BEFORE THE
FLORIDA PUBLIC SERVICE COMMISSION

In the Matter of:

DOCKET NO. 120234-EI

PETITION TO DETERMINE NEED FOR
POLK 2-5 COMBINED CYCLE CONVERSION,
BY TAMPA ELECTRIC COMPANY.
_____/

VOLUME 1

Pages 1 through 183

PROCEEDINGS:	HEARING
COMMISSIONERS PARTICIPATING:	CHAIRMAN RONALD A. BRISÉ COMMISSIONER LISA POLAK EDGAR COMMISSIONER ART GRAHAM COMMISSIONER EDUARDO E. BALBIS COMMISSIONER JULIE I. BROWN
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PLACE:	Betty Easley Conference Center Room 148 4075 Esplanade Way Tallahassee, Florida
REPORTED BY:	JANE FAUROT, RPR Official FPSC Reporter (850) 413-6732

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P R O C E E D I N G S

CHAIRMAN BRISÉ: Good morning, everyone.

We are ready to call this hearing to order; Docket Number 120234-EI.

Staff, would you read the notice, please.

MS. ROBINSON: This date and time have been noticed for a hearing in this docket, Docket Number 120234-EI, Petition to Determine Need for Polk 2-5 Combined Cycle Conversion by Tampa Electric Company.

CHAIRMAN BRISÉ: Thank you very much.

At this time we will take appearances.

MR. BEASLEY: Good morning, Commissioners.

James D. Beasley appearing with J. Jeffry Wahlen, both of the law firm of Ausley and McMullen in Tallahassee, representing the applicant, Tampa Electric Company.

MS. CHRISTENSEN: Patty Christensen with the Office of Public Counsel representing the Citizens of Florida.

CHAIRMAN BRISÉ: Okay.

MR. WRIGHT: Good morning, Commissioners.

Schef Wright, and also an appearance for my law partner, John T. LaVia, III, appearing on behalf of DeSoto Generating Company. Also with me, although not entering an appearance, is Mr. Scott Carver, Associate

General Counsel of the company. Thank you.

CHAIRMAN BRISÉ: All right. Thank you very much.

Are there any preliminary matters?

MS. ROBINSON: Pauline Robinson and Larry Harris with Staff.

MS. HELTON: Mary Anne Helton, Advisor to the Commission.

CHAIRMAN BRISÉ: All right. Thank you.

Are there any preliminary matters?

MS. ROBINSON: There are none at this time. However, staff wishes to note for the record that witnesses Lorraine Cifuentes, Howard Bryant, and David Lukcic have been excused from the hearing.

CHAIRMAN BRISÉ: Thank you.

MR. BEASLEY: Mr. Chairman, I have one preliminary matter for Tampa Electric. The staff has distributed what the Staff's Composite Exhibit List has marked as Exhibit Number 19, which is a notarized proof of publication in the Lakeland Ledger of the notice of this hearing. We'd ask that that be admitted into the record.

CHAIRMAN BRISÉ: Sure. We will see -- if there are no objections, we will admit that into the record.

(Exhibit 19 marked for identification and admitted into the record.)

CHAIRMAN BRISÉ: Moving on to exhibits.

MS. ROBINSON: Staff's stipulated Comprehensive Exhibit List was provided to the Commissioners, the parties, and the court reporter. Staff recommends that exhibits be marked as set forth in the Comprehensive Exhibit List. And after they have been so marked, that exhibits be admitted into the record.

CHAIRMAN BRISÉ: Thank you.

These exhibits have been marked. Would you like to move those into the record at this time?

MS. ROBINSON: Yes, sir. Staff moves that exhibits identified in the Comprehensive Exhibit List be included in the record as set forth in the list.

(Exhibits 1 through 10 marked for identification and admitted into the record.)

(Exhibits 11 though 18 marked for identification.)

CHAIRMAN BRISÉ: Okay. Thank you.

All right. So we have moved the Comprehensive Staff Exhibit List.

Are there any customers wishing to address the Commission?

Okay. I think we're ready to move on to opening statements, and opening statements are limited to five minutes per side.

MR. BEASLEY: Thank you, Mr. Chairman. Good morning, Commissioners.

We appreciate the opportunity to appear before you today in support of a determination of need for the conversion of four existing combustion turbines at Tampa Electric's Polk Power Station into a significantly more efficient combined cycle generation facility. This project is needed to help Tampa Electric meet its customers' growing needs for electric power beginning in 2017.

We initially called this project the Polk 2-5 conversion as a shorthand name. That really doesn't do justice for the project that's before you. The Polk Conversion Project will combine four existing combustion turbines at Polk Power Station with four heat-recovery steam generators and a steam turbine generator. This conversion will provide approximately 340 megawatts of incremental generation, all of it being harvested from waste heat exhaust from the four existing combustion turbines at Polk Station.

This is an important and valuable use of a free resource which is otherwise a wasted resource.

This project will also provide approximately 120 megawatts of supplemental natural gas firing over and above the waste heat production, which will raise the incremental output of the entire project to approximately 460 megawatts, or enough power to satisfy the needs of approximately 120,000 homes.

Our witnesses will describe Tampa Electric's careful assessment of the company's need for additional generation and how the proposed project was selected as the best means of maintaining the company's system reliability requirements beginning in 2017. They will also detail Tampa Electric's great successes with its demand-side management and renewable energy initiatives and confirm for you that those efforts cannot be used to defer this project beyond its need in 2017.

We will demonstrate the steps that Tampa Electric has taken to ensure that the project is the most cost-effective alternative available and it also is the preferable choice taking into account all the factors you're required to consider under the determination of need statute.

Now, to demonstrate that the Polk conversion is the most cost-effective alternative, Tampa Electric complied with all of the requirements of your Bid Rule. While under the Bid Rule, Tampa Electric could have

sought an exemption from the RFP requirement. The company went ahead and engaged in an extensively noticed request for proposals in the spring of this year which the company performed under the guidance of a very reputable independent third-party evaluator, Mr. Alan Taylor of Sedway Consulting, Incorporated.

After that extensive RFP process and careful evaluation of the proposals that were submitted, both Tampa Electric and Sedway Consulting concluded that the Polk Conversion Project is the most cost-effective resource for meeting the company's 2017 capacity requirements. In addition to the cost-effectiveness measure, this conversion project has environmental, reliability, flexibility, and renewable energy attributes that were not proposed in any of the offerings under the RFP process.

Now, two parties have intervened in this proceeding. The Office of Public Counsel has taken the position that there appears to be a need for additional generation for reliability and the integrity of Tampa Electric's system and supports the lowest cost generation available to meet that need. The evidence will demonstrate that the Polk 2-5 conversion is the most cost-effective alternative with the lowest cumulative present worth revenue requirement of any of

the various alternatives considered, including those submitted under the RFP process.

The other intervenor, DeSoto County Generating Company, LLC, was an unsuccessful bidder in the RFP process. They don't challenge our capacity need, but instead are upset that they weren't selected to provide it. DeSoto is not sponsoring any witnesses in this case, and we're confident that the positions that they have asserted will be unsupported, and, in fact, negated by the evidence that we present.

Commissioners, the evidence will show that this project has a lot going for Tampa Electric's customers and the State of Florida. In addition to being the lowest cost alternative available, the Polk Conversion Project before you has significant attributes. The evidence will show it is highly efficient, utilizing waste heat as its primary energy source. It is very environmental friendly in that it will significantly reduce the emission rates of NOx and carbon dioxide. It will be highly reliable. It will add dual fuel capability to Tampa Electric's system and Peninsular Florida. It will be capable of adding 30-plus megawatts of solar thermal capacity, and the supplemental firing will supply low-cost peaking capacity and dispatch flexibility.

Commissioners, the associated transmission upgrades will improve reliability and add needed transmission capability in the central corridor of this state. Commissioners, we urge you to consider all these attributes as we go forward with our presentations, and to conclude that this project is worthy of your approval.

Thank you.

CHAIRMAN BRISÉ: All right. Thank you.

DeSoto.

MR. WRIGHT: Thank you, Mr. Chairman. And thank you, Commissioners, for allowing us to present our case to you in this important case.

As you hear me say often in rate cases, it is the utility's duty, in this case Tampa Electric's duty, to provide safe and reliable service to its customers at the lowest possible cost. That is what this case is about. In this need determination proceeding, Tampa Electric is obligated in protecting its customers' interests to seek the most cost-effective alternative available when it needs new generating capacity.

DeSoto Generating Company is a qualified short-listed bidder in Tampa Electric RFP process, it's a proven facility, it has been operating in the Florida wholesale market for ten years. We do not dispute that

Tampa Electric needs additional capacity, nor do we dispute that Tampa Electric -- we don't argue that Tampa Electric overlooked any conservation, demand-side management, or renewable resources that might have mitigated that need.

However, the evidence will show that Tampa Electric wants to commit its customers to $706 million for the Polk Conversion Project to come on-line in 2017 that they would then recover from the customers over 30 years, or 25 years, depending on what the real depreciation life is.

The evidence will show -- the evidence does show that this investment provides, at most, a razor-thin return, $75 million over 30 years, and that Tampa Electric's analysis is very sensitive to costs, particularly fuel costs. From the date they filed their need study, at that time the projected savings were $132 million, they updated the analysis in June, that dropped it to $97 million, then they discovered an error in their analysis and that dropped it from 97 down to $75 million. This is all very sensitive to fuel cost and a bunch of other assumptions.

We believe that Tampa Electric passed over a more cost-effective option which is to buy the DeSoto Generating Facility from us and pursue a slightly

different alternate generation expansion plan that would add DeSoto sometime between 2013 and 2016. The confidential cost at which Tampa Electric could buy the DeSoto facility is a small fraction of the cost of the incremental Polk capacity, less than a fifth. The confidential cost of DeSoto is also a small fraction of the cost of Tampa Electric's proposed or planned 2019 combustion turbine. In fact, Tampa Electric could buy 310 megawatts of DeSoto capacity for less than the cost that it projects for 149 megawatts of CT capacity in 2019.

We believe and expect that the evidence will show that Tampa Electric probably overstated the cost of purchasing DeSoto, because it is unclear whether Tampa Electric took into account or properly evaluated the real economics of a specific alternative sales structure that DeSoto offered to Tampa Electric in its best and final offer. Properly accounting for these additional benefits would reduce the claimed $75 million in savings that their second revised or third revised analysis shows.

Moreover, even in the analysis that it appears Tampa Electric did perform, we believe they did not give DeSoto proper or full credit for additional reliability that the facility would provide in the early years:

Value of avoiding a 2016 capacity purchase; potential capacity revenues from DeSoto when Tampa Electric is actively pursuing sales in the wholesale market; potential gains on energy sales that would be made available by DeSoto; and the additional value that Tampa Electric might realize by deferring the Polk project as proposed and seeking more cost-effective early capacity.

Finally, we believe that the evidence will show that in its RFP process, Tampa Electric did not fully evaluate the specific options that we offered to them in DeSoto's best and final offer. This lesser analysis, I might call it, does not serve the best interests of Tampa Electric's customers. In short, Tampa Electric has not made a compelling case to expend $706 million of its customers' money, or that it would charge to its customers for a razor-thin payoff that has already declined twice in the filings that have been made here.

We believe that the Commission should accordingly deny the requested determination of need for the Polk project with its in-service date of 2017 as proposed.

Thank you.

CHAIRMAN BRISÉ: Ms. Christensen.

MS. CHRISTENSEN: I think Mr. Beasley

summarized our position succinctly. We don't dispute the need for additional generation, and we are here to support the lowest cost, lowest cost generation to meet that need. Thank you.

CHAIRMAN BRISÉ: Thank you very much.

All right. At this time we will swear in our witnesses. If our witness would stand; if you're testifying this morning, please stand.

(Witnesses sworn collectively.)

CHAIRMAN BRISÉ: Thank you very much.

Are there any proposed stipulations?

MS. ROBINSON: No, sir. There are none at this time.

CHAIRMAN BRISÉ: Okay. So at this time we will move into the testimony, and we will ask TECO to call their first witness.

MR. BEASLEY: Thank you.

Tampa Electric calls Mark J. Hornick.

MS. HELTON: Mr. Chairman, while he's coming to the stand, I got a little bit confused earlier -- hopefully I won't stay that way today -- but I wasn't clear whether we moved the stipulated exhibits into the record.

CHAIRMAN BRISÉ: I believe we did.

MS. HELTON: Okay. We did. Thank you.

MARK J. HORNICK

was called as a witness on behalf of Tampa Electric Company, and having been duly sworn, testified as follows:

DIRECT EXAMINATION

BY MR. BEASLEY:

Q. Mr. Hornick, would you please state your name, your business address, your occupation, and your employer?

A. Yes, I'm Mark J. Hornick. My business address is 702 North Franklin Street. My employer is Tampa Electric Company.

Q. Did you prepare and submit in this proceeding prepared Direct Testimony filed September 12th, 2012?

A. Yes, I did.

Q. Do you have any corrections or changes to your testimony?

A. No, I do not.

Q. If I were to ask you the questions contained in your prepared Direct Testimony, would your answers be the same as contained therein?

A. Yes, they would.

MR. BEASLEY: I would ask that Mr. Hornick's testimony be inserted into the record as though read.

CHAIRMAN BRISÉ: Okay. At this time we'll enter Mr. Hornick's prefiled testimony into the record

as though read.

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.

BY MR. BEASLEY:

Q. Mr. Hornick, did you also prepare the exhibit identified as MJH-1 that accompanied your Direct Testimony?

A. Yes.

MR. BEASLEY: That exhibit, Mr. Chairman, has been marked in the Comprehensive List as Hearing Exhibit 12, and I would ask that it be so marked.

CHAIRMAN BRISÉ: Thank you. It's marked that way.

BY MR. BEASLEY:

Q. Mr. Hornick, would you please summarize your Direct Testimony.

A. Yes; thank you.

Good morning, Commissioners. My Direct Testimony describes the design, cost estimate, construction schedule, and operating performance of the Polk 2-5 Combined Cycle Conversion Project. As Mr. Beasley mentioned, the essence of this project is the capture of the heat energy from the exhaust of the four existing combustion turbines at the Polk site and the conversion of that energy into electricity.

The conversion from simple cycle to combined cycle operation will create approximately 340 additional megawatts of power output with no additional fuel input.

By capturing the waste heat from the four CTs, the overall efficiency of power production from these units will increase by over 30 percent.

In order to accomplish this efficiency improvement and capacity increase, the company will install a heat recovery steam generator, or HRSG, on each of the four CTs. The exhaust gases from each turbine will flow through the individual HRSG, produce steam at up to 2,300 pounds per square inch and a 1,050 degrees Fahrenheit. This high quality steam from each HRSG will be combined and directed to a new steam turbine and generator for the production of electricity.

This project is unique in many ways, and has features and benefits that are not available with other options. The Polk site was designed with future expansion in mind, and there is adequate space for the efficient installation of the new HRSGs and the steam turbine. The existing cooling reservoir at the site will be used to meet the cooling needs of the new steam turbine in a cost-effective manner.

Each HRSG will be equipped with supplemental firing capability, meaning that natural gas can be fired to create additional steam. The steam turbines will be sized to accommodate this steam, and in turn create an additional 120 megawatts of electric power. The

supplemental firing capability is more efficient than simple cycle combustion turbines and is less costly to build. This element of the project will eliminate the need to add 120 megawatts of peaking capacity in the future.

Now, the ability to operate each CT in simple cycle mode will be retained by the installation of a bypass damper between the CT and the HRSG. This will allow any or all of the CTs to operate in peaking service without the steam turbine operating.

The environmental performance of these units will be substantially improved with this project. Each HRSG will be equipped with selective catalytic reduction, or SCR, for the control of NOx emissions. The addition of SCRs in combination with the efficiency improvement will reduce the NOx emission rate by 86 percent from these units and will reduce the CO2 emission rate by 37 percent.

The Polk site is large; it's over 2,000 acres. It has the capability to be used for renewable energy production. This project is being designed to allow for the addition of solar energy to the system by adding solar thermal collectors which would produce steam to be used by the new steam turbine, approximately 30 minutes of electricity could be generated.

Two of the four CTs are currently equipped with dual fuel firing and can use either natural gas or distillate oil as a fuel. And by installing waste heat recovery on these units, an additional 170 megawatts of dual fuel capacity will be added to the State of Florida. The water needs for the project will be met primarily from treated wastewater, and that will not require a significant additional use of fresh water.

Now, the cost and the schedule for this project are reasonable and achievable. The estimated overnight construction cost for the generating plant associated with this project is $424 million. The total installed cost of the project is forecast to be $610 million. That includes transmission expense without including AFUDC.

The scheduled in-service date is January of 2017. Project costs will be controlled through competitive bidding and appropriate contractual requirements for all equipment suppliers and construction contractors.

In summary, the Polk 2-5 Combined Cycle Conversion Project will provide electric capacity at a time needed by our customers in a highly efficient and cost-effective manner. The project has significant environmental benefits, will prove statewide fuel

diversity, and provides the capability to add renewable energy.

And this concludes my summary. Thank you.

MR. BEASLEY: We tender Mr. Hornick for cross-examination.

CHAIRMAN BRISÉ: All right. Thank you.

Mr. Wright.

MR. WRIGHT: Thank you, Mr. Chairman.

CROSS EXAMINATION

BY MR. WRIGHT:

Q. Good morning, Mr. Hornick.

A. Good morning.

Q. Good to see you again.

A. Same to you.

Q. Can we agree at the outset that the number one purpose of this proceeding is to ensure that Tampa Electric selects the most cost-effective generating alternative for its customers?

A. That's my understanding, to determine that there is a need for the capacity and that the proper project is selected, right.

Q. Great. What exactly was your role in the generation expansion planning process that led to the selection of the Polk project?

A. My current role is the Director of Engineering

and Project Management. So my group has prepared -- will actually have a number of roles leading up to this. We provide the cost estimates and performance estimates for the range of capacity generating units that we would consider to add. So that was one input to the process. In terms of this specific unit, we have contracted with an engineering firm to assist us with preliminary configuration of the project and cost estimates, so that was in my area of responsibility. And we are proceeding along that path with critical path items that will allow us to meet the in-service date of January 2017.

Q. Thank you. You mentioned you considered alternative generation options, so that would include the combined cycle conversion, combustion turbines, and other options, correct?

A. Yes, that's right.

Q. Thanks. Did you have any role in evaluating responses to the RFP?

A. No, I did not. The process within our company is that the actual evaluation of the bids is separate from the engineering and project management group that I oversee.

Q. Did you participate in evaluating any cost projections for future scenarios that included the alternate proposals that were submitted in response to

the RFP?

A. Not directly, only in that my group provided cost estimates for the range of technologies that would be evaluated in that process.

Q. Thank you. So based on your answers just now, would I be correct that you did not review DeSoto's original proposal and response to the RFP?

A. Yes, that is correct.

Q. And you did not review DeSoto's best and final order submitted later, correct?

A. No, I did not specifically. I have heard some things, but I was not directly involved and that was by design.

Q. Thank you. And would it similarly be correct that you didn't participate in any negotiations with DeSoto?

A. That's correct.

Q. Thanks. What, if anything, do you have to do with Tampa Electric's Ten-Year Site Plan development?

A. That activity is -- the involvement is essentially the same as I described earlier. My group is responsible for providing up-to-date cost estimates and performance estimates for a range of technologies that go into the process of ten-year site planning.

Q. Are you familiar with the DeSoto generating

facility?

A. I'm somewhat familiar with it, yes.

Q. You are aware that it has been operating in Florida for about ten years?

A. I would agree to that. I'm not certain of its in-service date.

Q. You don't have anything to do with Tampa Electric's wholesale power purchases, do you?

A. No. Not in my current capacity, no.

Q. And just so the record is clear, you didn't evaluate any scenarios, any cost-projection scenarios including DeSoto? You just focused on the company's plants, correct?

A. That's right. My group's responsibility is our project. We have submitted the initial cost and performance estimates, and that evaluation was done separately.

Q. You mentioned in response to a previous question that you are generally familiar with DeSoto. You understand that it's a two-unit combustion turbine station?

A. Yes.

Q. Consisting of two General Electric 7FA units?

A. That's my understanding, yes.

Q. And as such, it's really pretty similar to

your Polk 2 and 3 units, is it not?

A. Yes, I think fairly similar. Obviously the site location is different, those kind of things. But in terms of the equipment, my understanding is they're similar vintage 7F. Our Polk 2 was put in service in 2000, our Polk 3 in 2003. I'm not sure of the vintage of the LS units specifically.

Q. You would accept, subject to check, that it's 2002, would you not?

A. Yes, subject to check, sure.

MR. WRIGHT: I have an exhibit, Mr. Chairman.

CHAIRMAN BRISÉ: Sure. This will be Exhibit 21.

(Exhibit Number 21 marked for identification.)

MR. WRIGHT: Thank you, Mr. Chairman.

And as noted, it is simply an excerpt from Tampa Electric's 2011 FERC Form 1.

CHAIRMAN BRISÉ: The number is 21.

MR. WRIGHT: Yes, sir.

BY MR. WRIGHT:

Q. Did you ever look at FERC Form 1, Mr. Hornick? Are you familiar with the company's FERC Form 1?

A. I am familiar that they exist, and I have looked at a few, but that's not part of my role to regularly review them.

Q. Okay. If you could just take a minute to look. If you look particularly on Page Number 402.1 at the bottom, that's where the page number is, that page shows data for Polk 2 and 3, as well as Polk 4 and 5, correct?

A. Yes.

Q. And you would have every reason to expect that all the information presented in this table is correct, would you not?

A. Yes.

Q. In your testimony, you talked about -- sorry. It wasn't a trick question in any way, and I noticed you were looking at the exhibit, and if you had anything to add to your response I was waiting to give you that opportunity?

A. I was just scanning it to become familiar with it, and I was still listening. Actually, I see it says Polk Unit 3 was installed in 2002, which I believe I said '03, so I may have been mistaken. That's all.

Q. Not material. Thank you for the clarification.

In your testimony you talk about positive attributes of combustion turbine units, correct?

A. I believe I do, yes.

Q. And you'd agree that the DeSoto CT Station

would have similar attributes to those of Polk 2 and 3 or Polk 4 and 5, would you not?

A. Yes. They are similar technology so, yes, I would generally agree.

Q. And is it your understanding that the DeSoto unit is dual fuel capable?

A. Yes.

Q. You also mentioned the benefits of having an inland location for the Polk unit. I think you testified it is about 40 miles inland?

A. Right.

Q. Do you know where Arcadia, Florida, is? I bet you do.

A. Yes, I do.

Q. Would you agree that that is in the vicinity of 25 to 30 miles inland?

A. That seems right, yes.

Q. So any additional inland benefits would be relatively comparable for -- just focusing on the inland characteristic, would they not?

A. I would agree. I don't know the elevation of that facility. I know that the Polk site is at elevation 100. There is very little flood risk there. And the other area of concern, in terms of inland location and resistance to storms is the transmission

infrastructure, and I'm not sure that I -- I really don't know about that.

Q. Thanks. And as an up-and-running plant, you'd agree that there is no construction uncertainty risk associated with DeSoto, would you not?

A. Are you referring to new construction?

Q. Well, I think in your testimony you talk about construction risk associated with Polk, the Polk project and how it is low, correct?

A. Yes, uh-huh.

Q. And my question for you is when you have got an up-and-running plant, there is no construction uncertainty risk at all, is there?

A. I guess I would agree, and I would say we consider construction also extensive maintenance activities, large replacements. I don't know the condition of the facility. That is my only caveat to that.

Q. Thank you. At Page 26 of your testimony, and I think around there you talk about the -- you're welcome to look at it, but I think you know what I'm talking about.

A. Uh-huh.

Q. You talk about a potential equipment demand price spike, correct?

A. Yes, I do. I'm getting to that page.

Q. Sure.

A. Yes.

Q. And you go on to say that several manufacturers have indicated that they anticipate lead times will extend and prices will go up in the near future, correct?

A. Yes. I believe I said that that was a risk that that could occur.

Q. Can you give us any information about the components of combined cycle equipment that would be subject to this potential price spike?

A. Sure. Back in the years 1999 and 2000, we saw an event in the industry where there was a rapidly increased demand for equipment, and primarily combustion turbines, potentially to a lesser extent steam turbines and heat-recovery steam generators. And basically that increased demand created a pretty significant increase in price.

We see some evidence that we may be on a similar path now with gas units being built, or at least proposed at a fairly rapid pace, and part of that is because coal units around the country are being proposed to be shut down. So there's a risk that we could be on the verge of a price increase.

With this project we are currently -- we actually have the steam turbine bid out and have received definitive offers. We've got our HRSG bids that are out, and we will receive offers in January. So we are trying to mitigate the risk of that by locking in prices. Obviously this is subject to the need determination, but that's our process to address those risks.

Q. You mentioned you had communications with manufacturers, correct?

A. Yes.

Q. What was the nature of those communications; phone calls, e-mails?

A. Phone calls, e-mails, and in-person presentations. As part of this project activity, we had invited suppliers, steam turbine suppliers, and HRSG suppliers to come in and give us a presentation. Kind of get us educated on the latest technology that they had to offer and what advantages they might be. So it was kind of an educational process, so we have had fairly extensive communication.

Q. Did any of the manufacturers give you any written statement as to how much prices would go up and when?

A. Yes, I believe we did get -- I'm trying to

remember. I believe one of the HRSG suppliers gave us a copy of a presentation where they had -- it wasn't specifically to Tampa Electric, but it was something that was, you know, out there for public -- in the public domain that indicated that this event may occur.

Q. Okay. Was there anything specific as to the amount of escalation?

A. I don't remember specifically, Mr. Wright.

Q. Was there anything specific that you recall about the timing of that escalation?

A. In general terms, the timing was relatively imminent. The general feedback was that the timing of our project was very good; that currently demand is relative low; there is a lot of competition in the market; and that the prices that we will see are advantageous, and that they could escalate should we delay the project.

MR. WRIGHT: Mr. Chairman, I have a couple of exhibits that relate to escalation rights, if I could ask Ms. Hopkins to hand those out for us.

CHAIRMAN BRISÉ: Sure.

MR. WRIGHT: I believe that at least some and perhaps all of the first one is already in one of the staff's exhibits, but for convenience I would like it marked.

CHAIRMAN BRISÉ: Sure.

MR. WRIGHT: It's Tampa Electric discount rate calculation and escalation rates, and it's part of a Response to Staff's Production of Document Request Number 19.

CHAIRMAN BRISÉ: Okay. That would be Number 22.

MR. WRIGHT: Thank you. And then if you wouldn't mind, go ahead and marking Number 23, which is an excerpt from Tampa Electric's COG-2 tariff.

CHAIRMAN BRISÉ: Okay. Thank you. So 22 is the POD from Number 19.

MR. WRIGHT: Thank you.

(Exhibit Numbers 22 and 23 marked for identification.)

BY MR. WRIGHT:

Q. I'd just like to ask you to look at the -- actually, if you look at the request, which is Number 19 on Bates Page 971, and then if you would also look at Bates Page 975, which is a Tampa Electric memorandum furnished in response to the staff's request.

A. Okay.

Q. The request asks, among other things, for all source documents relating to assumed escalation rates, correct?

A. Yes, I see that.

Q. Thanks. And if you then would look at Bates Page 975, which is the last page of this little exhibit, that appears to me to be the source document for escalation rates that the company furnished in response to the staff's request in this case, correct?

A. Yes, it appears that way.

Q. Okay. And then if you'd just look at the little table in the middle there, that shows the production HWI, that's Handy-Whitman Index, correct?

A. Yes.

Q. And that shows a projected escalation rate for 2014 through 2018 of 2.1 percent, correct?

A. Yes.

Q. Thank you. Now I'd like to ask you to look at the company's -- what has now been marked as Exhibit 23. This relates to -- well, the point of my question relates to assumed escalation rates for future combustion turbine units, and I gather that is within your wheelhouse, is it not?

A. Yes.

Q. Okay. If you would, look at sheet number -- Tariff Sheet Number 8.422, which is the next to the last sheet in the little exhibit package.

A. 8.422?

Q. Yes, sir. If you just look down toward the bottom, the third item from the bottom is i sub p, which is identified as the annual escalation rate associated with the plant cost of the designated avoided unit, correct?

A. Yes.

Q. And for this purpose, the company is using an escalation rate of 3.0 percent, correct?

A. That's right.

Q. And is it your understanding that that is the escalation rate that the company is using with respect to the company's planned 2019 combustion turbine unit?

A. Could you ask that again?

Q. Sure. That escalation rate is the rate that the company has stated in this tariff as being applicable to its planned 2019 combustion turbine unit, correct? If you want to look at the top of the page it basically says that. I'm just asking you to confirm it.

A. I'm not familiar with the document. In reading it, I would agree that that is what it appears to say, yes.

Q. Thank you. Do you know what the COG-2 rate is used for?

A. Ask the question again. I'm sorry.

Q. Do you know what the company's COG-2 tariff is

used for?

A. I'm not familiar with that term.

Q. Okay. Are you familiar with the fact that the company is obligated to buy power from renewable energy producers and certain small qualifying cogeneration facilities?

A. Yes. I'm generally aware of that, yes.

Q. And would you accept, subject to check, that this tariff determines the pricing that the company will pay for power that they purchase from such facilities?

A. That would probably be better asked to another witness. I don't deal with that on a routine basis.

Q. Thanks. Perhaps Mr. Rocha?

A. Perhaps he would be able to, yes.

MR. WRIGHT: Thank you.

I have another exhibit, Mr. Chairman.

CHAIRMAN BRISÉ: Sure. Number 24.

(Exhibit Number 24 marked for identification.)

MR. WRIGHT: Thank you. This is an excerpt from the FPL 2012 Ten-Year Site Plan relating to future combined cycle costs.

BY MR. WRIGHT:

Q. You have already mentioned, Mr. Hornick, that your responsibilities include cost projections for the company's future units, correct?

A. Yes.

Q. And in doing that part of your job, do you consider the costs at which other utilities are adding capacity?

A. Only peripherally. The primary methodology that we have used to forecast future equipment prices is by contracting with an engineering firm that does a market survey, and they do a very comprehensive job of that. They may well include the utilities, FPL, et cetera. I don't know that our process involves Tampa Electric individually going out and surveying the market, you know, and doing the mathematical averaging and whatnot. We rely on -- typically Black & Veatch has done that for us.

Q. Does Mr. Rollins help y'all out with that?

A. Does he what?

Q. Does Mr. Rollins help y'all out with that?

A. Mr. Rollins has been involved with that. I'm not sure every time, but yes.

Q. Would you expect that as part of their market survey they would look at other utilities' ten-year site plans to at least get some baseline data regarding other utilities' costs?

A. I think that was probably one of the inputs that they would look at.

Q. Thanks. If I could just ask -- and you are familiar with ten-year site plans, yes?

A. Yes, I am.

Q. Okay. If I could just ask you to look at the three sheets here, the last three pages in the exhibit. These say they are specifications of FPL's next three proposed combined cycle plants. That's what they say on their face. The first one is Cape Canaveral, the second one is a Riviera Beach, and the third one is Port Everglades, correct?

A. Yes.

Q. And if you'd look down toward the bottom of each of those three pages under the projected unit financial data, would you agree that FPL's site plan shows a total projected installed cost in 2013 dollars for Canaveral of $921 a kilowatt?

A. Yes.

Q. And correspondingly, next page, Riviera Beach shows a projected installed cost in 2014 dollars of $1,053 per kilowatt?

A. Yes.

Q. And, finally, Port Everglades shows a projected cost in 2016 dollars of $928 per kilowatt?

A. Yes, that's what it says.

Q. Thank you.

MR. WRIGHT: I think this is the last exhibit that I have for Mr. Hornick, Mr. Chairman. If I could ask Ms. Hopkins to distribute it, please.

CHAIRMAN BRISÉ: Sure. We are at Number 25.

(Exhibit Number 25 marked for identification.)

MR. WRIGHT: Thank you. This is simply an excerpt from Tampa Electric's 2012 Ten-Year Site Plan.

BY MR. WRIGHT:

Q. I guess before we look at that one, Mr. Hornick, if I could ask you to just look at the very last page of your filing, which is your Document Number 4; your Exhibit Document Number 4, that is.

A. Yes, I've got it.

Q. That shows that the total expected project cost is $706,619,000, correct?

A. The total expected project cost, correct. The generating plant cost is 424, transmission 147, and there's an escalation and AFUDC, so there's multiple components in that number. But, yes, that is the number.

Q. Okay. And is it your understanding that as we sit here today that's the number that Tampa Electric projects it would want to put into its rate base after the Polk Conversion Project comes on-line and then subsequently recover from its customers?

A. It's not my role to actually talk about rate base/rate case, but my understanding is generally these costs would be part of the project and would ultimately be recovered.

Q. Okay. Thank you. Now, if I could ask you to look at what has now been marked as Exhibit 25, which is the excerpt from the company's Ten-Year Site Plan.

A. I'm sorry, Exhibit 25?

Q. I did say 24, and I meant to say 25, yes, sir. That it was a talko (phonetic).

A. Okay. Twenty-five is the cover page.

Q. Yes. It's titled excerpts from Tampa Electric's 2012 Ten-Year Site Plan. If I could ask you to turn toward the back and look at Schedule 8.1.

MR. WRIGHT: And, Mr. Chairman, I don't see any need to burden everybody's files with copies of the complete Ten-Year Site Plan. I do have two copies of the complete plan with me, and if someone wanted the whole plan in the record, we wouldn't have any objection to furnishing a CD. I was just trying to save a few trees.

CHAIRMAN BRISÉ: Sure. Thank you.

Mr. Beasley.

MR. BEASLEY: We'll proceed with what Mr. Wright has distributed.

CHAIRMAN BRISÉ: All right. Thank you very much.

MR. WRIGHT: Thank you.

BY MR. WRIGHT:

Q. If I could ask you, please, Mr. Hornick, to look at the footnote to Schedule 8.1. That states that the incremental capacity gain from the conversion is 459 megawatts summer and 463 megawatts winter, correct?

A. Yes.

Q. If I wanted to calculate -- when you do your Schedule 9 presentations, do you know whether when you calculate the total installed cost per kilowatt, do you use summer or winter megawattage or kilo-wattage? It's not material in this case, because the difference is so small. I'm just curious if you know which one is the common standard for use there?

A. I'm not sure which one it is. I could figure it out fairly rapidly.

Q. If you divide the $706.6 million by, let's say, 460,000 kilowatts, which is between the summer and winter numbers, that's going to give you a number in the vicinity of $1,530 per kilowatt, is it not?

A. Okay. Give me the two numbers again.

Q. Your number from your exhibit, $706,619,000, and if you want to pick either one of the numbers shown

in the site plan, 459,000 kW or 463,000 kW, I just want to get an estimate of the cost per kilowatt for the incremental capacity that that $706 million of customer money is going to get them.

A. Okay.

Q. And if you'd like to do the calculation, that's fine. I'll aver to you I've done it, and it comes out between 1,525 and $1,540, depending on which number you use. Does that look right to you?

A. Subject to check, I'll agree with your math. I will comment that the numbers that you showed me in the FPL case is for the full combined cycle output of, in their case, 1,200 and 1,300 megawatts. If you look at our project as the total combined cycle, which means including the cost of the combustion turbines in this project to convert it into a combined cycle facility, divide by the combined cycle megawatts, it's very cost-effective. And that's the proper way to look at it, because we are adding, in effect, the last portion of this combined cycle. We built the four CTs incrementally, now we are adding heat recovery, so we have built a combined cycle over time.

So just for clarity, it is really an apples and oranges comparison if you are looking at that incremental cost of the heat recovery without

considering the fact that that heat recovery is waste heat recovery. So you really need to look at it in terms of the whole combined cycle, or it's not a technically proper comparison.

Q. But you will agree that the cost per incremental kilowatt is in the ballpark of $1,500 a kilowatt, correct?

A. I agree the math is correct.

Q. Just in passing you mentioned that the facility would accommodate some future solar thermal input, correct?

A. Yes.

Q. No costs for that are included in any of the estimates in this case, are there?

A. No costs for the actual solar equipment, which would mean the solar thermal collectors and the heat exchangers. There are allowances in the design to accommodate that, and they're relatively minor, but they are included in the project costs, so that portion is included.

Q. I'm sorry, would you say the last sentence again? You said that cost is included; which costs were you referring to?

A. The portion of costs for the engineering and the ability for this facility to include solar thermal

steam input in the future. But to be clear, absent the cost of the collectors and that part of it.

Q. Thank you for indulging me there. And if you would look, please, at the last page of what has now been marked as Exhibit 25; that's information for the 2019 CT, correct?

A. Yes.

Q. And that shows an installed cost of $878.11 per kilowatt, correct?

A. Yes, it does. I'm trying to determine if that is in 2019 dollars, which is the year of in-service.

Q. It says in-service year dollars, so that's how I would interpret it.

A. Okay. Yes.

Q. Thanks. If I wanted to get a total cost, do you know -- a total dollar cost for that CT, do you know whether one would multiply the $878 per kilowatt by the summer capacity or the winter capacity?

A. I'd have to go back and do the math. I know in terms of operating our system, the summer capacity is what we build to. That is the controlling criteria for our system.

Q. I'm not going to ask you to do that, but do you think it's probably summer?

A. I know that's what we build to.

Q. Thank you. Are you aware of any pending improvements in HRSG or steam turbine generator technology?

A. There are incremental improvements that incur over time. I mentioned earlier that we did have representatives from HRSG manufacturers and steam turbine equipment suppliers, and there are some -- yes, actually a number of improvements that do occur over time, yes.

MR. WRIGHT: Thank you. And thanks very much, Mr. Hornick. That's all the questions I have.

Thank you, Mr. Chairman.

CHAIRMAN BRISÉ: Thank you.

Ms. Christensen.

MS. CHRISTENSEN: Just briefly.

CROSS EXAMINATION

BY MS. CHRISTENSEN:

Q. I just wanted to clarify, I think, several places in your testimony you state that this will cost no additional fuel cost, is that correct?

A. The heat -- let me be clear. The electric energy generated by the capture of waste heat from the existing combustion turbines does not require additional fuel. While those units are running, we are going to capture the heat energy from those units and produce

additional megawatts without additional fuel input.

MS. CHRISTENSEN: Okay. I think that clarified what I needed to know. Thank you.

CHAIRMAN BRISÉ: Thank you.

Staff?

MS. ROBINSON: Staff has no questions.

CHAIRMAN BRISÉ: Commissioners?

Commissioner Brown.

COMMISSIONER BROWN: Thank you.

Good morning, Mr. Hornick, and welcome back to Tallahassee.

THE WITNESS: Thank you.

COMMISSIONER BROWN: It's nice to see you. A couple of questions.

What is TECO doing to ensure that the construction will remain on the projected schedule; what mechanisms do you have in place?

THE WITNESS: Well, I mentioned a few earlier. We are in the process of securing the steam turbine supply to make sure that that -- because that actually is one of the critical path items, the longest lead time item. HRSG supply is the next, and we are in the process of -- we have actually put requests for proposals out, and they are due back in January. So we have evaluated the schedule and looked at critical path

long lead-time items to make sure that we stay on track such that we don't slip past a critical date, so that we still can meet the 2017 in-service date.

We're also working with Black & Veatch engineering company to look at construction management, contractual strategies, how many contracts we would have with construction suppliers and other equipment suppliers to make sure that there is no unforeseen miss in terms of a criteria path item.

COMMISSIONER BROWN: Okay. And then can you just elaborate on what TECO intends to do to manage costs in order to avoid cost overruns?

THE WITNESS: Sure. One, as I mentioned, is to try to lock in pricing as quickly as we can on the major equipment. So the steam turbine portion of this project is, in round numbers, $50 million. Those bids have already been received, and once negotiated they are locked in. Similarly on the HRSGs. What we do on an ongoing basis, and our strategy for this project will be to use a small number of construction contractors that operate in their area of expertise, the sweet spot of what they do, civil contractors, general works constructors, electrical, a few major contracts, make sure we have appropriate terms in those contracts with LDs, liquidated damages for missing dates. And we also

have a pretty robust construction management group, and will probably use some outside help to oversee those, make sure that they are hitting the dates that are required to get this project put in on time.

COMMISSIONER BROWN: Thank you for that elaboration. I appreciate that. The 30 megawatt aspect of the solar energy portion of the projected project, do you have a cost estimate for the solar thermal collectors?

THE WITNESS: We do. I'm going to have difficulty pulling that out of my mind. We have had an engineering evaluation done of what it would take to do that on the site with that equipment in the future. It's about 130 acres, which we know we have the room. We have got a layout put together. There was a cost estimate, and I can provide that, but I don't have that right off the top of my head.

COMMISSIONER BROWN: Is there another witness that could provide that information during their testimony?

THE WITNESS: I don't think so, here present today. I can give you an idea. I mean, that is the more expensive part of the renewable energy. The collectors tend to be more expensive. And on a cost per kilowatt basis, the discussion we were having with

Mr. Wright, it would be more expensive than that -- which renewable energy typically is, although the cost of those collectors continues to come down, so --

COMMISSIONER BROWN: What's the likelihood that that is going to be part of the project?

THE WITNESS: As the project is being proposed to the Commission, we are not proposing right now to add those collectors, but we want to retain that capability. So I think when one of two things happen, we have a renewable energy portfolio standard that requires us to give a regulatory incentive to put those in, or the cost-effectiveness of that technology was such that it would be selected as part of a capacity improvement.

COMMISSIONER BROWN: Okay. That's it. Thank you.

CHAIRMAN BRISÉ: Commissioner Graham.

COMMISSIONER GRAHAM: Thank you, Mr. Chairman. Mr. Hornick, good morning.

THE WITNESS: Good morning.

COMMISSIONER GRAHAM: A couple of questions. The first one, you said that -- I believe you said it was back in 1999 there was an increase, a demand increase for the steam turbines.

THE WITNESS: Combustion turbines was really the major part of that, but steam turbines as well.

COMMISSIONER GRAHAM: Do we know what caused that demand increase?

THE WITNESS: Yes, it was -- I believe there was a series of events that led up to that. One of them was increased demand, demand higher than the general industry had kind of expected or utilities had expected. At that point independent power producers were very active in the market. They saw an opportunity to put projects forward to meet that need, and to some extent there was a rush to get in first in line was actually the situation that occurred. So a rapid number of -- a large number of orders were placed in a very short period of time right around there.

COMMISSIONER GRAHAM: How much of an increase are we talking about?

THE WITNESS: I think roughly 20 percent kind of numbers, you know, for the same equipment in just a year or two, so --

COMMISSIONER GRAHAM: And my last question, you said you were -- for the RFP process, or leading into the RFP process you were tasked with cost estimates for the range of different technologies that could be considered?

THE WITNESS: Leading up to the RFP process, my department would have provided that information to

our resource planning group for their use in alternative comparison. And even prior to that, in the ten-year site planning process, that is part of the activity. You look at the range of technologies, the need, the pricing, and do the analysis to determine what, either purchases or what type of technology, would best suit the need.

COMMISSIONER GRAHAM: What sort of technologies were you guys looking at?

THE WITNESS: Well, we provided pricing for a range of technologies; simple cycle combustion turbines, combined cycle, some renewable energy options, coal-fired units, sub-critical, super-critical coal. I think we actually provided nuclear unit pricing. So the range of data was there. Now whether we would select those is a more complicated question obviously, but we provided information on a range of technologies.

COMMISSIONER GRAHAM: Okay.

Thank you, Mr. Chairman.

CHAIRMAN BRISÉ: Any further questions?

All right. Redirect.

MR. BEASLEY: Brief redirect, sir.

REDIRECT EXAMINATION

BY MR. BEASLEY:

Q. Mr. Hornick, you were asked some questions by

Mr. Wright about the potential of purchasing the DeSoto units as an alternative to constructing the Polk conversion. Would Tampa Electric's purchase of the DeSoto units, to your knowledge, provide the 30 percent heat rate advantage you indicated the Polk conversion will provide?

A. No, it would not.

Q. Would it then provide you the fuel savings that you say the Polk conversion would provide?

A. No, those units would not be more efficient or have the fuel savings.

Q. What percentage of the incremental capacity from the Polk conversion will be fired from waste heat?

A. The vast majority of it will be waste heat fired. The incremental capacity from the supplemental firing will be used on-peak, the other part of that capacity will be intermediate and will be used much more, probably 60 percent of the time.

Q. The DeSoto site, is it located in your service area?

A. No, sir.

Q. But the Polk site is, I believe you said?

A. That's right.

Q. Would the acquisition of the DeSoto units as an alternative provide Tampa Electric any reduction in

its emission rates?

A. No.

Q. Will the Polk conversion?

A. Yes, absolutely.

Q. Will the purchase or would the purchase of the DeSoto units add any incremental dual fuel capability for the State of Florida?

A. No, it would not.

Q. Would your Polk conversion do that?

A. Yes, it would. I mentioned it earlier, it would add 170 megawatts through the waste heat capture for those dual fuel units. So you get more energy out of those units in dual fuel capacity with no additional fuel input.

Q. Okay. Are the DeSoto units, to your knowledge, configured to allow for the addition of solar thermal?

A. I'm not aware of that. From my observation of the site, it's relatively small. The Polk site is large and has that capability. It's kind of inherent.

Q. Do you know whether they are configured to provide for supplemental firing?

A. Well, they are simple cycle machines, so, no, they are not capable of supplemental firing, by definition.

Q. Do you know if the DeSoto units have water resources available to allow them to be converted into a combined cycle configuration?

A. I don't know specifically. I have peripheral knowledge of -- I know that it's in a water caution use area, as are we, and that's the reason why we've already moved towards recycle water to the site.

MR. BEASLEY: Thank you, sir.

I have no further questions. And I would like to move the admission of Hearing Exhibit 12.

CHAIRMAN BRISÉ: Okay. We will move Exhibit 12, seeing no objections.

MR. WRIGHT: And I would move the admission of Exhibits 21 through 25, Mr. Chairman.

CHAIRMAN BRISÉ: Okay. We will move Exhibits 21 through 25 into the record, seeing no objections.

(Exhibit Numbers 12 and 21 through 25 admitted into the record.)

CHAIRMAN BRISÉ: Thank you, Mr. Hornick, for your testimony.

THE WITNESS: Thank you.

CHAIRMAN BRISÉ: Call your next witness.

MR. BEASLEY: Mr. Chairman, our next witness scheduled is Lorraine L. Cifuentes, which staff has indicated the parties have stipulated her testimony

could be inserted into the record as though read. I would ask that that be done at this time.

CHAIRMAN BRISÉ: Okay. At this time we will enter the testimony of Lorraine Cifuentes into the record as though read.

MR. BEASLEY: Thank you. I would also move the admission of her exhibit, which is marked Hearing Exhibit 13.

CHAIRMAN BRISÉ: We will enter Exhibit 13 into the record. Any objections? Seeing none, it's moved into the record.

(Exhibit 13 admitted into the record.)

MR. BEASLEY: Thank you.

Mr. Chairman, our next, Mr. Howard T. Bryant, as staff has indicated, is also a stipulated witness in this proceeding. I would ask that his Direct Testimony be inserted into the record as though read.

CHAIRMAN BRISÉ: Okay. We will move Mr. Howard T. Bryant's testimony into the record as though read.

MR. BEASLEY: And I would move the admission of his exhibit, which is marked Exhibit Hearing 14, in the Composite Exhibit List.

CHAIRMAN BRISÉ: Okay. We will enter Exhibit 14 into the record.

THE WITNESS: No objection. Thank you.

CHAIRMAN BRISÉ: Thank you.

(Exhibit 14 admitted into the record.)

BEFORE THE FLORIDA PUBLIC SERVICE COMMISSION

PREPARED DIRECT TESTIMONY

OF

LORRAINE L. CIFUENTES

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

A. My name is Lorraine L. Cifuentes. My business address is 702 North Franklin Street, Tampa, Florida 33602. I am employed by Tampa Electric Company ("Tampa Electric" or "company") as Manager, Load Research and Forecasting in the Regulatory Affairs Department.

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

A. In 1986, I received a Bachelor of Science degree in Management Information Systems from the University of South Florida. In 1992, I received a Masters of Business Administration degree from the University of Tampa. In October 1987, I joined Tampa Electric as a Generation Planning Technician, and I have held various positions within the areas of Generation Planning, Load Forecasting and Load Research. In October 2002, I was promoted to

Manager, Load Research and Forecasting. My present responsibilities include the management of Tampa Electric's customer, peak demand and energy sales forecasts as well as management of Tampa Electric's load research program and other related activities.

Q. What is the purpose of your direct testimony?

A. The purpose of my direct testimony is to describe Tampa Electric's load forecasting process, describe the methodologies and assumptions, and present the load forecast used in Tampa Electric's Determination of Need Study for Electrical Power: Polk 2-5 Combined Cycle Conversion ("Need Study"). Additionally, I will demonstrate how the forecast is appropriate and reasonable based on the assumptions provided.

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

A. Yes, I am sponsoring Exhibit No. ____ (LLC-1) consisting of 10 documents, prepared under my direction and supervision. These consist of:

Document No. 1 Economic Assumptions

Document No. 2 Billing Cycle Degree Days

Document No. 3 Customer Forecast

Document No. 4	Per Customer Energy Consumption
Document No. 5	Retail Energy Sales
Document No. 6	Per Customer Peak Demand
Document No. 7	Peak Demand
Document No. 8	Firm Peak Demand
Document No. 9	Firm Peak Load Factor
Document No. 10	Updated Firm Peak Demand

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

A. Yes. I sponsor section III.B. "Demand and Energy Forecasts" of the Need Study.

TAMPA ELECTRIC'S FORECASTING PROCESS

Q. Please describe Tampa Electric's load forecasting process.

A. Tampa Electric uses econometric models and statistically adjusted engineering ("SAE") models, which are integrated to develop projections of customer growth, energy consumption and peak demands. The econometric models measure past relationships between economic variables, such as population, employment and customer growth. The SAE models, which incorporate end-use structure into an

econometric model, are used for projecting average per-customer consumption. These models have consistently been used by Tampa Electric for generation planning purposes and the modeling results have been submitted to the Commission for review and approval in past regulatory proceedings.

Q. Which assumptions were used in the base case analysis of customer growth?

A. The primary economic drivers for the customer forecast are Hillsborough County population estimates, service area households and Hillsborough County employment. The population forecast is the starting point for developing the customer and energy projections. Both the University of Florida's Bureau of Economic and Business Research ("BEBR") and Moody's Economy.com provide population projections. The population forecast is based upon the projections of BEBR in the short-term and is a blend of BEBR and Economy.com for the long-term forecast. Economy.com provides projections of Hillsborough County households and employment by major sectors. Service area households and Hillsborough County employment assumptions are utilized in estimating non-residential customer growth. For example, an increase in the number of

households results in a need for additional services, restaurants, and retail establishments. Additionally, projections of employment in the construction sector are a good indicator of expected increases and decreases in local construction activity. Similarly, commercial and industrial employment growth is a good indicator of expected activity in their respective sectors. The ten-year historical and forecasted average annual growth rates for these economic indicators are shown in Document No. 1 of my exhibit.

Q. Which assumptions were used in the base case analysis of energy sales growth?

A. Customer growth and per-customer consumption growth are the primary drivers for growth in energy sales. The average per-customer consumption for each revenue class is based on the SAE modeling approach. The SAE models have three components. The first component includes assumptions of the long-term saturation and efficiency trends in end-use equipment. The second component captures changes in economic conditions, such as increases in real household income, changes in number of persons per household, the price of electricity and how these factors affect a residential customer's consumption

level. A complete list of the critical economic assumptions used in developing these forecasts is shown in Document No. 1 of my exhibit. The third component captures the seasonality of energy consumption. Heating and cooling degree day assumptions allocate the appropriate monthly weather impacts and are based on weather patterns over the past 20 years. Historical and projected degree days are shown in Document No. 2 of my exhibit.

Q. Which assumptions were used in the base case analysis of peak demand growth?

A. Peak demand growth is affected by long-term appliance trends, economic conditions and weather conditions. The end-use and economic conditions are integrated into the peak demand model from the energy sales forecast. The weather variables are heating and cooling degree days at the time of the peak and for the 24-hour period of the peak day. Weather variables provide the seasonality to the monthly peaks. By incorporating both temperature variables, the model accounts for cold or heat buildup that contributes to determining the peak day. The temperature assumptions used are based on an analysis of 20 years of peak day temperatures. For the peak demand

forecast, the design temperature at the time of winter and summer peak is 31 and 92 degrees Fahrenheit, respectively.

Q. Is 31 degrees Fahrenheit the 20-year average temperature at the time of the winter peak?

A. No. The 20-year average temperature at the time of the winter peak is 35 degrees Fahrenheit. Although 31 degrees is not the 20-year average, it is representative of the average temperature for the top ten coldest peak days in the past 20 years and also the top five coldest peak days in the past ten years. The 31 degrees Fahrenheit assumption has consistently been used by Tampa Electric for generation planning purposes and in peak demand projections submitted to the Commission for review and approval in prior regulatory proceedings.

Q. Is 92 degrees Fahrenheit the 20-year average temperature at the time of the summer peak?

A. Yes, 92 degrees Fahrenheit has consistently been the 20-year average temperature at the time of the peak. It is the summer peak demand projection that has been submitted to the Commission in prior regulatory proceedings.

Q. Does Tampa Electric assess the reasonableness of these base assumptions?

A. Yes. The base case economic assumptions have been evaluated based on a comparison of the data series' historical average annual growth rates to the projected average annual growth rates for the forecast period. In addition, each economic data series is compared to an alternate source and evaluated for consistency. Economy.com's projections for Florida employment by major sectors and Florida real household income are compared to the projections from the Office of Economic and Demographic Research which is part of the Florida Legislature. The projections for Florida employment growth were consistent between the two sources; therefore, it is reasonable to conclude that Economy.com's Hillsborough County employment growth was also reasonable.

Q. Were the forecasts for population growth also evaluated for reasonableness?

A. Yes. Economy.com and BEBR's population forecasts were also compared and evaluated for consistency. A blend of the two sources was used and provides a reasonable

population projection.

TAMPA ELECTRIC'S FORECASTED GROWTH

Q. What is Tampa Electric's forecasted customer base?

A. Tampa Electric's current customer base is shown in Document No. 3 of my exhibit. As of December 2011, Tampa Electric's customer base was 675,799 retail accounts.

Q. What is Tampa Electric's projected customer growth?

A. Tampa Electric is projecting an average annual increase of 9,597 new customers over the next ten years (2012-2021). This average annual increase of 1.3 percent is slightly lower than the average annual growth rate of 1.5 percent during the past ten years (2002-2011). Despite the slightly lower customer growth rate, an increase of over 86,000 customers is anticipated over the forecast period as reflected in Document No. 3 of my exhibit.

Q. How does Tampa Electric's projected customer growth rates compare with the growth rates experienced historically?

A. Customer growth rates are lower than those experienced prior to the recent recession; however, customer growth

is considerably higher than it was in the recession period between 2007 and 2009. Customer growth was flat to declining during the recession period. Customer growth rates are currently back up to 1.0 percent and are expected to increase over the forecast horizon.

Q. What is Tampa Electric's energy sales forecast?

A. The primary driver behind the increase in the energy sales forecast is customer growth. Additionally, per-customer consumption is expected to decrease at an average annual rate of 0.5 percent, as shown in Document No. 4 of my exhibit. Combining the customer growth and per-customer consumption, retail energy sales are expected to increase at an average annual rate of 0.8 percent. Excluding the phosphate sector which has been declining, retail energy sales are expected to increase at an average annual rate of 1.0 percent. Historical and forecasted energy sales are shown in Document No. 5 of my exhibit.

Q. How does Tampa Electric's projected energy sales compare with the 2011 Ten Year Site Plan ("TYSP")?

A. When compared to the 2011 TYSP (prior year's forecast),

both customer growth and per-customer energy consumption were adjusted downward to capture the slower than expected economic recovery. Additionally, energy sales are growing at slower rates in the current TYSP. The result is an average annual increase of 0.8 percent in total retail sales compared to an increase of 1.1 percent in the 2011 TYSP.

Q. What is Tampa Electric's peak demand forecast?

A. Summer and winter peak usage per-customer are both projected to decrease at an average annual rate of 0.4 percent, which is consistent with historical per-customer peak demand. Document No. 6 of my exhibit shows historical and forecasted peak usage per-customer for summer and winter peaks. The increase in customers and the decrease in per-customer demand results in an average annual growth rate of 1.0 percent for the winter peak and a 0.9 percent growth rate for the summer peak. As shown in Document No. 7 of my exhibit, peak demand for the summer of 2012 is forecasted to be 3,993 MW, increasing to 4,331 MW in 2021, an average increase of 38 MW per year. The 2012 winter peak is forecasted to be 4,081 MW, increasing to 4,453 MW in 2021, an average increase of 41 MW per year. Summer and winter firm peak demands, which

have been reduced by curtailable load such as load management and interruptible loads, are shown in Document No. 8 of my exhibit.

Q. How does Tampa Electric's projected peak demands compare with the 2011 TYSP?

A. Similar to energy consumption, peak demands have been adjusted downward and are growing at slower rates. The result is an average annual increase of 0.9 percent in summer peak demand compared to an increase of 1.3 percent in the 2011 TYSP. Winter peak demands are increasing at an average annual rate of 1.0 percent compared to an increase of 1.3 percent in the 2011 TYSP.

SENSITIVITY ANALYSIS

Q. Has the company performed any sensitivity analyses on its load forecast?

A. Yes. The base case scenario was tested for sensitivity to varying economic conditions and customer growth rates. The high and low peak demand and energy scenarios represent an alternative to the company's base case outlook. The high scenario represents more optimistic economic conditions in the areas of customers, employment

and income. The low band represents less optimistic scenarios in the same areas. Compared to the base case, the expected customer and economic growth rates are 0.5 percent higher in the high scenario and 0.5 percent lower in the low scenario.

Q. Were conservation and demand side management ("DSM") impacts accounted for in the energy sales and peak demand forecasts?

A. Yes. Tampa Electric forecasts demand and energy reductions for each conservation and DSM program, which are aggregated to represent the total cumulative savings. The energy sales and peak demand forecasts were adjusted by the total incremental savings each year.

Q. Are the forecasts described in your testimony and filed in the 2012 TYSP the company's most recent customer, demand and energy projections?

A. No. Those forecasts were based on the company's 2011 annual forecast process. The 2012 annual forecast process was completed in June 2012.

Q. How do the more recent 2012 projections of customers,

demand and energy consumption compare to the forecasts used in the need study?

A. The most current forecast of customers is higher than the forecast presented in the need study. However, the current energy sales and peak demand forecasts are lower than the forecasts presented in the need study. The primary factor that is driving the changes in the load forecasts is the slower than expected economic recovery and continued reduction in per-customer consumption.

Q. How much lower are the current demand and energy forecasts compared to the forecasts used in the need study?

A. Over the 10-year forecast horizon, the energy sales forecast is an average of 3.5 percent lower than the previous projections. The average firm peak demand reductions in winter and summer are 2.9 percent and 2.7 percent respectively. The most current firm peak projections are shown in Document No. 10 of my exhibit.

Q. Are the most current load forecasts still above the low scenario in the sensitivity analysis?

A. Yes. In 2017, summer firm peak demand projections are above the low scenario by 26 MW.

Q. Does Tampa Electric conclude that the forecasts of customers, energy sales and demand are appropriate and reasonable?

A. Yes. The results have been reviewed by Itron Corporation, a leader in the load forecast consulting industry. The average annual growth rates for per-customer demand and energy usage are compared with each other for consistency and compared to historical growth rates. Summer and winter load factors are reviewed to ensure proper integration of the peak and energy models. The results show that the load factors are reasonable when compared to historical years. Load factors have dropped slightly due to the loss of phosphate load. The load factors are shown in Document No. 9 of my exhibit.

Q. Please summarize your direct testimony.

A. Tampa Electric's service area will continue to grow at a steady pace over the forecast horizon. Based on the most current forecasts, we expect an average increase in customers of 1.5 percent a year which is an increase of

almost 60,000 by 2017. As a result, winter and summer firm peak demand is projected to increase by 162 MW and 136 MW, respectively, by 2017. The methods used for developing the customer, demand and energy forecasts presented in my direct testimony, as well as the forecasts updated as part of the company's 2012 annual business plan process, represent best industry practice.

Q. Does this conclude your direct testimony?

A. Yes, it does.

BEFORE THE FLORIDA PUBLIC SERVICE COMMISSION

PREPARED DIRECT TESTIMONY

OF

HOWARD T. BRYANT

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

A. My name is Howard T. Bryant. My business address is 702 North Franklin Street, Tampa, Florida 33602. I am employed by Tampa Electric Company ("Tampa Electric" or "company") as Manager, Rates in the Regulatory Affairs Department.

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

A. I graduated from the University of Florida in June 1973 with a Bachelor of Science degree in Business Administration. I have been employed at Tampa Electric since 1981. My work has included various positions in Customer Service, Energy Conservation Services, Demand Side Management ("DSM") Planning, Energy Management and Forecasting, and Regulatory Affairs. In my current position I am responsible for the company's Energy

Conservation Cost Recovery ("ECCR") clause, the Environmental Cost Recovery Clause ("ECRC"), and their retail rate designs.

Q. What is the purpose of your direct testimony?

A. The purpose of my direct testimony is to describe Tampa Electric's DSM programs and initiatives. I will provide an overview of the company's historical and current DSM programs. I will also discuss the process used by Tampa Electric in setting its DSM goals. Additionally, I will address Tampa Electric's DSM renewable energy initiatives. Finally, I will discuss why the company's comprehensive DSM program offerings cannot be utilized to eliminate the 2017 capacity need.

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

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

Document No. 1 Tampa Electric DSM Programs
Document No. 2 Tampa Electric DSM Goals
Document No. 3 Tampa Electric 2010-2019 DSM Goals

Accomplishments

Q. Are you sponsoring any sections of Tampa Electric's Determination of Need Study for Electrical Power: Polk Combined Cycle Conversion ("Need Study")?

A. Yes. I sponsor sections of the Need Study pertaining to DSM. Specifically I sponsor sections III.A.3 "Demand Side Management", III.F.1 "Demand Side Programs", and IV.A.1 "Demand Side Management".

HISTORICAL OVERVIEW OF TAMPA ELECTRIC'S DSM PROGRAMS

Q. Please describe the phrase "demand side management programs" as used by Tampa Electric?

A. Tampa Electric utilizes the term demand side management to describe the planning, development, implementation, monitoring and evaluation of conservation and load management programs designed to cost-effectively reduce weather sensitive peak demand and overall energy consumption on the company's system.

Q. How does Tampa Electric measure the cost-effectiveness of DSM programs?

A. Tampa Electric measures the cost-effectiveness of DSM programs by using the Commission-approved methodology, which consists of three specific tests: the Rate Impact Measure ("RIM") Test, the Participants' Test and the Total Resource Cost ("TRC") Test. Programs that have a cost-benefit-ratio ("CBR") greater than 1.0 under the RIM Test provide benefits to all customers by the deferral or avoidance of new capacity which thereby results in lower rates for all customers than would otherwise occur in the absence of the programs. Similarly, programs that have a CBR greater than 1.0 under the Participants' Test ensure that the programs are economical for customers who choose to participate in the programs. Finally, programs that have a CBR greater than 1.0 under the TRC Test ensure that society, as a whole, is not harmed when comparing specifically defined costs and benefits regardless of who is responsible for those costs and benefits. However, a program with a TRC Test CBR greater than 1.0 in conjunction with its RIM Test CBR of less than 1.0 will result in a cross subsidization occurring between those customers who cannot participate in programs, yet must pay the program costs associated with those who can participate.

Q. When did Tampa Electric begin offering DSM programs to

its customers?

A. Tampa Electric has long been a leader in offering its customers cost-effective DSM programs coupled with a comprehensive educational emphasis on the efficient use of energy. This effort began in the mid-1970s when Tampa Electric offered its first DSM program, the Energy Answer Home, to curb heating and air-conditioning requirements in new homes by encouraging the use of high-efficiency heat pumps instead of conventional air-conditioning with resistance heating. Within two years, the company introduced a computer-based home energy audit well in advance of the legislation that ultimately required this level of home energy analysis.

Q. Please describe Tampa Electric's DSM efforts over time.

A. In 1980, the Florida Energy Efficiency and Conservation Act ("FEECA") was passed by the Florida Legislature. In response to that legislation, Tampa Electric filed its DSM plans with the Commission and became the first Florida utility to have its DSM programs for both residential and commercial customers approved. Subsequent to that first DSM plan, Tampa Electric has filed and gained Commission approval for numerous DSM

programs designed to promote new energy efficient technologies and to change customer behavioral patterns such that energy savings occur with minimal effect on customer comfort. Additionally, the company has modified existing DSM programs over time to promote evolving technologies and to maintain program cost-effectiveness. Document No. 1 of my exhibit identifies Tampa Electric's current DSM programs.

Q. Has Tampa Electric been successful implementing its DSM initiatives over time?

A. Yes. Tampa Electric has experienced great success with its DSM initiatives. From the inception of its programs in 1980 through the end of 2011, Tampa Electric has achieved 719 MW of winter peak demand reduction, 306 MW of summer peak demand reduction and 770 GWH of annual energy savings.

This amount of peak load reduction has eliminated the need for the equivalent of four 180 MW power plants of winter capacity.

Furthermore, the company's DSM program results compare quite favorably to other utilities across the nation.

The Energy Information Administration of the United States Department of Energy reports annually on the effectiveness of utility DSM initiatives. Based on available data reported for the 2001 through 2010 period, Tampa Electric's national average ranking for cumulative conservation is at the 89th percentile and is at the 85th percentile for load management achievement.

OVERVIEW OF TAMPA ELECTRIC'S DSM PROGRAMS

Q. What are Tampa Electric's current Commission-approved residential DSM programs?

A. Tampa Electric's current DSM plan consists of 11 comprehensive residential programs several of which provide customers with a multitude of program offerings to better manage their energy consumption. A description of these various programs is provided below.

Energy Audit: A comprehensive program offered to all residential customers designed to save demand and energy by increasing customer awareness of energy use in personal residences. The types of audits available include a free walk-through, computer assisted and telephone audits as well as a paid comprehensive audit. Savings are dependent on the customer implementing energy

saving recommendations. Recommendations are the same across the four types of audits offered and include an estimated range of savings.

Building Envelope: A conservation incentive program that encourages customers to make cost-effective improvements to existing residences in the areas of ceiling insulation, wall insulation and window improvements. The goal is to offer customer incentives for making these improvements while helping them reduce energy consumption and weather sensitive peak demand.

Energy Planner: A conservation and load management program that relies on a multi-tiered rate structure combined with price signals conveyed to participating customers during the day. This price information is designed to encourage customers to make behavioral or equipment usage changes to their energy consumption thereby achieving the desired high cost period load reduction to assist in meeting system peak. Price information from the utility is used by the customer to program a smart thermostat into preset actions based on the level of pricing. Equipment may be turned on, turned off or changed to a different temperature setting automatically by the smart thermostat or manually by the

customer through the smart thermostat in response to either the multi-tiered rates or critical price signals.

Duct Repair: A conservation incentive program designed to reduce demand and energy by decreasing the load on residential air conditioning and heating ("HVAC") equipment. This program eliminates or reduces areas of HVAC air distribution losses by sealing and repairing the air distribution system ("ADS"). The ADS is defined as the air handler, air ducts, return plenums, supply plenums and any connecting structure.

New Construction Program: A conservation program designed to reduce the growth of peak demand and energy consumption in the residential new construction market through the installation of high efficiency equipment and building envelope options. The program utilizes incentives to encourage the construction of new homes that exceed the minimum energy efficiency levels required in the State of Florida Energy Efficiency Code for New Construction.

Heating and Cooling: A conservation program that uses a rebate to encourage the installation of high efficiency heating and cooling systems in existing residential

dwellings. The program is aimed at reducing the growth of weather sensitive peak demand and energy through two types of equipment replacement. Both types of equipment replacement have a minimum threshold for qualification of 15.0 Seasonal Energy Efficiency Ratio ("SEER").

Low Income Weatherization/Agency Outreach: A conservation program designed to reduce weather sensitive peak demand and energy. The goal of the program is to establish a package of conservation measures at no cost for the customer. In addition to providing and/or installing the necessary materials for the various conservation measures, a key component will be educating families on energy conservation techniques to promote behavioral changes to help customers control their energy usage. Customer eligibility is determined by utilization of census data to identify eligible customer geographic regions or referral through local community agencies which serve low-income households.

Public Education Outreach: A conservation program designed to save energy and demand by establishing informative presentations to help educate customers on no-cost practices they can implement to reduce energy consumption, low-cost improvements to increase the

efficiency of their homes, and incentives available for making larger, long-term investments. This program is designed to establish opportunities for engaging groups of customers and students in energy-efficiency related discussions in an organized setting. In addition, participants will be provided with energy saving devices such as compact fluorescent lamps, low-flow faucet aerators, HVAC filter whistles and energy saving tips and recommendations.

HVAC Maintenance: A conservation incentive program designed to help customers ensure HVAC equipment is operating at optimal efficiency through maintenance and equipment tune-up. This will in turn help participating customers reduce demand and energy usage and help promote positive long-term maintenance habits.

Electronically Commutated Motors: A conservation incentive program designed to reduce demand and energy by decreasing the load on HVAC equipment. Customers will improve the overall efficiency by replacing the existing motor in the air-handler with an electronically commutated motor.

Prime Time: A residential load management program

designed to alter Tampa Electric's system load curve by reducing summer and winter demand peaks. Residential loads such as heating, air conditioning, water heaters and pool pumps are controlled from a radio signal initiated by Tampa Electric's Energy Control Center. This signal operates switches located on individual customer homes that are wired directly to the controlled appliances. Customers participating in Prime Time receive monthly credits on their electric bill. Appliances are interrupted on a prescribed schedule unless a system emergency occurs. Currently, Prime Time is closed and not accepting new customers.

Q. What are Tampa Electric's current Commission-approved commercial/industrial DSM programs?

A. Tampa Electric's current DSM plan consists of 19 comprehensive commercial/industrial programs which provide customers with a multitude of offerings to better manage their energy consumption. A description of these various programs is provided below.

Energy Audit: A conservation program designed to reduce demand and energy consumption by increasing customer awareness of energy use in their facilities. The savings

are dependent upon customer implementation of audit recommendations. Recommendations are based on the replacement of less efficient equipment and systems or modifications to operations to enhance the customer's overall efficiency. Recommendations are primarily standardized and encourage the customer to implement measures that, if cost-effective, move the customer beyond the efficiency level typically installed in the marketplace.

Cool Roof: A conservation program that uses incentives to encourage the installation of cool roof systems above conditioned spaces. The program is aimed at reducing heat transfer through reflectance which in turn, reduces HVAC loads and improves comfort.

Energy Recovery Ventilation: A conservation program that uses incentives to encourage the installation of ventilation systems that reduce humidity and HVAC loads in buildings. This program is intended to reduce demand and energy while improving comfort in commercial buildings.

Chiller Replacement: A conservation program that uses incentives to encourage the installation of high

efficiency electric water-cooled and air-cooled chillers. This program is intended to reduce demand and energy by encouraging customers to replace worn out, inefficient cooling equipment with systems that exceed minimum product standards.

Commercial Lighting: An incentive program for existing commercial facilities to encourage investment in more efficient lighting technologies. Specifically, this program is designed to: 1) affect a significant number of eligible customers; 2) recognize the most probable lighting investment opportunities; and 3) contribute toward weather-sensitive peak demand reduction.

Building Envelope: A conservation program that encourages customers to make cost-effective improvements to existing commercial facilities in the areas of ceiling and roof insulation, wall insulation and window improvements. The goal is to offer customer incentives for making these improvements while helping them reduce energy consumption and weather sensitive peak demand.

Commercial Cooling: A commercial conservation program that uses incentives for the installation of high efficiency cooling systems in commercial buildings. The

program is aimed at reducing the growth of peak demand and energy by encouraging customers to replace worn out, inefficient cooling equipment with high efficiency equipment that exceeds minimum product manufacturing standards.

Duct Repair: A conservation incentive program designed to reduce demand and energy by decreasing the load on commercial HVAC equipment. This program eliminates or reduces areas of HVAC air distribution losses by sealing and repairing the ADS. The ADS is defined as the air handler, air ducts, return plenums, supply plenums and any connecting structure.

Energy Efficient Motors: A conservation incentive program designed to reduce demand and energy by encouraging commercial/industrial customers to install premium-efficiency motors in new or existing facilities.

Lighting Occupancy Sensors: A conservation incentive program designed to reduce demand and energy by encouraging commercial/industrial customers to install occupancy sensors to efficiently control lighting systems.

Refrigeration (Anti-Condensate): A conservation incentive program designed to reduce demand and energy by encouraging commercial/industrial customers to install efficient anti-condensate controls on refrigeration equipment.

Water Heating: A conservation incentive program designed to reduce demand and energy by encouraging commercial/industrial customers to install high efficiency water heating systems. Two technologies covered under this program are heat recovery units and heat pump water heaters.

Conservation Value: An incentive program available for all commercial/industrial customers on firm rates to recognize and encourage investments in demand shifting or demand reduction measures. Measures funded in this program are not covered under other Tampa Electric commercial/industrial conservation programs. Candidates are identified through the energy audit, or their engineering consultants can submit proposals for funding which offer energy reduction during weather sensitive peak times.

Commercial Load Management: A load management program

intended to help alter the company's system load curve by reducing summer and winter demand peaks. Large loads such as walk-in freezers are interrupted for up to three hours by radio controlled switches similar to those used in the residential load management. Commercial air conditioning equipment is cycled during summer control periods. Monthly incentive credits are paid to customers participating in this program.

Industrial Load Management: A load management program for large industrial customers with interruptible loads of 500 kW or greater. In accordance with the Florida Administrative Code, assessments for customer participation are conducted every six months.

Standby Generator: A program designed to utilize the emergency generation capacity of commercial/industrial facilities in order to reduce weather sensitive peak demand. Tampa Electric provides participating customers a thirty minute notice that their generation will be required. This allows customers time to start generators and arrange for orderly transfer of load. Tampa Electric meters and issues monthly credits for that portion of the generator's output that could serve normal building load after the notification time. Normal building load is

defined as load (type, amount and duration) that would have been served by Tampa Electric if the emergency generator did not operate. Under no circumstances will the generator deliver power to Tampa Electric's grid.

Demand Response: A program intended to alter the company's system load curve by reducing summer and winter demand peaks. The company will contract through a vendor for a turn-key program that will induce commercial/industrial customer to reduce their demand for electricity in response to market signals. Reductions will be achieved through a mix of emergency backup generation, energy management systems, raising cooling set-points and turning off or dimming lights, signage, etc.

HVAC Maintenance: A conservation incentive program designed to help commercial/industrial customers ensure HVAC equipment is operating at optimal efficiency through maintenance and equipment tune-up. This will in turn help participating customers reduce demand and energy usage and help promote positive long-term maintenance habits.

Electronically Commutated Motors: A conservation

incentive program designed to reduce demand and energy by decreasing the load on HVAC and refrigeration equipment. Commercial/industrial customers will improve the overall efficiency by replacing the existing motors in air-handlers and refrigeration systems with electronically commutated motors.

Q. Does Tampa Electric engage in other activities closely associated with DSM programs?

A. Tampa Electric has a longstanding practice of engaging in relevant commercial and residential research and development ("R&D") to discover measures that would return DSM savings for customers and the company and therefore become integral to DSM programs. The company's R&D projects have included renewable energy generating technology investigations, renewable energy program development, desiccant technologies for moisture removal from buildings, ventilation designs for fresh air intake on commercial buildings, chiller and motor efficiency testing, anti-condensate controls for refrigerator and freezer doors, thermal energy storage, commercial load management experimentation, heat recovery technology for ice makers and residential and commercial demand response through time specific pricing tiers. From these R&D

efforts, Tampa Electric has developed or enhanced the following programs: Renewable Energy Program, Energy Planner, Conservation Value, Chiller Replacement, Commercial Refrigeration and Commercial Load Management.

TAMPA ELECTRIC'S DSM RENEWABLE ENERGY INITIATIVES

Q. Has Tampa Electric engaged in DSM activities that support renewables?

A. Yes, it has. Some of Tampa Electric's initial work in the area of renewables has included photovoltaic ("PV") arrays. Early work included utilizing PV arrays to charge batteries that would power parking lot lighting. An R&D effort was also undertaken to evaluate the use of PV arrays to provide emergency lighting at a strategic storm shelter.

Tampa Electric's commitment to a more formalized renewable energy program began in 2001. The company implemented a pilot renewable energy program with the following goals: 1) determine the level of program interest among customers and their willingness to pay a higher cost for renewable energy; 2) examine marketing methods to identify the most cost-effective manner to secure residential and commercial program participants;

3) determine the longevity of customer participation; 4) determine the functionality of certain renewable generation; and 5) determine the sustainability of renewable fuel resources.

Due to the R&D effort put forth on the pilot program, Tampa Electric offers a permanent renewable energy program for both residential and commercial customers. The program continues to offer incremental renewable energy that is produced locally and within the State and as such, the environmental benefits accrue to the citizens of Florida.

Q. What are Tampa Electric's other Commission-approved renewable DSM programs?

A. Tampa Electric's current DSM plan consists of the aforementioned permanent program and four pilot renewable program offerings. A description of these various programs is provided below.

Renewable Energy Program: A program designed to allow residential and commercial/industrial customers the option of paying an additional charge for incremental renewable energy delivered to the company's grid system.

The customer can elect to pay $5.00 for a 200 kWh block of renewable energy generated from renewable resources on an on-going monthly or one-time basis.

Solar Photovoltaics (Pilot): A conservation incentive program designed to reduce demand and energy by encouraging residential and commercial/industrial customers to install PV systems. Participants must agree to have the system interconnected to the grid with an interconnection agreement in place once installation has occurred.

Residential Solar Water Heating (Pilot): A conservation incentive program designed to reduce demand and energy by encouraging residential customers to install solar water heating ("SWH") technologies on residential premises.

School PV (Pilot): A conservation program designed to reduce demand and energy by providing schools designated as emergency shelters with PV systems. In addition, Tampa Electric has partnered with the Florida Solar Energy Center to provide educational components for teachers and students to evaluate and understand the performance and benefits of PV.

Low-income Solar Water Heating (Pilot): A conservation program designed to reduce demand and energy by providing the installation of SWH systems on low-income housing done in partnership with local non-profit building organizations.

DSM GOALS SETTING PROCESS

Q. Why are DSM goals established for Tampa Electric?

A. Investor-owned utilities like Tampa Electric have DSM goals established by the Commission as a requirement of FEECA and the Florida Administrative Code. Furthermore, DSM goals are established and utilized in the cost-effective planning to meet future generating needs.

Q. How frequently are Tampa Electric's DSM goals established?

A. Tampa Electric's DSM goals are established by the Commission every five years for a 10-year period. Every five years, the existing goals are re-examined for appropriateness and often adjusted to reflect levels of accomplishment as well as the changing potential of customer participation based on DSM technology development and customer willingness to participate.

Tampa Electric's current Commission-approved DSM goals are shown in Document No. 2 of my exhibit.

Q. How has Tampa Electric performed relative to its DSM goals?

A. Since 1980, Tampa Electric has met or exceeded its DSM demand and energy goals in every period but one. Document No. 3 of my exhibit clearly demonstrates that Tampa Electric is exceeding its DSM goals for the current period.

Q. How were Tampa Electric's current Commission-approved DSM goals developed?

A. Tampa Electric's process to develop its DSM goals used multiple steps. The first step was to identify the measures to be evaluated for cost-effectiveness. Tampa Electric identified 270 measures for evaluation. The next step was to perform the cost-effectiveness evaluation on each measure across the various market segments where potential acceptance could occur. This resulted in almost 2,300 individual measure cost-effectiveness evaluations being performed. Next, Tampa Electric examined those measures that were cost-effective

to determine their potential for program development. Once the results from this step were identified, the cost-effective measures were separated into residential and commercial/industrial categories and became the foundation for DSM goals proposed to the Commission. The Commission approved the company's DSM goals in Docket No. 080409-EG, Order No. PSC-09-0855-FOF-EG, issued December 30, 2009.

ABILITY TO SATISFY 2017 CAPACITY NEED THROUGH DSM

Q. Has Tampa Electric identified all of the cost-effective DSM program potential for the 2010 through 2019 period?

A. Yes. Through the exhaustive DSM goals setting process that culminated in the demand and energy goals for the 2010 through 2019 period, Tampa Electric has identified all the cost-effective DSM program potential for the period.

Q. In 2007, a modification was made to subsection (4) of Section 403.519, Florida Statutes, that requires the Commission, in making its determination of need for a requesting utility, to consider "…whether renewable energy sources and technologies, as well as conservation measures, are utilized to the extent reasonably

available." Has Tampa Electric met this requirement?

A. Yes. Tampa Electric has conducted an extensive evaluation of all demand-side conservation and renewable energy measures reasonably available. The company's current 2010-2019 DSM goals were established utilizing a comprehensive set of DSM measures. Through the company's efforts, these goals are being exceeded.

Q. Will Tampa Electric's DSM efforts provide sufficient potential such that the capacity identified in this determination of need can be deferred?

A. No. Tampa Electric has identified all reasonably achievable DSM demand and energy reductions and utilized that potential in the assessment of this determination of need. The company will not be able to meet the capacity identified in this determination of need. Therefore, Tampa Electric's evaluation of future generating capacity has already captured all the cost-effective DSM potential available on the company's system, and there are no DSM alternatives that could defer the need for additional generating capacity in 2017.

Q. Please summarize your direct testimony.

A. Tampa Electric has been successfully implementing cost-effective DSM programs since the 1970s. During the last decade, the company's average national ranking is at the 89th percentile for cumulative conservation and the 85th percentile for load management achievements. Through 2011, Tampa Electric has implemented 719 MW of winter DSM and 306 MW of summer DSM which equates to four 180 MW power plants.

Tampa Electric has been very consistent at meeting or exceeding its DSM goals set by the Commission. Furthermore, Tampa Electric assesses its DSM potential on an annual basis and seeks Commission approval of those programs that will cost-effectively help the company reach its DSM goals while providing customers with opportunities to better manage their energy usage.

In spite of Tampa Electric's efforts and significant accomplishments in the areas of DSM and renewables, the company is not able to meet the 2017 capacity need through additional conservation measures.

Q. Does this conclude your direct testimony?

A. Yes, it does.

MR. WAHLEN: We are prepared to call our next witness, which is Mr. Brent Caldwell.

J. BRENT CALDWELL

was called as a witness on behalf of Tampa Electric Company, and having been duly sworn, testified as follows:

DIRECT EXAMINATION

BY MR. WAHLEN:

Q. Mr. Caldwell, you were sworn?

A. Yes.

Q. Would you please state your name, business address, occupation, and employer?

A. My name is James Brent Caldwell. My business address is 702 North Franklin Street, Tampa, Florida. I'm employed by Tampa Electric as Director of Origination and Market Services.

Q. Did you prepare and submit prepared Direct Testimony of J. Brent Caldwell filed on September 12th, 2012, in this proceeding?

A. Yes.

Q. And did you also sponsor the revisions to your testimony that were filed on October 12th?

A. Yes.

Q. If I were to ask you the questions contained in your prepared Direct Testimony as revised today, would your answers be the same as the ones contained in

your testimony?

A. Yes, they would.

MR. WAHLEN: Tampa Electric would ask that Mr. Caldwell's prepared Direct Testimony be inserted into the record as though read.

CHAIRMAN BRISÉ: All right. We will enter Mr. Caldwell's Direct Testimony into the record as though read.

MR. WAHLEN: Very well.

BEFORE THE FLORIDA PUBLIC SERVICE COMMISSION

PREPARED DIRECT TESTIMONY

OF

J. BRENT CALDWELL

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

A. My name is J. Brent Caldwell. My business address is 702 N. Franklin Street, Tampa, Florida 33602. I am employed by Tampa Electric Company ("Tampa Electric" or "company") as Director of Origination & Market Services.

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

A. I received a Bachelor Degree in Electrical Engineering from Georgia Institute of Technology in 1985 and a Master of Science in Electrical Engineering from the University of South Florida in 1988. I have over 15 years of utility experience with an emphasis in state and federal regulatory matters, natural gas procurement and transportation, fuel logistics and cost reporting, and business systems analysis. In October 2010, I assumed my current position where a portion of my

responsibilities include the long term fuel supply planning and procurement for Tampa Electric's generation plants.

Q. What is the purpose of your direct testimony?

A. The purpose of my direct testimony is to describe Tampa Electric's fuel procurement and delivery strategy for Polk 2-5 Combined Cycle Conversion ("Polk 2-5"). I describe the pipeline infrastructure, contractual portfolio, and company capabilities that will be used to ensure reliable and cost-effective fuel supply for Polk 2-5.

I also sponsor the fuel price forecast that was used in the Polk 2-5 analyses. I describe the development of the fuel price forecast, including the sources of projected future prices, the value of sensitivity around those price projections, and the reasonableness of the forecast for use in the Polk 2-5 analyses.

Finally, I briefly describe Tampa Electric's market solicitation for reliable and cost-effective purchased power alternatives in lieu of building Polk 2-5. This description includes Tampa Electric's Request for

Proposals ("RFP") issued March 23, 2012 and the bids received in response to the RFP.

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

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

Document No. 1 Fuel Price Forecast

Document No. 2 Fuel Price Forecast Range Compared to Independent Forecasts

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 sections of the Need Study regarding the fuel price forecasts. Specifically, I sponsor sections III.C. "Fuel Forecast,"III.A.2, "Firm Purchased Power Agreements".

FUEL SUPPLY FOR POLK UNITS 2-5 CC CONVERSION

Q. Please describe the fuel supply needs for Polk 2-5?

A. When the conversion is complete, Polk 2-5 will be an approximately 1,100 (1,063 summer, 1,195 winter) MW natural gas fueled combined-cycle ("CC") unit. The incremental capacity of the project, over and above the current stand-alone combustion turbine ("CT") capacity of Polk Units 2 through 5, will be approximately 459 MW of summer capacity and 463 MW of winter capacity. With an overall heat rate of approximately 7 MMBtu/MWH, Polk 2-5 requires approximately 7 MMBtu/MWH times 1,100 MW which equals 7,700 MMBtus of natural gas fuel per hour of generation at maximum generation. When the unit runs for 16 hours, its total natural gas consumption will be approximately 7,700 MMBtu/hour times 16 hours which equals 123,200 mmBtu of total natural gas consumption. These figures provide a sense of the amount of gas that will need to be procured to run the plant.

In addition to the primary fuel of natural gas, half of Polk 2-5 will be able to run on distillate oil. When oil is used to fuel two of the four CTs in Polk 2-5, the natural gas fuel requirements will be essentially reduced by half. While natural gas supply disruptions are rare, this dual fuel capability will provide for added reliability from a fuel supply perspective.

Q. How does Polk 2-5 fit into Tampa Electric's overall fuel supply strategy?

A. The Tampa Electric generation fleet consists of a balanced portfolio of coal and natural gas fueled generation assets. Because Polk 2-5 will utilize heat recovery technology on existing units, the conversion fits into the company's fuel supply strategy in many ways. Polk 2-5 maintains the balance of coal and natural gas fueled generation in the company's portfolio while improving total system fuel efficiency. This improved efficiency results in lower energy costs for customers and maintains the price stability afforded by a balance of coal and natural gas fueled generation.

Q. How will the fuel supply needs of Polk 2-5 be met?

A. The existing flexible and reliable natural gas and oil supply infrastructure will continue to be used to supply fuel to Polk 2-5. Polk 2-5 will utilize the existing natural gas commodity portfolio, storage, pipeline capacity and infrastructure along with backup oil capability and storage in a more efficient manner. The four existing CTs, Polk Units 2 through 5, are currently in operation at Polk Power Station and are already using

those fuel supply assets. The steam turbine added to convert the four CTs to a combined-cycle unit uses the waste heat from the existing CTs to generate the additional MW, without the need for additional fuel. The four existing CTs generate approximately 160 MW each and require approximately 11.0 MMBtu/MWh of natural gas at maximum generation. Therefore, the four existing CTs require four times 160 MW times 11.0 MMBtu/MWh, which equals 7,000 MMBtus/hour, nearly the same amount of fuel per hour for 640 MW as required by Polk 2-5 that will deliver approximately 1,100 MW. Also, Polk CT Units 2 and 3 have distillate oil backup, including storage. Those units will have the same oil backup capability and utilize the same distillate oil supply and storage when they become part of Polk 2-5.

Q. What other considerations make fuel supply for Polk 2-5 reliable and cost-effective?

A. Tampa Electric's portfolio of natural gas fuel supply assets and generation units combined with Tampa Electric's experience and capability in natural gas fuel supply enhance the reliability and cost-effectiveness of the fuel supply for Polk 2-5.

Q. Does Tampa Electric have experience supplying fuel for natural gas fueled units?

A. Yes, Tampa Electric has been supplying natural gas to Polk Units 2-5 since 2000, to the H. L. Culbreath Bayside Power Station ("Bayside Power Station") since 2003, and to five aero-derivative peaking units located at Bayside Power Station and Big Bend Power Station since 2009.

Specifically, the company's Fuels Management department provides procurement and fuel management services for support of the Tampa Electric generation portfolio as well as the Peoples Gas System distribution system. Fuels Management has developed and manages a diverse portfolio of natural gas supply assets that includes commodity supply source from several regions, salt cavern storage capacity, upstream pipeline capacity, and market area delivery pipeline capacity on three different interstate pipelines.

Q. Please describe Tampa Electric's current natural gas delivery capability and flexibility to the Polk site and the rest of its system?

A. Tampa Electric maintains a commodity supply portfolio which includes base load, intermediate and daily swing supply. This supply portfolio is coupled with a significant portfolio of natural gas pipeline assets to serve the company's fleet of natural gas fueled generators. Bayside, Polk and Big Bend Power Stations are physically connected to the Florida Gas Transmission ("FGT") pipeline system. Bayside and Big Bend Power Stations are physically connected to the Gulfstream Pipeline, LLC ("Gulfstream") system. Thus, Tampa Electric has redundant physical natural gas delivery to two of its three natural gas fueled stations. In addition to physical natural gas pipeline delivery flexibility, Tampa Electric also has interstate pipeline contractual delivery flexibility. The company has multiple long-term firm pipeline capacity agreements with FGT and Gulfstream. Tampa Electric's primary service agreement with FGT lists Bayside and Polk Power Stations as Primary Delivery Points allowing Tampa Electric to deliver natural gas to either plant as a Primary Delivery Point. Natural gas scheduled timely to either station as a primary delivery point will have the highest priority for delivery in the event of a pipeline constraint.

With its physical delivery flexibility and contractual delivery flexibility, the company's natural gas portfolio contains significant reliability and flexibility to direct gas supply deliveries to different power plants using either FGT or Gulfstream. Each day, Tampa Electric assesses the economic benefits and operational reliability of its natural gas delivery assets. The company chooses the most economic and reliable dispatch of its pipeline portfolio for serving Tampa Electric's natural gas generation needs, depending on the current circumstances. Polk CT Units 2-5 already benefit from this reliable and flexible portfolio, and that benefit will continue for Polk 2-5 after the conversion.

Q. Are there opportunities to further enhance the long-term reliability and flexibility of the natural gas delivery portfolio?

A. Yes. In addition to its access to FGT, the Gulfstream pipeline is located relatively close to the Polk Power Station property. While the connection is not needed currently, Tampa Electric expects that when economics and market operational issues indicate that it is beneficial, the company will eventually connect Polk

Power Station to Gulfstream to further enhance the reliability and optionality of natural gas supply and delivery to Polk Power Station.

Q. Please describe the backup fuel source that could be used for Polk 2-5 in the event of a natural gas supply disruption?

A. Polk CTs 2 through 3 already have distillate oil backup fuel capability and onsite storage. The existing distillate tank provides enough storage to operate those CT units for at least 72 hours of continuous operation. Tampa Electric also has existing liquid fuel supply contracts to replenish the diesel fuel as necessary.

Q. Do you believe sufficient fuel supply will be available to support Polk 2-5 during the unit's expected life?

A. Yes. Natural gas supplies have surged in the U.S. due to recent developments in the extraction of natural gas trapped in shale formations. The Energy Information Administration indicates natural gas supplies are growing and there are enough proven reserves in the U.S. to meet the country's natural gas supply needs for many decades.

FUEL PRICE FORECAST

Q. Are you sponsoring fuel price forecasts that were used in the Polk 2-5 analyses?

A. Yes. I am sponsoring fuel price forecasts prepared under my direction and that were provided to the company's Resource Planning group for use in the Polk 2-5 economic analyses.

Q. Please describe the process of developing and applying fuel forecasts at Tampa Electric?

A. Tampa Electric prepares an official, 30-year fuel price forecast each summer, and this official forecast is used by the Resource Planning group for long-term planning analyses conducted during the subsequent twelve months. This official forecast is prepared during the summer to coincide with preparation of the Fuel and Purchased Power Cost Recovery Clause filing typically filed with the Florida Public Service Commission at the beginning of August, for the actual/re-projection of the current year, and the beginning of September, for the projected year. This same official long-term forecast is also used for the Ten Year Site Plan ("TYSP") filed the following April. Consistent with Tampa Electric's

typical processes, the fuel price forecast used in the Polk 2-5 economic analyses was the same official long-term forecast prepared in the summer of 2011 for the 2012 Fuel and Purchased Power Cost Recovery Clause Projection filing and the 2012 TYSP.

Q. Please describe how the fuel forecast was prepared for each commodity.

A. The fuel price forecast contains projected pricing for the commodity and delivery of the commodity for natural gas, distillate oil (*i.e.*, No. 2 oil), residual oil (*i.e.*, No. 6 oil), coal, and propane. The forecast is produced annually and spans a projected 30-year time period. The projected fuel commodity prices are derived from a combination of published market indices, independent fuel price forecasts, and escalators. Tampa Electric utilizes the escalators to extend the forecasts beyond the period of published values.

The foundation for the natural gas price forecast is the 10-year New York Mercantile Exchange ("NYMEX") natural gas futures monthly contract closing prices for the five consecutive business days between July 5, 2011 and July 11, 2011. Since the NYMEX natural gas futures contract

is based on physical delivery of natural gas to the Henry Hub in southern Louisiana, Tampa Electric adds a "basis" cost to account for the company receiving its natural gas delivered into FGT Zone 3 instead of into the Henry Hub. This establishes the first 10 years of the forecast. To generate the full 30 year forecast (*i.e.*, the remaining 20 years), Tampa Electric escalates the natural gas price by the projected escalation of the Consumer Price Index Less Energy.

The foundation for the distillate oil forecast is the NYMEX No. 2 Heating Oil futures contract monthly closing prices for the five consecutive business days between June 1, 2011 and June 7, 2011. At that time, the NYMEX only published the No. 2 oil futures contracts through December, 2012. To generate the full 30-year forecast, Tampa Electric escalated the distillate oil price consistent with the escalation used for natural gas.

The foundation for the residual oil forecast is the distillate oil forecast. To produce the residual oil forecast, Tampa Electric first calculated the relationship between distillate and residual oil, *i.e.*, the cost ratio of No. 6 to No. 2 oil. The company applied this relationship to its distillate oil forecast

to derive the residual oil price. The result is a 30-year forecast for residual oil.

When forecasting coal prices, Tampa Electric uses published forecasts for "like-quality" coals (*i.e.*, coals that are comparable to those burned in its generating units). If necessary, the company makes price adjustments to the published indices or published forecast prices to account for quality and locational differences. These price adjustments align the published coal's heat content and sulfur content with the coals burned at Tampa Electric's coal generating stations.

The foundation of the coal forecast is a combination of various published index prices for like-quality coal for the first two to four years. The publications include *Coal Daily* and ICAP, an online energy broker and information service. For the subsequent years through 2018, a weighted average price is developed using *Argus Coal Daily* and index prices, along with the coal prices from an independent, published forecast from Wood Mackenzie Energy Consultants ("Wood Mac"). The company utilizes a weighted average method where Tampa Electric's final coal forecast blends the published

market indices with the Wood Mac forecast. The market indices are a high percentage of the blend in the near term and Wood Mac is a low percent. Over time the market indices percentage decreases until the Wood Mac forecast is 100 percent of the forecasted price. Beyond 2018, the coal commodity price is escalated annually consistent with the escalation of the other commodities.

Q. Are Tampa Electric's fuel price forecasts reasonable for planning purposes and as a basis for committing to proceed with Polk 2-5?

A. Yes. As previously described, Tampa Electric's fuel price forecasts are based on sound, industry-respected publications, indices, forecasts and escalators. Tampa Electric's approach of using NYMEX as the basis of its fuel price forecasts is a reasonable approach. The NYMEX represents the balance point between buyers and sellers and is a sound indicator of the market for a fuel commodity, including fuels such as natural gas and oil.

Q. Did Tampa Electric consider fuel price uncertainty in its fuel price forecasts?

A. Yes. While Tampa Electric believes its base forecast is appropriate for planning purposes, the company also recognizes that uncertainty exists in any fuel price forecast. To evaluate fuel price fluctuations, Tampa Electric prepared high and low price forecasts for natural gas, oil, and coal. For both oil and natural gas, these alternative scenario price forecasts are increased or decreased by 35 percent. For coal, the commodity price is increased or decreased by 20 percent. Document No. 2 of my exhibit shows a graphical representation of the range of natural gas prices used by Tampa Electric for analysis. Natural gas price forecasts from the Energy Information Administration and Wood Mac are also included on the graph. As shown on the graph, Tampa Electric's base forecast is consistent with other independent forecasts available at the time and the sensitivity range is reasonable.

Q. Has Tampa Electric updated its annual fuel price forecast?

A. Yes. Tampa Electric recently updated its fuel price forecast for the 2013 fuel and purchased power cost recovery clause projection filing. This forecast was developed similarly to the 2012 fuel projection forecast

and fuel costs are generally lower in the 2013 projection than the 2012 projection. The 2013 fuel projection fuel price was also used as a sensitivity in the Polk 2-5 analysis.

REQUEST FOR PROPOSALS

Q. Did Tampa Electric test the power market for purchase power opportunities that could substitute for Polk 2-5?

A. Yes. Tampa Electric published an RFP on March 23, 2012, soliciting proposals for power to purchase. The company also consulted with Mr. Alan S. Taylor of Sedway Consulting to assist with drafting the RFP document and evaluating subsequent proposals. Mr. Taylor's direct testimony, filed on behalf of Tampa Electric in this docket, describes his role in the RFP process. As detailed in his direct testimony, Mr. Taylor has a vast amount of experience with conducting power RFP and need determinations in the U.S., including Florida. Mr. Taylor provided guidance to Tampa Electric so that the RFP was open and inviting to potential bidders.

Q. What information did the RFP include?

A. The RFP provided a detailed description of the Polk 2-5

project, fuel types and costs, estimated costs of the proposed project and other major financial assumptions. The RFP also contained minimum proposal requirements, such as the requirement for firm capacity and firm access to fuel, and a timeline of key RFP activities, such as dates for the RFP Bid Workshop and the proposal submission deadline. Lastly, the RFP contained a draft proposed purchase power agreement, allowing potential respondents to submit proposals based upon known and consistent terms and conditions.

Q. How did Tampa Electric solicit responses to the RFP?

A. In order to alert the market to this RFP, the company published notices in the *Wall Street Journal*, the *Tampa Tribune* and other energy industry publications. Two informational meetings were held at the company's headquarters in Tampa to describe the RFP process and to encourage offers and proposals in response to the RFP. The first meeting was a pre-release meeting held on March 21, 2012. This meeting was noticed to the public on March 16, 2012 and was held prior to the official release of the RFP. The purpose of the pre-release meeting was to discuss the RFP process, including how to obtain a copy of the RFP and its attachments and how to

formally submit questions to Tampa Electric. The second meeting was the RFP Bid Workshop held on April 4, 2012. The workshop provided a more in-depth review of the RFP and provided participants the opportunity to ask in depth questions after having reviewed the RFP. Both meetings allowed potential bidders to participate either in person or via telephone conference call. Lastly, Tampa Electric established a publicly available web site (www.tampaelectric.com/2017powerrfp) that granted access to the RFP documents and contained a form whereby potential respondents could submit RFP questions to Tampa Electric. The company posted the questions anonymously and the corresponding answers on the web site for the benefit of all potential respondents.

Q. Was there robust participation in the RFP?

A. Yes. Both the pre-release conference and the post-release workshop were attended by numerous individuals representing several segments of the energy industry and no objections to the process were expressed by the participants. Also, over 70 questions were posted to the website and answered by the company. Ultimately, the company received four proposals. Each proposal was opened by Mr. Taylor, the third party evaluator, and

accepted as a qualifying bid for evaluation. The evaluation process is described in the direct testimonies of Mr. Taylor and Tampa Electric witness R. James Rocha.

Q. Please summarize your direct testimony.

A. Tampa Electric seeks to maintain a balance of fuel types with flexible supply and delivery options for the generating sources on its system as a way to provide lower cost, to manage fuel price stability and maintain fuel supply reliability. The company determined that additional natural gas fueled generation is needed and will accomplish these goals. Tampa Electric's proposed Polk 2-5 project will convert four existing natural gas fueled CTs into a more efficient combined cycle operating unit. Since the steam turbine is powered by waste heat from the existing CTs, the pipeline infrastructure, including primary firm delivery point designation, already exist at the site. Thus, Polk 2-5 will benefit from using the existing expertise and flexible and reliable fuel supply infrastructure already being utilized to fuel all of the company's generation fleet.

The company has utilized independent, industry-recognized fuel price forecasts and market information as the basis of the fuel price forecast used in the Polk 2-5 need determination analyses. The forecasted fuel prices are based on NYMEX futures markets, published market indices, and independent energy consultant forecasts. The forecast used for the need determination is the same forecast Tampa Electric produced for its 2012 Fuel and Purchased Power Cost Recovery Clause filings and its 2012 Ten Year Site Plan, and the issuance and analysis of the RFP responses. Additionally, the company utilized fuel price sensitivities to evaluate price uncertainty with respect to forecasted natural gas, oil, and coal commodity prices. Polk 2-5 will allow Tampa Electric to maintain system fuel diversity that results in reliability and cost advantages that benefit customers.

Q. Does this conclude your direct testimony?

A. Yes, it does.

BY MR. WAHLEN:

Q. Mr. Caldwell, did you also prepare an exhibit supporting your testimony that has been identified as JBC-1?

A. Yes.

Q. Do you have any changes to that?

A. I do not.

MR. WAHLEN: Okay. Mr. Chairman, JBC-1 was preliminarily identified in the composite or Comprehensive Exhibit List as Exhibit Number 14, and we'd ask that it be formally identified at this time.

CHAIRMAN BRISÉ: Sure. We will mark it for identification.

MR. WAHLEN: Thank you very much.

BY MR. WAHLEN:

Q. Mr. Caldwell, would you please summarize your Direct Testimony.

A. Yes. Good morning, Commissioners. My testimony addresses three areas associated with the Polk 2-5 Waste Heat Recovery Conversion Project.

First, I confirm that Tampa Electric's fuel supply portfolio is sufficient to supply the upgraded Polk 2-5 with reliable and cost-effective fuel.

Second, I sponsored a collection of fuel price forecasts used in the economic analysis of the project.

And, third, I provide an overview of the formal request for proposal bid process that the company used to solicit wholesale purchased power alternatives.

With respect to the fuel supply, Tampa Electric already has a robust and flexible natural gas delivery portfolio. The portfolio includes access to multiple pipelines and multiple supply sources, contracts with flexible but firm delivery rights, and the operating expertise to optimize these assets. Since 75 percent of the incremental capacity of the Polk Conversion Project is fired by waste heat, Tampa Electric can simply fold the fuel supply needs of the project into our existing portfolio.

I also sponsor the fuel price forecast used in the integrated resource planning process. These fuel price forecasts were prepared for Tampa Electric's 2012 fuel and purchased power cost-recovery projection filing, and they are appropriate for the long-term economic analysis of Polk 2-5. The fuel planning price forecast is appropriate because it is built upon actual market prices that are then escalated based on projected inflation. Escalation and inflation conservatively keeps the real price of fuel constant in the outer years.

I also provided high and low fuel price

forecasts used to test the robustness of the resource plan relative to possible fuel price changes. And then for completeness, when the 2013 annual fuel price forecast came available, I included that forecast as an additional fuel price sensitivity even though it fell within the existing high and low fuel cost bands.

In March of this year, Tampa Electric issued an RFP seeking alternative sources of firm capacity and energy from the wholesale power market. Workshops conducted both before and after issuance of the RFP generated interest, answered questions, and gave bidders the opportunity to raise concerns. The process generated the bids that were analyzed in both the company's resource planning department and separately by reputable independent third-arty consultants. The RFP analysis is detailed in the testimony of Witnesses Rocha and Taylor.

Thank you, Commissioners. This concludes my summary.

MR. WAHLEN: Mr. Chairman, I believe I misspoke. I think that Mr. Caldwell's exhibit was identified as Exhibit 15, and I believe I said 14, so could we correct that for the record?

CHAIRMAN BRISÉ: Okay. I think you said 15.

MR. WAHLEN: Did I?

CHAIRMAN BRISÉ: Yes.

MR. WAHLEN: I thought I was wrong, but I was wrong?

(Laughter.)

CHAIRMAN BRISÉ: That's all right.

MR. WAHLEN: That doesn't happen very often. Okay. Then with that, we'll tender Mr. Caldwell for cross-examination.

CHAIRMAN BRISÉ: Sure. Mr. Wright.

MR. WRIGHT: Thank you, Mr. Chairman.

CROSS EXAMINATION

BY MR. WRIGHT:

Q. Good morning, Mr. Caldwell.

A. Good morning, Mr. Wright.

Q. It's nice to see you again.

A. It's nice to see you, as well.

Q. Thank you. I don't have a whole lot for you this morning.

At Pages 17 through 20 of your testimony you talk about the RFP process.

A. Yes.

Q. What was your role in the RFP process?

A. My role, as the wholesale power originator, is my area tried to generate as much interest in conduction of an open and fair RFP process. We were in charge of

promoting it by publishing the notice in multiple periodicals. We ran the website that addressed questions, so mostly we stimulated the market.

Q. Did you participate in designing or writing the RFP document?

A. Yes, I did.

Q. Just briefly, what did you do in that role? Were you a primary drafter; did you review other folks drafts, or --

A. My department was the primary drafter. People that work for me did the primary work, and it was a collection of entities -- legal, accounting, regulatory -- that put together the document.

Q. Did you participate in evaluating responses to the RFP?

A. I did not.

Q. So you did not review DeSoto Generating Company's original May 21st proposal to the company?

A. I did look at it, yes.

Q. I'm not trying to be difficult, but you used the phrase look at. I asked review. Can you tell me what you did?

A. Yes. I looked at the proposal after it was opened and provided to resource planning for the evaluation.

Q. Did you subsequently review DeSoto's July 13th best and final offer document?

A. Yes, I did.

Q. And what did you do with that, if anything?

A. I also provided it to the resource planning department and the consultant for analysis.

Q. Okay. Did you do any detailed review of the economics reflected in that best and final offer?

A. I did not.

Q. Would I be best off directing such questions to Mr. Rocha and Mr. Taylor, do you think?

A. Yes, you would.

Q. Thank you. During the RFP response process, did you participate in any communications with DeSoto personnel?

A. I did attend one conference call, I believe, between the initial process and the best and final offer. All the bidders were allowed an opportunity to submit a best and final offer, and there was a conference call to go through, kind of, here is the process with the best and final offer, and clarification of any questions.

Q. Did you participate in any direct negotiations with DeSoto personnel at any time in your process?

A. I did not.

Q. Your title is Director of Origination and Market Services?

A. Yes, sir.

Q. And in that role you participate in Tampa Electric Company's wholesale marketing activities?

A. I do.

Q. And also in the company's wholesale purchase activities?

A. Yes.

Q. And am I correct that Tampa Electric is currently endeavoring to make capacity and energy sales in the wholesale market?

A. We have participated in some solicitations for power, yes, but we are not -- currently, we have no deals on the books.

Q. Okay. Do you know whether Tampa Electric has ever bought capacity and/or energy from the DeSoto facility?

A. I would imagine in terms of daily power trading we have bought power. We buy from as many participants in the market as we can, based on who has the best price.

Q. In connection -- well, in your work for the company, have you had the opportunity or the need to become familiar with the operation of the DeSoto

facility within the Florida wholesale market?

A. I'm familiar with the, you know, the general equipment there. Beyond that, the operation of it, I'm not that familiar, no.

Q. So would it be fair to say you know it's out there, you know it runs when folks want to buy from it, and that's about it?

A. Correct.

Q. In connection with any evaluation of the DeSoto proposal, were you ever asked to provide any projected values of possible capacity revenues that might be available if the company were to buy DeSoto and then resell the capacity in the market?

A. No, I was not.

Q. A couple of questions for you about gas supply to DeSoto. Does Tampa Electric have firm gas transportation rights on the FGT system?

A. We do.

Q. Do you have a contractor who contracts with FGT?

A. We have multiple contracts with FGT as well as contracts with Gulfstream.

Q. Do you know whether any of your contracts with FGT identify DeSoto as a delivery point?

A. Yes. The DeSoto plant, I do know it is

located on a constrained lateral, and so as part of acquiring Phase 8 capacity from FGT, we negotiated the ability to deliver some gas to DeSoto.

Q. Thank you. And you did that for the company's economic opportunity to buy from the facility in the future?

A. Correct.

Q. Thank you. We've got a couple of fuel forecasts in evidence in this case. You originally did a 30-year fuel price forecast, and that was shown in your exhibit, Document Number 1, correct?

A. Correct.

Q. Okay. And I'm going to focus on the year 2017, because that is the projected in-service year for the Polk project. But if you think a different time period or year reference is more appropriate, feel free to say so.

In that forecast, the original forecast that was used in the original need study, y'all had a projected 2017 price of $6.23 a million Btu, correct?

A. That's correct.

Q. Was that a nominal price, 2017 dollars in 2017?

A. That is a nominal price. It is actually the price right off of NYMEX.

Q. Okay. Thanks. Can you explain to us what the basis value that you add to the Henry Hub price is?

A. Sure. NYMEX futures contracts are based on gas potentially being physically delivered to the Henry Hub, but we have rights on our pipelines to pick up the gas at the input to FGT or the input to Gulfstream, and so you need to account for the cost to get the gas from the Henry Hub to the input of our pipe into FGT.

Q. Does my memory serve correctly that the input to Gulfstream is at Mobile Bay somewhere?

A. Yes, sir.

Q. Okay. And so it's the cost to get from Henry Hub in Louisiana to Mobile Bay, if it were that transaction?

A. Correct.

Q. Thank you very much. I'd like to ask you just a couple of quick question about your Document Number 2. You mentioned that originally -- this is still your original filing -- that the company prepared a high and low price forecast for natural gas that reflected an increase or decrease of 35 percent from the baseline forecast, correct?

A. That's correct.

Q. If you would just look at your Document Number 2. Do I understand correctly that the top edge and the

bottom edge of the gray-shaded area, or it may be colored on your version, mine's gray, do those reflect lines that are 35 percent greater than and 35 percent less than the 2012 fuel projection filing?

A. Yes, that's correct.

Q. Thank you.

A. What that document shows is we did the projection originally for the 2012 fuel clause projection, then it became time for the ten-year site plan at the end of the year. We confirmed that that forecast was still consistent with other industry forecasts at the time.

MR. WRIGHT: Okay. Thank you.

Mr. Chairman, I do have another exhibit that I would appreciate some help distributing.

CHAIRMAN BRISÉ: Sure. We are at Number 26.

(Exhibit Number 26 marked for identification.)

MR. WRIGHT: And, again, this is something that is probably already in the CD that the staff has distributed, but this is Responses to Staff's Document Production Requests 22, 23, and 24.

CHAIRMAN BRISÉ: Okay.

BY MR. WRIGHT:

Q. Mr. Caldwell, the first response is the Response to POD Number 22, and the gas prices shown

there are the same as in your Document 1, correct?

A. Correct.

Q. Thank you. If I could ask you to flip now to the Response to POD Number 23, and that's Bates -- the request is Bates Page 986, and the response is Bates Page 987.

With me?

A. Yes, sir.

Q. Thank you. And the prices that are shown there for natural gas are the updated prices that the company prepared in June of this year, is that correct?

A. That's correct, as part of 2013 fuel projection.

Q. Thank you. And it was then these values that were used in doing the updates reflected in Section 10 of the need study?

A. That's correct.

Q. Thank you. And just so everybody is clear, the new projected price for natural gas in 2017 is $4.78 a million, correct?

A. Correct.

Q. Would it be fair to call this the new base case forecast for Tampa Electric's gas prices?

A. It would be fair to call it the 2013 projection.

Q. Okay. If you were doing a base low and high today, this would be the base projection, would it not?

A. It would. But I would certainly be hesitant. I would be careful on the high and low forecasts.

Q. You say be careful with the high and low? Okay. Well, that kind of leads to my next couple of questions which relate to the Response to POD Number 24 at Bates Page 989. That's the low forecast, and then 990 is the high forecast, correct?

A. Yes.

Q. Now, the new low -- actually, let's pause for one second. You would agree that the updated 2013 forecast is actually fairly close to what the previous low case forecast was?

A. It certainly falls within the band of the high and the low, skewed toward the low forecast, yes.

Q. Okay. Now, if we could look at the low forecast, Bates 989, that shows a projected price of $3.10 a million in 2017, correct?

A. It does.

Q. Did you compute that, those values simply by applying the 35 percent reduction from the new, 2013, what I'm calling the base case projection, or did you use some other methodology?

A. This is the low -- these values, I believe,

are the low forecast on the 2012 projection.

Q. I'm sorry, I got a little bit lost there. Could you look at Bates Page 989? It's part of the company's Response to POD Number 24.

A. 989, yes.

Q. Okay. That shows a gas price low forecast basis in 2017 of $3.10 a million Btu, correct?

A. Yes.

Q. Is that $3.10 35 percent less than the 4.78? I'm just trying to understand if you stuck with the plus and minus 35 percent methodology when you did the low and high for the new forecast, that's all.

A. Yes, we did do the plus and minus 35 percent on the new forecast.

Q. Okay. A minute ago you said that you would be kind of careful with the low and high forecast. Did you consider using lesser reductions than 35 percent to get your low case forecast?

01:36:06jfdleiaofajdlfj;

A. Recognizing the current conditions of the market, having a low forecast that is not as great of a difference as a high forecast makes a lot of sense. I think the risk for prices, for natural gas prices are

much -- a lot more likely to go up than they are to go down.

Q. But you didn't, say, assume a 20 percent discount from the base case in doing a low case?

A. I did not.

Q. Okay. Just back to the base case forecast. If you know, the new 2013 projection, is that the forecast that Mr. Rocha used in his updated analyses of the cost-effectiveness of the Polk project?

A. Yes, it is. Mr. Wright, may I check something real quickly?

Q. Certainly.

A. Mr. Wright, I believe I understand the confusion here. In response to Interrogatory Number 90, Staff's Interrogatory Number 90 --

Q. Number --

A. Number 9-0.

Q. Yes, sir.

A. We identified an error in Interrogatory Number 24, and the revision was filed and the correct values are shown on Interrogatory Number 90.

Q. Okay. Thanks. And if you know, that is what led to the modest additional reduction in the benefits of Polk versus DeSoto, correct, the 97 million down to 75 million, if you know?

A. I do believe the 75 million was based on using the 2013 base forecast, yes. But I do not believe that's tied to the 97 to 75 difference.

Q. Okay. That would be tied to the change from 132 to 97?

A. I do believe the 132 to 97 is based on the updated 2013 forecast, yes.

Q. Thank you.

A. Which deals within the high and low bands provided for the analysis.

Q. Thank you. You've mentioned NYMEX prices a couple of times.

MR. WRIGHT: I'm going to ask for another exhibit to be distributed, Mr. Chairman. I think this is going to be 27.

CHAIRMAN BRISÉ: Sure. Yes, we are at Number 27.

MR. WRIGHT: Short title, 12/6 for December 6th NYMEX gas prices.

CHAIRMAN BRISÉ: Thank you.

(Exhibit Number 27 marked for identification.)

Q. (Continuing) Mr. Caldwell, I will aver to you that someone at DeSoto downloaded this from a NYMEX source on the date indicated, December 6th. Does this information look familiar to you?

A. It does.

Q. And would you agree it looks consistent with your current experience of what NYMEX prices are doing?

A. Subject to check, yes. Certainly, NYMEX data is readily available on the Internet. You can find those values, you know, realtime.

MR. WRIGHT: Thank you. I've got one more exhibit for Mr. Caldwell, Mr. Chairman.

CHAIRMAN BRISÉ: Sure. 28.

(Exhibit Number 28 marked for identification.)

BY MR. WRIGHT:

Q. Mr. Caldwell, in your work you do keep track of the EIA gas forecasts, do you not?

A. I do look at it, yes.

Q. And the EIA is the United States Energy Information Administration, correct?

A. Correct.

Q. And that's a generally recognized source for a whole lot of energy data, isn't it?

A. It is.

Q. Okay. The exhibit I just had distributed are three pages of Table A3 from the 2013 Annual Energy Outlook early release. Have you seen these pages before?

A. I have.

Q. Okay. If you look at the -- counting the coverage, if you would look at the third page in there. The heading is energy prices by sector and source continued, nominal dollars per million Btu unless otherwise noted. These are the current EIA projections of natural gas in nominal dollars, are they not?

A. The early release of -- yes.

Q. And as far as you know, is the early release information the most current EIA data available as we sit here today?

A. It is.

Q. Thank you.

A. And I believe if you look at these values you will find that they fall within the high and low bands that were provided for testing the robustness of the analysis.

Q. You may not be the person to ask this question, but I'm going to ask you. If you know, did the company prepare any additional sensitivity analyses of the cost-effectiveness of the Polk project versus the DeSoto purchase using your new low gas price forecast that's shown in Response to POD Number 24?

A. I'm sorry, state the question again.

Q. Pay attention, pay close attention to first phrase. If you know, did the company, Tampa Electric

Company, prepare any additional sensitivity analyses of the cost-effectiveness of Polk versus the DeSoto purchase using your new low gas price forecast?

A. I do believe the company valued all the bids received using the updated 2013 fuel projection.

Q. Thank you. And I think the evidence would show that it's clear that the company used the updated base case, the one that is shown in Response to POD Number 23, the $4.78 a million in 2017, that number. My question for you is do you know whether any additional sensitivities were done using the low case and/or the high case forecasts shown in the response to POD Number 24?

A. I believe they were as an interrogatory response.

Q. Okay. I've got a couple of questions for you about Mr. Taylor's analyses. You're generally familiar with his report and his work, correct, as part of the RFP evaluation, or the response evaluations?

A. At a very high level, yes.

Q. Okay. He has a table in his report, A-3. And that fortunately for all of us is on a nonconfidential nonredacted page. As part of his testimony it's Bates Page 41, it says Document Number 2, Page 10 of 15. And in that table he shows some firm gas transportation

costs that were assigned to different proposals in the RFP process, correct?

A. Correct.

Q. We haven't covered this yet, but I think we have all agreed, and I know I have agreed with the staff that we are going to acknowledge publicly that Proposal B is DeSoto, correct?

A. Correct.

Q. Okay; great. My question for you is did you furnish the firm gas transportation cost assumptions that are reflected in Mr. Taylor's A-3, Table A-3 to Mr. Taylor?

A. Yes, I did.

Q. Thank you. In connection with their analyses, the analyses performed by either Mr. Rocha or Mr. Taylor, did you furnish any estimated gas transportation costs associated with any future units, i.e., units beyond Polk in 2017, that are reflected in Tampa Electric's generation expansion plans as shown in the need study?

A. I do not.

MR. WRIGHT: Thank you. That's all the questions I have.

Thank you, Mr. Chairman.

CHAIRMAN BRISÉ: Thank you.

Ms. Christensen.

MS. CHRISTENSEN: No questions.

CHAIRMAN BRISÉ: Staff.

MS. ROBINSON: Staff does have a few questions.

CHAIRMAN BRISÉ: Sure. Go right ahead.

CROSS EXAMINATION

BY MS. ROBINSON:

Q. Mr. Caldwell, will you please turn to Page 12 of your testimony, referencing Lines 21 through 25.

A. Yes, ma'am.

Q. Okay. Is it your testimony that the foundation of TECO's natural gas price forecast in this proceeding is the ten-year New York Mercantile Exchange gas future monthly closing contract of July 5th, 2011, through July 11, 2011?

A. Yes.

Q. Continuing with your testimony on Page 12 at Line 21, extending through Page 13 at Line 5, is it your testimony that TECO adds a basic cost to its forecast of natural gas commodity price to account for the company receiving its natural gas delivered into FGT Zone 3 instead of into the Henry Hub?

A. Yes, it is.

Q. Okay. Staff will now place before you two

confidential documents that TECO has provided to us, and I would caution you not to reveal any of the confidential information appearing in these documents in response to my questions today. Staff will also be giving you a nonconfidential document, which is TECO's Response to Rog Number 94, and this is nonconfidential.

MS. ROBINSON: I just wanted to make clear that these have already been marked and entered into the records.

CHAIRMAN BRISÉ: Thank you.

Q. (Continuing) The two confidential documents, one is TECO's Response to Staff's Interrog Number 50, and the second is TECO's Response to Staff's Interrog Number 98. And please let me know when you're ready.

A. Yes.

Q. Is it correct that Confidential Hearing Exhibit Number 3, which is TECO's Response to Staff Rog Number 50, is TECO's long-term fuel price forecast used for purposes of supporting the need study for this proceeding?

A. Yes, it is.

Q. And is the forecast the same official long-term fuel price forecast that was prepared in the summer of 2011 for TECO's 2012 TECO fuel and purchased power cost-recovery clause projections as was filed in

Docket Number 110001-EI on September 1st, 2011?

A. Yes.

Q. Okay. And is this also the same official long-term fuel price forecast for TECO's 2012 Ten-Year Site Plan filed on April 1st, 2012?

A. Yes, it is.

Q. Now, if you could please turn to Confidential Hearing Exhibit Number 5, which is TECO's Response to Interrog Number 98?

A. Yes.

Q. Is it correct that this document is TECO's long-term fuel price forecast prepared in the summer of 2012 and provided in this proceeding as a sensitivity to 2011 fuel price forecast we have just been discussing?

A. Yes, it is.

Q. And is it correct that Confidential Hearing Exhibit Number 5, which is Rog 98, is TECO's 2013 fuel and purchased power cost-recovery clause projection filed in Docket Number 120001-EI on August 31st, 2012?

A. Yes.

Q. Now if you will turn back to Staff's Interrog Number 50. We are trying to compare two columns in both interrogs just for explanation as to why I need you to do both. For Interrog Number 50, Bates stamp Page 73A, and Interrog 98, Bates stamp Page 35, if you could

please look at the sixth column with the heading total delivered cost.

A. Yes.

Q. Is it correct that the total delivered cost is a summation of the four columns preceding it, including the columns with the heading commodity, basic, variable transportation, and pipeline reservation and storage?

A. Yes, it is.

Q. Please look with us to the heading basic.

A. Yes.

Q. And did TECO include appropriate basic costs in this document?

A. That's for Number 50?

Q. I'm sorry, what was your question?

A. Number 50, Page 73A?

Q. Yes, sir. I'm sorry.

A. We should have included a higher basis value. There was a linking error, so the value shown is what was included. It should have been higher, but immaterial in terms of magnitude.

Q. And please look now to Interrog Number 98, Bates stamped Page 35.

A. Yes.

Q. And the third column of this page does show the basic costs also, is that correct?

A. It does.

Q. And would you agree that estimates shown here are reasonable estimates of the base costs TECO expects to pay for natural gas during the forecast horizon?

A. Yes, they do.

Q. Okay. All right. If you would keep these two documents handy. We will now turn to TECO's answer to Staff's Second Set of Interrog Number 94, and these have also been entered into the record already. I would just want to confirm that you are the witness in the proceeding who supports these responses?

A. Yes.

Q. Okay. Is it correct that the response to Rog 94 states that inadvertent omission of basic costs in TECO's fuel price forecast does not make a material impact on any economic analysis due to the relatively low value projected for the basic costs?

A. That's correct.

Q. And could you please explain why you believe the omission of the basic cost does not make a material impact on the economic analysis provided by TECO in this proceeding?

A. Because even if you add the basis to the range or to the nominal, the base case, we're still looking over the range of high and low possible future prices.

And as long as you are covering that wide range of price, you're analyzing your project robustly.

Q. Okay. Thank you very much.

We have just a few more questions. If you could please turn back to TECO's Response to Staff Interrog Number 50, which is Bates stamped 73A?

A. Yes.

Q. And Interrog 98. If you could please look at the fifth column on each document and confirm that the heading is pipeline reservation and storage?

A. Correct.

Q. Could you explain what constitutes pipeline reservation and storage?

A. Those costs are intended to be fixed costs associated with reserving capacity either in storage, underground salt dome storage, or the primary -- the bulk of the cost, reserving space on the pipeline capacity.

Q. Okay. And without revealing confidential information, can you please explain the difference in the pipeline reservation and storage fee between the two forecasts before you?

A. Yes. On Page 73A, the column labeled pipeline reservation and storage, that value is derived by summing all the reservation charges for Tampa Electric

and dividing by the total deliverability of that pipeline capacity.

On Page 35, Number 98, that cost is not included in that column. That cost should be there, but it's not.

Q. Okay. We are now turning to transportation cost projections shown in Rog Number 98, Bates stamped Page 35.

A. Yes.

Q. Are these transportation cost projections reasonable estimates of TECO's nominal cost to transport gas to its power plant during the forecast horizon 2013 through 2040?

A. Yes, subject to the addition of fixed pipeline costs.

MS. ROBINSON: Thank you, sir. No further questions.

CHAIRMAN BRISÉ: Thank you. Commissioners?

All right. Redirect.

MR. WAHLEN: Just a few redirect.

REDIRECT EXAMINATION

BY MR. WAHLEN:

Q. Mr. Caldwell, Mr. Wright asked you about the availability of the DeSoto plant. Have you studied the reliability and availability of the DeSoto plant?

A. I have looked into it, I have not studied it.

Q. Do you have enough information at your disposal to know whether it is, in fact, available whenever people want to buy power from it?

A. I do know it exists on a constrained pipeline lateral. Other entities hold the rights to all the capacity on that lateral. So to the extent that entity is using that capacity, you would not necessarily be able to get gas delivered to DeSoto.

Q. Okay. You mentioned in your testimony some contractual rights that Tampa Electric has to deliver fuel to the DeSoto plant. Do you remember that?

A. I do.

Q. And you also testified about the estimate that you gave to Mr. Taylor for the additional cost of obtaining firm natural gas transportation rights, correct?

A. I did, yes.

Q. Are the company's existing contractual rights adequate to provide fuel to the DeSoto plant at this time?

A. It is not. While Tampa Electric has a right to deliver gas to DeSoto, that capacity is needed for our own units.

Q. Okay. In your opinion, would the company have

to purchase additional firm natural gas transportation rights in order to serve or provide fuel to the DeSoto plant if it purchased it?

A. Yes. And, in fact, the value that was asked about regarding Mr. Taylor's Table A-3, the value listed in there for that plant is very conservative. It is probably about half as much of pipeline capacity as you really need to make sure that that plant can run during a high demand period.

Q. Mr. Caldwell, has Tampa Electric made firm energy purchases from the DeSoto plant to your knowledge?

A. I'm sure we have. I cannot think of when that exactly occurred, but I'm sure we have.

Q. Okay. Let me ask you a follow-up on the NYMEX prices. Mr. Wright asked you some questions about that. What years were the NYMEX prices used for in your natural gas forecast?

A. I'm sorry, say that again.

Q. When you used the NYMEX prices, for what years? You have a 30-year forecast. Did you use the NYMEX prices for all 30 years?

A. I did not. The New York Mercantile Exchanges futures contract goes out ten years, and so the NYMEX was used for the first ten years.

Q. Okay. And what did you do after that?

A. Escalated at inflation.

Q. Okay. And what is the effect of escalating the NYMEX prices at the inflation rate?

A. That holds the price constant for years 11 through 30, constant in real terms.

Q. Okay. Do you believe it would be fair to say that it has the effect of locking in what some might consider to be historically low natural gas prices for the out years?

A. Yes.

Q. And do you believe that's favorable or unfavorable to a bidder that has a less fuel efficient power plant than the proposed Polk expansion?

A. That would be favorable to a less efficient plant.

MR. WAHLEN: Those are all my questions. Thank you very much. We'd like to move Exhibit 15.

CHAIRMAN BRISÉ: Okay. We will move Exhibit 15 into the record, seeing no objections.

Mr. Wright.

MR. WRIGHT: I would like to move 26, 27, and 28, Mr. Chairman.

CHAIRMAN BRISÉ: Okay. We will move Exhibits 26, 27, and 28 into the record, seeing no objections.

(Exhibit Numbers 15, and 26, 27, and 28 admitted into the record.)

CHAIRMAN BRISÉ: Okay. Staff has indicated that we have already moved Exhibits -- was it 3 and 5 into the record.

All right. I think that's it for this witness. Thank you for your testimony.

Okay. We are going to go ahead and take a five-minute break at this time, and then we will reconvene at 11:35.

(Recess.)

STATE OF FLORIDA)

: CERTIFICATE OF REPORTER

COUNTY OF LEON)

I, JANE FAUROT, RPR, Chief, Hearing Reporter Services Section, FPSC Division of Commission Clerk, do hereby certify that the foregoing proceeding was heard at the time and place herein stated.

IT IS FURTHER CERTIFIED that I stenographically reported the said proceedings; that the same has been transcribed under my direct supervision; and that this transcript constitutes a true transcription of my notes of said proceedings.

I FURTHER CERTIFY that I am not a relative, employee, attorney or counsel of any of the parties, nor am I a relative or employee of any of the parties' attorney or counsel connected with the action, nor am I financially interested in the action.

DATED THIS 19th day of December, 2012.

JANE FAUROT, RPR
FPSC Official Commission Reporter
(850) 413-6732