three solar
25 projects?

1 **A.** Yes. Tampa Electric purchased land for the Alafia and
2 Dover projects and entered a purchase option on the land
3 for the third project. The company employed the same
4 screening and due diligence process to select the Tranche
5 Three project sites as I described for the Tranche One
6 and Tranche Two sites. The Alafia site is approximately
7 408 acres in size and is located in Tampa Electric's
8 retail service territory. The Dover site is approximately
9 177 acres in size and is within the company's service
10 territory.

11
12 Tampa Electric has a purchase option on land for the
13 Wheeler Solar project and is completing its due diligence.
14 Once the due diligence is completed the company plans to
15 purchase the land in Q2 2021. The Wheeler site is
16 approximately 464 acres in size and is within the Tampa
17 Electric service territory.

18
19 **Q.** What is the status of project design and engineering for
20 the Tranche Three projects?

21
22 **A.** Tampa Electric expects the Alafia Solar engineering and
23 design to begin during the third quarter of 2021, and
24 permit applications will be submitted thereafter. Site
25 work will begin during the first quarter of 2023.

1 Tampa Electric will begin engineering and design of the
2 Wheeler Solar project after the site is purchased. Permit
3 applications will be submitted thereafter, and site work
4 will begin in the first quarter of 2023.

5
6 The Dover Solar project engineering and design will begin
7 in the fourth quarter of 2021. Permit applications also
8 will be submitted in the fourth quarter of 2021. Site work
9 will begin first quarter of 2023.

10
11 **Q.** What other benchmarks did the company use to ensure that
12 the costs of the Future Solar projects are reasonable?

13
14 **A.** Tampa Electric's Tranche Three project EPC cost averages
15 \$1,087 per kW_{ac}, excluding land costs. This compares
16 favorably to the January 2021 NREL report benchmark cost
17 of \$1,350 per kW_{ac} excluding land costs, which I previously
18 discussed.

19
20 **TRANCHE THREE PROJECTED INSTALLED COSTS**

21 **Q.** What are the projected installed costs for the Tranche
22 Three projects?

23
24 **A.** The projected installed costs of the Tranche Three
25 projects follow.

1 Alafia \$ 1,252 per kW_{ac}
2 Wheeler \$ 1,154 per kW_{ac}
3 Dover \$ 1,375 per kW_{ac}
4

5 **Q.** Did you include the same types of costs and use the same
6 cost estimation techniques for Tranche Three projects
7 that you described for the Tranche One and Two projects
8 earlier in your testimony?
9

10 **A.** Yes. The projected total installed costs broken down by
11 major category for the Tranche Three projects are shown
12 on Document Nos. 10 through 12 of my exhibit.
13

14 The Tranche Three project land costs are as listed below.

15 Alafia \$6,376,864 or \$15,630 per acre
16 Wheeler \$9,475,578 or \$20,422 per acre
17 Dover \$4,520,591 or \$25,505 per acre
18
19

20 **TRANCHES ONE, TWO, AND THREE PROJECTED COSTS**

21 **Q.** Are the project costs reasonable?
22

23 **A.** Yes. Our track record estimating and controlling the costs
24 associated with our first 600 MW of SoBRA solar projects
25 is good. The actual costs of the projects in the first

1 three tranches came in very close to our estimates. We have
2 used the same cost estimating and control procedures for
3 our Future Solar projects. We control project costs using
4 competitive bidding processes, diligent oversight of EPC
5 contractors, negotiation of cost-effective equipment
6 purchases to include ITC credits for inverters and
7 tracking systems, and project management to ensure the
8 projects remain on time and on budget. These project costs
9 are below recent benchmark prices, as I previously
10 discussed.

11
12 **SUMMARY**

13 **Q.** Please summarize your prepared direct testimony.

14
15 **A.** Tampa Electric is building three tranches totaling 600 MW
16 of solar generation projects. The first, second, and third
17 tranches consist of single axis tracking solar PV projects
18 in 226.5 MW, 224 MW, and 149.5 MW increments,
19 respectively. The projects of each tranche will enter
20 service at one-year intervals beginning in December 2021.
21 Tranche One includes Magnolia Solar in Polk and
22 Hillsborough Counties with 74.5 MW of capacity on 577
23 acres; Mountain View Solar in Pasco County providing 52.5
24 MW of capacity on 359 acres; the 74.5 MW Jamison Solar
25 project in Polk County on 695 acres; and Big Bend II Solar

1 in Hillsborough County with 25 MW on 191 acres. The
2 projected costs of Magnolia Solar, Mountain View Solar,
3 Jamison Solar, and Big Bend II Solar are \$1,186, \$1,333,
4 \$1,336, and \$1,352 per kW_{ac}, respectively.

5
6 Tampa Electric will build the Laurel Oaks Solar project
7 in Hillsborough County with 66.8 MW on 515 acres; the
8 Riverside Solar project in Hillsborough County providing
9 65 MW of capacity on 530 acres; Palm River Dairy Solar in
10 Pasco County 70 MW of capacity on 548 acres; and Big Bend
11 III Solar in Hillsborough County providing 22.2 MW of
12 capacity on 93 acres. The projected costs of Laurel Oaks
13 Solar, Riverside Solar, Jamison Solar, and Big Bend III
14 Solar are \$1,170, \$1,241, \$1,183, and \$1,275 per kW_{ac},
15 respectively.

16
17 Tranche Three includes the 50 MW Alafia Solar project in
18 Polk County on 408 acres; Wheeler Solar in Polk County,
19 which adds 74.5 MW of capacity on 464 acres; and the 25
20 MW Dover Solar project in Hillsborough County on 177
21 acres. The projected costs of Alafia Solar, Wheeler Solar,
22 and Dover Solar are \$1,252, \$1,154, and \$1,375 per kW_{ac},
23 respectively.

24
25 Tampa Electric controls project costs using competitive

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bidding processes, diligent oversight of EPC contractors, negotiation of cost-effective equipment purchases, and project management to ensure the projects remain on time and on budget. These project costs are below recent benchmark prices.

Q. Does this conclude your prepared direct testimony?

A. Yes, it does.

EXHIBIT

OF

C. DAVID SWEAT

Table of Contents

DOCUMENT NO.	TITLE	PAGE
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2	Magnolia Solar Project Specifications and Projected Costs	33
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8	Palm River Dairy Solar Project Specifications and Projected Costs	51
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10	Alafia Solar Project Specifications and Projected Costs	57
11	Wheeler Solar Project Specifications and Projected Costs	60
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LIST OF MINIMUM FILING REQUIREMENT SCHEDULES
SPONSORED OR CO-SPONSORED BY C. DAVID SWEAT

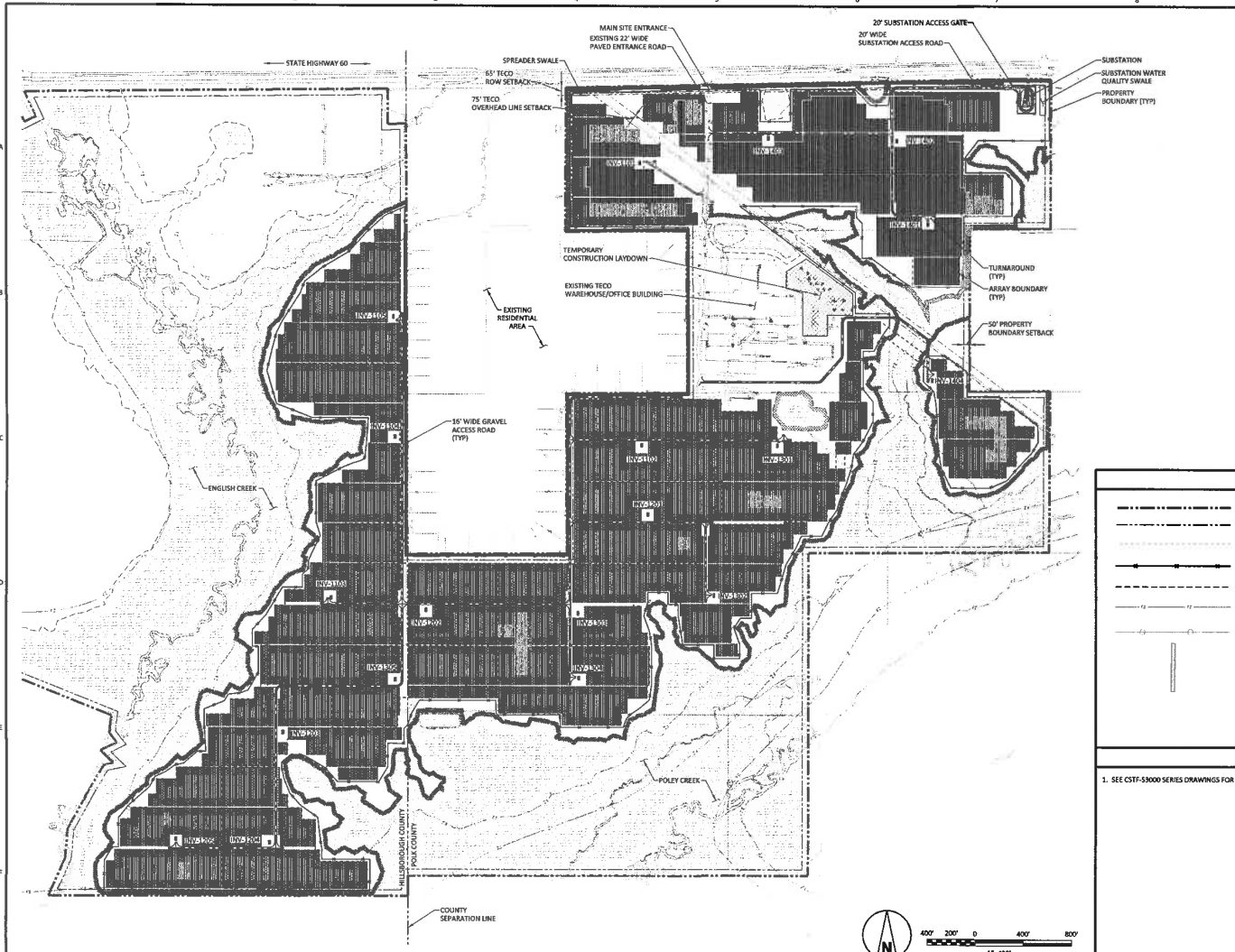
MFR Schedule	Title
B-07	PLANT BALANCES BY ACCOUNT AND SUB-ACCOUNT
B-11	CAPITAL ADDITIONS AND RETIREMENTS
B-12	PRODUCTION PLANT ADDITIONS
B-13	CONSTRUCTION WORK IN PROGRESS
B-15	PROPERTY HELD FOR FUTURE USE-13 MONTH AVERAGE

Magnolia Solar Project Specifications

Specifications of Proposed Solar PV Generating Facilities		
(1)	Plant Name and Unit Number	Magnolia Solar
(2)	Net Capability	74.5 MW
(3)	Technology Type	Single Axis Tracker
(4)	Anticipated Construction Timing	
	A. Field Construction Start Date ¹	April 2021
	B. Commercial In-Service Date	December 1, 2021
(5)	Fuel	
	A. Primary Fuel	Solar
	B. Alternate Fuel	N/A
(6)	Air Pollution Control Strategy	N/A
(7)	Cooling Method	N/A
(8)	Total Site Area	577 Acres
(9)	Construction Status	Ongoing
(10)	Certification Status	N/A
(11)	Status with Federal Agencies	N/A
(12)	Projected Unit Performance Data	
	Planned Outage Factor (POF)	N/A
	Forced Outage Factor (FOF)	N/A
	Equivalent Availability Factor (EAF)	N/A
	Resulting Capacity Factor	26% (1 st Full Yr Operation)
	Average Net Operating Heat Rate (ANOHR)	N/A
(13)	Projected Unit Financial Data	
	Book Life (Years)	30
	Total Installed Cost (In-Service Year \$/kW) ²	\$1,186
	Direct Construction Cost (\$/kW)	\$1,138
	Escalation (\$/kW)	N/A
	Fixed O&M (\$/kW-yr)	10.91
	Variable O&M (\$/MWh)	0.0

1 Construction schedule includes engineering design and permitting.
2 Total installed cost includes transmission interconnection.

TAMPA ELECTRIC COMPANY
 DOCKET NO. 20210034-EI
 EXHIBIT NO. CDS-1
 WITNESS: SWEAT
 DOCUMENT NO. 2
 PAGE 2 OF 3
 FILED: 04/09/2021



SYSTEM SPECIFICATION	
CLIENT	TAMPA ELECTRIC (TECO)
PROPERTY LINE SETBACK (FT)	50
SYSTEM STC DC RATING (MW)	82.4
SYSTEM AC RATING AT POI (MW)	74.9
SYSTEM DC/AC RATIO	1.18
MODULE MODEL	FIRST SOLAR FS-6415
MODULE STC DC RATING (W)	495 AND 490
439W MODULE COUNT	35414
440W MODULE COUNT	150312
MODULE COUNT	201726
MODULE PER STRING	6
TOTAL 4 STRING RACKS	353
TOTAL 9 STRING RACKS	518
TOTAL 13 STRING RACKS	2119
STRING COUNT	33621
INVERTER MODEL	TMEC NINA
FULL SKID INVERTER RATING (VA)	4.2 @ 25C AND 3.825 @ 50C
QUANTITY OF INVERTER SKID	15
QUANTITY OF TRANSFORMER	12
DC SYSTEM VOLTAGE (V)	1500
INTERCONNECTION VOLTAGE (KV)	69
TRACKING SYSTEM	ATI TRACKER
TRACKING LIMIT	52
AZIMUTH	180
GCR	0.4

LEGEND

--- PROPERTY BOUNDARY	● REFERENCE CELL W/ RTD'S
- - - COUNTY SEPARATION LINE	● MET/SOLING STATION
- - - 50' PROPERTY BOUNDARY SETBACK	
— FENCE LINE	WETLAND WITH 50' BUFFER
- - - PV ARRAY BLOCK DELINEATION	PV MODULES
- - - FEMA 100 YEAR FLOOD ZONE	INVERTER SKID
— EXISTING OVERHEAD LINE	INV-XX INVERTER SKID IDENTIFIER
439W MODULES	440W MODULES

NOTES

1. SEE CSTF-53000 SERIES DRAWINGS FOR GRADING AND DRAINAGE, ROADS AND FENCE PLANS.

ISSUED FOR PERMITTING
 THE DISTRIBUTION AND USE OF THE NATIVE FORMAT CAD FILE OF THIS DRAWING IS UNCONTROLLED. THE USER SHALL VERIFY TRACEABILITY OF THIS DRAWING TO THE LATEST CONTROLLED VERSION.

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 "11" TUS SITE

NO.	DATE	REVISIONS AND RECORD OF ISSUE	DESIGNER	DRAWN	CHECKED	IN CHARGE
1	30/NOV/20	ISSUED FOR PERMITTING				
2	06/OCT/20	ISSUED FOR PERMITTING				

I HEREBY CERTIFY THAT THIS DOCUMENT WAS PREPARED BY ME OR UNDER MY DIRECT SUPERVISION AND THAT I AM A DULY REGISTERED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF FLORIDA.

SIGNATURE: _____ DATE: _____ REG. NO.: _____

BLACK & VEATCH

DESIGNER: ABS DRAWN: AAC
 CHECKED: DC DATE: _____

TAMPA ELECTRIC (TECO)
MAGNOLIA SOLAR PROJECT

SITE ARRANGEMENT

PROJECT: 405789-CGAU-G1000
 DRAWING NUMBER: 1
 CODE: _____
 AREA: _____

Magnolia Solar

Projected Installed Costs (\$ Million)	
Project Output (MW)	74.5
Major Equipment ¹	34.1
Balance of System ²	43.2
Development ³	0.5
Transmission Interconnect	3.6
Land	5.5
Owners Costs	1.5
Total Installed Cost (\$ Million)	88.4
Total (\$ per kW_{ac})	1,186

¹ Major Equipment includes modules, inverters, and transformers

² Balance of System includes racking, posts, collection cables, EPC contractor, and project management.

³ Development includes environmental studies, boundary surveys, geotech, legal, and permitting costs.

Note: Totals may not sum due to rounding.

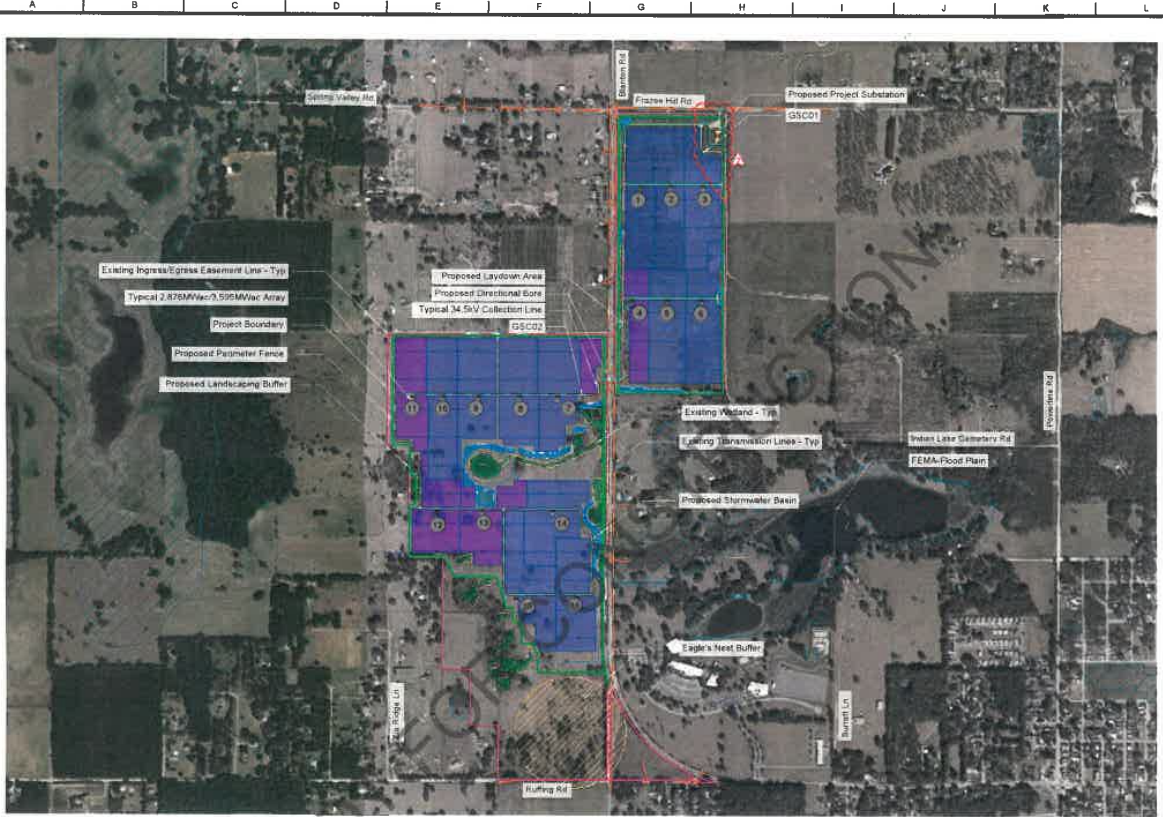
Mountain View Solar Project Specifications

Specifications of Proposed Solar PV Generating Facilities

(1)	Plant Name and Unit Number	Mountain View Solar
(2)	Net Capability	52.5 MW
(3)	Technology Type	Single Axis Tracker
(4)	Anticipated Construction Timing	
	A. Field Construction Start Date ¹	April 2021
	B. Commercial In-Service Date	December 1, 2021
(5)	Fuel	
	A. Primary Fuel	Solar
	B. Alternate Fuel	N/A
(6)	Air Pollution Control Strategy	N/A
(7)	Cooling Method	N/A
(8)	Total Site Area	359 Acres
(9)	Construction Status	Ongoing
(10)	Certification Status	N/A
(11)	Status with Federal Agencies	N/A
(12)	Projected Unit Performance Data	
	Planned Outage Factor (POF)	N/A
	Forced Outage Factor (FOF)	N/A
	Equivalent Availability Factor (EAF)	N/A
	Resulting Capacity Factor	26% (1 st Full Yr Operation)
	Average Net Operating Heat Rate (ANOHR)	N/A
(13)	Projected Unit Financial Data	
	Book Life (Years)	30
	Total Installed Cost (In-Service Year \$/kW) ²	\$1,333
	Direct Construction Cost (\$/kW)	\$1,304
	Escalation (\$/kW)	N/A
	Fixed O&M (\$/kW-yr)	10.91
	Variable O&M (\$/MWh)	0.0

1 Construction schedule includes engineering design and permitting.
2 Total installed cost includes transmission interconnection.

D:\DEPCOM\Newer Drawings - PDI\Opporunities\TECO\Mountainview\Site Plans\WP\Active Drawings\Mountainview\SP-100-5-T - 2/18/2020 12:04 PM



Mountainview Solar
 Dade City, Pasco County, Florida

Owner/Developer:
 TECO

Project Site Description:
 Latitude: 28.357000°
 Longitude: -82.200600°
 Elevation: 82 ft min - 248 ft max
 Total Site Area - Available: 359.3 ± Acres
 Total Suitable Area: 223.0 ± Acres
 Total Fenced Acres: 255.4 ± Acres
 Total Array Footprint: 212.4 ± Acres

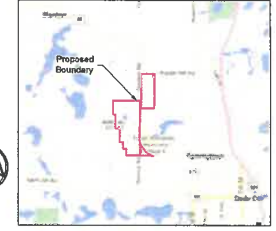
Annual Cooling Design Temp: 92.8° F
 Extreme Annual Min DB MeanTemp: 23.1° F (ASHRAE 2017)

Wind Load: 127, Risk Category I
 Snow Load: Opt
 Seismic Load: SS= 0.069g, S1= 0.035g

Interconnection Data:
 Transmission Provider: TECO
 Interconnection Voltage: 69kV
 Offeror: TECO
 Point of Interconnection: 69kV via 1,000ft Gen-Tie.

Legend

- Property Line
- Underground AC Line
- Overhead AC Line
- Directional Gate
- Perimeter Fence
- Existing Ingress/Egress Easement
- Existing Overhead Line
- Wetlands
- 100-YR FEMA Flood Plain
- 69' Eagle's Nest Buffer
- Proposed Landscape Buffer
- 3.59MwAc Array
- 2.87MwAc Array



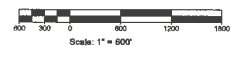
Key Map
 Scale: 1" = 5,000ft

Information used to prepare this drawing

Item	Source	Date/Revision
Site Boundary	ALTA by Pickett and Associates, Inc.	6/20/2018
FDEP	Environmental Resource Permit, DEP Project No. SL-0364915-002-EI	7/5/2019
Geotech	Geotechnical Engineering Report by Terracon Project No. H4175182	5/8/2018
FEMA	Panel: 12101C0115F	9/25/2014
Topographic Survey	ALTA by Pickett and Associates, Inc.	6/20/2018
Hydrology	Hydrology Report by Wood, Project No. 6005-11	2/1/2019
Wetlands	ALTA by Pickett and Associates, Inc.	6/20/2018
POI Location	None	N/A
Aerial Imagery	USGS via Bing Maps	N/A
ASHRAE	http://ashrae-metee.info/index.php	ASHRAE 2017
Wind Load Source	https://hazards.atcouncil.org/	(ASCE7-10)
Snow Load Source	https://hazards.atcouncil.org/	(ASCE7-10)
Seismic Load Source	https://hazards.atcouncil.org/	(ASCE7-10)

*Files are based on State Plane Coordinate System NAD83

Site Plan
 Scale: 1" = 600'



AC Capacity at Point of Interconnection: 52.1MWac

	GSC	2.872 MWac	3.590 MWac	MWac	MWac Ratio	69kV Ratio
1	0	8	24.67	20.82	1.1850	
2	4	6	39.95	33.75	1.1837	
Total Capacity	4	12	64.62	54.57	1.1842	

DEPCOM POWER
 6145 E PMA CENTER PARKWAY #100
 SCOTTSDALE, AZ 85269
 PHONE: 480.270.9100
 WWW.DEPCOMPPOWER.COM

TECO
 TRANSMISSION COMPANY

Mountainview Solar
 Dade City, Pasco County, Florida

THIS PRINT IS NOT TO BE USED FOR CONSTRUCTION UNLESS NOTED AND SIGNED "OK FOR CONSTRUCTION" ABOVE LAST REVISION

NO.	DATE	BY	DESCRIPTION
1	12/2/2019	MOU	Revised Access Road and Substation Area
2	12/2/2019	MOU	Revised Access Road and Substation Area
3	11/20/2019	MOU	Revised Access Road and Substation Area
4	11/20/2019	MOU	Revised Access Road and Substation Area

DEPCOM JOB NUMBER: 000000
 PROJECT CODE: MOU
 PROJECT DIRECTOR: TBD
 PROJECT MANAGER: TBD

SHEET TITLE:
Site Plan

CHECKED BY: MP
 DRAWN BY: CF
 SCALE: AS NOTED
 DRAWING NUMBER:
SP-100-5-T

SHEET 1 OF 3

Mountain View Solar

Projected Installed Costs (\$ Million)	
Project Output (MW)	52.5
Major Equipment ¹	26.2
Balance of System ²	32.4
Development ³	0.5
Transmission Interconnect	1.5
Land	7.6
Owners Costs	1.7
Total Installed Cost (\$ Million)	69.98
Total (\$ per kW_{ac})	1,333

¹ Major Equipment includes modules, inverters, and transformers

² Balance of System includes racking, posts, collection cables, EPC contractor, and project management.

³ Development includes environmental studies, boundary surveys, geotech, legal, and permitting costs.

Note: Totals may not sum due to rounding.

Jamison Solar Project Specifications

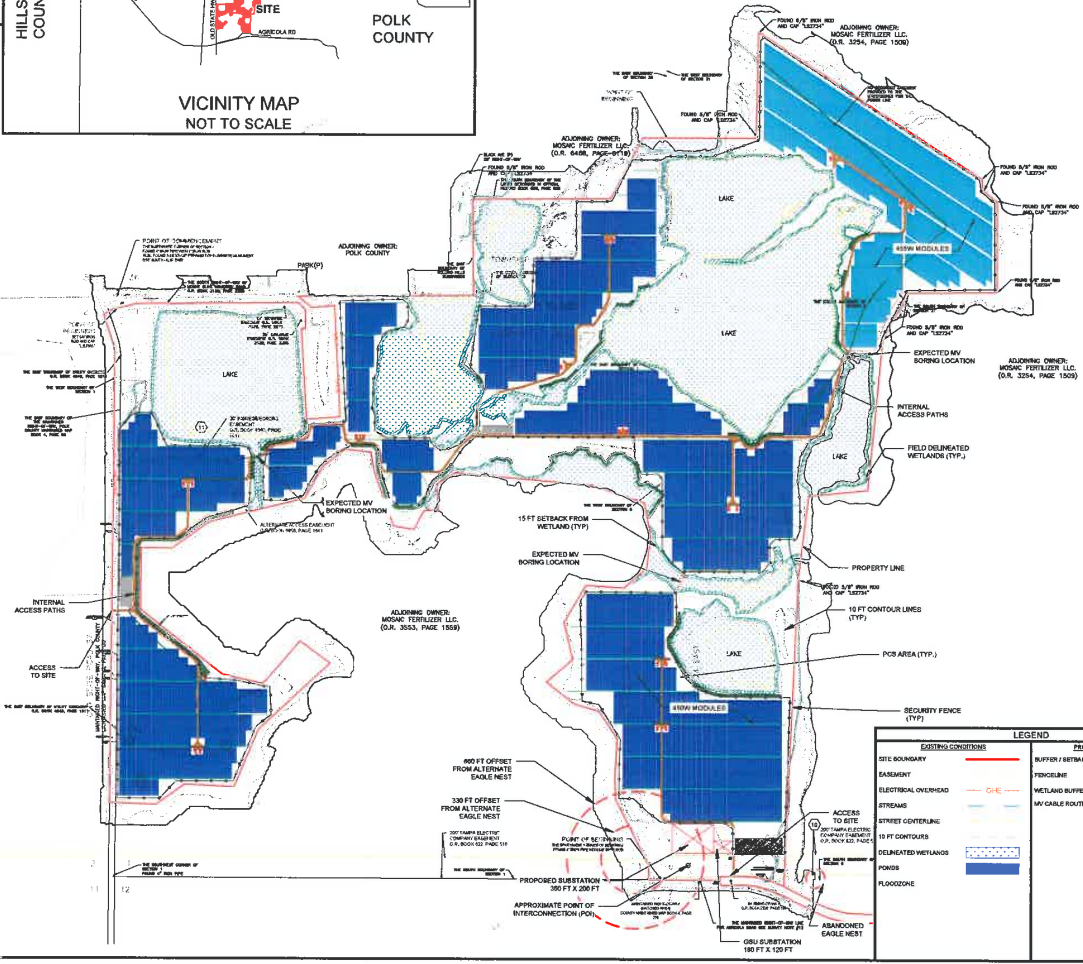
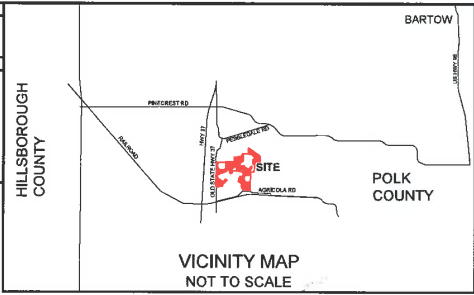
Specifications of Proposed Solar PV Generating Facilities

(1)	Plant Name and Unit Number	Jamison Solar
(2)	Net Capability	74.5 MW
(3)	Technology Type	Single Axis Tracker
(4)	Anticipated Construction Timing	
	A. Field Construction Start Date ¹	April 2021
	B. Commercial In-Service Date	December 1, 2021
(5)	Fuel	
	A. Primary Fuel	Solar
	B. Alternate Fuel	N/A
(6)	Air Pollution Control Strategy	N/A
(7)	Cooling Method	N/A
(8)	Total Site Area	695 Acres
(9)	Construction Status	Ongoing
(10)	Certification Status	N/A
(11)	Status with Federal Agencies	N/A
(12)	Projected Unit Performance Data	
	Planned Outage Factor (POF)	N/A
	Forced Outage Factor (FOF)	N/A
	Equivalent Availability Factor (EAF)	N/A
	Resulting Capacity Factor	26% (1 st Full Yr Operation)
	Average Net Operating Heat Rate (ANOHR)	N/A
(13)	Projected Unit Financial Data	
	Book Life (Years)	30
	Total Installed Cost (In-Service Year \$/kW) ²	\$1,336
	Direct Construction Cost (\$/kW)	\$1,262
	Escalation (\$/kW)	N/A
	Fixed O&M (\$/kW-yr)	10.91
	Variable O&M (\$/MWh)	0.0

1 Construction schedule includes engineering design and permitting.

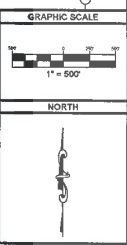
2 Total installed cost includes transmission interconnection.

GENERAL PROJECT INFORMATION	
PROJECT NAME:	JAMISON PV1
PROJECT ADDRESS:	LAT.: 27.81533°, LONG.: -81.961659°
DEVELOPER NAME:	ECOPLEXUS INC.
DEVELOPER ADDRESS:	101 2ND ST., STE. 1150, SAN FRANCISCO, CA 94105
GENERAL SYSTEM INFORMATION	
MODULE #1:	FIRST SOLAR FS-6455A-P
QUANTITY #1:	151,556
MODULE #2:	FIRST SOLAR FS-6455A-P
QUANTITY #2:	38,465
INVERTER:	TM5C NINA CENTRAL
QUANTITY:	22
MOUNTING SYSTEM:	ATI
MOUNTING SYSTEM TYPE:	SINGLE-AXIS TRACKER, 6° TILT, 50° AZIMUTH, 45% GCR
SYSTEM SIZE (DC):	85.5
SYSTEM SIZE (AC):	74.8
UTILIZED AREA:	78.0



NOTE:
 PARCELS, TOPOGRAPHY, ROADS, WETLANDS, STREAMS, PONDS, EASEMENTS, RIGHT-OF-WAYS, UTILITIES, ETC., ARE OBTAINED FROM COUNTY GIS DATA.
 THIS DRAWING IS THE PROPERTY OF ECOPLEXUS INC. THIS INFORMATION IS CONFIDENTIAL AND IS TO BE USED ONLY IN CONNECTION WITH WORKS DESCRIBED BY ECOPLEXUS INC. NO PART IS TO BE DISCLOSED TO OTHERS OR REPRODUCED WITHOUT WRITTEN PERMISSION FROM ECOPLEXUS INC. OR ITS SUBSIDIARIES.

EXISTING CONDITIONS	PROPOSED CONDITIONS
SITE BOUNDARY	BUFFER / SETBACK
EASEMENT	FENCELINE
ELECTRICAL OVERHEAD	WETLAND BUFFER
STREAMS	MV CABLE ROUTE
STREET CENTERLINE	
15 FT CONTOURS	
DELIMITED WETLANDS	
PONDS	
FLOODZONE	



ecoplexus
 NOT FOR CONSTRUCTION USE

DATE: 01/29/2021
 DRAWN BY: JAH
 CHECKED BY: BAE
 PROJECT NO.: 20210034-EI

CONCEPT PLAN

TAMPA ELECTRIC COMPANY
 DOCKET NO. 20210034-EI
 EXHIBIT NO. CDS-1
 WITNESS: SWEAT
 DOCUMENT NO. 4
 PAGE 2 OF 3
 FILED: 04/09/2021

Jamison Solar

Projected Installed Costs (\$ Million)	
Project Output (MW)	74.5
Major Equipment ¹	36.9
Balance of System ²	45.4
Development ³	0.5
Transmission Interconnect	5.5
Land	9.7
Owners Costs	1.5
Total Installed Cost (\$ Million)	99.5
Total (\$ per kW_{ac})	1,336

¹ Major Equipment includes modules, inverters, and transformers

² Balance of System includes racking, posts, collection cables, EPC contractor, and project management.

³ Development includes environmental studies, boundary surveys, geotech, legal, and permitting costs.

Note: Totals may not sum due to rounding.

Big Bend II Solar Project Specifications

Specifications of Proposed Solar PV Generating Facilities

(1)	Plant Name and Unit Number	Big Bend II Solar
(2)	Net Capability	25 MW
(3)	Technology Type	Single Axis Tracker
(4)	Anticipated Construction Timing	
	A. Field Construction Start Date ¹	April 2021
	B. Commercial In-Service Date	December 1, 2021
(5)	Fuel	
	A. Primary Fuel	Solar
	B. Alternate Fuel	N/A
(6)	Air Pollution Control Strategy	N/A
(7)	Cooling Method	N/A
(8)	Total Site Area	191 Acres
(9)	Construction Status	Ongoing
(10)	Certification Status	N/A
(11)	Status with Federal Agencies	N/A
(12)	Projected Unit Performance Data	
	Planned Outage Factor (POF)	N/A
	Forced Outage Factor (FOF)	N/A
	Equivalent Availability Factor (EAF)	N/A
	Resulting Capacity Factor	26% (1 st Full Yr Operation)
	Average Net Operating Heat Rate (ANOHR)	N/A
(13)	Projected Unit Financial Data	
	Book Life (Years)	30
	Total Installed Cost (In-Service Year \$/kW) ²	\$1,352
	Direct Construction Cost (\$/kW)	\$1,236
	Escalation (\$/kW)	N/A
	Fixed O&M (\$/kW-yr)	10.91
	Variable O&M (\$/MWh)	0.0

1 Construction schedule includes engineering design and permitting.

2 Total installed cost includes transmission interconnection.

Big Bend II Solar

Projected Installed Costs (\$ Million)	
Project Output (MW)	25
Major Equipment ¹	12.9
Balance of System ²	17.4
Development ³	0.4
Transmission Interconnect	2.9
Land	0
Owners Costs	0.2
Total Installed Cost (\$ Million)	33.8
Total (\$ per kW_{ac})	1,352

¹ Major Equipment includes modules, inverters, and transformers

² Balance of System includes racking, posts, collection cables, EPC contractor, and project management.

³ Development includes environmental studies, boundary surveys, geotech, legal, and permitting costs.

Note: Totals may not sum due to rounding.

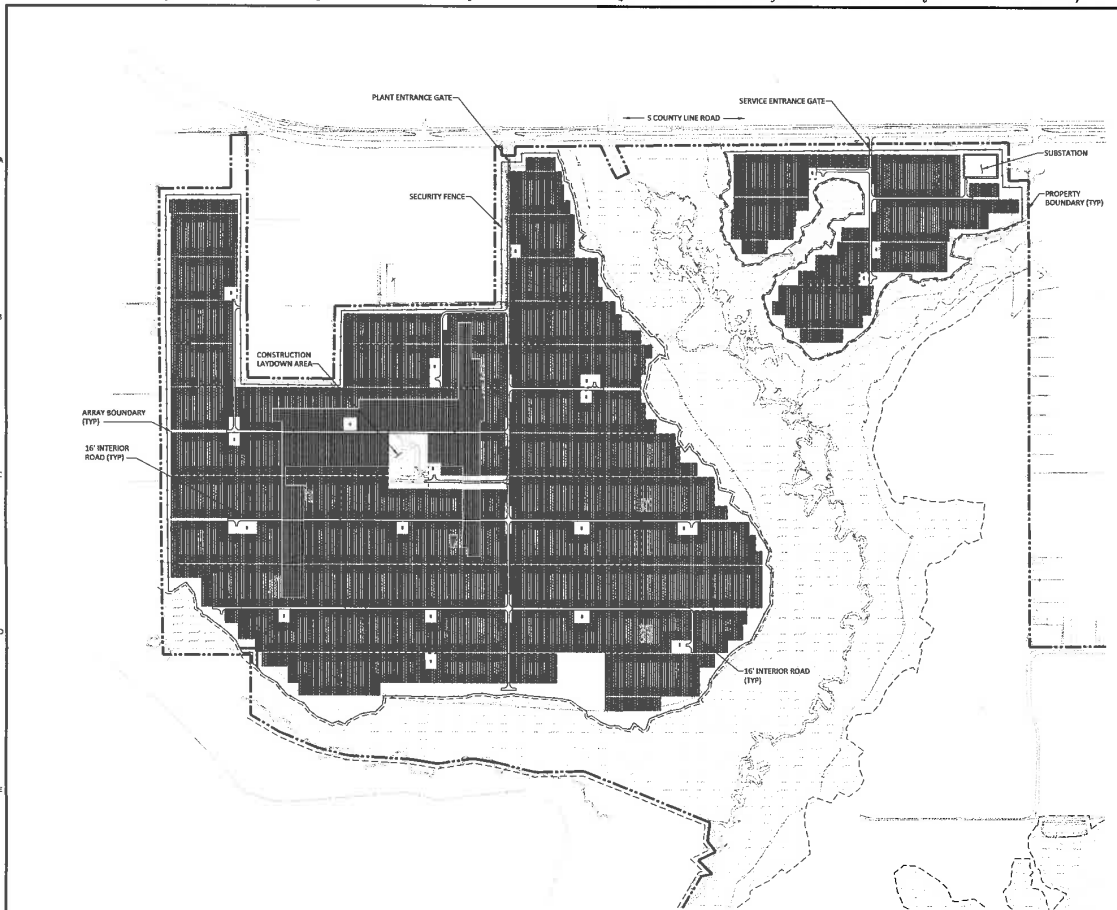
Laurel Oaks Solar Project Specifications

Specifications of Proposed Solar PV Generating Facilities

(1)	Plant Name and Unit Number	Laurel Oaks Solar
(2)	Net Capability	66.8 MW
(3)	Technology Type	Single Axis Tracker
(4)	Anticipated Construction Timing	
	A. Field Construction Start Date ¹	Q1 2022
	B. Commercial In-Service Date	December 1, 2022
(5)	Fuel	
	A. Primary Fuel	Solar
	B. Alternate Fuel	N/A
(6)	Air Pollution Control Strategy	N/A
(7)	Cooling Method	N/A
(8)	Total Site Area	515 Acres
(9)	Construction Status	Ongoing
(10)	Certification Status	N/A
(11)	Status with Federal Agencies	N/A
(12)	Projected Unit Performance Data	
	Planned Outage Factor (POF)	N/A
	Forced Outage Factor (FOF)	N/A
	Equivalent Availability Factor (EAF)	N/A
	Resulting Capacity Factor	26% (1 st Full Yr Operation)
	Average Net Operating Heat Rate (ANOHR)	N/A
(13)	Projected Unit Financial Data	
	Book Life (Years)	30
	Total Installed Cost (In-Service Year \$/kW) ²	1,170
	Direct Construction Cost (\$/kW)	1,100
	Escalation (\$/kW)	N/A
	Fixed O&M (\$/kW-yr)	11.15
	Variable O&M (\$/MWh)	0.0

1 Construction schedule includes engineering design and permitting.

2 Total installed cost includes transmission interconnection.



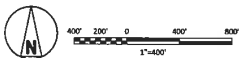
SYSTEM SPECIFICATION	
CLIENT	TAMPA ELECTRIC (TECO)
PROPERTY LINE SETBACK	50 FEET
SYSTEM STC DC RATING (MW)	-
SYSTEM AC RATING AT PDI (MW)	-
SYSTEM DC/AC RATIO	2.18
MODULE MODEL	-
MODULE STC DC RATING (W)	-
MODULE COUNT	179214
MODULE PER STRING	6
TOTAL RACKS	-
STRING COUNT	29869
INVERTER MODEL	-
INVERTER RATING (MW)	-
QUANTITY OF INVERTER	20
QUANTITY OF TRANSFORMER	-
DC SYSTEM VOLTAGE (KV)	-
INTERCONNECTION VOLTAGE (KV)	-
RACKING SYSTEM	-
MODULE TILT	FIXED
AZIMUTH	180
GCR	-

LEGEND	
	PROPERTY LINE
	FENCE LINE
	BLOCK DELINEATION
	FLOOD ZONE LINE
	PV MODULES
	INVERTER SKID
	INVERTER SKID IDENTIFIER
	REFERENCE CELL W/ INT'S
	MET/SOILING STATION
	EXISTING WETLANDS WITH 35' BUFFER SETBACK

NOTES
 1. SEE CDTF-53000 SERIES DRAWINGS FOR GRADING AND DRAINAGE, ROADS AND FENCE PLANS.

NOT TO BE USED FOR CONSTRUCTION
 THE DISTRIBUTION AND USE OF THE NATIVE FORMAT CAD FILE OF THIS DRAWING IS UNCONTROLLED. THE USER SHALL VERIFY TRACEABILITY OF THIS DRAWING TO THE LATEST CONTROLLED VERSION.

TAMPA ELECTRIC (TECO) LAUREL OAKS SOLAR PROJECT		PROJECT 405787-CGAU-G1000	DRAWING NUMBER A
SITE ARRANGEMENT		DATE	REV



I HEREBY CERTIFY THAT THIS DOCUMENT WAS PREPARED BY ME OR UNDER MY DIRECT SUPERVISION AND THAT I AM A QUALY REGISTERED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF FLORIDA.

BLACK & VEATCH
 DESIGNER: [Signature] DATE: [Blank]
 CHECKED: [Signature] DATE: [Blank]

NO.	DATE	REVISIONS AND RECORD OF ISSUE	AKC	AS	AS	AS	AS	AS	AS	AS
A	2/17/2020	ISSUED FOR IN-HOUSE REVIEW								

TAMPA ELECTRIC COMPANY
 DOCKET NO. 20210034-EI
 EXHIBIT NO. CDS-1
 WITNESS: SWEAT
 DOCUMENT NO. 6
 PAGE 2 OF 3
 FILED: 04/09/2021

Laurel Oaks Solar

Projected Installed Costs (\$ Million)	
Project Output (MW)	66.8
Major Equipment ¹	28.7
Balance of System ²	38.6
Development ³	0.5
Transmission Interconnect	4.7
Land	4.5
Owners Costs	1.3
Total Installed Cost (\$ Million)	78.1
Total (\$ per kW_{ac})	1,170

¹ Major Equipment includes modules, inverters, and transformers

² Balance of System includes racking, posts, collection cables, EPC contractor, and project management.

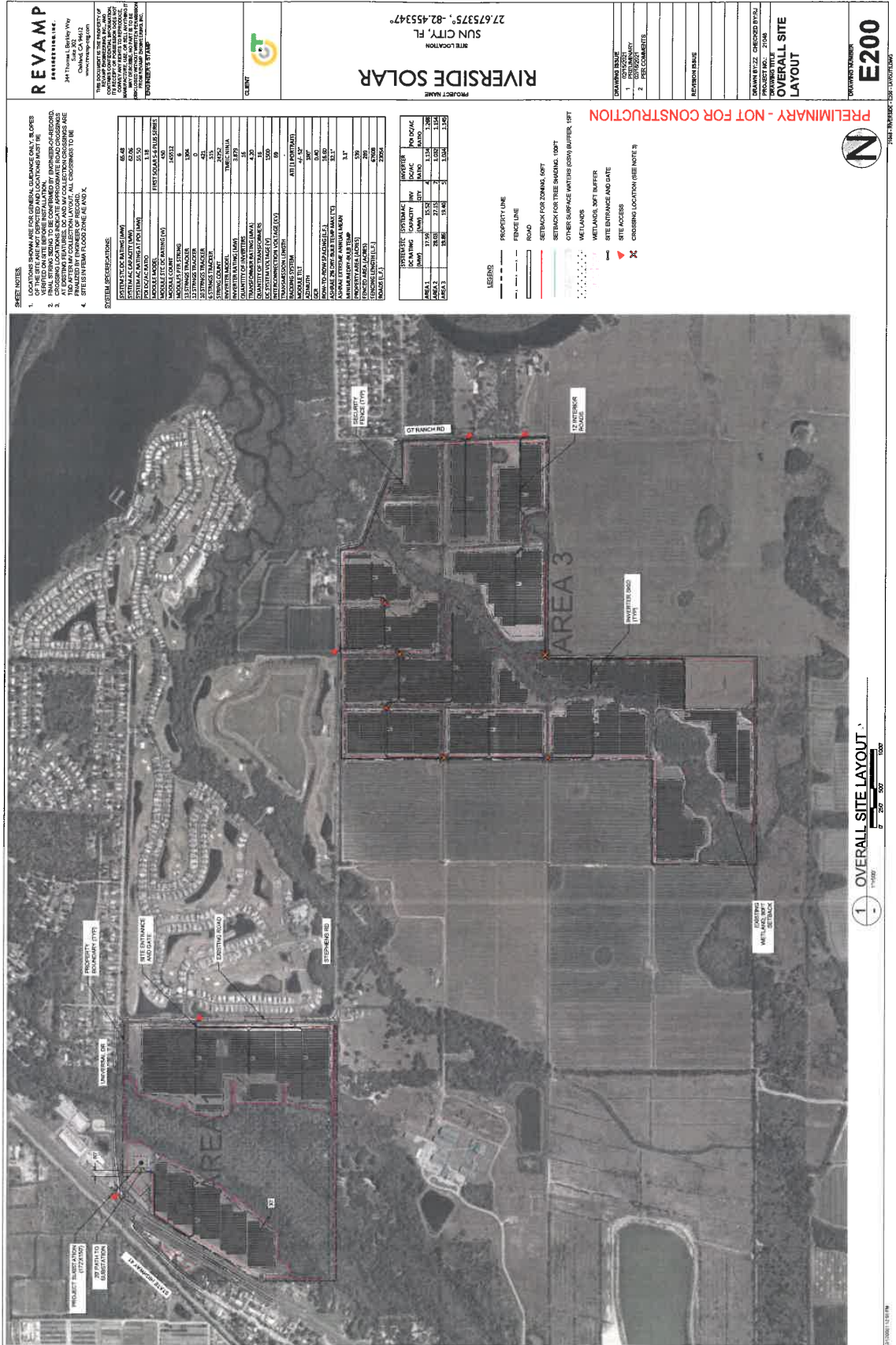
³ Development includes environmental studies, boundary surveys, geotech, legal, and permitting costs.

Note: Totals may not sum due to rounding.

Riverside Solar Project Specifications

Specifications of Proposed Solar PV Generating Facilities		
(1)	Plant Name and Unit Number	Riverside Solar
(2)	Net Capability	65.0 MW
(3)	Technology Type	Single Axis Tracker
(4)	Anticipated Construction Timing	
	A. Field Construction Start Date ¹	Q1 2022
	B. Commercial In-Service Date	December 1, 2022
(5)	Fuel	
	A. Primary Fuel	Solar
	B. Alternate Fuel	N/A
(6)	Air Pollution Control Strategy	N/A
(7)	Cooling Method	N/A
(8)	Total Site Area	530 Acres
(9)	Construction Status	Ongoing
(10)	Certification Status	N/A
(11)	Status with Federal Agencies	N/A
(12)	Projected Unit Performance Data	
	Planned Outage Factor (POF)	N/A
	Forced Outage Factor (FOF)	N/A
	Equivalent Availability Factor (EAF)	N/A
	Resulting Capacity Factor	26% (1 st Full Yr Operation)
	Average Net Operating Heat Rate (ANOHR)	N/A
(13)	Projected Unit Financial Data	
	Book Life (Years)	30
	Total Installed Cost (In-Service Year \$/kW) ²	1,241
	Direct Construction Cost (\$/kW)	1,156
	Escalation (\$/kW)	N/A
	Fixed O&M (\$/kW-yr)	11.15
	Variable O&M (\$/MWh)	0.0

1 Construction schedule includes engineering design and permitting.
2 Total installed cost includes transmission interconnection.



REVISIONS

NO.	DATE	DESCRIPTION
1	04/09/2021	ISSUED FOR PERMITTING
2	04/09/2021	REVISED PER COMMENTS

CLIENT
RIVERSIDE SOLAR
SUN CITY, FL
SITE LOCATION
27.675375° -82.455347°

DESIGNER'S STAMP
THESE DOCUMENTS ARE THE PROPERTY OF
ENGINEERING FIRM, INC.
344 Thomas, Berlin, WY
Cedar, WY 82403
www.enr.com

GENERAL NOTES

- LOCATIONS SHOWN ARE FOR GENERAL GUIDANCE ONLY. ALL SIZES OF THIS SITE ARE NOT EXPLICIT AND LOCATIONS MUST BE FINAL DESIGN, BEING TO BE CONFIRMED BY ENGINEER-OF-RECORD.
- ALL DIMENSIONS ARE TO FACE UNLESS OTHERWISE NOTED.
- ALL EXISTING FEATURES, LOCATIONS AND COLLECTION CROSSINGS ARE PROVIDED BY OWNER'S RECORD. ALL CROSSINGS TO BE PROVIDED BY OWNER'S RECORD.
- SITE IS IN FLOOD ZONE AE AND X.

GENERAL INFORMATION

ITEM	QUANTITY	UNIT
FOUNDATION (CONCRETE)	66.48	LINEAL FEET
FOUNDATION (STEEL)	25.50	LINEAL FEET
FOUNDATION (WOOD)	1.00	LINEAL FEET
FOUNDATION (METAL)	1.00	LINEAL FEET
FOUNDATION (OTHER)	1.00	LINEAL FEET
FOUNDATION (TOTAL)	100.00	LINEAL FEET
FOUNDATION (CONCRETE)	100.00	LINEAL FEET
FOUNDATION (STEEL)	100.00	LINEAL FEET
FOUNDATION (WOOD)	100.00	LINEAL FEET
FOUNDATION (METAL)	100.00	LINEAL FEET
FOUNDATION (OTHER)	100.00	LINEAL FEET
FOUNDATION (TOTAL)	100.00	LINEAL FEET
FOUNDATION (CONCRETE)	100.00	LINEAL FEET
FOUNDATION (STEEL)	100.00	LINEAL FEET
FOUNDATION (WOOD)	100.00	LINEAL FEET
FOUNDATION (METAL)	100.00	LINEAL FEET
FOUNDATION (OTHER)	100.00	LINEAL FEET
FOUNDATION (TOTAL)	100.00	LINEAL FEET

LEGEND

- PROPERTY LINE
- FENCE LINE
- ROAD
- SETBACK FOR ZONING, 50 FT
- SETBACK FOR TREE SHADING, 100 FT
- OTHER SURFACE (WITHIN 500 FT BUFFER, 10 FT)
- WETLANDS
- WETLANDS, 50 FT BUFFER
- SITE ENTRANCE AND GATE
- SITE ACCESS
- CROSSING LOCATION (SEE NOTE 3)

PRELIMINARY - NOT FOR CONSTRUCTION

OVERALL SITE LAYOUT

E200

DATE
04/09/2021

DRAWN BY
[Name]

CHECKED BY
[Name]

SCALE
1" = 50'

PROJECT NAME
RIVERSIDE SOLAR

SUN CITY, FL
SITE LOCATION

27.675375° -82.455347°

Riverside Solar

Projected Installed Costs (\$ Million)	
Project Output (MW)	65.0
Major Equipment ¹	28.0
Balance of System ²	36.5
Development ³	0.5
Transmission Interconnect	5.5
Land	8.8
Owners Costs	1.4
Total Installed Cost (\$ Million)	80.7
Total (\$ per kW_{ac})	1,241

¹ Major Equipment includes modules, inverters, and transformers

² Balance of System includes racking, posts, collection cables, EPC contractor, and project management.

³ Development includes environmental studies, boundary surveys, geotech, legal, and permitting costs.

Note: Totals may not sum due to rounding.

Palm River Dairy Solar Project Specifications

Specifications of Proposed Solar PV Generating Facilities

(1)	Plant Name and Unit Number	Palm River Dairy Solar
(2)	Net Capability	70.0 MW
(3)	Technology Type	Single Axis Tracker
(4)	Anticipated Construction Timing	
	A. Field Construction Start Date ¹	Q1 2022
	B. Commercial In-Service Date	December 1, 2022
(5)	Fuel	
	A. Primary Fuel	Solar
	B. Alternate Fuel	N/A
(6)	Air Pollution Control Strategy	N/A
(7)	Cooling Method	N/A
(8)	Total Site Area	548 Acres
(9)	Construction Status	Ongoing
(10)	Certification Status	N/A
(11)	Status with Federal Agencies	N/A
(12)	Projected Unit Performance Data	
	Planned Outage Factor (POF)	N/A
	Forced Outage Factor (FOF)	N/A
	Equivalent Availability Factor (EAF)	N/A
	Resulting Capacity Factor	26% (1 st Full Yr Operation)
	Average Net Operating Heat Rate (ANOHR)	N/A
(13)	Projected Unit Financial Data	
	Book Life (Years)	30
	Total Installed Cost (In-Service Year \$/kW) ²	1,183
	Direct Construction Cost (\$/kW)	1,118
	Escalation (\$/kW)	N/A
	Fixed O&M (\$/kW-yr)	11.15
	Variable O&M (\$/MWh)	0.0

¹ Construction schedule includes engineering design and permitting.

² Total installed cost includes transmission interconnection.

Palm River Dairy Solar

Projected Installed Costs (\$ Million)	
Project Output (MW)	70.0
Major Equipment ¹	30.0
Balance of System ²	38.5
Development ³	0.5
Transmission Interconnect	4.6
Land	7.8
Owners Costs	1.4
Total Installed Cost (\$ Million)	82.8
Total (\$ per kW_{ac})	1,183

¹ Major Equipment includes modules, inverters, and transformers

² Balance of System includes racking, posts, collection cables, EPC contractor, and project management.

³ Development includes environmental studies, boundary surveys, geotech, legal, and permitting costs.

Note: Totals may not sum due to rounding.

Big Bend III Solar Project Specifications

Specifications of Proposed Solar PV Generating Facilities		
(1)	Plant Name and Unit Number	Big Bend III Solar
(2)	Net Capability	22.2 MW
(3)	Technology Type	Single Axis Tracker
(4)	Anticipated Construction Timing	
	A. Field Construction Start Date ¹	Q1 2022
	B. Commercial In-Service Date	December 1, 2022
(5)	Fuel	
	A. Primary Fuel	Solar
	B. Alternate Fuel	N/A
(6)	Air Pollution Control Strategy	N/A
(7)	Cooling Method	N/A
(8)	Total Site Area	93 Acres
(9)	Construction Status	Ongoing
(10)	Certification Status	N/A
(11)	Status with Federal Agencies	N/A
(12)	Projected Unit Performance Data	
	Planned Outage Factor (POF)	N/A
	Forced Outage Factor (FOF)	N/A
	Equivalent Availability Factor (EAF)	N/A
	Resulting Capacity Factor	26% (1 st Full Yr Operation)
	Average Net Operating Heat Rate (ANOHR)	N/A
(13)	Projected Unit Financial Data	
	Book Life (Years)	30
	Total Installed Cost (In-Service Year \$/kW) ²	1,275
	Direct Construction Cost (\$/kW)	1,159
	Escalation (\$/kW)	N/A
	Fixed O&M (\$/kW-yr)	11.15
	Variable O&M (\$/MWh)	0.0

1 Construction schedule includes engineering design and permitting.
2 Total installed cost includes transmission interconnection.

Big Bend III Solar

Projected Installed Costs (\$ Million)	
Project Output (MW)	22.2
Major Equipment ¹	9.8
Balance of System ²	15.3
Development ³	0.4
Transmission Interconnect	2.6
Land	0
Owners Costs	0.2
Total Installed Cost (\$ Million)	28.3
Total (\$ per kW_{ac})	1,275

¹ Major Equipment includes modules, inverters, and transformers

² Balance of System includes racking, posts, collection cables, EPC contractor, and project management.

³ Development includes environmental studies, boundary surveys, geotech, legal, and permitting costs.

Note: Totals may not sum due to rounding.

Alafia Solar Project Specifications

Specifications of Proposed Solar PV Generating Facilities

(1)	Plant Name and Unit Number	Alafia Solar
(2)	Net Capability	50 MW
(3)	Technology Type	Single Axis Tracker
(4)	Anticipated Construction Timing	
	A. Field Construction Start Date ¹	Q1 2023
	B. Commercial In-Service Date	December 1, 2023
(5)	Fuel	
	A. Primary Fuel	Solar
	B. Alternate Fuel	N/A
(6)	Air Pollution Control Strategy	N/A
(7)	Cooling Method	N/A
(8)	Total Site Area	408 Acres
(9)	Construction Status	Ongoing
(10)	Certification Status	N/A
(11)	Status with Federal Agencies	N/A
(12)	Projected Unit Performance Data	
	Planned Outage Factor (POF)	N/A
	Forced Outage Factor (FOF)	N/A
	Equivalent Availability Factor (EAF)	N/A
	Resulting Capacity Factor	26% (1 st Full Yr Operation)
	Average Net Operating Heat Rate (ANOHR)	N/A
(13)	Projected Unit Financial Data	
	Book Life (Years)	30
	Total Installed Cost (In-Service Year \$/kW) ²	1,252
	Direct Construction Cost (\$/kW)	1,119
	Escalation (\$/kW)	N/A
	Fixed O&M (\$/kW-yr)	11.39
	Variable O&M (\$/MWh)	0.0

1 Construction schedule includes engineering design and permitting.

2 Total installed cost includes transmission interconnection.

Alafia Solar

Projected Installed Costs (\$ Million)	
Project Output (MW)	50
Major Equipment ¹	20.4
Balance of System ²	27.1
Development ³	0.5
Transmission Interconnect	6.6
Land	6.4
Owners Costs	1.6
Total Installed Cost (\$ Million)	62.6
Total (\$ per kW_{ac})	1,252

¹ Major Equipment includes modules, inverters, and transformers

² Balance of System includes racking, posts, collection cables, EPC contractor, and project management.

³ Development includes environmental studies, boundary surveys, geotech, legal, and permitting costs.

Note: Totals may not sum due to rounding.

Wheeler Solar Project Specifications

Specifications of Proposed Solar PV Generating Facilities		
(1)	Plant Name and Unit Number	Wheeler Solar
(2)	Net Capability	74.5 MW
(3)	Technology Type	Single Axis Tracker
(4)	Anticipated Construction Timing	
	A. Field Construction Start Date ¹	Q1 2023
	B. Commercial In-Service Date	December 1, 2023
(5)	Fuel	
	A. Primary Fuel	Solar
	B. Alternate Fuel	N/A
(6)	Air Pollution Control Strategy	N/A
(7)	Cooling Method	N/A
(8)	Total Site Area	464 Acres
(9)	Construction Status	Ongoing
(10)	Certification Status	N/A
(11)	Status with Federal Agencies	N/A
(12)	Projected Unit Performance Data	
	Planned Outage Factor (POF)	N/A
	Forced Outage Factor (FOF)	N/A
	Equivalent Availability Factor (EAF)	N/A
	Resulting Capacity Factor	26% (1 st Full Yr Operation)
	Average Net Operating Heat Rate (ANOHR)	N/A
(13)	Projected Unit Financial Data	
	Book Life (Years)	30
	Total Installed Cost (In-Service Year \$/kW) ²	1,154
	Direct Construction Cost (\$/kW)	1,077
	Escalation (\$/kW)	N/A
	Fixed O&M (\$/kW-yr)	11.39
	Variable O&M (\$/MWh)	0.0

1 Construction schedule includes engineering design and permitting.
2 Total installed cost includes transmission interconnection.

Wheeler Solar

Projected Installed Costs (\$ Million)	
Project Output (MW)	74.5
Major Equipment ¹	29.5
Balance of System ²	39.0
Development ³	0.5
Transmission Interconnect	5.8
Land	9.5
Owners Costs	1.7
Total Installed Cost (\$ Million)	86.0
Total (\$ per kW_{ac})	1,154

¹ Major Equipment includes modules, inverters, and transformers

² Balance of System includes racking, posts, collection cables, EPC contractor, and project management.

³ Development includes environmental studies, boundary surveys, geotech, legal, and permitting costs.

Note: Totals may not sum due to rounding.

Dover Solar Project Specifications

Specifications of Proposed Solar PV Generating Facilities

(1)	Plant Name and Unit Number	Dover Solar
(2)	Net Capability	25 MW
(3)	Technology Type	Single Axis Tracker
(4)	Anticipated Construction Timing	
	A. Field Construction Start Date ¹	Q1 2023
	B. Commercial In-Service Date	December 1, 2023
(5)	Fuel	
	A. Primary Fuel	Solar
	B. Alternate Fuel	N/A
(6)	Air Pollution Control Strategy	N/A
(7)	Cooling Method	N/A
(8)	Total Site Area	177 Acres
(9)	Construction Status	Ongoing
(10)	Certification Status	N/A
(11)	Status with Federal Agencies	N/A
(12)	Projected Unit Performance Data	
	Planned Outage Factor (POF)	N/A
	Forced Outage Factor (FOF)	N/A
	Equivalent Availability Factor (EAF)	N/A
	Resulting Capacity Factor	26% (1 st Full Yr Operation)
	Average Net Operating Heat Rate (ANOHR)	N/A
(13)	Projected Unit Financial Data	
	Book Life (Years)	30
	Total Installed Cost (In-Service Year \$/kW) ²	1,375
	Direct Construction Cost (\$/kW)	1,335
	Escalation (\$/kW)	N/A
	Fixed O&M (\$/kW-yr)	11.39
	Variable O&M (\$/MWh)	0.0

1 Construction schedule includes engineering design and permitting.

2 Total installed cost includes transmission interconnection.



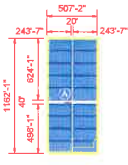
Key Plan Scale NTS



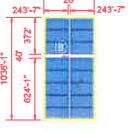
Location Map Scale NTS



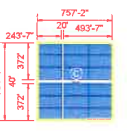
Site Development Plan Scale 1:300



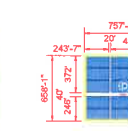
Typical 3.690 MWac Exelon Tracker Array 3685.0 MWac / 2,090.0 MWdc 1,315 ac/acre Ratio 12.4" RS 120.0 Watt Module - Series 4 10 Module / String @ 3 x 30 Modules / Tables 20 Tables / Motor Block @ 10.80 MWac / Table 18 Motor Block @ 216.0 MWac / Motor Block / Array



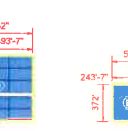
Typical 3.690 MWac Exelon Tracker Array 3650.0 MWac / 2,090.0 MWdc 1,187.5 ac/acre Ratio 12.4" RS 120.0 Watt Module - Series 4 10 Module / String @ 3 x 30 Modules / Tables 20 Tables / Motor Block @ 10.80 MWac / Table 18 Motor Block @ 216.0 MWac / Motor Block / Array



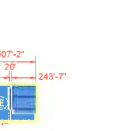
Typical 2.900 MWac Exelon Tracker Array 2885.0 MWac / 2,090.0 MWdc 1,315 ac/acre Ratio 12.4" RS 120.0 Watt Module - Series 4 10 Module / String @ 3 x 30 Modules / Tables 20 Tables / Motor Block @ 10.80 MWac / Table 15 Motor Block @ 216.0 MWac / Motor Block / Array



Typical 2.900 MWac Exelon Tracker Array 2840.0 MWac / 2,090.0 MWdc 1,246.2 ac/acre Ratio 12.4" RS 120.0 Watt Module - Series 4 10 Module / String @ 3 x 30 Modules / Tables 20 Tables / Motor Block @ 10.80 MWac / Table 15 Motor Block @ 216.0 MWac / Motor Block / Array



Typical 1.230 MWac Exelon Tracker Array 1290.0 MWac / 1,250.0 MWdc 1,024 ac/acre Ratio 12.4" RS 120.0 Watt Module - Series 4 10 Module / String @ 3 x 30 Modules / Tables 20 Tables / Motor Block @ 10.80 MWac / Table 6 Motor Block @ 216.0 MWac / Motor Block / Array



Typical 20 Column Exelon Motor Block 216.0 MWac / Motor Block 120.0 Watt Module - Series 4 10 Module / String @ 3 x 30 Modules / Table 20 Tables / Motor Block 10.80 MWac / Table

Douglas A Holmberg

Dover, Hillsborough County, Florida

Project Offering

First Solar

Project Developer/Operator Owner

First Solar

Project Site Description

176.11 ± Acres Site

94.35 ± Acres Array

Latitude 27.957°

Longitude 82.184°

Elevation 74 ft.

Project Climatic Conditions

ASHRAE Station No. 74780

Extreme Max (50 year) Temp 100.3 °F

Extreme Min (50 year) Temp 23.1 °F

Annual Cooling Design Temp 92.0 °F

Annual Heating Design Temp 39.1 °F (ASHRAE 2013)

Project Design Data

Snow Load 0PSF

Wind Load 123MPH Risk Cat. 1 (ASCE 7-10)

Seismic Load Sa=0.064g, S1=0.033g

Project Interconnection

69KV Distribution / Transmission Line to the Tap

Photovoltaic System Parameters

21.98 ± MWac System Capacity (Nominal Output)

26.75 ± MWdc System Capacity (Nominal Output)

7 ± 2900 kW / 3118 kVA Inverters (1500 Vdc x 630 Vac)

Inverter Model - PE F33001CU154E

1 ± 1258 kW / 1325 kVA Inverters (1500 Vdc x 630 Vac)

Inverter Model - PE FS1270CU154E

7 ± 3.0 MVA Transformers (830 V x 34.5 kV)

1 ± 1.3 MVA Transformer (830 V x 34.5 kV)

1 ± 34.5 kV Sectionalizing Cabinet

1 ± 34.5 kV x 69 kV Transformer

Solar Production

Exelon Mounting System

100' Azimuth

1500 Vdc dc PV System Design

34.5 kV Collection System

69 kV Dist. or Trans. System

Array	Types	Qty
Standard	5	8
Sub-Array		
Custom		

Legend:

Project Boundary

AC Elec. Collection Line (Underground)

AC Elec. Collection Line (Overhead)

AC Elec. Distribution / Transmission Line

Existing Distribution / Transmission Line

Perimeter Fence

Proposed Access Road (Driv)

BC	Array	Module	Row Spacing	# of 20 Table Motor Block per Array	# of Array Blocks	Total # of 20 Table Motor Blocks	MWac	MWdc	ac/acre		
A	120.0	124"	18	2	36	5.92	7.78	1.9155			
B	120.0	124"	15	1	15	2.86	3.46	1.1875			
C	120.0	124"	18	2	36	5.92	7.78	1.9155			
D	120.0	124"	15	2	30	5.92	6.49	1.8849			
E	120.0	124"	6	1	6	1.28	1.30	1.0291			
BC 1 Sub Total							6	124	21.98	26.74	1.2168
Total Capacity											

Site Plan Data Source

Feature Name: Dower

Boundary: Douglas A Holmberg SD-2

Coordinate System: NAD83 Florida State Plane, West Zone, US Foot

Topography: [Blank]

Hydrology: [Blank]

Utilities: [Blank]

Geotechnical: [Blank]

Environmental Constraint: [Blank]

THIS PRINT IS DESIGNED FOR 24" X 36" PLOTTING!

THIS SITE DEVELOPMENT PLAN IS PRELIMINARY AND SUBJECT TO REVISION BASED ON ANY AND ALL OTHER THINGS, CHANGES IN PROJECT SCHEDULE, TECHNOLOGY, AND/OR SITE SPECIFIC CONSTRAINTS.

THIS PRINT IS NOT TO BE USED FOR CONSTRUCTION UNLESS NOTED AND SIGNED OK FOR CONSTRUCTION ABOVE LAST REVISION.



PROFESSIONAL SEAL

Douglas A Holmberg
Dover
Hillsborough County
Florida, USA
21.98MWac Capacity

REV	DATE	BY	CHK	APP	DESCRIPTION
A					Revised Single Exelon Tracker

FIG JOB # 0000.0000.08
PROJ. LOCAL Dava Dover/Dev
PROJ. ENGR:
PROJ. MGR:
PROJ. DIR: John Hartman, PE
SCALE: AS NOTED
SHEET TITLE
Site Development Plan

SD-100-T

SHEET 1 OF 1

TAMPA ELECTRIC COMPANY
DOCKET NO. 20210034-EI
EXHIBIT NO. CDS-1
WITNESS: SWEAT
DOCUMENT NO. 12
PAGE 2 OF 3
FILED: 04/09/2021

Dover Solar

Projected Installed Costs (\$ Million)	
Project Output (MW)	25
Major Equipment ¹	10.6
Balance of System ²	17.3
Development ³	0.5
Transmission Interconnect	1.0
Land	4.5
Owners Costs	0.5
Total Installed Cost (\$ Million)	34.4
Total (\$ per kW_{ac})	1,375

¹ Major Equipment includes modules, inverters, and transformers

² Balance of System includes racking, posts, collection cables, EPC contractor, and project management.

³ Development includes environmental studies, boundary surveys, geotech, legal, and permitting costs.

Note: Totals may not sum due to rounding.