



Dianne M. Triplett
DEPUTY GENERAL COUNSEL

April 2, 2024

VIA 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 20240025-EI, Petition for Rate Increase by Duke Energy Florida, LLC

Dear Mr. Teitzman,

Attached for filing on behalf of Duke Energy Florida, LLC's ("DEF") in the above-referenced docket is the Direct Testimony of Vanessa Goff and Exhibit Nos. VG-1 and VG-2.

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.

(Document 12 of 40)

Respectfully,

/s/ Dianne M. Triplett

Dianne M. Triplett

DMT/mw

Attachments

CERTIFICATE OF SERVICE

Docket No. 20240025-EI

I HEREBY CERTIFY that a true and correct copy of the foregoing has been furnished by electronic mail this 2nd day of April, 2024, to the following:

/s/ Dianne M. Triplett
Dianne M. Triplett

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BEFORE THE FLORIDA PUBLIC SERVICE COMMISSION

**In re: Petition for Rate Increase by
Duke Energy Florida, LLC**

**Docket No. 20240025-EI
Submitted for filing: April 2, 2024**

DIRECT TESTIMONY

OF

VANESSA GOFF

On Behalf of Duke Energy Florida, LLC

1 **I. Introduction & Purpose**

2 **Q. Please state your name and business address.**

3 A. My name is Vanessa Goff. My business address is 525 South Tryon Street, Charlotte, North
4 Carolina, 28202.

5
6 **Q. By whom are you employed and what is your position?**

7 A. I am employed by Duke Energy Corporation as a Director of Renewables Business
8 Development.

9
10 **Q. Please describe your duties and responsibilities in that position.**

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

18
19 **Q. Please describe your educational background and professional experience.**

20 A. I received a Bachelor of Science in Chemical Engineering from Lafayette College in 2002.
21 I began my career as an engineer focusing on coal boilers and steam turbines for Cinergy
22 Solutions. Cinergy was procured by Duke Energy, at which time I moved to development
23 engineering for biomass plants. In 2008, I earned my MBA from St. John Fisher College.

1 I continued to work for the commercial arm of Duke Energy and in 2009 worked as a
2 development engineer focusing on solar, where I helped site new solar energy facilities
3 across the United States. I moved to the regulated side of Duke Energy and worked in siting
4 and licensing for one year and then became a Business Development Manager for solar
5 and wind, and most recently Director of Renewable Development within the Regulated
6 Renewables Development (“RRD”) group. In total, I have over 20 years of professional
7 work experience, including 15 years of renewable energy business development.
8

9 **Q. What is the purpose of your testimony?**

10 A. My testimony supports DEF’s request for cost recovery approval of fourteen, 74.9 MW
11 solar projects to be built between 2025 and 2027. I describe the solar power plants that
12 DEF plans to build to serve its customers, and my testimony includes an overview of the
13 process DEF has used to ensure that its projects are cost effective and cost competitive. My
14 testimony also supports the reasonableness of the proposed project costs.
15

16 **Q. Do you sponsor or co-sponsor any schedules of the Company’s minimum filing
17 requirements?**

18 A. Yes. I sponsor or co-sponsor the following Minimum Filing Requirements (“MFRs”): B-
19 7, B-8, B-9, B-10, B-11, B-13, and B-24. These are true and accurate, subject to being
20 updated during the course of this proceeding.
21

22 **Q. Have you prepared any exhibits to your testimony?**

23 A. Yes, I have prepared or supervised the preparation of several exhibits, as follows:

1 • Exhibit VG-1 – Site plan drawings for the four named 2025 solar projects: Sundance,
2 Bailey Mill, Half Moon, and Rattler.

3 • Exhibit VG-2 – Project milestone schedule.

4 These exhibits are true and accurate.

5
6 **Q. Please summarize your testimony.**

7 A. In 2022 and 2023, DEF placed in-service eight solar sites, resulting in an additional 600
8 MWs of solar generation. DEF has a history of making targeted solar investments that
9 provide customers with more reliable, resilient, and cleaner power, and as I explain in my
10 testimony, the Company is continuing this trajectory by placing in-service 14 additional
11 solar projects from 2025-2027. The addition of these 14 solar sites to the Company’s
12 portfolio will provide cost effective savings for DEF customers, reduce fuel costs, and
13 increase resource diversity on DEF’s system.

14
15 **II. DEF Solar Portfolio & Development Outlook**

16 **Q. Please provide an overview of DEF’s solar investment portfolio and experience.**

17 A. DEF’s experience with developing and building universal solar includes sixteen facilities
18 in the state of Florida in the last five years, representing approximately 1,170 MWs of solar.
19 DEF developed many of these facilities directly, while acquiring others from third-party
20 developers. In all cases, DEF procured all major equipment, selected the EPC contractor
21 through a competitive bid process, oversaw construction, and managed operations and
22 maintenance. With these activities within our scope, DEF was able to ensure that each
23 project sited, developed, and constructed achieved its placed in-service date without any

1 meaningful delays. Since 2018, solar projects have been impacted by a trade war with
2 China, tariffs, duties, a pandemic, supply chain disruptions, inflated shipping costs, forced
3 labor issues in China, unprecedented inflation, and increased competition. Despite all of
4 these challenges, DEF's solar projects have tracked closely to the budgeted amount of
5 capital funding filed with the Florida Public Service Commission (the "Commission"),
6 including during the COVID-19 pandemic.

7
8 **Q. Please specifically discuss the status of DEF solar investments and planned**
9 **development in the near-term.**

10 A. DEF anticipates the expiration of high-priced legacy contracts and retirement of numerous
11 older simple cycle combustion turbine ("CT") units offset by a planned investment in new
12 solar and solar plus storage generation. Consistent with DEF's Ten Year Site Plan
13 ("TYSP"), filed with the Commission in April 2023, DEF plans to expand upon its
14 successful deployment of utility scale solar projects approved by the Commission in 2017
15 and 2021, which will bring over 1,500 MWs of solar generating capacity to the DEF system
16 through the end of 2024. The resource plan and cost-effectiveness evaluation are further
17 explained in Mr. Benjamin Borsch's testimony.

18
19 **Q. What solar projects is DEF presenting for approval?**

20 A. In this filing, DEF requests cost recovery for 14 new solar projects (representing
21 approximately 1,050 total MWs) that will be completed over the three-year rate period.
22 Specifically, the Company will add six projects in 2025, four projects in 2026, and four
23 projects in 2027.

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III. Solar Projects

Q. Please describe the solar projects that DEF expects to place in service in 2025.

A. DEF is adding six projects in 2025. Four of these projects have been identified as Bailey Mill Solar Center, Half Moon Solar Center, Rattler Solar Center, and Sundance Solar Center. Project-specific site plans are provided in Exhibit VG-1 and project schedules in Exhibit VG-2.

- **Bailey Mill Solar Center** is a 74.9 MWac / 111.78 MWdc facility located in Jefferson County. The Project will utilize solar modules mounted to a fixed-tilt racking system with a designed capacity factor of approximately 25%. All environmental assessments have been completed, and prior to site mobilization, DEF will obtain the required site plan approval and all necessary construction permits.
- **Half Moon Solar Center** is a 74.9 MWac / 97.68 MWdc facility located in Sumter County. The Project will utilize solar modules mounted to a single axis tracker racking system with a designed capacity factor of approximately 28%. All environmental assessments have been completed, and prior to site mobilization, DEF will obtain the required site plan approval construction permits.
- **Rattler Solar Center** is a 74.9 MWac / 101.20 MWdc facility located in Hernando County and will provide unique academic benefits to Florida A&M University through the creation of hands-on experiences for students researching a fully operational, utility-scale solar power plant. The Rattler Solar Center will utilize solar modules mounted to a single axis tracker racking system with a designed capacity factor of approximately 29%. All environmental assessments have been completed, and prior to

1 site mobilization, DEF will obtain the required site plan approval and construction
2 permits.

- 3 • **Sundance Solar Center** is a 74.9 MWac / 99.01 MWdc facility located in Madison
4 County. The Project will utilize solar modules mounted to a single axis tracker racking
5 system with a designed capacity factor of approximately 28%. All environmental
6 assessments have been completed, and prior to site mobilization, DEF will obtain the
7 required site plan approval from Madison County and all necessary construction
8 permits.

9
10 Two additional 74.9 MW solar facilities are expected to be placed in service in 2025, one
11 in March and the other in December. DEF is currently completing the interconnection
12 process and remaining due diligence for these two projects.

13
14 **Q. Please describe the solar projects that DEF expects to place in service in 2026.**

15 A. Four 74.9 MW solar projects are anticipated to be placed in-service in 2026. These projects
16 are currently going through the interconnection process, and DEF is finalizing due
17 diligence development activities.

18
19 **Q. Please describe the solar projects that DEF expects to place in service in 2027.**

20 A. Four 74.9 MW solar projects are anticipated to be placed in-service in 2027. These projects
21 are currently going through the interconnection process, and DEF is finalizing due
22 diligence development activities.

1 **Q. What is the estimated schedule for the 2025 solar investments?**

2 A. As shown on Exhibit VG-2, two of the six 2025 projects are expected to be placed in-
3 service in March 2025, with construction beginning in Q2 2024. Sundance has been
4 identified as one of these projects. The remaining four projects are expected to be placed
5 in service in December 2025, with construction beginning in Q1 of 2025; Bailey Mill, Half
6 Moon, and Rattler represent three of these four projects.

7
8 **Q. What is the estimated schedule for the remaining solar investments?**

9 All four of the 2026 projects have an anticipated in-service date of June 2026 with
10 construction starting in Q3 2025, and all four 2027 projects have an anticipated in-service
11 date of June 2027 with construction starting in Q3 2026.

12
13 **Q. How did DEF select and develop the solar projects included in this filing?**

14 A. DEF considers several factors while developing a greenfield project, with interconnection
15 and the ability to connect to the grid as primary factors. DEF will conduct desktop analyses
16 using publicly available data to locate buildable sites adjacent to existing DEF transmission
17 lines. This desktop study will look at parcel size, wetlands, floodplains, slope, soils, and
18 any known environmentally sensitive areas. Once a site has been identified, DEF will work
19 with landowners to execute site control agreements. DEF will then file an interconnection
20 request. If the interconnection studies are favorable, DEF will conduct site due diligence
21 to make sure the site is buildable with minimal environmental impacts. Some of these
22 studies include environmental assessment for species, wetlands delineation, ESA Phase I,
23 cultural assessment, topographical surveys, geotechnical surveys, and American Land Title

1 Association surveys. If all results are positive, DEF will add these projects to the solar
2 portfolio.

3
4 DEF has several greenfield projects in the interconnection queue with favorable queue
5 positions and will continue to develop most of these solar projects. DEF is willing to
6 purchase solar projects in various stages of completion from third-party developers, but
7 projects must meet DEF's standards of development and construction and fit into our
8 strategic build plan. The factors when considering the purchase of a third-party developed
9 site include interconnection queue position for transmission connection to the grid and
10 expected grid upgrades, environmental impacts, constructability of the site, development
11 status and schedule, overall cost, project location, zoning entitlements, experience and
12 competencies of developer, and construction schedule.

13
14 **Q. Does DEF believe that its solar development procurement strategies are appropriate**
15 **and reasonable?**

16 A. Yes. It is important for DEF to remain active in the solar development market. As the
17 Company has developed these projects over the last few years, DEF has taken lessons
18 learned and determined what strategies will ensure success and deliver the best results.
19 DEF has become more focused on utility-developed projects, as these create lower overall
20 costs and allow for greater precision when choosing project development sites.

21
22 DEF is advancing siting and design by growing an engineering team focused on internal
23 siting and design along with additional evaluation tools that help with more detailed

1 layouts. DEF can now integrate standard design criteria earlier in the process as well as
2 incorporate lower cost technology choices. To remain cost competitive, DEF works with
3 EPC contractors with extensive experience building solar projects in Florida and that have
4 a proven track record of completing projects cost competitively.

5
6 **Q. Why has the Company focused on utility-developed projects?**

7 A. Utility-developed projects allow DEF to better assess various site risks such as physical
8 limitations (e.g., wetland or floodplain risks) or procedural limitations (e.g., community
9 risks or regulatory variations). Utility-developed projects also eliminate acquisition fees
10 and legal costs to execute Asset Purchase Agreements. These projects also provide the
11 Company the ability to control the timeline of both development and construction, allowing
12 a pace that aligns with DEF's implementation plan.

13
14 **Q. What cost-saving measures has DEF implemented for solar projects under
15 development?**

16 A. DEF continually works to be as cost competitive as possible for every solar generation
17 project constructed. DEF has extensive experience in evaluating greenfield sites and
18 projects under development by third party developers. DEF considers several factors during
19 project evaluation, including:

- 20 • Cost-effective grid interconnection
- 21 • Environmental impacts
- 22 • Constructability of the site
- 23 • Development status and schedule

- 1 • Overall project costs, quality/type of materials
- 2 • Project location and zoning entitlements
- 3 • Experience and competencies of the developer
- 4 • Construction schedule

5 As I mentioned above, through utility-developed solar projects, DEF has developed robust
6 relationships with key equipment suppliers, EPC contractors, and professional service firms
7 utilized in the development phase. This has provided opportunities for the Company to
8 streamline RFPs for major equipment and EPC services as well as project construction and
9 operations. DEF is continually evaluating suppliers for reliability, deliverability, past
10 performance, and cost. As such, DEF has a successful track record of developing universal
11 solar facilities that are cost effective, within budget, and on schedule.

12
13 **Q. What is the projected installed cost for each proposed solar project?**

14 A. DEF anticipates that the 2025-2027 projects will each cost approximately \$114 million, as
15 shown on MFR Schedule B-13. For each year, DEF assumes costs for modules, generator
16 step up transformers (“GSUs”), EPC, transmission upgrades, project development
17 (including land fees, surveys, and environmental studies), construction oversight, and
18 project contingency. DEF anticipates that the six 2025 projects will each cost
19 approximately \$114.0 million, the four 2026 projects are expected to cost approximately
20 \$114.5 million each, while the 2027 projects are projected to cost approximately \$114.1
21 million each. All of these project costs include transmission network upgrades, but do not
22 include AFUDC. These costs translate to a per kW cost of \$1,522/kWac for the 2025

1 projects, \$1,529/kWac for the 2026 projects, and \$1,523/kWac for the 2027 projects
2 inclusive of network upgrades.

3
4 **Q. How did DEF develop the installed cost estimates for the proposed solar investments**
5 **in this case?**

6 A. There are multiple components that DEF incorporates into its total project costs. To project
7 the most accurate project costs, DEF evaluates each component separately, using the best
8 available and most accurate information for each year within the development pipeline.

9 • Modules: Pricing for modules is based off executed agreements with Canadian
10 Solar for 2024 deliveries, First Solar for 2025 and 2026 deliveries, and a
11 combination of both suppliers for 2027 deliveries. DEF assumes that every unit
12 planned for addition in 2025, 2026, and 2027 is a 74.9 MWac single-axis tracking
13 photovoltaic solar project with a net capacity of 27%¹. If modules are delivered
14 in a specific year, the in-service date may still be the following year. In addition,
15 the module costs include up to \$0.03/W for added freight, tariffs, and silicon market
16 charges.

17 • GSUs: DEF bases its GSU pricing on the most recent quote received from GE
18 Prolec for a 230 kV, 80MVA transformer. The cost is adjusted yearly assuming a
19 3% inflation.

20 • Project Development and Construction Oversight Costs: These costs are based on
21 actuals that occurred throughout DEF's solar program and include an expected 3%

¹ The 27% Net Capacity Factor is also utilized to calculate Production Tax Credits, as described in the testimony of Company witness John Panizza, and shown in Exhibit JRP-1.

1 inflation year over year. Each project includes a 4% project contingency and does
2 not include AFUDC.

- 3 • EPC: Pricing for solar projects starting construction in 2024 with in-service dates
4 in 2025 is based on actual 2022 and 2023 EPC contracts. DEF is anticipating
5 commodity pricing returning closer to pre-pandemic levels and includes a net 2.5%
6 reduction in cost. DEF is also anticipating a \$0.005/W annual reduction through
7 2027, which includes anticipated increases in cost for compliance with the Inflation
8 Reduction Act of 2022 (“IRA”).
9

10 **Q. Does DEF evaluate any other cost category in the solar development process?**

11 A. Yes. DEF includes both direct assigned transmission and transmission network upgrades
12 costs. DEF bases pricing for direct assigned transmission costs on historical actuals that
13 occurred throughout its solar program with an expected 3% inflation year over year.
14 Transmission network upgrades costs reflect the assumed interconnection positions (new
15 switching station, existing switching station, line tap) and the costs associated with the
16 current DEF pipeline of projects (forward looking) and anticipated average costs for each
17 year.
18

19 **Q. Has the passage of the IRA impacted DEF’s solar development?**

20 A. Yes. Projected solar projects may qualify for certain credits under the IRA. DEF witness
21 Mr. John Panizza summarizes the key tax-related components of the IRA and previews
22 provisions most relevant to DEF’s proposed solar projects. Witness Panizza also addresses
23 certain assumptions that DEF is making regarding those tax credits.

1

2 **Q. Are the cost projections for equipment, engineering, and construction of the solar**
3 **investments reasonable?**

4 A. Yes.

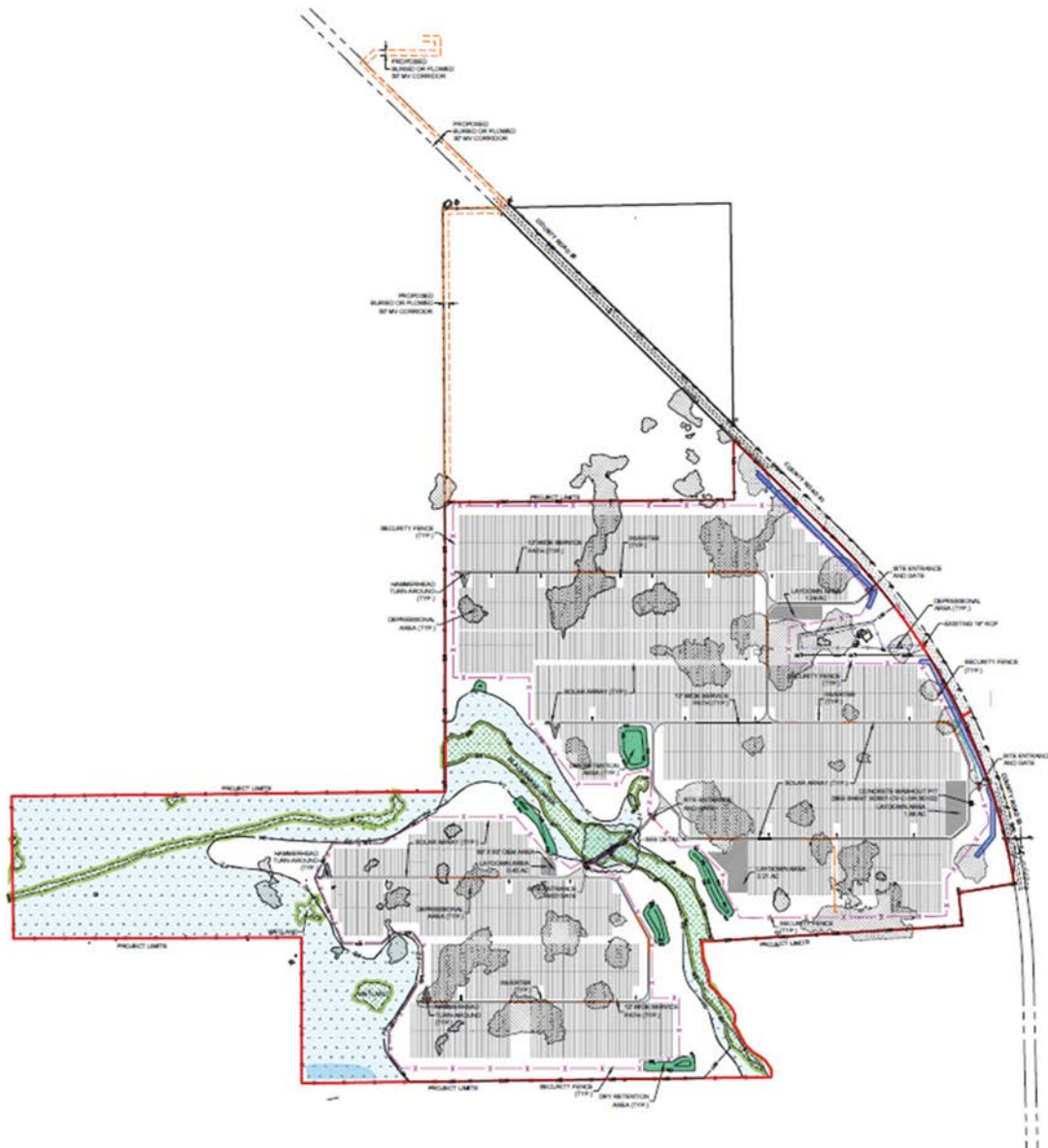
5

6 **IV. Conclusion**

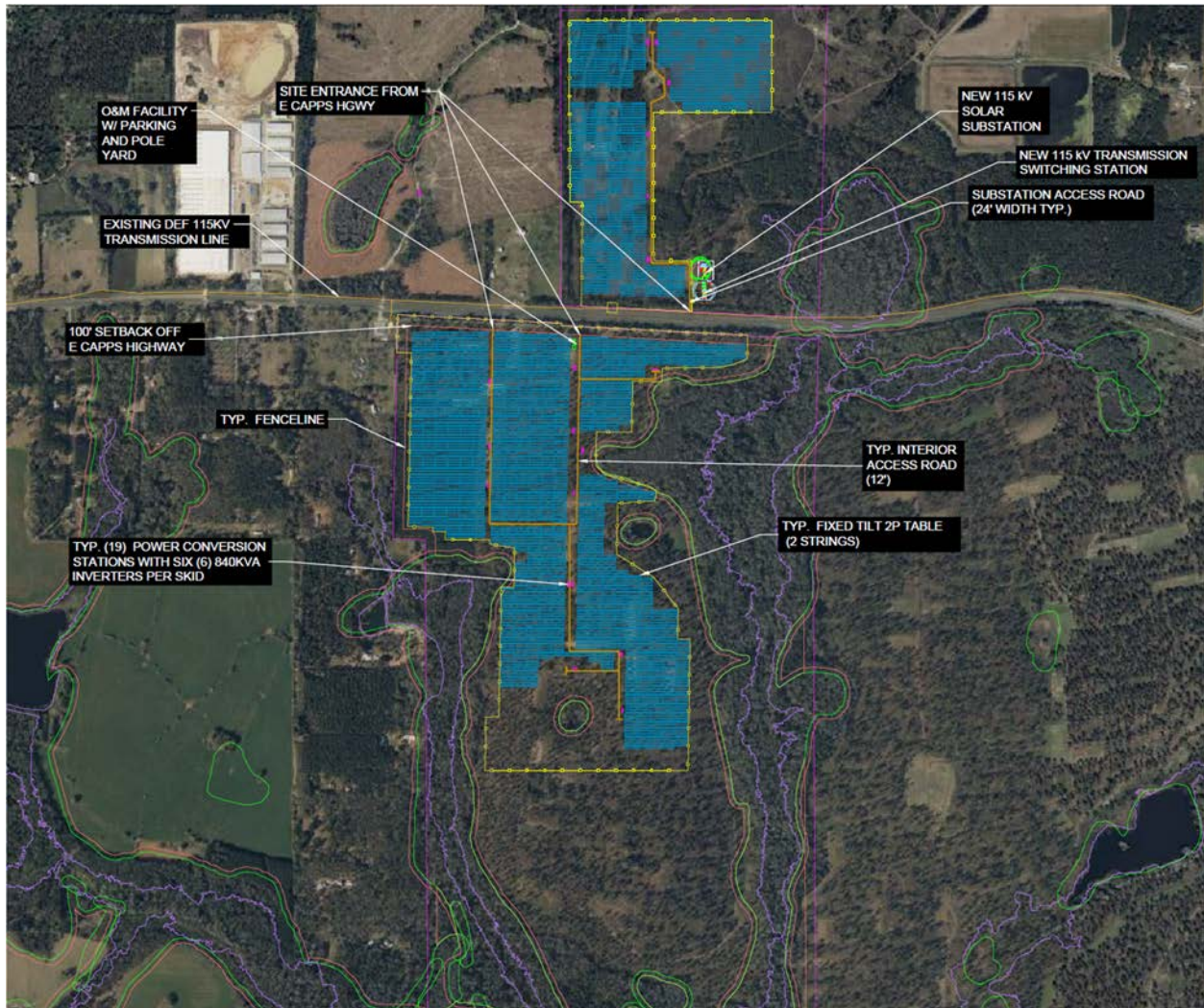
7 **Q. Does this conclude your testimony?**

8 A. Yes.

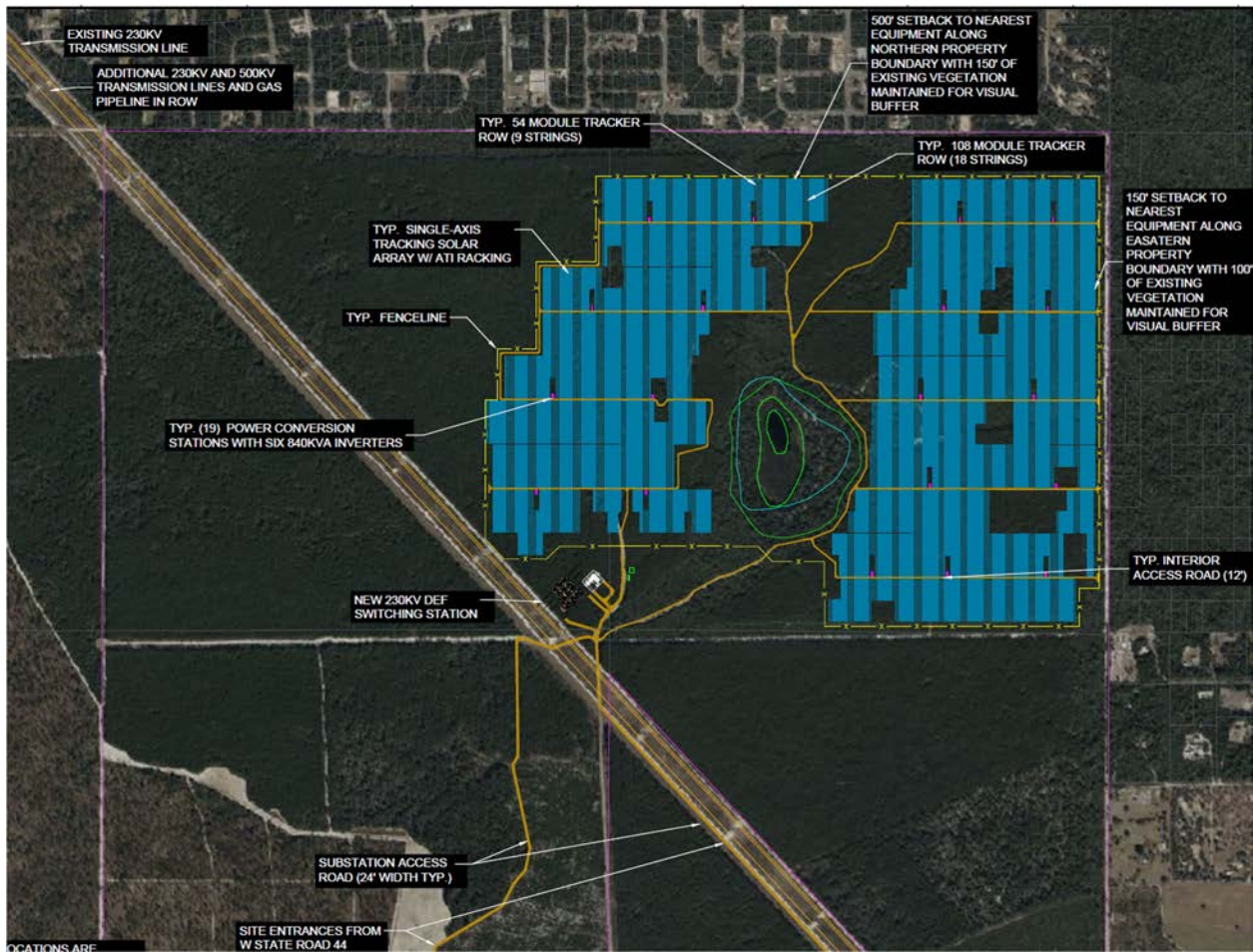
Sundance Solar Site Plan



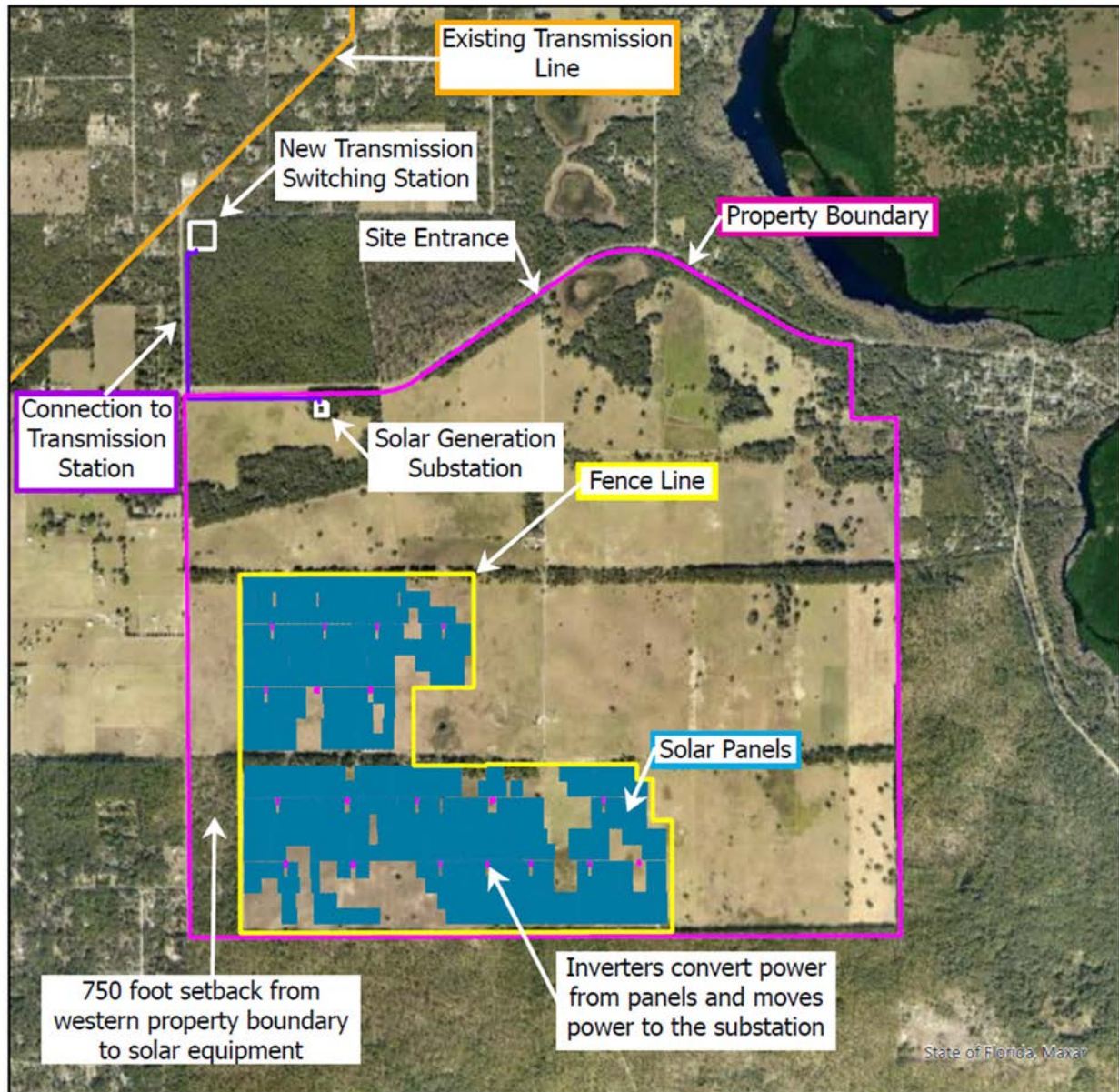
Bailey Mill Solar Site Plan



Half Moon Solar Site Plan



Rattler Solar Site Plan



2025 Solar Project Milestone Schedule

Milestone	Sundance	Bailey Mill	Half Moon	Rattler	TYSP 2025-6	TYSP 2025-7
Submit Permit Package (Environmental)	October 2023	July 2024	July 2024	July 2024	October 2023	July 2024
Submit Permit Package (County)	January 2024	October 2024	October 2024	October 2024	January 2024	October 2024
County Development Order Approval	March 2024	December 2024	December 2024	December 2024	March 2024	December 2024
Environmental Permit Approval	April 2024	January 2025	January 2025	January 2025	April 2024	January 2025
Site Mobilization	April 2024	January 2025	January 2025	January 2025	April 2024	January 2025
Mechanical Completion	January 2025	October 2024	October 2024	October 2024	January 2025	October 2024
Synchronization of First Inverter	February 2025	November 2025	November 2025	November 2025	February 2025	November 2025
Target Placed In-Service	March 2025	December 2025	December 2025	December 2025	March 2025	December 2025
Final Completion	June 2025	March 2026	March 2026	March 2026	June 2025	March 2026