

BEFORE THE FLORIDA PUBLIC SERVICE COMMISSION

In re: Petition for Determination)
of Cost Effective Generation) DOCKET NO. 140111-EI
Alternative to Meet Need Prior to)
2018, by Duke Energy Florida, Inc.) 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 David
Hunger, Ph.D. with Exhibit DH-1 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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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 14, 2014**

DIRECT TESTIMONY

OF

DAVID HUNGER, Ph.D.

ON BEHALF OF

CALPINE CONSTRUCTION FINANCE COMPANY, L.P.

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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 DAVID HUNGER, Ph.D.

ON BEHALF OF

CALPINE CONSTRUCTION FINANCE COMPANY, L.P.

1 **Q: Please state your name and business address.**

2 A: My name is David Hunger. I am a Vice President with the Energy Practice of
3 Charles River Associates (“CRA”). My business address is 1201 F Street, NW,
4 Suite 700, Washington, DC 20004-1229. I have extensive experience in energy
5 market analysis, principally from my work as an Economist, Supervisory Energy
6 Industry Analyst, Senior Economist, and Deputy Division Director in the Office of
7 Energy Market Regulation at the Federal Energy Regulatory Commission (“FERC”)
8 from 1999 until 2013.

9

10 **Q: On whose behalf are you testifying in this docket?**

11 A: I am testifying on behalf of Calpine Construction Finance Company, L.P.
12 (“Calpine”), to provide my professional opinions regarding FERC’s likely regulatory
13 treatment of the acquisition of the Osprey Energy Center by Duke Energy Florida,
14 Inc. (“Duke”) through certain transactions proposed or offered by Calpine to Duke.

15

16 **Q: Please summarize your educational background and work experience.**

1 A: I have a Bachelor's degree in Mathematics from the University of Massachusetts,
2 Boston and an M.S. and Ph.D. in Economics from the University of Oregon.

3 In my fourteen years at FERC, I worked on, supervised, and led hundreds of analyses
4 involving many aspects of competitive market analysis, including: mergers and other
5 corporate transactions; market power in market-based rates cases; investigations of
6 market manipulation in electricity and natural gas markets; demand response
7 compensation; compliance cases for Regional Transmission Organizations
8 ("RTOs"); and competition issues in FERC-jurisdictional energy and capacity
9 markets.

10 For more than a decade, I served as the lead economist on the majority of FERC's
11 merger and acquisition cases under Section 203 of the Federal Power Act ("FPA
12 Section 203"). In that role, I advised the FERC Commissioners on the potential
13 competitive or anti-competitive effects of proposed mergers and proposed purchases
14 and sales of electric generating plants. Some of these cases involved complex
15 modelling to estimate the effect on competition, while others were, based on the
16 specific facts of the case, relatively simple to review and did not require a full
17 economic analysis.

18 While employed at FERC, I received more than twenty Awards for Quality
19 Service in the Public Interest. Since leaving FERC and joining CRA in June 2013, I
20 have worked on numerous cases before FERC involving competitive issues in
21 energy, capacity, and ancillary services markets. I also advise clients on the
22 regulatory hurdles necessary to complete a proposed merger, acquisition, or asset
23 sale – primarily issues related to FERC's regulations under FPA Section 203.

1 Since 2001, I have also been an affiliated professor at the Georgetown Public
2 Policy Institute (“GPPI”), where I teach microeconomic theory, energy policy, and
3 public finance. Additionally, in 1998-1999, I served as an Assistant Professor of
4 Economics at Oglethorpe University, where I taught Managerial Economics and
5 International Economics in the M.B.A. program, and Microeconomics,
6 Macroeconomics, International Economics, and Industrial Organization at the
7 undergraduate level. My research interests include energy market design, market
8 power in energy markets, and energy policy. I am a frequent speaker on energy
9 market issues and have published articles on energy economics and policy.

10

11 **Q: Are you sponsoring any exhibits to your testimony?**

12 A: Yes. A summary of my background and relevant experience is provided as Exhibit
13 DH-1.

14

15 **Q: Have you previously testified before utility regulatory authorities?**

16 A: Yes. As set forth in my Exhibit DH-1, I have submitted affidavits in a number of
17 FERC proceedings, where such affidavits are the equivalent of pre-filed written
18 testimony.

19

PURPOSE AND SUMMARY OF TESTIMONY

20 **Q: What is the purpose of your testimony in this proceeding?**

21 A: I have been asked by Calpine to analyze and provide my professional opinions
22 regarding the regulatory process that FERC would conduct, and the regulatory
23 treatment that FERC would apply to or impose on a set of transactions by which

1 Calpine has proposed to sell the generating capacity of the Osprey Energy Center
2 (“Osprey” or “Facility”) to Duke. Specifically, those transactions include the sale of
3 the Osprey Facility’s output to Duke for 5 years pursuant to a proposed Power
4 Purchase Agreement (the “proposed PPA”), and the subsequent outright acquisition
5 by Duke of the Osprey Facility itself.

6

7 **Q: Please summarize the main conclusions of your testimony.**

8 A: It is my professional opinion that the transactions – i.e., the 5-year PPA and
9 subsequent acquisition of Osprey by Duke as proposed by Calpine – would not face a
10 significant risk of being disallowed or heavily mitigated by FERC. I discuss the basis
11 for my opinion in detail below.

12

13 **Q: Please summarize the basis for your understanding of the transactions proposed**
14 **or offered to Duke by Calpine.**

15 A: I have reviewed various offers made to Duke by Calpine, as well as various
16 documents describing the Osprey Energy Center. I also reviewed the offer that
17 Calpine proposed to Duke on June 16, 2014, as revised by Calpine on July 3, 2014.
18 From my review, I understand that the Osprey Facility is a 599 MW (nominal) natural
19 gas-fired, combined-cycle generating facility located in Auburndale, Florida.

20

21 **Q: What is your understanding of Duke’s position with respect to the potential**
22 **acquisition of the Osprey Facility?**

1 A: I have reviewed the testimony of Duke’s witnesses Benjamin Borsch and Julie
2 Solomon. From their testimony, it appears that Duke ruled out the acquisition of the
3 Osprey Facility based on its belief that it had to acquire the Osprey Facility through
4 an outright, immediate purchase, without considering the sequential combination of
5 the PPA-acquisition transaction proposed by Calpine. At pages 43-44 of his
6 testimony, Mr. Borsch testified that the “potential generation facility acquisitions that
7 were evaluated failed the FERC Competitive Analysis Screen” and that “The
8 Company decided, based on these results, that the potential generation facility
9 acquisitions were not cost effective for the Company’s customers and should not be
10 considered further by the Company.” Osprey was one of those acquisitions.

11 Moreover, although Mr. Borsch refers in his testimony at page 48 to “the
12 remaining PPA-acquisition hybrid that DEF believed would pass the market screen,”
13 there is no indication that Ms. Solomon evaluated or opined on whether that hybrid
14 option would pass the FERC market power screen. A principal purpose of my
15 testimony is to offer my opinion about how FERC has decided cases involving the
16 type of hybrid option proposed by Calpine.

17

18 **Q: What is the basis for FERC’s jurisdiction over acquisitions of generating plants**
19 **by utilities subject to its regulatory authority?**

20 A: Section 203 of the FPA requires FERC prior approval for most mergers or
21 acquisitions of generating facilities by utilities subject to its jurisdiction. The
22 Commission’s standard of review for horizontal mergers and generation acquisitions
23 is stated in the Commission’s Merger Policy Statement and Order No. 642. It is

1 based on the Federal Trade Commission (“FTC”) / U.S. Department of Justice
2 (“DOJ”) Horizontal Merger Guidelines, but tailored to the physical realities of
3 wholesale electricity markets and has evolved over time through cases and updated
4 rulemakings and policy statements. *See, e.g., FERC Supplemental Merger Policy*
5 *Statement* (2007).

6

7 **Q: Please summarize the applicable FERC guidelines by which FERC evaluates**
8 **mergers and generation acquisitions.**

9 A: FERC adopted the DOJ/FTC 1992 *Horizontal Merger Guidelines* (the “*Guidelines*”) for measuring market concentration levels by the Herfindahl–Hirschman Index (“HHI”) as its principal screen for merger and asset acquisition-related market power. To determine whether a proposed merger or acquisition requires further investigation because of a potential for a significant anti-competitive impact, the DOJ or the FTC considers the level of the HHI after the merger or acquisition (the post-merger HHI) and the change in the HHI that results from the combination of the market shares of the merging entities. Markets with a post-merger HHI of less than 1,000 are considered to be “unconcentrated.” The DOJ and FTC generally consider mergers and acquisitions in unconcentrated markets to have no anti-competitive impact. Markets with post-merger HHIs of 1,000 to 1,800 are considered “moderately concentrated.” In those markets, mergers or acquisitions that result in an HHI change of 100 points or fewer are considered unlikely to have anti-competitive effects. Finally, post-merger HHIs of more than 1,800 are considered to indicate “highly concentrated” markets. The *Guidelines* suggest that in these markets, mergers or acquisitions that increase the

1 HHI by 50 points or fewer are unlikely to have a significant anti-competitive impact,
2 while mergers or acquisitions that increase the HHI by more than 100 points are
3 considered likely to reduce market competitiveness. See U.S. Department of Justice
4 and Federal Trade Commission, *Horizontal Merger Guidelines*, 57 Fed. Reg. 41,552
5 1992 revised, 4 Trade Reg. Rep. (CCH) ¶ 13,104 (April 8, 1997). The DOJ and FTC
6 have revised the *Guidelines*; one change increases the threshold HHI levels separating
7 the unconcentrated markets from moderately concentrated markets and highly
8 concentrated from moderately concentrated markets. The permissible increase in
9 HHIs arising from the merger or acquisition was also increased. FERC, however,
10 made an affirmative decision to retain its use of the 1992 *Guidelines* in 2012.

11 On November 15, 2000, the Commission issued its Order No. 642, *Revised Filing*
12 *Requirements under Part 33 of the Commission's Regulations*. That order reaffirmed
13 the screening approach adopted in the Merger Policy Statement, and codified the need
14 to file a screen analysis and the bases for exceptions from the requirement.

15 The Delivered Price Test (“DPT”) applies the analysis of the *Guidelines* to the
16 particular institutional and physical characteristics of electricity markets. The DPT
17 essentially determines which suppliers can sell into the relevant geographic market in
18 a representative sample of all annual season/load conditions. This determination is
19 based on an assumed market price for each season/load level (as derived from FERC
20 Electric Quarterly Reports (“EQR”) data); the variable costs of generators; long-term
21 contractual arrangements; and transmission costs and availability (as determined by
22 the simultaneous import limits). Economic Capacity (“EC”) is the measure of how

1 much generation can compete in a given market for each company. Available
2 Economic Capacity (“AEC”) deducts sellers’ native load commitments from the EC.

3 The Commission looks at both EC and AEC, but has determined that EC is the
4 more accurate measure in restructured areas where sellers no longer retain a native
5 load commitment (such as New Jersey or Pennsylvania); and that AEC is the more
6 accurate measure in states that have not restructured and do not have any reasonably
7 foreseeable restructuring plans (such as Florida or Oklahoma).

8

9 **Q: Are FERC’s regulatory procedures, processes, and market power tests, well-**
10 **known throughout the electric industry in the United States?**

11 A: Yes.

12

13 **Q: Under normal circumstances, how long should it take a utility, such as Duke in**
14 **this instance, to obtain FERC’s approval of a transaction such as that proposed**
15 **by Calpine to Duke here?**

16 A: If the case does not require a DPT analysis, then FERC will issue a 21-day notice and
17 comment period. Absent protests, FERC could issue a delegated order within 45- 60
18 days of the filing.

19

20 **Q: Please explain FERC’s review process of the proposed PPA and its various**
21 **provisions.**

22 A: Under Calpine’s proposed PPA-acquisition offer, as revised on July 3, Duke and
23 Calpine would enter into the PPA, effective January 1, 2015. Calpine is authorized

1 by FERC to sell power pursuant to its Market-Based Rate (“MBR”) Tariff. The PPA
2 would not be filed with FERC but would be reported to FERC by Calpine in its
3 EQRs. Once a Seller has shown that it lacks market power or has adequately
4 mitigated any market power in the relevant geographic market, it is free to sell power
5 at a market determined price, subject to the reporting requirements of every MBR
6 seller. *See Market-Based Rates For Wholesale Sales Of Electric Energy, Capacity
7 And Ancillary Services By Public Utilities*, FERC Order No. 697 at 3. Therefore,
8 Calpine as the seller and Duke as the buyer will be assumed by FERC to have entered
9 into the PPA under competitive conditions, thus leading to a “just and reasonable”
10 rate (the term of art describing the standard for FERC approval of wholesale electric
11 rates) that FERC need not review any further.

12
13 **Q: What, if any, impact would the filing of the PPA with FERC have on Duke’s**
14 **MBR authorization?**

15 A: Duke is in a position similar to other large, vertically-integrated utilities operating
16 outside of FERC RTOs, in that it does not have MBR authority in its own Balancing
17 Authority Area (“BAA”) (or in fact, anywhere in Peninsular Florida), but does have
18 MBR outside of its home territory. As an MBR seller, it is required to inform FERC
19 through a Change-in-Status notification of any material changes from the facts that
20 FERC relied upon in granting its MBR authorization. *See Order No. 652, FERC*
21 *Stats. & Regs. Regulations Preambles 2001-2005* ¶ 31,175 at 83. This means that
22 Duke will have to file a Change-in-Status notification once the Osprey PPA takes
23 effect. This filing will not create any difficulties or regulatory consequences for Duke

1 because Duke does not have MBR authorization in Peninsular Florida, where the
2 Osprey Facility is located, and has only limited ability to sell into first-tier markets
3 outside of Florida. In Duke's most recent MBR triennial update, accepted for filing
4 by FERC on March 23, 2012, Duke had only a 4.5% - 6.2% market share in the
5 Southern Companies' BAA, the only first-tier market to Peninsular Florida. *See,*
6 *Carolina Power & Light Co.*, Docket No. ER 10-1760-002 and *Florida Power Corp.*,
7 Docket No. ER10-1758-002 at Exhibit PGN-3). Adding a small amount of
8 generating capacity relative to the size of the Southern Companies' market will have
9 a trivial impact on Duke's already small market share in that market.

10 The Change-in-Status notification filing with FERC will put FERC on notice that
11 the Osprey Facility is considered part of Duke's generation resource mix, in light of
12 the PPA giving Duke operational control of the plant. This fact will be a relevant
13 factor in the FPA Section 203 application as well, because the PPA will be treated as
14 putting the Osprey Facility's generating capacity under Duke's control. In fact, the
15 PPA will be listed as part of Duke's generation portfolio in its FERC-required "Asset
16 Appendix."

17

18 **Q: What FERC approvals or determinations will be required for the transactions**
19 **contemplated by Calpine's offers to Duke? When would any such approvals or**
20 **determinations be required?**

21 A: As noted above, the PPA will not require FERC approval because the power sales are
22 being made by Calpine pursuant to Calpine's MBR Tariff. Duke will be required to
23 file a Notice of Change in Status with FERC.

1 Prior to Duke's acquisition of the Osprey Facility, Duke and Calpine will need
2 authorization under FPA Section 203 for the acquisition and disposition of a
3 generating facility, respectively.

4
5 **Q: How will FERC evaluate the acquisition of Osprey by Duke in this instance?**

6 **A:** When Duke files for approval of the acquisition, sometime during the term of the
7 PPA, FERC will first determine whether it must or should conduct a Competitive
8 Analysis Screen (or "Delivered Price Test" or, as commonly referred to, a "Market
9 Power Screen"). In making its determination as to whether it will conduct a Market
10 Power Screen, FERC looks at operational control of long-term capacity and energy
11 when determining to whom the generation capacity should be attributed when
12 calculating EC and AEC, which in turn are used to calculate market shares and
13 market concentration.

14 In Order No. 642, FERC explains that:

15 the starting point for calculating economic capacity is the supplier's own
16 generation capacity with low enough variable costs that energy can be delivered
17 to a market (after paying all necessary transmission and ancillary service costs,
18 including losses) at a price that is five percent or less above the pre-merger market
19 price. Capacity must be decreased to reflect any portion committed to long-term
20 firm sales; and it must be increased to reflect any portion acquired by long-term
21 firm purchases. In addition, any capacity under the operational control of a party
22 other than the owner must be attributed to the party for whose economic benefit
23 the related unit is operated.

1 *Order No. 642*. ¶ 31,887 at n. 39.

2 Thus, the key question is whether the capacity to be acquired is already controlled by
3 the acquiring utility. FERC has articulated its policy on this point as follows:

4 The determination on whether a long-term generation contract should be
5 attributed to the purchaser of power or the seller depends on the party with
6 operational control, which depends upon the specific contract. Therefore,
7 we have required that applicants file information about whether their long-
8 term generation contracts confer operational control over generation
9 resources to the purchaser. Our practice has been to attribute contracted
10 capacity to the purchaser if such a contract confers operational control
11 over the generation to the purchaser.

12 *FPA Section 203 Supplemental Policy Statement* 120 FERC ¶ 61,060, 18 C.F.R. Part
13 33 (Docket No. PL07-1-000) (Issued July 20, 2007) at 79; *see also, Merger Filing*
14 *Requirements Rule*, FERC Stats. & Regs. ¶ 31,111 at 31,888.

15 The assignment of generation described above is related to FERC’s stated concern
16 about the markets becoming more concentrated – that certain sellers may have the
17 ability and incentive to withhold output (through physical or economic withholding)
18 in order to drive up market prices. A seller that has operational control of a unit can
19 determine whether or not the unit runs and if so at what price it is willing to sell.
20 Under the proposed transaction, Duke will have operational control over the unit
21 through the PPA.

22

1 Q: **What does this indicate with respect to FERC’s likely actions on Duke’s Section**
2 **203 application for approval of the acquisition of Osprey?**

3 A: These precedents indicate that, in all likelihood, FERC will look to the Osprey PPA
4 and conclude that, because Duke controls Osprey under the PPA, the acquisition will
5 not change the competitive conditions in the relevant markets. In turn, this means
6 that, in all likelihood, FERC would approve the acquisition without conducting a
7 Market Power Screen.

8

9 Q: **Can you provide any examples where FERC has addressed market power issues**
10 **in transactions involving acquisitions of generating facilities that were already**
11 **controlled by the acquiring utility pursuant to power purchase agreements?**

12 A: Yes. There are many examples where FERC has approved – often expeditiously –
13 acquisitions of generating assets where the eventual buyer of generation assets
14 already had control over the assets through a long-term contract. In these instances,
15 FERC found there would be no change in market concentration as a result of the
16 acquisition, because the generation assets were already fully committed to and
17 controlled by the buyer pursuant to a power purchase agreement. Accordingly, in
18 these cases, FERC did not require a market power screen analysis and did not require
19 any market power mitigation by the acquiring utility.

20 For example, in 2011, Golden Spread Electric Cooperative asserted that its
21 acquisition of Denver City’s gas-fired generation assets was consistent with the
22 public interest and would not have an adverse effect on competition. FERC accepted
23 the proposal because Golden Spread sought to acquire ownership of generation

1 capacity that it had already controlled, as it received its entire share of the facility's
2 output under a long-term contract. *Denver City Energy Associates*, 135 FERC ¶
3 62,145 (2011). The same logic was employed in FERC's approval of Tri-State
4 Generation and Transmission Association, Inc.'s acquisition of an interest in a 272
5 MW generating facility. There, Applicants asserted that no horizontal market power
6 issues existed because, "the entire 272 MW capacity of the Facility is committed
7 under long-term contracts with Tri-State" and that the proposed transaction "cannot
8 have any market power effect since Tri-State already has control over capacity
9 through its tolling agreement." *Thermo Cogeneration Partnership, L.P.*, EC12-4-000
10 at 6. FERC approved that transaction. *See Thermo Cogeneration Partnership, L.P.*
11 137 FERC ¶ 62.133 (2011). This same analysis was applied, with the same results, in
12 Wisconsin Electric's acquisition of Badger Windpower LLC's generation assets.
13 Wisconsin Electric asserted the transaction created no impact on competition because
14 Wisconsin Electric already controlled a portion of the facility via a long-term
15 contract, and was obligated to serve another non-affiliated party pursuant to a power
16 purchase agreement. *Wisconsin Electric Power Co.*, 141 FERC ¶ 62,099 (2012).

17

18 **Q: Your response assumes that the PPA will be in place for some number of years**
19 **prior to filing the FERC Section 203 application. Calpine's revised July 3 offer**
20 **includes a proposal to file the FERC Section 203 application as soon as the PPA**
21 **is executed. Is there any FERC precedent approving a PPA-acquisition**
22 **structure where the FERC Section 203 application was filed at the**
23 **commencement of the PPA?**

1 A: Yes. There is at least one case that I am aware of where FERC approved this type of
2 PPA-acquisition structure. That case involved the potential sale of Calpine's Otay
3 Mesa Generating Facility to San Diego Gas & Electric Company ("SDG&E"). In that
4 case, Otay Mesa and SDG&E filed a FERC Section 203 application in November,
5 2006, seeking FERC authorization to transfer the facility from Otay Mesa to SDG&E
6 more than 10 years in the future (the facility was scheduled to go in service May 1,
7 2009). Under the terms of the transaction, SDG&E would purchase all of the Otay
8 Mesa Facility's output for a 10-year period, at the end of which time period SDG&E
9 would have the option of purchasing the Otay Mesa Facility. In the FERC Section
10 203 application, SDG&E and Otay Mesa asserted that there would be no change in
11 concentration in the relevant geographic market because the Otay Mesa Facility
12 would be fully committed to, and controlled by, SDG&E pursuant to the power
13 purchase agreement. In other words, the applicants asserted, the transaction would
14 change the amount of generation *owned* by SDG&E and its affiliates but would not
15 change the amount of generation *controlled* by SDG&E. *Joint Application for*
16 *Authorization Under Section 203 of the Federal Power Act of San Diego Gas &*
17 *Electric Company and Otay Mesa Energy Center, LLC. (Otay Mesa Application) at*
18 *14 (Nov. 15, 2006). FERC approved the transaction in just over 60 days without*
19 *condition. See Order Authorizing Disposition and Acquisition of Jurisdictional*
20 *Facilities and Acquisition of Generation Facilities. 118 FERC ¶ 62,055 (2007).*
21

1 **Q: How are these cases relevant to the transactions here, i.e., where Calpine has**
2 **offered Duke a 5-year PPA for the output of Osprey, with Duke purchasing the**
3 **Osprey Facility at the end of the PPA?**

4 A: The common thread throughout these cases is that FERC found that it was not
5 required to perform a Competitive Analysis Screen using the DPT because the
6 transaction would not affect the competitive landscape of the relevant market
7 because the acquirer already controlled the capacity involved in the transaction. In
8 other words the “before” and “after” scenarios were identical as far as FERC was
9 concerned. The capacity involved in the transaction would be attributed to the
10 acquirer in the “before” scenario by virtue of the long-term power purchase
11 agreement and it would be attributed to the acquirer in the “after” scenario by virtue
12 of the acquisition. Thus, in FERC’s view, there would be no impacts on market
13 concentration and thus no requirement for a market power screen analysis or
14 mitigation.

15

16 **Q: Please explain how the specifics of Calpine’s proposed PPA fit in with the FERC**
17 **review.**

18 A: The proposed PPA fits squarely within FERC’s stated rules and case precedent for
19 assigning the generation associated with the PPA to the buyer rather than the seller.
20 First, Calpine’s proposed PPA structure clearly specifies that Duke, not Calpine will
21 have operational control of the Osprey Facility. The proposed PPA structure gives
22 Duke the exclusive right to dispatch the Osprey facility, within permit and technical

1 limitations. In addition, Osprey has Automatic Generator Control (“AGC”) capability
2 that will allow Duke to dynamically control the output level.

3 As described above, FERC has stated in numerous cases that the critical element
4 in assigning the capacity related to a generating facility is which entity will retain
5 operational control of the unit. The language of the proposed PPA will effectively
6 “turn over the keys” of the Osprey Facility to the purchaser, Duke. Not only will
7 Duke have dispatch authority over the unit, but it will also be able to use the Osprey
8 Facility to balance load and generation in its own control area by means of the AGC
9 controls on the unit.

10 It is noteworthy that the terms of the proposed PPA are completely unit-specific.
11 In cases where the sale is a “slice-of-the-system” or only specified at the delivery
12 point or liquidated damages, it is not clear where the capacity is coming from and
13 FERC has been less willing to assign that capacity to the buyer, because its
14 framework for competitive analysis is generator-specific. Here, the capacity and
15 energy will unambiguously be provided from the Osprey Facility, with Duke
16 providing the fuel, which will in turn be converted into electric energy pursuant to the
17 proposed PPA.

18

19 **Q: Is the term of a PPA or power purchase contract relevant to the analysis? If so,**
20 **how?**

21 **A:** Yes. The term of the contract is also relevant in terms of FERC’s review of whether
22 the acquiring utility has “functional control,” and is thus further determinative of
23 whether FERC will conduct a Market Power Screen or Competitive Analysis Screen

1 of the competitive impacts of the proposed acquisition. When assigning control of a
2 generating unit, the term of a PPA or tolling agreement must be at least one-year to
3 be considered long-term. Obviously, the 5-year PPA proposed by Calpine in this
4 case satisfies that requirement.

5 **Q: How does the transmission service from the Osprey Facility factor into FERC's**
6 **FPA Section 203 review of the transaction's effect on competition?**

7 A: The proposed PPA specifies that Calpine would deliver 515 MW of capacity at the
8 Facility bus-bar with 249 MW of firm point-to-point transmission from the Facility
9 across Tampa Electric Company's transmission system, delivered into Duke, with
10 rollover rights. While the existence of point-to-point transmission service to the
11 Duke system may be important for resource planning, it is not relevant in terms of
12 FERC's market power review. Whether the PPA came with zero, 249 MW, or 515
13 MW of transmission service, the determinative factor in a market power study is
14 what entity has operational control of the generating asset. In this case Duke would
15 be that entity under the proposed PPA.

16

17 **Q: In this instance, how might transmission considerations factor into FERC's**
18 **evaluation of Duke's Section 203 application for approval of the proposed**
19 **Osprey acquisition?**

20 A: I understand from the testimony of John L. Simpson, P.E. that the optimum
21 transmission solution to integrate Osprey into Duke's generating fleet is the
22 construction of two new 230-kilovolt transmission lines that would connect Osprey
23 directly into two different substations on Duke's system. According to Mr.

1 Simpson's testimony, these new transmission lines would provide enhanced system
2 reliability and deliverability of Osprey's output to Duke and its customers, as well as
3 resolving other reliability issues on Duke's and other utilities' transmission systems.
4 Mr. Simpson notes that the earlier these transmission lines are constructed, the better
5 for Duke and for the Florida transmission system generally. Specifically, Mr.
6 Simpson notes that these new transmission lines could be constructed as early as the
7 summer of 2017, thereby solving or preventing certain adverse transmission
8 conditions that would otherwise exist on the grid without the new lines.

9
10 **Q: How might FERC view these transmission benefits in its consideration of the**
11 **anticipated Section 203 application for the Osprey acquisition?**

12 A: FERC strongly favors reliability and enhancements to the power delivery capability
13 of transmission systems. Accordingly, I believe that FERC would look favorably on
14 the benefits that would flow from the construction of the new lines, regardless of
15 when they were constructed, and would look favorably on earlier construction, as
16 opposed to later construction, because of the benefits provided by these
17 enhancements.

18
19 **Q: Have you reviewed the testimony of Julie Solomon filed on behalf of Duke in**
20 **this proceeding? If so, do you have an opinion as to its relevance to the**
21 **transaction offered by Calpine to Duke?**

22 A: Yes. I have reviewed the testimony of Julie Solomon on Duke's behalf. I am very
23 familiar with Ms. Solomon's work, having reviewed many analyses she performed

1 during my tenure at FERC. I generally agree with her conclusions that, *if* the
2 Competitive Analysis Screen were required, there would be screen failures. *See*
3 Direct Testimony of Julie Solomon on Behalf of Duke Energy Florida, Inc., May 27,
4 2014 (“Solomon Testimony”). In particular, Ms. Solomon’s analysis of “Acquisition
5 2”, a hypothetical 600 MW combined-cycle plant located outside of the Duke service
6 territory is particularly relevant to this transaction. Solomon Testimony at 7. In that
7 analysis, Ms. Solomon found screen failures in the Winter Peak and Super Peak
8 periods out of the ten season/load level using FERC’s standard methodology with
9 prices from its EQRs. Solomon Testimony, Exhibit No. JS-10 at 1. Ms. Solomon
10 also performed price sensitivity tests, which increased the number of screen failures
11 to six assuming a 10 percent higher price and decreased the number of screen
12 failures to one assuming a 10 percent lower price. Solomon Testimony, Exhibit No.
13 JS-12 at 1.

14 However, Ms. Solomon’s Competitive Analysis Screens analyze only one
15 scenario proposed by Calpine, i.e., the Screens look solely at the immediate
16 acquisition of Osprey with no PPA in place, rather than at the PPA-acquisition
17 hybrid offered by Calpine. Therefore, Ms. Solomon’s testimony does not address
18 FERC’s case law on the PPA-acquisition structure.

19
20 **Q: Please summarize the major conclusions of your testimony.**

21 **A:** Based on my experience working on hundreds of cases before FERC over more than
22 a decade, and consistent with well-established FERC precedent, I conclude that once
23 the PPA has been in place for a period of time and Duke’s control over the facilities

1 has been established, the Osprey PPA-acquisition transaction will not raise
2 competitive concerns at FERC. The FERC analysis turns on whether there is a
3 change in operational control of the generation being transferred. When there is no
4 change in control, for example when the buyer already controls the output of the
5 generator under the terms of a long-term contract, there is no change in market
6 supply conditions that could potentially harm competition, and accordingly, no anti-
7 competitive effect of the purchase and no FERC objection to the transaction.

8 If Duke and Calpine were to pursue a PPA-acquisition structure where Section
9 203 authorization is sought a year or more after the PPA takes effect, the capacity
10 associated with the Osprey Facility will have been assigned to Duke for market
11 power analysis purposes. Thereafter, when the FERC Section 203 application is
12 filed, FERC will almost certainly conclude that the acquisition will do nothing to
13 change that assignment and thus will not affect competition in any relevant
14 geographic market under FERC's jurisdiction. Consequently, FERC should not
15 require a market power analysis.

16 Alternatively, if Duke and Calpine were to pursue a structure where the FERC
17 Section 203 application would be filed as soon as the PPA is executed, there is
18 FERC precedent approving this type of structure as well.

19

20 **Q: Does this conclude your testimony?**

21 **A:** Yes, it does.

22

David Hunger
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University of Oregon

MS, Economics
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BA, Mathematics
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David Hunger is Vice President with the Energy Practice of CRA. Formerly a senior economist at the Federal Energy Regulatory Commission (FERC), Dr. Hunger is an expert in energy market merger analysis and market rate matters, as well as energy and capacity market rules in the FERC-regulated Regional Transmission Organizations. For fourteen years at FERC, he led analyses involving mergers and other corporate transactions, market power in market-based rates cases, affiliate transactions, investigations of market manipulation in electricity and natural gas markets, demand response compensation, compliance cases for capacity and energy market rules in Regional Transmission Organizations, and competition issues in electricity markets.

Since 2001, Dr. Hunger has been an affiliated professor at the Georgetown Public Policy Institute where he teaches microeconomic theory, energy policy, and advises on energy-related thesis projects. His research interests include energy and capacity market design, market power in energy markets, and energy policy. He frequently speaks on energy market issues and publishes articles on energy economics and policy; and has an extensive network of relationships inside and outside the government and academia.

Experience

- 2013 *Vice President*, Charles River Associates
- 1999–2013 *Federal Energy Regulatory Commission*
- Senior Economist*, Office of Energy Policy and Innovation (OEPI)
(2010–2013)
- Deputy Director*, Division of Electric Power Regulation – West (2008–2010)
- Supervisory Energy Industry Analyst* (2006–2008)
- Senior Economist* (2003–2006)
- Economist* (1999–2003)
- During his time at FERC, Dr. Hunger led analyses involving: the effect on competition in mergers and other corporate transactions; market power in market-based rates cases; rules regarding affiliate transactions; market manipulation in electricity and natural gas markets, demand response compensation, compliance cases for Regional Transmission Organizations (OEPI lead for energy market compliance cases in California ISO, Midwest ISO, ISO-New England, New York ISO, SPP and PJM; worked on capacity

market compliance cases for ISO-NE and PJM); and competition issues in electricity markets. Dr. Hunger was the technical lead on FERC Order No. 707 (Affiliate Transactions) and Order No. 745 (Demand Response Compensation).

Dr. Hunger has worked on market design issues in each of the FERC-regulated RTO's, for example:

- CAISO – Tariff amendments related to pricing of spinning and non-spinning reserves; virtual bidding at the CAISO/WECC interties;
- NYISO – design of Net Benefits Test for demand response compensation;
- ISO-NE - rules for compensating behind-the-meter generators in energy, capacity, and ancillary services markets; capacity market design regarding resource retirements; demand curve design; and exemption for renewable resources;
- PJM – tariff language for integrating DR resources into the PJM dispatch process for Order No. 745 compliance; capacity market tariff revisions related to demand response, imports, and incremental auctions;
- MISO – product definition for energy resources to include demand response resources; design of Net Benefits Test for demand response compensation;
- SPP – cost allocation for demand response compensation in the SPP energy imbalance market

2001–Present	<i>Affiliated Professor</i> , Georgetown University, Graduate Public Policy Institute Classes taught: Microeconomic Theory, Energy Policy, Public Finance, Macroeconomics, and Masters Thesis advising.
2000–2001	<i>Adjunct Assistant Professor of Economics</i> , American University Classes taught: Principles of Microeconomics and Principles of Macroeconomics
1998–1999	<i>Assistant Professor of Economics</i> , Oglethorpe University Classes taught: Managerial Economics and International Economics (MBA); Principles of Economics, Intermediate Microeconomics, Macroeconomics, International Economics and Industrial Organization (undergraduate)
1994–1998	<i>Graduate Teaching Fellow</i> , Department of Economics, University of Oregon Classes taught: Econometrics, Industrial Organization, and Principles of Microeconomics

Filed Testimony

Protest of the New England Power Generators Association, Inc. and the Electric Power Supply Association. Docket No. ER14-1639-000. Affidavit in Support of Protest by NEPGA and EPSA regarding Minimum Offer Price Rules exemptions in the ISO-NE Forward Capacity Market, before the Federal Energy Regulatory Commission. April, 2014.

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Southwest Power Pool, Inc. Docket Nos. ER14-1174-000 and EL14-21-000 .Affidavit in Support of Comments of the Southwest Power Pool Transmission Owners, before the Federal Energy Regulatory Commission, February, 2014.

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Limited and Sub-Annual DR Resources filing submitted by PJM Interconnection, L.L.C. Docket No. ER14-504. Affidavit in support of Reply Comments by American Electric Power, Duke Energy Ohio, First Energy Corp, Dayton Power & Light, East Kentucky Electric Cooperative, and PPL Companies before the Federal Energy Regulatory Commission, January, 2014.

Capacity Imports Filing submitted by PJM Interconnection, L.L.C. Docket No. ER14-503. Affidavit in support of Reply Comments by American Electric Power, Duke Energy Ohio, First Energy Corp., Dayton Power & Light, East Kentucky Electric Cooperative, and PPL Companies before the Federal Energy Regulatory Commission, January, 2014.

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Reports and publications

"Analyzing Gas and Electric Convergence Mergers: A Supply Curve is Worth a Thousand Words." *Journal of Regulatory Economics*, vol. 24, no. 2, 2003, pp. 161-173

"Final Report on Price Manipulation in Western Markets: Fact-Finding Investigation of Potential Manipulation of Electric and Natural Gas Prices." Federal Energy Regulatory Commission Staff Report to the US Congress, March 2003.

"Initial Report on Company –Specific Separate Proceedings; Published Natural Gas Price Data; and Enron Trading Strategies: Fact-Finding Investigation of Potential Manipulation of Electric and Natural Gas Prices." Federal Energy Regulatory Commission Staff Report to the US Congress, August 2002.

"Determining the Competitiveness of Wholesale Electricity Markets: It Starts with Defining the Markets." In *Markets, Pricing and Deregulation of Utilities*. Michael Crew and Joseph Schuh, eds. Kluwer Academic Publishers, 2002.

"Demand Response in Electricity Markets." Federal Energy Regulatory Commission Staff Paper, January 2002.

Presentations

"Demand Response Compensation." Advanced Workshop in Regulation and Competition, Rutgers University Center for Research in Regulated Industries, 21st Annual Western Conference, Monterey, CA, June 2010.

"The Role of Sector-Specific Regulators in Merger Review." American Bar Association 2009 Fall Forum, November 2009.

"Developing a Sustainable Energy Policy." Georgetown Public Policy Institute Policy Conference Washington, DC, February 2007.

"Fixing the Natural Gas Price Indices." US Department of Energy, Electricity Working Group, Washington, DC, March 2005.

"Re-bundling in the Electric Power Industry." Advanced Workshop in Regulation and Competition, Rutgers University Center for Research in Regulated Industries, 23rd Annual Conference, Skytop, PA, May 2004.

"Manipulation of Natural Gas Price Indexes: Causes, Effects and Solutions." Advanced Workshop in Regulation and Competition, Rutgers University Center for Research in Regulated Industries, 22nd Annual Conference, Skytop, PA, May 2003.

"The Role of Economics and Economists at the FERC." Federal Energy Regulatory Commission, Briefing for Indiana University of Pennsylvania, Economics Department, Washington, DC, September 2002.

"Defining Wholesale Electricity Markets." Advanced Workshop in Regulation and Competition, Rutgers University Center for Research in Regulated Industries, 21st Annual Conference, Newport, RI, May 2002.

"Markets, Pricing and Deregulation of Utilities." Rutgers University Research Seminar, Newark, NJ, May 2002.

"How FERC Analyzes Markets." Federal Energy Regulatory Commission, Briefing for Indiana University of Pennsylvania, Economics Department, Washington, DC, October 2001.

"Briefing on Competitive Analysis for the State Development Planning Commission of the People's Republic of China." Federal Energy Regulatory Commission, Washington, DC, May 2001.

"Electric Utility Mergers Involving Generation and Transmission: It Takes Ability and Incentive." Advanced Workshop in Regulation and Competition, Rutgers University Center for Research in Regulated Industries, 20th Annual Conference, Tamiment, PA, May 2001.

"Natural Gas and Electricity Mergers: Vertical Restraints or Vertical Market Power." US Department of Energy, Electricity Working Group, Washington, DC, October 2000.

"Vertical Merger Review at the Federal Energy Regulatory Commission." International Association for Energy Economics, 21st Annual Conference, Philadelphia, PA, September 2000.

"Gas and Electric Convergence Mergers: A Supply Curve is Worth a Thousand Words." Advanced Workshop in Regulation and Competition, Rutgers University Center for Research in Regulated Industries, 19th Annual Conference, Lake George, NY, May 2000.

"Pollution Regulation in a Model of International Trade." Northwest Conference for Environmental Economics, Eugene, OR, May 1999.

"The Adoption of Energy-Saving Technologies in the Electricity Industry." Advanced Workshop in Regulation and Competition, Rutgers University Center for Research in Regulated Industries, 17th Annual Conference, Vergennes, VT, May 1998.

"Entry Decisions and Regulatory Distortions in the Electric Power Industry." Advanced Workshop in Regulation and Competition, Rutgers University Center for Research in Regulated Industries, 16th Annual Conference, Lake George, NY, May 1997.

"Entry of Non-Utility Generators in the Northwest." Pacific Northwest Regional Economic Conference, Spokane, WA, April 1997.

Awards and associations

Federal Energy Regulatory Commission, Awards for Quality Service in the Public Interest: December 2000; July 2001; September 2001; September 2002; May 2003; July 2003; September 2003; April 2004; July 2004; September 2004; June 2005; August 2005; January 2006; March 2006; August 2006; May 2007; August 2007; April 2008; July 2008; January 2009; July 2009; February 2010; August 2011; August 2012

University of Oregon - Outstanding Graduate Teaching Award, 1998

Official Scorekeeper – Oglethorpe University Women's Basketball 1998-1999

Member, American Economic Association

Member, International Association for Energy Economics

Law360 Energy Editorial Advisory Board, 2014

Journal of Regulatory Economics – reviewer

Energy Economics - reviewer

Georgetown Public Policy Institute, Masters Thesis Advising

The Effect of State-Level Funding on Energy Efficiency Outcomes, Annie Downs, 2013.

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"What Drives Innovation in Renewable Energy Technology? Evidence Based on Patent Count," Jesse McCormick, 2011.

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"Public Opinion about Climate Change: the Roles of Risk Perception and Scientific Knowledge in Preventing Passivity," Courtney Brown, 2008.

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"GDP Growth, Electricity and Renewable Energy in the Pacific Rim: Can Renewable Energy help developing nations achieve and sustain higher long term growth rates?" Bryan J. Di Pietro, 2007.

"Rate Regulation and Carbon Emissions from US Electric Plants," Michael Pomorski, 2007.

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