BEFORE THE FLORIDA PUBLIC SERVICE COMMISSION

In re: Petition to determine need for proposed electrical power plant in St. marks, Wakulla County, by City of Tallahassee. DOCKET NO. 961512-EM ORDER NO. PSC-97-0659-FOF-EM ISSUED: June 9, 1997

The following Commissioners participated in the disposition of this matter:

JULIA L. JOHNSON, Chairman SUSAN F. CLARK JOE GARCIA

ORDER GRANTING PETITION FOR DETERMINATION OF NEED

BY THE COMMISSION:

On December 20, 1996, the City of Tallahassee (City) filed a Petition to Determine Need for a 250 megawatt (MW) combined cycle generating unit at the existing Purdom site located in St. Marks, Florida. This unit will be fueled by natural gas and is expected to be placed into service by May 15, 2000. Related facilities of the proposed plant include the reconductoring of two existing 115 kilovolt (kV) transmission lines connecting the Purdom site to the City's load center, an upgrade to the existing natural gas metering station, the construction of a waste treatment plant to allow the proposed unit to use treated sewage effluent from the city of St. Marks, and the possible addition of four miles of gas transmission pipeline.

The Legal Environmental Assistance Foundation (LEAF), Enpower, Inc. (Enpower), and LS Power LLC (LS Power) were granted leave to intervene in this proceeding. LEAF filed a Notice of Withdrawal from this proceeding on March 21, 1997. A hearing was held on April 3-4, 1997. Following the hearing, the parties filed post hearing statements.

The procedural aspects of the case are governed by the provisions of Chapter 120, Florida Statutes, and Chapter 25-22, Florida Administrative Code. The substantive aspects of this case are governed by Section 403.519, Florida Statutes, which contains

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the following five areas for consideration by the Commission in determining the need for an electrical power plant: (1) the need for electric system reliability and integrity; (2) the need for adequate electricity at reasonable cost; (3) whether the proposed plant is the most cost-effective alternative available; (4) conservation measures taken by or reasonably available to the applicant which might mitigate the need for the proposed power plant; and (5) other matters within the Commission's jurisdiction which it deems relevant.

SUMMARY OF DECISION

We find that the City of Tallahassee's petition for determination of need for a 250 MW natural gas-fired combined cycle unit shall be granted. The City's petition for determination of need meets the statutory requirements of Section 403.519, Florida Statutes. As a result of the expiration of the City's two purchase power contracts, the City has a need for a minimum of 88 MW of capacity beginning in the year 2000. The City conducted a Request for Proposal process which identifies the City's self-build proposal (the Purdom Unit 8 project) as the most cost-effective alternative available to the City. The City Commission has ordered its staff to conduct a market test of short-term purchased power alternatives. If the market test identifies a more cost-effective alternative, the City should delay construction of Purdom Unit 8.

I. NEED FOR CAPACITY

We find that the City does have a reliability need for 88 MW of capacity in the year 2000, as a result of the expiration of the City's purchase power contract with Southern Company for 75 MW. The need for capacity is further impacted by the expiration of the City's contract with Entergy for 25 MW in the year 2002.

In order to determine whether it needs more capacity, the City used a capacity reserve margin criteria of 17% of forecasted peak system summer demand based on an assisted loss of load probability (LOLP) of 0.1 days per year. We find that this criteria is appropriate.

Prior to June 1995, the City used a 20% reserve margin as its reliability criteria. In 1995, the City contracted with R.W. Beck to perform a system reliability study. (EXH 18, p. 1) This system

reliability study used the industry guideline of a LOLP of 0.1 days per year. The study indicated that a 0.1 LOLP could be achieved by maintaining capacity reserves of 17% above forecasted peak system summer demand. This is consistent with industry guidelines, regional reliability requirements, and the reliability criteria used by other municipal utilities in the state. (EXH 2, p. 95)

The forced outage rates of the City's generating units' are higher, on average, than the industry standard. However, the City has initiated a corrective maintenance program to reduce forced outage rates. (EXH 18, p. 1) Also, forced outage rates reported in the need study were overstated due to several bookkeeping errors. The combination of the new maintenance programs and the bookkeeping corrections has resulted in forced outage rates which, according to the City, are significantly lower than those reported in the need study. (TR 434) In recognition of these improvements, R.W. Beck set the City's forced outage rates equal to the industry standard in the system reliability study. (TR 204) The assumption regarding forced outage rates in the City's reliability study appears reasonable. If the City's generating units' forced outage rates are higher than the industry standard in the future, the capacity reserves necessary to achieve the required 0.1 LOLP could be higher than 17%.

We find that the load forecast used by the City of Tallahassee to determine its need for a 250 MW unit is reasonable for planning purposes. The City's load forecast includes separate summer and winter peak demand models developed by R.W. Beck. These models include variables such as maximum/minimum temperatures, air conditioning/heating saturation rates, the residential price of electricity, and the total number of residential customers. These variables represent reasonable components of a load forecast model. Furthermore, the projected growth rates in peak demand are consistent with historical growth patterns. The City used historical data which is more than seven years old in its methodology that was used to produce the load forecast (Tr 367-369; EXH 26; EXH 28), however, the difference in values using more recent data yielded only minor differences from the City's forecast.

The City has a reliability need for additional capacity in the year 2000, but not a need for the full 250 MW of additional capacity expected to be supplied by the proposed Purdom Unit 8. The minimum amount of capacity the City needs to maintain a 17%

summer reserve margin is 88 MW in the year 2000 and increases to 187 MW in the year 2005. (EXH 2, p. 29)

The primary factor driving the City's forecasted need for capacity is the loss of 100 MW of firm capacity purchases -- 75 MW from Southern Company ending in the year 2000, and 25 MW from Entergy ending in the year 2002. By its own admission, the City is not expected to need the full 250 MW until the year 2007 (TR 374), but the City argues that it has an "economic" need for 250 MW of capacity in the year 2000.

Section 403.519, Florida Statutes, requires the Commission to consider conservation measures taken by or reasonably available to the applicant when deciding whether the proposed plant is needed. We find that there are no conservation measures reasonably available to the City of Tallahassee which might mitigate the need for the proposed combined cycle unit.

The City's 1996 DSM Plan, filed with the Commission on March 1, 1996 in Docket No. 950448-EG and approved by Order No. PSC-96-0716-FOF-EG, issued May 28, 1996, contains five residential programs and five commercial programs. The City's DSM strategy is to reduce electric demand, predominately winter peak demand, and energy consumption primarily through natural annual Low-interest loans are offered to substitution programs. residential and commercial customers for the installation of more efficient electric and natural gas-fired equipment. The City also provides energy audits, energy information, and a residential lowincome ceiling insulation program. The City's DSM programs are expected to reduce peak demand by an additional 7.9 MW (summer) and 23.2 MW (winter) by the year 2000, the in-service date of Purdom Unit 8. (TR 122; EXH 2, pp. 69-79) The savings of these programs are already included in determining the City's need for a minimum of 88 MW of capacity in the year 2000.

We believe that the City has adequately demonstrated that it does have a need for additional capacity, which cannot be mitigated by reasonably available conservation measures. With respect the City's argument that it has an economic need for 250 MW, we note that it is not unusual for a utility to grow into the capacity of a large generating unit. In addition, as discussed in the section on cost-effectiveness, constructing the proposed combined cycle unit in separate stages to better match the City's capacity needs appears to be more costly than building the unit in one stage.

II. COST-EFFECTIVENESS

Section 403.519, Florida Statutes, requires that we take into account whether the proposed plant is the most cost-effective alternative available. Therefore, when a utility identifies a need for additional capacity, it should seek out all potential alternatives to assure that the need is met in the most cost-effective manner possible.

Prior to issuing the Request for Proposals (RFP), the City began the process of screening various generating technologies and other resources for evaluation in Integrated Resource Planning (IRP) studies. As discussed below, we reviewed the City's IRP studies and conclude that the City has adequately explored alternative generating technologies to determine the technology which would best meet its need for power.

In 1993, the City began an initial technology screening, which resulted in a short-list of viable supply-side options for the City's system. The four classes of technologies considered included coal-fueled, oil/gas fueled, renewable and repowered existing generation. Coal-fueled options were eliminated due to "uncertain operating economics compared to natural gas, permitting risk, and the financial risks associated with the relatively higher capital costs." (EXH 2, pp. 23-24) The screening process also eliminated municipal solid waste generation and photovoltaics due to the high cost of these technologies. The resource options which the City considered to be viable generating alternatives as a result of its initial technology screening included several generic oil/gas-fueled resource options, the repowering of units at the City's Purdom site, and fuel cells. While the capital cost of fuel cells is currently high, the City believed it was appropriate to retain fuel cells because technological improvements may reduce the cost of fuel cells in the future. (EXH 2, p. 24)

These technology options were then used in a Benchmarking IRP study to determine if the IRP process was an acceptable planning tool for the City. Upon finding the IRP process acceptable, the City began an Initial IRP study in February 1995 which included both the supply-side options which were considered viable alternatives and several demand-side options. The generic supply-side and repowering technology options were updated to reflect current information. The supply-side technologies used in the Initial IRP study included several generic oil/gas-fueled options, the repowering of Hopkins Unit 1, and a wood-burning unit. (EXH 2, pp. 25-27) The Initial IRP study resulted in a least cost plan which selected a high-efficiency combined-cycle unit as the next

generating unit, combined with additional demand-side management programs, the repowering of Hopkins Unit 1 in 2004 and a combustion turbine in 2011. The results of this Initial IRP study were used in the development of the City's RFP. (EXH 2, p. 26)

The City performed a final IRP study in 1996 with updated data, including the replacement of some of the generic options with the short-listed RFP proposals. To ensure that coal-fueled supply options had been appropriately excluded by the initial technology screening, coal-fueled options were further reviewed in the 1996 IRP study. The results of this study demonstrated that the potential savings attributed to a coal-fueled option under a high natural gas price scenario are low relative to the risks associated with the high capital costs. (EXH 2 pp. 52-53)

We also believe that the City has adequately explored and evaluated the availability of non-utility generation, including cogeneration. The City did not include any generic cogeneration in its IRP for evaluation (TR 181), however, the City has had ongoing discussions with some of its largest customers regarding cogeneration and retail wheeling. (TR 225) Witness Brinkworth testified that the City has also talked with these large customers about retail rates and service options that might result in retaining those customers on the City's system. (TR 181) Mr. Brinkworth also stated that the City would not encourage a customer to leave its system, even though a loss of load sensitivity in the City's risk analysis shows a reduction in the City's revenue requirements. (TR 182) The City's hesitancy to lose a large customer probably stems from the fact that while revenue requirements may be reduced, rates to all customers would increase. There is no evidence in the record, however, that indicates any cost-effective self-service generation alternatives are available to the City.

On August 31, 1995, the City released its RFP for the Supply of Electric Capacity and Energy. The RFP solicited proposals for purchased power and/or generating projects in amounts from 10 MW to 250 MW. At the October 16, 1995 due date, the City received five proposals from external suppliers along with two alternatives which were developed by the City. The City evaluated each of these proposals and identified the Purdom Unit 8 proposal developed by the self-build team to be the most cost-effective.

The City's RFP gave bidders the option to submit a fixed-price, guaranteed bid or a bid which passed through fuel costs to the City's ratepayers. Constellation/Enpower, LS Power, and Applied Energy Services (AES) all bid fixed-price proposals for 250 MW class combined cycle units. These external bids were evaluated

against the City's Purdom Unit 8 self-build option, using a pass-through of fuel costs. LS Power subsequently withdrew its proposal from further consideration. Exhibit 25 contains the annual and cumulative present worth revenue requirements (PWRR) of the AES, Constellation/Enpower, and Purdom Unit 8 proposals. These values include additional transmission costs needed to facilitate the City's ability to accept the capacity from each project. The 20-year, cumulative PWRR of each proposal, are shown below:

Purdom Unit 8: \$530,627,000
AES: \$622,298,000
Constellation/Enpower: \$693,728,000

The results of the PWRR analysis clearly indicate that Purdom Unit 8 is the most cost effective alternative of the RFP responses. However, the parties have expressed several concerns relating to the City's self-build proposal, the bid evaluation process, and the RFP requirements which we address below.

Enpower alleges the City's self-build project had an unfair advantage because it relied on natural gas prices which differed from those contained in the RFP. (TR 513) The natural gas prices contained in each proposal were made in the same time frame, reflecting each supplier's perception of the natural gas market. Constellation/Enpower and LS Power made the decision to bid a fixed-price, guaranteed contract in the hopes that risk aversion would favor their proposals.

To test Enpower's allegation that the City gained an unfair advantage by its non-use of the RFP natural gas prices, the City was requested to re-evaluate the cost of Purdom Unit 8 using RFP natural gas prices. This re-evaluation, also contained in Exhibit 25, resulted in a 20-year cumulative PWRR cost of \$640,289,000. It should be noted that, both on an annual and cumulative basis, Purdom Unit 8 with RFP gas prices was still more cost-effective than Constellation/Enpower's original bid.

After the City completed its cost-effectiveness analysis, R.W. Beck reviewed the City's evaluation. R.W. Beck recommended some minor adjustments to the City's calculations, including the addition of omitted pipeline usage and compressor charges, the correction (reduction) of the City's debt service value, and an increase in Purdom 8's forecasted O&M costs. The net sum of these adjustments was an increase in Purdom Unit 8's cumulative PWRR cost by approximately \$7 million. (EXH 18, p. 37; TR 198) The City agreed with these adjustments, and we find that they are appropriate. These adjustments do not change the ranking order of the projects.

Since the City's self-build proposal is not a fixed-price bid, the remaining question is whether the self-build option is sufficiently lower than the next lowest bid to withstand sensitivities. The City analyzed the impact of higher than forecasted natural gas prices, variations in economic assumptions, and the loss of 50 MW of load. Under each of these variations, Purdom Unit 8 was still the most cost-effective alternative. (EXH 2, p. 47; TR 329-330) Only if all of these risks and sensitivities occurred at once would Purdom Unit 8 cost more than the next lowest bid, AES. This event is unlikely.

The City was requested to analyze the cost-effectiveness of phasing the construction of Purdom Unit 8 to better match the City's need requirements. The analysis showed that phased construction cost \$29 million more than the full installation of Purdom Unit 8 in 2000. (EXH 24, pp. 26-27) System fuel benefits from the early retirement of Purdom Units 5 and 6 outweigh the upfront capital cost of full construction. The City's analysis appears reasonable.

Enpower also alleged the City revised its bid but did not allow external bidders to revise and improve their proposals throughout the evaluation process. Since all three external bidders submitted fixed-price proposals, the City's decision to not consider subsequent, unsolicited proposals by Enpower after the RFP had closed appears to be reasonable. The City added the costs identified by R.W. Beck as appropriate and updated its fuel forecast projections. These costs, however, did not affect the cost-effectiveness ranking of the competing alternatives.

A RFP process must have closure at some time. The City's RFP required bids to be submitted by October 27, 1995. (EXH 4) However, Constellation/Enpower continued to submit revised bids long after Although the City did not accept these subsequent this date. revisions as legitimate bids, it evaluated them anyway as a sanity Enpower took over sole possession of Constellation's project after it withdrew from the process on April 9, 1996. (EXH 40, pp. 16-17; TR 621). Only the last price change submitted by Enpower appeared to cost less, by approximately \$5 million on a cumulative PWRR basis, than Purdom Unit 8. (TR 623) However, Enpower could not supply the annual revenue requirements associated with its subsequent non-solicited bids. Furthermore, Enpower did not provide any supporting documentation for its claims, and it incorrectly assumed 100% debt, tax-free financing (TR 569-572) and exemption from ad valorem taxes. (TR 572) These assumptions are completely incorrect for a private sector project.

Enpower asserts that the bid evaluation process did not consistently treat the factors of risk, capital costs, financing costs, fuel costs and transmission system reliability when compared to the City's self-build proposal. As previously stated, Enpower submitted a fixed-price, guaranteed proposal in the hope that risk aversion would favor its project. However, the City performed several sensitivities to its base case proposal in an effort to assess the risk associated with the City's self-build proposal. We believe that the City correctly and consistently evaluated the City's self build proposal and the external bids as filed. (EX 47)

Enpower expressed concern with the RFP requirement that all external proposals located outside the City's service territory must secure their own transmission service. Mr. Brinkworth testified that the City made this decision to ensure that its transmission connections with Florida Power Corporation (FPC) and Southern Company remained available to meet contingencies such as loss of the City's largest unit. (TR 189-190) By the year 2000, the City's import capability from the Southern Company is expected to decrease from 225 MW to 175 MW. Since Enpower, LS Power, and AES all proposed projects in the 250 MW range, their use of the City's transfer capability would have precluded the City from buying emergency power if needed. Thus, we believe that this RFP requirement addressed a legitimate strategic concern, and it was reasonable for the City to chose to retain its transfer capability to serve its customers in the event of a loss of a large generating unit.

Enpower states that other onerous bid requirements resulted in a poor RFP response, in that only five external bids were received by the City. Enpower's witness Smith testified that approximately 40 companies attended the City's pre-bid conference, and 30 of these firms were there to sell system power. (TR 530) It is not clear how Mr. Smith was able to conclude that 30 of these companies were there to sell system power. The small number of proposals submitted is not, in and of itself, an indication that the RFP was flawed or unfair. City witness Wailes pointed out that the City has inherent advantages over privately developed projects with its tax-exempt financing and also pointed out the fact that the City has an existing power plant site with existing infrastructure. (TR 719)

Enpower and LS Power alleged that the RFP's requirement that resource proposals must provide for a minimum of 11 years may have eliminated consideration of viable short-term options to the construction of Purdom Unit 8. A similar concern was expressed during the RFP drafting process by a City employee. (EXH 23)

The City cites two primary reasons for the 11-year term requirement in its RFP: (1) ensures "stability" of the City's resource portfolio, because the City believes that potential volatility of purchased power markets may expose the City to "undue power supply uncertainty" during the 11-year period (TR 156, 165, 179); and (2) coincides with the retirement of Purdom Unit 7. (TR 618, 718)

The City's belief that purchased power markets are uncertain was discussed by the City's witness Brinkworth who testified that the City performed an informal analysis of the availability of purchase power and concluded that capacity margins in the southeast will decline after the year 2000. This conclusion was based partially on the most recent Southeastern Reliability Council (SERC) IE-411 report which gives existing and proposed capacity by utility in the southeast for a ten-year period. (TR 642) Mr. Brinkworth conjectured that purchased power could therefore be more expensive because it would be based on the cost of more expensive units than the ones that currently represent surplus capacity. (TR 642) Although this is speculative, it demonstrates that the City gave some consideration to regional availability and price of purchased power over the next several years.

During the RFP process, the City issued an RFP addendum which allowed potential bidders to submit purchased power bids lasting less than 11 years. (EXH 4, TR 70) For any bid that did not meet the 11-year requirement, the City proposed to add "generic supply options" to the bid until that particular resource plan meet the eleven year requirement. (EXH 2, p.39) We believe this is appropriate. The City will need resources beyond the short-term purchase, therefore, short-term solutions cannot be looked at in a vacuum.

In addition, the City analyzed 15 combinations of simulated purchased power alternatives. (EXH 29, pp. 1-2) Four of these cases represented short-term solutions. The results indicate that Purdom Unit 8 would be more cost-effective than these simulated cases.

At the hearing, Enpower offered a copy of a short term purchase agreement between Florida Municipal Power Authority (FMPA) and Tampa Electric Company (TECO) as evidence that there are cheaper purchased power alternatives than Purdom Unit 8. (EXH 48, TR 656) The agreement is dated October 2, 1996, so it represents recent market conditions. Mr. Brinkworth explained why this contract actually represented more costly power than the City's own Purdom Unit 8 proposal. (TR 650-660) On a comparable basis, the cost for Purdom Unit 8 is \$25.90 per megawatt-hour and that for the

FMPA-TECO deal is \$30.73. (TR 660) We agree that Mr. Brinkworth's comparison is appropriate.

While it is true that the RFP itself did not comprehensively test the short-term purchased power market, we believe the record in this case shows that the City has adequately addressed the short-term purchase issue. Since the short-term market can change quickly, a prudent utility would continue to test the market before committing to build a generating unit. The City Commission has recognized this concern and as a result, has ordered the City staff to conduct a market-test of short-term purchase power opportunities before committing construction funds for Purdom Unit 8. (TR 640-641) If a more cost-effective alternative is identified, the City will delay the construction of Purdom Unit 8. However, based on the record in this proceeding, we find that Purdom Unit 8 appears to be the most cost-effective alternative available to the City. The record reflects that the allegations and criticisms lodged by Enpower and LS Power are without merit.

III. PROJECT-SPECIFIC CRITERIA

We find that the information provided by the City on the site, design and engineering characteristics of Purdom Unit 8 was sufficient to permit a meaningful evaluation of the proposal. In addition, we find that the City appropriately considered whether any associated facilities and transmission improvements are required and included their costs in the proposal. As discussed below, the Purdom Unit 8 proposal contains specific details on each component of the plant, and the associated facilities to allow us make an informed decision.

Purdom Unit 8 will consist of a General Electric combustion turbine, heat recovery steam generator (HRSG), and steam turbine generator. This combined cycle technology is highly efficient because it recovers the exhaust heat from the combustion turbine and uses that heat to generate steam for the steam turbine. Purdom Unit 8 has an average efficiency which is approximately 40% better than the City's existing generating units. Purdom Unit 8 will be constructed under a fixed-price turn-key contract with Raytheon, Inc. (TR 406, 409, 418) The associated facilities are: the addition of a treated sewage effluent line associated with the zero-discharge water treatment system; the reconductoring of two existing transmission lines; and, a possible upgrade to a natural gas line.

The Engineering, Procurement and Construction (EPC) contract price for Purdom Unit 8 is \$98,889,000. (TR 410) The contract includes guarantees for heat rate, output and schedule, and provides for liquidated damages of up to \$29 million, or 30% of the contract price, if Raytheon fails to meet these guarantees. Under the fixed-price turn-key contract, approximately 91% of the initial capital costs are fixed and guaranteed. The contract provides for bonuses if Raytheon performs better than expected on the heat rate (lower than 7,020 BTU/kWh) and on the schedule. These bonuses are capped at \$875,000. (TR 411-412) The total capital cost of the Purdom Unit 8 project, including contingencies, financing costs and transmission line upgrades, is approximately \$122,659,572, or \$489/kW. (EXH 2, p. 102)

The total capital cost of Purdom Unit 8 includes \$23,770,572 of costs that are not included in the guaranteed-price EPC contract with Raytheon and are subject to variations. These costs include the following:

Permitting Costs: \$2,750,000

During the initial design of the self-build alternative, the City reviewed the applicable land development codes and building requirements for the St. Marks area, which included the flood ordinances for the City of St. Marks and the appropriate building codes. These flood ordinances and building codes are based on a 100-year flood plain study. (TR 421, 428)

Gas Transportation Upgrade Costs: \$1,350,000

Depending upon the final design of the project, some upgrades may be required to the Florida Gas Transmission (FGT) metering station located at the Purdom facility and the St. Mark lateral. (TR 409, 429) These upgrades are required due to the increased natural gas flow requirements. The costs of this upgrade, along with the relocation of the metering and the regulating station on the site, were estimated at \$1,350,000. (EXH 2, p. 102, TR 429)

Spare Parts Costs: \$3,442,569

These are the initial spare parts that are included in the direct project costs of Purdom Unit 8. (TR 413)

City's Labor Costs: \$1,503,000

Performance Testing Support Costs: \$100,000

Office and Warehouse Renovations Costs: \$125,000

These are direct project costs of Purdom Unit 8. (TR 413)

Transmission Interface and Line Upgrades Costs: \$1,450,000

The construction of Purdom Unit 8 will require no new transmission lines. However, two of the three existing 115 kV transmission lines serving the Purdom site will be reconductored to increase transmission capability. (TR 407-408) The required transmission line improvement costs are estimated at \$1.3 million. (EXH 2 p. 51) As Enpower correctly points out in its position, this cost was omitted from the City self-build team's original bid. However, the City's evaluation team developed transmission costs for Purdom Unit 8 and each of the external proposals, as specified by the RFP. (TR 667) Transmission upgrade costs were not included in Phase II of the project analysis, the static analysis of costs at the busbar, from which the short list of proposals was selected. However, because the transmission upgrade costs are small relative to the total costs of each project, inclusion of these costs would not have changed the ranking of the proposals. (TR 376) Transmission upgrade costs were appropriately included in the project costs during the dynamic analysis of each of the proposed projects in Phase III. (TR 667)

Tower Relocation Costs: \$250,000

Purdom Unit 8 will utilize closed-loop cooling with a new cooling tower. This cooling tower will eliminate the need for once-through cooling water from the St. Mark River. (TR 408)

Effluent Lift Station Costs: \$250,000

Purdom Unit 8 will require the addition of a treated sewage effluent line, approximately one mile in length, connecting the City of St. Marks' sewage treatment plant to the Purdom site. (TR 429) This effluent line is associated with the zero-discharge water treatment system and will facilitate the reuse of treated sewage effluent from the City of St. Marks. The sewage effluent line and pumping station costs are estimated at \$250,000. (EXH 2, p. 102)

Potable Water System Costs: \$25,000

Purdom Unit 8 also includes a zero discharge wastewater treatment facility which results in no water discharge to the St. Marks River from Unit 8. This also allows for the elimination of three existing permitted discharges that currently flow into the St. Marks River, and allows for the elimination of groundwater withdrawals from the Purdom well fields. (TR 408)

Capitalized Interest Costs: \$11,525,003

This is the expected debt service on bonds to finance the construction of Purdom Unit 8. (TR 446, 450).

Contingency Costs: \$1,000,000

These dollars account for miscellaneous contingencies which may increase the installed cost of Purdom Unit 8. (TR 413)

We find that the City reasonably considered the costs of environmental compliance when it evaluated the Purdom Unit 8 proposal. In March, 1997, the City submitted its site certification application to the Department of Environmental Protection (DEP). On March 14, 1997, the City received notice that its filing was complete (TR 428) which indicates that the DEP determined that the City's filing included all information needed to evaluate the environmental issues and environmental compliance costs.

Enpower raised questions in two areas relating to environmental impacts associated with Purdom Unit 8: the costs of site clean-up of contaminated soil, and the cost-effectiveness of hurricane-proofing the unit. Remediation of contaminated soil was shown to be a pre-existing condition of the Purdom site and, therefore, not part of the costs associated with adding Unit 8. (TR 676-677; EXH 35) Enpower's witness admitted to this fact. (TR 603) The potential cost increase for hurricane-proofing arguments were directed to meeting design requirements for a 23-foot flood level and proper design of natural gas tanks. (TR 493, 499-501) However, no natural gas tanks are proposed for the Purdom site. All fuel oil tanks are flood-proofed at or above the 100 year mark, or 12.4 feet above sea level, as required for flood insurance. (TR 677, 681) The proposed turbine area is to be either constructed to 12.4 feet above sea level, or flood-proofed to that elevation. (TR 421-422, 493, 679-680) This appears reasonable because, as Enpower's witness discussed, the building requirement at the St. Marks site is the 12 foot elevation. (TR 487) There would be additional costs to build to a higher flood level, however, there is no requirement at the proposed site to build to a higher flood level than the 100 year mark.

We believe the City reasonably considered the costs of environmental compliance when it evaluated its future generation needs. The RFP required each respondent to state that its project would comply with all existing environmental requirements.

Therefore, the City assumed environmental compliance costs were included in the RFP responses. In July, 1996, the City Electric Staff and R.W. Beck presented to the City Commission an analysis which showed a \$91 to \$84 million cumulative net present value saving with the Purdom Unit 8 project over the other generation options. (TR 141; EXH 3, p. 1) As a result, the City Commission determined that the economic differential was so substantial that the non-price evaluation contemplated by the FRP (TR 209-210) was no longer needed. (TR 142, 199)

We find that Purdom Unit 8 will contribute to the provision of adequate electricity to the City and Peninsular Florida at a reasonable cost. Given that the City needs substantially less than 250 MW in the year 2000, Purdom Unit 8 will exceed the requirement for the provision of adequate electricity to the City. The 250 MW of additional capacity from Purdom Unit 8 will comprise 0.54% of the current aggregate capacity of Peninsular Florida's utilities. (EXH 2, p. 118) Thus, Purdom Unit 8 will minimally contribute to the provision of adequate electricity to Peninsular Florida. Whether or not Purdom Unit 8 contributes to the provision of reasonable cost can best be answered by determining whether the proposed unit is the most cost-effective alternative. As discussed previously, we find that the City has demonstrated that Purdom Unit 8 is the most cost-effective alternative.

We find that the Purdom Unit 8 contributes to the electric system reliability and integrity of the City of Tallahassee and Peninsular Florida. The addition of this unit will enable the City to meet and exceed its 17% reserve margin reliability criterion, and will minimally contribute to the reserve margin for Peninsular Florida. If placed into service as planned in the year 2000, Purdom Unit 8 will add 250 MW of capacity to the City's system at a time the City needs only 88 MW. (EXH 2, p. 29) The addition of 250 MW will more than contribute to the reliability and integrity of the City's electric system, as the City's capacity need is not forecasted to exceed 250 MW until 2007. (TR 374). Exhibit 2 illustrates that, assuming that the only change to the City's existing capacity resources is the termination of the Southern and Entergy purchased power contracts, the City has an immediate capacity need in the year 2000.

Purdom Unit 8, however, is expected to add only minimally to the reliability of Peninsular Florida's electric grid. Witness Brinkworth testified that, after Purdom Unit 8 is added, Peninsular Florida's reserve margin is expected to continue to decline toward

15%. (TR 126) There is no Commission or state policy which establishes a minimum reserve margin for Peninsular Florida. Peninsular Florida's summer peak demand is expected to increase from 30,537 MW in 1995 to 35,844 MW by 2004. (EXH 46, pp. 11-12) However, the capacity resource margins for the Peninsular Florida subregion are expected to be adequate during this period; therefore, Purdom Unit 8's minimal contribution to the reliability of Peninsular Florida causes no concern.

Purdom Unit 8 will not contribute to fuel diversity for the City system, or for Peninsular Florida; however, this is mitigated by other factors. The majority of the City's existing generation is fueled by natural gas, therefore, replacing purchased power with new gas-fired capacity from Purdom Unit 8 will further reduce the City's fuel diversity. (EXH 18, pp. 26-27) Purdom Unit 8 will not provide any fuel diversity advantage to the City in the form of reducing the risk of natural gas price increases or reduced availability. However, Purdom Unit 8 is expected to be highly efficient, with a heat rate of 7040 BTU/kWh (EX 2, p. 103); thus, it will require less natural gas to generate a unit of energy than the City's existing units. Even with the addition of Purdom Unit 8, the percentage of Peninsular Florida's natural gas-fired generation is expected to increase only from 19.5% in 1999 to 19.6% in 2000. (EXH 18, pp. 29-30) Also, the additional capacity from Purdom Unit 8 is small relative to the total capacity of Peninsular Florida's utilities. (EXH 46, pp. 11-12)

IV. FUEL SUPPLY, TRANSPORTATION AND STORAGE

We find that the fuel price forecasts used by the City as an input for the Benchmarking, Initial, and 1996 IRP studies are reasonable for planning purposes. The City relied upon three separate sets of fuel prices to conclude that Purdom Unit 8 was the most cost-effective alternative. (TR 371; EXH 2, Appendix 3, p. 19)

For the Benchmarking IRP study, which screened various types of supply-side and demand-side resources, the City used a March, 1993 internal forecast of fuel prices. In the Initial IRP study, which determined the type and timing of resource additions, the City used fuel price forecasts prepared in February, 1995 by ICF Resources, Inc. (ICF). (TR 371, EXH 24, pp. 42-45) ICF provided low, medium, and high price scenarios for natural gas, residual oil, and distillate oil, and a single price forecast for coal. Although the City does not currently own any coal-fueled

generation, and coal-fueled generation alternatives were eliminated during the Benchmarking IRP study, the City forecasted coal prices to assess the current and future costs of coal-based energy purchases (EXH 2, p. 89)

For the 1996 IRP study, the City used fuel prices which were derived from several sources. Fuel prices for residual oil, distillate oil, and coal were contained in the forecast prepared by ICF in February, 1995. (TR 265-268; EXH 24, pp. 42-45) The natural gas price forecast was derived from existing contract prices, recent bid responses, general industry forecasts, forecasts from ICF, and the NYMEX natural gas futures market. In August, 1995, the City released a Request for Bids (RFB) for the supply of natural gas to be used by the City's Self-Build Development Team as the fuel supply associated with Purdom Unit 8 (EXH 2, p. 83; EXH 2, Appendix 3, p. 19) The City selected RFB responses from two suppliers as "finalists": AGS (now PanEnergy) and Natural Gas Clearinghouse (NGC). (TR 259-260) The AGS bid was chosen by the City as the basis for its natural gas price forecast. (EXH 2, Appendix 3, p. 19) Although the City's natural gas price forecast is significantly lower than most external forecasts, the City considered this actual, competitive offer to be the best current indicator of future natural gas prices. (EXH 2, p. 84) The City also believes that long-term price bids typically include a risk premium in the later years, and thus represent a conservative (high) estimate of actual future prices. (TR 264)

Enpower claims, contrary to the City's testimony (TR 300), that the original City bid states "The Associated Gas pricing is subject to escalation during the evaluation period" (EXH 43, p. 20) This statement is true, but misleading. The escalation in the AGS bid is tied to the change in the "NYMEX 18-MONTH STRIP PRICE FOR NATURAL GAS FUTURES" index from October 16, 1995 to the date on which the gas contract is awarded. When the City's Self-Build Team submitted its bid on November 27, 1995, the change in the NYMEX 18-MONTH STRIP was a minus 0.020. This would result in a decrease in the AGS bid. (EXH 43, p. 20)

Enpower further asserts that the City's fuel forecasts have been altered significantly and have never been consistently applied to all of the bidders. However, we believe that the City did not alter its fuel price forecasts significantly. The Self-Build Team stated in its bid that "(w)e recommend the use of the Associated Gas pricing for this project, with the Natural Gas Clearinghouse pricing as a cap price for the natural gas". (EXH 43, p. 20) The

City's Evaluation Team then analyzed the Self-Build Team's bid based upon a fuel price forecast which utilized just the AGS bid as the price forecast. (EXH 2, Appendix 3, p. 19) During discovery, the City analyzed the cost of the Self-Build Team's bid along with the remaining alternatives with natural gas prices based upon escalation factors found in the City's RFP. (EXH 24, pp. 30-35) The intent of each "alteration" was to ascertain that the City's Self-Build alternative would remain the most cost-effective under increasingly more conservative natural gas price forecasts.

In summary, we believe the fuel price forecasts used as inputs for the Benchmarking, Initial, and 1996 IRP studies appear reasonable for planning purposes. For each fuel price forecast, we analyzed each fuel's year 2000 delivered price and its escalation rate during the forecast horizon. In addition, we performed a more detailed analysis of the City's natural gas price forecast in the 1996 IRP study, since natural gas is the primary fuel for the proposed Purdom Unit 8.

We also find that the City has provided adequate assurances regarding available primary and secondary fuel to serve the proposed facility on a long and short term basis at a reasonable cost. The City has identified two responses to its RFB who are both capable and willing to supply up to a maximum daily bid quantity in excess of the incremental natural gas requirements of the proposed Purdom Unit 8. The City also possesses capacity to store sufficient quantities of its secondary fuels (Nos. 2 and 6 fuel oil) systemwide.

The City's August, 1995 RFB for natural gas to supply Purdom Unit 8 generated proposals from ten respondents. (TR 275, 283) The two bidders who were short-listed are both capable and willing to supply up to a maximum bid quantity of 45,000 MMBTU daily, which exceeds Purdom Unit 8's expected requirements. (TR 260, 269; EXH 20, pp. 7-44) Both bidders have since updated their offers, and the City believes that it can purchase natural gas from either bidder at a lower cost than provided in each original bid. (TR 259-260; EXH 19, p. 1) The City has not executed a fuel supply contract since the City believes it would be imprudent to enter into a longterm natural gas supply this far in advance of the commencement of construction of Purdom Unit 8. (TR 261, 288) The City currently expects to finalize a gas supply contract closer to the beginning of construction in March or April, 1998. (TR 261, 288) We believe that this decision by the City is reasonable and prudent due to the many changes in the type and timing of the proposed unit which

could occur between the RFB response and construction of the proposed unit begins.

The City will use one percent sulfur No. 6 (residual) oil primarily as a backup fuel for Purdom Unit 8. The City can store oil at its generating plants, so this fuel is available during emergencies when natural gas may not be available. On rare occasions, when oil prices are less than natural gas prices, residual oil can displace natural gas for short durations. Low sulfur No. 2 (distillate) oil is also stored on-site at the generating plants and used as a backup fuel. Distillate oil is usually more expensive than residual oil; therefore, distillate fuel oil is used less frequently than residual fuel oil. (TR 269)

Currently, the City's storage capacity for residual oil is 152,000 barrels at the Purdom site and 380,000 barrels systemwide. (EXH 20, pp. 2-3) However, one of the existing tanks at the Purdom site will be converted to a wastewater storage tank. (EXH 2, p. 83) Therefore, the City's storage capacity for residual oil will fall 97,000 barrels at the Purdom site and 325,000 barrels systemwide. The City does not have any current plans to expand backup fuel storage capacity to meet increasing peak demand requirements. (EXH 20, p. 3) For reliability purposes, the City maintains 200,000 barrels systemwide (EXH 20, p. 3) which represents sufficient fuel to replace all steam generation gas requirements on an average day of the system's peak month and 33 MW of spinning reserve for approximately 18.5 days. (EXH 2, p. 82) Since the City estimates that additional oil supplies can be delivered to the Purdom site within 15 days, the City would reorder more oil when its residual oil inventory falls below a 15-day supply. (EXH 2, p. 82)

Also, the City's storage capacity for distillate oil is 20,000 barrels at Purdom site and 30,000 barrels systemwide. With the addition of Purdom Unit 8, the City will maintain inventory on site for approximately 24 hours of full load operation of Unit 8 and both gas turbines. (EXH 2, p. 82) Moreover, the City's target supply of sufficient distillate oil for 18.5 days (at 8 hours run per day) is approximately 30,000 barrels. (EXH 20, p. 3) Although the City does not expect its need for distillate oil to exceed the stored capacity, the City can draw upon local suppliers if the need should arise. (EXH 2, p. 83)

We are slightly concerned about the City's target supply of secondary fuels exceeding systemwide storage capacity. The City

states that it "does not have any current plans to expand backup fuel storage capacity to meet increasing peak demand requirements". (EXH 20, p. 3) However, the City projects its peak demand to increase by approximately 40% over the next twenty years. (EXH 2, page 15 of Appendix 2) This may indicate that the City needs to increase its systemwide storage capacity of both secondary fuels to account for the increase in peak demand. We recognize, however, that the required lead time to increase storage capacity is relatively short.

The City has existing natural gas pipeline capacity of 63,040 MMBTU/day of Firm Transportation (FT) capacity on Florida Gas Transmissions' (FGT) system over the twenty-year period from 2000-2019. (EXH 2, p. 91) This pipeline capacity is sufficient to serve the Purdom Unit 8 and the rest of the City's needs. (EXH 2, p. 91, TR 270)

The City will have to make pipeline upgrades to accommodate the increase in gas supply to the Purdom site. These upgrades include: upgrading and relocating the FGT metering station, connecting the existing pipeline lateral to the new FGT 36" mainline, and hydrostatic testing for the increased pressure requirements. There may also be a need to add an additional four miles of 12" loop to the system once the ultimate delivered quantities of natural gas are known.

Enpower's position states that the City omitted the cost of the additional 12" loop in its original cost estimate. Enpower is incorrect; the cost of all pipeline upgrades is included as a line item in the City's initial capital cost estimate. The record shows that this cost was included as a specific line item which included "the cost to relocate and upgrade the natural gas regulating station, hydrostatic testing of the lateral, and the potential addition of a loop to the lateral." (EXH 18, p. 6)

Based on the existing, long-term FTS contracts of 63,040 MMBTU/day, we find that the City will have sufficient pipeline capacity available to transport natural gas to the proposed combined cycle unit. If the City's demand exceeds the capacity of its FTS contracts, the City can utilize ITS contracts or purchase capacity in the secondary market. The City also has backup fuel capability on site if needed. We find that the cost of upgrades including the 12" loop have appropriately been included in the initial capital cost estimate and appear to be reasonable.

V. ECONOMIC AND FINANCIAL ASSUMPTIONS

We find that the economic and financial assumptions used by the City in its IRP studies are reasonable. Based upon the representations and analyses provided by City witness Inzer, the only witness offering testimony on this issue, the financial and economic assumptions made by the City appear reasonable for planning purposes.

Mr. Inzer testified that the City assumed an inflation rate of 3.5%, a long-term debt rate of 5.43%, and a discount rate of 7.25%. (TR 447; EXH 2, p. 93) The 3.5% inflation rate was derived from the Energy Price Forecast prepared by ICF Resources, Inc. ICF used the Blue Chip Economic Indicator for inflation. According to Mr. Inzer, while the annual values for inflation vary from 3.5% in the near term to 3.2% in future years, the City used 3.5% as an approximate value for all years. We believe this rate is a reasonable expectation of inflation rates in today's environment. (TR 461)

Mr. Inzer also testified that the interest rates on the bonds would be a function of prevailing tax-exempt interest rates at the time the bonds were sold. (TR 443) At the time the City filed its need petition, the long-term debt rate was 5.43%. (TR 447; EXH 2, p. 93; EXH 32, pp. 2-6) Based on prevailing interest rates at the time of the hearing, the interest rate was approximately 5.75%. (TR 453; EXH 32, pp. 10-14) The only difference between the 5.75% and the 5.43% relied upon in the integrated resource planning study was timing. (TR 457)

After including the proposed bonds associated with the Purdom Unit 8 project, the City's interest coverage ratio would drop from 4.89 times to 2.34 times. However, since the City has not brought new generation on line since 1977 and the debt it currently has on its books compared to other utilities its size is low, Mr. Inzer testified this drop in its interest coverage ratio will bring it in line with the interest coverage ratios of other Florida municipal utilities. (TR 459-460) Further, the interest rate on the City's bonds would have to have an average coupon rate of 15%, which Mr. Inzer said was very unlikely, in order for the City to fail to meet the 1.4 times interest coverage ratio required by its existing debt instruments. (TR 458-459; EXH 32, pp. 15-17)

It was mentioned during the hearing that the City was assigned a negative outlook by Standard & Poor's. (TR 454-455, 460-461) The negative outlook indicates that a downgrade in the City's bond rating is possible in the next 1-3 years. If the City's bonds were downgraded from a double A rating to a single A rating, Mr. Inzer testified that the rate the City could expect to obtain on the new bonds would probably be in the neighborhood of five to ten basis points higher. (TR 460-461).

Based on an analysis of the City's electric system's projected debt coverage ratio, preliminary meetings with rating agencies, advice from its financial advisor and underwriters, the City's high bond rating, and the reputation that the City enjoys in the bond market, Mr. Inzer stated he believed the City will have no problem in issuing the required amount of bonds needed to finance Purdom Unit 8. (TR 443, 450-451)

Mr. Inzer stated he believed a discount rate of 7.25% is reasonable based upon historic interest rates, the level of inflation, and the projected level of interest rates available to the City. Typically, an entity's overall cost of capital is used as a discount rate for capital budgeting decisions. The higher the rate, the more weight is given to the out years where the result is less certain. The lower the rate, the more weight is given to the earlier years where there is greater certainty associated with the outcome. For this reason, the City used 7.25% as its discount rate to give greater credence to the earlier years where there is greater certainty of the cash flows and expenses relative to the out years. (TR 461-462) We believe this was appropriate.

VI. TIMING OF PETITION

We find that the timing of the petition for a need determination is reasonable considering the City has a reliability need of at least 88 MW in the year 2000. The City's project schedule for permitting and construction of Purdom Unit 8 shows nearly four years of tasks (EXH 30, p. 5), but this timetable includes six months taken to develop both the need study and the site certification application. (TR 435) The permitting process takes 14 to 16 months, followed by six months of equipment procurement activities and 16 months to construct the generating unit. (TR 435) All of these activities are expected to take a total of 36-38 months to complete. Any comparable construction alternative to Purdom Unit 8 would require an equal amount of lead

time. Only a combustion turbine (CT) unit or a short-term purchase option would require a shorter lead time. A CT unit does not require certification under the Electrical Power Plant Siting Act (Act) and could meet the City's capacity need in 2000. Purdom Unit 8 requires certification because the 100 MW steam portion exceeds the 75 MW threshold of the Act.

VII. ADVERSE CONSEQUENCES OF DELAY

We find that there will be adverse consequences to the City's customers if the proposed combined cycle unit is not completed in the time frame requested by the City. While the City should continue to pursue cost-effective purchased power alternatives, any undue delay of the certification of the proposed plant would adversely affect the City's flexibility to meets its need for additional capacity. If Purdom Unit 8 is not completed by May 15, 2000, there are two types of potential adverse consequences: reliability and cost.

As discussed above, the City will have an immediate need for 88 MW of new capacity in the year 2000. From a reliability perspective, the City's need could be met by either a combustion turbine unit or with new purchased power contracts.

The City expressed concern with relying on its transmission interconnections with Southern Company to import power in the event that Purdom Unit 8 is delayed. The City has decided to reserve interface capacity for contingencies such as the loss of Hopkins Unit 2, currently the largest unit on the City's system.

A short delay in the in-service date of Purdom Unit 8 will require the City to purchase short-term replacement power. However, the sole sensitivity performed by the City indicated that replacement power would cost \$947,000 per month of delay. (EXH 18, p. 3; TR 184-186) This dollar amount is based on a current FPC Schedule B (short-term firm capacity) tariff, rather than a competitive market response. While this may be a correct calculation of Schedule B power, the City did not provide the net effect of not building Purdom Unit 8. Thus, we cannot conclude with certainty whether or not there exists a very short term (1 month) adverse consequence to delaying the construction of Purdom Unit 8.

Enpower asserts that other, more cost-effective purchased power alternatives exist. Enpower's position statement refers to purchased power costs contained in Table 10-1 of the need study. (EXH 2, p. 114) This table illustrates the bid price for a five-year, 40 MW block of purchased power which was part of another bidder's response to the City's RFP. While we share Enpower's concern that the City's \$947,000/month estimate for replacement power was not based on a competitive bid, the City's estimate was at least based on FPC's Schedule B tariff rather than a five-year block. Enpower's comparison of the City's estimate based on FPC's short-term tariff to a bid based on a five-year block is essentially an apples and oranges comparison.

LS Power states that the City's insufficient analysis of short-term purchased power, and the associated uncertainty regarding the cost-effectiveness of this option, makes it impossible to reliably identify any adverse consequences if Purdom unit 8 is not completed on time. As discussed previously, we disagree with the allegations that the City's analysis of short-term purchased power was insufficient. The City has stated that it will delay the construction of Purdom Unit 8 if it identifies a more cost-effective purchased power alternative.

The City could also have phased the construction of Purdom Unit 8. This approach might have mitigated any adverse cost consequences of building the entire unit at once, but as previously discussed, it is \$29 million more costly than Purdom Unit 8. (EXH 24, pp. 26-27)

If Purdom Unit 8 or any other capacity is not added in the time frame requested by the City, reliability of the City's electric system will degrade as discussed above. (EXH 2, p.29) For this reason, we believe that potential adverse consequences do exist for the City's electric customers if Purdom Unit 8 is not completed by May 15, 2000.

Based on the foregoing, it is

ORDERED by the Florida Public Service Commission that the City of Tallahassee's Petition to Determine Need is hereby granted as discussed in the body of this Order. It is further

ORDERED that this docket shall be closed.

By ORDER of the Florida Public Service Commission, this 9th day of June, 1997.

BLANCA S. BAYÓ, Director

Division of Records and Reporting

(SEAL)

VDJ

NOTICE OF FURTHER PROCEEDINGS OR JUDICIAL REVIEW

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

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