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BEFORE THE FLORIDA PUBLIC SERVICE COMMISSION

DIRECT TESTIMONY OF RICHARD L. CASEY

ON BEHALF OF

FLORIDA MUNICIPAL POWER AGENCY

DOCKET NO. 050256-EM

APRIL 13, 2005

**Q. Please state your name and business address.**

A. My name is Richard L. Casey. My business address is 8553 Commodity Circle, Orlando, Florida, 32819.

**Q. By whom are you employed and in what capacity?**

A. I am employed by Florida Municipal Power Agency (FMPA) as the Assistant General Manager, Power Resources.

**Q. Please describe your responsibilities in that position.**

A. As the Assistant General Manager, Power Resources, for FMPA, I have responsibility for planning, directing, managing, and administering Agency programs to meet FMPA member's needs in the following areas: current and future fuel and power supply, generation project development, generation and transmission planning, generation and pool operations, rate setting and budget compliance, and environmental compliance requirements. I report to the General Manager and CEO and am responsible for carrying out organizational policies, objectives, and programs for the Power Resources Division and its four

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1 Departments: Operations, Planning and Contracts, Project Management, and  
2 Rates.

3  
4 **Q. Please state your educational background and professional experience.**

5 A. I received a Bachelors of Science degree in electrical engineering from Lamar  
6 University, in Beaumont, Texas. I am a member of the Institute for Electronic  
7 & Electrical Engineers (IEEE). My past 33 years in the electric utility industry  
8 have encompassed many facets of the business including distribution  
9 engineering and operations, coal mining, rate design, and administration. Before  
10 joining FMPA, I served as a Transmission Services Consultant for Texas  
11 Utilities Electric Co. In that position, my responsibilities included the analysis,  
12 development, negotiation, and administration of various contractual  
13 arrangements including transmission wheeling service and interconnection  
14 agreements, joint transmission line ownership agreements, and microwave  
15 interconnection agreements.

16  
17 **Q. What is the purpose of your testimony in this proceeding?**

18 A. The purpose of my testimony is to provide a description of FMPA and its All  
19 Requirements Project (ARP). I will summarize FMPA's existing generation  
20 system as well as available purchase power resources. I will provide a brief  
21 description of the Treasure Coast Energy Center (TCEC) Unit 1. I will discuss  
22 the current need for TCEC Unit 1, why it is the most cost-effective alternative  
23 available to FMPA, and why it provides adequate electricity at a reasonable cost.  
24 I also will discuss strategic considerations that support FMPA's Need for Power

1 Application for TCEC Unit 1. Finally, I will discuss FMPA's ability to finance  
2 the project.

3

4 **Q. Are you sponsoring any exhibits as part of you pre-filed testimony?**

5 A. Yes. I am sponsoring Exhibit No. \_\_ (RLC-1), entitled "FMPA Members" and  
6 Exhibit No. \_\_ (RLC-2), entitled "ARP's Existing Resource Capacity." These  
7 exhibits are attached to and included in my pre-filed testimony.

8

9 **Q. Are you sponsoring any sections of the TCEC Unit 1 Need for Power  
10 Application, Exhibit No. \_\_ (FMPA-1)?**

11 A. Yes. I am sponsoring Sections 1, 2, 4, 14, and 16 of the TCEC Unit 1 Need for  
12 Power Application, Exhibit No. \_\_ (FMPA-1), all of which were prepared by me  
13 or under my direct supervision.

14

15 **FMPA and the All Requirements Project:**

16 **Q. Please describe the purpose and structure of FMPA.**

17 A. FMPA is a joint action agency comprised of 29 municipal electric utilities.  
18 FMPA was created on February 24, 1978, under the provisions of the Florida  
19 Constitution, the Joint Power Act, and the Florida Interlocal Cooperation Act of  
20 1969. FMPA was formed to allow its members to cooperate with each other, on  
21 the basis of mutual advantage, to provide services and facilities in a manner and  
22 in a form of governmental organization relevant to geographic, economic,  
23 population, and other factors influencing the needs and development of local  
24 communities. Specifically, FMPA is involved in the joint financing,

1 construction, acquisition, ownership, management, and operation of electric  
2 generation resources for its municipal members. FMPA is governed by a Board  
3 of Directors consisting of one representative from each of the 29 municipal  
4 members.

5  
6 As a joint operating agency, engaged in the business of generating and  
7 transmitting electric energy, the FMPA is an "Electric Utility" under  
8 403.503(13), Florida Statutes, and, therefore, is an "applicant" as defined by  
9 Section 403.503(4), Florida Statutes. The Commission previously has held that  
10 FMPA is a proper applicant for a determination of need pursuant to Section  
11 403.519, Florida Statutes.

12  
13 **Q. What municipal utilities are members of FMPA?**

14 A. The members of FMPA are shown in Exhibit No. \_\_\_ (RLC-1), which is attached  
15 to and included in my pre-filed testimony.

16

17 **Q. Please describe the All-Requirements Project.**

18 A. The All-Requirements Project (ARP) was formed on May 1, 1986, initially with  
19 five municipal participants. Several other municipals have joined over time.

20 ARP participants now include:

- 21 • City of Bushnell
- 22 • City of Clewiston
- 23 • City of Fort Meade
- 24 • Fort Pierce Utilities Authority

- 1 • City of Green Cove Springs
- 2 • Town of Havana
- 3 • City of Jacksonville Beach
- 4 • City of Key West
- 5 • City of Leesburg
- 6 • City of Newberry
- 7 • Ocala Electric Utility
- 8 • City of Starke
- 9 • City of Vero Beach
- 10 • City of Lake Worth
- 11 • City of Kissimmee

12 The current 15 municipal members service approximately 280,000 customer  
13 accounts. The ARP members consist of both generating and non-generating  
14 members. Under the ARP, both generating and non-generating members are  
15 required to purchase all of their capacity and energy from the ARP. Generating  
16 ARP members are required to lease their generating capacity to FMPA. For this  
17 lease, generating ARP members receive capacity credits. Exhibit No. \_\_  
18 (RLC-2) displays the existing ARP power supply resources which are owned,  
19 purchased from ARP members, and purchased under other contracts with a  
20 current total summer capacity of 1,723 MW.

21

22 **Q. What is the All-Requirements Project service area?**

23 A. The ARP provides energy for all of the cities designated as ARP members in  
24 Exhibit No. \_\_ (RLC-1).

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**Q. Describe the transmission system in place for the All-Requirements Project members.**

A. The capacity and energy for the ARP is transmitted to the members primarily utilizing the transmission systems of Florida Power & Light (FPL), Progress Energy Florida (PEF), and Orlando Utilities Commission (OUC). FMPA divides the ARP members into two categories: members located in the FPL service area (east cities) and members located in the PEF service area (west cities). Network transmission service for the east cities is provided under an existing agreement with FPL. Network transmission for the west cities is provided under an agreement with PEF.

**Q. How has the All-Requirements Project met its capacity needs historically?**

A. Historically, FMPA has jointly participated in generation projects to obtain economies of scale. These include FPL's St. Lucie Unit 2, OUC's Stanton 1, 2, and A, OUC's Indian River Combustion Turbines A, B, C, and D, and KUA's Cane Island Units 1, 2, and 3. To further the benefits of joint participation FMPA, along with the OUC, KUA, and Lakeland Electric formed the Florida Municipal Power Pool (FMPP) to economically dispatch the FMPP members' power supply resources. Each member of FMPP is responsible for maintaining sufficient capacity to serve its own load, including an adequate amount for reserves.

1 **Q. Does the expansion plan for FMPA's All-Requirements Project include**  
2 **committed units?**

3 A. Yes. An LM6000 simple cycle combustion turbine at Key West (Stock Island  
4 Combustion Turbine Unit 4) is included for 2006 operation. Permitting, design,  
5 and procurement are underway for this unit. FMPA's ARP expansion plan also  
6 includes two LM6000 simple cycle combustion turbines for 2007 operation and  
7 will be installed at a ARP generating member's site to be determined. These  
8 units will provide quick start capacity for FMPA's system. FMPA has options  
9 to purchase these units in the contract for Stock Island Combustion Turbine  
10 Unit 4. The plan also includes 250 MW of an 800 MW jointly owned  
11 supercritical pulverized coal unit for operation in 2011. The development for  
12 this unit has been ongoing for approximately two (2) years. The unit is planned  
13 to be jointly owned by FMPA and other municipal utilities. The plan includes  
14 another LM6000 simple cycle combustion turbine (Stock Island Combustion  
15 Turbine Unit 5) in 2018. This unit is planned to be added as on-island  
16 generation in Key West. FMPA's agreement with Keys Energy Services  
17 (KEYS) requires FMPA to maintain 60 percent of KEYS peak demand as on-  
18 island generation. It is projected that on-island capacity will be required in  
19 2018.

1 **The TCEC Unit 1 Project:**

2 **Q. Please provide an overview of the TCEC Unit 1 Project.**

3 A. FMPA's TCEC Unit 1 will be a 1x1 F-Class Combined Cycle Unit with a  
4 nominal rating of 300 MW at average temperature conditions. All of the  
5 generation capacity from the unit will be committed to ARP members for retail  
6 sale to their customers.

7  
8 The unit will be installed at the site located near Fort Pierce, Florida.

9 Consideration will be made for installing future units at the site through space  
10 allocation. In general, consideration will be given to installing facilities required  
11 to support future units at the site when appropriate.

12  
13 TCEC Unit 1 will be dual fueled with natural gas as the primary fuel and ultra-  
14 low sulfur diesel (ULSD) fuel oil as a backup fuel. The combustion turbine  
15 generator will have an evaporative cooler to increase warm weather power  
16 generation and a steam turbine bypass to the condenser to allow for simple cycle  
17 operation.

18  
19 **Q. What is FMPA's need for the TCEC Unit 1 Project?**

20 A. FMPA's ARP has been growing rapidly through load growth and the addition of  
21 new municipal members. As discussed below, FMPA's reliability forecast for  
22 the ARP projects that summer reserve margin will fall below accepted  
23 minimums in the 2008 time-frame. In addition, about 24% of the ARP's  
24 capacity comes from purchased power contracts. Many of the ARP's capacity

1 and power purchase contracts are expiring, or nearing the end of their lifetime.  
2 The ARP's existing resources are shown in Exhibit No. \_\_\_ (RLC-2). The  
3 exhibit illustrates the ARP's declining resource capacity. To combat the future  
4 decline in resource capacity, and to help meet the need of future demand, FMPA  
5 issued a Request for Power Supply Proposals (RFP). The proposals received in  
6 response to the RFP were not cost effective, leaving the addition of TCEC Unit  
7 1 as the best alternative to meet the ARP's energy needs. Bill May will discuss  
8 the RFP process and Myron Rollins will discuss the detailed economic analysis  
9 of the purchase power bids.  
10

11 **Reliability Criteria:**

12 **Q. Please describe how FMPA establishes its reserve margin levels.**

13 A. The FMPA ARP members are numerous and geographically dispersed. The  
14 common traditional reserve margin equation does not take into account partial  
15 requirements purchases which include reserves. FMPA calculates its reserve  
16 margin using the following modified formula, which considers that the partial  
17 requirements purchases include their own reserves.

18 
$$\frac{(\text{System Net Capacity} - \text{Partial Requirements}) - (\text{System Net Peak Demand} - \text{Partial Requirements})}{(\text{System Net Peak Demand} - \text{Partial Requirements})}$$
  
19

20 Based on the Florida Public Service Commission (FPSC) requirements for  
21 reserve sharing and the Florida investor owned utilities voluntary reserve  
22 requirements, FMPA has established a 15 percent minimum planned reserve  
23 margin criteria for the winter period and an 18 percent minimum reserve margin  
24 in the summer.

1

2 **Q. Please describe FMPA's reliability need.**

3 A. Based on the FMPA's net system capacity forecast and system peak demand  
4 forecast, a capacity requirements forecast was developed. Winter reserve  
5 margins fall below the required 15 percent minimum in the winter of 2008/9. In  
6 this winter, the projected reserve margin will only be 11.2 percent, 58 MW short  
7 of the required minimum. The deficit continues to increase, with a slight  
8 decrease in 2011/12 from a forecasted capacity addition, but the deficit is still  
9 39 MW. After this increase the deficit continues to increase. Summer reserve  
10 margins are forecast to fall below the 18 percent level in the summer of 2008.  
11 In this summer the projected reserve margin will only be 12 percent, 86 MW  
12 short of the accepted minimum. The summer deficit follows the same pattern as  
13 the winter deficit, increasing until 2011, and then increasing again. Refer to  
14 Tables 4-2 and 4-3 of Exhibit No. \_\_ (FMPA-1) in the TCEC Unit 1 Need for  
15 Power Application.

16

17

**Cost Effectiveness:**

18 **Q. Is the TCEC Unit 1 the most cost-effective option for FMPA?**

19 A. FMPA has evaluated numerous demand-side and supply-side alternatives to  
20 meet capacity requirements. These are discussed in the testimony of Bradley E.  
21 Kushner and Myron R. Rollins, respectively. FMPA evaluated appropriate  
22 alternatives to TCEC Unit 1 to determine if they are lower in cumulative present  
23 worth revenue requirements. As demonstrated in the Need for Power  
24 Application, Exhibit No. \_\_ (FMPA-1), TCEC Unit 1 has proven to be FMPA's

1 most cost-effective option through all evaluations of alternative generation  
2 options, RFP responses and conservation measures.

3  
4 **Q. Will the TCEC Unit 1 provide FMPA adequate electricity at a reasonable  
5 price?**

6 A. Yes.

7

8

**Strategic Considerations:**

9 **Q. Are there any advantages that the installation of TCEC Unit 1 will have on  
10 FMPA's power transmission?**

11 A. Yes. As I stated previously, ARP members are divided into members served  
12 over the FPL and PEF transmission systems. Most of FMPA's modern  
13 generation is located on OUC's transmission system. There is a very limited  
14 transfer capability from OUC's transmission system to FPL's transmission.  
15 FMPA often has difficulty in dispatching resources on OUC's system to serve  
16 loads connected to FPL's system. The TCEC Unit 1 will be directly connected  
17 to FPL's transmission system. This direct connection will allow FMPA to better  
18 serve its members in the FPL transmission grid, and help the State to mitigate  
19 flow problems from the north to the south.

20

21 **Q. Please describe how the TCEC Unit 1 will be designed to cost effectively  
22 cycle to meet daily load swings.**

23 A. The design of TCEC Unit 1 will incorporate several features to accommodate  
24 the swing from daily minimum loads to daily peak loads. Unlike many other

1 generating facilities, TCEC Unit 1 will have a larger steam turbine and heavy  
2 duct firing to provide the ability to increase steam generation while the unit is  
3 operating. Materials in the heat recovery steam generator (HRSG) and in the  
4 steam turbine will be selected to allow the unit to start and stop daily and  
5 thereby to efficiently meet daily load swings. In addition, TCEC Unit 1 will  
6 include an auxiliary boiler to provide steam to the steam turbine, to reduce  
7 startup times. These design features will increase the value of TCEC Unit 1 to  
8 ARP members by helping to efficiently meet daily load swings.

9  
10 **Q. Will the TCEC Unit 1 provide reliability and integrity to FMPA's system?**

11 A. Yes. The proven reliability of the F-Class combined cycle technology in the  
12 TCEC Unit 1 combined with TCEC's Unit 1 ability to burn two different types  
13 of fuel (natural gas and ultra-low sulfur diesel oil [ULSD]) will provide  
14 increased reliability to FMPA's overall system. Having the backup option of  
15 ULSD fuel oil provides TCEC Unit 1 with a high degree of assurance that if the  
16 price and/or availability of natural gas would, at some point, make its use as a  
17 fuel unacceptable; the TCEC Unit 1 would still operate. In addition, TCEC Unit  
18 1 will have the ability to run in turbine bypass mode if there is a problem with  
19 the steam turbine, by passing steam directly to the condenser. Furthermore, as  
20 discussed above, TCEC Unit 1's location in the transmission grid will ensure  
21 transmission to ARP member utilities. These attributes will contribute to  
22 reliability of TCEC Unit 1, and as such will contribute to the overall reliability  
23 of FMPA's generation system.

24

1 **Q. What measures will be taken to ensure that the TCEC Unit 1 will have**  
2 **minimal environmental impact?**

3 A. TCEC Unit 1 will be located in an existing industrial park, and thus will have  
4 minimal environmental impact. The design of the Unit will include selective  
5 catalytic reduction (SCR) which will result in very low NO<sub>x</sub> emission rates. The  
6 use of natural gas and ULSD fuel oil as fuels will result in low SO<sub>2</sub> emission  
7 rates. The design of TCEC Unit 1 will include the provision for the future  
8 addition of a CO catalyst. This will enable easy retrofit to the unit, if CO  
9 emissions reductions are required in the future. The high efficiency of  
10 combined cycle technology minimizes CO<sub>2</sub> production. Not only will TCEC  
11 Unit 1 result in minimal air emissions currently, it will also be well suited for  
12 any future changes in air emission regulations. Water for the cooling tower will  
13 be treated sewage effluent water. Wastewater will be piped to Fort Pierce  
14 Utility Authority's municipal sewage treatment plant. The use of treated sewage  
15 effluent and lack of wastewater discharge from the site contribute to the  
16 environmental benefits of TCEC Unit 1.

17  
18 **Q. Will it be possible to add future generating units at the TCEC?**

19 A. Yes. The TCEC site location allows for economical addition of future units. As  
20 described in Section 14.1 of the TCEC Unit 1 Need for Power Application in  
21 Exhibit No. \_\_\_ (FMPA-1), the site for these future units is in an optimal location  
22 for FMPA, as they will allow FMPA to directly connect with FPL's  
23 transmission system, and help to alleviate flow problems to the southern part of  
24 the State.

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**Project Financing:**

**Q. How does FMPA intend to finance the construction of TCEC Unit 1?**

A. FMPA has not yet made a firm decision in regard to the funding for TCEC Unit 1. FMPA will likely obtain capital for construction through a long term municipal tax-exempt bond issuance. FMPA's current bond rating is A1 from Moody's and A+ from Fitch. FMPA traditionally purchases insurance to increase their bond rating to AAA. The cost for this bond insurance has been included in the economic evaluations.

**Q. In your opinion will FMPA be able to obtain the financing for the construction of TCEC Unit 1?**

A. Yes. Based on FMPA's bond ratings and reputation, I am confident that FMPA will be able to obtain financing for the construction of TCEC Unit 1.

**Q. Explain in general how the All-Requirements Project recovers costs through rates.**

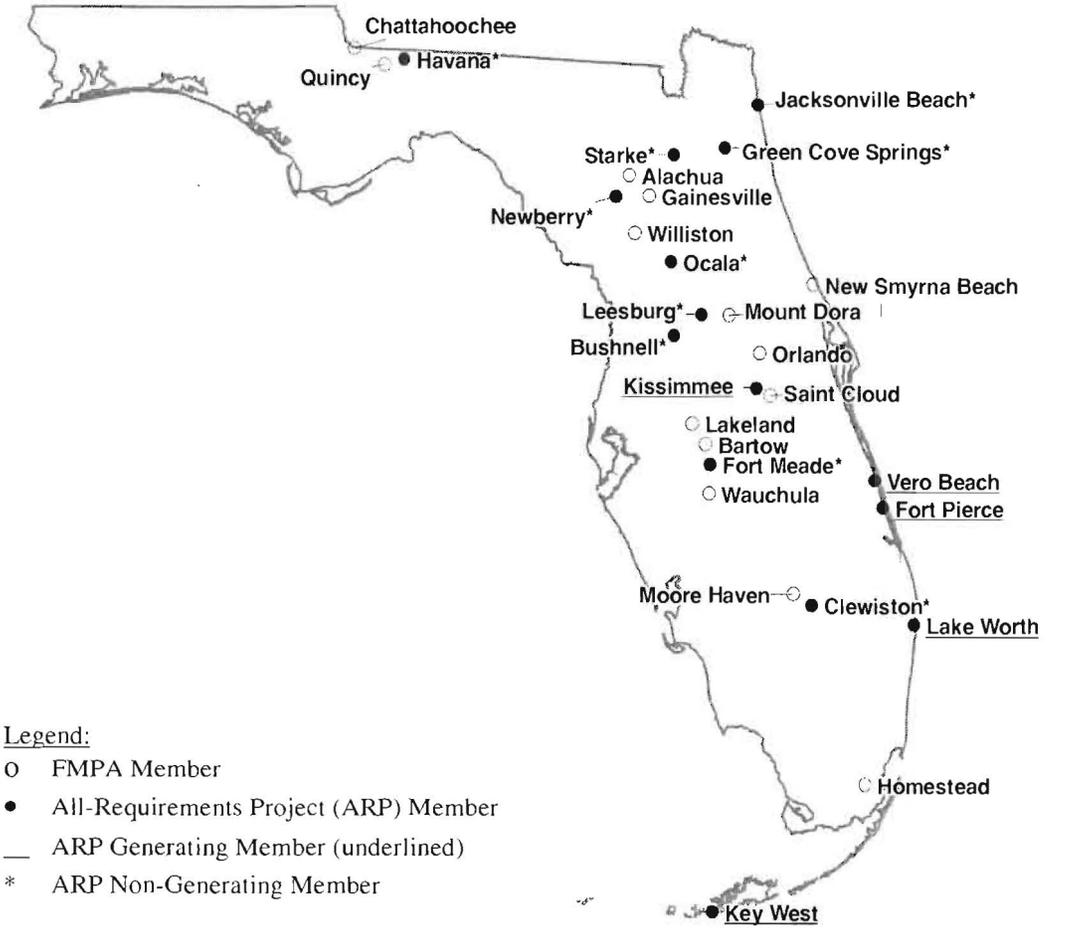
A. The All-Requirements Project recovers all costs through billing rates. Billing rates consist of customer, demand capacity charges, transmission capacity charges, and energy charge components. In general, these rates are set annually based on expected costs and then are adjusted for any over or under recovery of expenses on a twelve month basis for the capacity charges and on a six month basis for the energy charges.

1 Q. Does this conclude you prefiled testimony?

2 A. Yes it does.

**FMPA Members**

The figure below shows location of FMPA members and cities that have entitlements to one of FMPA's projects.



**Table 2-5**  
**ARP's Existing Resource Capacity**

Generating Resources	Existing Summer Rating							
	2005	2006	2007	2008	2009	2010	2011-2012	2013-2024
Excluded Resources (Nuclear)	83	83	83	83	83	83	83	83
Stanton Coal Plant	220	220	220	220	220	220	220	220
Stanton CC Unit A <sup>1</sup>	127	127	127	127	127	127	127	127
Cane Island 1-3	379	379	379	379	379	379	379	379
Indian River CTs	80	80	80	80	80	80	80	80
Key West Units 2&3	36	36	36	36	36	36	36	36
Ft. Pierce Native Generation	118	118	118	118	118	118	118	118
Key West Native Generation	50	50	50	50	50	50	50	50
Kissimmee Native Generation	61	61	61	61	61	61	61	61
Lake Worth Native Generation	88	88	88	88	88	88	88	88
Vero Beach Native Generation	150	150	150	150	150	150	150	150
<b>Total Generating Capacity</b>	<b>1,392</b>	<b>1,392</b>	<b>1,392</b>	<b>1,392</b>	<b>1,392</b>	<b>1,392</b>	<b>1,392</b>	<b>1,392</b>
<b>Purchased Power</b>								
PEF Partial Requirements	30	40	0	20	0	25	0	0
FPL Partial Requirements	75	75	75	0	0	0	0	0
FPL Long-Term Partial Requirements	45	45	45	45	45	45	45	0
OUC Indian River Purchase	43	22	0	0	0	0	0	0
Starke (GRU)	3	3	0	0	0	0	0	0
Lakeland Purchase	100	100	100	0	0	0	0	0
Calpine Purchase	35	75	100	100	100	0	0	0
<b>Total Purchased Power Resources</b>	<b>331</b>	<b>360</b>	<b>320</b>	<b>165</b>	<b>145</b>	<b>70</b>	<b>45</b>	<b>0</b>
<b>Total Resources</b>	<b>1,723</b>	<b>1,752</b>	<b>1,712</b>	<b>1,551</b>	<b>1,537</b>	<b>1,462</b>	<b>1,437</b>	<b>1,392</b>

<sup>1</sup>Includes capacity purchased from Stanton CC Unit A.