BEFORE THE FLORIDA PUBLIC SERVICE COMMISSION

In re: Petition for Determination of Cost Effective Generation Alternative to Meet Need Prior to 2018, by Duke Energy Florida, Inc.	)	DOCKET NO. 140111-EI
	)	Submitted for Filing
	)	July 15, 2014

CALPINE CONSTRUCTION FINANCE COMPANY, L.P.'S
NOTICE OF FILING

Calpine Construction Finance Company, L.P. ("Calpine") hereby gives notice of filing the Direct Testimony of Todd Thornton in support of Calpine's positions regarding Duke Energy Florida Inc.'s Petition for Determination of Cost Effective Generation Alternative to Meet Need Prior to 2018 for Duke Energy Florida, Inc.

Respectfully submitted this 15th day of July, 2014.

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CERTIFICATE OF SERVICE

I HEREBY CERTIFY that a true and correct copy of the foregoing was furnished to the following, by electronic delivery, on this 15th day of July, 2014.

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In re: Petition for Determination Of Cost Effective Generation Alternative To Meet Need Prior to 2018, by Duke Energy Florida, Inc.	**DOCKET NO. 140111-EI Submitted for filing: July 14, 2014**

REDACTED

DIRECT TESTIMONY OF TODD THORNTON

ON BEHALF OF

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IN RE: PETITION FOR DETERMINATION OF COST EFFECTIVE GENERATION ALTERNATIVE TO MEET NEED PRIOR TO 2018, BY DUKE ENERGY FLORIDA, INC.

FLORIDA PUBLIC SERVICE COMMISSION DOCKET NO. 140111-EI

DIRECT TESTIMONY OF TODD THORNTON

ON BEHALF OF

CALPINE CONSTRUCTION FINANCE COMPANY, L.P.

I. Introduction

Q: Please state your name, business address, and occupation.

A: My name is Todd Thornton. My business address is 717 Texas Avenue, Houston, Texas 77002. I am Senior Vice President, Origination and Development for Calpine Corporation ("Calpine").

Q: On whose behalf are you testifying?

A: I am testifying on behalf of Calpine Construction Finance Company, L.P., a subsidiary of Calpine Corporation, (collectively "Calpine") in support of its positions in Duke Energy Florida's ("Duke") Petition for Determination of Cost Effective Generation Alternative to Meet Need Prior to 2018 ("Petition"). Calpine owns and operates the Osprey Energy Center, which is located in Auburndale, Florida.

Q: Please describe your education and experience.

A: I earned a Bachelor of Science degree in Finance from Northern Illinois University and hold the Chartered Financial Analyst designation. I joined Calpine in October 2000 and have held positions of increasing responsibility within the organization, including being named Vice President of Finance in 2007 and Treasurer in 2009. I was named Vice President of Commercial Development in 2013 before recently being promoted to Senior Vice President, with the responsibility for Calpine's origination activities and the development of electric generation resources throughout the U.S. and Canada.

II. Purpose of Testimony

Q: What is the purpose of your testimony?

A: The purpose of my testimony is to describe Calpine and the Osprey Energy Center ("Osprey"), discuss Calpine's participation in Duke's various efforts to solicit supply-side resources to meet its needs prior to 2018, and to describe Calpine's recent offer to Duke, which includes a 5-year power purchase agreement ("PPA") for Osprey, with a purchase option. The Osprey offer is described in more detail in Section V of my testimony. In addition, I will briefly discuss the many advantages of Osprey compared to Duke's self-build options, including the following conclusions:

- Osprey has a *lower* levelized *cost* of electricity than Duke's Suwannee project, $85.30 compared to $168.70 and
- Osprey shows a *benefit* to Duke's customers of $133 million *more* than Duke's option (based on a cumulative present value revenue requirement).

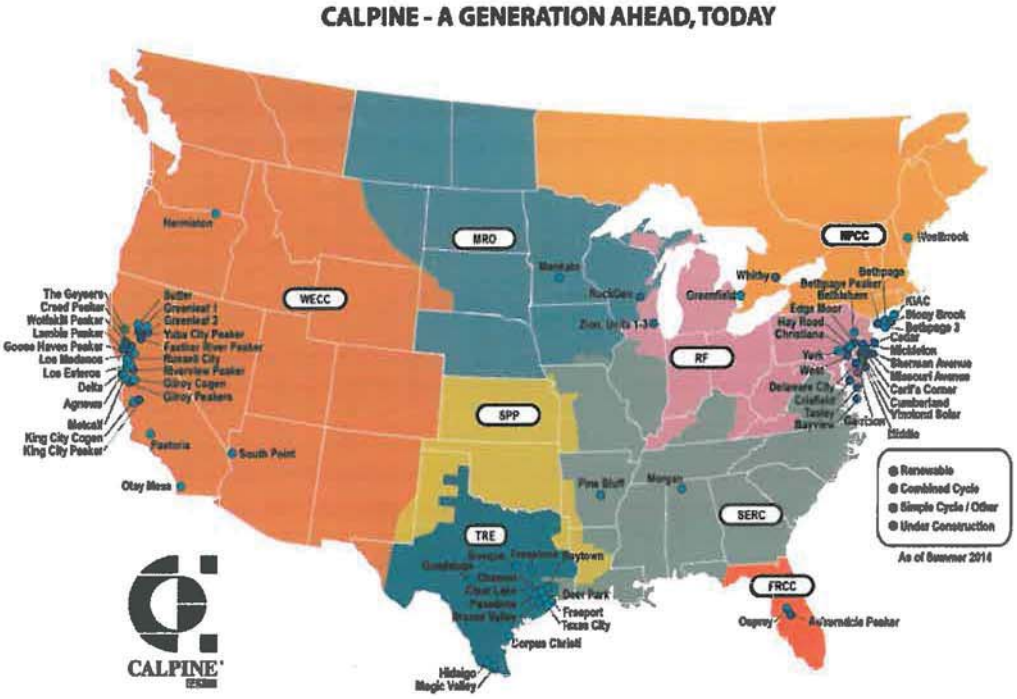
I also briefly address Duke's concerns about transmission and market power.

III. Calpine Corporation and Osprey Energy Center

Q: Please briefly describe Calpine Corporation.

A: Calpine is an independent power producer founded in 1984 that specializes in the development, construction, ownership, and operation of wholesale electric generating facilities. Calpine currently has 87 power plants in operation or under construction in 17 states and Canada, which are capable of delivering approximately 26,000 megawatts ("MW") of electric generating capacity. Calpine owns and operates the largest and most modern fleet of clean, reliable and fuel-efficient gas-fired and geothermal power plants in North America. Calpine has three new electric generation projects currently under construction and its existing fleet produced more than 100 billion kilowatt-hours of electric energy during 2013. Calpine is a leader in gas-fired power plant development and construction in the United States.

Calpine owns and operates two power plants in Florida, Osprey and the Auburndale Peaking Energy Center, which total approximately 700MW of electric generating capacity. Both projects are in Auburndale, Florida, within Tampa Electric Company's ("TECO") service area and are identified on the map of Calpine's existing North American generation fleet shown below:



Q: Please briefly describe the Osprey Energy Center.

A: Osprey is a nominal 599 MW, 2x1 natural gas fired combined-cycle facility located in Auburndale, Florida, that began commercial operation in 2004. The facility consists of two Siemens 501FD combustion turbine generators connected to two Nooter-Erikson heat recovery steam generators and one Siemens steam turbine generator. Osprey can provide 515 MW of electricity at summer reference conditions and 545 MW at winter reference conditions, plus an additional 55 MW using its duct firing capability. Osprey is a highly efficient combined cycle facility.

Osprey is interconnected to the Florida transmission grid at TECO's 230 kV electrical transmission system at the Recker substation. In addition, Calpine holds the rights to 249 MW of firm point-to-point transmission for Osprey to deliver power to Duke's system, which includes roll-over rights. Calpine also has firm gas transportation rights on the Gulfstream interstate pipeline system ("Gulfstream"), which are assignable by Calpine.

Osprey represents a very competitive, highly efficient and environmentally advantageous resource, with full dispatch flexibility to meet Duke's need for supply-side resources.

IV. Calpine's Participation in Duke's RFP to Meet its Needs Prior to 2018

Q: Did Calpine participate in Duke's effort to solicit supply-side resources to meet its needs prior to 2018?

A: Yes. Progress Energy Florida, now Duke Energy Florida, originally issued a Request for Proposals, dated September 14, 2012 ("Duke/Progress RFP") seeking 3-year proposals to meet its need for capacity in the 2016-2019 time frame. On October 15, 2012 Calpine timely submitted two alternative 3-year proposals for Osprey, a 5-year proposal with an early start date, and a 5-year proposal with a 1-year option to extend.

Q: What were the results of the Duke/Progress RFP?

A: Calpine was notified on November 14, 2012 that it had been selected for negotiations based on its proposed 3-year PPA for Osprey. Calpine and Duke exchanged multiple drafts of the PPA and made substantial progress toward resolving issues; however, in spite of Calpine's concerted good faith effort over many months, Calpine was unable to negotiate a final PPA with Duke.

Q: Duke states that it requested "renewed proposals for PPAs and solicited interest in potential generation facility acquisitions from the potential generation suppliers who responded to the Company's earlier RFP." Did Calpine respond to Duke's request?

A: Yes. In September 2013, Calpine submitted a revised PPA for Osprey as well as an offer to sell the plant to Duke. Calpine's revised PPA included a significant price reduction.

Q: Did Duke ever enter into a contract to purchase power from Osprey as a result of Duke's request for "renewed proposals"?

A: No. Similar to the end result in the Duke/Progress RFP, Calpine was informed by Duke in November 2013 that the Osprey PPA was still in the lead position, but was notified by Duke on April 29, 2014 that the company would meet its supply-side needs through two Duke self-build options: (1) Install two dual fuel F class combustion turbine ("CT") generators at the existing Suwannee facility, which would provide approximately 320 MW of capacity (the "Suwannee Peakers") and (2) install chiller systems at the existing Hines Units 1-4 ("Hines Chillers"), providing approximately 220 MW of additional summer capacity. After receiving Duke's April 29 notification, Calpine submitted an offer on April 30 to sell Duke the Osprey Facility outright for $300 million.

V. <u>Calpine's July 2014 Offer</u>

Q: Did Calpine submit an additional offer to Duke after being notified Duke was proceeding with the Suwannee Peakers and Hines Chillers instead of Osprey?

A: Yes. Calpine submitted an offer to Duke dated June 16, 2014, and, in response to issues identified by Duke, Calpine prepared and submitted an updated offer to Duke on July 3, 2014 ("the July Offer").

Q: Please describe Calpine's July Offer.

A: Calpine's July Offer includes a 5-year PPA for 515 MW of capacity and energy (summer and winter reference), with a guaranteed heat rate of [redacted] BTU/kWh, with a +/-2% dead band. Duke has the option to purchase the plant on January 1, 2020, subject to certain conditions described below. Duke would agree to a one-year delay in constructing the Suwannee Peakers to provide time to seek FERC approval of the acquisition. The PPA would start on January 1, 2015 and terminate on December 31, 2019. During the term of the PPA, the annual capacity payment for each of the years 2015-2019, respectively, is [redacted] /kW-month. The capacity payments in the July offer are significantly lower than Calpine's September 6, 2013 offer of $5.75/kW-month, escalating at 2.3%. Calpine included its 249 MW of firm, point-to-point transmission capacity on TECO's transmission system and Calpine's firm natural gas transportation rights on the Gulfstream pipeline system, but Duke would provide the physical fuel.

The July Offer includes an option for Duke to purchase the plant for [redacted] million, subject to certain adjustments, the terms of which would be negotiated by Calpine and Duke as part of a definitive agreement. The acquisition cost in the July Offer is significantly lower than in Calpine's April 30, 2014 offer to sell Duke the plant for $300 million.

Under the terms of the July Offer, Duke would buy Osprey subject only to FERC's review for market power and its approval of the transaction. To address Duke's concern about both whether FERC would approve the proposed transaction and the timing of its decision Calpine has offered the following terms that would protect Duke in the event that FERC were to deny Duke's Section 203 application for approval of the acquisition:

- Pay Duke a one-time breakage cost of [redacted] million, which is intended to cover the Suwannee Peakers cost increase and carrying cost for one year; and
- Include a provision, subject to terms to be negotiated, that the PPA would terminate after two years (through December 31, 2016), unless the parties agreed to a reasonable extension.

Q: Does the July Offer represent Calpine's preferred approach to contracting with Duke?

A: No, Calpine would strongly prefer to enter into a transaction with the same economic elements (pricing, term) as that described above, but with a much simpler structure:

- The parties would enter into a 5-year PPA with a provision for Duke to purchase the plant at the end of the term of the PPA.
- During the term of the PPA, Duke would file for approval of the acquisition at FERC.

Based on input from Calpine expert witness, David Hunger, we believe this is a well-established structure that FERC has approved in many cases in the past.

Q: Then why did Calpine propose a more complicated structure to Duke?

A: Calpine proposed the more complicated structure for two reasons: First, it is based on Duke's response to our original proposal during the recent negotiations between Calpine and Duke. Second, Calpine's expert transmission witness, John L. Simpson, P.E., believes that Duke will need at least 3 years to construct the transmission necessary to fully accept all of Osprey's capacity into Duke's system year-round on a long-term basis. Given that Duke is unlikely to want to spend money to begin the process of constructing the transmission until FERC approves the ultimate acquisition, it was also necessary to structure the deal to obtain FERC approval near the beginning of the term of the PPA.

VI. Osprey's Advantages

Q: Do you have a general view of Osprey's advantages compared to Duke's proposed self-build projects?

A: Yes, particularly when viewing Osprey in contrast to the Suwannee Peakers. At a high level this is a comparison of Calpine's offer of Osprey which is a higher capacity (by ~200 MW), more efficient (by 30%), and more versatile operating power plant versus Duke's lower capacity, less efficient, and limited duty Suwanee Peakers. Osprey has a proven track record of reliable operation and no construction risk. Paul Hibbard, of the Analysis Group, Inc., is providing direct testimony to support the conclusion that Osprey is not only a cost effective option, but also that Osprey provides additional qualitative benefits to Duke's customers.

Q: Please describe Osprey's economic advantages.

A: Calpine's July Offer for Osprey is a much more economic choice than Duke's self-build options, particularly compared to the Suwannee Peakers. Mr. Hibbard's direct testimony provides an extensive economic analysis of Osprey compared to the self-build options and he generally concludes, from a Duke ratepayer perspective, that Osprey is a better option than proceeding with the Suwannee Peakers. Mr. Hibbard specifically concludes, "[Osprey] has a levelized cost of electricity equal to $85.30 compared to $168.70 for the Suwannee CTs" and "[Osprey] represents a cumulative present value revenue requirement *benefit* of $133 million compared to DEF's self-build proposal."

Q: Please describe Osprey's operational flexibility.

A: Osprey has several operating advantages that will benefit Duke and its customers, particularly when compared to the Suwannee Peakers. First, at 515 MW, Osprey would provide Duke with more than one-and-one-half times the 320 MW of energy and capacity expected from the Suwannee Peakers. Even assuming Osprey was limited to delivering 249 MW to Duke based on its firm point to point contract path – a limitation that Calpine strongly disputes – Osprey would still provide, in the worst – and a highly unlikely – case, almost 80% of the Suwannee Peakers' rating. As described in Section VII and in the direct testimony of John Simpson, it is very likely there are short-term and long-term transmission solutions that will allow Osprey to provide its full output under the PPA on a consistent transmission basis throughout the full 5-year term of the PPA.

Second, Osprey has a wide range of operational capabilities that allow the unit to meet Duke's base-load, intermediate and peaking needs. And it is generally accepted that a combined cycle plant like Osprey would operate at a much higher capacity factor than a peaking facility like Suwannee, providing significant fuel cost savings for Duke's customers. Comparatively speaking, Osprey is operationally substitutable for the Suwannee Peakers, whereas Suwannee cannot provide the broad flexibility of Osprey to meet system needs.

Lastly, Duke is essentially replacing base-load generation due to the loss of CR-3 and the near-term shut-down of CR 1&2. It makes more sense to replace this loss with a lower heat-rate, base load and intermediate resource as opposed to peaking generation.

Q: Please describe Osprey's operational track record.

A: The Commission should recognize the advantages of Osprey as an operating facility as compared to a proposed new self-build project. Osprey has an outstanding track record of delivering wholesale power to utilities in Florida and meeting the plant's contractual obligations. Like the Suwannee Peakers, Osprey can provide peaking power, however, unlike Suwannee, it can also provide efficient base-load or intermediate power when run in combined-cycle mode. Since 2006, Osprey has delivered more than 14 million MWh of electricity to Florida customers. Duke, TECO and Seminole Electric Cooperative are some of the utility customers Osprey has served during the last eight years.

Osprey is a very reliable unit with a low equivalent forced outage rate of 1.43% in 2013. During January-March 2014, Osprey's forced outage rate was 0.13%. Osprey had a forced outage rate of only 0.27% in January 2014, the month Florida experienced the "Polar Vortex."

Q: Please describe Osprey's construction risk advantages.

A: As with all construction projects like the proposed Suwannee Peakers there is construction and permit risk, which cannot be dismissed simply as inconsequential. Given the relatively short time frame for the Suwannee Peakers to be constructed to meet Duke's need by summer 2016, a delay in commercial operations due to construction or permitting delays would be costly and would likely result in Duke not meeting its 20% planning reserve margin. Such a delay could result in additional costs to Duke's customers in the form of project cost overruns and for the purchase of replacement power. Duke can avoid the construction risks associated with its self-build options by contracting for Osprey, an operating facility with a great operational track record.

VII. Transmission and Market Power Issues

Q: Did Duke's evaluation of Calpine's Osprey proposals raise other concerns you would like to address?

A: Yes. Duke's Petition and the testimony of two of its witnesses, Ed Scott and Julie Solomon, expressed concerns about the impact of transmission on deliverability and costs and market power, respectively.

Q: What is Calpine's position on transmission for Osprey?

A: As stated in the terms of a PPA in the July Offer, Osprey will be contracted to deliver 515 MW to Duke's system. Duke has expressed a concern that the delivered output will be limited because Calpine only holds 249 MW of firm point-to-point transmission service on the TECO system. Based on the direct testimony of John Simpson, however, it appears likely that Duke and TECO can use operating procedures and redispatch measures to ensure that Duke is able to reliably access the 515 MW of contracted capacity through the 5-year term of the PPA, and avoid the cost of previously identified transmission upgrades. For the longer term, Duke's transmission witness, Ed Scott, and Mr. Simpson appear to agree that a direct connection line between Osprey and Duke will ensure delivery of Osprey's full output. The estimated cost of the direct connection is $150 million. Mr. Hibbard's analysis discusses the cost impact of the direct connection and still concludes Osprey is a superior choice to serve Duke's need for capacity and energy.

Q: Does the July Offer take into consideration Duke's concerns about market power or otherwise protect Duke's interests?

A: Yes. Duke expressed concern that the near term acquisition or option to acquire Osprey might trigger an adverse finding of market power by FERC, which might result in FERC's denial of the acquisition, or an approval conditioned on Duke incurring excessive mitigation costs. Calpine, however, addresses this concern through the testimony of its witness, David Hunger, who worked on hundreds of market power evaluations in his 14-year career at FERC. Moreover, Calpine has

proposed to mitigate the potential for Duke to incur either financial or operational risk (i.e., a delay in building the Suwannee Peakers) even if FERC were to make an adverse finding of market power due to the acquisition of Osprey.

Q: Please summarize the main conclusions of your testimony.

A: Calpine has offered to sell Duke the output of Osprey, an existing and very efficient combined cycle power plant, with a proven track record of reliable operation over the past 10 years, during which Osprey has reliably served Florida utilities, including Duke, Tampa Electric, and Seminole Electric Cooperative, and their customers.

Calpine's offer includes a 5-year PPA with extremely low capacity charges and the opportunity to buy the Osprey Facility for [redacted] million, or about [redacted] per kilowatt of capacity. Even when adding in the $150 million cost to provide a direct interconnection of Osprey to Duke's transmission system, the July Offer is a compelling reason to deny Duke's petition to proceed with its self-build projects.

Furthermore, through the PPA/acquisition approach, including the terms offered by Calpine, concerns about Duke's market power should be resolved while Duke and its customers are protected against the unlikely event that FERC might deny the acquisition.

Most importantly, Osprey provides a greater benefit to Duke's customers than Duke's options; in fact, based on Mr. Hibbard's testimony, Osprey has a much *lower* levelized *cost* of electricity ($85.30 compared to $168.70 for Suwannee) and Osprey shows *benefits* of $133 million *more* than Duke's proposal.

Ultimately, Osprey and Calpine's July Offer will provide superior value to Duke and its customers.

Q: Does this conclude your testimony?

A: Yes, it does.