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020953-ET

2005 RFP
Technical Evaluation of Bidders' Responses
Environmental Issues

March 28, 2002

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Evaluation Items	Bidder			
	B	C	D	F
Minimum Evaluation Requirements:				
➤ Preliminary environmental analysis performed and submitted to Florida Power	N	Y	Y	Y
➤ Reasonable schedule for securing permits presented and evidence provided that permits are likely to be secured	N	Y	Y	Y
Technical Criteria – Permitting Certainty:				
➤ Well-conceived plans for securing all required permits	N	Y	Y	Y
➤ Demonstration of a thorough understanding of the permitting process	Y	Y	Y	Y
➤ Realistic permitting and approval schedules.	N	Y	Y	Y
➤ Progress in securing permits	N	Y	Y	Y
Relevant Experience:				
➤ Permitting and approvals	Y	Y	Y	Y
➤ Environmental compliance	N	N	N	Y

NOTE: The evaluation in the table above reports whether or not specific items were provided in each of the Bidders' proposals. The evaluation discussions below highlight the areas of strength and weakness found in each bid. Overall, with respect to environmental matters, the ranking of the projects would result in Bidder B being lowest, Bidder C the highest, and Bidders D and F equally in the middle.

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Evaluation Discussions

Bidder B

With respect to the Greenfield option, this bid is the least robust of all four proposals evaluated. Major questions remain regarding water supply, wastewater disposal, and overall site condition. There has been no progress in securing any permits or approvals, and no information was provided as to a plan or schedule for submitting applications. The assumptions made by Bidder B regarding their ability to secure permits for the site are based upon significant permitting experience in the state of Florida; however, the location of the proposed south central Polk County site is unique, and it cannot be assumed that permit approvals (particularly water supply) equate to their previous experience. Specific concerns include:

- Water Supply: In the bid it is assumed that an existing consumptive use permit will be transferred to the Bidder's control with their procurement of the site. This is not a certainty. The site is within the Southwest Florida Water Management District's Southern Water Use Caution Area (SWUCA), as are all four of the Bidders' projects, and allowances for groundwater withdrawals are not assured. It must also be noted that the purpose of the water to be withdrawn will be different than what is currently permitted. (NOTE: no information was provided regarding current site / permit ownership). The concept of water cropping was presented in the bid; however, no detail regarding assumptions or a basis to consider this a feasible option was provided. Water cropping initiatives require approvals from several agencies, and although encouraged by the agencies, are not guaranteed. The option for water to be supplied from other industrial / reuse water sources is a valid option, but again, no specifics have been provided to determine if it is likely for the project.
- Wastewater Disposal: No information was provided in the bid; therefore, it was impossible to evaluate the feasibility of this matter.
- Air Compliance: Technology and permitting assumptions may not be achievable; the Bidder's proposal anticipates a 3.5 PPM level for NOx BACT, and all other bidders (as well as current agency expectation) are anticipating a limit of 2.5 PPM. The site is relatively small (50 acres); therefore, there may be difficulty in meeting air quality requirements at the property boundary.
- Mining / Reclamation Lands: Because details of the proposed site are not provided it is impossible to determine if any obligations associated with mandatory reclamation lands could affect their regulatory status and thereby the likelihood of utilizing these areas for any purpose.
- Environmental Site Assessment (ESA): No Phase I ESA has been performed; therefore, no information is available regarding contamination or other site conditions such as wetland impacts or threatened / endangered species concerns.
- Linear Facilities: Given the close proximity of two existing sources of natural gas (FGT and Gulfstream pipelines), it is feasible that gas could be transported via new lateral pipelines; it is reasonable to expect that permits could be secured. Electrical transmission lines cross the project site; however, no information was provided as to how power will be moved from the site to the Florida Power system. A rail spur is also available on the site.
- Environmental Compliance: No information was provided on Bidder's history of environmental compliance.

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Bidder C

This proposal has substantial level of detail pertaining to environmental matters, and it appears that the primary permitting issue at stake is the approval of zoning of the site. This issue is unique to the bids under consideration, as all others are proposed in phosphate areas that are already zoned for power generation plants. The matter of this project's zoning has been highlighted in recent articles of the local press. No permit applications have been filed to date; however, negotiations are underway with the City of Winter Haven and other agencies. The Bidder anticipates that all agency approvals will be addressed via the Site Certification Application to be submitted to the Florida Department of Environmental Protection in September 2002. The site appears to be well-suited with respect to many environmental matters, including water supply, wastewater disposal, and air permitting. Below are highlights of the project:

- Water Supply: The site will employ water reuse technology to meet the project's needs. Obtaining water from the City of Winter Haven's wastewater treatment system will be viewed favorably by environmental agencies and citizens as well. A question regarding the level of treatment given the wastewater remains, as the state of Florida does require high level of treatment for any water to be utilized in cooling towers. This requirement targets human health effects and the drift associated with the towers. It is assumed that to acquire agency approvals, the quality of the wastewater will comply with these requirements. The possibility of capturing and utilizing rainfall runoff is also contemplated in the bid; however, no detailed plans for water cropping were provided in the bid (agency approvals are required for this type of system).
- Wastewater Disposal: The City of Winter Haven will accept wastewater generated by the project; no discharges to surfacewaters or groundwaters are proposed.
- Air Compliance: The assumptions made by the bidder are reasonable: NOx BACT at 2.5 PPM. Permit approvals are likely given the site location and property size.
- Environmental Site Assessment (ESA): No Phase I ESA has been performed; however, the bidder did present some level of detail on site conditions, land use, etc. that would indicate that significant environmental issues are not likely to be identified during such an assessment. Specifically, the issues of wetland areas, environmentally sensitive lands, historical and archaeological sites were discussed in the bid.
- Linear Facilities: Natural gas can be provided to the site via the construction of a new lateral line from an existing FGT pipeline located within a mile of the site. Transmission connection to Florida Power's electrical system can be made via the West Lake Wales Substation or by crossing city-owned property. A rail spur is to be constructed to connect to the rail line along the east boundary of the City's 1700-acre property. No environmental hurdles were identified for the permitting of these facilities.
- Environmental Compliance: No information was provided on the Bidder's history of environmental compliance.

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Bidder D

This bid includes flexibility for in-service timeframes because its Greenfield approach is to expand upon a currently planned "merchant" plant (Unit 1). In review of the information provided regarding on-going permit initiatives, it appears that Bidder D is seeking to utilize the Florida Power bid process to position themselves to expand a "merchant" site and thus their customer base. Significant progress has been made in securing approvals for Unit 1. Approval for the addition of Unit 2 (necessary to meet the requirements of the 2005 RFP) would have to be obtained separately via the Site Certification Application process (scheduled for application September 1, 2002). A significant amount of detail was provided for consideration of this bid.

- **Water Supply:** The bid proposes to acquire water from three new 850-foot wells to be drilled on the site. It is assumed that as a lessee of IMC property, a permit modification will be granted to IMC to allow for this access to groundwater. As the site is within the Southern Water Use Caution Area (SWUCA), this assumption may not be easily met. Application was made to the Southwest Florida Water Management District in November 2001, and the bid states a permit is expected in August 2002; no indication was provided as to the District's current position on this request. No other water supply options are discussed in the bid, which makes the proposal hinge on only one possible source. Given the restrictions in the SWUCA, this situation makes water supply a critical risk point for the project's feasibility.
- **Wastewater Disposal:** The bid's proposal to utilize a zero-liquid discharge system eliminates the need for permitting efforts associated with wastewater disposal, and is a plus for the bid.
- **Air Compliance:** A permit has been issued for Unit-1, and it is likely that Unit 2 could also be permitted. A 2.5 PPM of NOx is anticipated.
- **Mining / Reclamation Lands:** The project is proposed to be constructed on IMC phosphate mining property. No representations were made in the bid to ensure that activities on any mandatory lands could occur or would not be prohibited due to previous reclamation obligations.
- **Environmental Site Assessment (ESA):** A Phase I ESA was completed by the Bidder's consultant in April 2001. No significant environmental issues were identified during the assessment. Wetlands are on site, and permits have been secured from the Florida Department of Environmental Protection and the U.S. Army Corps of Engineers; no mitigation was required.
- **Linear Facilities:** Gulfstream will permit and construct a new lateral pipeline necessary to provide natural gas to the site. A new electrical transmission line will be constructed to connect the project to the Hines Substation; no determination has been made regarding environmental impacts (wetlands, migratory bird, etc.) of this transmission line. Bald eagles have been known to nest in the immediate vicinity of this project, and this may be an issue for the permitting and scheduled construction of the transmission line. (NOTE: This information was not provided by the Bidder, but is known by Florida Power's Environmental Services Section staff.)
- **Environmental Compliance:** No information was provided on Bidder's history of environmental compliance.

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Bidder F

This project is currently underway, and as with Bidder D, is being pursued outside of the Power Plant Siting Act. Florida Power's acceptance of this bid would open the opportunity for the Bidder to expand the site to its potential capacity of 750 MW. Significant progress has been made on the permitting initiatives associated with the development of the site (up to 74.9 MW steam generation).

- Water Supply: As stated by the Bidder, "This is the most problematic permit." Application to modify CFI's existing permit to acquire 3 MGD of groundwater (as make-up water for the power plant) has been made. The water supply permitting scenario with this bid is somewhat similar to those of Bidders B and D, and is by no means assured of approval. As there are no other water supply options identified in the bid, this is a critical issue for the success of the proposed project.
- Wastewater Disposal: The bid proposes to utilize CFI's Initial Settling Area (ISA) to discharge cooling water. A modification of CFI's existing NPDES permit must be approved by the Florida Department of Environmental Protection, and the Bidder reports that it is "virtually completed." The use of the ISA is an innovative use of an existing facility; however, there is a question regarding the life of the pond and its long-term ability to serve the power plant. No detailed information was provided to assure that as the ISA may fill with clay, there is provision for additional storage volume (i.e., expand the pond or utilize other CFI ponds).
- Air Compliance: A draft permit has been issued for the site, and all conditions are within expectations. It is reasonable to assume that permits for an expanded site (to 750 MW) would be granted and acceptable.
- Mining / Reclamation: As with any activity on mined / reclaimed land, confirmation must be made that none of the proposed activities are in conflict with CFI's regulatory obligations.
- Environmental Site Assessment (ESA): The bid did not specify whether or not a Phase I ESA has been performed; however, information was provided regarding site features (wetlands, threatened and endangered species, historical / archaeological areas, land use, etc.). Based upon this information, no significant issues were raised.
- Linear Facilities: Natural gas will likely serve the site via a new 2-mile long lateral pipeline off of the FGT pipeline. A rail spur will be constructed to connect the site to SR 663. No detail was provided as to a tie into the Florida Power transmission system. Obtaining the necessary approvals for these linear facilities should not pose a problem.
- Environmental Compliance: This Bidder was unique in reporting its environmental compliance status. No specifics were given; however, the bid did include reference to "non-compliance notices" that have been or are being addressed ... none were reported to be significant.

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Bidder F

General

The T&C Team has not seen much of Bidder F's proposal. Lacking from the data provided was their proposed term of the agreement, and any flexibility to that term. It is our opinion that FPC should not contract for capacity from a combined cycle facility that lacks a firm gas transportation contract.

It seems that Bidder F's Board of Trustees has not been made aware of their Proposal, which is conditional upon their approval.

Key Terms and Conditions

We appreciate Bidder F's efforts in this Section. The Bidder provided a redline-strikeout version of the Key Terms and Conditions, which make comparisons to the original much easier than those of other bidders.

Section 1 Right of First Refusal

Bidder F will not provide FPC with Right of First Refusal. It will allow FPC the Right to Purchase, however. The subject sight will have more capacity than that sought in FPC's RFP, thus the issue this presents to the Bidder.

Section 2 Adjustments to Fixed Payments

The Bidder believes that it should be compensated, at some level, for operating, even if its overall availability drops below 60%.

Section 3 Default and Security

Bidder F has suggested minor changes that we believe are negotiable. As with others, the Bidder seeks "lesser of" language to limit liability.

Summary

Bidder F responded to FPC's RFP with several proposed changes. These changes do not represent extreme positions, and the Bidder genuinely seems to be willing to negotiate. We believe that we can negotiate a fair agreement with this Bidder, should it be carried forward to that point.

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Roeder, Dan

From: Coats, Ron
Sent: Monday, May 13, 2002 11:17 AM
To: Roeder, Dan
Subject: HINES RFP

Attached is a revised matrix dated May 13, 2002. The matrix reflects the vendor responses to questions previously posed. Overall, all three of these bidders are close, however I have provided a ranking to show how I felt they shake out relative to each other.

In the ranking, I placed bidder F slightly higher than Bidder D on the basis of their clarification that they will connect to both Gulfstream and FGT pipelines. Having two pipelines should enhance fuel reliability and offer a more competitive pricing situation. Bidder F is also providing 100 hours of oil backup versus 72 hours for Bidder C.

Bidder D ranks a close second. They are planning to use only Gulfstream. The fact that a precedent agreement is in place with Gulfstream is a strong positive, as well as the fact that they have indicated that they have secured 100% of their transportation needs. Bidder D also plans for 100 hours of oil backup.

Bidder C ranks third. At Bidder C's site, the capability exists to connect to both FGT and Gulfstream; however, connection to either pipeline is dependent on some major construction. Gulfstream is 10 miles away and use of FGT will require pipeline expansion. Bidder C states that both Gulfstream and FGT have indicated that they can meet project needs within the limits of the schedule, Bidder C's proposal does not seem as firm as that of Bidders D and F.



Evaluation
Matrix-051302.doc

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Roeder, Dan

From: White, Bart B
Sent: Tuesday, April 30, 2002 10:23 AM
To: Roeder, Dan
Subject: RE: Hines 3 RFP - Bidder D Load Flow Analysis

You're right, that was poor wording. See attached for further revisions.



Hines 3 RFP TP
Analysis.doc

-----Original Message-----

From: Roeder, Dan
Sent: Tuesday, April 30, 2002 10:15 AM
To: White, Bart B
Subject: RE: Hines 3 RFP - Bidder D Load Flow Analysis

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Bart--

Thanks for the quick update. I have a question about the wording, however. For both the D and F proposals, you mentioned \$20 million for the Hines-West Lake Wales line, which is also required for Hines 3. For documentation purposes, would it be more correct to say something along the lines of "...would necessitate the advancement of the construction of a 20-mile 230 kV line from Hines Substation to West Lake Wales from May, 2007 to May, 2005.?"

I am concerned that someone picking this up (it will likely be discovered) might not know about the line and that it was already in the plan. If the above wording is correct, please revise the document and resend it. (You don't have to use the exact wording I wrote above; the concept is what I want to get documented).

Thanks,
--Dan

-----Original Message-----

From: White, Bart B
Sent: Tuesday, April 30, 2002 9:50 AM
To: Roeder, Dan
Subject: RE: Hines 3 RFP - Bidder D Load Flow Analysis

Dan,

See the revised report that is attached for Bidder D changes. In addition, we neglected an overload in 2010 Summer for Bidder F that we believe necessitates construction of the Hines-West Lake Wales 230 kV line as well. I also removed costs for any facilities considered as base interconnection facilities. See red highlighted text for all changes.

thanks,
Bart

<< File: Hines 3 RFP TP Analysis.doc >>

-----Original Message-----

From: White, Bart B
Sent: Tuesday, April 30, 2002 8:06 AM
To: Roeder, Dan
Subject: Hines 3 RFP - Bidder D Load Flow Analysis

Dan,

The Hines - West Lake Wales 230 kV line is definitely a required facility to meet contingency load flow requirements for Bidder D. Our Bidder D analysis was inadvertently run with that line in the case. We are re-running the Bidder D analysis now with Hines - West Lake Wales removed, which will certainly show the same

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overloads we have seen for a base Hines 3 installation. I expect to have you some results later today.

thanks,

W. Bart White, P.E.

Senior Engineer

Transmission Planning

Florida Power, a Progress Energy Company

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Hines 3 RFP

Transmission Planning Analysis and Interconnection Costs for Bidder Proposals

Bidder C

Load Flow Analysis

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The purpose of the load flow analysis was to determine the impact of the proposed Bidder C site on the System by comparing the performance of the System with and without the proposed site. Normal condition and first contingency analysis was performed for these scenarios.

The branch loading performance was compared against FP Transmission Planning criteria. For normal continuous loading conditions, normal (Rate A) ratings were applied. For first contingency conditions, emergency ratings (Rate B) were applied. System voltage is considered acceptable at 0.95 p.u. or higher. Contingencies showing first contingency loading increases of 3% or greater for a Bidder C dispatch versus the base case are considered significant overloads that merit further research and discussion with the affected entities.

No normal condition overloads were encountered in 2006 Summer conditions based on the monitoring of all facilities in the vicinity of the Bidder C site. However, the Bidder C Tap - West Lake Wales 230 kV line was overloaded to 122.2% of its normal rating by 2010 Summer. In Summer 2006, the loss of four different 230 kV lines were found to overload the Bidder C Tap - West Lake Wales 230 kV line or the Bidder C Tap - TECO South Eloise 230 kV line as high as 112.1% of emergency rating (550 MVA). In Summer 2010, the loss of nine different 230 kV lines were found to overload the Bidder C Tap - West Lake Wales 230 kV line or the Bidder C Tap - TECO South Eloise 230 kV line as high as 143.3% of emergency rating (550 MVA). *These overloads would necessitate a rebuild of the existing FP West Lake Wales - TECO South Eloise - FP North Bartow 230 kV line. Costs for this rebuild and other interconnection costs are as follows: Rebuild existing FP West Lake Wales - TECO South Eloise - FP North Bartow 230 kV line (18.7 miles) with associated Substation work at West Lake Wales, North Bartow and South Eloise Substations - \$20,000,000.*

Stability Analysis

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The stability analysis was designed to evaluate the impact of Bidder C by focusing on the relative performance of the System with and without the proposed plant. The benchmark performance was established by the results of stability simulations without Bidder C dispatched for 2005 Winter conditions. The relative performance of the System with the Bidder C site dispatched was then compared to the base cases. Analysis for each scenario includes monitoring of Bidder C machine variables, power output for other generators in the vicinity, and power output for large generators in Florida. All faults in these simulations are 3-phase faults with a normal clearing time of 5 cycles. Individual simulations for Bidder C were performed for the following events: 1) 3-phase fault at the

Bidder C 230 kV Tap bus and subsequent loss of the Bidder C Tap – West Lake Wales 230 kV line, 2) 3-phase fault at the Bidder C 230 kV Tap bus and subsequent loss of the Bidder C Tap – TECO South Eloise 230 kV line and 3) 3-phase fault at the Bidder C 230 kV Switchyard bus and subsequent clearing of a portion of the Bidder C 230 kV Switchyard bus without loss of the Bidder C generator.

Under the studied 2005 Winter conditions with Bidder C dispatched, the System response for all contingencies is first swing stable with all oscillations well within the 5% damping threshold considered to be adequately damped by the Florida Reliability Coordinating Council (FRCC).

Short Circuit Analysis

Short circuit analysis was performed for the West Lake Wales Substation and other nearby substations to determine the impact of Bidder C on existing circuit breaker duties. This consisted of the application of a 3-phase fault bolted to the pertinent bus with Bidder C out of service, followed by repetition of the fault with Bidder C in-service. In simulations using 2006 and 2010 Summer base cases, with and without Bidder C dispatched, several 230 kV breakers were found to be overdutied. In all cases, however, these breakers are already at or near their maximum fault current interrupting rating without Bidder C in-service. As such, Bidder C would have no cost responsibility for upgrading these breakers.

Bidder D

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Load Flow Analysis

The purpose of the load flow analysis was to determine the impact of the proposed Bidder D site on the System by comparing the performance of the System with and without the proposed site. Normal condition and first contingency analysis was performed for these scenarios.

The branch loading performance was compared against FP Transmission Planning criteria. For normal continuous loading conditions, normal (Rate A) ratings were applied. For first contingency conditions, emergency ratings (Rate B) were applied. System voltage is considered acceptable at 0.95 p.u. or higher. Contingencies showing first contingency loading increases of 3% or greater for a Bidder D dispatch versus the base case are considered significant overloads that merit further research and discussion with the affected entities.

No normal condition overloads were encountered in 2006 or 2010 Summer conditions based on the monitoring of all facilities in the vicinity of the Bidder D site. Contingency analysis did reveal overloading concerns, however. In 2005 Winter simulations with Bidder D dispatched, the loss of the Fort Meade – West Lake Wales 230 kV line was shown to overload the Barcola – Pebbledale 230 kV to 105% of its emergency rating. Additionally, 2006 Summer simulations showed the loss of the Fort Meade – West Lake

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Wales 230 kV line would load the Barcola – Pebbledale 230 kV to 99% of its emergency rating and the West Lake Wales – South Eloise – North Bartow 230 kV line to 102 % of its emergency rating.

The overloading scenarios exhibited for a Bidder D dispatch would necessitate the acceleration of the construction of a 20-mile 230 kV line from Hines Substation to West Lake Wales from May 2007 to May 2005. This facility is presently estimated at \$20,000,000.

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Stability Analysis

The stability analysis was designed to evaluate the impact of Bidder D by focusing on the relative performance of the System with and without the proposed plant. The benchmark performance was established by the results of stability simulations without Bidder D dispatched for 2005 Winter conditions. The relative performance of the System with the Bidder D site dispatched was then compared to the base cases. Analysis for each scenario includes monitoring of Bidder D machine variables, power output for other generators in the vicinity, and power output for large generators in Florida. All faults in these simulations are 3-phase faults with a normal clearing time of 5 cycles. Individual simulations for Bidder D were performed for the following events: 1) 3-phase fault at the Hines 230 kV bus and subsequent loss of the Hines – Fort Meade 230 kV line, 2) 3-phase fault at the Hines 230 kV bus and subsequent loss of the Hines – Barcola 230 kV line #1 and 3) 3-phase fault at the Hines 230 kV bus and subsequent loss of the Hines – Tiger Bay 230 kV line.

Under the studied 2005 Winter conditions with Bidder D dispatched, the System response for all contingencies is first swing stable with all oscillations well within the 5% damping threshold considered to be adequately damped by the Florida Reliability Coordinating Council (FRCC).

Short Circuit Analysis

Short circuit analysis was performed for the Vandolah and Fort Meade Substations and other nearby substations to determine the impact of Bidder D on existing circuit breaker duties. This consisted of the application of a 3-phase fault bolted to the pertinent bus with Bidder D out of service, followed by repetition of the fault with Bidder D in-service. In simulations using 2006 and 2010 Summer base cases, with and without Bidder D dispatched, several 230 kV breakers were found to be overdutied. In all cases, however, these breakers are already at or near their maximum fault current interrupting rating without Bidder D in-service. As such, Bidder D would have no cost responsibility for upgrading these breakers

Bidder F

Load Flow Analysis

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The purpose of the load flow analysis was to determine the impact of the proposed Bidder F site on the System by comparing the performance of the System with and without the proposed site. Normal condition and first contingency analysis was performed for these scenarios.

The branch loading performance was compared against FP Transmission Planning criteria. For normal continuous loading conditions, normal (Rate A) ratings were applied. For first contingency conditions, emergency ratings (Rate B) were applied. System voltage is considered acceptable at 0.95 p.u. or higher. Contingencies showing first contingency loading increases of 3% or greater for a Bidder F dispatch versus the base case are considered significant overloads that merit further research and discussion with the affected entities.

No normal condition overloads were encountered in 2006 or 2010 Summer conditions based on the monitoring of all facilities in the vicinity of the Bidder F site. Contingency analysis for 2010 Summer did reveal an overload of the West Lake Wales – South Eloise 230 kV line to 101.1% of its emergency rating for the loss of the Fort Meade – West Lake Wales 230 kV line. Additionally, Summer 2006 and 2010 simulations revealed several single contingency scenarios on the Florida Power & Light (FPL) and Tampa Electric (TECO) transmission systems which violate the incremental 3% criteria. The loss of the Charlotte – Whidden 230 kV line was found to increase the overload of the Charlotte – Carlstrom 230 kV line from 128.9% to 136% of its emergency rating, and the loss of the Charlotte – Calusa 230 kV line was found to overload the Charlotte – Fort Myers 230 kV line from 99.3% to 102.6% of its emergency rating. In 2010 Summer, the loss of the Charlotte – Whidden 230 kV line was found to increase the overload of the Charlotte – Carlstrom 230 kV line from 138.3% to 145.6% of its emergency rating. The loss of the Charlotte – Hardee 230 kV line was found to increase the overload of the Charlotte – Carlstrom 230 kV line from 102.7% to 107.4% of its emergency rating. The loss of the TECO Polk – Pebbledale 230 kV line #1 was found to overload the Polk – Pebbledale 230 kV line #2 from 96% to 114.8% of its emergency rating. The loss of the TECO Polk – Pebbledale 230 kV line #2 was found to increase the overload of the Polk – Pebbledale 230 kV line #1 from 103.3% to 123.7% of its emergency rating. Depending on the outcome of the Hines 3 RFP, these results would potentially need to be addressed by FPL and TECO.

The overloading scenarios exhibited for a Bidder F dispatch would necessitate the acceleration of the construction of a 20-mile 230 kV line from Hines Substation to West Lake Wales from May 2007 to May 2005. This facility is presently estimated at \$20,000,000.

Stability Analysis

The stability analysis was designed to evaluate the impact of Bidder F by focusing on the relative performance of the System with and without the proposed plant. The benchmark

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performance was established by the results of stability simulations without Bidder F dispatched for 2005 Winter conditions. The relative performance of the System with the Bidder F site dispatched was then compared to the base cases. Analysis for each scenario includes monitoring of Bidder F machine variables, power output for other generators in the vicinity, and power output for large generators in Florida. All faults in these simulations are 3-phase faults with a normal clearing time of 5 cycles. Individual simulations for Bidder F were performed for the following events: 1) 3-phase fault at the Bidder F 230 kV bus and subsequent loss of the Bidder F– Vandolah 230 kV line and 2) 3-phase fault at the Bidder F 230 kV bus and subsequent loss of the Bidder F– Fort Meade 230 kV line.

Under the studied 2005 Winter conditions with Bidder F dispatched, the System response for all contingencies is first swing stable with all oscillations well within the 5% damping threshold considered to be adequately damped by the Florida Reliability Coordinating Council (FRCC).

Short Circuit Analysis

Short circuit analysis was performed for the Vandolah and Fort Meade Substations and other nearby substations to determine the impact of Bidder F on existing circuit breaker duties. This consisted of the application of a 3-phase fault bolted to the pertinent bus with Bidder F out of service, followed by repetition of the fault with Bidder F in-service. In simulations using 2006 and 2010 Summer base cases, with and without Bidder F dispatched, several 230 kV breakers were found to be overdutied. In all cases, however, these breakers are already at or near their maximum fault current interrupting rating without Bidder F in-service. As such, Bidder F would have no cost responsibility for upgrading these breakers.

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Bidder	Proposal Type	Average Capacity (MW)		2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021
Bidder B	Greenfield	500	Fixed (\$/kW-yr)	110.5	112.7	114.9	117.2	119.5	121.9											
			Generation	79.3	81.3	83.3	85.4	87.5	89.7											
			Transmission	7.4	7.6	7.8	8.0	8.2	8.4											
			Firm Fuel Trans	23.8	23.8	23.8	23.8	23.8	23.8											
			Variable (\$/MWh)	28.2	28.9	29.9	30.9	32.0	33.1											
Capacity Factor	60%		Fuel Price	3.41	3.49	3.61	3.74	3.87	4.01											
Avg Heat Rate	7500		Fuel	25.5	26.1	27.1	28.0	29.1	30.1											
			Non-fuel	2.7	2.8	2.8	2.9	3.0	3.0											
			Starts (\$/start)	21537.8	22078.3	22628.2	23193.8	23773.7	24368.1											

100.0% Primary Fuel	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
	1	1	1	1	1	1	1	1	1	1	1	1

Bidder C	Greenfield	548	Fixed (\$/kW-yr)	128.0	127.7	129.4	131.1	132.9	134.7	138.6	138.5	140.4	142.4	144.4						
			Generation	84.0	85.7	87.4	89.1	90.9	92.7	94.6	96.5	98.4	100.4	102.4						
			Transmission	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0						
Capacity Factor	100%		Firm Fuel Trans	42.0	42.0	42.0	42.0	42.0	42.0	42.0	42.0	42.0	42.0	42.0						
			Variable (\$/MWh)	27.9	28.5	29.6	30.6	31.7	32.7	33.8	34.9	36.1	37.4	38.7						
Avg Heat Rate	7201.5		Fuel	24.8	25.4	26.4	27.3	28.3	29.3	30.3	31.3	32.4	33.6	34.8						
			Non-fuel	3.0	3.1	3.2	3.3	3.4	3.4	3.5	3.6	3.7	3.8	3.9						
			Starts (\$/start)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0						

100.0% Primary Fuel	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
	1	1	1	1	1	1	1	1	1	1	1	1

Bidder D	Greenfield	489	Fixed (\$/kW-yr)	146.6	147.0	147.4	147.8	148.2	148.6	149.0	149.4	149.9	150.3	150.8	151.2	151.7	152.2	152.7	153.2	153.7
			Generation	99.6	100.0	100.3	100.7	101.1	101.6	102.0	102.4	102.8	103.3	103.7	104.2	104.7	105.1	105.6	106.1	106.6
			Transmission	1.7	1.7	1.7	1.7	1.7	1.7	1.7	1.7	1.7	1.7	1.7	1.7	1.7	1.7	1.7	1.7	1.7
Capacity Factor	100%		Firm Fuel Trans	45.3	45.3	45.3	45.3	45.3	45.3	45.3	45.3	45.3	45.3	45.3	45.3	45.3	45.3	45.3	45.3	45.3
			Variable (\$/MWh)	24.8	25.1	26.0	26.8	27.8	28.7	29.6	30.5	31.5	32.6	33.7	34.9	36.1	37.4	38.7	40.1	41.5
Avg Heat Rate	6985		Fuel	20.7	21.2	22.0	22.8	23.6	24.5	25.3	26.1	27.1	28.0	29.0	30.2	31.3	32.5	33.7	34.9	36.2
			Non-fuel	3.8	3.9	4.0	4.1	4.1	4.2	4.3	4.4	4.5	4.6	4.7	4.8	4.9	4.9	5.0	5.1	5.3
			Starts (\$/start)	10473.9	10722.4	11112.9	11503.5	11929.5	12355.6	12781.7	13207.7	13669.3	14168.3	14663.4	15231.5	15789.5	16403.1	17006.7	17645.8	18307.5

100.0% Primary Fuel	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
	1	1	1	1	1	1	1	1	1	1	1	1

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Bidder F	Greenfield	507	Fixed (\$/kW-yr)	173.2	173.5	173.9	174.2	174.5	174.9	175.2	175.6	175.9	176.3	176.7	177.1	177.5	177.9	178.3		
			Generation	123.3	123.6	123.9	124.3	124.6	124.9	125.3	125.6	126.0	126.4	126.8	127.1	127.5	127.9	128.3		
			Transmission	0.9	0.9	0.9	0.9	0.9	0.9	0.9	0.9	0.9	0.9	0.9	0.9	0.9	0.9	0.9		
Capacity Factor	100%		Firm Fuel Trans	49.1	49.1	49.1	49.1	49.1	49.1	49.1	49.1	49.1	49.1	49.1	49.1	49.1	49.1	49.1		
			Variable (\$/MWh)	24.1	24.6	25.5	26.3	27.2	28.2	29.1	30.0	31.0	32.1	33.2	34.4	35.6	36.9	38.2		
Avg Heat Rate	7147.5		Fuel	21.2	21.7	22.5	23.2	24.1	25.0	25.6	26.7	27.6	28.6	29.6	30.8	31.9	33.2	34.4		
			Non-fuel	2.9	3.0	3.0	3.1	3.1	3.2	3.3	3.3	3.4	3.5	3.5	3.6	3.7	3.7	3.8		
			Starts (\$/start)	31836.2	32473.0	33122.4	33784.9	34460.6	35149.8	35852.8	36568.8	37301.2	38047.3	38808.2	39584.4	40376.1	41183.6	42007.2		

100.0% Primary Fuel	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
	1	1	1	1	1	1	1	1	1	1	1	1

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Hines 3 Annual RR	537.5	Capital cost	97.1	97.1	94.4	90.8	87.4	84.1	80.9	77.8	74.8	71.9	69.1	66.2	63.3	60.4	57.6	54.7	51.8
		Fixed O&M	1.5	1.5	1.5	1.5	1.6	1.6	1.6	1.7	1.7	1.7	1.8	1.8	1.8	1.9	1.9	2.0	2.0

Bidder	Proposal Type	Average Capacity (MW)	2005	2008	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021		
	Capacity Factor	65%	Firm Fuel Trans	24.75	24.75	24.75	24.75	24.75	24.75	24.75	24.75	24.75	24.75	24.75	24.75	24.75	24.75	24.75	24.75		
		Transmission	2.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		
	Avg Heat Rate	6903	Total Fixed	125.3	123.4	120.7	117.1	113.7	110.5	107.3	104.2	101.3	98.4	95.6	92.8	89.9	87.1	84.2	81.4	78.6	
		Fuel	20.8	21.3	22.1	22.8	23.7	24.5	25.4	26.2	27.1	28.1	29.1	30.2	31.4	32.6	33.7	35.0	36.3		
		Var O&M	2.7	2.8	2.8	2.9	2.9	3.0	3.1	3.1	3.2	3.2	3.3	3.4	3.4	3.4	3.5	3.6	3.6		
		Total Variable	23.5	24.0	24.9	25.7	26.6	27.5	28.4	29.3	30.3	31.4	32.4	33.6	34.8	36.1	37.3	38.7	40.1		
		Start price	0																		
	RFP Annual RR	Capacity Factor	530	Capital cost	103.76	103.76	100.89	97.10	93.45	89.93	86.54	83.27	80.10	77.02	73.97	70.91	67.86	64.80	61.75	58.69	55.64
			Fixed O&M	1.6	1.7	1.7	1.7	1.8	1.8	1.8	1.9	1.9	2.0	2.0	2.0	2.0	2.1	2.1	2.2	2.2	2.3
Capacity Factor		65%	Firm Fuel Trans	24.64	24.64	24.64	24.64	24.64	24.64	24.64	24.64	24.64	24.64	24.64	24.64	24.64	24.64	24.64	24.64	24.64	
		Transmission	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0		
		Total Fixed	132.04	132.08	129.25	125.48	121.87	118.39	115.03	111.79	108.66	105.63	102.61	99.60	96.58	93.57	90.56	87.54	84.53		
		Fuel	20.8	21.1	21.9	22.7	23.5	24.3	25.2	26.0	26.9	27.9	28.9	30.0	31.1	32.3	33.5	34.7	36.1		
		Var O&M	2.7	2.8	2.8	2.9	2.9	3.0	3.1	3.1	3.2	3.2	3.3	3.4	3.4	3.5	3.6	3.7			
		Total Variable	23.3	23.9	24.7	25.5	26.4	27.3	28.2	29.1	30.1	31.1	32.2	33.4	34.5	35.8	37.1	38.4	39.8		
		Start price																			

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Bidder	Proposal Type	Average Capacity (MW)		2022	2023	2024	2025	2026	2027	2028	2029
Bidder B	Greenfield	500	Fixed (\$/kW-yr)								
			Generation								
			Transmission								
			Firm Fuel Trans								
	Capacity Factor	60%	Variable (\$/MWh)								
	Avg Heat Rate	7500	Fuel Price								
			Fuel								
			Non-fuel								
			Starts (\$/start)								

100.0% Primary Fuel

Bidder C	Greenfield	546	Fixed (\$/kW-yr)								
			Generation								
			Transmission								
			Firm Fuel Trans								
	Capacity Factor	100%	Variable (\$/MWh)								
	Avg Heat Rate	7281.5	Fuel								
			Non-fuel								
			Starts (\$/start)								

100.0% Primary Fuel

Bidder D	Greenfield	489	Fixed (\$/kW-yr)	154.2	154.7	155.3					
			Generation	107.2	107.7	108.2					
			Transmission	1.7	1.7	1.7					
			Firm Fuel Trans	45.3	45.3	45.3					
	Capacity Factor	100%	Variable (\$/MWh)	43.0	44.5	46.1					
			Fuel	37.6	39.0	40.5					
			Non-fuel	5.4	5.5	5.6					
	Avg Heat Rate	6985	Starts (\$/start)	19003.2	19725.3	20474.9					

100.0% Primary Fuel



Bidder F	Greenfield	507	Fixed (\$/kW-yr)								
			Generation								
			Transmission								
			Firm Fuel Trans								
	Capacity Factor	100%	Variable (\$/MWh)								
	Avg Heat Rate	7147.5	Fuel								
			Non-fuel								
			Starts (\$/start)								

100.0% Primary Fuel

Hines 3 Annual RR	537.5	Capital cost	48.9	46.1	43.2	40.3	37.4	35.1	33.4	31.7
		Fixed O&M	2.0	2.1	2.1	2.2	2.2	2.3	2.3	2.3

File: Screener3_053002.xls, Sheet: Cost Summary

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Bidder	Proposal Type	Average Capacity (MW)		2022	2023	2024	2025	2026	2027	2028	2029
	Capacity Factor	65%	Firm Fuel Trans	24.75	24.75	24.75	24.75	24.75	24.75	24.75	24.75
			Transmission	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
			Total Fixed	75.7	72.9	70.1	67.2	64.4	62.1	60.5	58.8
	Avg Heat Rate	6903	Fuel	37.7	39.1	40.6	42.2	43.8	45.4	47.2	49.0
			Var O&M	3.8	3.9	3.9	4.0	4.1	4.2	4.3	4.4
			Total Variable	41.5	43.0	44.6	46.2	47.9	49.6	51.4	53.3
			Start price								
RFP Annual RR		530	Capital cost	52.58	49.52	46.47	43.41	40.36	37.90	36.04	34.18
			Fixed O&M	2.3	2.3	2.4	2.4	2.5	2.5	2.6	2.6
	Capacity Factor	65%	Firm Fuel Trans	24.64	24.64	24.64	24.64	24.64	24.64	24.64	24.64
			Transmission	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
			Total Fixed	81.52	78.51	75.50	72.50	69.49	67.08	65.27	63.47
			Fuel	37.4	38.8	40.3	41.9	43.4	45.1	46.8	48.6
			Var O&M	3.8	3.9	3.9	4.0	4.1	4.2	4.3	4.4
			Total Variable	41.2	42.7	44.3	45.9	47.5	49.3	51.1	52.9
			Start price								

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