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April 26, 1993

Mr. Steve Tribble, Director
Division of Records and Reporting
Florida Public Service Commission
101 East Gaines Street
Tallahassee, Florida 32399-0850

via Hand Delivery

Re: Application for Determination of Need for an Intrastate Natural Gas Pipeline; Docket #920807-GP

Dear Mr. Tribble:

Enclosed for filing please find an original and fifteen copies of SunShine Pipeline's Rebuttal Testimony of Mr. Judah L. Rose for the above-referenced docket.

*You will also find enclosed a copy of this letter and a diskette containing the same information. Please date-stamp the copy of the letter to indicate that the original was filed and return a copy to me.

If you have any questions regarding this matter, please feel free to contact me. Thank you for your assistance in processing this filing.

* returned unfiled

Respectfully,

HABEN, CULPEPPER, DUNBAR & FRENCH, P.A.

Peter M. Dunbar

PMD/tmz
Enclosures

cc: All parties of record (w/ enclosures)

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CERTIFICATE OF SERVICE
DOCKET NO. 920807-GP

I HEREBY CERTIFY that a true and correct copy of the foregoing has been served by U.S. Mail or hand delivery(*) on this 26th day of April, 1993, to the following parties of record:

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BEFORE THE FLORIDA PUBLIC SERVICE COMMISSION

In Re: Application for Determination of Need for an Intrastate Natural Gas Pipeline by SunShine Pipeline Partners	Docket No.: 920807-GP Filed: April 26, 1993

REBUTTAL TESTIMONY

OF

JUDAH L. ROSE

FOR

SUNSHINE PIPELINE PARTNERS

REBUTTAL TESTIMONY OF

JUDAH L. ROSE

FOR

SUNSHINE PIPELINE PARTNERS

BEFORE THE

FLORIDA PUBLIC SERVICE COMMISSION

DOCKET NO. 920807-GP

Q. Please state your name and business address.

A. My name is Judah L. Rose. My business address is 9300 Lee Highway, Fairfax, Virginia 22031.

Q. Have you previously submitted testimony in this Docket?

A. Yes.

Q. What is the purpose of this rebuttal testimony?

A. The purpose of this testimony is to respond to and rebut direct testimony of Dr. Paul Carpenter for Florida Gas Transmission filed on April 12, 1993.

Q. Please outline and summarize your rebuttal testimony.

A. The first section of my rebuttal testimony responds to Dr. Carpenter's assertion that my analysis does not have a place in a market-based determination of need since my analysis is not tied to the specific location of SunShine. This section discusses the

accessibility of SunShine pipeline to demand, and concludes that my approach was reasonable and appropriate to the determination of need because the large majority of demand is accessible to SunShine.

The second section responds to Dr. Carpenter's assertion that my analysis does not have a place in a market-based determination of need since it is not tied to the specific timing of the SunShine project. This section discusses the similarity of my 2000 estimate of demand to demand in 1999, and concludes that my analysis is tied to the specific timing of the SunShine pipeline.

The third section responds to Dr. Carpenter's assertion that my analysis grossly overestimates demand because I ignore utility plans and conducted an aggregate analysis. This section explains that I did not ignore utility plans, why my approach was appropriate, and why my results are not an overestimate of demand.

The fourth section responds to an assertion by Dr. Carpenter that Order 636 substantially lessens the benefits associated with SunShine's entry into the market. This section concludes that Order 636 has little relationship to the need for pipeline

capacity into Florida.

SECTION I - LOCATION

Q. What is your understanding of the reasons why Dr. Carpenter believes that your testimony does not have a place in a market-based determination of need?

A. Dr. Carpenter asserts on page 20 of his direct testimony that my analysis does not have a place in a market-based determination of need in part because the pipeline demand estimate is never tied to the location of the SunShine project, but instead is for the entire State of Florida.

Q. Do you agree that your analysis is not tied to location of the SunShine project?

A. No. When I began my analysis, I estimated demand on a statewide basis because I assumed that the large majority of demand would be accessible to new pipeline projects. I made this assumption for two reasons. First, I estimated demand for pipeline capacity assuming gas transportation costs of $0.65/Mcf on a real, levelized annuity basis. This transportation cost estimate is reasonable, and conservative (i.e., on the high side relative to my understanding of the SunShine Pipeline transportation cost cap) as discussed immediately

below. Second, in the long term, new pipelines like SunShine will be accessible to the majority of new powerplants, especially after factoring in the flexibility that most new powerplants will have in determining their sites.

Subsequently, as I continued my analysis, I found additional evidence supporting my original supposition that a new pipeline like the SunShine pipeline could access a large share of demand. This applies to both the demand from existing oil/gas steam powerplants, and from new powerplants.

Section I.1 - Existing Powerplants

Q. Why is the accessibility of SunShine to existing oil/gas steam powerplants in Florida important?

A. Florida has over 13,000 megawatts of existing oil/gas steam capacity which still consume large amounts of oil. Florida produced 67 percent more power from oil than gas in 1991. Florida consumes more oil in the generation of electricity than any other state: its generation from oil in 1992 was 56 percent higher than the second highest state (New York), and more than 100 percent higher than the third highest state (Massachusetts).

I forecast that a substantial amount of these

powerplants will switch to natural gas from oil. In total, about 57 percent of this existing oil/gas steam capacity will demand firm pipeline capacity.

Q. Please describe how you determined whether existing oil/gas steam powerplants were accessible to the SunShine pipeline.

A. First, I asked SunShine Pipeline Partners to determine which existing powerplants were accessible.

Q. How was accessibility defined?

A. The definition of accessibility had two components: technical feasibility and economical feasibility.

Q. What was the definition of technical feasibility?

A. The definition of technical feasibility was determined by SunShine. In general terms, my understanding is that they analyzed the feasibility of physically building a pipeline to the relevant areas of the state.

Q. What was the result of SunShine's review of technical feasibility?

A. SunShine concluded that it was technically feasible to serve all existing oil/gas steam powerplants in the state except the powerplants in the Florida Keys.

Q. What was the definition of economic feasibility?

A. The definition of economic feasibility was that

plant locations could be served for a cost less than or equal to the $0.65/Mcf transportation costs used in my analysis of demand.

Q. What was the source of the $0.65/Mcf transportation cost?

A. I developed that estimate, which I believe to be reasonable and conservative. By conservative, I mean that it is high, and therefore, errs on the side of estimating low demand for natural gas. The $0.65 is a real levelized annuity for a thirty year period in 1991 dollars, and is for the total firm transportation costs from wellhead to customer.

Q. What is the real (i.e., inflation adjusted, 1991 dollars) 30-year annuity price that has the same present value as the SunShine cost cap which extends from 1995 to 2019, assuming 4 percent annual average inflation?

A. Approximately $0.43/Mcf.

Q. What is the importance of comparing the $0.65/Mcf and $0.43/Mcf real annuity prices?

A. SunShine could increase its cost cap 51 percent in all years and still meet my definition of economic accessibility, and be consistent with my estimate of the demand for gas capacity.

Q. What would be the implications for your analysis of

natural gas demand in Florida if you had used a lower estimate of transportation costs?

A. If I had used a lower estimate of natural gas transportation costs, I believe that my estimate of the total demand in Florida for (a) all powerplants, (b) existing oil/gas steam powerplants, and (c) new powerplants would have been higher, but I did not conduct a quantitative study of the implications.

Q. Did economic feasibility mean the most economic pipeline transportation?

A. No. My analysis did not compare specific gas pipeline proposals, but rather estimated the demand for pipeline capacity assuming transportation costs of $0.65 per Mcf.

Q. What happened after you provided SunShine the definition of economic feasibility?

A. SunShine conducted a two-step analysis of economic feasibility.

Q. What was the first step of the analysis, and what was the conclusion?

A. The first step was to see if part of the market was inaccessible at a cost consistent with the $0.65/Mcf definition of accessibility. SunShine concluded that the entire state was economically

accessible except for the powerplants in the Florida Keys which account for less than one percent of the state's total capacity.

Q. What was the second step of the analysis, and what was the conclusion?

A. SunShine further divided the existing oil/gas steam market of the State of Florida into four categories in order to account for differences in the economics of firm pipeline service. For example, while all markets were economically accessible using the $0.65/Mcf accessibility criterion discussed above, except plants in the Florida Keys, some might have higher costs to serve than others (all still below $0.65/Mcf) unless larger volumes of demand could be obtained.

The four categories are: (1) economic to serve/ proximate to the pipeline, (2) potentially economic to serve, (3) less economic to serve (requires greater than or equal to 200 MMcf/day of demand to be economic), and (4) not economic to serve. I then counted the amount of existing oil/gas steam capacity in each of those areas. The results are summarized in Exhibit A.

Q. How much capacity is in the economic to serve/proximate to the pipeline category?

A. Approximately 4,600 megawatts of capacity, or 33 percent of the total existing oil/gas steam capacity in the state. If SunShine were to serve one half of this capacity, the demand would be approximately 600 Mcf/day, which is about 10 percent more than the maximum proposed capacity of the SunShine pipeline in 1999. In other words, this group of capacity alone could potentially have a demand equal to the capacity of SunShine in 1999.

Q. Why did you pick 50 percent?

A. I estimated in my direct testimony that about 57 percent of existing oil/gas powerplant steam capacity in the state will demand firm gas capacity in 2000. Since these powerplants are close to the pipeline, it is reasonable to assume that SunShine would capture most, if not all, of this market. However, I want to reiterate that this is an illustrative example rather than a sophisticated analysis of competition to show what segment of the market is sufficient to justify the pipeline.

Q. How much capacity is in the potentially economic to serve category?

A. Approximately 6,200 megawatts of capacity, or 45 percent of the existing oil/gas steam powerplants in the state. If SunShine could serve one-third of

MMcf per day, which is the amount specified by SunShine as the minimum to make service to the less economic to serve area economically feasible.

If this capacity were added to the other two categories calculated above, demand for pipeline from only existing powerplants would exceed SunShine capacity by about 135 percent.

Q. Why did you pick twenty five percent?

A. This capacity is more distant than the capacity in the other two categories. I chose this number simply to illustrate the potential magnitude of demand for capacity because it is reasonable to assume that the share of the market would be lower than for the previous categories even though the cost to serve is below the $0.65 from which I estimated my demand.

Q. Please summarize your testimony with respect to the accessibility of existing oil/gas steam powerplants to the SunShine pipeline.

A. SunShine Partners have concluded that practically all existing oil/gas steam powerplants are accessible. To illustrate the size of this potential market, please note that one-half of this capacity (about 6.9 gigawatts) has a demand of about 1.8 Bcf/day or about three times the capacity

of the SunShine pipeline.

SunShine Partners have further divided existing powerplants into categories according to relative economics and proximity to the pipeline. Even if only the economic to serve/proximate to the pipeline category is accessible, one-half of this existing powerplant capacity could provide sufficient demand to subscribe the SunShine pipeline.

Section I.2 - New Powerplants

Q. Why is the accessibility of SunShine to new powerplants in Florida important?

A. New powerplants are an important part of the total demand for pipeline capacity I estimated in 2000, and an even larger portion of total demand for 2010. In the Florida Electric Power Coordinating Group (FCG) Ten-Year Plan, Florida utilities indicate that they plan to add approximately 7,100 megawatts of gas-fired powerplant capacity. Further, they plan to add some amount of capacity for which the primary fuel is not specified, which could be gas-fired.

Q. How did you assess the accessibility of new, gas-fired powerplants for 2000?

A. The first step was to look at the plans of the

electric utilities whose service territories are crossed by the SunShine pipeline route, in particular those for whom the crossing is very close to the center of their service territories: (1) Florida Power Corporation (FPC), (2) Gulf Power, and (3) Tampa Electric (TECO) (see Exhibit B).

These utilities announced that they will build 1,440 megawatts of new gas-fired powerplant capacity in the 1992 Ten-Year Plan. An additional 1,152 megawatts of Qualifying Facility (QF) capacity will be built to serve FPC and TECO for a total of 2,592 megawatts.

Q. What did you do next?

A. I reviewed the status of these plants to see whether they had made other commitments so as not to be considered as accessible to SunShine.

Q. How did you define finalized and not accessible to SunShine?

A. I reviewed the announced plans of Florida utilities for new gas-fired powerplant capacity as summarized in FCG's 1992 Ten Year Plan for the State of Florida. I assumed that any announced project in the state that was under construction, or had received the required permits and approvals from

the State of Florida, no longer had the flexibility to site near SunShine and sign up for firm capacity, and hence, was not accessible.

I also considered as accessible any project that had obtained approvals if owners had indicated they would obtain firm capacity from SunShine. For example, FPC has indicated its intention to obtain capacity from SunShine for new gas powerplants.

Q. What did you conclude?

A. 1,440 of the 2,592 megawatts of capacity, or 56 percent of the total, were accessible (see Exhibit C). If all of this new powerplant capacity were to demand pipeline capacity from SunShine, the demand would be about 245 MMcf per day by itself, or about 45 percent of the SunShine capacity in 1999.

Q. What did you do next?

A. I reviewed the announced plans of cooperatives and municipalities that are relatively close to the route of the SunShine pipeline: Orlando, Lakeland, Kissimmee, Florida Municipal Power Authority (FMPA), Gainesville, Tallahassee, and Seminole. Since these utilities are reasonably close to SunShine they may also be accessible. Further, they often site plants outside the municipalities they serve in more rural areas which might further

increase the accessibility of these plants to SunShine.

These utilities plan to bring on-line 1,406 megawatts of gas-fired capacity. 504 megawatts of this capacity is considered not accessible due to the advanced state of the project - e.g., because the plant is under construction and assumed to have already signed a gas capacity agreement. Thus, 902 megawatts of capacity, or about 65 percent of the total, is still planned and potentially accessible. If SunShine were to obtain all of this demand, pipeline demand would be 150 MMcf per day. When combined with the 245 MMcf per day estimated for FPC, TECO, and Gulf, the total demand from these new powerplants is about 72 percent of SunShine's capacity in 1999.

Q. **What did you do next?**

A. I reviewed the plans of Florida Power and Light (FP&L). The SunShine pipeline reaches to a portion of FP&L's service territory, and hence, even though SunShine's route does not cross over the heart of FP&L's service territory, new powerplants serving this utility might also be accessible to SunShine. FP&L plans to bring on-line 2,642 megawatts of capacity. 1,656 megawatts are considered not

accessible since the plants are under construction; the remaining 986 megawatts are considered accessible. If all of these plants were to demand gas from SunShine, the amount would be approximately 165 MMcf per day. If this were combined with the amount of demand estimated above for FPC, TECO, Gulf, and selected municipalities, the total would be slightly more than the 1999 capacity of SunShine.

Q. Are there other reasons why FP&L might site their plants close to SunShine?

A. Yes. First, it may be difficult to site additional powerplants in the southeastern-most part of the state due to environmental concerns at coastal and other sites. Thus, they may decide to site powerplants more in the center of the state which is closer to SunShine.

Second, FP&L, like other powerplant developers, has flexibility to site gas-fired powerplants in different locations. The process of choosing sites includes consideration of access to gas pipelines as one of the factors that enhance the suitability of sites. Thus, they may site their plants close to SunShine.

Q. Are there still other reasons why new, planned FP&L

capacity might be accessible to SunShine?

A. Yes. SunShine has estimated that given a significant demand, it considers as economically accessible all existing powerplants in the State of Florida, including FP&L's powerplants. Thus, it may be possible that an extension can be built to all new FP&L powerplants regardless of location. Further, this argument may mean that any new powerplants (e.g., even Jacksonville Electric Authority's powerplants), if they are large enough, could be reached by SunShine.

Q. **Please summarize your estimate of the amount of new powerplant capacity that is accessible to SunShine.**

A. Florida plans to bring on-line about 7,100 megawatts of new gas-fired capacity according to the 1992 FCG Ten-Year Plan. 53 percent of this capacity is accessible to the extent that the projects have not been so finalized that it is unlikely that these projects can choose SunShine. If all the accessible powerplants were served by SunShine, their demand would total more than 100 percent of SunShine's 1999 capacity.

FPC, TECO, and Gulf Power, utilities well served by the route of the pipeline, account for 37 percent of the total planned new gas fired plants, and 56

percent of this amount is accessible. If SunShine serves this demand, it would be equal to 45 percent of SunShine's 1999 capacity. Additional new powerplants are likely to also be accessible to SunShine. Other municipalities may demand another 150 MMcf/day and FP&L another 165 MMCf/day. If this occurs, total demand would equal approximately 100 percent of SunShine's capacity.

Q. Did you conduct a similar analysis for 2010?

A. No, because public utility plans do not extend that far. Instead, I assumed all powerplants coming on line between 2000 and 2010 are accessible to SunShine.

Section I.3 - Conclusions

Q. Please summarize the results of your analysis on the geographic accessibility of SunShine to the demand that you project for the state of Florida.

A. The great majority of the 2000 market for pipeline capacity in Florida associated with demand from power generators is accessible to the SunShine pipeline. Thus, my analysis is appropriate to a determination of need because it is tied to the location of SunShine.

SunShine has concluded that all existing oil/gas steam powerplants in the state are accessible.

Further, even if only half of the existing powerplants with the best economics vis-à-vis SunShine (i.e., those in the proximate category) were to demand gas pipeline capacity, the total would be equal to the 1999 capacity of the SunShine pipeline.

SunShine is also likely to be accessible to most of the planned new powerplants in Florida. Planned gas-fired capacity that is accessible to SunShine is equal to the 1999 capacity of the SunShine pipeline. Even if SunShine serves a part of this demand, and if it is combined with the accessible demand from existing oil/gas steam powerplants, the amount of demand greatly exceeds SunShine's 1999 capacity.

SECTION II - TIMING

Q. Are there other reasons why Dr. Carpenter believes that your testimony does not have a place in a market-based determination of need?

A. Yes. He asserts on page 20 that the timing of my analysis is not specifically tied to the timing of the SunShine project.

Q. What is your understanding of the timing of the SunShine project?

A. The project begins in 1995 and reaches full

capacity in 1999.

Q. For what years did you quantitatively estimate demand?

A. 2000 and 2010.

Q. Why did you analyze 2000 rather than 1999?

A. I frequently analyze demand issues in 2000 because it is the first year of Phase II of the federal acid rain program. Further, as a result of this focus, much of the data that I used in this analysis was available for 2000 rather than 1999. Finally, I was asked to estimate 2000 demand by SunShine Partners. My understanding is that SunShine asked me not to focus on near term demand since that was largely subscribed.

Q. How different would you expect a 1999 estimate to be from a 2000 estimate?

A. Not significantly different.

Q. Why do you believe that the capacity estimate for 2000 will be similar to the 1999 estimate?

A. I base my conclusion on the following considerations.

First, I believe that owners of powerplants making the switch in 2000 from oil to gas will want to ramp up gas supply and perform tests in 1999. This switch is especially likely to occur in the

1999/2000 period because federal acid rain regulations on powerplant sulfur dioxide emissions become effective for the first time for the majority of the state's powerplants on January 1, 2000. Natural gas's low sulfur dioxide emissions relative to residual fuel oil means that powerplant owners will want to use more natural gas.

Second, it is not uncommon for powerplants coming on-line in a given year to perform start-up tests in the prior year.

Third, the amount of electricity demand in 1999 will be only 2.6 percent less relative to the demand in 2000 in the scenario patterned after FCG's Ten-Year Plan.

Fourth, fuel price relationships will also only be slightly different in 1999 relative to 2000. For example, the relationship between gas and oil prices, which largely determines the relative economics between gas and oil use, will be only slightly different between 1999 and 2000.

Q. In light of this similarity between 2000 and 1999, do you agree with Dr. Carpenter's assertion that your analysis does not have a place in a market based determination of need?

A. No.

Q. How do your results for 2000 correspond to the years before 1999?

A. The degree of similarity diminishes with each year prior to 1999 until it reaches the point in 1995 and 1996 that the amount of demand may not be similar to demand in 2000.

This is the case for several reasons. First, while powerplants that want to be operating using firm gas supply in 2000 might want to do tests in 1999, they are unlikely to require testing in 1998. Second, each year earlier that the extension is made between the 2000 results, the greater is the difference in: (1) relative fuel prices, (2) demand, and (3) the share of planned new powerplants that are accessible to SunShine.

SECTION III - PIPELINE DEMAND ESTIMATE

Q. What does Dr. Carpenter say about your forecast of demand?

A. He asserts on page 22 of his testimony that I grossly overestimate demand for SunShine.

Q. Do you agree?

A. No. I estimated that there will be significant demand for pipeline capacity in 2000 from power generators and that the great majority of this demand is accessible to SunShine. I did not

grossly overestimate demand and I believe I properly addressed issues related to the uncertainty of future demand.

Q. Did Dr. Carpenter state opposition to any of the specific assumptions or estimates that you used?

A. No. For example, he does not specifically disagree with the estimates of electricity demand growth, the amount of capacity required, fuel choice for new and existing powerplants, and demand for pipeline capacity.

Q. Did Dr. Carpenter develop his own estimate of demand for pipeline capacity so that he could compare your estimate with his?

A. No. On page 8 of his deposition dated April 20, 1993, he stated that he did not conduct forecasts of demand for gas capacity.

Q. Did Dr. Carpenter state opposition to your approach?

A. Yes. Dr. Carpenter asserts that I should focus on utility plans, not aggregate estimates.

I have attempted where possible and appropriate to be consistent with utility plans. For example, my aggregate estimate of the amount of new powerplant demand is consistent overall with the estimate contained in FCG's 1992 Ten-Year Plan, and the

amount of gas-fired firm capacity is also consistent overall with the total amount of gas capacity included in FCG's Ten-Year Plan.

Q. Is it possible to be fully consistent with FCG's Ten-Year Plan?

A. No. FCG's Ten-Year Plan does not provide an estimate of firm pipeline demand. In fact, FCG's Ten-Year plan is entirely silent with respect to the amount of pipeline capacity. That is one of the main reasons that I conducted the large amount of analysis that was described in my direct testimony.

Q. Are there other reasons why it is not possible to be fully consistent with FCG's Ten-Year Plan?

A. Yes. First, the planning document also does not provide adequate information to conduct an independent economic analysis of the cost-effectiveness of alternative generation options - e.g., powerplant utilization. It is my view that independent confirmation of the reasonableness of utility plans is fully appropriate.

Second, the planning documents also do not present the results of sensitivity analysis. Dr. Carpenter asserts in his testimony on page 6 that there should be consideration of the potential for delay.

In order to analyze timing issues, an assessment of the uncertainty of demand is necessary. Further, on page 23 of his deposition, Dr. Carpenter states that his concern about my forecast includes concern about its treatment of uncertainty. Using my approach is the only way to conduct sensitivity analysis on the factors affecting demand. Sensitivity analysis is the commonly used approach to dealing with uncertainty in the level of demand. Thus, I do not understand how he could want me to rely only on the announced utility plans.

I believe it is worth restating the results of my sensitivity analysis and my treatment of uncertainty. First, in my low sensitivity case, using the lowest public forecasts of key factors affecting electricity demand which cause demand for pipeline capacity to be low, demand in 2000 is still greater than the pipeline capacity in the State even if SunShine is built. Second, my treatment of uncertainty indicates that while demand might be lower, it may also be higher than estimated. In other words, the costs to consumers of not having enough gas pipeline capacity could be even greater than estimated in the case assuming 2.6 percent annual electricity demand growth.

Since I have concluded that firm gas supply is the most cost-effective way to meet demand for generation in many cases relative to the alternatives of coal, renewables, and oil in 2000, Florida consumers will be paying more if demand for pipeline capacity is not met, and even more if the demand is not met and my high estimate turns out to be correct.

Finally, while utility plans are important, they cannot be the only guide. Dr. Carpenter himself states on pages 22 and 23 that beyond the next few years, utility plans are "tentative" and often "place-holders".

Q. Do the individual utilities' Ten-Year Plans discuss firm pipeline capacity requirements?

A. To a limited extent. The FPC Ten-Year plan discusses gas supply, but does not state the amount. The FP&L Ten-Year plan discusses gas supply, and provides estimates for the summer and winter pipeline capacity commitments. The Jacksonville Ten-Year plan mentions gas supply, but does not estimate amount. I did not find any other references in the other plans.

Even though they did not all fully address gas pipeline capacity, it does not mean they will not

purchase firm gas capacity. Furthermore, in no case did they provide adequate plant-by-plant information that would permit an independent assessment of the demand for firm gas capacity.

Q. Could you restate your views on the reasons why the owners of existing oil/gas steam powerplants will choose firm gas supply capacity in light of the lack of information in utility plans?

A. Yes. There are several reasons why utilities will demand firm gas supply for their existing oil/gas steam powerplants in 2000.

First, my forecasts indicate that residual oil prices will increase faster than natural gas prices. Residual fuel oil has cost more every year in Florida since gas was deregulated, and my forecast indicates that this cost advantage will increase.

Second, this increase does not include the additional taxes placed on oil relative to natural gas as per President Clinton's proposed plan. That is, if my forecast included these taxes, the rate of increase of residual oil prices would be even faster.

Third, environmental concerns favor use of gas. This is especially true with respect to the higher

sulfur dioxide emissions from residual fuel oil relative to gas. These emissions will be controlled in the year 2000 by new federal acid rain controls.

Q. Has FGT provided information about demand for gas capacity?

A. Yes. In FGT's Application for a Certificate of Public Convenience and Necessity and for Abandonment Authorization, Volume 1 - Application and Exhibits, filed November 15, 1991, FGT states on page 16, "various factors have led FGT to conclude that there will be a strong market for natural gas in Florida in the mid to late 1990s. Foremost, is an expected growth in the demand for electricity and in the demand for gas as a fuel for electric generation. Separately, the existing Firm Service Log, with 5.5 Bcf per day of capacity requested, also strongly suggests that there is a large unfulfilled market for natural gas".

While I found no numerical estimate of demand for 2000 that I could compare to mine, and while I did not review the details of the mentioned log, I generally find these statements supportive of my own estimate.

SECTION IV - FERC ORDER 636

Q. **What does Dr. Carpenter assert about Order 636?**

A. On page 28 of his testimony, Dr. Carpenter asserts that Order 636 substantially lessens the benefits associated with SunShine's entering the market.

Q. **Do you agree with this statement?**

A. No. Dr. Carpenter presents no evidence that Order 636 will diminish the benefits of additional capacity, whether it is SunShine's or someone else's. Order 636 facilitates the brokering of existing pipeline capacity by gas customers. However, the principal problem in the Florida market is not the allocation of capacity, but the lack of pipeline capacity. For example, as discussed in my late-filed Exhibit #6, 1991 utilization of the FGT pipeline was 96 percent using average monthly demand as an estimate of utilization.

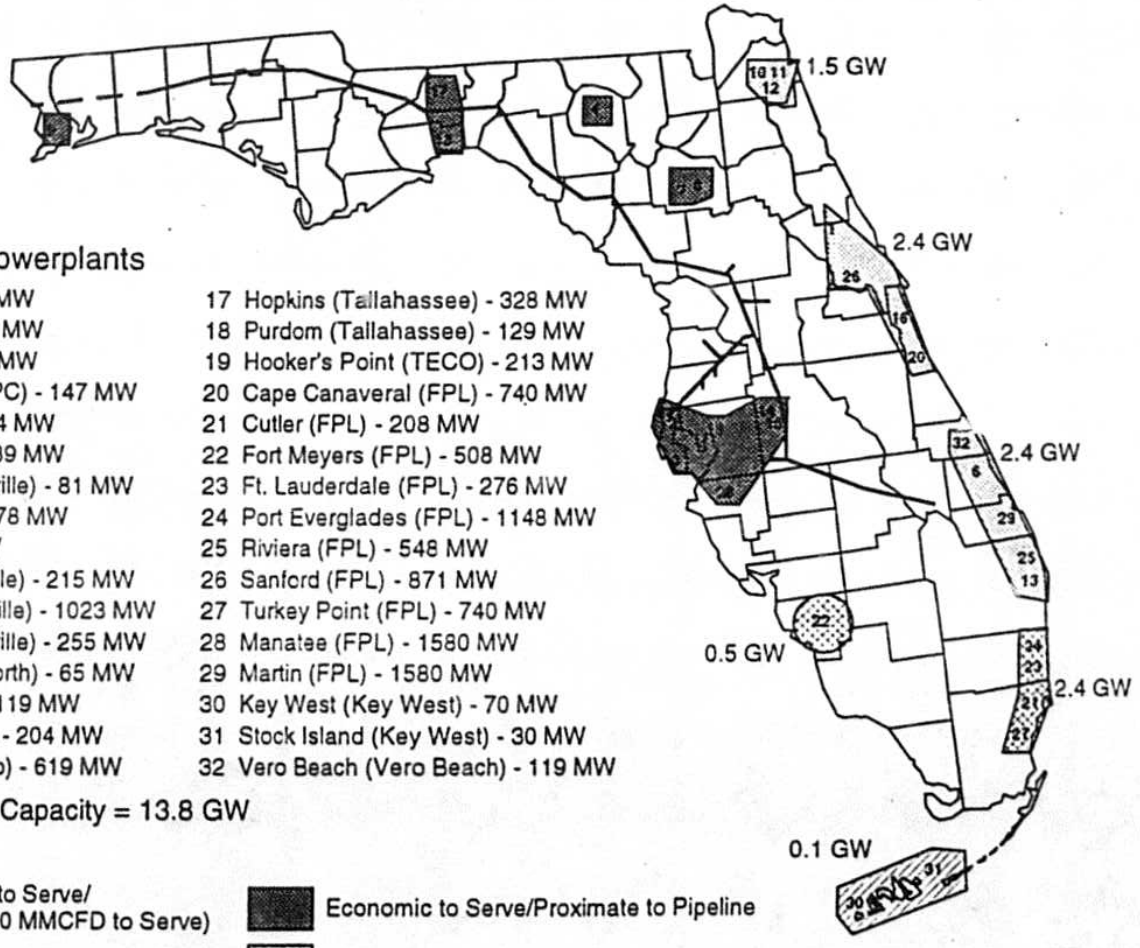
Furthermore, in Florida, an increasingly large share of the total customers will be electric utilities, and hence, an increasingly large share of customers will simultaneously demand gas pipeline capacity - e.g., during high electricity demand periods. Unless total capacity is increased, there will not be capacity available when it is needed, and powerplants will then have

to use more costly oil.

Q. Does this complete your prepared rebuttal testimony?

A. Yes.

Sunshine Pipeline Route



Oil/Gas Steam Powerplants

1 Turner (FPC) - 145 MW
2 Higgins (FPC) - 123 MW
3 Bartow (FPC) - 442 MW
4 Suwannee River (FPC) - 147 MW
5 Anclote (FPC) - 1034 MW
6 King (Fort Pierce) - 89 MW
7 Deerhaven (Gainesville) - 81 MW
8 Kelly (Gainesville) - 78 MW
9 Crist (GPC) - 87 MW
10 Kennedy (Jacksonville) - 215 MW
11 Northside (Jacksonville) - 1023 MW
12 Southside (Jacksonville) - 255 MW
13 Tom Smith (Lake Worth) - 65 MW
14 Larsen (Lakeland) - 119 MW
15 McIntosh (Lakeland) - 204 MW
16 Indian River (Orlando) - 619 MW
17 Hopkins (Tallahassee) - 328 MW
18 Purdom (Tallahassee) - 129 MW
19 Hooker's Point (TECO) - 213 MW
20 Cape Canaveral (FPL) - 740 MW
21 Cutler (FPL) - 208 MW
22 Fort Meyers (FPL) - 508 MW
23 Ft. Lauderdale (FPL) - 276 MW
24 Port Everglades (FPL) - 1148 MW
25 Riviera (FPL) - 548 MW
26 Sanford (FPL) - 871 MW
27 Turkey Point (FPL) - 740 MW
28 Manatee (FPL) - 1580 MW
29 Martin (FPL) - 1580 MW
30 Key West (Key West) - 70 MW
31 Stock Island (Key West) - 30 MW
32 Vero Beach (Vero Beach) - 119 MW

Total Oil/Gas Steam Capacity = 13.8 GW

Less Economic to Serve/ (Requires >= 200 MMCFD to Serve)
Economic to Serve/Proximate to Pipeline
Potentially Economic to Serve
Not Economic to Serve

Note: Alabama Electric Cooperative has 44 MW of oil/gas steam capacity.

Sources: 1992 FCG Ten-Year Plan, 1992 SERC Report, ICF Resources CUIS.

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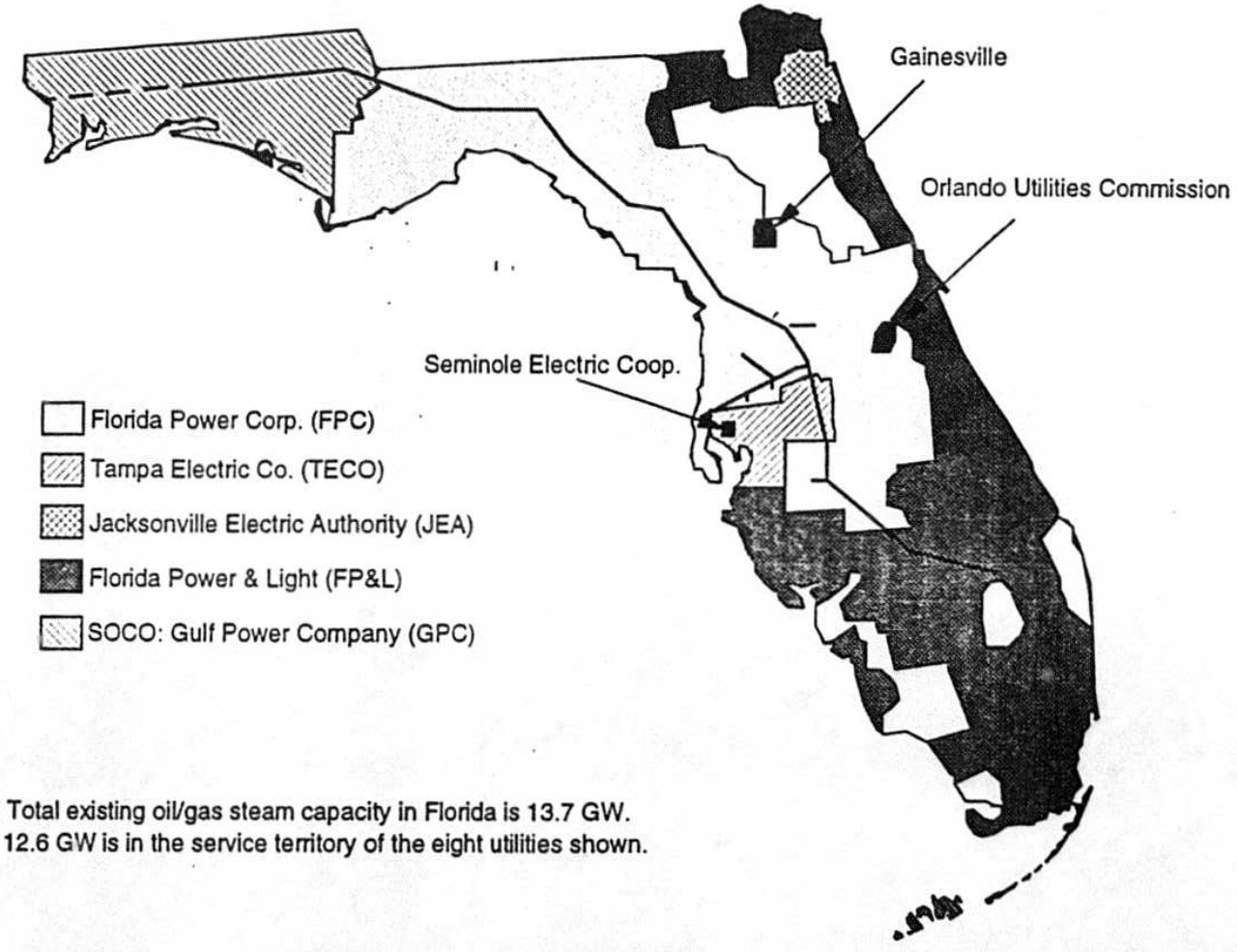
Sunshine Pipeline Route and Utility Service Territories



Note: Total existing oil/gas steam capacity in Florida is 13.7 GW.
12.6 GW is in the service territory of the eight utilities shown.

sib/anr/056790010/exhibitb.drw

1992 FCG 10-Year Plan New Capacity Additions

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Utility	Plant	Location	Winter Capacity (MW)	Unit Type	Primary Fuel	Alternate Fuel	On Line Date	Under Construction?	Certification Complete?	Permitting Approved?
* Vero Beach	Municipal Plant 5	Indian River	43	GT	Gas	#2	1/93	Yes	Yes	Yes
* Lakeland	Larsen 8	Polk	86	CT	Gas	#2	5/93	Yes	Yes	Yes
* FMPA	Indian River CT C	Brevard	27	GT	Gas	#2	6/93	Yes	Yes	Yes
* Orlando	Indian River CT C	Brevard	102	GT	Gas	#2	6/93	Yes	Yes	Yes
* Orlando	Indian River CT D	Brevard	102	GT	Gas	#2	10/93	Yes	Yes	Yes
* FMPA	Indian River CT D	Brevard	27	GT	Gas	#2	10/93			
Total 1992			387							
* FP&L	Fort Lauderdale 4	Broward	336	CC	Gas	#2	1/94	Yes	Yes	Yes
* FP&L	Fort Lauderdale 5	Broward	336	CC	Gas	#2	1/94	Yes	Yes	Yes
* Tampa	QF - Hardee Station(a)	Hardee	75	CC	Gas	#2	1/94	Yes	G,FB	Yes
* Tampa	QF - Hardee Station(a)	Hardee	220	CT	Gas	#2	1/94	Yes	G,FB	Yes
* Tampa	QF - Pasco Cogen	Pasco	100	COG	Gas		4/94	No	NO,FB	
* FPC	QF - Pasco Cogen	Pasco	102	COG	Gas	#2	10/94	No	G,FB	
* FPC	QF - Lake Cogen	Lake	102	COG	Gas	#2	10/94	No	G,FB	
* Kissimmee	Cane Island 1	Osceola	20	GT	Gas	#2	10/94		FB	
* FMPA	Cane Island 1	Osceola	20	GT	Gas	#2	10/94		FB	
Total 1993			1,311							
* FP&L	Martin 3	Martin	492	CC	Gas	#2	1/95	Yes	Yes	Yes
FP&L	QF - Merritt Sq Mall 1	Brevard	2	COG	Gas		1/95	No	NO	
* FPC	QF - Orlando Cogen	Orlando	72	COG	Gas	#2	1/95	No	G,FB	
AEC	McWilliams 4	N/A	100	CCT	Gas		6/95			
* FPC	QF - El Dorado	Polk	104	COG	Gas	#2	6/95	No	G,FB	
* FPC	QF - Mulberry	Polk	72	COG	Gas	#2	6/95	No	G,FB	
Total 1994			842							
* FP&L	Martin 4	Martin	492	CC	Gas	#2	1/96	Yes	Yes	Yes
* FMPA	Cane Island 2	Osceola	60	CC	Gas	#2	1/96		FB	
* Kissimmee	Cane Island 2	Osceola	60	CC	Gas	#2	1/96		FB	
* FPC	QF - General Peat 2	Highlands	52	SPP	Gas	#2	1/96	No	G,FB	
* FPC	QF - General Peat 1	Highlands	52	SPP	Gas	#2	1/96	No	G,FB	
* FPC	QF - General Peat 3	Highlands	52	SPP	Gas	#2	1/96	No	G,FB	
* FPC	QF - Panda Kathleen	Polk	75	COG	Gas	#2	1/96	No	G,FB	
Total 1995			843							
Seminole	Unknown 1	Hardee	75	GT	Gas	#2	1/97		No FB	
* FPC	QF - CFR-Biogen	Polk	74	COG	Gas	#2	1/97	No	G,FB	
Total 1996			149							
Total 1997			0							
AEC	CT 1	N/A	75	CT	Gas		1/98			
AEC	CT 2	N/A	75	CT	Gas		1/98			

1992 FCG 10-Year Plan New Capacity Additions

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Utility	Plant	Location	Winter Capacity (MW)	Unit Type	Primary Fuel	Alternate Fuel	On-Line Date	Under Construction?	Certification Complete?	Permitting Approved?
Gainesville	Unknown GT 1	Alachua	35	GT	Gas	#2	6/98			
Tallahassee	Hopkins GT-3	Leon	69	GT	Gas	#2	6/98			
FPC	Combined Cycle 1	Polk	235	CC	Gas	#2	11/98	No	No (b)	No (b)
Total 1998			489							
AEC	CT 3	N/A	75	CT	Gas		1/99			
Seminole	Unknown 2	Hardee	220	CC	Gas	#2	1/99		No FS	
Seminole	Unknown 3	Hardee	220	CC	Gas	#2	1/99		No FS	
Gainesville	Unknown GT2	Alachua	35	GT	Gas	#2	6/99			
FPC	Combined Cycle 2	Polk	235	CC	Gas	#2	11/99	No	No (b)	No (b)
FPC	Combined Cycle 3	Polk	235	CC	Gas	#2	11/99	No	No (c)	No (c)
Total 1999			1,020							
AEC	CT 4	N/A	75	CT	Gas		1/00			
FP&L	Martin 5	Martin	492	CC	Gas		1/00	No	No	No
Tampa	Polk 2: CT-2A	Polk	92	CT	Gas	#2	1/00	No	No	No
Gainesville	Unknown HRSG 1	N/A	33	ST	Gas	#2	6/00			
Tallahassee	Purdom 1	Wakulla	109	CC	Gas	#2	6/00			
FPC	Combined Cycle 4	Polk	235	CC	Gas	#2	11/00	No	No (c)	No (c)
Total 2000			1,036							
FP&L	Martin 6	Martin	492	CC	Gas		1/01	No (d)	No	No
Lakeland	Unknown	Polk	86	CC	Gas	#2	1/01			
Tampa	Polk 2: CT-2B	Polk	92	CT	Gas	#2	1/01	No	No	No
Tallahassee	Fuel Cell Sub 18	Leon	7	FC	Gas		6/01			
Tallahassee	Fuel Cell Sub 17	Leon	7	FC	Gas		6/01			
Tallahassee	Fuel Cell Sub 4	Leon	6	FC	Gas		6/01			
Total 2001			690							
TOTAL			6,767							
GPC	Scholz A	Jackson	79	CT	Gas	#2	5/95	No	No	No
GPC	Scholz B	Jackson	79	CT	Gas	#2	5/96	No	No	No
GPC	Peaking Unit	N/A	79	CT	Gas	#2	5/98	No	No	No
GPC	Peaking Unit	N/A	79	CT	Gas	#2	5/00	No	No	No
GPC TOTAL			316							
TOTAL W/ GPC			7,083							

(a) Not a qualifying facility; purchases are from a non-utility generating source.
(b) Units 1 & 2 received need approval, and licensing/permitting are underway; entered LT agreement with Coastal Corp. to provide natural gas by 1998 through SunShine pipeline.
(c) Units 3 & 4 did not receive need approval.
(d) FP&L's 1992 10-Year Plan indicates construction is underway; however, needs to be verified since Martin 5 is not under construction.

Utility	Plant	Location	Winter Capacity (MW)	Unit Type	Primary Fuel	Alternate Fuel	On-Line Date	Under Construction?	Certification Complete?	Permitting Approved?

* Indicates plants or QFs that are not accessible.

C - Under signed contract for the delivery of energy and/or capacity to the utility; financing not obtained; and not under construction.

NC - Not under signed contract for the delivery of energy and/or capacity to the utility; discussions on-going.

FS - Signed fuel supply agreement.

SOURCE: 1992 FCG Ten-Year Plan, "Electricity Supply & Demand 1992-2001", June 1992 (NERC Report), utilities' recent 10-Year Plans.