

BEFORE THE FLORIDA PUBLIC SERVICE COMMISSION

In re: Petition for Determination)
of Need of Hines Unit 2 Power)
Plant)
_____)

DOCKET NO.

Submitted for filing: August 7, 2000

ORIGINAL

**DIRECT TESTIMONY
OF ROBERT D. NIEKUM**

**ON BEHALF OF
FLORIDA POWER CORPORATION**

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**IN RE: PETITION FOR DETERMINATION OF NEED
BY FLORIDA POWER CORPORATION
FPSC DOCKET NO. _____**

DIRECT TESTIMONY OF ROBERT D. NIEKUM

1 **I. INTRODUCTION AND QUALIFICATIONS.**

2

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

4 **A.** My name is Robert D. Niekum. I am employed by Florida Power Corporation
5 ("FPC" or the "Company"). My business address is Florida Power Corporation,
6 One Power Plaza, 263 13th Avenue, South, St. Petersburg, Florida 33701.

7

8 **Q.** **Please tell us your position with the Company and describe your duties and**
9 **responsibilities in that position.**

10 **A.** I am currently employed by FPC as the Director of FPC's Fuels Supply
11 Department. I have held that position for five (5) years. I have worked for FPC
12 since 1982, and I have worked in FPC's Fuels Supply Department (formerly
13 called the Fuels and Special Projects Department) since 1995. As the Director of
14 FPC's Fuels Supply Department, I am ultimately responsible for the development
15 and maintenance of FPC's fuels forecasts; the procurement of residual fuel oil,
16 coal, distillate oil, and natural gas for FPC's electrical power generation facilities;
17 and the administration of FPC's contracts for fuels with FPC's various suppliers.

18

1 Q. Please tell us about your educational background and experience.

2 A. I received a Bachelor of Science degree in Electrical Engineering from the
3 University of Florida in 1976, and a Masters of Engineering in Electrical
4 Engineering from the University of Florida in 1982. My undergraduate course
5 work was primarily in the area of electrical engineering for power systems. My
6 graduate work in electrical engineering specialized in electric utility system
7 planning.

8 In June 1976, I was employed by the Jacksonville Electric Authority. I
9 held several engineering positions in the Transmission and Substation Design
10 Department, the Energy Control Center, and in the System Planning Department.

11 After receiving my Masters of Engineering in 1982, I was employed by
12 FPC as a Project Engineer in the System Planning Department, responsible for
13 transmission and distribution planning for two FPC divisions in central Florida.
14 In 1989, I assumed the position of Senior Generation Planning Engineer. In
15 December 1990, I was appointed Manager of Generation Planning. As the
16 Generation Planning manager, I was responsible for the development of
17 Integrated Resource Planning ("IRP") studies, engineering project evaluations,
18 and generation reliability calculations. In March 1995, I was named Director of
19 Fuels Supply, with responsibility for procurement of all of the fossil fuel used in
20 the Company's fossil fuel plants. I was directly responsible for obtaining the fuel
21 supply for the operation of the Hines 1 combined cycle plant.

22

23

1 **Q. Are you a member of any professional organizations?**

2 **A.** Yes. I am a member of the Institute of Electrical and Electronic Engineers. I am
3 also a registered Professional Engineer in the State of Florida.

4

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

6

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

8 **A.** I am testifying on behalf of FPC in support of its Petition for Determination of
9 Need by (i) generally describing and explaining the reasonableness of the fuels
10 forecast developed by the Fuels Supply Department and used by the Company in
11 the IRP, (ii) identifying the types and amounts of fuel the Company plans on
12 using at the Hines 2 plant ("Hines 2"), including the expected availability of those
13 fuels for that plant, and (iii) generally describing the options available to transport
14 the types and amounts of fuel the Company plans to use at Hines 2 to the Hines
15 Energy Complex ("HEC") where the Hines 2 unit will be located.

16

17 **Q. Are you sponsoring any sections of FPC's Need Study, Exhibit _____, (JBC-**
18 **1)?**

19 **A.** Yes. I am sponsoring Section II, C, 2., "FPC's Fuels Forecast," Section V, C,
20 "Adequacy of Supply and Transportation of Fuels," and Section VII, E, "Fuel
21 Transportation and Supply," of the Need Study.

22

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

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

RDN-1 Chart of FPC's Fuels Forecast.

RDN-2 Chart of FPC's Base, High, and Low Case Natural Gas Forecasts.

RDN-3 Chart of FPC's Natural Gas Forecast Compared to Other Industry Forecasts.

RDN-4 Table of Estimated Gulf Coast Gas Reserves.

RDN-5 Table of Gas Transportation Options.

10 Q. Please give us a summary of your testimony.

11 A. The Company relies on the Fuels Supply Department to prepare a fuels forecast
12 for the IRP process. FPC's fuels forecast is a primary input in the IRP process. It
13 projects both short- and long-range prices for the various types and grades of fuel
14 available to and used by FPC on its electrical generation system.

15 FPC's fuels forecast is prepared under my direction, as Director of FPC's
16 Fuels Supply Department, and I am involved in and have personal knowledge of
17 the preparation of the forecast. FPC's fuels forecast is prepared from an extensive
18 review and a rigorous analysis of available and relevant information, and from the
19 experience of FPC and other Florida utilities and gas consumers with respect to
20 fuel prices. Given my experience in developing fuels forecasts for FPC, and my
21 knowledge of and experience with various widely recognized and generally

1 accepted third party fuels forecasts, I can state affirmatively that FPC's fuels
2 forecast is reasonable and in line with the forecasts of other recognized industry
3 sources for such forecasts.

4 Natural gas is the primary fuel planned for Hines 2. It is a readily
5 available fuel source, given current and projected levels of long term supply of
6 natural gas in the United States, and, as a result, is an economical fuel source for
7 Hines 2. Backup fuel for Hines 2 will be distillate oil, which is also readily
8 available as a fuel source now and in the future.

9 Natural gas will be transported to the Hines 2 unit by gas pipeline. The
10 HEC is currently served by a connection to the Florida Gas Transmission
11 Company ("FGT") pipeline but FGT does not have surplus firm transportation
12 capacity sufficient to serve Hines 2. However, as demonstrated by Exhibit __
13 (RDN-5), expansions of the FGT pipeline and several additional gas pipelines
14 have been proposed for service in the State of Florida and are in various stages of
15 development, and one or more of these pipeline expansions and/or new gas
16 pipelines can reasonably be expected to be completed and capable of providing
17 natural gas transportation service to customers in the State of Florida, including
18 FPC for Hines 2, in the next two to three years. FPC is confident that it will be
19 able to arrange for all of the firm gas transportation service it will require for
20 Hines 2 in time to meet the expected in-service date for that unit in late 2003.

21 Distillate oil, the planned backup fuel for the Hines 2 unit, will be
22 transported to HEC by truck. Similar backup fuel transportation service is being
23 provided now to HEC for the Hines 1 unit. The addition of Hines 2 is not

1 expected to increase significantly the truck transportation of distillate oil to the
2 HEC. The existing oil tank at the HEC is adequate to provide backup fuel to both
3 units (Hines 1 and 2) for approximately 3 days of operation at full load.

4
5 **III. FPC'S FUELS FORECAST.**

6
7 **Q. Why do you supply a fuels forecast for the IRP process?**

8 **A.** Relevant fuel prices and their differentials are important economic factors in
9 determining the kinds of new generation to be added to FPC's system.

10 Additionally, fuel prices are relevant to the determination of the most efficient
11 method of operating existing and proposed generating units on FPC's system in
12 compliance with environmental and system requirements. For these reasons,
13 FPC's fuels forecasts are a material part of the IRP process.

14
15 **Q. What is FPC's fuels forecast in the Company's IRP process?**

16 **A.** FPC's fuels forecast is shown in Exhibit ____ (RDN-1).
17

18 **Q. What are the basic components of FPC's fuels forecast?**

19 **A.** The forecast consists of several discrete forecasts of prices by fuel type. Prices
20 are projected for the following fuels: natural gas, coal, and oil. Where different
21 grades of fuel are available — for example, in the case of coal and oil — we also
22 have included price forecasts for several different grades or types. In addition, we
23 developed a bandwidth of probable prices for each fuel by considering a base case

1 forecast as well as high and low case forecasts. The forecast also includes FPC's
2 contracts for natural gas transportation capacity and estimates of interruptible
3 natural gas supplies.

4

5 **Q. Are the fuels represented in FPC's fuels forecast the most likely fuels to be**
6 **available to and used by FPC during the forecast period?**

7 **A.** Yes, they are.

8

9 **Q. Can you generally describe the methodology behind FPC's fuels forecast in**
10 **the IRP process?**

11 **A.** Yes. We start with a list of the various fuels that potentially could be used at
12 FPC's existing and future generation plants. Those fuels are: coal (including
13 several grades or types of coal that can be burned at FPC's Crystal River Units 1,
14 2, 4, and 5), oil (2.5% sulfur, 1.5% sulfur, and 1.0% sulfur residual fuel oil, and
15 No. 2 fuel oil), and natural gas. Next, we develop a low, base, and high price
16 forecast for each fuel that we identified based on expected price trends over the
17 next five to ten years, using our historical experience with fuel prices and reliance
18 on our analysis of widely recognized and generally accepted third party sources of
19 information relevant to the projected supply and price of each fuel. The base case
20 is considered the most likely scenario. For example, a chart of FPC's base, low,
21 and high case natural gas price forecasts can be found in Exhibit ___ (RDN-2).

22 Once FPC has prepared its fuels forecast, FPC continuously re-evaluates
23 the forecast against various standard third party fuel price forecasts and

1 developments and trends with respect to each fuel type to verify that FPC was and
2 is reasonable in developing its fuels forecasts. When and if necessary, FPC will
3 adjust its fuels forecast to take into account changes in the fuels markets.

4
5 **Q. How did you arrive at the natural gas forecast?**

6 **A.** The natural gas price forecast was derived from price estimates for the Gulf Coast
7 market area (such as the Henry Hub and Mobile Bay). FPC uses the Petroleum
8 Industry Research Associates (“PIRA”) as a forecasting consultant service. In
9 addition, FPC contacts suppliers who are willing to enter into long-term contracts
10 for gas supplies, and quotes by these companies are used as an additional forecast
11 input. Also, data from public agencies such as the Energy Information
12 Administration (“EIA”) are considered as a reference source. The final forecast is
13 an estimate based upon these inputs. Transportation costs, including fixed and
14 variable components, were estimated based upon the prevailing tariff rate for
15 service on the FGT pipeline system and the expected rates available from the
16 various proposed new pipelines.

17
18 **Q. What conclusion did you reach about natural gas as a fuel source for Hines 2,
19 based on your work on FPC’s fuels forecast?**

20 **A.** Natural gas is and will be a competitively priced fuel source for Hines 2 compared
21 to other types of fuel and generation technologies, based on the forecast of natural
22 gas price trends compared to oil and coal price trends. It is also an attractive fuel
23 source because, as compared to coal and oil, it is a clean burning fuel, which has a

1 favorable impact on the capital cost of constructing generating facilities capable
2 of complying with current and future environmental regulations, including the
3 Clean Air Act, and can reduce FPC's overall sulfur emissions in order to comply
4 with the Clean Air Act.

5 Furthermore, based on our experience and in our professional judgment,
6 and also on other widely recognized and generally accepted fuels forecasts, the
7 projected prices for natural gas and other fuels in FPC's fuels forecast reasonably
8 reflect FPC's future fuel costs. The chart in Exhibit ___ (RDN-3) sets forth FPC's
9 natural gas forecast along with the natural gas forecasts of other, widely
10 recognized and generally accepted third party sources. As demonstrated in
11 Exhibit ___ (RDN-3), FPC's natural gas forecast is in line with the natural gas
12 forecasts of all of the third party sources reported there.

13
14 **Q. The price of gas on the spot market has risen significantly in the last few**
15 **months. Are FPC's fuels forecast and base natural gas forecast in Exhibits**
16 **_____ and _____ (RDN-1 and RDN-3) still accurate?**

17 **A.** Yes. We recognize that the spot price of gas has increased in the supply areas
18 from which FPC expects to obtain the natural gas fuel for Hines 2. Price volatility
19 exists and will continue to exist in the gas markets, but over the long term, as
20 indicated by the FPC fuels and natural gas forecasts, we expect prices to come
21 down from current levels.

22
23

1 IV. FUELS FOR THE HINES 2 UNIT.

2

3 **Q. Please describe the types and amounts of fuels FPC expects to use in the**
4 **Hines 2 unit.**

5 **A.** The Hines 2 unit will be a state-of-the-art combined cycle unit similar to the
6 Hines 1 unit. It will have a dual-fuel generation system, meaning that the
7 combustion turbines can be operated on natural gas or distillate oil. For Hines 2,
8 natural gas is the primary fuel and low sulfur (0.05 percent) distillate oil is the
9 planned backup fuel. At peak operation, Hines 2 is expected to require
10 approximately 80,000 million British thermal units (MMBtu) of gas a day, and its
11 average use will be around 65,000 MMBtu per day.

12

13 **Q. Will FPC be able to obtain sufficient natural gas supplies for the Hines 2**
14 **unit?**

15 **A.** Yes. The daily quantity of gas required to operate Hines 2 is quite small in
16 relation to overall domestic natural gas production, reserves, and resources. The
17 natural gas exploration and production industry, in this country and in Canada, is
18 engaged in aggressive efforts to maintain and expand the North American natural
19 gas reserve base, spurred by both greater demand for gas and higher gas prices.
20 There is a substantial amount of exploration and development activity going
21 forward in the deeper waters of the Gulf of Mexico, where large new gas reserves
22 have been and are expected to be discovered and developed, and these new
23 reserves will be a geographically close source of supply for Hines 2. Further, and

1 as demonstrated by the proposed Cypress pipeline project, liquefied natural gas
2 (“LNG”) is being added to the mix of gas supply available to U.S. gas consumers.
3 Exhibit __ (RDN-4) sets out the forecasts for Gulf Coast gas resources of the
4 leading sources of such information and clearly shows that there will be adequate
5 supplies of natural gas to fuel the Hines 2 facility over its useful life.

6
7 **Q. Will FPC be able to obtain sufficient natural gas supplies for the Hines 2 unit**
8 **at a reasonable cost?**

9 **A.** Yes. One reason is the abundance of the Gulf Coast gas reserves, as reflected in
10 my answer to the previous question. Florida is situated rather close to significant
11 existing and potential onshore gas reserves in Louisiana, Mississippi, and
12 Alabama, as well as the existing and potential offshore Gulf Coast gas producing
13 regions and some of the nation’s largest deposits of coalbed methane. These
14 supply sources have and will have easy access to the existing FGT pipeline, and
15 FPC is confident that a new underwater gas pipeline will be constructed that will
16 directly connect the Florida gas markets to the huge existing and potential gas
17 reserves of the Gulf Coast and adjacent Outer Continental Shelf. Consequently,
18 transportation distances for natural gas into Florida are now relatively short and
19 will become shorter, resulting in lower transportation costs for gas sold for
20 consumption in Florida, so that we may be assured that natural gas will be
21 aggressively and competitively marketed in the State of Florida.

22

1 Q. Has FPC signed any contracts or letters of intent for its gas supply to Hines

2 2?

3 A. No.

4

5 Q. Why not?

6 A. At this point, before the Company has received regulatory authorization for Hines
7 2, and long before that facility's expected in-service date, it would be premature,
8 potentially costly, and unnecessary for FPC to enter into contracts for either short-
9 or long-term gas supplies. Most suppliers would insist that FPC make significant
10 "up front" payments and/or "stand by" payments in return for a commitment of
11 their reserves at this time to Hines 2, and the cost of such payments made in
12 advance of gas delivery and use would more than offset any potential increase in
13 gas prices between the present and the Hines 2 in-service date. Further, the prices
14 in the gas supply markets from which FPC expects to supply natural gas to Hines
15 2 are currently relatively high, due to high demand for gas relative to the ability of
16 the operators of those reserves to make gas available for delivery. This tight
17 deliverability situation was caused in large part by the low prices for gas that
18 prevailed for much of the preceding two to three years, and is expected to be a
19 temporary condition as improving gas prices provide the impetus for additional
20 exploration and development and expansion of reserves and deliverability, which,
21 in turn, will put downward pressure on price. FPC believes, based on its fuels
22 forecast and gas procurement experience, that the cost of gas supply for Hines 2
23 will be lower if the contracts for such supply are entered into closer to the

1 facility's in-service date — when the supplier(s) will receive immediate cash flow
2 from the supply contract(s) — than if contracts were negotiated in today's market
3 conditions.

4

5 **Q. Will FPC be able to obtain short- and long-term gas supply contracts in time**
6 **for the commercial operation of Hines 2?**

7 **A.** Yes. The Company plans to enter into contractual arrangements for firm gas
8 supply for delivery as of the in-service date of Hines 2, well prior to the
9 commencement of commercial operation of Hines 2. The Fuels Department has
10 developed and maintains gas supply relationships with a number of gas producers
11 and gas marketers, and anticipates no difficulty in obtaining contracts for gas
12 supplies adequate for Hines 2 on competitive terms and conditions at market-
13 based prices. In all likelihood we will enter into a "portfolio" of gas supply
14 contracts of varying terms to meet the Hines 2 requirements, in order to achieve
15 the lowest cost of fuel consistent with reliable availability. As discussed more
16 fully below, we expect to contract on a long-term firm basis for gas transportation
17 capacity for all or most of Hines 2's gas supply, although we may enter into one
18 or more supply contracts under the terms of which the gas supplier arranges for
19 the delivery of the gas to the HEC for Hines 2.

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1 **V. FUEL TRANSPORTATION FOR THE HINES 2 UNIT.**

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Q. Will FPC be able to obtain sufficient and reliable transportation service for the Hines 2 gas supplies?

A. Yes. As reflected by Exhibit __ (RDN-5), FGT is now constructing its Phase IV pipeline expansion, in which FPC has subscribed for firm capacity for its existing gas-fired generation fleet, and there are two further expansions of the FGT pipeline, Phase V and Phase VI, currently in the development stage, which will provide additional gas transportation capacity to the Florida gas markets. There are also two new pipeline projects, the Gulfstream Natural Gas System (“Gulfstream”) project and the Buccaneer Gas Pipeline Company (“Buccaneer”) project, that have received preliminary authorization from the Federal Energy Regulatory Commission (“FERC”) to construct interstate gas pipelines under the Gulf of Mexico to serve Florida’s gas markets. Further, El Paso Energy Corporation has proposed a pipeline project, the Cypress pipeline, to transport gasified LNG from its Elba Island LNG terminal to an interconnection with FGT in north Florida. FPC has discussions ongoing with FGT, Gulfstream, Buccaneer, and Cypress, concerning FPC’s requirements for firm gas transportation capacity for Hines 2, approximately 65,000 MMBtus per day of transportation service. FPC is, therefore, confident that it will be able to obtain a contract(s) for all of its gas transportation service requirements for Hines 2. FPC expects that the rates it will pay for that service will be no higher than, and, because of the competitive environment in which FPC will negotiate its gas transportation contract(s) for

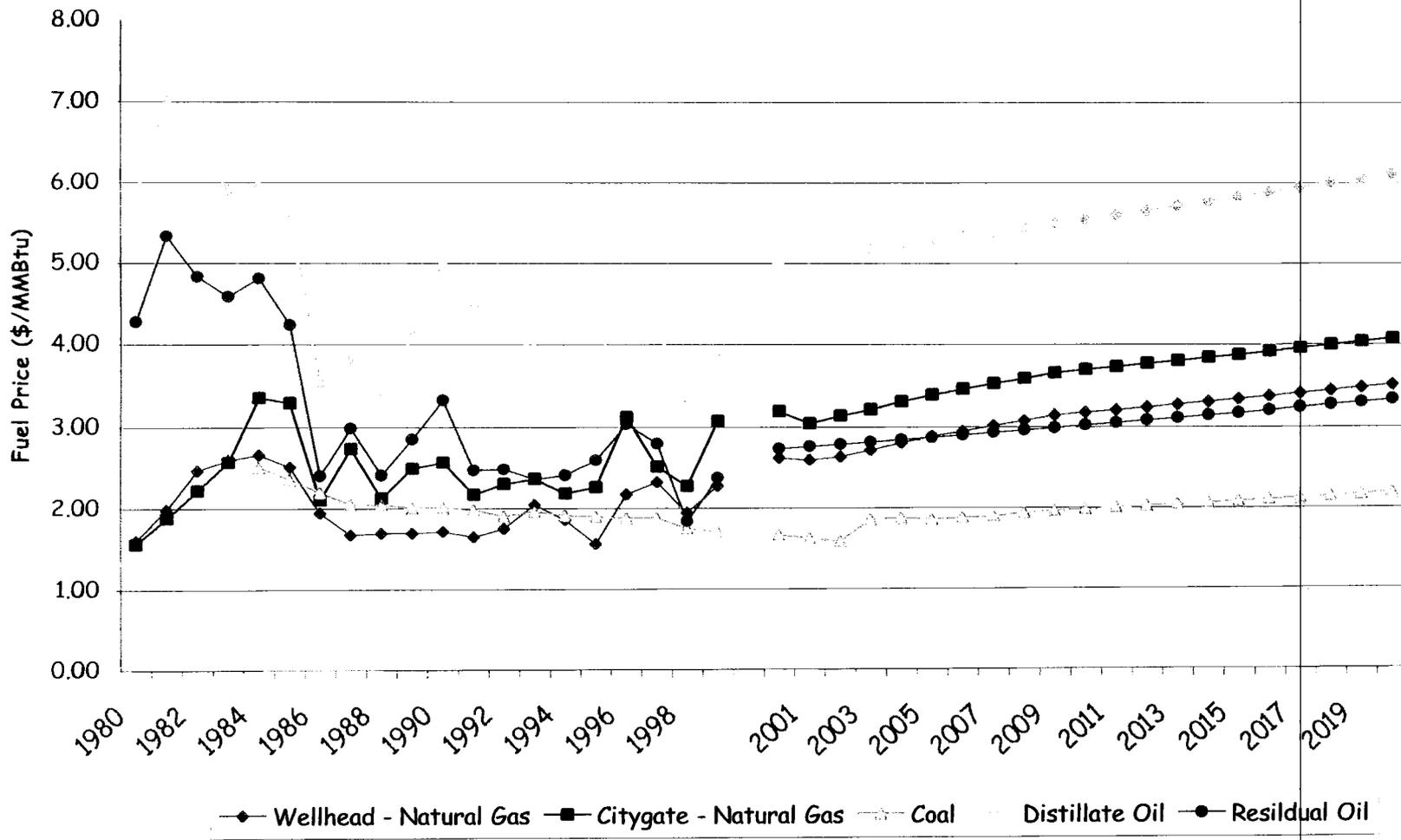
1 Hines 2, in all likelihood lower than, the rate for firm gas transportation service
2 currently charged by FGT under its FERC natural gas tariff.

3

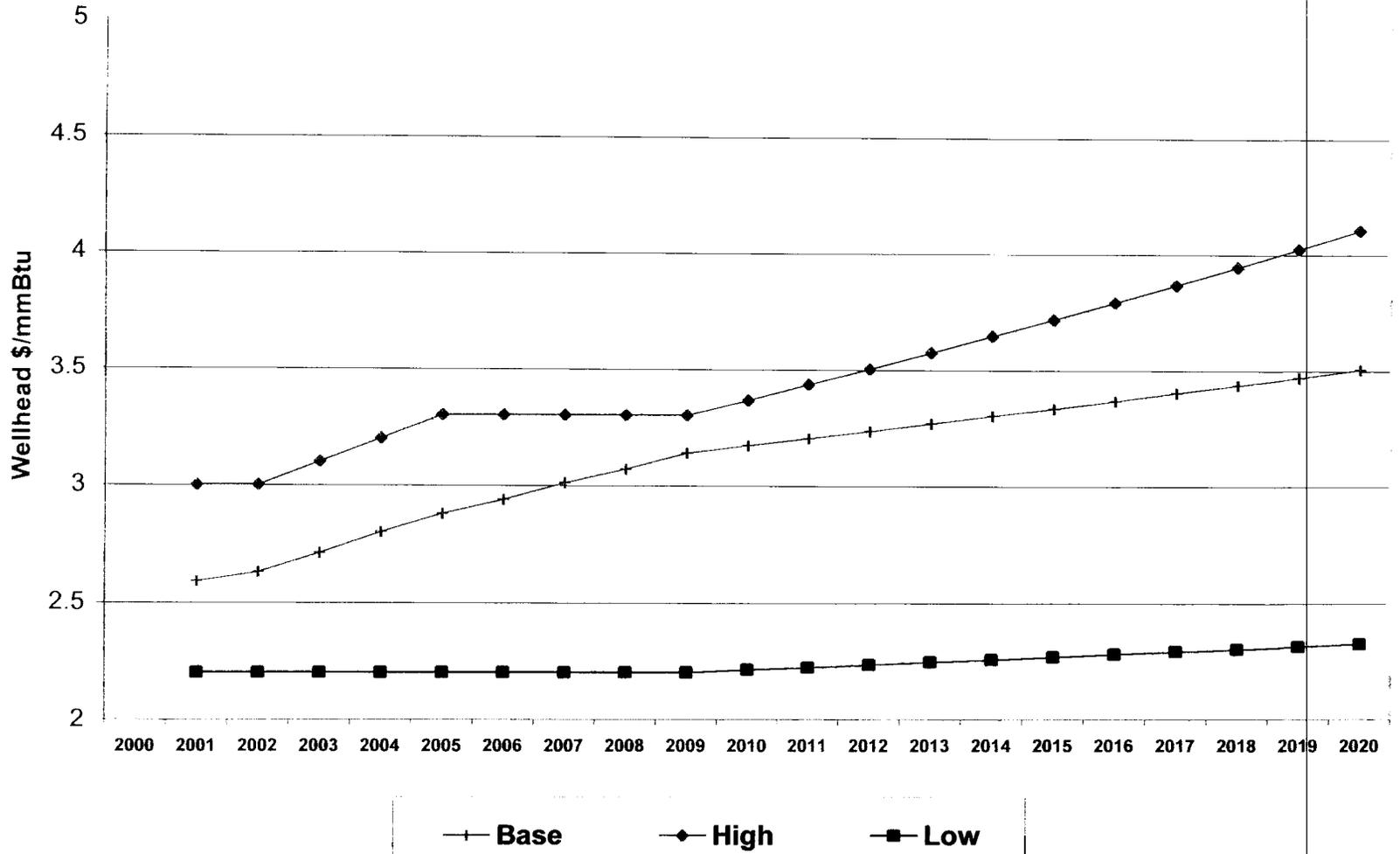
4 **Q. Does this conclude your direct testimony?**

5 **A. Yes.**

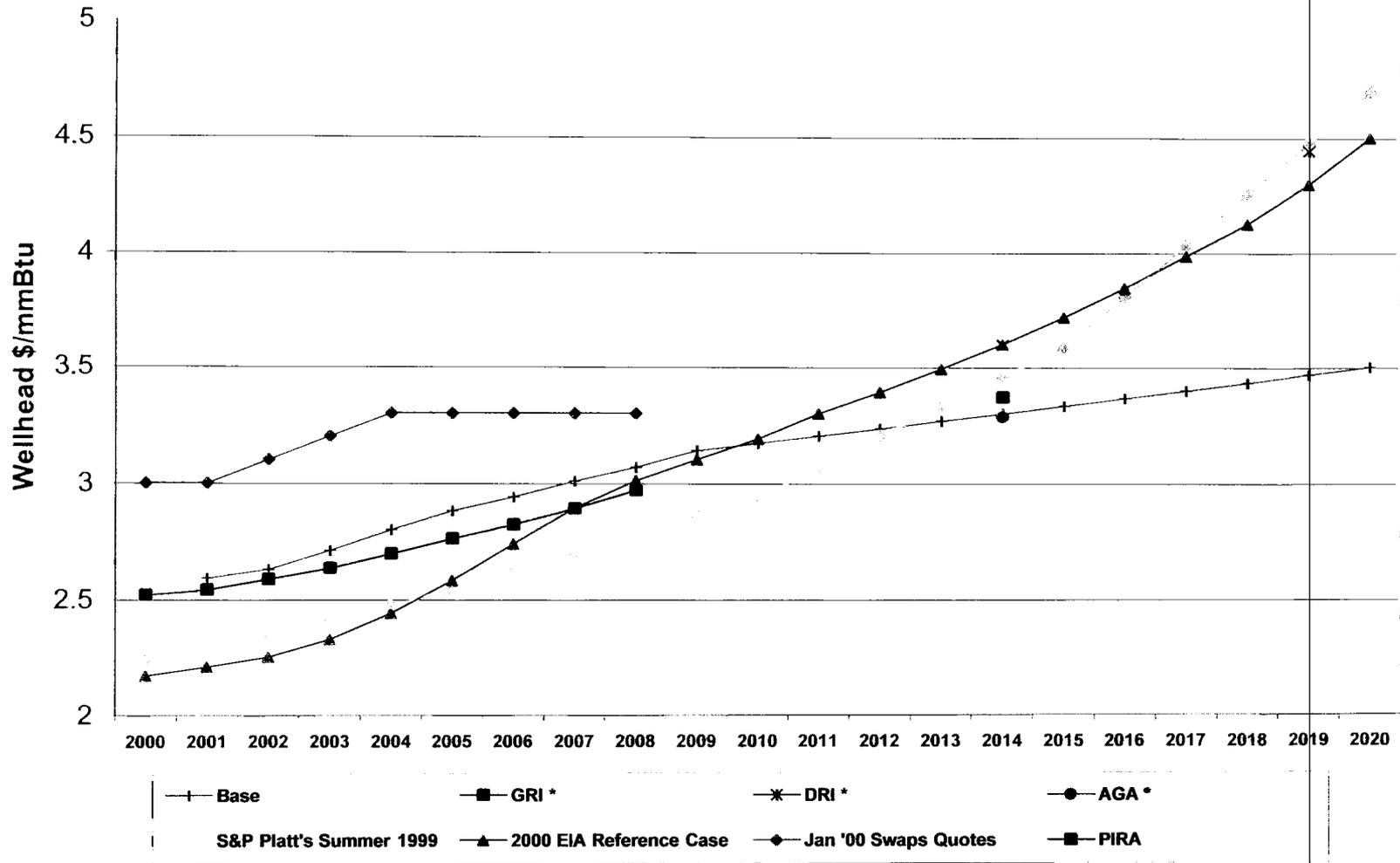
Florida Power Corporation Fuel Price History and Forecast



FPC's Natural Gas Forecast (2000-2020)



Comparison of Natural Gas Forecasts (2000-2020)



* Note: As listed in EIA's "Annual Energy Outlook 1999"

U.S. Gulf Coast Gas Resources

12-31-98 U.S. Gulf Coast Remaining Gas Resources Proved Reserves + Most Likely Potential (Tcf)

<u>Gulf Coast Onshore</u>	<u>Gulf Coast Offshore</u>	<u>Total</u>
166	166	332

Sources: 12-31-97 EIA proved reserves,
12-31-98 PGC potential resources

	Florida Gas Transmission Company	Gulfstream Natural Gas System L.L.C.	Buccaneer Gas Pipeline Company	Cypress Natural Gas Company
Existing Capacity	1,500,000 MMBtu / Day	0 MMBtu / Day	0 MMBtu / Day	0 MMBtu / Day
Capacity in June 2001 (Planned in service)	1,700,000 MMBtu / Day FGT Phase 4	0 MMBtu / Day	0 MMBtu / Day	0 MMBtu / Day
Capacity in June 2002 (Planned in service)	2,130,000 MMBtu / Day FGT Phase 5	1,100,000 MMBtu / Day	0 MMBtu / Day	450,000 MMBtu / Day
Capacity in June 2003 (Planned in service)	2,130,000 MMBtu / Day + Phase 6	1,100,000 MMBtu / Day	900,000 MMBtu / Day	450,000 MMBtu / Day
Capacity Available for Hines 2 by June 2003	Yes	Yes	Yes	Yes
Connection to Hines	Existing	Planned	Planned	Through FGT Phase 6
Status	Phase 6 open season	Preliminary FERC approval	Preliminary FERC approval	Open Season
Expected In-service date	June 2003	June 2002	Spring 2003	June 2003
Key Issues	Sufficient customer support. Incremental rates.	Viability because of pending El Paso / Coastal merger. Sufficient customer support.	Sufficient customer support. Landowner opposition and environmental concerns.	LNG cost and availability risk. Depends upon FGT Phase 6. Sufficient customer support.
Connections	Anclote Avon Park Bartow DeBary Higgins Hines Intercession City Tiger Bay	Hines Intercession City Tiger Bay	Anclote Hines Intercession City	Anclote Avon Park Bartow DeBary Higgins Hines Intercession City Tiger Bay