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September 10, 2013

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Ms. Ann Cole, Director
Office of Commission Clerk
Florida Public Service Commission
2540 Shumard Oak Boulevard
Tallahassee, FL 32399-0850

Re: Petition for Rate Increase by Tampa Electric Company
FPSC Docket No. 130040-EI

Dear Ms. Cole:

15 delivered - KB

Enclosed herewith for filing in the above proceeding are the original and ~~20~~ copies of the following which we submit on behalf of Tampa Electric Company:

1. Tampa Electric Company Residential Service @ 1000 kWh Total Monthly Billing Impact of Stipulation – 130040-EI (utilizes Present cost recovery factors & GRT)

2. Tampa Electric Company Summary of Impacts of COS Methodology Changes on Residential Class Base Rate Increase per Settlement Year 1, effective 11/1/2013, Revenue Increase Dollar amounts in Thousands

3. Tampa Electric Company and Intervenors GBRA Package Polk 2-5 Combined Cycle Conversion Docket No. 130040-EI

These documents were provided to the Commission's Staff in connection with their review of the proposed Stipulation and Settlement Agreement entered into by and between Tampa Electric and all of the Intervenors in this proceeding. We request that the above documents be made a part of the record in this proceeding.

Please acknowledge receipt and filing of the above by stamping the duplicate copy of this letter and returning same to this writer.

COM ___
AFD 1
APA 1
ECO 11
ENG 1
GCL 1
IDM ___
TEL ___
CLK ___

Thank you for your assistance in connection with this matter.

Sincerely,

James D. Beasley

JDB/pp
Enclosures

cc: All Parties of Record (w/encls.)

Tampa Electric Company
Residential Service @ 1000 kWh
Total Monthly Billing Impact of Stipulation - 130040-EI
(utilizes Present cost recovery factors & GRT)

Billing Basis		Monthly Bill		Increase	
Present Rate		$	102.58	$	-
Effective 11/1/2013	Reflects $57.5 M increase	$	108.26	$	5.68
Effective 11/1/2014	Reflects $65 M increase	$	109.35	$	1.09
Effective 11/1/2015	Reflects $70 M increase	$	109.81	$	0.46
Effective 1/1/2017	Reflects additional $110 M GBRA	$	117.03	$	7.22

TAMPA ELECTRIC COMPANY
Summary of Impacts of COS Methodology Changes
on Residential Class Base Rate Increase per Settlement
Year 1, effective 11/1/2013, Revenue Increase
Dollar amounts in Thousands

Line No.		(A) Revenue Deficiency under Present COS Methods [12CP&25% and w/o MDS]	(B) Additional Revenue Deficiency Per Changed COS Methods: 12CP&1/13AD Prod. Cap. Alloc.	(C) MDS concept	(D) Total (B)+(C)	(E) Revenue Deficiency Per Settlement COS Methods [12CP&1/13AD and with MDS] (A) + (D)	(F) Revenue Increase Enacted in accordance w/FPSC Practice (b)
1	Residential (RS)	$ 41,802	6,231	11,504	$ 17,735	$ 59,537	$ 41,300
2	Gen. Service Non-Demand (GS)	$ 1,986	353	1,619	$ 1,972	$ 3,958	$ 6,423
3	Total RS/GS (a)	$ 43,788	$ 6,584	$ 13,123	$ 19,707	$ 63,495	$ 47,723 (c)
4	Realized Impact of COS Method Changes:	$ -	$1,315 (e)	$ 2,620 (e)	$ 3,935	$ 3,935	$ 3,935 (d)

Notes:

(a) For ratemaking purposes, RS and GS are combined as one rate class.
(b) In a rate increase proceeding, no rate class should get a decrease, and no rate class should get a percentage increase that exceeds 1.5 times the system average percentage increase including clause revenues. As a result, RS/GS class has been limited to $47,773.
(c) Actual Year 1 revenues from E-13c.
(d) Effective RS/GS class revenue increase impact of COS methodology changes recognizes class revenue increase limitation being imposed.
(e) Impact of RS/GS class revenue increase by COS method change derived by allocating total effective revenue increase change in proportion to full COS methods' change.

TAMPA ELECTRIC COMPANY

and

INTERVENERS

GBRA

Package

Polk 2-5 Combined Cycle Conversion

Docket No. 130040-EI

TABLE OF CONTENTS

FLORIDA PUBLIC SERVICE COMMISSION'S

FINAL ORDER

GRANTING DETERMINATION OF NEED

FOR POLK 2-5 COMBINED CYCLE CONVERSION

DOCKET NO. 120234-EI

ORDER NO. PSC-13-0014-FOF-EI

ISSUED: JANUARY 8, 2013

BEFORE THE FLORIDA PUBLIC SERVICE COMMISSION

In re: Petition to determine need for Polk 2-5 combined cycle conversion, by Tampa Electric Company.	DOCKET NO. 120234-EI ORDER NO. PSC-13-0014-FOF-EI ISSUED: January 8, 2013

The following Commissioners participated in the disposition of this matter:

RONALD A. BRISÉ, Chairman
LISA POLAK EDGAR
ART GRAHAM
EDUARDO E. BALBIS
JULIE I. BROWN

FINAL ORDER GRANTING DETERMINATION OF NEED FOR POLK 2-5 COMBINED CYCLE CONVERSION

BY THE COMMISSION:

CASE BACKGROUND

On September 12, 2012, Tampa Electric Company (TECO or Company) filed a petition to determine need for Polk 2-5 combined cycle conversion and its associated facilities (Polk 2 to 5) pursuant to Sections 366.04 and 403.519, Florida Statutes (F.S.), and Rules 25-22.080, 25-22.081, 25-22.082, and 28-106.201, Florida Administrative Code (F.A.C.). TECO's proposal (Polk 2-5 or Project) consists of converting four existing combustion turbine generating units, Polk 2 through 5, at the Company's Polk Power Station into a modern natural-gas combined-cycle facility. The associated facilities of the Project include new and upgraded transmission facilities. The Project will allow the capability of generating an additional 459 megawatts (MW) of summer capacity.

On September 19, 2012, a Notice of Commencement of Proceedings was issued pursuant to Rule 25-22.080(3), F.A.C. An Order Establishing Procedure was issued on September 26, 2012. On November 14, 2012, DeSoto County Generating Company, LLC (DeSoto) filed a petition to intervene and its prehearing statement. DeSoto asserted in its prehearing statement that it was an unsuccessful bidder with TECO and that it was more cost-effective for TECO to purchase the DeSoto facility and delay TECO's proposed Polk 2-5 conversion from 2017 to 2018. DeSoto stated that it was capable of providing the required capacity to TECO from the year 2013 through 2017. DeSoto did not provide any witnesses or prefiled testimony in this docket.

On November 21, 2012, Order No. PSC-12-0627-PCO-EI granted DeSoto intervenor status in this docket. On November 27, 2012, the Office of Public Counsel (OPC) provided notice of its intervention in the docket and filed its prehearing statement. OPC did not have a basic position, but stated that it was supportive of the most cost-effective alternative. A prehearing conference was held on November 27, 2012. On December 5, 2012, the intervention of OPC was acknowledged in Order No. PSC-12-0642-PHO-EI.

A formal administrative hearing was held on December 12, 2012, and after the parties waived their rights to file post-hearing briefs, this Commission issued its decision at the conclusion of the hearing.

ISSUES PRESENTED

Pursuant to Section 403.519(3), F.S., we are the sole forum for the determination of need for an electrical power plant. In making our determination, we must consider the need for electric system reliability and integrity, the need for adequate electricity at a reasonable cost, the need for fuel diversity and supply reliability, whether the proposed plant is the most cost-effective alternative available, and whether renewable energy sources and technologies, as well as conservation measures, are utilized to the extent reasonably available. Based on the plain reading of the statute, a utility need not prevail on every consideration in order for us to determine that there is a need for a proposed electrical power plant.

After considering the evidentiary record, including witnesses' testimony and the positions of all the parties, we ruled on the following issues at the conclusion of the hearing.

A. Electric system reliability and integrity

We find that there is a need for Polk 2-5 as proposed by TECO to maintain electric system reliability and integrity as this criterion is used in Section 403.519(3), F.S. For planning purposes, TECO utilizes a 20 percent firm reserve margin reliability criteria above the system firm peak demand. After taking into account load growth, existing power plant unit capacity, firm purchased power agreements, and demand-side management (DSM), TECO's summer reserve margin is projected to fall below 20 percent in 2017. By providing up to approximately 459 MW of additional capacity, Polk 2-5 will help TECO meet its needs for additional capacity beginning in 2017.

B. Renewable energy and conservation

We find that there are no renewable energy resources or conservation measures taken by or reasonably available to TECO, which might mitigate Polk 2-5. TECO's initial supply-side resource screening process included several renewable technologies including wind, solar, and biomass. Ultimately, through its evaluation process, TECO identified Polk 2-5 as the best option to meet its customers' needs.

TECO additionally included in its analysis Commission-approved renewable DSM programs as well as all conservation programs currently approved by this Commission. Even when the demand reduction from DSM programs is considered, we find that Polk 2-5 is needed to serve the needs of TECO's customers beginning in 2017.

C. Adequate electricity at a reasonable cost

We find that Polk 2-5, as proposed, is needed to ensure an adequate supply of electricity at a reasonable cost, as this criterion is used in Section 403.519(3), F.S. Polk 2-5 will utilize a proven technology that will enable TECO to meet the projected demand and energy requirements of its customers at a cost less than any available alternative. We find that savings will be achieved primarily because Polk 2-5 will take advantage of waste heat from the operation of existing combustion turbines at Polk Power Station to generate incremental power.

D. Fuel diversity and supply reliability

We find that there is a need for Polk 2-5, taking into account the need for fuel diversity and supply reliability, as this criterion is used in Section 403.519, F.S. Polk 2-5 will generate up to 352 MW of electric power without any additional fuel input thus increasing the efficiency of the existing units. Fuel diversity and supply reliability will also be improved by creating additional output from dual fueled units (Polk Units 2 and 3). Additionally, the Project is being designed with the ability to incorporate approximately 30 MW of solar energy in the form of steam from solar thermal collectors.

E. Cost-effectiveness

We find that Polk 2-5 is the most cost-effective alternative available as this criterion is used in Section 403.519(3), F.S. TECO evaluated Polk 2-5 against several alternative technologies to ensure that the proposed project was TECO's most cost-effective option for its customers. TECO's evaluation process considered a number of alternative scenarios (sensitivities) related to fuel pricing, load growth, and capital costs. Next, the company issued a request for proposals where various offers for the needed capacities were received and evaluated against Polk 2-5. These proposals were then evaluated based on technical and economic factors. The results of TECO's economic analyses demonstrate that Polk 2-5 would produce a net present value savings of at least $75.4 million when compared to the next most cost-effective alternative, which was the purchase of the DeSoto facility.

F. Determination of Need

Based on the foregoing, we have determined that there is a need for TECO's Polk 2-5 conversion cycle conversion and its associated facilities as proposed. The conversion is needed to maintain electric system reliability and integrity. It incorporates the necessary renewable energy and conservation factors. It satisfies the requirement of ensuring an adequate supply of electricity at a reasonable cost, and it is the most cost-effective means of providing fuel diversity and supply reliability. Therefore, we find it appropriate to grant TECO's petition to determine need for Polk 2-5 combined cycle conversion and its associated facilities.

DECISION

After careful consideration of the evidentiary record, including the testimony of the witnesses and the positions of the parties, we find that there is a need for the proposed Polk 2-5 combined cycle conversion and its associated facilities as proposed by TECO. Therefore, we hereby grant TECO's petition to determine the need for the Polk 2-5 combined cycle conversion and its associated facilities.

Based on the foregoing, it is

ORDERED by the Florida Public Service Commission that Tampa Electric Company's September 12, 2012, petition to determine need for Polk 2-5 combined cycle conversion and its associated facilities, is hereby granted as set forth in the body of this Order. It is further

ORDERED that the docket shall be closed.

By ORDER of the Florida Public Service Commission this 8th day of January, 2013.

Ann Cole

ANN COLE
Commission Clerk
Florida Public Service Commission
2540 Shumard Oak Boulevard
Tallahassee, Florida 32399
(850) 413-6770
www.floridapsc.com

Copies furnished: A copy of this document is provided to the parties of record at the time of issuance and, if applicable, interested persons.

PER

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 fifteen (15) 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.

DIRECT TESTIMONY OF MARK J. HORNICK

POLK 2-5 CONVERSION

(DOCKET NO. 120234-EI)

Description of

Key Project Attributes

and

Operating Performance

TAMPA ELECTRIC

BEFORE THE

FLORIDA PUBLIC SERVICE COMMISSION

DOCKET NO. 12_____-EI

IN RE: TAMPA ELECTRIC COMPANY'S

PETITION TO DETERMINE NEED FOR

POLK 2-5 COMBINED CYCLE CONVERSION

DIRECT TESTIMONY AND EXHIBIT

OF

MARK J. HORNICK

BEFORE THE FLORIDA PUBLIC SERVICE COMMISSION

PREPARED DIRECT TESTIMONY

OF

MARK J. HORNICK

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

A. My name is Mark J. Hornick. My business address is 702 North Franklin Street, Tampa, Florida 33602. I am employed by Tampa Electric Company ("Tampa Electric" or "company") in the position of Director of Engineering and Project Management.

Q. Please provide a brief outline of your educational background and business experience.

A. I received a Bachelor of Science Degree in Mechanical Engineering in 1981 from the University of South Florida. I am a registered professional engineer in the state of Florida. I began my career with Tampa Electric in 1981 as an Engineer Associate in the Production Department. I have held a number of engineering and management positions at Tampa Electric's power generating stations. From 1991 to 1998, I was a manager at Big Bend Power Station with various responsibilities including serving as Manager of Operations from 1995 to 1998. In July 1998, I was promoted to Director - Fuels where I was responsible for managing Tampa Electric's fuel procurement and transportation activities.

In March 2000, I transferred to General Manager - Polk and Phillips Power Stations, where I was responsible for the overall operation of these two generating facilities. I have broad experience in the engineering and operation of power generation equipment using oil, natural gas, coal and other solid fuels and technologies including conventional steam cycle, combustion turbine in simple cycle and combined cycle as well as Integrated Gasification Combined Cycle ("IGCC"). I am a past Chairman of the Gasifier Users Association, an international group of users and potential users of gasification technology.

In my current role as Director of Engineering and Project Management I am responsible for centralized engineering support for all operating power stations and for the management of large capital projects including new generating units.

Q. What is the purpose of your direct testimony?

A. The purpose of my direct testimony is to describe the engineering and construction of the proposed Polk 2-5 Combined Cycle Conversion ("Polk 2-5"). I will describe the proposed facilities and their operating characteristics. Additionally, I will discuss the schedule for completing construction of Polk 2-5 and Tampa Electric's project execution plan. Finally, I will describe the development of the reasonable and prudent project cost estimates.

Q. Have you prepared an exhibit to support your direct testimony?

A. Yes, Exhibit No. ____ (MJH-1) was prepared under my direction and supervision. It consists of the following documents:

Document No. 1	Polk site aerial photograph
Document No. 2	Process Diagram - 4 x 1 Combined Cycle Configuration
Document No. 3	Project Schedule
Document No. 4	Cost Estimate

Q. Are you sponsoring any sections of Tampa Electric's

Determination of Need Study for Electrical Power: Polk 2-5 Combined Cycle Conversion ("Need Study")?

A. Yes. I sponsor the section of the Need Study regarding Tampa Electric's Proposed Unit. Specifically, I sponsor sections IX.A "Overview," IX.B "Description," IX.E "Cost" and IX.F "Schedule."

Q. Did you participate in Tampa Electric's evaluation of supply alternatives?

A. Yes. In addition to natural gas combined cycle ("NGCC") technology, Tampa Electric considered other technologies including conventional steam cycle, simple cycle combustion turbines, IGCC, solar and other renewables. My team provided capital costs and construction schedules for these alternatives. Tampa Electric witness R. James Rocha describes the company's evaluation of alternative generating technologies, which demonstrates that the proposed NGCC unit is the most cost-effective, reliable option for Tampa Electric.

Q. What considerations were used in determining that the conversion of the four existing simple cycle combustion turbines ("CTs") at Polk Power Station was the best option for generation expansion?

A. Tampa Electric considered a number of factors in the evaluation of the best technology choice for generation expansion. The primary consideration is the capability to reliably serve the peak demand needs of our customers in the future. Any new generating unit will have to comply with all environmental laws regarding regulated emissions. The overall life cycle cost of the unit, including installed cost and ongoing operation and maintenance expenses should be as low as practicable. In addition to unit reliability and environmental performance, other operating factors such as efficiency, fuel diversity, "dispatchability" (flexibility to start-up, shut-down and rapidly change output) are strong considerations.

PROJECT DESCRIPTION

Q. Please describe the planned project.

A. Tampa Electric plans to make use of its experience with NGCC technology to construct Polk 2-5, an NGCC power plant at Polk Power Station, the site of Tampa Electric's existing IGCC facility. Polk Power Station occupies over 2,800 acres on State Road 37 in Polk

County, Florida, approximately 40 miles southeast of Tampa and about 60 miles southwest of Orlando. An aerial diagram of the Polk site is provided as Document No. 1 of my exhibit.

The existing Units 2-5 were constructed over the past twelve years to meet incremental demand growth in a manner which was very cost effective to our customers. To further reduce the costs to our customers, the company relocated Units 4 and 5 from a cancelled project instead of purchasing new equipment. The units were arranged with the future plan of converting them into a highly efficient combined cycle ("CC") plant.

After conversion, with no additional fuel consumption, Polk 2-5 will generate an incremental net 352 MW of electricity in winter at 32 degrees Fahrenheit and 339 MW in the summer at 92 degrees Fahrenheit. In addition, Polk 2-5 will utilize supplemental firing, also known as duct burners, to provide additional cost effective peaking capacity that will offset the need for future peaking unit construction. With supplement firing, the additional net electrical output of Polk 2-5 will increase to 463 MW in the winter and 459 MW in the summer.

The average annual net heat rate, higher heating value, is expected to be about 7,064 Btu/kWh (48 percent efficiency), and the instantaneous heat rate is expected to be 6,803 (50 percent efficiency) Btu/kWh at an average temperature of 73 degrees Fahrenheit without supplemental firing. Two of the combustion turbines will have the capability of firing distillate oil as a backup fuel.

The supplemental firing will provide peaking capacity at an incremental heat rate of 8,240 Btu/kWh, which compares very favorably to a simple cycle CT with a heat rate of over 10,000 Btu/kWh.

Q. Please briefly describe the power generation technology that Polk 2-5 will utilize.

A. Polk 2-5 will be a NGCC facility consisting of four CTs, four heat recovery steam generators ("HRSGs") and a single steam turbine ("ST") arranged in a 4x4x1 configuration. The technology is a combination of a combustion turbine (Brayton) cycle and a traditional steam (Rankine) cycle. The combination of the two technologies allows for thermal efficiencies of 50 percent and higher.

This is a proven technology with which Tampa Electric and the industry in general have significant experience designing, constructing and operating.

Q. Please describe the various components and systems that will make up Polk 2-5.

The project will utilize the four existing General Electric 7FA combustion turbines on site. We will add triple pressure HRSGs to each of these CTs to capture the waste heat in the exhaust. The HRSGs will also have supplemental firing capability to add approximately 120 MW of peaking capacity.

The steam generated in the four HRSGs will be used in a new ST generator. The ST generator will exhaust into a water cooled condenser which will utilize the existing cooling reservoir at the Polk Power Station for heat rejection. Use of the existing cooling reservoir infrastructure will allow Polk 2-5 to operate with lower water consumption and lower parasitic load than if a cooling tower were used for the ST heat rejection system.

A new cooling tower will also be constructed to provide equipment cooling for Polk 2-5 as well as Polk Unit 1. This is necessary to optimize the heat loading on the existing cooling reservoir and mitigate operational impacts that could occur due to increased water temperature in the cooling reservoir.

KEY PROJECT ATTRIBUTES

Q. Please describe the beneficial aspects of utilizing the "waste heat" from the four existing CTs to produce additional electricity from the Polk site.

A. Polk 2-5 are currently configured as simple cycle combustion turbines with a summer capability of 151 MW each. Simple cycle CTs are relatively low in cost and have the ability to rapidly startup, shutdown and change power output. These machines are good choices for meeting peak power demands.

The exhaust gases leaving CTs are over 1,000 degrees Fahrenheit and contain a substantial amount of energy. By recovering this heat energy, which otherwise would be wasted, up to 352 MW in the winter and 339 MW in the summer of net electric power can be generated without any additional fuel input. Through the addition of heat recovery the efficiency of these generating units will be increased by approximately 37 percent.

Q. How will the Polk 2-5 project impact the environmental profile of the generating units?

A. This project will provide significant environmental benefits. The improvement in power generating efficiency results in a direct reduction in emission rate for all pollutants on a pound per MWH basis. The project will therefore reduce CO_2 emission rates by approximately 37 percent.

The project will also include the installation of Selective Catalytic Reduction equipment ("SCRs") in each HRSG to reduce NO_x emissions. The SCRs in combination with cycle efficiency improvements will provide an approximately 86 percent reduction in the NO_x emission rate.

Q. Does the Polk 2-5 project allow for inclusion of renewable energy in the future?

A. Yes. The project is being designed with the ability to incorporate approximately 30 MW of solar energy in the form of steam from solar thermal collectors located at the Polk site. Integration of steam produced via solar collectors into a CC plant is known as a solar hybrid system as it uses the existing combined cycle steam turbine rather than a separate turbine dedicated to solar use.

Renewable energy from solar thermal hybrid systems is more reliable than other solar technologies because it has the capability to replace solar MWs with capacity from duct firing in the HRSGs. This mitigates the intermittent nature of solar energy due to cloud cover or darkness.

Q. Please discuss the operating flexibility of the proposed project and how system reliability will be impacted.

A. The project is being designed to allow operation of each CT in either simple cycle or CC mode by use of diverter dampers which allow hot exhaust gases to bypass the HRSG. This gives system operators the ability to use the rapid response of CTs when needed for peaking service and the ability to achieve high efficiency in CC mode to serve intermediate and base load needs. In addition, this allows the existing simple cycle capacity to be available for dispatch during times when the steam turbine is unavailable.

Q. What benefit does the inclusion of supplemental firing of the four HRSGs provide?

A. Supplemental firing (or duct firing) provides additional peaking power capability at low cost. The project will incorporate approximately 30 MW of supplemental firing into each HRSG for a total of approximately 120 MW. The steam turbine will be sized to accommodate this additional steam input. Supplemental firing has a very rapid response rate and can be used to supply spinning reserve capacity on the system. The heat rate and installed cost of supplemental firing is lower than other rapid response peaking options such as aero-derivative CTs. In addition, supplemental firing capability must be included in the original design and equipment sizing and will not be able to be added at a later date.

Q. Why is dual fuel capability important and how will this project benefit?

A. The capability to utilize either natural gas or distillate oil as a fuel improves the reliability of the power generating units. In circumstances when the natural gas supply to the facility is curtailed or unavailable, dual fuel units can be operated on distillate oil. This capability is becoming more important as a larger percentage of the generating units in Florida rely on natural gas as a fuel.

Dual fuel capability can also serve to reduce the cost of supplying natural gas to the generating unit(s) via pipeline. Pipeline transportation services can be purchased on a firm basis with known quantities and a fixed price. These are generally "take or pay" agreements. Alternately, pipeline capacity can obtained each day on an "as available" basis. The reliability of supply is greater with firm transportation than with as available transportation, however, the total cost is generally higher with firm agreements. With dual fuel capability, a larger percentage of pipeline capacity can be obtained "as available" since the unit can be operated on distillate oil in the event gas transportation cannot be secured.

Q. Please describe the location of the Polk site and any reliability benefits that may be associated with expanding generating capacity at this location.

A. The Polk Power Station is located approximately 40 miles inland from the Gulf of Mexico at an elevation of approximately 100 feet. This inland location makes it much less likely to suffer damage in the event of a hurricane than coastal facilities.

Q. How will the electric transmission upgrades associated with this project benefit ratepayers?

A. The Polk 2-5 project will provide the interconnection from the new steam turbine generator to the grid and will also include upgrades to the transmission system to allow for the delivery of this energy to customers located west of the facility. These upgrades will relieve transmission congestion in the region and improve both the reliability of the grid and reduce the cost to customers from the ability to economically optimize generating unit operation. This is described in the direct testimony of Tampa Electric witness S. Beth Young.

Q. What source of water will be used to supply the proposed project?

A. The project will utilize reclaimed water from the City of Lakeland to meet the majority of makeup water needs. The use of reclaimed water will be maximized, however ground water can be used to supplement the supply if needed. In addition, by using the existing cooling water reservoir at the site for the majority of the new cooling duty, water use from evaporative losses will be reduced relative to using a cooling tower for this service.

OPERATING PERFORMANCE

Q. What is the expected heat rate for Polk 2-5?

A. Polk 2-5 is expected to have an average annual net heat rate of 7,064 Btu/kWh, and an instantaneous net heat rate of 6,803 Btu/kWh at an average temperature of 73 degrees Fahrenheit without supplemental firing.

Q. Please describe the expected availability for Polk 2-5.

A. The expected Equivalent Availability Factor ("EAF") for Polk 2-5 is 96.2 percent averaged over the life of the unit, based on a Planned Outage Rate of 3.2 percent and a Forced Outage Rate of 0.7 percent.

Q. What is your conclusion regarding the reasonableness of these heat rate and availability expectations?

A. The efficiency and availability estimates for the Polk 2-5 facility have been developed by the engineering firm of Black and Veatch along with Tampa Electric. Black and Veatch has engineered a number of CC units in Florida and around the world. Based on my experience with engineering and operating power plants, I believe the estimated heat rate and availability factors are reasonable.

PROJECT MANAGEMENT AND CONSTRUCTION

Q. What is the expected construction schedule for Polk 2-5?

A. If approved, construction will begin in 2014, and Polk 2-5 is expected to enter commercial operation in January 2017.

Q. Please describe Tampa Electric's efforts to obtain the required certifications and permits to begin construction of Polk 2-5.

A. Tampa Electric began developing design information to support permit application preparation in February 2012. The company entered into a contract with Environmental

Consulting & Technology Inc. The permit activities are described in the direct testimony of Tampa Electric witness David M. Lukcic.

Q. What is the current schedule for the project?

A. Document No. 3 of my exhibit outlines the project schedule. Conceptual design began in late 2011, and the preliminary engineering package development began in February 2012 and was completed in May 2012. The Site Certification Application will be filed with the Florida Department of Environmental Protection in September 2012. The detailed design and procurement will begin in January 2013. Detailed design and procurement activities are expected to continue through November 2014. Construction activities are expected to begin in the first quarter 2014 with general site work. Commissioning of the equipment is expected to begin in February 2016. Finally, the unit is expected to begin commercial operation in January 2017.

Q. What is Tampa Electric doing to mitigate the effects of potential construction schedule uncertainty?

A. The construction effort will be managed by a Tampa

Electric construction management group which is experienced in managing large complex construction projects. In addition, the project schedule is being developed to allow for approximately one month of float per year of construction to provide a schedule contingency for unplanned events.

Q. Does Tampa Electric have experience in building and operating combined cycle power plants similar to the proposed Polk 2-5 facility?

A. Yes. Tampa Electric constructed and has operated since 2003 the H. L. Culbreath Bayside Power Station ("Bayside Power Station") which consists of 4x4x1 and 3x3x1 NGCC units. This $700 million project was constructed on schedule and under budget.

Q. Is NGCC technology used successfully at Tampa Electric's Bayside Power Station?

A. Yes. By a number of measures, NGCC technology has been successfully implemented by Tampa Electric. The company has used NGCC technology to generate more than 66 million MWH of electricity. These units have met efficiency and availability expectations and are a vital part of Tampa Electric's generating unit portfolio.

PROJECT COST

Q. What is Tampa Electric's estimate of the overnight construction costs for Polk 2-5?

A. The overnight construction cost estimate is $424.4 million in 2012 dollars.

Q. Please explain what is included in the cost estimate.

A. Document No. 4 of my exhibit provides the details of the cost estimate. The $424.4 million cost estimate represents overnight construction costs for conversion work on Polk 2-5. This includes all engineering, procurement, construction, commissioning, owner's costs and an allowance for indeterminates. The project estimate does not include related transmission additions or modifications or escalation.

Q. What is Tampa Electric's estimate of the total in-service costs for Polk 2-5?

A. The total in-service cost estimate for Polk 2-5 is $610.4 million, which includes the aforementioned overnight construction costs as well as escalation and transmission upgrades. Owner's costs include project development costs such as technology development and environmental permitting; project management and operational support and training; legal and other professional services costs; and insurance. Tampa Electric estimated the owner's costs for Polk 2-5 based on its experience developing and constructing generating units in Florida.

The $147.2 million costs of required transmission facilities to integrate and interconnect Polk 2-5 with Tampa Electric's system are separately identified and are described in the direct testimony of witness Young.

Q. Did Tampa Electric conduct sensitivity analysis with regards to project construction costs?

A. Yes. The base case is considered the most likely cost based on current equipment market conditions, labor costs and escalation rates. Tampa Electric also applied sensitivities to the base case by utilizing high and low construction cost bands to consider the effect of higher and lower demand for equipment as well as materials and labor costs. Compared to the base case, the low band construction cost is 7 percent lower and the high band construction cost is 6 percent higher.

Q. Will subsequent engineering work result in changes to the installed cost estimate for Polk 2-5?

A. Perhaps. The cost estimate represents the best estimate Tampa Electric has to date for the planned project configuration. The estimate does not include costs for changes in the scope of the project or significant modifications of the planned configuration. During subsequent engineering work, our intent is to optimize the design of the project to minimize the lifetime cost to our customers. Such changes will be evaluated and justified based on the impact to the cost and performance of the project. Approved changes could result in increases or decreases to the cost estimate.

Q. What contracting strategy and competitive pricing options will Tampa Electric pursue to manage the cost and schedule of Polk 2-5?

A. Tampa Electric is planning to competitively bid all the major equipment required for Polk 2-5. The precise contracting strategy has not yet been finalized, but we envision using multiple prime contractors to construct Polk 2-5. These contracts will be fixed price or cost-reimbursable depending on the contract. We plan to use an appropriate mix of incentives and penalties to align the various contractors with the project goals.

Q. What scope of services will Black and Veatch be providing?

A. Currently Black and Veatch has been contracted to perform the preliminary engineering work for both the generating plant and the associated transmission facilities. It is anticipated that, going forward, Black and Veatch will perform the detailed engineering, procurement services and support Tampa Electric's Construction Management team.

Q. What is the current status of Polk 2-5?

A. Tampa Electric is currently engaged in preliminary engineering to develop the project permit applications. Additional engineering efforts are also ongoing to better define the major aspects of the plant design. This information will be used to manage the detailed engineering effort and refine cost estimates and the project schedule.

Q. What is the basis for Tampa Electric's cost estimate for the Polk 2-5 project?

A. Cost estimates are based on a preliminary design completed by Black and Veatch. This design includes the identification and sizing of all major plant components as well as the integration of the unit to existing plant systems. Black and Veatch has obtained multiple quotations for major equipment and has validated current pricing for commodities and labor in the central Florida area.

Q. Please summarize Tampa Electric's efforts to ensure the reasonableness of the Polk 2-5 total estimated installed cost.

A. Tampa Electric has constructed many large capital projects using a similar approach to the Polk 2-5 approach. Tampa Electric employs several strategies to monitor and manage all phases of these projects including: (1) establishing project contracts that will provide the best value; (2) monitoring the work of the engineering company to ensure that work is done in an efficient manner; and (3) assigning full time project controls personnel to manage the costs and the schedule throughout the project execution. Dedicated Tampa Electric personnel lead the project management throughout construction and are integrally involved in each phase of its development. The company's track record using this approach is excellent.

In addition, the overnight construction cost estimate was developed with support from Black & Veatch, which has engineered and constructed numerous similar facilities with a significant amount being in Florida.

Q. Is the total installed cost estimate reasonable?

A. Yes. The total estimated cost represents the best efforts of both Tampa Electric and Black and Veatch. In addition, if the book value of the existing combustion turbines are taken into account, the estimated cost compares favorably to similar projects recently completed.

Q. Are there circumstances that may result in rapidly increasing demand for combined cycle power generating equipment?

A. Yes. There are several factors that are indicating that the demand for natural gas fired generating equipment will significantly increase in the next few years. The economic downturn beginning in 2008 has reduced the growth rate of electricity demand nationwide. A recovery of the economy will reverse this effect and may increase the demand for energy at a rapid rate.

Natural gas prices are at relatively low levels and are forecasted to remain low for several years. This makes gas fired generation a more attractive option versus coal fired units. Natural gas fired technology is typically less expensive to build than other options including nuclear, coal, and renewable generating options such as wind and solar. The combination of low capital cost and forecasted low fuel prices currently make natural gas fired units the most economical choice.

Recent environmental regulations have focused largely on coal fired units. New or tightened regulations on mercury and other metals, small particulates, coal combustion by products and CO_2 have all put pressure on coal fired generation. As a result, many utilities across the nation have announced that they will shut down older, less efficient coal fired units rather than retrofit them with expensive emission controls.

The combination of coal unit retirements (reduced supply) and economic recovery (increased demand) is indication the likelihood of a large number of gas fired units being constructed in the next few years.

In the late 1990's and early 2000's there was a large spike in demand for gas fired units. This resulted in what was termed a "gas bubble" situation where manufacturers had difficulty meeting demand. The lead time for equipment manufacture increased significantly and prices escalated dramatically. The current circumstances indicate that the industry may be on the verge of a similar situation.

Q. How does the timing for the Polk 2-5 CC conversion relate to the potential for an equipment demand spike?

A. The company has surveyed the industry suppliers of major equipment needed for the projects. Currently the lead times and pricing for HRSGs steam turbines, condensers and cooling towers are reasonable. Several manufacturers have indicated that they anticipate lead times will extend and prices will go up in the near future. Tampa Electric is working to issue proposals and lock in prices for major equipment for Polk 2-5 early in 2013. A delay in the project could result in cost increases if there is a market price spike.

Q. Please summarize your direct testimony.

A. If approved, Polk 2-5 will be converted to a highly efficient NGCC facility which will offer numerous benefits to Tampa Electric's customers. With no additional fuel consumption, Polk 2-5 will generate up to an additional 352 MW of electricity resulting in a 37 percent improvement in efficiency over the existing units. The efficiency improvement will also provide an equivalent reduction in air emission rates. Polk 2-5 will also include use of SCR technology, which combined with the efficiency gains, will reduce NO_x emissions by 86 percent.

Polk 2-5 will have additional environmental benefits such as being capable of future renewable integration, use of reclaimed water, no additional land use and permanent deferral of two future peaking units.

In summary, Polk 2-5 will be designed and constructed for $610.4 million in accordance with the project schedule to provide cost effective, clean power for Tampa Electric's customers.

Q. Does this conclude your direct testimony?

A. Yes, it does.

TAMPA ELECTRIC COMPANY
DOCKET NO. 12____-EI
WITNESS: HORNICK

EXHIBIT

OF

MARK J. HORNICK

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TAMPA ELECTRIC COMPANY
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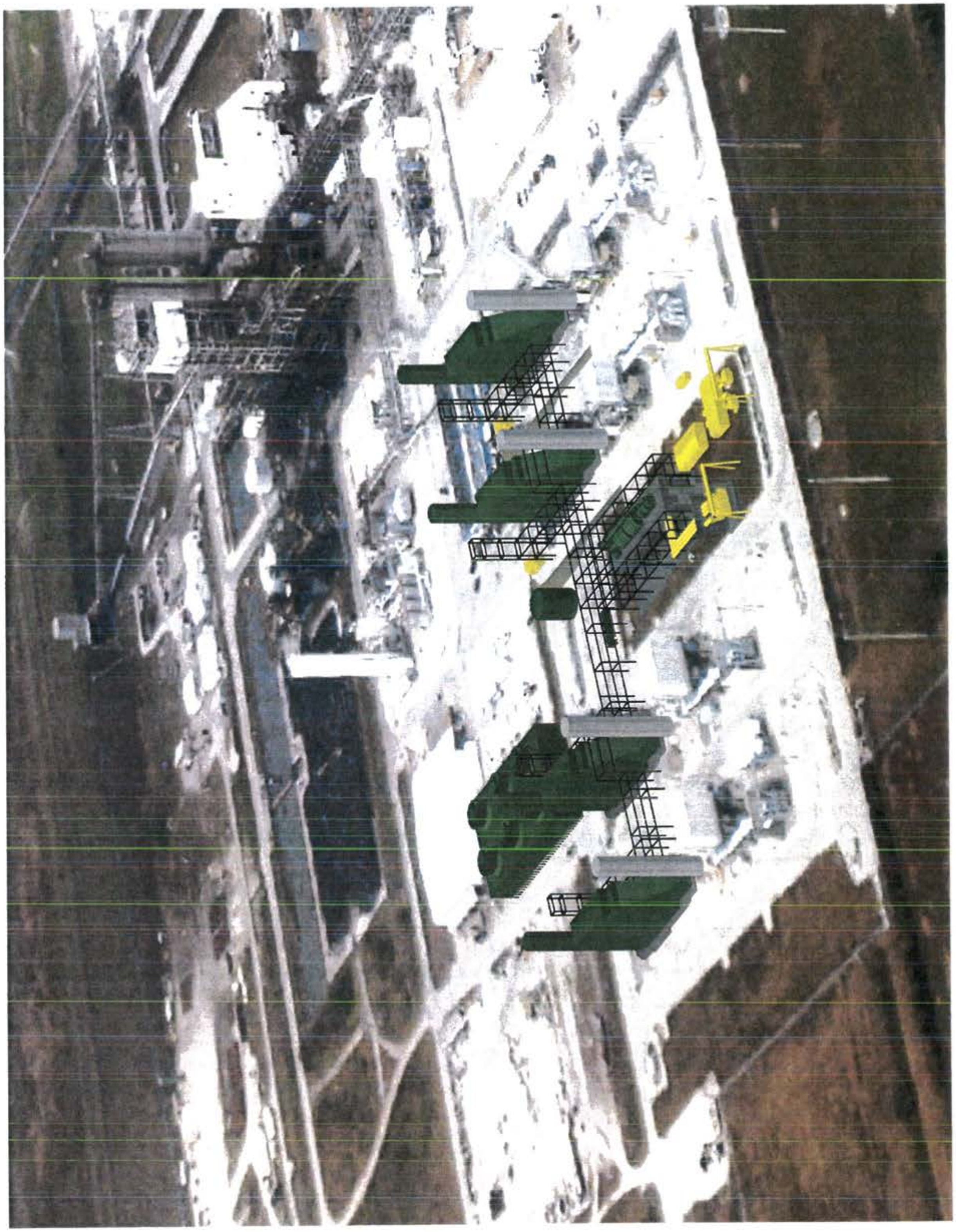
DOCUMENT NO. 1

POLK SITE AERIAL PHOTOGRAPH



TAMPA ELECTRIC COMPANY
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PROCESS DIAGRAM - 4 X 1 COMBINED CYCLE

CONFIGURATION

TAMPA ELECTRIC COMPANY
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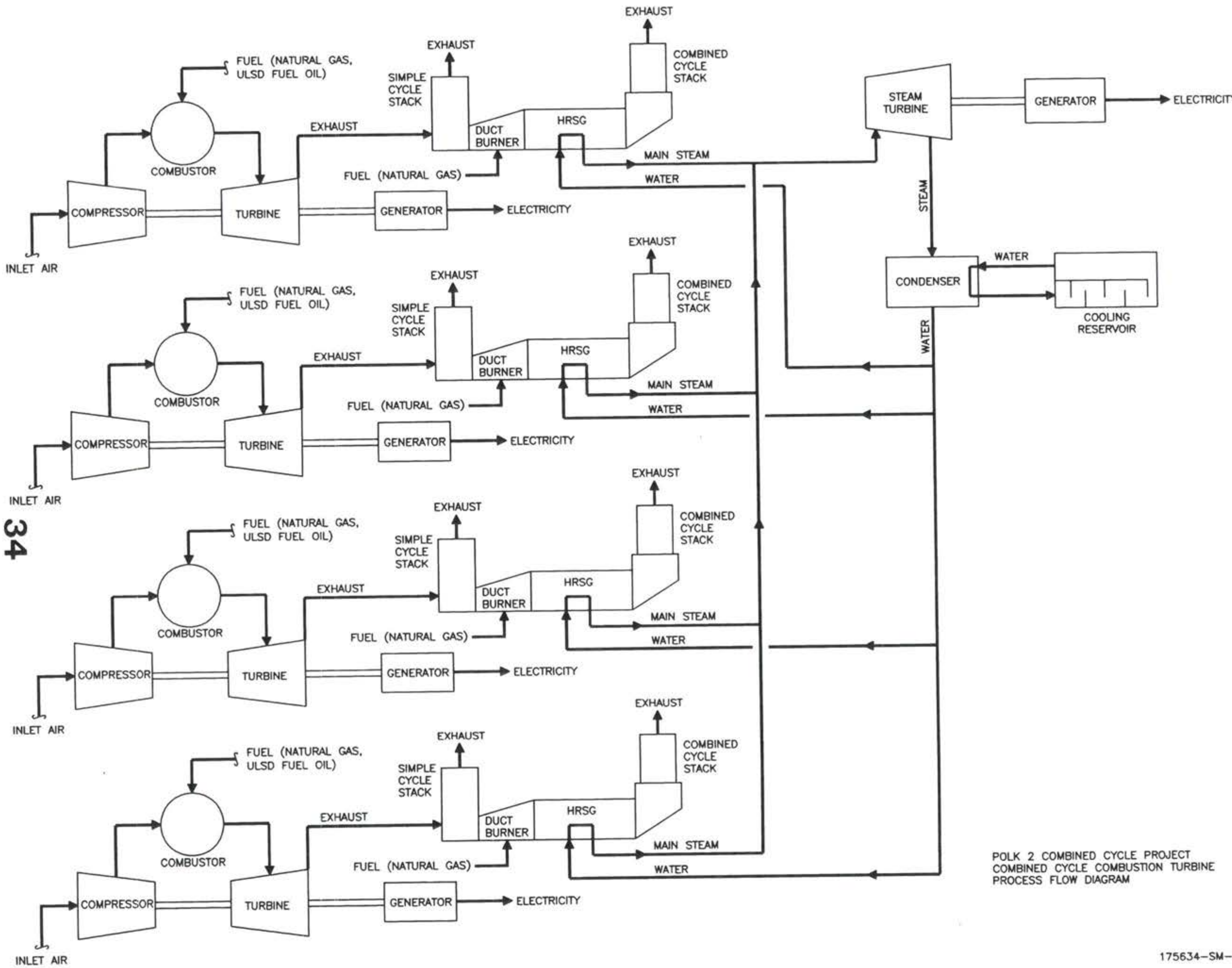

POLK 2 COMBINED CYCLE PROJECT
COMBINED CYCLE COMBUSTION TURBINE
PROCESS FLOW DIAGRAM

175634-SM-2001

TAMPA ELECTRIC COMPANY
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DOCUMENT NO. 3

PROJECT SCHEDULE

TAMPA ELECTRIC COMPANY
DOCKET NO. 12______-EI
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FILED: 09/12/2012

POLK 2-5 COMBINED CYCLE PROJECT
MAJOR MILESTONE SCHEDULE

Award Contract for Steam Turbine Generator Supply	January 4, 2013
Award Contract for Heat Recovery Steam Generator Supply	April 12, 2013
Award Contract for Preliminary Construction	November 22, 2013
Receive Permits and Modified Site Certification	January 31, 2014
Begin Construction (Plant and Transmission)	February 3, 2014
Award Contract for Construction	March 21, 2014
Begin Tie-in Outages on Existing Units	September 1, 2014
Begin Combined Cycle Startup and Testing	May 2, 2016
Transmission System Upgrades Complete	November 4, 2016
Commercial Operation	January 2, 2017

DOCUMENT NO. 4

COST ESTIMATE

POLK 2-5 CONVERSION PROJECT
PROJECT COST ESTIMATE

	($000)
Direct Construction Costs	352,610
Indirect Construction Costs	71,813
Total Generating Plant Cost	424,422
Transmission Upgrade Cost	147,193
Escalation	38,825
Total Project Before AFUDC	610,440
AFUDC	96,179
Total Expected Project Cost	706,619

Revenue Requirements in 2012 dollars

as filed with Commission Staff

47. Please complete the table below describing the revenue requirements for each resource plan and sensitivity contained in Exhibit RJR-1, Document No. 13. Please provide response in hard copy and in Excel format as available.

	Annual Revenue Requirements (Generation Capital) ($millions, 2012 $)	Annual Revenue Requirements (Transmission Capital) ($millions, 2012 $)	Annual Revenue Requirements (O&M) ($millions, 2012 $)	Annual Revenue Requirements (Fuel) ($millions, 2012 $)	Annual Revenue Requirements (Environmental) ($millions, 2012 $)	Total ($millions, 2012 $)	Bill Impact ($/1,000 kWh)
2012							
2013							
2014							
2015							
2016							
2017							
2018							
2019							
2020							
2021							
2022							
2023							
2024							
2025							
2026							
2027							
2028							
2029							
2030							
2031							
2032							
Total							

A. The requested information is provided in the following table.

Polk Units 2-5

Year	Annual Revenue Requirements (Generation Capital) ($millions, 2012 $)	Annual Revenue Requirements (Transmission Capital) ($millions, 2012 $)	Annual Revenue Requirements (O&M) ($millions, 2012 $)	Annual Revenue Requirements (Fuel) ($millions, 2012 $)	Annual Revenue Requirements (Environmental) ($millions, 2012 $)	Total ($millions, 2012 $)	Bill Impact (2012 $/1,000 kWh)*
2012	-	-	55.61	759.59	-	815.20	0.00
2013	-	-	38.24	657.73	-	695.96	0.00
2014	-	-	37.73	640.07	-	677.80	0.00
2015	-	-	35.92	626.37	-	662.29	0.00
2016	-	-	34.92	590.65	-	625.57	0.00
2017	63.52	19.98	32.59	537.61	-	653.70	0.00
2018	57.01	17.93	31.25	517.11	-	623.31	0.00
2019	50.88	16.01	30.20	491.40	-	588.49	0.00
2020	59.91	14.29	29.84	474.50	-	578.55	0.00
2021	54.91	12.76	28.74	455.32	-	551.73	0.00
2022	48.93	11.40	27.61	440.46	-	528.40	0.00
2023	56.19	10.18	27.38	435.37	-	529.12	0.00
2024	51.34	9.09	26.21	423.04	-	509.68	0.00
2025	45.68	8.11	25.47	408.02	-	487.29	0.00
2026	51.55	7.23	24.82	393.23	-	476.84	0.00
2027	46.91	6.44	23.86	385.10	-	462.31	0.00
2028	41.60	5.72	22.89	372.03	-	442.24	0.00
2029	46.35	5.08	22.69	359.73	-	433.85	0.00
2030	42.01	4.49	21.57	348.18	-	416.25	0.00
2031	37.13	3.97	20.87	341.17	-	403.14	0.00
2032	32.77	3.50	19.77	327.61	-	383.65	0.00
2033	28.87	3.08	18.99	315.39	-	366.33	0.00
2034	25.38	2.70	17.77	304.92	-	350.77	0.00
2035	22.28	2.36	17.04	300.88	-	342.55	0.00
2036	79.14	2.05	19.38	290.26	-	390.83	0.00
2037	70.54	1.79	18.47	278.63	-	369.43	0.00
2038	62.66	1.59	17.91	275.72	-	357.88	0.00
2039	55.70	1.41	17.17	268.18	-	342.47	0.00
2040	49.51	1.26	16.29	255.19	-	322.24	0.00
2041	43.98	1.11	15.51	245.63	-	306.24	0.00
2042	39.08	0.99	14.86	237.59	-	292.52	0.00
2043	34.71	0.87	14.25	229.80	-	279.64	0.00
2044	30.81	0.77	13.66	222.28	-	267.52	0.00
2045	26.86	0.68	13.10	215.00	-	255.64	0.00
2046	23.59	0.59	12.57	207.96	-	244.71	0.00
Total	1,379.80	177.42	845.20	13,631.72	-	16,034.14	

*Assumes the Polk 2-5 utilizing June 2012 assumptions is the base case compared to Alternative 2 and Proposal B.

Conversion of Revenue Requirements to 2017 dollars

Revenue Requirements presented in response to Staff's Second Set of Interrogatories, 47 is in 2012 dollars.

The amounts stated in 2017 would be adjusted by the Weighted Average Cost of Capital used in the analysis or 7.954% compounded annually. (See WACC Schedule)

As such, the $63.52 million in Generation revenue requirements would become $93.131 in 2017 dollars and the $19.98 Transmission capital would become $29.299 in 2017 dollars for a total Revenue requirement of $122.43 million.

The numerical calculation is as follows:

63.52*1.07954^5

and

19.98*1.07954^5

Weighted Average Cost Of Capital

Used For Project Evaluation

Tampa Electric
Cost of Capital
Updated as of 9/28/2011

Assumptions

Mid-Point ROE	11.25%
Debt Cost [1]	6.66%
Targeted Capital Structure	
Debt	46.04%
Equity	53.96%
Tax Rate	38.575%

Regulatory ROE = 11.25%

PRE TAX

WACC Calculator	
Debt Cost	6.66%
Pre-tax Equity Cost	18.32%
Capital Structure	
Debt	46.04%
Equity	53.96%
Pre-Tax WACC	**12.95%**

AFTER TAX

WACC Calculator	
Debt Cost	6.66%
Equity Cost	11.25%
Capital Structure	
Debt	46.04%
Equity	53.96%
WACC	**7.9540%**

(1) Debt cost is from Treasury Department 08/03/2010

Schedule Reflecting all Costs

Including Fuel, Capital and O&M

to arrive at

2017 Rate Impact

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	2012	2013	2014	2015	2016	2017	2018	2019
System Summary								
Cost* ($000)	746,378	742,090	766,684	808,447	828,225	832,587	864,574	898,212
Energy (MWh)	19,554,620	19,159,830	19,341,500	19,532,510	19,787,050	20,045,840	20,303,930	20,550,960
Charge (c/KWh)	3.817	3.873	3.964	4.139	4.186	4.153	4.258	4.371
Recoverable Capacity Costs ($000)								
Purchases	49,363	31,425	32,467	33,561	29,598	9,888	10,050	-
Sales	-	-	-	-	-	-	-	-
Total	49,363	31,425	32,467	33,561	29,598	9,888	10,050	-
TEC System Fuel ($000)	548,760	592,976	631,318	671,575	689,850	706,171	736,996	768,080
Fuel Adder ($ 000)	166,186	126,452	119,444	119,562	119,725	119,562	119,562	119,562
Purch Recov Fuel ($000)	32,585	26,802	14,085	15,392	16,225	6,291	7,431	10,003
Purch Recov O&M ($000)	1,646	768	949	1,098	1,219	557	575	568
Purch Recov Starts ($000)	1,130	426	889	821	1,206	7	10	-
Sales Fuel ($000)	(3,609)	(4,850)	-	-	-	-	-	-
Econ Profit ($000)	(321)	(485)	-	-	-	-	-	-
Threshold Margin ($000)	-	-	-	-	-	-	-	-
Calculated Cost*	746,378	742,090	766,684	808,447	828,225	832,587	864,574	898,212
Delta	0	0	-	(0)	0	0	0	(0)
Fuel Clause Charge ($/MWh)	38.17	38.73	39.64	41.39	41.86	41.53		$ (0.32)
CCRC Charge ($/MWh)	2.52	1.64	1.68	1.72	1.50	0.49		$ (1.00)
Total RR	851,356	809,004	836,866	881,070	898,679	1,005,873		
RR($/MWh)	43.54	42.22	43.27	45.11	45.42	50.18		$ 4.76

	2012	2013	2014	2015	2016	2017	2018	2019
Expansion Capital RR	-	-	-	-	-	-	-	-
Polk 2 RR Supply	-	-	-	-	-	93,131	90,233	86,942
Polk 2 RR Transm.	-	-	-	-	-	29,299	28,388	27,352
Exist VOM	55,616	35,489	37,716	39,063	40,856	28,721	29,877	30,863
Expansion VOM	-	-	-	-	-	10,773	11,481	12,274
Expansion FOM	-	-	-	-	-	1,474	1,509	1,545
System Fuel	746,378	742,090	766,684	808,447	828,225	832,587	864,574	898,212
System Capacity	49,363	31,425	32,467	33,561	29,598	9,888	10,050	-
PPA Cap Pmt	-	-	-	-	-	-	-	-
PPA Equity Adj	-	-	-	-	-	-	-	-
PPA VOM & Start	-	-	-	-	-	-	-	-
PPA Fixed Fuel Cost	-	-	-	-	-	-	-	-
PPA Transm. Wheeling	-	-	-	-	-	-	-	-
PPA Transm. Integration	-	-	-	-	-	-	-	-
Total RR	851,356	809,004	836,866	881,070	898,679	1,005,873	1,036,112	1,057,190
NPV	851,356	749,398	718,090	700,317	661,684	686,042	654,599	618,704
CPWRR	851,356	1,600,754	2,318,844	3,019,161	3,680,845	4,366,887	5,021,486	5,640,190

	2012	2013	2014	2015	2016	2017	2018	2019	2016 / 2017 Delta	2017 / 2018 Delta	2018 / 2019 Delta
Rate Impact Existing VOM	$ 2.84	$ 1.85	$ 1.95	$ 2.00	$ 2.06	$ 1.43	$ 1.47	$ 1.50	$ (0.63)	$ 0.04	$ 0.03
Polk 2 VOM, FOM, Supply, Transm	$ -	$ -	$ -	$ -	$ -	$ 6.72	$ 6.48	$ 6.23	$ 6.72	$ (0.24)	$ (0.25)
SubTotal	$ 2.84	$ 1.85	$ 1.95	$ 2.00	$ 2.06	$ 8.15	$ 7.95	$ 7.74	$ 6.09	$ (0.20)	$ (0.22)
FCRC	$ 38.17	$ 38.73	$ 39.64	$ 41.39	$ 41.86	$ 41.53	$ 42.58	$ 43.71	$ (0.32)	$ 1.05	$ 1.12
CCRC	$ 2.52	$ 1.64	$ 1.68	$ 1.72	$ 1.50	$ 0.49	$ 0.49	$ -	$ (1.00)	$ 0.00	$ (0.495)
TOTAL	$ 43.54	$ 42.22	$ 43.27	$ 45.11	$ 45.42	$ 50.18	$ 51.03	$ 51.44	$ 4.76	$ 0.85	$ 0.41

Excerpt From Witness R. James Rocha's
Direct Testimony (Docket No. 120234-EI)
Supporting the Rate Impact Reflected
on the Previous Schedule

TECO
TAMPA ELECTRIC

BEFORE THE

FLORIDA PUBLIC SERVICE COMMISSION

DOCKET NO. 12_____-EI

IN RE: TAMPA ELECTRIC COMPANY'S

PETITION TO DETERMINE NEED FOR

POLK 2-5 COMBINED CYCLE CONVERSION

DIRECT TESTIMONY AND EXHIBIT

OF

R. JAMES ROCHA

EXCERPT

analyses, the qualitative factors, and the benefit to state-wide reliability Polk 2-5 is the most cost effective alternative for customers.

Q. What is the expected relative average retail customer cost impact of Polk 2-5 compared to the reference case alternative?

A. The relative retail customer cost impact was calculated on an energy (MWH) basis. In 2017, the projected average retail customer cost impact for the Polk 2-5 NGCC plan is $6.09 per MWH; however, the customer cost recovery clause impact for Polk 2-5 NGCC is projected to be lower by $1.32 per MWH due to lower fuel and purchased power and capacity costs for a net customer cost impact of $4.76 per MWH compared to projected costs in 2016. The incremental supplemental duct-firing capacity of Polk 2-5 replaces the purchased power capacity that retires at end of 2018. This cost-effective incremental capacity eliminates the need for additional supply resources and the associated costs to construct and operate those avoided units. Finally, the PPA expiration incrementally lowers the customer cost recovery clause impact by an additional $0.50 per MWH that would otherwise occur in 2019.

Assumptions Used for Revenue Requirements Calculation Adjusted for Terms of the Settlement

Tampa Electric
Cost of Capital
Updated for Settlement

Assumptions

Mid-Point ROE	10.25%
Debt Cost [(1)]	5.67%
Settlement Capital Structure	
Debt	46.00%
Equity	54.00%
Tax Rate	38.575%

Reg. ROE =	**10.25%**

PRETAX

WACC Calculator

Debt Cost	5.67%
Pre-tax Equity Cost	16.69%
Capital Structure	
Debt	46.00%
Equity	54.00%
Pre-Tax WACC	**11.62%**

AFTERTAX

WACC Calculator

Debt Cost	5.67%
Equity Cost	10.25%
Capital Structure	
Debt	46.00%
Equity	54.00%
WACC	**7.14%**

(1) Debt cost is from TEC's June 2013 S.R.

	Millions	WACC	Revenue Requirements
Generation Capital in 2012 dollars	$63.52	7.14%	$ 89.67
Transmission Capital in 2012 dollars	$19.98	7.14%	$ 28.21
Total Revenue Requirements			**$ 117.88**