

BEFORE THE FLORIDA PUBLIC SERVICE COMMISSION

In re: Petition to determine need for Greenland Energy Center Combined Cycle Conversion in Duval County by JEA. | DOCKET NO. 080614-EM
ORDER NO. PSC-09-0111-FOF-EM
ISSUED: February 25, 2009

The following Commissioners participated in the disposition of this matter:

MATTHEW M. CARTER II, Chairman
LISA POLAK EDGAR
KATRINA J. McMURRIAN
NANCY ARGENZIANO
NATHAN A. SKOP

APPEARANCES:

GARY V. PERKO, ESQUIRE, Hopping Green & Sams, 123 South Calhoun Street, P.O. Box 6526, Tallahassee, Florida 32314
On behalf of JEA

MARTHA CARTER BROWN, ESQUIRE, Florida Public Service Commission, 2540 Shumard Oak Boulevard, Tallahassee, Florida 32399-0850
On behalf of the Florida Public Service Commission (Staff).

FINAL ORDER GRANTING PETITION FOR DETERMINATION OF NEED

BY THE COMMISSION:

BACKGROUND

On September 30, 2008, JEA filed a petition for a determination of need for the proposed combined cycle conversion project at the Greenland Energy Center (GEC) in Duval County, Florida pursuant to Section 403.519, Florida Statutes (F.S.), and Rule 25-22.080, Florida Administrative Code (F.A.C.). JEA's proposal consists of the conversion of two natural gas-fired "simple cycle" combustion turbines to a 2x1 "combined cycle" configuration. The conversion will allow the capability of generating an additional 207 megawatts (MW). JEA initially planned on a June 1, 2012, commercial operation date for the GEC Combined Cycle Conversion. Due to recent credit market developments, JEA delayed the commercial operation date of the GEC Combined Cycle Conversion until 2013.

We held a formal administrative hearing on this matter on February 12, 2009. We provided an opportunity for members of the public to address JEA's need determination petition,

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but no one was present to offer comment. At the hearing, after taking all evidence, we considered the agreement between our staff and JEA regarding the appropriate resolution of all issues identified for the case. We approved the agreed positions by a bench decision, thereby resolving all issues and granting JEA's petition for determination of need. This Order reflects that decision and serves as our report under the Power Plant Siting Act, as required by section 403.507(2)(a)2, F.S.

Standard of Review

Section 403.519, F.S., sets forth those matters that we must consider in a proceeding to determine the need for a proposed electrical power plant:

In making its determination, the commission shall take into account the need for electric system reliability and integrity, the need for adequate electricity at a reasonable cost, the need for fuel diversity and reliability, whether the proposed plant is the most cost-effective alternative available, and whether renewable energy resources and technologies, as well as conservation measures are utilized to the extent reasonably available. The commission shall also expressly consider the conservation measures taken by or reasonably available to the applicant or its members which might mitigate the need for the proposed plant and other matters within its jurisdiction which it deems relevant.

Findings

Need for Electric System Reliability and Integrity

We find that there is a need for the proposed combined cycle conversion project at the Greenland Energy Center, taking into account the need for electric system reliability and integrity, as this criterion is used in section 403.519, F.S.

For planning purposes, JEA has established a 15 percent minimum reserve margin above peak demand criterion. JEA's forecasted annual peak demands are projected to occur in the winter; however, the difference between summer and winter capacity of JEA's generating units causes JEA's need for capacity to be governed by the projected summer peak demand. Current forecasts indicate that JEA has a need for additional capacity in several of the years over a ten year planning period. A review of JEA's forecast assumptions, models, and the projected system peak demands indicates that they are appropriate for use in this case.

JEA currently purchases seasonal power in order to provide necessary capacity for reliability purposes. JEA additionally planned to meet some of its reliability needs with two "simple cycle" combustion turbines (CT) in 2010 and the GEC Combined Cycle Conversion of the two aforementioned CTs in 2012. Due to recent credit market developments and company policy, however, JEA delayed the commercial operation date of the two CTs until 2011 and the GEC Combined Cycle Conversion until 2013. JEA has indicated that additional purchased

power will be required in order to satisfy the greater than expected reliability need in 2010 caused by the delays.

JEA's current forecasts indicate a need for more than 240 MW in 2013 in order to maintain the company's 15 percent reserve margin planning criteria. With the addition of the GEC Combined Cycle Conversion (207 MW) in 2013, JEA will still have a need for 35 MW. Thus, all of the capacity of the GEC Combined Cycle Conversion is needed in the first year of its operation. JEA plans to utilize seasonal power purchases and additional generation as necessary to maintain the 15 percent reserve margin criterion in 2013 and beyond. Table 1 below illustrates JEA's reserve margin with and without the GEC Combined Cycle Conversion.

Table 1: JEA Reserve Margin With and Without the GEC Combined Cycle Conversion in 2013

Summer – Base Case Load Forecast		
Year	Reserve Margin Without GEC Combined Cycle Conversion	Reserve Margin With GEC Combined Cycle Conversion
2009	14.4%	14.4%
2010	4.9%	4.9%
2011	12.0%	12.0%
2012	9.6%	9.6%
2013	7.3%	13.9%
2014	5.1%	11.6%
2015	3.0%	9.3%
2016	12.3%	18.4%
2017	10.1%	16.2%
2018	7.8%	13.7%

JEA also performed analyses assuming a more aggressive Demand Side Management (DSM) portfolio. These analyses indicated that JEA would still need nearly 100 MW of additional capacity in 2013. The DSM portfolio, as well as potential renewable additions, is further discussed below.

By providing approximately 207 MW of summer capacity, the GEC Combined Cycle Conversion will help to meet JEA's growing capacity needs and contribute to the reliability and integrity of the JEA electric system.

Need for Adequate Electricity at a Reasonable Cost

We find that there is a need for the proposed combined cycle conversion project at the Greenland Energy Center, taking into account the need for adequate electricity at a reasonable cost, as this criterion is used in section 403.519, F.S.

JEA evaluated several supply-side technologies, either as alternatives to the GEC Combined Cycle Conversion or as capacity resource options for installation following the

proposed conversion. JEA's economic evaluation included several sensitivity analyses utilizing a range of fuel costs and CO2 compliance costs. The assumptions used for JEA's evaluation of the GEC Combined Cycle Conversion are reasonable and are consistent and comparable with other recent need determinations that were approved by the Commission. Thus, the cost information presented in the record demonstrates that the GEC Combined Cycle Conversion will provide adequate electricity at a reasonable cost to ratepayers.

The analyses of JEA's assumptions used to evaluate the GEC Combined Cycle Conversion are discussed below.

Economic Assumptions

JEA's financial assumptions include an anticipated capital structure consisting of 100 percent debt financing using primarily long-term tax-exempt municipal bonds. JEA's initial financial assumptions as filed are consistent and comparable with other recent need determinations that we have approved.¹ JEA did make certain revisions to its initial financial assumptions in supplementary testimony as a result of the recent credit market developments. JEA revised the financial assumptions to include an annual rate of 7.00 percent for the long-term tax-exempt bond rate, interest during construction rate, and present worth discount rate. This was in lieu of the 5.00 percent rate that JEA proposed in its original filing. Additionally, a 2.50 percent annual percentage rate was used for both the general inflation rate and the escalation rates that were applied to both capital costs and O&M costs. JEA did not revise this rate in its supplemental filing.

Fuel Forecasts

JEA used the fuel price forecasts from the Energy Information Administration's Annual Energy Outlook 2008 (AEO 2008). The AEO 2008 fuel price forecasts are in real 2006 dollars. For evaluation purposes, JEA converted these prices into nominal prices using the 2.5% general inflation rate.

In addition to the reference case in the AEO 2008, JEA used High and Low price cases as well. Transportation costs were added to commodity prices to obtain delivered prices. For natural gas, JEA used \$1.28/MMBtu as the transportation rate. This is the rate used in the need determination for FMPA's recent Cane Island need determination case (Docket No. 080253-EU). The use of the AEO 2008 fuel price forecast is reasonable as a standard of comparison for long-term fuel price forecasts which have been used in recent need determination cases.

¹ Order No. PSC-05-0781-FOF-EM, issued July 27, 2005, in Docket No. 050256-EM, In re: Petition to determine need for Treasure Coast Energy Center Unit 1, proposed electrical power plant in St. Lucie County, by Florida Municipal Power Agency (5.00% cost rate) and Order No. PSC-06-0457-FOF-EM, issued May 24, 2006, in Docket No. 060155-EM, In re: Petition for determination of need for proposed Stanton Energy Center Combined Cycle Unit B electrical power plant in Orange County, by Orlando Utilities Commission (5.25% cost rate including insurance costs and issuance fees).

Environmental Costs

JEA considered the EIA developed analysis entitled *Energy Market and Economic Impacts of S.2191, the Lieberman-Warner Climate Security Act of 2007* for projected CO2 compliance costs. The EIA analysis includes five different cases related to the proposed S.2191. Two of these five cases – the S.2191 Core Case and the S.2191 Limited/No International Case are reflected in the economic evaluation of the GEC Combined Cycle Conversion project. JEA determined that it was unnecessary to evaluate the other cases as their projected CO2 emission allowance prices fall within the boundaries established by S.2191 Core and S.2191 Limited/No International. Regarding the emissions of CO2, there is currently no State or Federal regulation.

Regulations of emissions of sulfur dioxide (SO2), oxides of nitrogen (NOx) and mercury (Hg) are reflected in each fuel price projection considered throughout the Need for Power Application. However, the actual costs for SO2, NOx, or Hg allowances are not included in the economic analysis due to the inherently low SO2, Nox, and Hg emission rates associated with natural gas-fired generation.

Generation Capital Costs

JEA's capital cost estimates included costs associated with the purchase of equipment and all contractor services. JEA's construction cost estimates were based on an engineering, procurement, and construction contracting philosophy. JEA used local labor craft rates in the development of the construction cost estimates.

Several of JEA's cost estimates were based on technologies that are proven, commercially available, and widely used in the power industry. Additionally JEA's cost estimates are consistent and comparable with recent filings we have received, from JEA as well as other Florida utilities.

Fuel Diversity and Supply Reliability

We find that there is a need for the proposed combined cycle conversion project at the Greenland Energy Center, taking into account the need for fuel diversity and supply reliability, as this criterion is used in Section 403.519, F.S.

Traditionally, JEA has had a relatively high reliance on coal and petroleum coke for its energy needs. Additional coal resources will also be added to JEA's generation mix with the projected return of Florida Power & Light Company's purchase power portion of coal fired capacity from the St. Johns River Power Park in 2016.

Although the addition of new nuclear generation by 2013 is not feasible due to the construction and permitting lead times, JEA has a purchased power agreement for more than 200 MW of nuclear capacity from the construction of Vogtle Units 3 and 4, in Georgia. The discussed nuclear capacity, however, is not projected to be available until 2017 (103 MW will be available in 2016 and an additional 103 MW will be available in 2017).

Because new solid fuel generation is not feasible in the desired time frame or will not serve to diversify JEA's fuel mix, natural gas generation becomes the most proven and reliable supply-side alternative.

Also, there are several new natural gas storage and pipeline projects that should increase the supply of natural gas to the Southeast region. Moreover, the SeaCoast pipeline that will serve GEC will receive natural gas from both the Southern Natural Gas and Florida Gas Transmission Company systems. GEC will also utilize ultra low sulfur diesel for backup.

No Mitigating Conservation Measures or Renewable Energy Resources

We find that there are no renewable energy resources or conservation measures taken by or reasonably available to JEA which might mitigate the need for the proposed combined cycle conversion project at the GEC.

JEA offers a variety of conservation and DSM programs to their consumers. Also, JEA is implementing a new DSM portfolio which is projected to result in a summer demand reduction of 147.5 MW by 2013. The projected demand and energy savings associated with the new DSM portfolio will not eliminate the need for new capacity in the summer of 2013. Therefore, there are no conservation measures taken by or reasonably available to JEA which would mitigate the need for the proposed GEC Combined Cycle Conversion.

JEA's generating mix already includes reasonably available renewable resources. In addition, JEA has issued several RFPs for renewable (including solar and wind energy) resources since 2004. Based on JEA's evaluation, only two of the bids from the RFPs were cost-effective. One was for a 9.6 MW landfill gas project for which JEA executed a contract. The project went into commercial operation in December 2008. The other project was a proposed 13 MW yard waste project utilizing the City of Jacksonville's yard waste. The project developer negotiated with the City of Jacksonville for several years for the yard waste and never consummated a contract. As a result, JEA terminated negotiations in 2007.

In 2008, JEA conducted an RFP specifically for solar and wind generation. JEA is in the process of negotiating a purchase power agreement for the output of a 12.3 MW photovoltaic project. Although JEA generally does not consider solar energy as firm capacity, JEA included the projected contribution from the proposed photovoltaic project as part of its firm capacity in the economic evaluations.

JEA is also actively evaluating a self build biomass project either as a stand alone unit or co-firing in Northside 1 or 2. In addition, JEA is also evaluating an unsolicited proposal for a 50 MW purchase power agreement from a biomass generating facility.

JEA's ultimate decision whether or not to utilize the additional solar and biomass resources at the attendant higher cost will depend on the ability to reach acceptable contractual terms.

Although JEA has not made a final decision on the potential solar and biomass projects, it has assumed the addition of approximately 50 MW of renewable capacity in its renewable expansion scenario used in the economic analyses of the GEC Combined Cycle Conversion. Those analyses demonstrate that there would still be a need for the GEC Combined Cycle Conversion capacity, and that the GEC Combined Cycle Conversion would still be the most cost-effective alternative for meeting JEA's capacity needs even if JEA were to pursue both projects. JEA's economic analysis also indicates that a renewable expansion plan would increase system costs by more than \$170 million.

Most Cost-Effective Alternative Available

We find that the proposed combined cycle conversion project at the Greenland Energy Center is the most cost-effective alternative available, as this criterion is used in section 403.519, F.S.

JEA evaluated an expansion plan assuming the addition of the GEC Combined Cycle Conversion in 2013 over a 20 year period considering several scenarios utilizing different fuel costs, potential CO2 compliance costs, different load forecasts, and varying capital costs. JEA also evaluated four additional supply-side alternatives (three natural gas simple cycle generators and one natural gas combined cycle generator) for comparison purposes. Furthermore, JEA performed analyses assuming the implementation of a new DSM portfolio and the installation of additional renewable generation.

Based on the results of production cost modeling of multiple economic scenarios, JEA identified an expansion plan assuming GEC Combined Cycle Conversion in 2013 as the most cost-effective option, in 38 of the 44 analyses, to meet the JEA's capacity needs. Although the GEC Combined Cycle Conversion has a higher capital cost than other generation alternatives the conversion of existing combustion turbines to a 2x1 combined cycle configuration will improve system efficiency allowing JEA to realize significant cost savings.

The analyses showed that the GEC Combined Cycle Conversion could produce net savings through 2027 of approximately \$3.9 million to approximately \$186.6 million over the next lowest generation alternative. Such results indicate a high likelihood of JEA's ratepayers realizing net benefits.

Based on the evidence discussed, the GEC Combined Cycle Conversion provides the most cost-effective solution to satisfy JEA's forecast capacity requirements.

Conclusion

For the reasons outlined above, we grant JEA's petition to determine the need for the proposed combined cycle conversion project at the Greenland Energy Center, because it is the most cost-effective option available to meet JEA's needs beginning in 2013. There are no cost-effective renewable energy resources or conservation/ demand-side measures available to offset the need. The GEC Combined Cycle Conversion will provide adequate electricity at a reasonable cost and it will contribute to the reliability and integrity of JEA's system.

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Based on the foregoing, it is

ORDERED by the Florida Public Service Commission that JEA's petition for determination of need for its proposed combined cycle conversion project at the Greenland Energy Center is granted. It is further

ORDERED that this docket shall be closed.

By ORDER of the Florida Public Service Commission this 25th day of February, 2009.



ANN COLE
Commission Clerk

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MCB

NOTICE OF FURTHER PROCEEDINGS OR JUDICIAL REVIEW

The Florida Public Service Commission is required by Section 120.569(1), Florida Statutes, to notify parties of any administrative hearing or judicial review of Commission orders that is available under Sections 120.57 or 120.68, Florida Statutes, as well as the procedures and time limits that apply. This notice should not be construed to mean all requests for an administrative hearing or judicial review will be granted or result in the relief sought.

Any party adversely affected by the Commission's final action in this matter may request:

- 1) reconsideration of the decision by filing a motion for reconsideration with the Office of Commission Clerk, 2540 Shumard Oak Boulevard, Tallahassee, Florida 32399-0850, within five (5) days of the issuance of this order in the form prescribed by Rule 25-22.060, Florida Administrative Code; or
- 2) judicial review by the Florida Supreme Court in the case of an electric, gas or telephone utility or the First District Court of Appeal in the case of a water and/or wastewater utility by filing a notice of appeal with the Office of Commission Clerk, and filing a copy of the notice of appeal and the filing fee with the appropriate court. This filing must be completed within thirty (30) days after the issuance of this order, pursuant to Rule 9.110, Florida Rules of Appellate Procedure. The notice of appeal must be in the form specified in Rule 9.900(a), Florida Rules of Appellate Procedure.