

BEFORE THE FLORIDA PUBLIC SERVICE COMMISSION

In re: Petition for Determination that) DOCKET NO. _____
the Osprey Plant Acquisition and,)
alternatively, the Suwannee Simple) Submitted for filing: January 30, 2015
Cycle Project is the most Cost Effective)
Generation Alternative to meet the)
Remaining Need Prior to 2018 for)
Duke Energy Florida, Inc.)
_____)

DUKE ENERGY FLORIDA, INC.'S NOTICE OF FILING

Duke Energy Florida, Inc. ("DEF" or the "Company") hereby gives notice of filing the Direct Testimony of Edward L. Scott with Exhibit ELS-1 in support of DEF's Petition for Determination that the Osprey Plant Acquisition and, alternatively, the Suwannee Simple Cycle Project is the most Cost Effective Generation Alternative to Meet the Remaining Need Prior to 2018 for Duke Energy Florida, Inc.

Respectfully submitted this 30th day of January, 2015.

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BEFORE THE FLORIDA PUBLIC SERVICE COMMISSION

**In re: Petition for Determination that
the Osprey Plant Acquisition and,
alternatively, the Suwannee Simple
Cycle Project is the most Cost Effective
Generation Alternative to meet the
Remaining Need Prior to 2018 for
Duke Energy Florida, Inc.**

DOCKET NO. _____
Submitted for filing: January 30, 2015

**DIRECT TESTIMONY
OF EDWARD L. SCOTT**

**ON BEHALF OF
DUKE ENERGY FLORIDA, INC.**

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**IN RE: PETITION FOR DETERMINATION THAT THE OSPREY
PLANT ACQUISITION AND, ALTERNATIVELY, THE SUWANNEE
SIMPLE CYCLE PROJECT IS THE MOST COST EFFECTIVE
GENERATION ALTERNATIVE TO MEET THE REMAINING NEED
PRIOR TO 2018 FOR DUKE ENERGY FLORIDA, INC.**

BY DUKE ENERGY FLORIDA, INC.

FPSC DOCKET NO. _____

DIRECT TESTIMONY OF EDWARD L. SCOTT

I. INTRODUCTION AND QUALIFICATIONS.

Q. Please state your name, employer, and business address.

A. My name is Edward L. Scott and I am employed by Duke Energy Florida, Inc. (“DEF” or the “Company”). My business address is 6565 38th Avenue, North, St. Petersburg, Florida 33710.

Q. Please tell us your position with DEF and describe your duties and responsibilities in that position.

A. I am the Director --- Transmission Planning Florida. In this role, I am responsible for all transmission planning for DEF. I am responsible for ensuring that long-range transmission plans, studies, and assessments are performed in accordance with all applicable Federal Energy Regulatory Commission (“FERC”), North American Electric

1 Reliability Corporation (“NERC”), Florida Reliability Coordinating Council (“FRCC”),
2 and DEF planning standards and requirements. Areas of additional focus include
3 development of Generation and Transmission Integrated Siting Strategies and evaluation
4 of Transmission Service and Generator Interconnection Requests. I also represent DEF
5 on the FRCC Planning Committee and the NERC Planning Committee.
6

7 **Q. Please summarize your educational background and employment experience.**

8 A. I have been with the Company (and its predecessor companies Progress Energy Florida
9 and Florida Power Corp.) since 2001 in positions of increasing responsibility. In my
10 previous role as Manager of System Operations at the Florida Energy Control Center, I
11 oversaw the real time, electric system operations of the Florida utility, including
12 generation dispatch, transmission reliability, and transmission service transactions. I
13 have held prior leadership roles as Manager of Bulk Transmission Planning, and
14 Supervisor System Operations for the Company. I also held several Company
15 engineering positions with increasing responsibility in Operations Network Reliability,
16 Operations Planning, and Operations Training. Prior to joining the Company, I was a
17 staff engineer with the FRCC.

18 I earned bachelor and master of science degrees in electrical engineering from the
19 Florida Institute of Technology in 1998 and 1999. I also earned a master of science
20 degree in business administration from the University of Florida in 2007. I am a licensed
21 Professional Engineer in Florida and North Carolina.
22
23

1 **II. PURPOSE AND SUMMARY OF TESTIMONY.**

2 **Q. What is the purpose of your testimony in this proceeding?**

3 A. I am testifying on behalf of the Company in support of its Petition. As explained by other
4 DEF witnesses, the Company is presenting the Osprey Energy Facility Combined Cycle
5 (“Osprey”) plant acquisition and, alternatively, the Suwannee Simple Cycle
6 (“Suwannee”) project as the most cost effective alternative to meet its remaining need for
7 generation prior to 2018. My testimony and exhibits provide an overview of the
8 transmission system impacts and costs for these generation alternatives that the Company
9 is presenting to meet its remaining need prior to 2018 in the most cost-effective manner
10 for its customers. I also address in my exhibits the transmission analysis process and the
11 transmission system impacts associated with additional supply-side generation
12 alternatives that the Company evaluated prior to choosing the Osprey plant acquisition
13 and, alternatively, the Suwannee project as the most cost effective alternatives to meet its
14 remaining need prior to 2018.

15
16 **Q. Have you previously filed testimony with the Florida Public Service Commission?**

17 A. Yes. On May 27, 2014 I filed direct testimony in Docket No. 140110-EI (Citrus County
18 Combined Cycle Power Plant Need Petition) and Docket No. 140111-EI (Suwannee
19 Project and Hines Chillers Power Uprate Need Petition) describing the transmission
20 system impacts and costs used in the evaluation of those need decisions. A copy of my
21 May 27, 2014 direct testimony in Docket No. 140111-EI is attached as an exhibit to my
22 current direct testimony in this docket and referenced throughout my current testimony.
23

1 **Q. Are you sponsoring any exhibits to your testimony?**

2 A. Yes. I am sponsoring the following exhibit to my testimony:

- 3 • Exhibit No. ____ (ELS-1), a copy of my May 27, 2014 Direct Testimony and
4 Exhibits filed in Docket No. 140111-EI, In re: Petition for Determination of Cost
5 Effective Generation Alternative to Meet Need Prior to 2018 for Duke Energy
6 Florida, Inc.

7 This exhibit was prepared under my direction and control, and it is true and accurate.

8
9 **Q. Please summarize your testimony.**

10 A. As discussed by other DEF witnesses, my understanding is that the Company is filing this
11 Petition to fulfill its remaining need prior to 2018 with either the Osprey plant acquisition
12 from Calpine Construction Finance Company LLP (“Calpine”), if the acquisition is
13 approved by the necessary regulatory authorities, or if not, the Suwannee Simple Cycle
14 Project as the most cost effective generation alternative for that need. I understand that
15 this determination was made using the transmission system impacts and costs that I
16 presented in my May 27, 2014 testimony in Docket No. 140111-EI. My current direct
17 testimony provides a status update on transmission system planning for the Suwannee
18 Simple Cycle Project and Osprey plant acquisition since my May 27, 2014 testimony was
19 filed in Docket No. 140111-EI. My current direct testimony also confirms that there have
20 been no material changes to the projected transmission system impacts or costs for the
21 Suwannee project or Osprey plant acquisition that would affect the current economic
22 analysis presented in the testimony of Mr. Benjamin Borsch.

1 **III. TRANSMISSION ANALYSES OF PROPOSED GENERATION.**

2 **Q. What generation resource option has the Company selected as the most cost**
3 **effective option to meet its remaining need for additional generation capacity prior**
4 **to 2018?**

5 A. My understanding is that the Company has petitioned to fill its remaining need prior to
6 2018 with the Osprey plant acquisition or, if the Osprey plant acquisition is not approved
7 by the necessary regulatory authorities, the Suwannee Simple Cycle Project. The Osprey
8 plant is an existing 599 MW combined cycle power plant located in Polk County, Florida.
9 The Osprey plant is described in more detail in the direct testimony of Mr. Kris
10 Edmondson. The Suwannee Simple Cycle Project involves the construction of two F
11 class combustion turbines and related equipment and facilities at the Company's existing
12 Suwannee power plant site in Suwannee County, Florida. This project is described in
13 more detail in the direct testimony of Mr. Mark Landseidel in this proceeding. I
14 performed the transmission system impact analyses that were part of the Company's
15 evaluation of both of these projects to meet the Company's need prior to 2018 in Docket
16 No. 140111-EI.

17
18 **Q. What transmission analyses were performed for the Suwannee project?**

19 A. As I explained in my May 27, 2014 direct testimony in Docket No. 140111-EI attached
20 as Exhibit No. ____ (ELS-1), DEF performed transmission planning analyses in
21 accordance with all applicable FERC, NERC, FRCC, and DEF planning standards and
22 requirements. These transmission planning analyses and the results of these transmission
23 planning analyses are explained in Exhibit No. ____ (ELS-1). As a result of these

1 transmission planning analyses, DEF identified the work scope for the necessary
2 transmission system upgrades to connect the Suwannee Simple Cycle Project to DEF's
3 system and determined that the estimated cost for these transmission system upgrades
4 was \$15.7 million. See Exhibit No. ____ (ELS-1). The additional transmission system
5 benefits of locating the Suwannee Simple Cycle Project at the existing Suwannee facility
6 site are also described in Exhibit No. __ (ELS-1).

7
8 **Q. Have there been any changes to the transmission system analyses for the Suwannee**
9 **Simple Cycle Project since your direct testimony in Docket No. 140111-EI?**

10 A. Yes. Since my direct testimony in Docket No. 140111-EI, included as Exhibit No. ____
11 (ELS-1), DEF has completed the transmission feasibility study, system impact study, and
12 facility impact study for the Suwannee Simple Cycle Project. These studies are
13 performed to finalize the work scope and cost estimates for the transmission network
14 system upgrades for the project. As a result of the completion of these studies, the
15 transmission system work scope for the Suwannee Simple Cycle Project has not changed,
16 but DEF has updated the estimated cost for this work scope for the project. The current
17 estimate for the transmission system network upgrades to connect the Suwannee Simple
18 Cycle Project to DEF's system is less than the estimated cost of \$15.7 million resulting
19 from the planning analyses described in Exhibit No. ____ (ELS-1). The current estimated
20 cost is approximately \$10 million for this work.

1 **Q. In your opinion, are the results of your analysis of the transmission costs for the**
2 **Company's Suwannee Simple Cycle Project reasonable?**

3 A. Yes. The updated cost estimate is based on the completion of transmission system
4 studies that were incomplete at the time my direct testimony was filed in Docket No.
5 140111-EI. See Exhibit No. ___ (ELS-1). There are no further studies necessary to
6 determine the transmission system network upgrades and costs for the Suwannee Simple
7 Cycle Project. In my professional opinion, and based on my experience and evaluation of
8 the impact of adding the Suwannee Simple Cycle Project to the Company's system, these
9 results are accurate and reasonable.

10
11 **Q. Do the results of the completed transmission studies for the Suwannee Simple Cycle**
12 **Project affect the Company's economic evaluation of that Project?**

13 A. No. My understanding is that the lower transmission costs for the Suwannee Simple
14 Cycle Project are immaterial over the study period in the economic evaluation to
15 determine the most cost effective generation alternative to meet the Company's
16 remaining need prior to 2018 that was performed by the Company and explained in Mr.
17 Borsch's direct testimony in this proceeding.

18
19 **Q. Did the Company also evaluate the transmission system impact and cost of**
20 **acquiring the Osprey plant and adding it to DEF's system?**

21 A. Yes. This analysis is also presented in my May 27, 2014 direct testimony and exhibits in
22 Docket No. 140111-EI attached as Exhibit No. ___(ELS-1). The Osprey plant acquisition
23 was one of the generation resource alternatives that the Company evaluated in Docket

1 No. 140111-EI. The transmission screening studies for the Osprey plant acquisition and
2 the results of those studies are explained in Exhibit No. ___ (ELS-1). As explained there,
3 DEF employed the same industry-standard transmission screening studies and facility
4 cost estimation standards for the Osprey plant acquisition that DEF uses for all of its
5 planned or projected transmission facility additions or upgrades on its own transmission
6 system. These screening study analyses showed that transmission system network
7 upgrades were required to fully incorporate the Osprey plant into the DEF system. These
8 transmission system network upgrades directly connect the Osprey plant to DEF's system
9 to provide DEF access to the full generation capacity of the Osprey plant. These
10 transmission system network upgrades are described in Exhibit No. ___ (ELS-1). The
11 cost of these transmission system network upgrades were estimated at \$150 million.
12

13 **Q. Have you performed any updates to the transmission screening study analyses for**
14 **the Osprey plant acquisition?**

15 A. No we have not. The information provided in my direct testimony in Exhibit No.
16 ___(ELS-1) for the Osprey plant acquisition remains the best available information
17 regarding the necessary transmission system network upgrades and costs for DEF to
18 acquire the Osprey plant and directly connect it to DEF's system to obtain the full
19 generation capacity of the Osprey plant.
20

21 **Q. Has your estimate for the transmission system network upgrades for the Osprey**
22 **plant acquisition changed?**

23 A. No it has not. Our estimate for the necessary transmission system network upgrades for

1 DEF to acquire the full generation capacity of the Osprey plant by directly connecting the
2 Osprey plant to DEF's transmission system remains \$150 million. See Exhibit No. ____
3 (ELS-1). DEF considers the \$150 million estimate to be a conservative transmission
4 estimate. However, if other, less expensive, transmission options are made available to
5 DEF, the transmission group would of course consider them and, if appropriate for the
6 project, utilize them for the project. DEF plans to use the most cost effective
7 transmission option for the Osprey plant acquisition.
8

9 **Q. When will the Company complete the transmission studies necessary to finalize the**
10 **work scope and estimate for the transmission system network upgrades for the**
11 **Osprey plant acquisition?**

12 A. Calpine has recently submitted an Interconnection Request to connect the Osprey plant to
13 the DEF Balancing Area Authority ("BAA"). This Interconnection Request is the
14 prerequisite for the DEF transmission group to perform an Interconnection Study
15 including a feasibility study, system impact study, and facility cost impact study. DEF
16 estimates that this entire process will take approximately 12 to 18 months.
17

18 **Q. In your opinion, are the results of your current analysis of the transmission costs for**
19 **the Osprey plant acquisition reasonable?**

20 A. Yes. In my professional opinion, and based on my experience and evaluation of the
21 impact of adding the Osprey plant to the Company's system, these results are accurate
22 and reasonable. The current work scope and estimated cost for the transmission system
23 network upgrades to directly connect the Osprey plant to DEF's system to provide DEF

1 the plant's full generation capacity is conservative. As a result, the completion of the
2 transmission feasibility study, system impact study, and facility cost impact study are not
3 expected to materially change the current estimated work scope and costs to directly
4 connect the Osprey plant to DEF's system.
5

6 **Q. Were the results of these transmission analyses incorporated into the Company's**
7 **economic evaluation?**

8 A. Yes. The results of these economic evaluations are explained in detail in Mr. Borsch's
9 direct testimony in this proceeding.
10

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

12 A. Yes, it does.

BEFORE THE FLORIDA PUBLIC SERVICE COMMISSION

**In re: Petition for Determination
of Cost Effective Generation Alternative
to Meet Need Prior to 2018 for Duke
Energy Florida, Inc.**

DOCKET NO. _____
Submitted for filing:
May 27, 2014

**DIRECT TESTIMONY
OF ED SCOTT**

**ON BEHALF OF
DUKE ENERGY FLORIDA, INC.**

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

BY DUKE ENERGY FLORIDA, INC.

FPSC DOCKET NO. _____

DIRECT TESTIMONY OF ED SCOTT

1 **I. INTRODUCTION AND QUALIFICATIONS.**

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

3 A. My name is Ed Scott and I am employed by Duke Energy Florida, Inc. (“DEF” or the
4 “Company”). My business address is 6565 38th Avenue, North, St. Petersburg, Florida
5 33710.

6
7 **Q. Please tell us your position with Duke Energy and describe your duties and
8 responsibilities in that position.**

9 A. I am the Director --- Transmission Planning Florida. In this role, I am responsible for all
10 transmission planning for DEF. I am responsible for ensuring that long-range
11 transmission plans, studies, and assessments are performed in accordance with all
12 applicable Federal Energy Regulatory Commission (“FERC”), North American Electric
13 Reliability Corporation (“NERC”), Florida Reliability Coordinating Council (“FRCC”),
14 and DEF planning standards and requirements. Areas of additional focus include
15 development of Generation and Transmission Integrated Siting Strategies and evaluation

1 of Transmission Service and Generator Interconnection Requests. I also represent DEF
2 on the FRCC Planning Committee and the NERC Planning Committee.

3
4 **Q. Please summarize your educational background and employment experience.**

5 A. I have been with the Company (and its predecessor companies Progress Energy Florida
6 and Florida Power Corp.) since 2001 in positions of increasing responsibility. In my
7 previous role as Manager of System Operations at the Florida Energy Control Center, I
8 oversaw the real time, electric system operations of the Florida utility, including
9 generation dispatch, transmission reliability, and transmission service transactions. I
10 have held prior leadership roles as Manager of Bulk Transmission Planning, and
11 Supervisor System Operations for the Company. I also held several Company
12 engineering positions with increasing responsibility in Operations Network Reliability,
13 Operations Planning, and Operations Training. Prior to joining the Company, I was a
14 staff engineer with the FRCC.

15 I earned bachelor and master of science degrees in electrical engineering from the
16 Florida Institute of Technology in 1998 and 1999. I also earned a master of science
17 degree in business administration from the University of Florida in 2007. I am a licensed
18 Professional Engineer in Florida and North Carolina.

19
20 **II. PURPOSE AND SUMMARY OF TESTIMONY.**

21 **Q. What is the purpose of your testimony in this proceeding?**

22 A. I am testifying on behalf of the Company in support of its Petition for Determination of
23 Cost Effective Alternative to Meet Need Prior to 2018 for Duke Energy Florida. I will

1 provide an overview of the transmission system impacts and costs for the generation
2 options that the Company proposes to build to meet its need prior to 2018 in the most
3 cost-effective manner for its customers. I will also address the transmission system
4 impacts associated with supply-side generation alternatives that the Company evaluated
5 to determine that the Company's self-build generation options are the most cost-effective
6 resource options to meet the Company's need prior to 2018.

7
8 **Q. Are you sponsoring any exhibits to your testimony?**

9 **A. Yes. I am sponsoring the following exhibits to my testimony:**

- 10 • Exhibit No. ____ (ES-1), a map and graphic illustration of the transmission
11 interconnections for the Suwannee Simple Cycle Project at the Suwannee power
12 plant site;
- 13 • Exhibit No. ____ (ES-2), a depiction of the existing Hines Energy Complex
14 ("HEC") combined cycle power plant blocks and the existing transmission
15 interconnections; and
- 16 • Exhibit No. ____ (ES-3), a confidential description of the potential generation
17 facility acquisitions evaluated for transmission cost impacts to the DEF
18 transmission system, including the physical location of the facilities and a
19 description of the necessary transmission network upgrades to reliably integrate
20 the facilities onto the electric grid that result from the DEF transmission analyses.

21 Each of these exhibits was prepared under my direction and control, and each is true and
22 accurate.

1 **Q. Please summarize your testimony.**

2 A. There is minimal transmission investment required to incorporate on DEF's system the
3 Company's self-build generation options to meet its need prior to 2018. The Suwannee
4 Simple Cycle Project and the Hines Chillers Power Uprate project are both located at
5 existing DEF power plant sites. The location of these projects at the existing Suwannee
6 and HEC power plant sites allows the Company to obtain substantial, additional summer
7 generation capacity with relatively little additional transmission investment. As a result,
8 there are transmission cost-savings benefits to customers resulting from the addition of
9 these generation projects at existing Company power plant sites compared to Greenfield
10 sites incorporated into the total cost of the projects.

11 The Company evaluated alternative power purchase agreement ("PPA") and
12 generation facility acquisition options to meet its need prior to 2018. The impact of all of
13 these alternative generation proposals on DEF's transmission system was evaluated. Two
14 potential generation facility acquisitions were evaluated further to determine the
15 transmission system network upgrades required to incorporate the generation facilities
16 into the DEF system. The transmission system network upgrade costs to incorporate one
17 of the potential generation facilities into DEF's system were substantial. The
18 transmission costs associated with the potential generation facility acquisitions were
19 included in the Company's economic evaluation of the most cost-effective option for the
20 Company to meet its reliability need prior to 2018.

1 **III. TRANSMISSION ANALYSIS OF COMPANY SELF-BUILD GENERATION**
2 **OPTIONS.**

3 **Q. What are the Company's self-build generation options to meet its need before 2018?**

4 A. The Company's self-build generation options are the Suwannee Simple Cycle Project in
5 the summer of 2016 and the Hines Chillers Power Uprate Project in the summer of 2017.
6 The Suwannee Simple Cycle Project involves the construction of two F class combustion
7 turbines and related equipment and facilities at the Company's existing Suwannee power
8 plant site in Suwannee County, Florida. The Suwannee Simple Cycle Project will total
9 320 MegaWatts ("MW") and it will be placed in commercial operation by June 2016.
10 The Hines Chillers Power Uprate Project involves the installation of a chiller system
11 designed to cool the gas turbine inlet air to all four existing natural-gas fired, combined
12 cycle generation power blocks at the Company's HEC in Polk County, Florida. The
13 Hines Chillers Power Uprate Project is projected to increase the summer HEC site
14 capacity by 220 MW and this project will be in commercial operation by the summer of
15 2017. These projects are described in more detail in the direct testimony of Mr.
16 Landseidel in this proceeding.

17
18 **Q. What transmission analyses were performed for the Company's self-build**
19 **generation options?**

20 A. DEF performed transmission planning analyses in accordance with all applicable Federal
21 Energy Regulatory Commission ("FERC"), NERC, FRCC, and DEF planning standards
22 and requirements, for the proposed self-build generation option in Suwannee County,
23 Florida. In addition, the same planning standards and requirements were applied to the

1 transmission analysis performed for the Hines Chillers Power Uprate Project. These
2 transmission analyses include, as necessary, thermal load flow, stability, and short-circuit
3 analyses to identify any need for additional transmission network upgrades to reliably
4 integrate the proposed additional generation to the grid. For the proposed self-build
5 generation option in Suwannee County, Florida, DEF performed an Interconnection
6 Study to determine the impact of interconnecting the queued generation to the
7 transmission system. These studies involved transmission contingency, short circuit, and
8 stability analyses. For the proposed Hines Chillers Power Uprate Project a transmission
9 evaluation was also performed which compared the original Hines Unit interconnection
10 transmission infrastructure to any potential needs due to the proposed power uprate.

11
12 **Q. What were the results of these transmission analyses?**

13 A. The Suwannee Simple Cycle Project is located at the Company's existing Suwannee
14 plant site located in Suwannee County, Florida. The two combustion turbines and two
15 generator step-up transformers will be connected to the existing transmission switchyard
16 at the site. One combustion turbine generator will be connected to the 115 kV
17 transmission switchyard and the other combustion turbine generator will be connected to
18 the 230 kV switchyard. Exhibit No. ____ (ES-1) is a map and graphic illustration of the
19 transmission interconnections for the Suwannee Simple Cycle Project at the Suwannee
20 power plant site. Our transmission analysis indicates transmission network upgrades
21 estimated at \$15.7 million are needed to reliably integrate the proposed additional
22 generation to the grid.

23 The Company plans to retire the existing Suwannee steam units located at the

1 Suwannee power plant site when the Suwannee Simple Cycle Project is complete and the
2 new combustion turbines achieve commercial operation. The existing steam units that
3 will be retired are also depicted on the map in Exhibit No. ____ (ES-1) to my direct
4 testimony. As a result, the combined net impact to the DEF system and electric grid of
5 these retirements and the addition of the Suwannee Simple Cycle combustion turbines
6 require minimal additional transmission network upgrades of the DEF transmission
7 system to accommodate the generation for the Suwannee Simple Cycle combustion
8 turbines.

9 The increase in summer capacity at the HEC site as a result of the Hines Chillers
10 Power Uprate Project will not require additional transmission network upgrades on the
11 DEF system. Likewise, because the HEC combined cycle power block units are already
12 connected to the DEF transmission system, there are no generator interconnection costs
13 associated with the Hines Chillers Power Uprate Project. The existing HEC combined
14 cycle power plant block units and the existing transmission interconnections are shown in
15 Exhibit No. ____ (ES-2) to my direct testimony.

16
17 **Q. Do the customers benefit from the location of these self-generation projects at**
18 **existing DEF generation sites?**

19 **A.** Yes, from a transmission perspective, there are cost-saving benefits to customers
20 resulting from the addition of these Company generation projects at existing sites. As I
21 have explained above, the location of these projects at the existing Suwannee and HEC
22 power plant sites, respectively, allows the Company to obtain substantial, additional
23 summer capacity generation with relatively little additional transmission investment. The

1 existing transmission infrastructure at both sites supports the addition of the increased
2 summer generation capacity from these projects.

3
4 **Q. In your opinion, are the results of your analysis of the transmission costs for the
5 Company's self-build generation plan projects reasonable?**

6 A. Yes. In my professional opinion, and based on my experience and evaluation of the
7 impact of adding these self-build generation plan projects to the Company's system, these
8 results are accurate and reasonable.

9
10 **IV. TRANSMISSION ANALYSIS OF THE SUPPLY-SIDE GENERATION
11 ALTERNATIVES.**

12 **Q. Did the Company evaluate any alternative supply-side generation proposals to the
13 Company's self-build generation options to meet the Company's generation needs
14 before 2018?**

15 A. Yes. The Company evaluated power purchase agreements ("PPAs") with existing
16 generators or utilities and the potential acquisition of existing generators within Florida as
17 alternatives to the Company's Suwannee Simple Cycle and Hines Chillers Power Uprate
18 projects.

19
20 **Q. Were transmission studies performed for these alternative supply-side generation
21 proposals?**

22 A. Yes. DEF performed a transmission screening study for all alternative supply-side
23 generation proposals. The proposed PPAs and generation facility acquisitions were

1 evaluated to explore existing and alternative transmission solutions to reliably integrate
2 the resources into the grid. In addition, potential impacts to third party systems were
3 identified that were consistent with the results of previously performed transmission
4 studies.

5
6 **Q. What potential generation acquisitions were evaluated?**

7 A. Two of the five proposed generation facility acquisitions passed the initial generation
8 economic screening and they were evaluated further for their cost impacts to the DEF
9 transmission system. These two proposed acquisitions are confidential and, accordingly,
10 they are identified in confidential Exhibit No. ____ (ES-3) to my direct testimony. Exhibit
11 No. ____ (ES-3) also identifies the physical location of these potential generation facility
12 acquisitions and contains a description of the necessary transmission network upgrades to
13 reliably integrate those resources onto the grid. For one potential acquisition, an
14 alternative interconnection solution was studied to provide an alternative solution that
15 potentially resolved all previously identified third party transmission impacts, and was
16 reasonable to be placed in service by summer 2017.

17
18 **Q. What transmission analyses were performed for these two alternative supply-side
19 generation acquisition proposals?**

20 A. The transmission screening studies were industry-standard studies consistent with DEF's
21 internal standards and both FRCC and NERC reliability standards. The latest available
22 FRCC peak load flow case, including the latest available information, was used as the
23 baseline to determine what transmission system network upgrade facilities or

1 modifications were needed. The cost estimates were also based on industry-standard
2 transmission facility estimation standards consistent with DEF's experience with such
3 transmission facilities. DEF employed the same industry-standard transmission facility
4 cost estimation standards to the alternative supply-side generation proposals that DEF
5 uses for all of its planned or projected transmission facility additions or upgrades on its
6 own transmission system. The results of these transmission screening studies indicated
7 either no adverse transmission impacts, or third party impacts. As a result, alternative
8 interconnection options, alternative DEF transmission network upgrades, and reasonable
9 third party network upgrades were assumed as potential solutions. All potential solutions
10 were then subsequently introduced into the appropriate case and tested in order to verify the
11 completeness of the solution.

12
13 **Q. What were the results of these transmission analyses?**

14 A. Transmission system network upgrades were required to incorporate one potential
15 generation facility acquisition into the DEF system. These transmission system network
16 upgrades are described more fully in Exhibit No. ____ (ES-3) to my direct testimony. The
17 cost of these transmission system network upgrades were estimated at \$150 million. DEF
18 further estimated that permitting and construction for the transmission system network
19 upgrades could be completed in time to meet the Company's need for additional
20 generation prior to 2018.

21 The location of the other, potential generation facility acquisition that was
22 evaluated resulted in minimal transmission system network upgrade costs, primarily on
23 third party transmission systems. Approximately \$15 million was estimated for these
24 third party transmission system network upgrades to incorporate this potential generation

1 facility into DEF's system.

2
3 **Q. Were the results of these transmission analyses incorporated into the Company's**
4 **evaluation of the alternative supply-side generation proposals?**

5 A. Yes. The transmission costs associated with the potential generation facility acquisitions,
6 as well as the potential PPAs, were included in the economic evaluation of the most cost-
7 effective option for the Company to meet its reliability need prior to 2018. The results of
8 this economic evaluation are explained in detail in the Mr. Borsch's testimony in this
9 proceeding.

10
11 **Q. Does this conclude your testimony?**

12 A. Yes, it does.
13

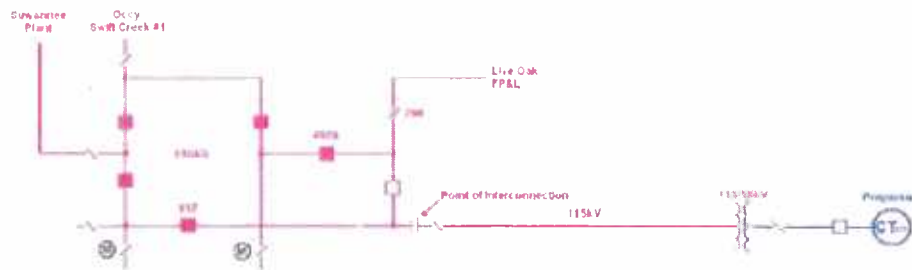
Interconnection Points Evaluated

Point of interconnection requested for study by interconnection customer for the 115kV unit:

- Connection to DEF's existing 115 kV Suwannee River Substation.

Alternative point of interconnection considered by DEF for the 115 kV unit:

- No other options were considered reasonable or necessary.

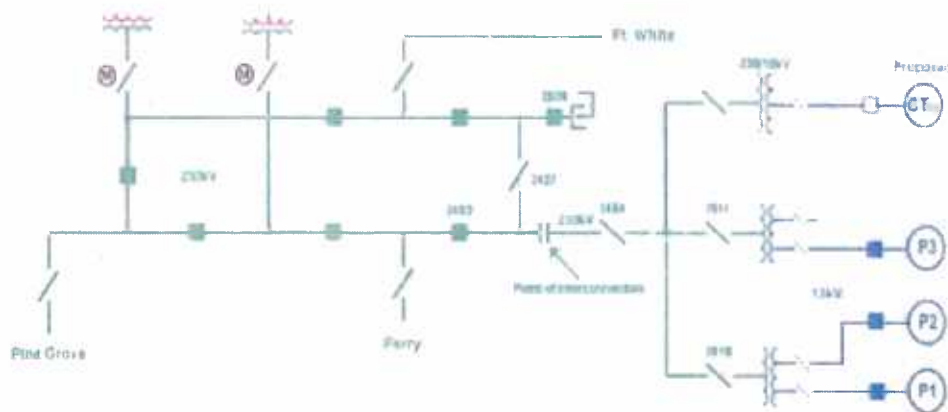


Point of interconnection requested for study by interconnection customer for the 230kV unit:

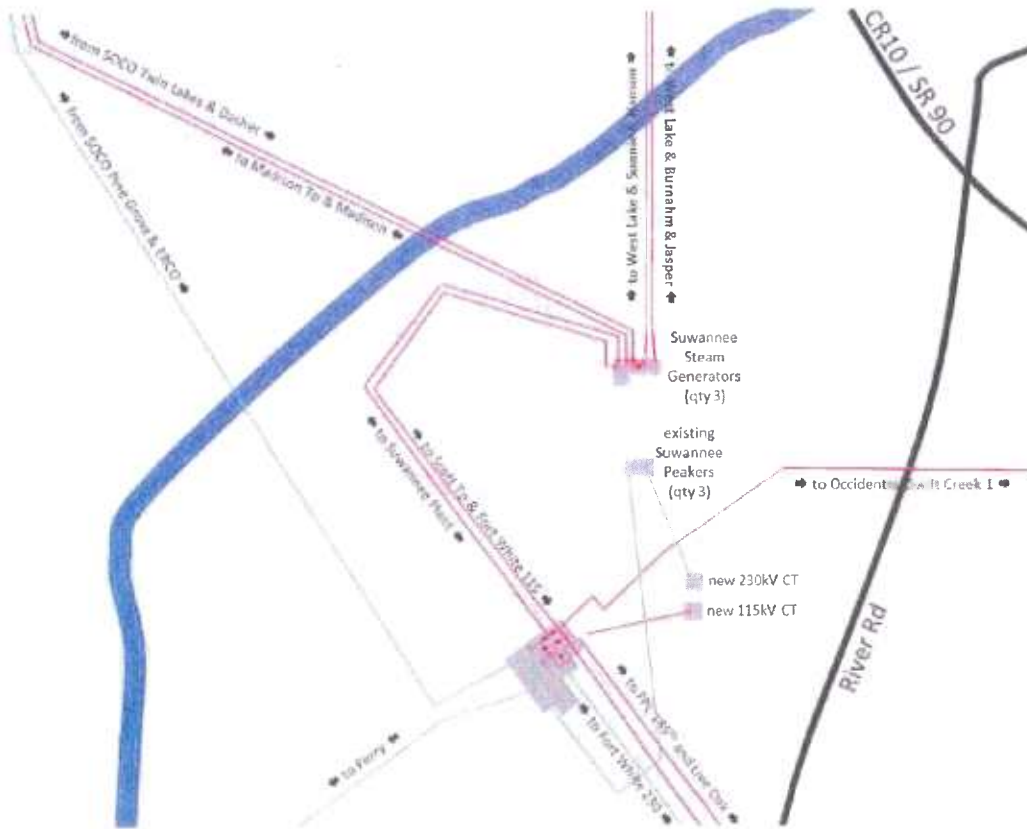
- Connection to DEF's existing Suwannee Peakers 230 kV switchyard.

Alternative point of interconnection considered by DEF for the 230 kV unit:

- No other options were considered reasonable or necessary.

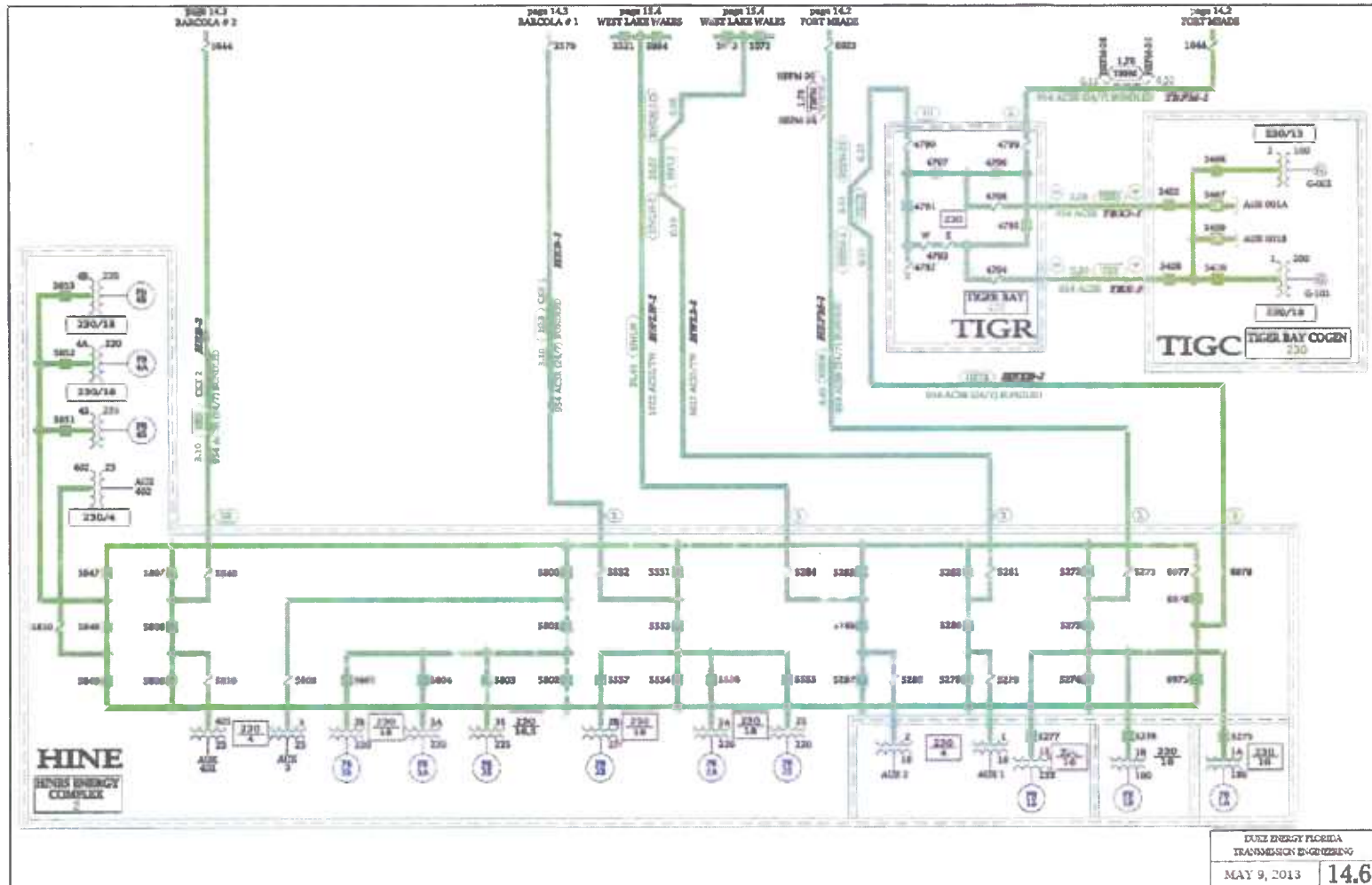


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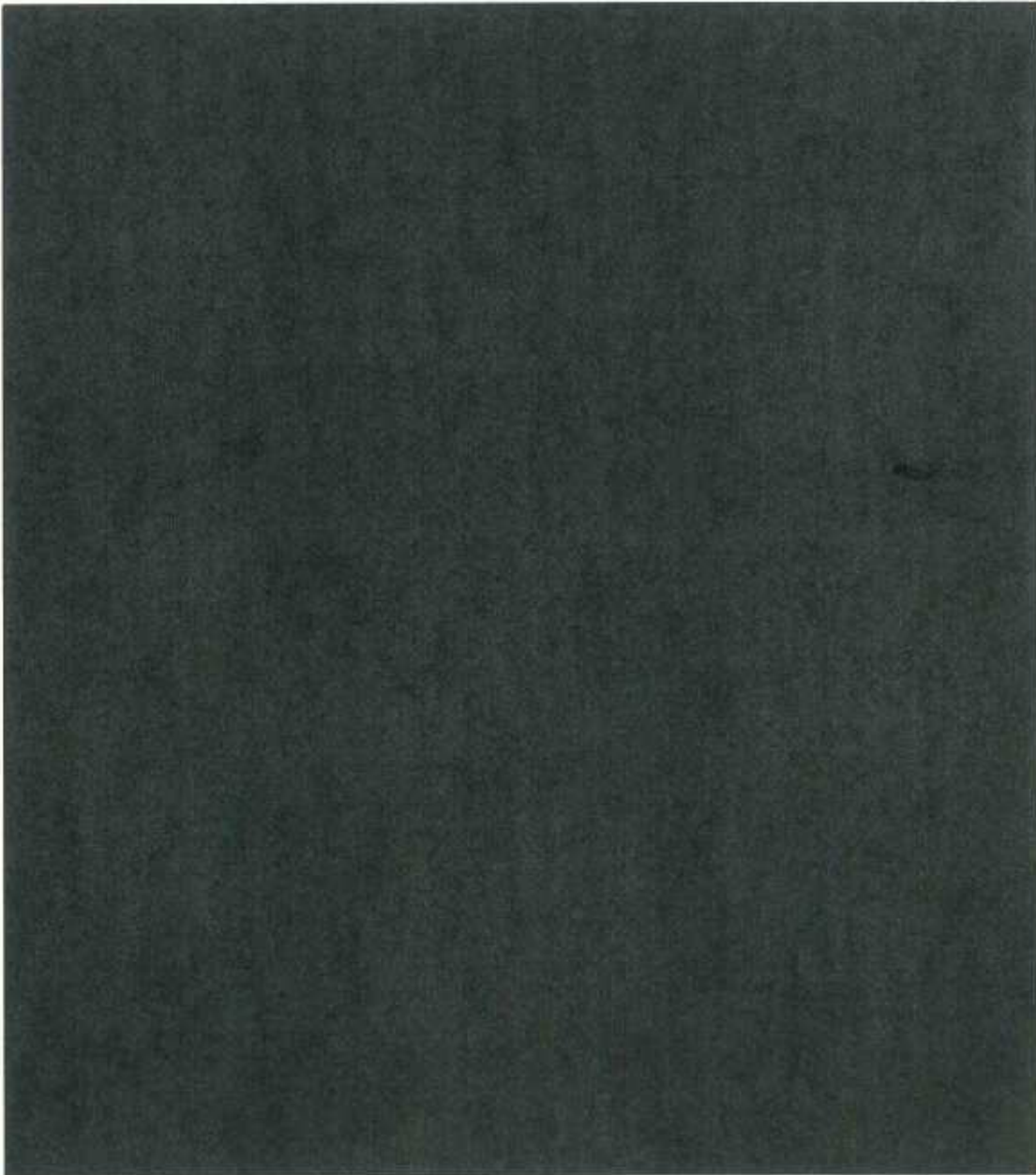
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Duke Energy Florida
Exhibit No. ____ (ES-2)
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Existing HEC Combined Cycle Power Plant Blocks and the Existing Transmission Interconnections

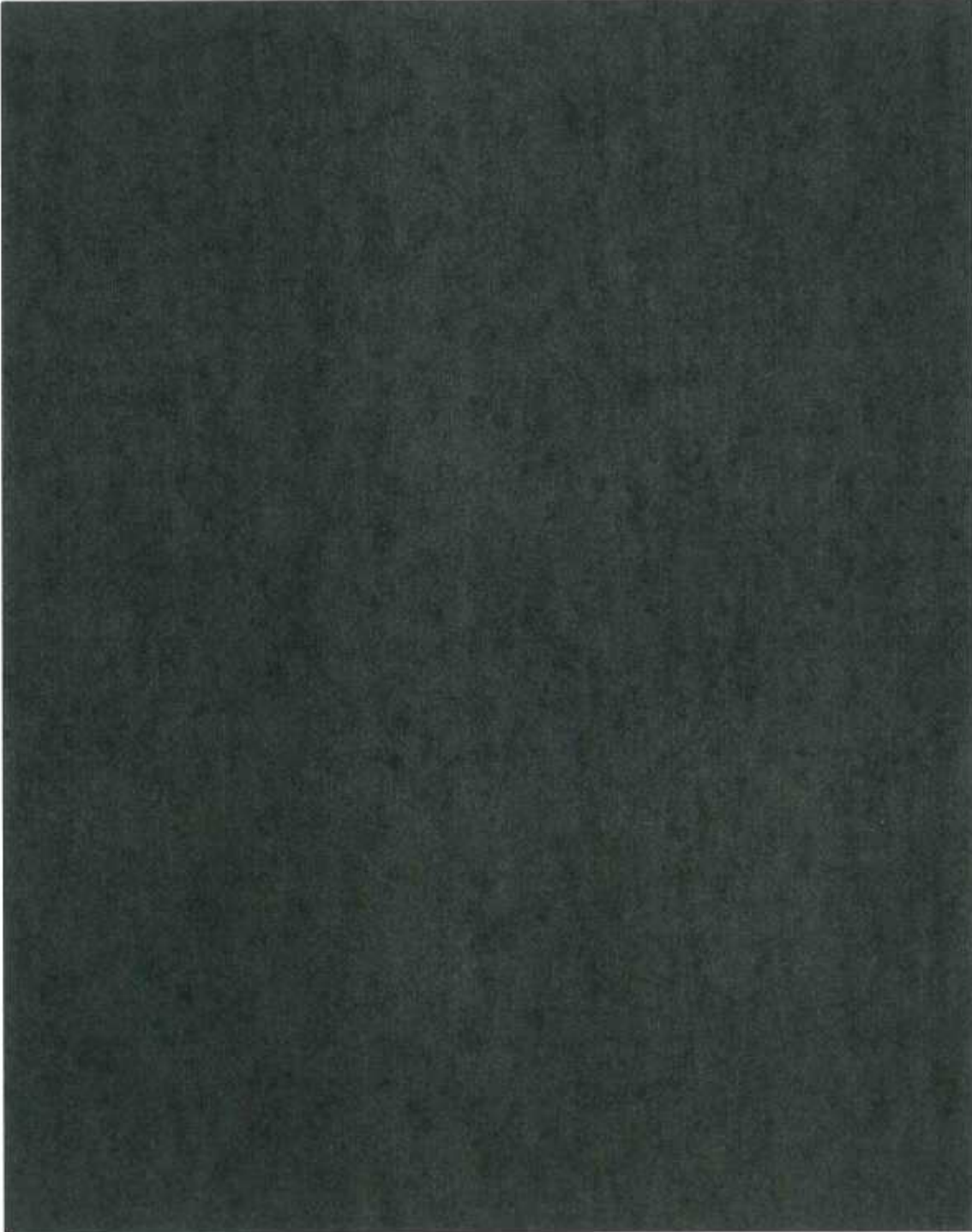


REDACTED

**Potential Generation Facility Acquisitions Evaluated for Transmission Cost
Impacts to the DEF transmission system**



REDACTED



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REDACTED



REFLECTED

