

Exhibit No.:

Issues: Fuel & Purchased Power  
Expense

Witness: Stephen L. Ferry

Type of Exhibit: Direct Testimony

Sponsoring Party: St. Joseph Light  
& Power Company

Case No.: EO-2000-845

ST. JOSEPH LIGHT & POWER COMPANY

CASE NO. EO-2000-845

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DIRECT TESTIMONY

OF

STEPHEN L. FERRY

JEFFERSON CITY, MISSOURI

SEPTEMBER 2000

\*\*Denotes Highly Confidential Information\*\*

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DIRECT TESTIMONY

OF

STEPHEN L. FERRY

ST. JOSEPH LIGHT & POWER COMPANY

CASE NO. EO-2000-845

Q. Please state your name and business address.

A. My name is Stephen L. Ferry. My business address is 520 Francis Street, St. Joseph, Missouri.

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

A. I am employed by the St. Joseph Light & Power Company (SJLP or Company) in the position of Manager System Operations and Planning.

Q. Please briefly describe your education, work experience, and participation in professional associations.

A. In 1971 I received a Bachelor of Science degree in Electrical Engineering, and in 1979 a Master of Science degree in Electrical Engineering from the University of Nebraska - Lincoln.

Upon graduation from Nebraska in 1971, I was employed by the Omaha Public Power District, Omaha, Nebraska (OPPD), as an Electrical Engineer performing distribution line design. In 1976 I accepted the position of Distribution Planning Supervisor with the Nebraska Public Power District (NPPD)

1 where I supervised other engineers in the preparation of  
2 distribution system operating studies and expansion plans. I  
3 left NPPD in 1980 to become System Planning Engineer for the  
4 Public Utility District #2 of Grant County, Ephrata,  
5 Washington (PUD), advancing to the position of System Planning  
6 Manager in 1984, and Director of Power Production in 1986.  
7 While in the system planning positions I worked in the  
8 capacity of both an engineer and a manager on varied  
9 engineering assignments such as distribution and transmission  
10 line engineering, substation design, and relay engineering as  
11 well as transmission and distribution system planning. As  
12 Director of Power Production, I managed and was responsible  
13 for the PUD's power plants.

14 I joined SJLP in 1990 as Manager System Operations and  
15 Planning. I am responsible for the economic scheduling of the  
16 Company's generating units, bulk power purchases and sales,  
17 fuel and interchange budgeting and planning, system  
18 protection, and electric system planning.

19 I am a registered Professional Engineer in the State of  
20 Missouri, a member of the National and Missouri Society of  
21 Professional Engineers, and a member of the Institute of  
22 Electrical and Electronic Engineers. I am active in the  
23 coordinated operation and planning of the interconnected  
24 electric systems of the Mid-Continent Area Power Pool (MAPP).

1 I am a member of the MAPP Regional Transmission Committee,  
2 Power and Energy Market Committee, and Reliability Committee.

3  
4 **Purpose of this Testimony**

5 Q. What is the purpose of your direct testimony?

6 A. The purpose of this testimony is to present and support SJLP's  
7 position in this case regarding incremental fuel and purchased  
8 power expense associated with the Lake Road Unit 4/6 incident  
9 of June 7, 2000, through August 8, 2000 (Unit 4/6 incident).

10 Q. Are you sponsoring any schedules?

11 A. Yes. I am sponsoring Schedule SLF-1, which is attached to and  
12 a part of this testimony. Schedule SLF-1 is a glossary of the  
13 technical terms I use in this testimony.

14 Q. How is your direct testimony organized?

15 A. I will first provide a description of the Company's resource  
16 mix. I will then discuss how the Unit 4/6 incident impacted  
17 that mix and the Company's fuel and purchased power expense  
18 associated with providing service to its Missouri retail  
19 customers. The cost of fuel and purchased power associated  
20 with the Unit 4/6 incident was \$3,740,533 more than that which  
21 would have been experienced had Unit 4/6 remained in-service.

22  
23 **SJLP Resource Mix**

24 Q. Prior to the Unit 4/6 incident, what was the Company's planned

1 resource mix for the period June 7, 2000 through August 8,  
2 2000?

3 A. SJLP's resource mix is the portfolio of owned generating units  
4 and purchased power available to the Company for providing its  
5 system energy requirements. The Company schedules its  
6 resources such that the low-cost resources are used before the  
7 high-cost resources. For example, the cost of energy produced  
8 by Lake Road Unit 4/6, a steam-turbine unit which uses low  
9 cost coal fuel, is much less than that produced by Lake Road  
10 Unit 5, a combustion turbine which uses natural gas. As a  
11 result, Unit 4/6 is dispatched, i.e., loaded, ahead of Unit 5  
12 to take advantage of its lower costs. This practice of using  
13 the low-cost unit before the high-cost unit minimizes costs  
14 and was assumed in the development of the Company's Missouri  
15 retail rates. A description of the Lake Road plant is  
16 contained in the direct testimony in this case of Company  
17 witness Dwight V. Svuba.

18 Prior to the Unit 4/6 incident, SJLP's planned resource  
19 mix for the period June 7, 2000 through August 8, 2000 was as  
20 shown below. The ranking is by energy cost, with the Gerald  
21 Gentleman unit participation purchase from NPPD (GGS), the  
22 lowest cost resource, being shown first. Note that the  
23 Western Resources power purchase and spot-market energy  
24 purchases are ranked last. The energy pricing for these

1 purchases is market-based, and can vary considerably, often  
2 exceeding the energy cost of SJLP's highest cost generating  
3 units.

4 In addition to the volatile pricing associated with spot-  
5 market energy purchases, transmission service availability has  
6 severely limited the amount of spot-market energy that can be  
7 used to meet SJLP energy requirements. On many occasions in  
8 1999 and again in 2000 the Company has had non-firm spot-  
9 market purchases curtailed because the corresponding  
10 transmission service was curtailed due to transmission  
11 constraints, or the Company was unable to initiate a new  
12 purchase because transmission service was not available.

13 In other words, when SJLP purchases energy from other  
14 utilities, either the seller or SJLP must also arrange for a  
15 transmission path to deliver the energy from the seller to  
16 SJLP. If the transmission lines between the seller and SJLP  
17 become loaded to capacity, i.e., constrained, the use of those  
18 lines is allocated based on priority, with service to native  
19 load and firm service having a higher priority than short-term  
20 non-firm service. Since SJLP's short-term non-firm  
21 transaction has a lower priority than native load and firm  
22 service transactions, SJLP's transaction gets "bumped",  
23 similar to the way airline passengers are "bumped" from  
24 overbooked flights.

In the following table, the energy costs for the generating units are the approximate full-load fuel costs; the energy costs for the power purchases are the approximate delivered price of the energy.

Planned Resource Mix Prior to Unit 4/6 Incident

<u>Resource</u>	<u>Available MW</u>	<u>Approx Cost \$/MWH</u>
GGs (purchase)	60	**\$ _____ **
Iatan (coal)	121	**\$ _____ **
LR 4/6 (coal)	97	**\$ _____ **
Gen Sys (6/5-6/30)	25	**\$ _____ **
LR 2 (gas)	25	**\$ _____ **
LR 5 (gas)	63	**\$ _____ **
LR 1 (gas)	20	**\$ _____ **
LR 6 & 7 (No. 2 oil)	42	**\$ _____ **
LR 3 (gas)	10	**\$ _____ **
Wstrn Res (purchase)	25	market
Spot-Market (purchase)	varies	market

Q. What was the Company's resource mix following the Unit 4/6 incident?

A. The Company's actual resource mix for the period June 7, 2000 through August 8, 2000 is shown below. The loss of Unit 4/6 for the summer period was a significant blow to the Company

1       and severely impacted its ability to provide its customers'  
2       energy requirements. Unit 4/6, at 97 MW, accounts for more  
3       than 20% of the Company's accredited capacity. Unit 4/6 was  
4       budgeted to supply over 25% of the Company's system energy  
5       requirements for the months of June, July and August, 2000.

6       As a result of and immediately after the Unit 4/6  
7       incident, the Company solicited regional utilities and  
8       marketers to secure proposals for purchased energy to replace  
9       energy that would have been generated by Unit 4/6. After  
10      evaluating the proposals, the Company elected to purchase an  
11      additional 25 MW of non-firm energy from Gen Sys, a public  
12      power utility located in Minnesota and Wisconsin, for the  
13      period June 12 - June 30 and 50 MW for the period July 1 -  
14      August 31.

15      The Gen Sys purchases provided the Company a source of  
16      energy at a price less than that of its natural-gas fired  
17      generation plus the purchases enabled the Company to secure  
18      transmission service with a higher priority than that  
19      associated with hourly non-firm purchases of spot-market  
20      energy. Energy requirements in excess of those provided by  
21      the Gen Sys purchases were met by increasing market-based  
22      purchases and increasing generation on Lake Road natural gas-  
23      fired and oil-fired generation.



Actual Resource Mix Following Unit 4/6 Incident

<u>Resource</u>	<u>Available MW</u>	<u>Approx Cost \$/MWH</u>
GGs (purchase)	60	**\$_____**
Iatan (coal)	121	**\$_____**
Gen Sys (6/5-6/30)	25	**\$_____**
Gen Sys (6/12-6/30)	25	**\$_____**
Gen Sys (7/1 - 8/31)	50	**\$_____**
LR 2 (gas)	25	**\$_____**
LR 5 (gas)	63	**\$_____**
LR 1 (gas)	20	**\$_____**
LR 6 & 7 (No. 2 oil)	42	**\$_____**
LR 3 (gas)	10	**\$_____**
Wstrn Res (purchase)	25	market
Spot-Market (purchase)	varies	market

Q. Did the Company purchase any other services beyond that shown above to assist in replacing Unit 4/6 generation?

A. Yes. The Company purchased monthly non-firm transmission service for the Gen Sys purchases under the MAPP transmission tariff. Under the Gen Sys purchase agreements SJLP was responsible for acquiring the requisite transmission service and it is billed separately from the energy agreements.

To further mitigate the impact of transmission constraints on spot-market purchases, the Company also

1 purchased two 25 MW firm transmission service paths for the  
2 period 7/1 - 8/31. One 25 MW path was purchased between the  
3 Company and Mid-American Energy Company (MEC), a source  
4 located north of SJLP in the MAPP region, and one between SJLP  
5 and Missouri Public Service Company (MPS), a source located  
6 south of the Company in the Southwest Power Pool region. In  
7 the event that short-term non-firm transmission service became  
8 unavailable for spot-market purchases, these two firm  
9 transmission paths enabled the Company to access two sources  
10 of spot-market energy from diverse markets.

11 Q. Were these two firm transmission paths purchased as a result  
12 of the Unit 4/6 incident?

13 A. Yes. The Company would not have purchased these two firm  
14 transmission service paths had the Unit 4/6 incident not  
15 occurred.

16 Q. Were these two transmission service paths used this summer?

17 A. Yes. Both paths were used on several occasions when non-firm  
18 transmission service was curtailed or became unavailable  
19 thereby preventing SJLP from purchasing spot-market energy  
20 from other suppliers.

21 Q. Is the expense of incremental fuel and purchased power  
22 associated with the Unit 4/6 incident included in the  
23 Company's Missouri retail electric rates?

24 A. No. The Company's last Missouri electric rate case was ER-99-

1        247. Although the fuel and purchased power issues in this  
2 case were settled, it is apparent that neither Staff nor the  
3 Company provided, in their fuel runs, for an outage of the  
4 length experienced as a result of the Unit 4/6 incident. In  
5 the normalized fuel runs for ER-99-247, Staff used a  
6 normalized forced outage rate for Unit 4/6 of 4.4%; the  
7 Company used 3.0%. Had an outage of the magnitude of the Unit  
8 4/6 incident been included in the normalized fuel runs, the  
9 Staff's forced outage rate would have been 21.5%; and 20.1%  
10 for the Company. Clearly, an outage of the magnitude of the  
11 Unit 4/6 incident was not contemplated by any party to the  
12 settlement of ER-99-247.

13  
14        **Method Used to Calculate Incremental Replacement Cost**

15 Q. What method did the Company use to calculate the incremental  
16 cost of fuel and purchased power expense associated with the  
17 Unit 4/6 incident?

18 A. A spread-sheet analysis was prepared comparing the actual  
19 hourly cost of energy associated with each energy resource to  
20 the hourly cost of each resource had Unit 4/6 been available.  
21 The difference in the hourly costs with and without Unit 4/6  
22 is the incremental cost of replacement energy associated with  
23 the incident. The calculation was made for each hour  
24 beginning when Unit 4/6 tripped off-line on June 7 to when it

1 returned to service on August 8. The incremental hourly costs  
2 were then summed over the period June 7 - August 8.

3 Added to the incremental energy costs were the costs  
4 associated with purchasing transmission service that would not  
5 have been purchased had Unit 4/6 remained on-line.

6 Copies of the spreadsheet analysis were previously  
7 provided to the Staff and are also contained in my work-  
8 papers.

9  
10 **Summary of Incremental Replacement Costs**

11 Q. What are the components of the \$3,740,533 of incremental fuel  
12 and purchased power expense?

13 A. The components of the \$3,740,533 of incremental fuel and  
14 purchased power expense associated with the Unit 4/6 incident  
15 are as follows:

17	Incremental fuel	\$ 459,445
18	Incremental purchase power	\$2,999,189
19	Incremental transmission service	<u>\$ 281,899</u>
20	Total	\$3,740,533

21  
22 Please note that these values are based on estimates for  
23 August and may change slightly when actual August results  
24 become available.

1 Q. Is the \$3,740,533 for incremental fuel and purchased power  
2 expense more or less than the Company's original estimate?

3 A. Less. The original estimate for the cost of incremental fuel  
4 and purchased power expense associated with the Unit 4/6  
5 incident was \$7,934,000. This estimate assumed that the Unit  
6 4/6 outage would continue through the month of August, when it  
7 actually ended August 8. In addition, weather for the month  
8 of July was cooler than anticipated, resulting in lower spot-  
9 market energy prices. Further, in preparing its original  
10 estimate, the Company assumed the purchase of 25 MW of  
11 financially firm energy.

12 Financially firm energy is a product where the seller  
13 guarantees to deliver energy to the buyer 100% of the time. In  
14 the event that the seller is unable to deliver, the buyer may  
15 purchase energy from an alternate source and charge the  
16 original supplier for the increased cost. In other words, the  
17 supplier guarantees to keep the buyer financially "whole".  
18 Because the seller bears all of the price risk, financially  
19 firm energy usually is sold at a significant premium compared  
20 to spot-market energy, particularly during the summer months  
21 when significant price spikes may occur.

22 After review it was concluded that the reduced price risk  
23 provided by the financially firm energy did not warrant its  
24 cost, and the Company instead chose to buy 25 MW of non-firm

1           energy from Gen Sys. Therefore, an earlier return to service  
2           than originally expected, milder weather, and decision to not  
3           buy financially firm energy resulted in actual costs being  
4           less than the original estimate.

5   Q.   Does this conclude your direct testimony at this time?

6   A.   Yes.

## GLOSSARY

### Accredited Capacity

Capacity which meets the testing and availability standards of a reserve sharing pool and is certified by that pool. For example, SJLP's Lake Road Unit 4/6 has an accredited capacity of 97 megawatts (MW). Per the MAPP accreditation rules, it is tested annually per MAPP standards to demonstrate that it is capable of generating 97 MW. SJLP's reserve sharing pool, the Mid-Continent Area Power Pool (MAPP), requires its members to maintain accredited capacity of at least 115% of their peak demand.

### Capacity

The magnitude of electric generation, measured in megawatts (MW). When used in the context of a purchase transaction, such as a "capacity purchase", it refers to the amount of electric generation that is being temporarily sold or leased. For example, SJLP's purchase of 60 MW of capacity from NPPD's Gerald Gentleman Station (GGS) can be thought of as a lease by SJLP of 60 MW of NPPD's GGS generating capacity.

### Energy

Electrical energy measured in kilowatt-hours (KWH) or megawatt-hours (MWH)

### Fuel Cost

The cost of the requisite coal, natural gas, oil, etc. required to generate electrical energy.

### Market Based

Prior to the Energy Policy Act of 1992 (Act), the price of wholesale electric energy was regulated by the Federal Energy Regulatory Commission (FERC). Since the passage of the Act, wholesale electric energy suppliers have been able to apply to and receive authorization from FERC to charge unregulated prices for electric energy; i.e., a price based on whatever the market will bear.

GLOSSARY (cont'd)

Market-Based Purchases

Most of SJLP's energy purchases are from suppliers charging non-regulated prices; i.e., market-based prices.

Purchased Energy

SJLP meets its system energy requirements by either generating the energy from its own generating units or purchasing energy over the transmission grid from other utilities, marketers and independent generators.

Purchased Power

Electrical energy and/or capacity purchased from a supply other than SJLP-owned generation.

Spot-Market

The energy market from which SJLP makes its short-term energy purchases. The price for short-term energy can vary significantly throughout the day depending on demand and available supply.



My Commission expires:  
MARY ANN MCCARTHY, NOTARY PUBLIC  
STATE OF MISSOURI, BUCHANAN COUNTY  
MY COMMISSION EXPIRES NOV. 6, 2002