BEFORE THE PUBLIC SERVICE COMMISSION
OF THE STATE OF MISSOURI

FILED
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Missouri Public Service Commission

GS Technologies Operating Co., Inc. d/b/a/ GST Steel Company,	)	
Petitioner,	)	Case No. EC-99-553
v.	)	
Kansas City Power & Light Company,	)	
Respondent.	)	

CORRECTED PROPOSED FINDINGS OF FACT AND CONCLUSIONS OF LAW OF GST STEEL COMPANY

PUBLIC VERSION

Pursuant to the Commission's April 27, 2000 Order, GS Technology Operating Company, Inc., doing business as GST Steel Company ("GST"), files its Proposed Findings of Fact and Conclusions of Law in the above-referenced docket.

I. FINDINGS OF FACT

The Special Contract Between KCPL and GST

1) By Order dated October 26, 1994, the Commission approved the special contract between GST and KCPL ("Approval Order"). (Order Approving Agreement and Tariff, Case No. EO-95-67, at 2 (Mo. PSC Oct. 26, 1994)).

2) In granting that approval, the Commission relied upon a staff memorandum supporting the special contract. (Exh. 21).

3) Staff's conclusions concerning the contract have not changed. (Exh. 8, p. 5; Tr. Vol. 8, p. 372 (Proctor)).

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_____ .**

5) GST's energy charge is based on KCPL's incremental costs. (Exh. 8, p. 4).

6) ** _____ .**

7) ** _____ .**

8) GST pays a contribution to KCPL's fixed costs in the demand charge applied to the firm service portion of GST's load. (Exh. 8, p. 10; Tr. Vol. 8, p. 368 (Proctor)).

9) ** _____ .**

10) Staff witness, Dr. Proctor, has been at the Missouri Public Service since 1977. (Exh. 8, p. 1).

11) In Dr. Proctor's experience, the Commission has never allowed KCPL, or any electric utility, to include imprudently incurred costs in rates charged to consumers. (Tr. Vol. 8, pp. 376-377 (Proctor)).

12) In Staff's view, GST did not assume the risk of KCPL imprudence under the Special Contract. (Tr. Vol. 8, p. 401 (Proctor)).

13) The Commission approved the formula rate in the GST – KCPL special contract in 1994, but it has not addressed the reasonableness of the cost inputs to that formula used by KCPL. (Order Approving Agreement and Tariff, Case No. EO-95-67, Mo. PSC Oct. 26, 1994).

14) GST does not challenge the reasonableness of KCPL's charges under the special contract prior to 1998. *See* GST's Position Statement.

KCPL Imprudence Caused the Hawthorn Boiler Explosion

Historic and Background Facts Concerning Hawthorn

15) Hawthorn Unit 5 ("Hawthorn") was a 479 MW coal-fired generating station. (Exh. 1, p.8).

16) Hawthorn was one of KCPL's more economic base load units. (Exh. 3, p. 4).

17) Hawthorn burned natural gas for start up. (Exh. 6, pp. 11-12).

18) Natural gas was burned to bring the Hawthorn main and auxiliary boilers to sufficient temperature and pressure for coal to be efficiently introduced as a boiler fuel. (Exh. 6, App. 3, 4).

19) Gas flow to the Hawthorn boiler was controlled by a series of valves that are within the direct control of KCPL employees. (Exh. 6, pp. 11-12).

20) The main gas valve from the Williams' pipeline was opened and closed manually. (Exh. 6, App. 17).

21) Other gas valves were controlled electronically, including the FG-51-1 and FG-52-2 valves. (Exh. 6, p.20, App. 17).

22) Hawthorn was under the control of KCPL employees at all times on February 16 and 17. (Exh. 5, p. 16)..

Heat-up of the Hawthorn Turbine and Boiler Following Outage

23) On February 12, 1999, KCPL brought Hawthorn down for an unscheduled outage. (Exh. 5, p. 11).

24) KCPL employs a mandatory "hold" procedure in which valves are closed or equipment de-energizes while equipment is being repaired or in situations where such action is required for worker safety. (Exh. 6, p.10, App. 12).

25) Hold tags are required when a circuit or equipment can become "live" accidentally by fallen wires or induced voltages. (Exh. 5, p. 18; Exh. 6, App. 12).

26) On February 13, 1999, Melford H. McLin, KCPL Control Officer, authorized a red hold tag to close the main Williams gas valve to Hawthorn's boiler. (Exh. 6, p. 10, App. 13).

27) KCPL employees initiated plant heat-up during the early hours of February 16, 1999. (Exh. 6, p. 10).

28) KCPL procedures provide for a pre-start purging of combustible gases and a sequenced introduction of gas into various levels of the boiler. (Exh. 6, p. 9).

29) On February 16, 1999, at approximately 00:10 a.m., the red hold tag was released as the plant prepared for restart. (Exh. 6, p. 10, App. 13).

30) The Hawthorn boiler was sealed, a vacuum was established, KCPL operators opened gas valves to introduce gas to the igniters, and flames from the burners began to heat the boiler. (Exh. 6, App. 8).

31) At the time of the start-up activity, two contractor employees were attempting a weld repair of a feed water heater. (Exh. 5, p. 12; Exh. 6, App. 8).

32) In attempting to draw a vacuum on the main condenser, KCPL discovered that the weld repair was not complete and could not be completed while the line was under vacuum. (Exh. 5, p. 12, Exh. 6, App. 8).

33) Upon discovering that the repair would take at least another twelve hours beyond what had been expected, the shift supervisor stopped the heat-up. (Exh. 5, p. 12; Exh. 6, App. 8).

34) At approximately 1330 hours, on February 16, 1999, the shift supervisor instructed the control operator to purge all the fuel out of the boiler. (Exh. 5, pp. 12-13, App. 8).

35) "Purge required" status means the operators must open vents and start fans to the boiler to remove, or "purge," all combustible materials from the boiler. (Exh. 6, p. 9).

36) When the shift supervisor returned to the control room about 45 minutes later, he instructed the control operator to remove the fans from service, and it was accomplished by 1430 hour. (Exh. 5, pp. 12-13, App. 8).

KCPL Failed to Follow Its Own Procedures

"Hold" Procedures

37) KCPL had procedures for placing "holds" on safety related equipment, valves, and switches, but the company did not follow them. (Exh. 6, p. 2).

38) During cold shutdown, the main gas valve was to be manually closed, and a red tag hold placed on the valve. (Exh. 6, p. 10, App. 12 at 4.09).

39) KCPL did not have a written checklist to verify and ensure a step-by-step shutdown of plant equipment. (Exh. 5, p. 11)..

40) There may have been a written procedure for shutting down the facility, but operators did not necessarily follow it. (Exh. 5, p. 11).

Waste Water Flood

41) Just prior to 1500 hours on February 16, the toilets in the control room began overflowing. (Exh. 5, p. 13).

42) They had been inoperative since the previous day. (Exh. 6, App. 8).

43) According to Mr. McLin, the KCPL Control Operator, this problem resulted from the wastewater sump pumps operating while the main sewer line was plugged. (Exh. 6, App. 5; *see* Exh. 5, p. 13; Exh. 6, pp. 10, 12-13, App. 6, 8, 9).

44) KCPL caused the flood by failing to place a hold on the operation of wastewater sump pumps while a clogged sewer line was being cleared. (Exh. 6, pp. 3, 10-11; Exh. 5, pp. 13, 17).

45) KCPL could have avoided the flood of wastewater to the control room and computer room by red-tagging closed the wastewater sump pumps while the main sewer line was plugged. (Exh. 6, pp. 3, 10-11; Exh. 5, pp. 13, 17).

46) The overflow from the toilets ran into the control room. (Exh. 6, App. 5, 7, 8).

47) The water was an inch to one and a half inches deep on the floor of the control room. (Exh. 5, p. 13, App. 9).

48) A KCPL document indicates a check valve installed to prevent backflow into the Hawthorn control room. (Exh. 19; Tr. Vol. 5, pp. 252-255 (Ward)).

49) Mr. Ward stated that experienced operators do not rely on checked valves (Tr. Vol. 5, p. 273 (Ward)).

The Burner Management System ("BMS")

Function of BMS

50) Hawthorn used a computerized BMS to control every aspect of fuel introduced into and consumed in the unit's boiler. (Exh. 5, pp. 11-12).

51) When functioning properly, the BMS was designed to ensure plant safety by automatically closing valves to the Hawthorn boiler if any of a series of defined unsafe conditions developed. This action was known as a Master Fuel Trip ("MFT"). (Exh. 6, p.6, App. 3; Exh. 5, p. 14).

51) Unsafe conditions that would have prompted a MFT, if the BMS was functioning properly include:

a. Burner lightoff timer complete (The 5-minute timer completes after purge sequence is completed and no burners have proven on.)
b. Loss of all fuel
c. Loss of all flame (A total loss of flame detection occurs while fuel had been burning.)
d. Purge interrupted (A loss of a purge permit occurs during the Purge in Progress period.)
e. MFT pushbutton
f. Both forced-draft fans off
g. Both induced-draft fans off
h. Turbine trip
i. Airflow is less than 25%
j. Drum level not within range
k. Furnace pressure is greater than 13-inch WC
l. Inadequate waterwall circulation
m. Loss of common dc power for more than 2 seconds
n. Low furnace pressure (less than 10-inch WC)

(Exh. 6, App. 3 at pp. 7 and 8).

52) If a MFT occurred, the trip could be reset by a control room operator by pushing a button. (Exh. 6, p. 9, App. 3).

53) If the BMS was functioning properly, a MFT could not be reset unless the condition that caused the MFT had been corrected. (Exh. 6, p. 9, App. 3).

54) If an unsafe condition develops, the Fuel Safety System, a component of the BMS, will detect and notify the operator of the fault through an audible and/or visual alarm. If the fault condition for an MFT develops, the system will cut off the gas and coal supplies to the boiler. (Exh. 6, pp. 6-7, App. 1, 2).

55) There are no emergency operating procedures for the Fuel Safety System. (Exh. 6, p. 9, App. 4).

Damage to BMS on February 16-17, 1999

56) Water from the flooded control room traveled down drains, electrical conduits and other openings in the control room floor to the computer room located three floors below. (Exh. 6, App. 5, 6, 8).

57) The water caused electrical shorts to occur in the BMS, including the Fuel Safety Subsystem. (Exh. 5, pp. 13-14, App. 10). Mr. McLin stated: "It is known that circuit boards had shorted out and had to be replaced. The fuel safety system was entrained in water." (Exh. 5, App. 5).

58) Water can, and often does, cause electronic equipment to malfunction and fail. (Tr. Vol. 7, p. 348 (Lissik)).

59) The precise nature or type of water induced malfunction cannot be reliably predicted. (Tr. Vol. 7, p. 348 (Lissik)).

60) A water damaged electric system could send spurious claim signals, fail to send required alarm signals, fail to cause a required MFT to occur, allow an MFT to be reset without verifying that the condition prompting the MFT had been cleared, or send authorized signals to gas valves to open or close. (Tr. Vol. 7, pp. 348-356 (Lissik)).

61) With BMS under repair for more than eight hours, Hawthorn's safety system was not functioning properly. (Exh. 5, p. 14).

Erroneous alarms

62) The BMS emitted an alarm on the evening of February 16, 1999. (Exh. 6, p. 17, App. 10).

63) The system was reset about two hours later. (Exh. 6, p. 17, App. 10).

64) Therefore, the BMS still was not operating normally in the evening of February 16, six hours after the water damage was first observed. (Exh. 6, p. 17, App. 10).

65) KCPL's records show that the FSS lost AC power at 1453 hours and that it lost DC power a few minutes later. The power was restored and the systems were reset immediately. (Exh. 6, p. 13, App. 10).

66) At 1522 hours, the operator reset an MFT trip. (Exh. 6, p. 13, App. 10).

67) At 1600 hours, the FSS was energized but had experienced substantial water damage due to the wastewater flood. (Exh. 6, p. 14).

68) The potential for further short circuits, erroneous readings and other difficulties with the BMS due to water damage existed. (Exh. 5, p. 14).

69) KCPL did not de-energize the BMS system while its components were being dried out, repaired and retested. Through direct observation of the water damage, work performed

to dry or repair various components, and erratic alarms (Exh. 6, App. 10), KCPL employees knew that the BMS was not functioning properly from the time of the flooding until the explosion occurred. (Exh. 6, p. 3, App. 10).

70) At this time, several of the conditions that cause an MFT were still in the offending state: both forced-draft fans were off; both induced-draft fans were off; and airflow was less than 25 percent. (Exh. 6, pp. 13-14, App. 5, 8, 11).

KCPL Repair Efforts

71) A KCPL maintenance foreman, Daryl Helsley, and a crew of technicians (including Ed Long and Dave Tyrell) spent the afternoon and evening until 2200 hours on February 16, cleaning, drying, and repairing components to BMS in the computer room, which is three levels below the control room. (Exh. 5, p. 13, App. 9; Exh. 6, pp. 11-12, 16, App. 5, 6, 7, 14).

72) Mr. Boylan, a journeyman electrician, was called in for the 2300 hours to 0700 hours shift on February 16-17 to assist in replacing a relay that had failed in the BMS from the water intrusion. (Exh. 6, p. 17, App. 15).

73) Work was just beginning on the relay when the explosion occurred, just after midnight, early on February 17, 1999. (Exh. 6, p. 17, App. 15; Exh. 5, pp. 13-14, App. 10).

Main Gas Valve was Left Open

74) The main gas line to Hawthorn is 24 inches in diameter and carries gas to the main gas control valves under a nominal pressure of 380 psig. Sensors in the pipes record the volume of gas going into the boiler. (Exh. 5, p. 12).

75) KCPL used red holds to close and tag the main Williams gas valve to the site during the forced outage (Exh. 6, App. 13).

76) The hold was released early on the morning of February 16 (00:10 am) as the plant was prepared for restart. (Exh. 6, p. 10, App. 13).

77) There is no documentation that this valve was retagged and protectively held closed either after the restart was aborted on the afternoon of February 16, or after the wastewater damage to the BMS was discovered shortly thereafter. (Exh. 6, p. 10, App. 13).

Documented Gas Flow to Boiler

78) To prevent the admittance of gas to the boiler due to the inadvertent opening of the gas valve, the manual valve should have been red-tagged closed. (Exh. 5, p. 17).

79) KCPL did not close the manual gas supply valves or place hold tags on them to ensure they remained in the closed position. (Exh. 5, p. 14).

80) Plant staff took no action to stop the flow of gas into the boiler. (Exh. 5, p. 15).

81) KCPL failed to take the precaution to close the gas valves. (Exh. 6, p. 4).

82) Hourly readings of gas flow and pressure for the Hawthorn site on February 16 and 17 indicates gas was being used for the plant heat-up beginning early the morning of February 16 and returning to a low level in the early afternoon of that day. (Exh. 5, p. 14, App. 11).

83) Mr. Ward traced an open pathway of gas flow from the pipeline to the boiler. (Exh. 6, pp. 19-20, App. 17).

84) KCPL released holds placed on natural gas valves during the February forced outage early on the morning of February 16 in preparation for restart of the unit, but did not replace holds on those valves when the restart was aborted, when water damage to the BMS occurred, or when the BMS signaled a Master Fuel Trip alarm. (Exh. 6, p. 10).

85) Throughout the afternoon and evening of February 16, KCPL could not rely on signals from the BMS system, and had no way of determining if water or other damage could cause signals to open the gas valves to the Hawthorn boiler. (Exh. 6, pp. 3-4).

86) At some point on February 16, around 2100 hours, either a KCPL employee inadvertently opened the gas valves to the boiler or a short in the BMS had the same effect. (Exh. 5, p. 15, App. 12; Exh. 5, p. 16).

87) Gas readings indicate the flow increased in the evening of February 16: at 2100 hours the flow was 145 MCF; at 2200 hours it was 263 MCF; at 2300 hours it was 268 MCF; and the final reading available at 2400 shows a flow of 314 MCF—a flow higher than any hourly reading during the earlier heat-up of the boiler. (Exh. 5, p. 15, 16, App. 12).

88) Gas started flowing to the boiler at about the time the latest MFT was reset. (Exh. 6, pp. 18-19, App. 11, 16).

89) If the BMS had been functioning properly, another MFT would have occurred once gas started to flow and there was no flame. (Exh. 6, pp. 18-19, App. 11, 16).

90) Gas valves recovered from the wreckage (Exh. 6, App. 22) indicate an open flow path to the Hawthorn boiler. (Exh. 6, pp. 4, 19-20, App. 17, 22).

91) The William's Gas Valve was also open to allow gas to flow to the boiler. (Exh. 5, p. 16, App. 13; Exh. 6, App. 5, 18, 19, 20, 21).

92) After the explosion, a KCPL employee closed the Williams main gas valve to the boiler, extinguishing a fireball in the lower level of the boiler rubble. (Exh. 5, p. 16, App. 13; Exh. 6, App. 5, 18, 19, 20, 21).

Description of Explosion

93) Observation of a fireball following the boiler explosion revealed the continued flow of substantial amounts of gas to the boiler. (Exh. 6, p. 4).

94) The immediate cause of the explosion was an accumulation of gas in the firebox of the boiler. (Exh. 12, p. 19).

95) The gas flow ended only after KCPL employees manually closed main gas valves that should have been tagged closed during the afternoon of February 16. (Exh. 6, p. 4).

No KCPL Testimony on Hawthorn Explosion

96) KCPL's only response to the facts as related by GST was Witness Giles' assertion that Witness Ward's testimony is speculative and that Mr. Ward relies on eyewitness accounts and statements made by Plant Manager James Teaney. KCPL does not assert that any facts presented by GST are incorrect. (Exh. 12, pp. 17-18).

97) Staff does not dispute or disagree with GST finding that KCPL failed to close the main gas valve, that the Hawthorn BMS was damaged by the sewage overflow, that the type of damage water causes to electronic components can be unpredictable, that the damaged BMS sent alarms and spurious signals. (Tr. Vol. 7, pp. 341-360 (Lissik)).

Service Provided by KCPL has Been Unreliable and Inadequate

Across the Board KCPL Cuts in Spending, Investment, Training

98) KCPL reduced the number of employees from over 3,130 to 2,550 between 1993 and 1998, a 19% reduction, which resulted in a reduction in coal-fired operating costs from $138.3 Million to $126.4 Million, an 8.6% reduction. (Exh. 5, p. 4, App. 2).

99) KCPL reduced coal-fired maintenance costs by 17.4% in the same time period, from $39.5 Million to $32.6 Million. (Exh. 5, p. 4, App. 2 at 323, App. 3 at 320).

100) Overall, KCPL reduced maintenance costs from $81 Million in 1992 to just under $71 Million in 1998. (Exh. 11, pp. 4, 12).

101) KCPL reduced its annual five-year forecasts of capital expenditures for existing generating stations. The forecasts have dropped from $191.6 Million in 1994 to $155.3 Million in 1995; to $114.7 Million in 1996; and to $70.7 Million in 1997. The projection increased in 1998 to $113.1 Million, but dropped in 1999 to $81.2 Million.

102) The KCPL system as a whole and certain of KCPL's plants have experienced much higher cuts in non-fuel O&M spending and higher forced outage rates than their relevant KCPL peer groups. (Exh. 7, p. 17; Tr. Vol. 7, p. 437 (Norwood)).

103) KCPL cut operator training at Hawthorn from 1,996 in 1996 to __0__ in 1998. (Exh. 11, Schedule MME-1, p. 18; Tr. Vol. 7, p. 460 (Eldridge)).

104) The number of non-OSHA related training hours at Hawthorn dropped from a high of 8,318 hours in 1996 to 1,234 hours in 1998, which is a drop of 85% from 1996 and 70% from 1995. (Exh. 5, p. 5).

105) Hawthorn operators had no training hours in addition to their OSHA hours and no simulator time in 1998, but had training in the prior two years (Tr. Vol. 7, pp. 460–461 (Eldridge)).

106) When the KCPL study is adjusted to remove the bias of Wolf Creek, declining performance trend in forms of increased forced outages is pronounced in recent years and at nearly double the rate of the industry average. (Exh. 7, p. 22).

107) Hawthorn's equivalent forced outage rate (EFOR) has risen from 7.1% in 1994 and 5.36% in 1995 to 11.8% in 1996; 13.59% in 1997; and 33.52% in 1998. (Exh. 5, p. 7).

108) Non-fuel O&M expenses at Hawthorn have been much higher than that of the Hawthorn peer group. (Exh. 7, p. 24).

109) This has coincided with a sharply increasing Forced Outage Rate that is consistently higher than that of Hawthorn's peers. (Exh. 7, p. 25).

110) A similar trend has occurred at La Cygne 2, another KCPL plant. (Exh. 7, p. 26).

111) All of KCPL's plants were out of service for one reason or another in September 1998, except for the Wolf Creek nuclear unit, which KCPL does not operate. (Exh. 5, pp. 10-11).

Plant Performance has Declined Sharply

112) The costs of poor generating unit availability and performance are prohibitive in a competitive market, especially during peak load periods. (Exh. 5, pp. 2-3).

113) KCPL power plant production performance has steadily declined in recent, particularly in terms of plant availability. (Exh. 5, p. 3).

114) Its reduced expenditures and attention to plant performance has produced a trend of declining equivalent availability and increased forced outages. (Exh. 5, p. 3).

115) The effects of this trend have been manifested in the chronic reliability problems GST experienced in 1998 and instances such as the Hawthorn explosion. (Exh. 5, p. 3).

116) Poor unit availability has required KCPL to rely more than it should on energy purchases and more expensive load resources to meet its load requirements. (Exh 5, p. 7).

117) This development has exposed KCPL and its ratepayers to excessive spot energy prices, given the volatility of wholesale energy in today's immature competitive markets. (Exh. 5, pp. 7-8).

118) KCPL did not improve the performance of its plants, even though its management was aware of the changes in the wholesale market, instead allowing the performance of the plants to decline. (Exh. 5, p. 8).

119) The increased pricing has helped to fuel the concerns of deterioration in performance and reliability (Tr. Vol. 7, pp. 440-441 (Norwood)).

120) Between 1994 and 1998, KCPL's total system unavailable capacity due to unplanned outages and derates had more than doubled at the time of monthly peak demand from 2,064 MWs to 4,608 MWs. This shows a decline in performance, since outages and derates occur when equipment or operators or maintainers make mistakes. (Exh. 5, p. 6).

121) Availability at KCPL's plants has been contrary to the trend of increasing unit availability and reduced costs by other utilities. (Exh. 5, p. 6).

122) KCPL witness Eldridge testified that, KCPL's availability performance trends compared favorably to a peer group when viewed using three year rolling average for the period 1985 to 1997 (Exh. 11, pp. 3, 5; Schedule MME-1, p. 14).

123) KCPL claimed that, in looking at the equivalent availability factor, the KCPL units performed above the industry average in the early 1990's and trended toward the industry average in recent years. (Exh. 11, p. 4; Schedule MME-1, pp. 11, 14, 19).

124) Ms. Eldridge stated that, the KCPL system availability was within industry standards for the period 1995 - 1998, but was less than a percentage point below the expected average. (Exh. 11, p. 4; Schedule MME-1, pp. 11, 14).

125) KCPL's availability factor has trended downward in the last few years and is 6% worse than the peer group average. (Exh. 7, pp. 20-21).

126) The Staff found the doubling of the unavailable capacity was significant (Exh. 9, pp. 10-11; Tr. Vol. 7, pp. 329, 331-332 (Lissik)).

127) Other utilities have been increasing unit availability, while KCPL's plants have been doing the opposite. (Exh. 10, p. 3).

KCPL Peer Group Study Is Fatally Flawed and Inadequately Documented

128) GST surrebuttal witness Mr. Norwood explained that:

> Evaluating average performance of KCPL and peer group units back to 1989 was inappropriate because data applicable to years prior to the period of recent declining KCPL performance identified in GST's complaint was not pertinent to the issues in the complaint. (Exh. 7, pp. 4-6; Tr. Vol. 7, pp 415-416 (Norwood)).

129) GST's complaint focuses on recent cost reduction and failing reliability trends and KCPL's study masks the recent decline by using rolling three-year average evaluation periods. (Exh. 7, pp. 5, 9, 21; Tr. Vol. 7, pp. 417-419; 421-423; 442-443; 447 (Norwood)).

130) The techniques emphasize performance over a decade ago and de-emphasizes recent performance decline by averaging it with earlier years. (Exh. 7, pp. 5-6, 9-11, 20- 21; Tr. Vol. 7, pp. 417-419, 421-423, 442-443, 447 (Norwood)).

131) The use of a three-year rolling average could bias a trend, potentially masking sharp increases or decreases in performance (Tr. Vol. 6, p. 313 (Lissik)).

132) KCPL claims that the three-year rolling average used in a ten-year study would provide the Commission with historical as well as recent performance data, (Exh. 11, pp. 2, 13, 19, and 20; and that using a three-year average smoothes out variations, such as those due to refueling and major maintenance. (Tr. Vol. 7, pp. 424-425 (Norwood); Tr. Vol. 7, pp. 457-458 (Eldridge)).

133) Ms. Eldridge admitted coal-fuel plants, such as the ones at issue here, do not shut down for refueling. (Tr. Vol. 7, pp. 467-468 (Eldridge)).

134) The peer group selection criteria did not include numerous factors that affect performance and costs of coal-fired power plants. (Exh. 7, pp. 4–5, 9-10, 13-14; Tr. Vol. __, pp. 443-448 (Norwood); Tr. Vol. 7, pp. 469-470 (Eldridge)).

135) Many of the plants in the peer group are different in design, vintage, and size compared to KCPL's units. (Exh. 7, p. 4).

136) KCPL claims that there are many factors affecting availability, but considered those factors to be the most important (Tr. Vol. 7, pp. 471-473 (Eldridge)).

Factors that should have been considered and were not include:

137) Differences in the type or quality of coal burned at the different plants. (Exh. 7, pp. 13-14; Tr. Vol. 7, pp. 444-445, 448-449 (Norwood)).

138) KCPL's peer group included liquite burning plants. Liquite is a dirty, low energy content fuel with materially different efficiency and operating characteristics from KCPL's high quality coal-burning plants. (Tr. Vol. 7, p. 444-445 (Norwood)).

139) KCPL claims that issues of fuel quality cannot be addressed without a detailed analysis of every plant. (Tr. Vol. 7, pp. 462-463 (Eldridge)). Ms. Eldridge acknowledged that fuel quality and heat content data is readily available on the Company's Form 1. (Tr. Vol. 7, pp. 468-469 (Eldridge)).

140) Interregional Labor cost differences that impact non-fuel O&M costs. (Exh. 7, pp. 13-14).

141) Differences in plant reliability performance that result from differences in the level of non-fuel O&M spending among different plants. (Exh. 7, pp. 13-14).

142) Differences in non-fuel costs resulting from the economies that generally occur at plants with multiple units in comparison to single unit sites. (Exh. 7, pp. 13-14).

143) Differences in steam turbine generator design that can impact reliability and O&M costs of generation. (Exh. 7, pp. 13-14).

144) Differences in generating unit reliability and O&M costs that occur due to the fact that a number of peer groups have scrubbers, while only one of KCPL's coal-fired generating units has a scrubber. (Exh. 7, pp. 13-14).

145) KCPL did not examine scrubbers in its analysis because it claims that scrubbers are not one of the main causes of forced outages and because it did not want to further limit the size of the peer group (Tr. Vol. 7, pp. 463-464 (Eldridge)). KCPL also claimed that it is difficult to get into the level of detail required to determine which plants have scrubbers (Tr. Vol. 7, pp. 469-470 (Eldridge)).

146) Differences in inter-utility replacement power costs that may impact reliability performance and O&M spending of generating units. (Exh. 7, pp. 13-14).

147) Proper inclusion of additional factors would have increased the industry standard, highlighting KCPL's substandard performance. (Exh. 7, pp. 5, 14).

148) KCPL did not prepare summary statistical analyses for any of the five peer groups used in the study, nor did it remove "outlier" data that might unduly bias a peer group average toward a poorer performance (Exh. 7, pp, 5, 10, 14-16; Tr. Vol. 7, pp. 446-447, 449-450 (Norwood)).

149) KCPL claims that removing the outlier data would have also removed the 1997 Hawthorn and LaCygne plant outages from the analysis, which would have removed some of the outages at issue. (Tr. Vol. 7, p. 464 (Eldridge)).

150) The KCPL peer group study included data for Wolf Creek Nuclear plant, a facility that is not operated or managed by KCPL. (Exh. 7, p. 5; Tr. Vol. 7, pp. 435, 437-438, 442-443 (Norwood); Tr. Vol. 7, pp. 309, 324 (Lissik)).

151) Wolf Creek is only 47% owned by KCPL and is operated by Wolf Creek Operating Company. (Tr. Vol. 7, p. 333 (Lissik)).

152) The Staff agreed that with regard to determining the imprudence of KCPL's management, the Commission should be assessing the performance plants that KCPL actually controls (Tr. Vol. 7, p. 325 (Lissik)).

153) The KCPL study fails to address further declining power plant performance in 1999. (Exh. 7, pp. 4, 7, 9-10).

154) KCPL initially claimed that the 1999 data was not available to analyze, but agreed that the data was available by March 31st of 1999 upon request to NERC (Tr. Vol. 7, pp. 465-467 (Eldridge)), and that she could have obtained it in less than a week (Tr. Vol. 7, p. 466 (Eldridge)).

155) Ms. Eldridge, did not have underlying source data for the peer groups. (Exh. 7, pp. 6, 10).

156) Ms. Eldridge did not prepare summary statistics for four of the five peer groups. (Exh. 7, pp. 6, 10).

157) Ms. Eldridge had no documentation of her claimed request to NERC for the peer group reliability data used. (Exh. 7, pp. 6, 10).

158) Ms. Eldridge had only five pages of summary level performance statistics for the more than 1300 unit years of peer group performance data considered in the analysis. (Exh. 7, pp. 6, 10).

159) Correcting KCPL's for the most obvious flaws shows a decline in KCPL performance that supports the allegations in GST's complaint. (Exh. 7, pp. 4, 7, 9–10, 12, 19, 23; Tr. Vol. 5, pp. 138; Tr. Vol. 7, pp. 447-448, and 452-453 (Norwood)).

160) The Staff notes that benchmarking, like KCPL performed in its study, can be a useful tool to determine if a unit is operating consistent with its peers. However, similar units can have different operational characteristics because of fuel mixes, loading and dispatching conditions, market pressure, random outages, etc. (Exh. 10, pp. 2, 9; Tr. Vol. 7, pp. 320-321 (Lissik)).

161) The use of statistical average over a large number of peer groups help, but should not be referred to as an industry standard. (Exh. 10, pp. 2, 13-21).

Norwood Rebuttal of Study

162) The corrected study supports GST's contention that KCPL's system and individual generating unit performance has not been within industry standards. (Exh. 7, pp. 4-7, 9-10, 18).

163) The study actually shows that there has been a significant recent negative trend in the reliability performance of KCPL's generating units that has coincided with a sharp reduction in KCPL's maintenance spending for these facilities. This trend is not reasonable and expected as asserted by KCPL. (Exh. 7, pp. 19-20).

Staff Testimony Regarding the Study

164) The Staff noted the increase in unavailable capacity between 1994 and 1998 is significant. (Exh. 10, pp. 10- 11).

165) The Staff agrees that the KCPL report actually supports GST's testimony that other utilities have been increasing unit availability, while KCPL's plants have been doing the opposite. (Exh. 10, p. 3).

166) Disregarding Wolf Creek, the average capacity factor for each of the other KCPL baseload units for 1994 to 1998 is less than 70%. (Tr. Vol. 7, p. 309 (Lissik)).

167) While some of units' average availability were at or above the peer group average a number of the units operated as much as 10% below the peer group average at different times during the 1994 to 1998 period. (Tr. Vol. 7, pp. 310-312 (Lissik)).

168) Increased forced outages rates of some of the units coupled with a slight, but steady decrease in the system-wise availability is a cause for concern and staff will continue to monitor the operation of the units. (Exh. 10, p. 6).

169) Staff's assessment of KCPL's peer group study made no adjustment for the inclusion of Wolf Creek or other errors observed by Mr. Norwood. (Tr. Vol. 7, pp. 320-321).

KCPL Admissions that Service Reliability to GST was "Poor"

170) GST experienced repeated power outages in 1998 due to recurring KCPL equipment failures (Exh. 5, p. 8).

171) Chronic failures by KCPL's transformer #12, which was used, cut power to GST's mill on January 20, 1998 and repeatedly during the period from July to October 1998. KCPL later acknowledged the transformer was unreliable and replaced it. (Exh. 5, pp. 8-9).

172) Transformer #1A experienced numerous voltage spikes from mid-September through the beginning of November. No action was taken until there was a tap changer failure determined by a root cause analysis to be caused by internal spring fatigue. The spring was the likely cause of the voltage spikes. As a result of the failure, GST's Melt Shop Complex was shut down for several hours and GST suffered production delays of 545 minutes by the time Transformer #1A went back on line. (Exh. 5, p. 9).

173) On November 13, 1998, KCPL's underground cable #5316-1 failed, resulting in a power fluctuation. This caused GST's Rod Mill to scrap 15 tons of steel and shut down for 170 minutes. (Exh. 5, p. 9).

174) On November 17, 1998, feeder #5314 was grounded while KCPL was repairing its feeder #5316, causing injuries to KCPL personnel. As a result, GST had to scrap 19 tons of steel; its Rod Mill was shut down for 180 minutes; its South Plant was shut down for 300 minutes; and service to the GST building was also disrupted. (Exh. 5, pp. 9-10).

175) In December 1999, an internal KCPL manager G.W. Burrows stated that the level of reliability of service to GST was "poor." (Exh. 5, p. 10, App. 7).

176) The utility's slow response to these circumstances and continued use of defective equipment like the #12 Transformer caused nearly 50 hours of lost production time and one "breakout" of liquid metal which created serious safety as well as production concerns. (Exh. 5, p. 10).

177) In August 1998, a main high-pressure steam pipe ruptured at Hawthorn 5, shooting asbestos piping insulation throughout the boiler building. KCPL had a pipe inspection program, but the company failed to realize that the pipe was a welded pipe. The plant drawings indicated the pipe was seamless, and the pipe either did not conform to specifications or the plant drawing was incorrect. (Exh. 5, p. 10). KCPL claims both occurred. (Tr. Vol. 7, p. 411 (Norwood)).

178) The result was that the plant was out of service for three months, from August to November 11. This adversely affected GST electricity costs, especially during the very high peak periods that occurred in September. (Exh. 5, p. 10; Tr. Vol. 7, pp. 410–411 (Norwood)).

179) With regard to the problems with transformer 1A, KCPL did take steps to address the problem, including checking the voltage, resetting the relay, and working with GST personnel to determine the cause of the voltage spiking. To the knowledge of KCPL's witness, no other voltage spikes were reported between this time and when the tap changer locked out. Power was restored through transformer 1B within two hours, so 545 hours of production delay seems large. Its unlikely that the LTC contact that caused the problem in November was the cause of the spikes since the unit operate in parallel. (Exh. 14, pp. 9-10).

180) The power fluctuation on February 6, 1999 was caused by a failure at the Forest Substation, four substations removed from the Blue valley substation. KCPL claims that this indicates how sensitive GST equipment is to voltage disturbances. (Exh. 14, p. 10).

181) KCPL states that cable faults may have caused eight outages at GST in 1998, two of which occurred on GST-owned cables. KCPL took a number of steps to reduce the number of cable faults and has invested in excess of $1 million to improve GST's electric service. (Exh. 14, pp. 5-6).

182) GST and KCPL representatives met in February 1999 to discuss reliability issues and KCPL committed to making certain improvements. KCPL sent GST a letter outlining steps that had been taken and planned upgrades. (Exh. 14, p. 6).

183) KCPL states that the failures of the #12 Transformer were related to manufacturing defects during the Transformer rebuild rather than to KCPL maintenance practices. It claims that the 1A Transformer had operated 140,000 times since its last inspection, which is within the inspection and maintenance interval of 500,000 recommended by the transformer manufacturer. Thus, according to KCPOL, the 1A LTC trip was not due to maintenance practices. Bier is unaware of any unreliable maintenance practices that caused outages to GST. (Exh. 14, pp. 8 - 9).

KCPL Has OverCharged GST

184) GST purchases power from KCPL in accordance with a special contract based on KCPL's estimated hourly incremental cost of production. (Exh. 3, pp. 2, 4).

185) KCPL has an obligation to manage its resources and energy purchases reasonably in order to meet the lowest achievable cost. (Exh. 3, p. 2).

186) Since the February 17, 1999 boiler explosion, KCPL has relied upon more expensive resources on its system and off-system purchase to replace generation that Hawthorn would have provided had it been available. (Exh. 3, p. 1). These higher replacement energy costs are passed directly through to GST through the incremental cost component of the Special Contract with KCPL. (Exh. 3, pp.. 1-2).

187) KCPL provided GST hourly plant dispatch data for 1998 and 1999. (Exh. 3, p. 3).

188) KCPL refused to rerun its production simulation model to include Hawthorn production for the period after the boiler explosion. (Exh. 3, p. 3).

189) Calculation of overcharges. (Exh. 3, pp. 4-6, App. 2-4).

190) Using historic 1998 data, Mr. Smith calculated an operating cost rate for Hawthorn of 10.77 mills/kWh. (Exh. 3, p. 8).

191) The estimated operating rate placed Hawthorn at the top of KCPL's resource stack, excluding peaking resources during most hours. (Exh. 3, p. 8).

192) KCPL vice-president Frank Branca stated in his deposition that Hawthorn 5 generally fell between the La Cygne and Montrose units in the dispatch order. (Exh. 3, pp. 8-9).

193) Had KCPL's Hawthorn 5 unit been on-line and available for generation during the period of February 17, 1999 through August 31, 1999 (the period for which KCPL has provided incremental cost data), GST's total energy payments for that period would have been approximately $2.8 million lower than what was actually charged for that period. (Exh. 3, p. 2, 4, App. 1; *see also* Exh. 3, App, 2, 3, 4, 5).

194) ** _____ **

195) As a result of the Hawthorn 5 outage, GST continues to incur costs above those that would have been incurred with Hawthorn 5 in operation. Through October 1999, those additional costs are estimated to be in excess of $3 million. (Exh. 3, p. 2).

196) ** _____ _____ .**

197) ** _____ _____ **

198) In addition to the extra costs resulting from the Hawthorn 5 explosion, GST experienced significant service disruptions and costs during various times in 1998 due to service problems caused by KCPL equipment failures and a major steam pipe explosion at

Hawthorn 5 that occurred on August 20, 1998 and kept the unit out of service for nearly three months. (Exh. 3, p. 2).

199) Neither Staff nor KCPL offered an alternative calculation of the increase in costs incurred by GST as a result of the Hawthorn outage. (*See generally* Tr. Vol. 6, pp. 199-216 (Smith)).

200) KCPL does not dispute that GST has paid higher prices because of the Hawthorn outage. (Exh. 12, p. 17).

201) Hawthorn was one of KCPL's lower cost sources of base load generation. Following the loss of Hawthorn 5, KCPL has been meeting its load requirement through short-term energy purchases and other more expensive resources. (Exh. 3, p. 4).

202) The excessive charges KCPL has billed GST are primarily captured by the difference between the incremental energy costs actually charged to GST and the lower incremental costs that would have applied if Hawthorn had not exploded and had continued to operate at historic cost and production levels. (Exh. 3, p. 3).

203) During each hour when short-term replacement energy purchases exceeded the cost that KCPL would have incurred to produce the same amount of power at Hawthorn 5, GST was overcharged. GST was also overcharged where KCPL utilized other generation resources that were more expensive than Hawthorn 5 would have been. (Exh. 3, p. 4).

204) GST asked KCPL to rerun its production simulation model to include Hawthorn 5 in the model for the period following the boiler explosion. KCPL refused to perform any modified simulation runs for GST. (Exh. 3, p. 3).

205) GST acquired hard copies of the hourly dispatch data, and Witness Smith reconstructed the hourly costs to GST. (Exh. 3, p. 3).

206) KCPL provided dispatch data through August 1999. (Exh. 3, p. 5).

207) ** _____ **

208) ** _____

[redacted]

209) [redacted]

210) [redacted]

211) [redacted]

212) [redacted]

213) [redacted]

214) [redacted]

215) [redacted]

Insurance Reimbursement of Replacement Energy Costs

216) From 1977 to 1987 GST witness Steven Carver was employed by the Missouri Public Service Commission in various professional auditing positions. (Exh. 1, p. 3).

217) From 1983 to 1987, Mr. Carver served as Chief Accountant for Missouri PSC's Accounting Department. (Exh. 1, p. 4).

218) KCPL has received $5 million in insurance proceeds as reimbursement of Hawthorn explosion-related replacement energy costs. (Exh. 1, p. 8).

219) As described in a KCPL press release, dated March 2, 1999, KCPL has treated the insurance proceeds as an offset to its Increased Cost of Fuel and Purchase Power Costs. (Exh. 1, p. 8).

220) On average, Hawthorn generated approximately 2 million megawatt/hours of electricity each year. (Exh. 1, p. 9).

221) As of March 2, 1999, KCPL announced that it planned to replace Hawthorn's lost generation by purchasing additional firm and spot energy to meet the balance of its requirements, redirecting approximately 1.1 million MWh of annual bulk sales for use by KCPL retail customers, rescheduling planned maintenance outages at other plants, placing Hawthorn 6 – a 142 MW new gas-fired combustion turbine, into commercial operation in the Spring of 1999. (Exh. 1, p. 9).

222) KCPL's incremental cost chargeable to GST is calculated after considering sales to other KCPL retail loads, but before any KCPL off-system sales. (Exh. 3, App. 3).

223) The replacement energy insurance proceeds have been paid out at $54,000 per day pursuant to an extra expense endorsement under a policy with Reliance National Insurance Company. (Exh. 1, p. 10).

224) The Commission has not disallowed or required a sharing of the cost of property insurance between ratepayers and shareholders. (Exh. 1, p. 13).

225) KCPL's tariffed customers were not affected by Hawthorn-related replacement energy charges because KCPL has not sought rate relief to recover those costs. (Exh. 1, p. 15; Exh. 12, pp. 5-6).

OTHER

226) Staff witness Dr. Proctor believes that the Missouri Commission has never allowed any Missouri electric utility to recover in rates costs that the Commission has determined are unreasonable and imprudent. (Tr. Vol. 8, pp. 376-377.)

227) Staff witness Dr. Proctor agreed in his hearing testimony with the Staff position that if the Commission were to find that KCPL had acted imprudently with respect to the Hawthorn 5 boiler explosion, the charges under GST's special contract have not been just and reasonable. (Tr. Vol. 8, p. 400 (Proctor)).

228) Staff witness Dr. Proctor believes that imprudence was not a risk assumed by GST under the special contract. (Tr. Vol. 8, p. 400 (Proctor) HIGHLY CONFIDENTIAL).

Equivalent Forced Outage Rates for the KCPL System and Hawthorn 5

229) The Equivalent Forced Outage Rate (EFOR) is used as a measure of the effectiveness of a plant's operation. The higher the EFOR, the more hours the plant was not operating at the levels expected of it and, thus, the more expensive each unit is of electricity produced by the plant. (Exh. 5, p. 7).

230) Five of eight of the KCPL units have performed better than average with regard to forced outage rates in the past few years. (Exh. 11, p. 4, 5, 9).

231) The Staff agrees that the KCPL report shows increasing system forced outage rates for KCPL above those of its peers from 1994 to 1998. (Exh. 10, p. 4).

232) KCPL states that the number of significant outages (those longer than 60 days) experienced by KCPL between 1989 and 1998 was no different than that of its peers. (Exh. 11, p. 5, 9, 15; Tr. Vol. 7, pp. 406, 408 (Norwood)).

233) The Staff noted that sixty days is a long time for a unit to be offline and most baseload generation would not encounter too many incidents like that. (Exh. 10, pp. 5-6).

234) GST witness Don Scott Norwood was not aware of any evidence of outages lasting more than 30 days on the KCPL system during 1997-98 if two outages at Hawthorn 5 in 1998 and another in LaCygne 2 in 1997 are discounted. (Tr. Vol. 7, p. 413 (Norwood)).

235) The Staff stated that the increase in Hawthorn's forced outage rate is significant. (Exh. 10, p. 11; Tr. Vol. 7, pp. 313-314 (Lissik)).

236) The Staff was concerned by the increase in time that Hawthorn was off line in 1998, but the capacity factor was the highest than all previous years except one. (Exh. 10, p. 12).

237) It is unusual to see such a long period of escalating equivalent forced outage rates and poor performance. This indicates that management is not placing proper emphasis on plant operation, because good utility management practices would have noted and reacted to the declining availability more rapidly. (Exh. 5, p. 8).

Reliability Concerns at Hawthorn

238) The Hawthorn Plant Manager indicated that KCPL did not have or follow written checklists to ensure a safe shutdown of plant equipment. (Exh. 5, p. 11).

239) While Mr. Teaney thought that there was a written procedure for shutting down the facility, the operators didn't necessarily follow it. (Exh. 5, p. 11).

240) The absence of evidence that the operators followed such procedures contributed to the boiler explosion in February 1999 that destroyed most of the Hawthorn plant. He also noted that in his nine years as Plant Manager, he had never been involved with a work order problem (Exh. 5, p. 11).

241) These examples indicate a casual, informal approach toward operations and maintenance of a major utility power plant. Informality in any control room can lead to errors, and can ultimately lead to serious consequences to the plant and its personnel. (Exh. 5, p. 11).

242) The declining performance of Hawthorn over an extended period of time confirms that there were problems. Hawthorn had already had several problems, as indicated by the extremely high Equivalent Forced Outage Rate during 1998. (Exh. 5, p. 19).

243) KCPL's witness, Mr. Giles, asserted that the Hawthorne explosion and the reasonableness of the utility's actions in connection with the explosion are not relevant to GST's claims. (Exh. 12, pp. 16-17). Giles' solution to GST's problems with the pricing formula in the Special Contract is to opt out and move to a tariffed rate. Mr. Giles compared GST's actual bills under the Special Contract to bills he calculated KCPL would have charged GST for the same consumption under its current tariffed rates (with the peak load curtailable credit rider).

II. CONCLUSIONS OF LAW

a. The Commission Has Jurisdiction Over GST's Claims in this Proceeding and the Relief GST Requests

The Commission has primary and exclusive jurisdiction over the parties and the subject matter of each of the issues raised by the Petition/Complaint[1] filed by GST on May 11, 1999.[2] As explained below, as well as in GST's pleadings in response to the Commission's Order to Show Cause, GST properly brought its petition/complaint, the complaint is, in all respects sufficient, and the Commission has jurisdiction to grant the relief that GST requests.

1. Section 386.390.1 Entitles Any Customer to Ask the Commission to Investigate Any Aspect of Utility Service

Missouri law gives the Commission plenary rate and supervisory authority over public utilities. *See* MO. REV. STAT. §§ 386, 250, 393.130. The bedrock purpose of public service commission law, and the overall scheme of public utility regulation, is to protect consumers from the excesses of the monopoly powers of public utilities. *May Department Stores Co. v. Union Electric Light & Power Co.*, 107 S.W.2d 41, 48, 341 Mo. 299 (1937). The Commission must interpret its jurisdictional scope consistent with the express provisions of the law and to such further extent as the law may require, be it express or implied, to carry out the basic purpose of the law. *See* MO. REV. STAT. § 386.250.7.

[1] On May 11, 1999, GST filed a Petition asking the Commission to investigate the adequacy of service provided by KCPL to GST. Petition for an Investigation as to the Adequacy of Service Provided by Kansas City Power & Light Company and Request for Immediate Relief. In its Order Concerning Show Cause Hearing, dated February 17, 2000, the Commission determined that GST filed a "complaint" that was "sufficient under the Commission's practice rules." Order Concerning Show Cause Hearing at p. 4.

[2] As amended by GST's Motion to Amend by Interlineation, the First page of the Petition for an Investigation as to the Adequacy of Service Provided by Kansas City Power & Light Company and Request for Immediate Relief, filed February 20, 2000.

Consistent with that fundamental purpose, the Commission's process and procedure is, by design, liberally viewed to be consumer accessible. Every aspect of a public utility's character of service, operating practices, and treatment of its customers is subject to Commission scrutiny. Under Section 386.390.1 of the Missouri Revised Statutes, any person, even if they have no pecuniary interest involved, can bring a complaint to the Commission concerning anything a utility has done or failed to do in the course of providing utility service. *State ex rel. Consumers Public Service Co. v. Public Service Commission*, 180 S.W.2d 40, 352 Mo. 905 (1944).

GST, which is a KCPL customer that has been materially and adversely affected by KCPL's operational failures, is entitled to petition the Commission to investigate the utility's practices and to seek an order for appropriate relief. The Commission's jurisdiction in this regard is beyond dispute. *See* RSMo § 393.130.[3]

Further, GST's petition properly asked the Commission to examine the reasonableness of the company's actions and the effects of the destruction of Hawthorn on the prices charged to GST under its Special Contract.[4] In the course of this proceeding, the Commission has determined at various times that KCPL's actions relative to the Hawthorn incident are:

1. relevant to GST's issues of service adequacy;[5]
2. directly relevant to the issue of KCPL's charges to GST;[6]

[3] *See* KCPL Response to GST Steel Company's Motion to Compel Production of Documents, for Directed Findings Concerning Information Controlled by KCPL, and for Interim Relief, dated March 3, 2000, at p. 19.

[4] *See* MO. REV. STAT. § 393.140(2). KCPL similarly has acknowledged that the Commission has the authority to investigate the Hawthorn boiler explosion. *See* KCPL Response to GST Steel Company's Motion to Compel Production of Documents, for Directed Findings Concerning Information Controlled by KCPL, and for Interim Relief, dated March 3, 2000, at p. 19.

[5] Order Regarding GST Steel Company's First Motion to Compel Discovery and Amending the Procedural Schedule, dated July 29, 1999, p. 7.

[6] *Id*

3. relevant to GST's theory of service unreliability due to poor maintenance practices;[7]
4. relevant to GST theory that the prices it pays for service under its special contract are not just and reasonable in view of KCPL's imprudent management practices;[8]
5. "necessarily within the scope of the present proceeding."[9]

The Commission approved the GST/KCPL Special Contract pursuant to the exercise of its plenary rate and supervisory authority over KCPL and the electric service it provides to GST. KCPL and GST each acknowledged the Commission's jurisdiction in the Contract. Pursuant to that same authority, the Commission has continuing jurisdiction over the prices, terms, and conditions of electric service provided by KCPL to GST pursuant to the Special Contract. Thus, the Commission possesses both subject matter jurisdiction and jurisdiction over the parties in this proceeding. The Commission cannot waive or delegate its jurisdiction. Further, all matters upon which a complaint may be raised may be joined in one hearing. RSMo § 386.390.2; *State ex rel Consumers Public Service Co. v. Public Service Commission*, 180 S.W.2d 40, 352 Mo. 905 (1944). Therefore, in this proceeding, the Commission has jurisdiction over all matters raised in GST's complaint, as well as any additional matters the Commission may deem pertinent.

2. The Commission Previously Has Confirmed the Sufficiency of GST's Complaint

The Commission has confirmed the sufficiency of GST's complaint and its jurisdiction over such matters in prior rulings in this docket. In its Order issued on August 19, 1999, the Commission stated the scope of this action as follows:

[7] Order Regarding KCPL's Motion for Clarification, Reconsideration and Rehearing of the Commission's Order of July 29, 1999, and Regarding GST Steel Company's Second Motion to Compel Discovery, dated August 19, 1999, p. 8.

[8] *Id.*

[9] Order Regarding KCPL's Motion to Limit the Scope of Discovery and Issues, dated November 16, 1999, (denying KCPL's effort to exclude Hawthorn-related issues from the proceeding) (*mimeo* at 4).

> GST's complaint addresses both the adequacy and reliability of the electric service provided by KCPL and whether or not KCPL's charges to GST for that service are just and reasonable. The Commission is authorized, at Section 393.130.1, RSMo 1994, to consider such matters and GST is authorized to make complaint.[10]

The Commission also has previously determined that the issues in this docket include KCPL power generation and distribution matters and the Hawthorn explosion "insofar as they directly impact the two issues of the adequacy of KCPL's service to GST and the pricing of KCPL's service to GST.[11] As to each of these matters, GST's petition is sufficient in all respects and the Commission has jurisdiction to address those matters and order appropriate relief.

3. The Commission has Jurisdiction to Grant the Relief GST Requests

The Commission possesses the authority to grant the relief that GST has requested concerning KCPL's implementation of the Special Contract. Section 386.390.1 of the Missouri Revised Statutes allows complaints by individual customers alleging that they have been charged the wrong rate. Show Cause Order at 7 (citing *State ex rel. Laundry, Inc. v. Public Service Comm'n*, 327 Mo. 93, 103-104, 34 S.W.2d 37, 41 (1931)). In fact, it is settled that a single customer, or a small group of customers (but less than 25) may bring a complaint that a utility has charged them the wrong rate, and that the Commission has jurisdiction to hear the complaint, to order the customers to be placed on the correct rate, and to order rebilling to correct overcharges in historic bills. *Inter-City Beverage Co. v. Kansas City Power & Light Co.*, 889 S.W.2d 875, 877 (Mo. App. W.D. 1994); *State ex rel KCPL v. Buzard*, 168, S.W.2d 1044, 350 Mo. 763 (1993). An individual customer may not be able to challenge the reasonableness of

[10] Order dated August 19, 1999, at p. 8.

[11] Order dated August 19, 1999; quoted with approval in Order dated November 16, 1999.

tariffed rates, but may properly complain to the Commission that a utility's implementation of its rate schedules has been unjust and unreasonable as to that customer. In such instances, utility overcharges are customer specific, and RSMO Section 386.390.1 provides a forum for customers to seek relief with the Commission. No other interpretation of Section 386.390.1 would be consistent with the letter or intent of the statute.

Similar circumstances apply in this instance concerning the impact of KCPL imprudence on the prices charged to GST. GST's "rate" is the formula established by the Special Contract. GST is not challenging the contract or the pricing formula contained in that contract. From GST's perspective, the contract was just and reasonable when executed and remains just and reasonable today. Staff holds a similar view. GST PF ____.[12] GST's petition challenges KCPL's implementation of that contract insofar as the utility has included, and continues to include, imprudently incurred costs in its calculation of prices charged to GST under the contract.

While the Commission approved the rate formula in the Special Contract, it has not reviewed or approved the specific inputs into the prices KCPL charges GST. The Commission possesses continuing jurisdiction over the contract.[13] KCPL owes GST, as it owes all customers, a duty of operating its facilities in a reasonable and prudent manner. KCPL agreed that the reasonableness of its actions with respect to its generation, transmission, and distribution facilities is an issue to be decided in this case.[14] The Staff was more direct in its Position

[12] "GST PF __" refers to GST's Proposed Findings of Fact, which are listed in Part II of this document.

[13] *See* Order dated July 29, 1999.

[14] This standard of care is reflected in the "List of Issues and Order of Witness Examination" filed with the Commission on March 13, 2000, in this proceeding, which was drafted by KCPL and approved by the other parties.

Statement, which states that "if KCPL acted imprudently with respect to the Hawthorn incident, the charges to GST are unjust and unreasonable." Staff Position Statement at p. 2.

The Commission opined that perfection of a complaint as to GST's pricing questions may be unnecessary when the issues in the complaint turn on prudency (*See* Show Cause Order, p. 7). In fact, the Commission has an overriding statutory duty to prevent an electric utility from collecting any unjust or unreasonable charge. MO. REV. STAT. § 393.130.1. This obligation is as applicable to an incremental cost-based customer-specific contract approved by the Commission as it is to generally applicable tariffed rates.

The Commission needs to interpret its jurisdiction under Section 386.390.1 to be consistent with its duty under Section 393.130. A basic canon of construction is that a statute should be interpreted so as not to render one part inoperative, and to avoid a result contrary to the apparent intent of the legislature. *Mountain States Tel. & Tel. Co. v. Pueblo of Santa Ana*, 472 U.S. 237 (1985); *Certified Color Mfrs. Ass'n v. Mathews*, 543 F.2d 284, 296 (D.C. Cir. 1976). Any ambiguities should be resolved in a manner designed to give effect to all parts of the statute. *Noble v. Marshall*, 650 F.2d 1058, 1061 (9th Cir. 1981). By all means, a statute should not be construed in a way that emasculates one of its provisions. *Bridgeport Hydraulic Co. v. Council on Water Co. Lands of State of Conn.*, 453 F.Supp. 942, 949 (D.C.Conn., 1977); affirmed 439 U.S. 999 (1977).

It is unjust and unreasonable for a utility to assign a customer to an incorrect, higher cost, rate schedule because the Commission did not authorize the utility to charge the costs included in the more expensive rate to that customer. It similarly is unjust and unreasonable for KCPL to include imprudently incurred costs in its calculation of incremental costs charged to GST

pursuant to a formula in the Special Contract because the Commission did not authorize KCPL to include unreasonable and excessive costs in its calculation of those prices. In both instances, the nature of the complaint, though customer specific, falls within the basic thrust of Section 386.390.1, which encourages customer complaints to be brought before the Commission. GST's Complaint is in all respects sufficient, and the Commission has authority to provide the relief GST requests.

b. The Commission Has a Statutory Obligation to Prevent Unjust and Unreasonable Charges

The Commission is authorized, and has the obligation, to insure that KCPL does not charge GST for imprudently incurred replacement power costs. *See Order Regarding KCPL's Motion for Clarification, Reconsideration and Rehearing of the Commission's Order of July 29, 1999, and Regarding GST Steel Company's Second Motion to Compel Discovery* dated August 19, 1999, at 5-6 (stating that Commission has statutory authority to consider the adequacy and reliability of KCPL's electric service and whether or not KCPL's charges to GST for that service are just and reasonable). Missouri law provides:

> All charges made or demanded by any . . . electrical corporation . . . for electricity . . . or any service rendered or to be rendered shall be *just and reasonable* and not more than allowed by law or by order or decision of the commission. Every *unjust or unreasonable* charge made or demanded for . . . electricity . . . or any such service, or in connection therewith, or in excess of that allowed by law or by order or decision of the commission is *prohibited.*

Mo. Ann. Stat. § 393.130(1) (1994) (emphasis added). The Commission's authority to enforce this requirement of the law is the cornerstone of its regulatory responsibilities. Moreover, where metering or billing errors occur, or bills are disputed for any reason, a customer is entitled to a billing recalculation and adjustment from the time such mistakes began. See 4

CSR 240-13.025. Consistent with its statutory duty, Staff believes that "[t]he Commission has never allowed KCPL, or any electric utility, to include imprudently incurred costs in rates charged to consumers." (GST PF 11).

1. Kansas City Power & Light Co. Has the Burden of Proof Concerning Whether It Exercised Management Prudence

Under established Commission practice, where questions of management prudence have been raised, the utility carries the burden of proof. In *Re KCPL*, 25 Mo. P.S.C. (N.S.) 228, 280-28, 75 PUR4th 1, 51 (Mo. PSC 1986), the Commission investigated the prudence of the then newly completed Wolf Creek nuclear electric generating plant. With respect to prudence matters, the Commission adopted the conclusions reached in a case from the D.C. Circuit Court of Appeals that addressed this issue. *Id.* (citing *Anaheim v. Federal Energy Regulatory Commission*, 669 F.2d 799 (DC Cir. 1981)). The Commission specifically observed that "where some other participant in the proceeding creates a serious doubt as to the prudence . . . , then the applicant has the burden of dispelling these doubts and proving [its] pruden[ce]. *Id.* (quoting *Anaheim*, 669 F.2d at 809 (quoting *Minnesota Power & Light Co.*, 11 FERC ¶ 61,312, Opinion No. 86 (1980) (footnote omitted)).

The Commission in *KCPL*, 25 Mo. P.S.C. (N.S.) 228, 280-28, 75 PUR4th 1, 51 (Mo. PSC 1986) also discussed the standard that is to be used in judging a company's conduct. Citing the New York Public Service Commission's decision in *Re Consolidated Edison Co. of New York, Inc.*, 45 PUR4th 325 (1982), this Commission determined that a "reasonable and prudent" care standard is appropriate. *KCPL,* 25 Mo. P.S.C. (N.S.) 228, 280-28, 75 PUR4th 1, 51 (Mo. PSC 1986). In assessing the prudence of KCPL's management decisions, the Commission is to

ask: "Given all the surrounding circumstances existing at the time, did management use due diligence to address all relevant factors and information known or available to it when it assessed the situation?" Id. at 52. Furthermore, the Commission determined that under a reasonableness standard, "the manner and timeliness in which problems were recognized and addressed" are relevant factors to be considered. *Id.*

2. GST Has Established Its Prima Facie Case that KCPL Acted Imprudently

The explosion and fireball that occurred at Hawthorn on February 17, 1999 suggests imprudence at the outset. Through its expert testimony, and, more importantly, the contemporaneous KCPL witness statements, plant manuals, operator control logs, and other documents GST has compiled, GST has established a *prima facie* case that the boiler explosion is the direct result of KCPL unreasonable and imprudent actions. Furthermore, as described in detail in GST's attached Initial Brief and the Proposed Findings of Fact, during the course of this proceeding GST produced evidence to demonstrate conclusively KCPL imprudence.

3. GST Has Demonstrated By Clear, Convincing, and Competent Evidence that KCPL Failed to Act in a Reasonable and Prudent Manner

GST has documented and produced undisputed facts that KCPL opened the main gas valve to Hawthorn in preparation of heat-up of the boiler, that KCPL halted the heat-up, and that the main gas valve to Hawthorn was not again red tagged and closed. The record shows, using contemporaneous KCPL documents and plant records, that KCPL caused the waste water flood in the Hawthorn control room, which resulted in water draining down several floors to the computer room. GST has documented without challenge from KCPL, that waste water damaged

the Burner Management System ("BMS") that monitors and controls fuel introduction into the Hawthorn boiler. With the BMS malfunctioning, KCPL was operating virtually blind, and was unaware of the gas entering into the boiler through the open main valve, which eventually led to the explosion that occurred on February 17, 1999. GST has established by clear, competent, and compelling evidence that KCPL's reliance on the damaged BMS system was unreasonable, and that KCPL carelessness and failure to follow its own safety procedure created and perpetuated the unsafe and dangerous conditions that precipitated the explosion. By any measure, GST has demonstrated that KCPL's actions were unreasonable and imprudent.

c. GST Has Established a Rebuttable Presumption that KCPL Acted Imprudently

GST has produced persuasive and compelling evidence that KCPL imprudently managed its facilities, which has caused significantly higher electricity prices for GST and resulted in a loss of reliability in the power furnished to GST. In addition, the circumstances surrounding Hawthorn created a presumption of management imprudence that KCPL must address.

As the Commission noted in its March 23, 2000 Order in this docket, "[t]he doctrine of *res ipsa loquitur* is a rule of *evidence* that permits a jury to infer from circumstantial evidence that the defendant is negligent without requiring that the plaintiff prove defendant's specific negligence." *Weaks v. Rupp*, 966 S.W.2d 387, 393 (Mo. App., W.D. 1998) (citing *Trefney v. Nat'l Super Markets, Inc.*, 803 S.W.2d 119, 121 (Mo. App. 1990)). Under this long established doctrine, a plaintiff satisfies its burden of proof and evidentiary burden by demonstrating that:

a. the incident resulting in injury is of the kind which ordinarily does not occur if a party exercises reasonable due care;

b. the incident is caused by an instrumentality under the control of the defendant; and
c. the defendant has superior knowledge about the cause of the incident.

Trefney, 803 S.W.2d at 121.

Thus, if an explosion would not have occurred if a party had exercised reasonable care, and the party has exclusive control over those facilities, it is presumed to have acted imprudently in permitting the explosion to occur. That party bears the burden of overcoming that presumption of imprudence and proving that it acted reasonably. *Weaks v. Rupp*, 966 S.W. 2d 387 (1998 Mo. Appeal); *Zurich Insurance Company v. Missouri Edison Company*, 384 S.W. 2d, 623 (1984) (doctrine applied to sewer gas explosion); *Stevens v. Missouri Pacific Railroad Company*, 355 S.W. 2d 122, 130 (1962) (explosion occurring on railroad property); *Burr v. Kansas City Public Service Company*, 365 Mo. 115, 276 S.W. 2d 120 (1955); *Stephens v. Kansas City Gas Company*, 354 Mo. 385, 191 S.W. 2d 601 (1946) (doctrine applied in natural gas explosion case); *Hanson v. City Light and Traction Company*, 238 Mo. App. 182, 178 S.W. 2d 804 (1944) (doctrine applied in natural gas leak case); *McCloskey v. Koplar,* 329 Mo. 527, 46 S.W. 2d 557 (1932); see 5 Wigmore on Evidence, sec. 2509.

This doctrine is equally applicable to regulatory proceedings to determine management imprudence and the reasonableness of charges to ratepayers. *See Rochester Gas and Electric Corporation v. New York Public Service Commission*, 117 A.D. 2d 156, 501 N.Y.S. 2d 951 (N.Y. App. Div., Third Dept. 1986) (upholding NYPSC Order holding utility accountable for the repair costs associated with a steam tube rupture at the Ginna nuclear plant).[15]

[15] During a scheduled plant outage, RG&E employees left a piece of a steel plate in one of the unit's steam generators. During subsequent plant operations, the steel bar rubbed against the steam generator, gradually causing cracks in and disabling several tubes before one actually ruptured.

During the course of this proceeding, GST established the three elements of the r*es ipsa loquitur* doctrine. KCPL exercised exclusive and complete control over Hawthorn before, during, and after the explosion, and should bear the burden of showing that it acted reasonably and could not have prevented the boiler explosion. Power plant safe operating practices are designed to prevent unsafe conditions that could cause such boiler explosions. There is, then, a rebuttable presumption that KCPL failed to act in a reasonable and prudent manner. KCPL did not provide evidence to rebut the presumption that KCPL acted imprudently.