

“\*\*[REDACTED]\*\*” *Designates Confidential Information Has Been Removed.  
Certain Schedules Attached to this Testimony Also  
Contain Confidential Information And Have Been Removed.*

**BEFORE THE STATE CORPORATION COMMISSION  
OF THE STATE OF KANSAS**

---

**DIRECT TESTIMONY OF**

**CARL CHURCHMAN**

**ON BEHALF OF  
KANSAS CITY POWER & LIGHT COMPANY**

---

**IN THE MATTER OF THE APPLICATION OF  
KANSAS CITY POWER & LIGHT COMPANY  
TO MODIFY ITS TARIFFS TO CONTINUE THE  
IMPLEMENTATION OF ITS REGULATORY PLAN**

**DOCKET NO. 10-KCPE-415-RTS**

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

2 A: My name is Carl Churchman. My business address is 1200 Main Street, Kansas City,  
3 Missouri 64105.

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

5 A: I am employed by Kansas City Power & Light Company (“KCP&L” or the “Company”)  
6 as the Vice President of Construction.

7 **Q: What are your responsibilities?**

8 A: My responsibilities include oversight of all of the Company’s construction activities that  
9 relate to generation facilities, including oversight of the construction and installation of  
10 certain air quality control equipment on the existing coal-fired generating unit at the Iatan

1           Generating Station (“Iatan Unit 1”), as well as the construction of a new 850 MW  
2           supercritical, pulverized coal unit next to Iatan Unit 1 (“Iatan Unit 2”).

3   **Q:   Please describe your experience and employment history.**

4   A:   I have more than thirty years of electric utility generation construction experience. Prior  
5       to coming to KCP&L, I was with Bechtel Power. Immediately prior to leaving that  
6       position, I was Project Director, Construction Completion. In that role, I was responsible  
7       for overseeing the completion of Unit 2 of the Tennessee Valley Authority’s (“TVA”)  
8       Watts Bar Nuclear Generation Station. Prior to that assignment, I was the Senior Project  
9       Manager, Steam Generator Replacement. In that role I oversaw the steam generator  
10      replacement at the San Onofre Nuclear Generation Station. Prior to working for Bechtel  
11      Power, I spent twenty-eight years at Arizona Public Service Company (“APS”) where I  
12      held a number of positions including Director of Nuclear Engineering. In that role I had  
13      accountability for all engineering disciplines. While at APS, I was also directly  
14      responsible for the steam generator replacement project at the Palo Verde Nuclear  
15      Generation Station. Additionally, I had responsibility for managing the procurement  
16      activities for large-scale construction projects at APS.

17 **Q:   Have you previously testified in a proceeding before the Kansas Corporation**  
18 **Commission (“Commission”)?**

19 A:   Yes. I testified before the Commission in KCP&L’s last rate case, Docket No. 09-KCPE-  
20      246-RTS (“246 Docket”). My direct and rebuttal testimony from the 246 Docket are  
21      attached as Schedules CC2010-1 and CC2010-2, respectfully.

22 **Q:   What is the purpose of your testimony?**

1 A: The purpose of my testimony is: (1) to describe the scope of the Iatan Unit 2 Project; (2)  
2 discuss the management of the major contractors on the Project including ALSTOM  
3 Power Inc. (“ALSTOM”), Kiewit Power Constructors Co. (“Kiewit”), and other  
4 contractors during the course of the Project; and (3) to compare the Iatan Unit 2 Project to  
5 others on which I have worked during my career.

6 **Q: Please summarize your role with respect to the construction of Iatan Unit 2?**

7 A: As the Vice President of Construction, I am ultimately responsible for all aspects of the  
8 Project.

9 **Q: In general, please describe the Iatan Unit 2 Project.**

10 A: Company witness Chris Giles testifies that building Iatan Unit 2 was the best option for  
11 the least cost for Kansas ratepayers for adding generation capacity. The Iatan site already  
12 contained a 670 MW coal-fired plant that was originally built in the 1970s. The Iatan  
13 Unit 2 Project is a new, 850 MW (net) supercritical, pulverized coal unit that burns  
14 Powder River Basin (“PRB”) coal. The new unit includes emissions control equipment  
15 that meets current Best Available Control Technology (“BACT”) standards, including a  
16 selective catalytic reduction system (“SCR”) for NO<sub>x</sub> control, a wet flue gas  
17 desulfurization system (“Scrubber”) designed to use a limestone slurry solution for SO<sub>2</sub>  
18 control, and a pulse jet fabric filter (“Baghouse”) for particulate control. Additionally, a  
19 powdered-activated carbon system will be installed to remove mercury.

20 **Q: What are the major components of Iatan Unit 2?**

21 A: Iatan Unit 2 is comprised of a new steam generator (the “boiler”), a new steam turbine  
22 generator, new limestone receiving and preparations systems, modifications to the  
23 existing Iatan Unit 1 coal handling system to support Iatan Unit 2, new cooling towers, a

1 new single chimney with separate flues for Iatan Unit 1 and Iatan Unit 2, and state of the  
2 art emissions control technology including an SCR, Scrubber and Baghouse.  
3 Photographs depicting the major components of Iatan Unit 2 are attached as Schedule  
4 CC2010-3.

5 **Q: Can you describe the overall complexity of the Iatan Unit 2 Project?**

6 A: Iatan Unit 2 is a complex project based upon its size and scope. The Iatan Unit 2 Project  
7 required massive amounts of many civil, structural, mechanical and electrical  
8 commodities as explained in more detail below. For this Project, KCP&L entered into  
9 approximately 150 contracts, issued 1100 Purchase Orders, and coordinated 55 separate  
10 on-site contractors. At its highest point, there were approximately 2200 craft workers  
11 and 400 administrative and Project-personnel that came through the Project's gate on a  
12 daily basis. The Iatan Unit 2 Project is one of the first new coal plants built in over  
13 25 years in the United States, and is also one of the largest. Much of the equipment  
14 selected for the Iatan Unit 2 Project is state-of-the-art.

15 **Q: Can you please identify the major vendors to the Iatan Unit 2 Project and a general  
16 description of the services they provided?**

17 A: Yes. The major vendors who provided services on-site for Iatan Unit 2 are as follows:

- 18 • **Burns & McDonnell Engineering ("Burns & McDonnell")**: Burns & McDonnell  
19 is the Owner's Engineer for KCP&L. Burns & McDonnell's design responsibilities  
20 generally included conceptual design of the plant, development of technical  
21 specifications for procurement of equipment and services, and design of the balance  
22 of plant work. Burns & McDonnell has also provided on-site construction and  
23 engineering support services to KCP&L throughout the Iatan Unit 2 Project.

- 1 • **ALSTOM Power, Inc. (“ALSTOM”)**: ALSTOM provided engineering,  
2 procurement, construction, and start-up services for the boiler and Air Quality  
3 Control Systems (“AQCS”).
- 4 • **Kiewit Power Constructors Co. (“Kiewit”)**: Kiewit provided construction services  
5 for the balance of plant equipment, including electrical construction, turbine building  
6 erection, steam turbine generator assembly and piping, and interconnections between  
7 systems provided by others, including as supplied by ALSTOM.
- 8 • **Kissick Construction Company (“Kissick”)**: Kissick provided construction  
9 services for foundations required by equipment provided by KCP&L and ALSTOM,  
10 including but not limited to the boiler, AQCS foundations and steam turbine  
11 generator pedestal, as well as underground piping and duct banks.
- 12 • **Pullman Power, Inc. (“Pullman”)**: Pullman provided engineering, procurement and  
13 construction (“EPC”) services for the erection of a dual flue chimney for Iatan Unit 1  
14 and Unit 2.
- 15 • **Automatic Systems, Inc. (“ASI”)**: ASI provided EPC services for the Iatan Unit 2  
16 Project material handling and dust suppression systems.
- 17 • **Fisher Tank Company (“Fisher”)**: Fisher provided furnish and erect services for all  
18 holding tanks on site to support boiler and turbine operations.
- 19 • **SPX Cooling Technologies, Inc. (“SPX”)**: SPX provided furnish and erect services  
20 for the cooling tower erection.
- 21 • **Toshiba Corporation (“Toshiba”)**: Toshiba provided the steam turbine generator  
22 for Unit 2.

23 **Q: Please describe the steam generator, or boiler, for Iatan Unit 2.**

1 A: As stated above, when in operation, the boiler for Iatan Unit 2 will be a pulverized-coal  
2 steam generator that will supply steam to the steam turbine generator at a supercritical  
3 pressure of 3690 psig and at main steam and reheat temperatures of 1080°F. The  
4 function of a boiler is to provide controlled release of heat during the combustion of fuel  
5 (in this case, Powder River Basin (“PRB”) coal) and efficient transfer of heat to the  
6 feedwater and steam. The transfer of heat produces steam at the pressure and  
7 temperature required to operate the turbine.

8 **Q: What is important about the distinction of “supercritical” pressure?**

9 A: Supercritical technology produces higher energy efficiency. Conventional pulverized  
10 coal plants are broken down into two categories: subcritical and supercritical. The terms  
11 subcritical and supercritical refer to the critical point of water (3,203.6 psig, 705.4°F).  
12 The critical pressure of water is the maximum pressure that liquid and vapor can co-exist  
13 in equilibrium. At this critical point, the density of steam and the density of water are  
14 equal and there is no distinction between the two states. Supercritical plants operate at  
15 temperature and pressures that are greater than the critical point of water. As a result,  
16 supercritical plants have increased thermal efficiency. This efficiency improvement  
17 reduces fuel costs, emissions, sorbents consumption, ash and waste production, as well as  
18 water consumption.

19 **Q: Are there any unique design parameters to a supercritical boiler as compared to a**  
20 **subcritical boiler?**

21 A: Yes. A supercritical unit is also known as a “once through” design because water is  
22 intended to circulate and re-circulate for efficiency purposes. With a conventional  
23 subcritical boiler, it is necessary to have a steam drum that serves in essence as a filter for

1 the water entering the boiler. With a supercritical design, there is no need for a steam  
2 drum but the water must be demineralized before being introduced, so there must be a  
3 water treatment facility on site to support this. Also, because supercritical units run at  
4 higher temperatures and pressures, materials selected for use in pressure parts and vessels  
5 must be capable of withstanding such demands. Often this results in specification of high  
6 alloy compounds in boiler tubes and other components.

7 **Q: Which contractors had responsibility for the boiler?**

8 A: The boiler was designed, fabricated, built and installed by ALSTOM. The concrete  
9 foundations for the boiler were designed by Burns & McDonnell on the basis of structural  
10 load information from ALSTOM, and were constructed by Kissick.

11 **Q: What is the purpose of a steam turbine generator?**

12 A: The purpose of the steam turbine generator is to convert the thermal energy of the steam  
13 from the boiler into electrical energy.

14 **Q: Please describe the steam turbine generator.**

15 A: The steam turbine generator sits on top of a specially-designed concrete pedestal that is  
16 meant to absorb the high vibration caused from the rotation of the internal components.  
17 The pedestal is integrated into the structure of the powerhouse or turbine generator  
18 building adjacent to the boiler. The major components of the steam turbine generator are  
19 the generator frame, the stator, and rotor. The operation of this equipment involves the  
20 expansion of steam through stages of the turbine ultimately causing the generator rotor to  
21 become magnetized and generate electrical power. The turbine generator connects to a  
22 transformer in the existing switchyard at the Iatan site for transmission and distribution of  
23 electricity.

1 **Q: Is there anything unique about the steam turbine generator selected for Iatan**  
2 **Unit 2?**

3 A: The steam turbine generator for Iatan Unit 2 is supplied by Toshiba. Compared to the  
4 steam turbine generator for Iatan Unit 1, the Toshiba unit is physically much larger. This  
5 is necessary so that the turbine can process more steam and operate at the elevated  
6 temperatures produced by the supercritical boiler.

7 **Q: Which contractors had responsibility for the steam turbine generator?**

8 A: As I stated above, the steam turbine generator was supplied by Toshiba. The turbine  
9 pedestal was designed by Burns & McDonnell and constructed by Kissick. The turbine  
10 itself was assembled and installed by Kiewit, who also performed the piping, electrical,  
11 structural and concrete construction of the building in which the turbine generator is  
12 housed (the "Turbine Generator Building"). The engineering for the Turbine Generator  
13 Building and all associated components and systems was provided by Burns &  
14 McDonnell.

15 **Q: What is the purpose of an SCR on a coal-fired generating unit?**

16 A: SCR stands for selective catalytic reduction, a process used to limit emissions of nitrogen  
17 oxides ("NO<sub>x</sub>") into the air. The production of NO<sub>x</sub> is a by-product of coal combustion.  
18 The U.S. Environmental Protection Agency ("EPA") regulates the emission of NO<sub>x</sub>. The  
19 purpose of an SCR is to reduce the amount of NO<sub>x</sub> in the flue gas of a coal-fired  
20 generating unit. The SCR converts NO<sub>x</sub>, which consists primarily of nitrous oxide and  
21 lesser amounts of nitrous dioxide, to nitrogen and water by a chemical reaction with  
22 ammonia and a catalyst.

23 **Q: Please describe the SCR at Iatan Unit 2.**



1 A: The SCR at Iatan Unit 2 is located on top of the air heater and adjacent to the furnace  
2 economizer. It is principally comprised of a substantial amount of duct work, an  
3 ammonia injection grid, a catalyst chamber with two layers of catalyst, and considerable  
4 preparation, handling, and storage facilities for the ammonia and catalyst. The SCR for  
5 Iatan Unit 2 was designed by ALSTOM to operate at a NO<sub>x</sub> emission level of less than or  
6 equal to 0.054 lb/mmBtu over a continuous four hour period while the generating unit is  
7 operating at or above 95 percent of its design load.

8 **Q: What is the purpose of a Scrubber on a coal-fired generating unit?**

9 A: The production of the acid gas sulfur dioxide (“SO<sub>2</sub>”) is a by-product of coal combustion.  
10 The EPA regulates the emission of SO<sub>2</sub>. The purpose of a Scrubber, or “absorber” as it is  
11 sometimes called, is to reduce the amount of SO<sub>2</sub> in the flue gas of a coal-fired generating  
12 unit. A “wet” Scrubber, such as the Iatan Unit 2 Scrubber, removes SO<sub>2</sub> from the flue gas  
13 by injecting a limestone slurry solution into the flue gas. The resulting chemical  
14 reactions convert the SO<sub>2</sub> and limestone to calcium sulfate, or gypsum, and water  
15 (“slurry”) which is subsequently dewatered and transported to an on-site landfill for  
16 storage. When in operation, Iatan Unit 2 will produce approximately 70,508 pounds of  
17 slurry per hour.

18 **Q: Please describe the Scrubber at Iatan Unit 2.**

19 A: The Scrubber at Iatan Unit 2 is a “wet” scrubber, which means that the catalyst it uses for  
20 the chemical reaction to remove SO<sub>2</sub> is limestone slurry. The Scrubber is located  
21 between the induced draft fans and the chimney. It is principally comprised of the  
22 absorber vessel, a recycle spray system, and considerable preparation, handling, and  
23 storage facilities for the limestone slurry.

1 **Q: What is the purpose of a Baghouse on a coal-fired generating unit?**

2 A: The combustion of coal creates particulate matter primarily composed of ash and  
3 unburned carbon. The EPA regulates the emission of particulate matter. The purpose of  
4 a Baghouse is to capture particulate in the flue gas before the gas is released into the  
5 atmosphere by directing the flue gas to flow through a system of fabric filters. The gas  
6 stream is pulled through the fabric filter by two sets of induced draft (“ID”) fans and then  
7 exits through the absorbers and ultimately the stack. The particulate matter leaves the  
8 boiler either as bottom ash, economizer ash, or fly ash. The bottom ash collects at the  
9 bottom of the boiler and is periodically removed. The economizer ash typically separates  
10 from the flue gas and drops into hoppers for removal in the economizer area. The fly ash  
11 is the particulate matter that is relatively small and continues to be carried in the flue gas  
12 until it is removed by the Baghouse. The reduction of SO<sub>2</sub> emissions reduces the regional  
13 haze impacts of Iatan Unit 2.

14 **Q: Please describe the Baghouse at Iatan Unit 2.**

15 A: Particulate matter, or small particles of fly ash, is captured on the outer surface of the  
16 fabric filter bags. The bags are then periodically cleaned by a pulse of air, which knocks  
17 the fly ash loose from the bag. The fly ash is then collected in hoppers located at the  
18 bottom of the Baghouse and is conveyed from the hoppers to a storage facility. The  
19 Baghouse at Iatan Unit 2 is located between the air heater outlet and the ID fans. The  
20 Baghouse is principally comprised of duct work, isolation dampers, thirty-two baghouse  
21 compartments, more than 26,800 fabric filter bags, a pulse jet air system, and ash  
22 conveying equipment.

23 **Q: What contractors are responsible for the SCR, the Scrubber and the Baghouse?**

1 A: All three have been designed, fabricated and installed by ALSTOM. As with the boiler,  
2 the concrete foundations for this equipment was designed by Burns & McDonnell on the  
3 basis of structural load information from ALSTOM, and these foundations were  
4 constructed by Kissick.

5 **Q: In summary, what emission controls are being put into service with the Iatan Unit 2**  
6 **Project?**

7 A: Iatan Unit 2 will remove 98 percent or more of SO<sub>2</sub> and it is designed to emit less than  
8 0.050 lbs/mmBtu of NO<sub>x</sub>, less than 1.50 lbs/trillion Btu of mercury, and 10 percent or  
9 less particulate matter, which represents some of the lowest emissions levels in the  
10 country for coal-fired plants. Once Iatan Unit 2 is operating, the combined emissions  
11 from Iatan Units 1 and 2 will be less than the emissions from Iatan Unit 1 prior to the  
12 recent AQCS addition and other plant improvements.

13 **Q: What is the purpose of the cooling tower?**

14 A: The cooling tower is a heat rejection device which cools the circulating water to a lower  
15 temperature. The Iatan cooling tower uses “evaporative,” meaning that the cooling tower  
16 allows a small portion of the water being cooled to evaporate into the atmosphere which  
17 in turn cools the rest of the water stream.

18 **Q: Please describe the cooling tower.**

19 A: The cooling tower is a four-story high structure containing labyrinth-like “fill.” Fill is the  
20 metal component facilitating the air-water interface for air heating and evaporation to  
21 occur. The cooled water descends along the fill to be collected and recirculated through  
22 the system. The cooling water flow rate (water flowing from the cooling tower to the  
23 condensers and back) is 430,000 gallons per minute.

1 **Q: What contractor was responsible for the cooling tower?**

2 A: The cooling tower was engineered and constructed by SPX, whose construction was  
3 managed by Kiewit, who also installed the piping that connected the cooling tower to the  
4 rest of the plant.

5 **Q: What is the purpose of the water treatment facilities being placed into operation for  
6 the Iatan Unit 2 Project?**

7 A: Water is a critical component of the operation of a steam-generating coal-fired power  
8 plant. Water is used for many purposes including: equipment cooling, maintenance  
9 cleaning, air pollution control (*e.g.*, the Scrubber), solids conveying, and as the working  
10 fluid for the steam in the Unit, which as noted above must be demineralized before it  
11 enters the boiler. The term “water treatment” refers to any physical or chemical process  
12 that improves the usability of the water treated. The purpose of water treatment and  
13 conditioning is to maintain the life of the Unit by preventing corrosion and the resulting  
14 risk of decreased production capacity and increased operating costs and the associated  
15 economic losses. Iatan Unit 2 was designed to produce zero liquid discharge.

16 **Q: What does Zero Liquid Discharge mean?**

17 A: Zero Liquid Discharge (“ZLD”) means that all water is either evaporated or retained on  
18 site. ZLD is accomplished through the combination of evaporation followed by  
19 crystallization. The use of such technology further reduces environmental impacts by  
20 limiting the amount of wastewater discharged from the plant.

21 **Q: What contractors were responsible for the water treatment facilities?**

22 A: Most of the equipment for the water treatment facilities was supplied by Aquatech, Eco-  
23 Tec and WesTech. The water treatment facilities were installed by Kiewit.

1 **Q: What is the tank farm?**

2 A: The tank farm is a cluster of various liquid storage buildings used in the water treatment  
3 facilities. It is physically located adjacent to the coal yard. The tank farm was  
4 engineered, supplied and installed by Fisher.

5 **Q: What is the Balance of Plant?**

6 A: The Balance of Plant refers to the scope of work performed by or managed by Kiewit. It  
7 includes the work outside of the Iatan Unit 2 boiler and Iatan Unit 1 and Unit 2 AQCS,  
8 including the SCR, Scrubber and Baghouse in ALSTOM's EPC contract. The Balance of  
9 Plant scope would include, but not be limited to: the erection of the turbine generator  
10 building; the erection of equipment within that building including the turbine generator  
11 itself and the condensers; electrical wiring of all devices including those within  
12 ALSTOM's scope of work; foundations and substructures under all major equipment; the  
13 erection of the cooling tower for Iatan Unit 2; the erection of the multiple tanks and water  
14 treatment facility that would be common to both Iatan Unit 1 and Iatan Unit 2, the ZLD  
15 building; some civil work; painting; and heat tracing and insulation.

16 **Q: Please describe the amount of civil, structural, and environmental commodities used  
17 on the Iatan Unit 2 Project.**

18 A: The Iatan Unit 2 Project utilized approximately over 150,000 cubic yards of concrete and  
19 approximately 25,000 tons of steel. The amount of concrete that was poured on the Iatan  
20 Unit 2 Project would be sufficient to create a sidewalk that would stretch approximately  
21 325 miles, or from Kansas City, Kansas to Little Rock, Arkansas. Additionally, the  
22 Project included the creation of an on-site 27 acre landfill along with a 1.3 acre leachate

1 pond and a 4.5 acre storm water pond to safely store the material by-products from the  
2 generation process.

3 **Q: Please describe the mechanical components and other equipment installed in the**  
4 **Iatan Unit 2 Project.**

5 A: The contractors installed over 200,000 linear feet of pipe, more than 1,800,000 linear feet  
6 of boiler tubes (which, if laid end-to-end would travel a distance of over 347 miles), 300  
7 pumps, 7,500 pipe hangers and supports approximately 12,000 valves or other devices to  
8 transport water, air, chemicals, steam, ash, slurry and other materials throughout the Iatan  
9 Unit 2 and common facilities.

10 **Q: Please describe the electrical and instrumentation and controls installed in the Iatan**  
11 **Unit 2 Project.**

12 A: The Iatan Unit 2 Project contains more than 5 million feet of electrical cable, which all  
13 tolled is approximately 950 miles long. There are approximately 11,000 discreet circuits,  
14 and associated cable and conduit terminates to over 150,000 devices.

15 **Q: How many man-hours are required to complete the Project?**

16 A: The expected man-hours for the Iatan Unit 2 Project is 3,492,403 earned man-hours. As  
17 of December 6, 2009, the total earned man-hours was 3,267,750, meaning that as of that  
18 date, the Project was estimated to be 93.57 percent complete.

19 **Q: How would you describe the amount of coordination between the major contractors**  
20 **on the Iatan Unit 2 Project?**

21 A: One of the best ways to describe this effort is through Exhibit A-1 of the Kiewit Contract,  
22 which is titled Division of Responsibility (“DOR”). This document is attached as  
23 Schedule CC2010-4. It illustrates the level of coordination and turnovers between

1 contractors required over the life cycle of the Project just related to the Balance of Plant  
2 work. The entities referenced in the DOR include: KCP&L, Kiewit, Burns &  
3 McDonnell, ALSTOM, Kissick, and others.

4 **Q: What is the purpose of the DOR?**

5 A: The DOR illustrates the procurement, engineering, construction, start-up and  
6 commissioning requirements for all systems related to the Balance of Plant work as  
7 divided between and among KCP&L, Kiewit, Burns & McDonnell, ALSTOM, Kissick,  
8 and others. The DOR outlines the responsible party regarding the following work scopes:  
9 (1) purchase of material/equipment; (2) receipt of material/equipment; (3) foundation  
10 work; (4) installation of the material/equipment; (5) piping; (6) electrical wiring; and  
11 (7) start-up and commissioning. To the extent that these activities are divided among  
12 multiple contractors, the DOR indicates hand-offs or turnovers that must occur for a  
13 given scope of work on the Project. These turnovers (sometimes referred to as  
14 “Construction Turnovers,” “Commissioning Turnovers,” or “CTOs”) have been critical  
15 to KCP&L’s management of the schedule on the Iatan Unit 2 Project.

16 **Q: How does the Iatan Unit 2 Project compare to your past experience on large-scale  
17 construction projects?**

18 A: What I have seen concerning the construction and installation of the Iatan Unit 2 work is  
19 consistent with my past construction experience in that every large and complex  
20 construction project faces scheduling challenges and cost pressures. What is different  
21 about the Iatan Unit 2 Project is the degree of cost pressure resulting from the market  
22 conditions in the construction industry at the time of the Project. When I joined the  
23 Project, the market for large-scale and specifically generation-related construction was

1 facing some particularly difficult challenges including labor productivity, availability of  
2 qualified personnel, rapid increases in commodity prices, and scarcity of materials and  
3 qualified vendors. Every construction project in the country during the 2005-2008 time  
4 period was subject to these issues and the associated cost pressures are considerable.

#### 5 MANAGEMENT OF THE MAJOR CONTRACTORS

6 **Q: What have been your biggest challenges on the Iatan Unit 2 Project from a  
7 management standpoint?**

8 A: Clearly the biggest challenge I have faced since joining KCP&L as the Vice President of  
9 Construction in May 2008 has been maintaining a sound, working relationship with the  
10 project-level executives from ALSTOM, Kiewit, Burns & McDonnell and the other  
11 significant contractors on site. A related challenge has been maintaining cost control  
12 over the contractors.

13 **Q: What were the earliest challenges KCP&L faced in managing the contractors after  
14 you joined KCP&L in May 2008?**

15 A: As I testified in the 246 Docket, “During my first week as Vice President of  
16 Construction, I was involved in the negotiation of the terms of the ALSTOM Settlement  
17 Agreement [for the Iatan Unit 1 project]. I was part of a team that engaged in direct  
18 negotiations with ALSTOM’s management. I was engaged in the negotiations until the  
19 ALSTOM Settlement Agreement was completed on July 18, 2008.” Schedule CC2010-2  
20 at p. 5. By directly participating in the process for resolving the Iatan Unit 1 issues, I was  
21 able to see how William Downey and the members of the Project Team had cultivated a  
22 cooperative relationship with ALSTOM even with difficult issues in controversy. That  
23 relationship was critical to resolving the issues on the Iatan Unit 1 schedule, on working



1 through the tragedy that occurred on site on May 23, 2008 when ALSTOM's erection  
2 crane collapsed, killing one worker and seriously injuring another, and on Unit 2 issues.  
3 The management of the relationship with ALSTOM and Kiewit that was established prior  
4 to my arrival on the Iatan Unit 1 and Unit 2 projects has continued throughout the Iatan  
5 Unit 2 Project.

6 **Q: What have you and the Project Team done to manage the contractors' day-to-day**  
7 **performance on the Iatan Unit 2 Project?**

8 A: The Project Team used the same active management techniques on the Iatan Unit 2  
9 Project that were successful on Iatan Unit 1. I testified in the 246 Docket regarding the  
10 methods used to manage the contractors' performance from KCP&L's perspective in the  
11 Unit 1 Outage:

12 **Q: Is there anything, that you believe positively impacted ALSTOM's**  
13 **performance on the Unit 1 Outage?**

14 A: Yes. My team aggressively managed ALSTOM's and Kiewit's work on a  
15 daily basis. We instituted a Plan of the Day meeting that held the contractors  
16 accountable for their performance and caused the contractors to report their  
17 progress on key evolutions. We also had detailed, near-daily meetings with  
18 ALSTOM's project management team in which we discussed ALSTOM's earned  
19 value, productivity, completed and open tasks, rework and inefficiencies.  
20 ALSTOM's level of transparency regarding issues impacting its work  
21 significantly increased over the course of the Unit 1 Outage preparation period  
22 and the outage itself. Additionally, we initiated a weekly meeting with the senior  
23 project management of ALSTOM, Kiewit, Burns & McDonnell and Kissick

1 (“Senior Management Meetings”). The purpose of the Senior Management  
2 Meetings is to look ahead several weeks in the construction process to identify  
3 potential conflicts or other construction issues and achieve timely resolution.  
4 KCP&L’s active engagement with the contractors greatly increased the success of  
5 the Unit 1 Outage.

6 (Schedule CC2010-2 p. 6, ll. 23 – p. 7, ll. 14)

7 **Q: Does that testimony remain accurate today?**

8 A: Yes.

9 **Q: Describe how you have transferred the same management techniques that were**  
10 **successful from the Iatan Unit 1 Project to the Iatan Unit 2 Project.**

11 A: We have continued to engage the contractors, particularly ALSTOM and Kiewit, on a  
12 daily basis in discussions about optimizing the schedule and removing barriers to allow  
13 for full cooperation in the field. I have maintained the schedule of regular meetings,  
14 including the Senior Management meetings and the Plan of the Day meeting, through the  
15 Iatan Unit 2 Project. In addition, we have required throughout the Iatan Unit 2 Project  
16 the same level of transparency of reporting from the contractors, and we have joint  
17 discussions regarding how they can make continuous improvements in the field. We  
18 have instituted a regular weekly meeting with the project-level management of  
19 ALSTOM, Kiewit and KCP&L during which Schiff Hardin, LLP, our project oversight  
20 team, and our Project Controls team make a joint presentation regarding key elements of  
21 the Project’s earned value and schedule status. This is an open forum in which the  
22 contractors’ leads engage in discussion regarding the Project’s progress, barriers and  
23 goals. We have also instituted a weekly meeting focused on materials management at

1 which each contractor and KCP&L must report the status of all material deliveries,  
2 installation and warranty issues. Most importantly, the level of cooperation and  
3 transparency has aided us in our recent reassessment of the target dates in the Iatan Unit 2  
4 Project's schedule. \*\* [REDACTED]

5 [REDACTED] \*\* Without cultivating KCP&L's  
6 relationships with the contractors at the Senior Management and Executive levels, the  
7 active management of the contractors and the level of transparency that is required by our  
8 team and the various commercial agreements we have in place with the major  
9 contractors, revising the Iatan Unit 2 Project's schedule would have been significantly  
10 more difficult, and potentially more costly.

11 **Q: Describe the process that was used for developing the revised milestone dates for the**  
12 **Iatan Unit 2 Project.**

13 A: As Company witness William Downey testifies, as the Iatan Unit 1 project was winding  
14 down in early 2009, our concerns increased regarding the status of the Iatan Unit 2  
15 Project. \*\* [REDACTED]

16 [REDACTED]  
17 [REDACTED]  
18 [REDACTED]  
19 [REDACTED]  
20 [REDACTED]  
21 [REDACTED]  
22 [REDACTED]  
23 [REDACTED]

1 [REDACTED]  
2 [REDACTED]  
3 [REDACTED]  
4 [REDACTED]\*\*

5 **Q: How did KCP&L assist ALSTOM and Kiewit in developing a revised project**  
6 **schedule for the Iatan Unit 2 Project?**

7 A: Starting in January, 2009, I convened a series of meetings at which a focused team began  
8 looking at optimizing the schedule for the remaining Iatan Unit 2 Project work. We  
9 reviewed with the contractors' multiple options for revising schedule dates and  
10 sequencing events to recover as much time as possible. \*\* [REDACTED]

11 [REDACTED]  
12 [REDACTED]  
13 [REDACTED]  
14 [REDACTED]  
15 [REDACTED]\*\*

16 **Q: What were the goals of the 2009 Facilitation?**

17 A: At the time of the 2009 Facilitation, KCP&L was starting its second reforecast of the  
18 Project's budget. We wanted Kiewit to provide an estimate to complete its work based  
19 upon the Project's milestone dates at that time. This was important because Kiewit's  
20 estimate for its costs to complete the Project were a primary driver for determining the  
21 most reasonable path forward with respect to the revised schedule dates. \*\* [REDACTED]

22 [REDACTED]  
23 [REDACTED]

1 [REDACTED]

2 [REDACTED]

3 [REDACTED]\*\*

4 Q: \*\* [REDACTED] \*\*

5 A: \*\* [REDACTED]

6 [REDACTED]

7 [REDACTED]

8 [REDACTED]

9 [REDACTED]

10 [REDACTED]

11 [REDACTED]

12 [REDACTED]

13 [REDACTED]\*\*

14 Q: **What are CTOs?**

15 A: As mentioned earlier in my testimony, CTOs are the key interface points between Kiewit,  
16 ALSTOM and KCP&L related to the sequence of events for completing construction,  
17 start-up, and commissioning activities for Iatan Unit 2. The "CTO dates" were the dates  
18 for those key interface points. Thus, for the schedule of the work to be fully coordinated,  
19 the CTO dates required complete buy-in by all affected parties. In addition, the CTO  
20 dates had to logically fit within the sequence of major milestone dates in the schedule or  
21 those milestones could not be achieved. KCP&L utilized CTO dates to coordinate the  
22 completion, commissioning, and turnover of equipment between ALSTOM and Kiewit  
23 for Iatan Unit 1.

1 Q: How did the contractors and KCP&L revise the CTO dates to support the new  
2 milestone dates?

3 A: Beginning on June 24, 2009, key representatives from KCP&L's Construction, Start-up  
4 and Project Controls teams met with key members of the teams from ALSTOM and  
5 Kiewit to work through the schedule and resolve any apparent conflicts.

6 Q: Why would there be conflicts with the CTO dates?

7 A: ALSTOM and Kiewit had developed schedules for their own work that, when integrated,  
8 did not always align with each other to achieve the key milestones. \*\* [REDACTED]

9 [REDACTED]

10 [REDACTED]

11 [REDACTED]

12 [REDACTED]\*\*

13 Q: How did the Iatan Unit 2 Project's schedule change as a result of this process?

14 A: This process confirmed that based on all the relevant considerations, the optimal date for  
15 Provisional Acceptance was \*\* [REDACTED]

16 [REDACTED]

17 [REDACTED]

18 [REDACTED]\*\*

19 Q: In your view, do you believe that KCP&L has effectively managed the schedule for  
20 the Iatan Unit 2 Project?

21 A: Yes. I believe that optimizing the schedule was made possible because of the active  
22 management that KCP&L has employed with regard to ALSTOM and Kiewit.

1 **Q: Are there other ways in which KCP&L's management of the Iatan Unit 2 Project**  
2 **has positively impacted ALSTOM's work?**

3 A: Yes. On October 15, 2008, KCP&L requested ALSTOM to provide a detailed recovery  
4 plan to mitigate ALSTOM's delays on the Iatan Unit 2 Project. It was apparent that the  
5 Iatan Unit 2 Project's critical path to the first fire on oil milestone was in jeopardy  
6 because of ALSTOM's lagging pace on the construction of the Iatan Unit 2 economizer  
7 and assembly of the primary air and forced draft fans. The Project's critical path at that  
8 time required ALSTOM to complete overhead pressure part erection work in the  
9 economizer area before ALSTOM could allow access to Kiewit to pour the foundations  
10 for the primary air and forced draft fans. Upon completion of the foundations, ALSTOM  
11 could begin to assemble the fans. KCP&L worked with Kiewit and ALSTOM to  
12 coordinate this work and mitigate the potential impact to key milestone dates.

13 **Q: Are there other issues that the KCP&L Project Team has been successful in**  
14 **mitigating with ALSTOM?**

15 A: Yes, KCP&L and ALSTOM have worked through a series of issues related to welding of  
16 and material used for the Iatan Unit 2 Project's boiler's waterwalls.

17 **Q: What are waterwalls?**

18 A: Waterwalls are the tube panels that form the furnace for a boiler. They are made from  
19 metal alloy tubes that are welded together with metal filler material to form a "wall."  
20 The tubes carry steam that is heated by combustion in the furnace and must be capable of  
21 withstanding both high temperatures and pressures.

22 **Q: \*\* [REDACTED] \*\***

1 A: \*\* [REDACTED]

2 [REDACTED]

3 [REDACTED]

4 [REDACTED]

5 [REDACTED]

6 [REDACTED]

7 [REDACTED]

8 [REDACTED]

9 [REDACTED]

10 [REDACTED]

11 [REDACTED] \*\*

12 Q: \*\* [REDACTED] \*\*

13 A: \*\* [REDACTED]

14 [REDACTED]

15 [REDACTED]

16 [REDACTED]

17 [REDACTED]

18 [REDACTED]

19 [REDACTED]

20 [REDACTED]

21 [REDACTED]

22 [REDACTED]

23 [REDACTED]



1  
2  
3  
4  
5  
6  
7  
8  
9  
10  
11  
12  
13  
14  
15  
16  
17  
18  
19  
20  
21  
22  
23

[REDACTED]

[REDACTED]\*\*

**Q: What is the outcome of this investigation?**

A: ALSTOM's metallurgical team has concluded that the boiler is fit for operation and does not require any changes to the operating parameters. KCP&L's experts agree that the boiler should perform as designed under operation, though there may need to be certain precautions taken when the boiler is off-line so as not to damage the boiler tubes.

**Q: How has KCP&L's management of ALSTOM facilitated the investigation of the various problems you described with the waterwall panels?**

A: Had it not been for KCP&L's active management of ALSTOM in which KCP&L required ALSTOM to be transparent about its problems in the field, it is likely that neither ALSTOM nor KCP&L would have obtained the knowledge necessary to fully investigate these problems in a timely manner.

**Q: Can you identify any management problems overcome with Kiewit on the Iatan Unit 2 Project?**

A: Yes. As Company witness William Downey testifies, Kiewit was falling behind schedule in the early part of 2009 in all areas, and we became concerned over Kiewit's performance. We requested Kiewit provide additional data regarding its weekly installed quantities so that we could validate through a different source other than the schedule the problems that Kiewit seemed to be having. A copy of the weekly metrics Project Controls produces based on information from Kiewit regarding its installed quantities is attached as Schedule CC2010-5. Analysis of this additional information revealed that Kiewit had not been adequately progressing its critical piping and electrical work. We

1 were able to broach this subject with Kiewit's management and develop a common  
2 understanding of Kiewit's problems in these areas. We then worked together with Kiewit  
3 to resolve these issues, and within a few weeks, Kiewit had recovered its work on these  
4 key areas.

5 **Q: Are there other examples of how you have worked with Kiewit to resolve issues?**

6 A: Yes. A significant change in the Iatan Unit 2 Project occurred when Kiewit requested as  
7 part of the CTO review process to re-formulate its work schedule to optimize its  
8 efficiency. The schedule of Kiewit's work had been organized by system. Kiewit  
9 reorganized its work in an "Area Plan" that considerably reduced its estimate to complete  
10 the work and allowed Kiewit to recover some time in its schedule. We saw the benefit to  
11 the Iatan Unit 2 Project and worked with Kiewit and ALSTOM to change some of the  
12 CTO dates to allow Kiewit to perform to its Area Plan. The result has been that Kiewit  
13 has dramatically increased its weekly performance and, as Company witness William  
14 Downey explains, was willing to undertake \*\* [REDACTED]

15 [REDACTED]\*\*

16 **Q: Are there other ways in which you believe the KCP&L Project Team has been**  
17 **effective?**

18 A: Yes. I believe the Project Team has done a good job of managing the work on the Iatan  
19 Unit 2 Project to the Control Budget that has been in place since I arrived.

20 **Q: How has the Project Team been effective in this regard?**

21 A: I arrived in May 2008 just as the cost reforecast was being approved for the Iatan Unit 2  
22 Project. While I did not participate in that process, I saw the results. The cost reforecast  
23 of 2008 identified a number of key management issues that we needed to incorporate into

1           our plan in order to be successful. For instance, the impact to the Project from design  
2           maturation was a clear result of the 2008 cost reforecast, and that signaled to the Project  
3           Team the importance of completing the remaining design work and getting that design in  
4           the hands of the contractors as soon as possible. It was in large part because of the  
5           management cues that we received from the result of the 2008 cost reforecast that we  
6           have been able to manage within that budget ever since.

7   **Q:   Does that conclude your testimony?**

8   **A:   Yes, it does.**

BEFORE THE STATE CORPORATION COMMISSION  
OF THE STATE OF KANSAS

In the Matter of the Application of Kansas City )  
Power & Light Company to Modify Its Tariffs to ) Docket No. 10-KCPE-\_\_\_-RTS  
Continue the Implementation of Its Regulatory Plan )

AFFIDAVIT OF CARL CHURCHMAN

STATE OF MISSOURI )  
 ) ss  
COUNTY OF JACKSON )

Carl Churchman, being first duly sworn on his oath, states:

1. My name is Carl Churchman. I work in Kansas City, Missouri, and I am employed by Kansas City Power & Light Company as Vice President of Construction.

2. Attached hereto and made a part hereof for all purposes is my Direct Testimony on behalf of Kansas City Power & Light Company consisting of Twenty-seven (27) pages, having been prepared in written form for introduction into evidence in the above-captioned docket.

3. I have knowledge of the matters set forth therein. I hereby swear and affirm that my answers contained in the attached testimony to the questions therein propounded, including any attachments thereto, are true and accurate to the best of my knowledge, information and belief.

*Carl Churchman*

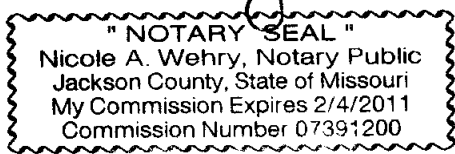
Carl Churchman

Subscribed and sworn before me this 17<sup>th</sup> day of December, 2009.

*Nicole A. Wehry*

Notary Public

My commission expires: Feb 4 2011



**BEFORE THE STATE CORPORATION COMMISSION  
OF THE STATE OF KANSAS**

---

**DIRECT TESTIMONY OF**

**CARL CHURCHMAN**

**ON BEHALF OF  
KANSAS CITY POWER & LIGHT COMPANY**

---

**IN THE MATTER OF THE APPLICATION OF  
KANSAS CITY POWER & LIGHT COMPANY  
TO MODIFY ITS TARIFFS TO CONTINUE THE  
IMPLEMENTATION OF ITS REGULATORY PLAN**

**DOCKET NO. 09-KCPE-\_\_\_\_-RTS**

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

2 A: My name is Carl Churchman. My business address is 1201 Walnut, Kansas City,  
3 Missouri 64106.

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

5 A: I am employed by Kansas City Power & Light Company (“KCP&L” or the “Company”)  
6 as Vice President of Construction.

7 **Q: What are your responsibilities?**

8 A: My responsibilities include oversight of all of the Company’s construction activities that  
9 relate to generation facilities, including oversight of the construction and installation of  
10 certain air quality control equipment on the existing coal-fired generating unit at the Iatan  
11 Generating Station (“Iatan 1”), as well as the construction of Iatan 2.

12 **Q: Please describe your experience and employment history.**

1 A: I have more than thirty years of electric utility generation construction experience. Prior  
2 to coming to KCP&L, I was with Bechtel Power. Immediately prior to leaving that  
3 position, I was Project Director, Construction Completion. In that role, I was responsible  
4 for overseeing the completion of Unit 2 of the Tennessee Valley Authority's ("TVA")  
5 Watts Bar Nuclear Generation Station. Prior to that assignment, I was the Senior Project  
6 Manager, Steam Generator Replacement. In that role I oversaw the steam generator  
7 replacement at the San Onofre Nuclear Generation Station. Prior to working for Bechtel  
8 Power, I spent twenty-eight years at Arizona Public Service Company ("APS") where I  
9 held a number of positions including Director of Nuclear Engineering. In that role I had  
10 accountability for all engineering disciplines. While at APS, I was also directly  
11 responsible for the steam generator replacement project at the Palo Verde Nuclear  
12 Generation Station. Additionally, I had responsibility for managing the procurement  
13 activities for large-scale construction projects at APS.

14 **Q: Have you previously testified in a proceeding before the Kansas Corporation**  
15 **Commission ("Commission")?**

16 A: I have not previously testified before the Commission.

17 **Q: What is the purpose of your testimony?**

18 A: The purpose of my testimony is to describe the air quality control ("AQC") equipment  
19 being installed on Iatan 1 and to compare this project to others I have worked on during  
20 my career.

21 **Q: Please summarize your role with respect to the construction and installation of the**  
22 **AQC equipment at Iatan 1?**

1 A: As the Vice President of Construction, I am ultimately responsible for all aspects of the  
2 project.

3 **Q: Please describe the AQC equipment that is being added to Iatan 1.**

4 A: As part of the Stipulation and Agreement approved by the Commission in Docket No. 04-  
5 KCPE-1025-GIE, KCP&L committed to add certain AQC equipment to Iatan 1.  
6 Specifically, KCP&L committed to add (i) a selective catalytic reduction facility  
7 (“SCR”); (ii) a flue gas desulphurization unit (“Scrubber”); and (iii) a fabric filter system  
8 for the removal of particulates (“Baghouse”).

9 **Q: What is the purpose of an SCR on a coal-fired generating unit?**

10 A: The production of nitrous oxides is a by-product of coal combustion. The U.S.  
11 Environmental Protection Agency (“EPA”) regulates the emission of nitrous oxides. The  
12 purpose of an SCR is to reduce the amount of nitrous oxides in the flue gas of a coal-fired  
13 generating unit. The SCR converts nitrous oxides, which consist primarily of nitrous  
14 oxide and lesser amounts of nitrous dioxide, to nitrogen and water by a chemical reaction  
15 with ammonia and a catalyst.

16 **Q: Please describe the SCR at Iatan 1.**

17 A: The SCR at Iatan 1 is located between the furnace economizer and the air heater. It is  
18 principally comprised of a substantial amount of duct work, an ammonia injection grid, a  
19 catalyst chamber, and considerable preparation, handling, and storage facilities for the  
20 ammonia and catalyst.

21 **Q: What is the purpose of a Scrubber on a coal-fired generating unit?**

22 A: The production of sulfur dioxide is a by-product of coal combustion. The EPA regulates  
23 the emission of sulfur dioxide. The purpose of a Scrubber, or “absorber” as it is

1 sometimes called, is to reduce the amount of sulfur dioxide in the flue gas of a coal-fired  
2 generating unit. A “wet” Scrubber, such as the Iatan 1 Scrubber, removes sulfur dioxide  
3 from the flue gas by injecting a limestone slurry into the flue. The resulting chemical  
4 reactions convert the sulfur dioxide and limestone to calcium sulfite and water.

5 **Q: Please describe the Scrubber at Iatan 1.**

6 A: As noted above, the Scrubber at Iatan 1 is a “wet” scrubber, which means that the catalyst  
7 it uses for the chemical reaction to remove sulfur dioxide is limestone slurry. The  
8 Scrubber is located between the induced draft fans and the chimney. It is principally  
9 comprised of the absorber vessel, a recycle spray system, and considerable preparation,  
10 handling, and storage facilities for the limestone slurry.

11 **Q: What is the purpose of a Baghouse on a coal-fired generating unit?**

12 A: The combustion of coal creates particulate matter. The EPA regulates the emission of  
13 particulate matter. The purpose of a Baghouse is to capture particulates in the flue gas  
14 before the gas is released into the atmosphere by directing the flue gas to flow through a  
15 system of fabric filters.

16 **Q: Please describe the Baghouse at Iatan 1.**

17 A: Particulate matter, or small particles of fly ash, is captured on the outer surface of the  
18 fabric filter bags. The bags are then periodically cleaned by a pulse of air, which  
19 removes the fly ash from the bag. The fly ash is then collected in a hopper and conveyed  
20 to a storage facility. The Baghouse at Iatan 1 is located between the air heater outlet and  
21 the induced draft fans. The Baghouse is principally comprised of duct work, isolation  
22 dampers, twenty-eight baghouse compartments, more than 20,000 fabric filter bags, a  
23 pulse jet air system, and ash conveying equipment. It replaces the existing precipitator,



1 which also removed fly ash from the flue gas but less effectively and efficiently than the  
2 Baghouse. Replacing the precipitator will help ensure that the Company can meet the  
3 requirement to remove particulate matter from the flue gas that is larger than ten microns.

4 **Q: How does the Iatan 1 AQC equipment project compare to your past experience on**  
5 **large-scale construction projects?**

6 A: What I have seen concerning the construction and installation of the Iatan 1 AQC  
7 equipment is consistent with my past construction experience in that every project faces  
8 scheduling challenges and cost pressures. What is different about the Iatan 1 project is  
9 the degree of cost pressure to which it is subject because of what is going on in the  
10 overall construction industry. The market for large-scale and specifically generation-  
11 related construction is facing some particularly difficult challenges concerning major  
12 issues such as labor productivity, availability of qualified personnel, rapid increases in  
13 commodity prices, and scarcity of materials and qualified vendors. Every construction  
14 project in the country is subject to these issues and the cost pressures associated with  
15 them are considerable.

16 **Q: Does that conclude your testimony?**

17 A: Yes, it does.

**BEFORE THE STATE CORPORATION COMMISSION  
OF THE STATE OF KANSAS**

In the Matter of the Application of Kansas City             )  
Power & Light Company to Modify Its Tariffs to         ) Docket No. 09-KCPE-\_\_\_\_-RTS  
Continue the Implementation of Its Regulatory Plan         )

**AFFIDAVIT OF CARL D. CHURCHMAN**

STATE OF MISSOURI     )  
   ) ss  
COUNTY OF JACKSON     )

Carl D. Churchman, being first duly sworn on his oath, states:

1. My name is Carl D. Churchman. I work in Kansas City, Missouri, and I am employed by Kansas City Power & Light Company as Vice President, Construction.

2. Attached hereto and made a part hereof for all purposes is my Direct Testimony on behalf of Kansas City Power & Light Company consisting of five (5) pages, having been prepared in written form for introduction into evidence in the above-captioned docket.

3. I have knowledge of the matters set forth therein. I hereby swear and affirm that my answers contained in the attached testimony to the questions therein propounded, including any attachments thereto, are true and accurate to the best of my knowledge, information and belief.

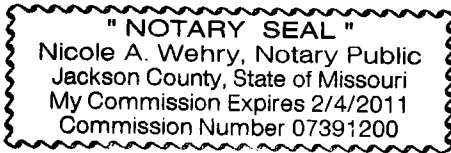
*Carl D. Churchman*

Carl D. Churchman

Subscribed and sworn before me this 4<sup>th</sup> day of ~~August~~ <sup>September</sup> 2008.

*Nicole A. Wehry*  
\_\_\_\_\_  
Notary Public

My commission expires: Feb. 4, 2011



**BEFORE THE STATE CORPORATION COMMISSION  
OF THE STATE OF KANSAS**

---

**REBUTTAL TESTIMONY OF  
CARL CHURCHMAN**

**ON BEHALF OF  
KANSAS CITY POWER & LIGHT COMPANY**

---

**IN THE MATTER OF THE APPLICATION OF  
KANSAS CITY POWER & LIGHT COMPANY  
TO MODIFY ITS TARIFFS TO CONTINUE THE  
IMPLEMENTATION OF ITS REGULATORY PLAN**

**DOCKET NO. 09-KCPE-246-RTS**

1   **Q:**    Are you the same Carl Churchman who provided Direct Testimony in this  
2           **proceeding?**

3   **A:**    Yes, I am.

4   **Q:**    **What is the purpose of your Rebuttal Testimony?**

5   **A:**    The purpose of my Rebuttal Testimony is to address assertions made by Staff witness  
6           Walter P. Drabinski regarding KCP&L’s management of the Iatan construction project. I  
7           will discuss: (1) resolution of the Audits performed by Kansas City Power & Light  
8           Company (“KCP&L”) related to the Iatan Project; (2) the effectiveness of the settlement  
9           of certain disputes with ALSTOM (the “ALSTOM Settlement Agreement”) related to

1 ALSTOM's work on the Iatan Unit 1 fall 2008 outage (the "Unit 1 Outage"); and (3) the  
2 impact of the economizer cracking on the Unit 1 Outage.

3 **Q: When did you begin your tenure of Vice President of Construction at KCP&L?**

4 A: May 6, 2008.

5 **ENGINEERING AUDITS**

6 **Q: Are you familiar with the Burns & McDonnell Vendor Audits performed by Great  
7 Plains Energy ("GPE") Audit Services?**

8 A: Yes. There were two vendor audits on Burns & McDonnell. The first audit was  
9 performed from May to July 2007, with the final report issued in October 2007 ("October  
10 Report"). A follow-up audit that was performed in February 2008 and the results from  
11 that audit were published in a report dated April 2008 ("April Report"). The purpose of  
12 the follow-up audit was to review the resolution of the issues identified in the October  
13 Report.

14 **Q: What is GPE Audit Services?**

15 A: GPE Audit Services ("Internal Audit") is the auditing division of KCP&L's parent  
16 company, Great Plains Energy. GPE initiated an audit program for the Comprehensive  
17 Energy Plan ("CEP") projects. To assist them with the CEP audits, it is my  
18 understanding that Internal Audit retained the services of Ernst & Young.

19 **Q: When did you become aware of the findings contained in the April Report?**

20 A: Shortly after my arrival at KCP&L.

21 **Q: Generally, what were the findings in the April Report?**

22 A: \*\* [REDACTED]  
23 [REDACTED]

1  
2  
3  
4  
5  
6  
7  
8  
9  
10  
11  
12  
13  
14  
15  
16  
17  
18  
19  
20  
21  
22  
23

[REDACTED]

**Q: Upon your arrival at KCP&L what did you do relative to the findings in the April Report?**

A: We took three immediate actions. On May 14, 2008, we began a series of meetings called "Gaps and Clashes" Meetings. In attendance at these meetings were representatives from KCP&L, Burns & McDonnell, Kiewit, and ALSTOM. The purpose of these meetings was to identify, discuss and resolve any and all outstanding engineering issues. These meetings continued through the summer of 2008 and the communication between the KCP&L, ALSTOM, Kiewit, and Burns & McDonnell project teams evident at that meeting resulted in the resolution of a number of pending engineering issues. In addition, I retained the services of consultants from LogOn Consulting to develop additional processes and procedures for engineering. Finally, I hired a new engineering manager who was tasked with implementing the Management Action Plan to mitigate Audit's identified risks.

**Q: How did the engineering manager implement the Management Action Plan?**

A: The new engineering manager spearheaded the Engineering Department Oversight Committee. This committee continued the progress from the Gaps and Clashes meetings within the engineering groups of KCP&L, Burns & McDonnell, ALSTOM and Kiewit. This group meets weekly to assess engineering progress, resolve critical issues and

1 develop long range planning goals and implementation. The Committee invites engineers  
2 and contractors to participate in portions of the meeting to address specific issues and/or  
3 concerns. Its broad charter included, but is not limited to: engineering quality assurance  
4 and quality control, enforcement of procedures applicable to engineering; management of  
5 contractor engineering interfaces, statusing of requests for information (“RFI”) from  
6 contractors; review and management of engineering deliverables and related schedule  
7 commitments; and staffing and resources.

8 **Q: What has been the result of the Management Action Plan?**

9 A: The risks that Audit identified in the April Report have been mitigated. KCP&L has  
10 instituted a comprehensive engineering management plan.

11 **Q: To whom have you reported the results of the Management Action Plan?**

12 A: I have reported the results of this plan to Executive Oversight Committee, Internal Audit,  
13 the Chairman, and the Board of Directors.

14 **Q: Have these entities accepted your assessment?**

15 A: To my knowledge, yes.

16 **Q: Based on your experience with engineering management, do you have an opinion as  
17 to the effectiveness of the Management Action Plan?**

18 A: Yes. I believe that the Management Action Plan has been effective at transparently  
19 identifying and resolving engineering issues to mitigate any potential impact on  
20 construction.

21 **ALSTOM SETTLEMENT AGREEMENT**

22 **Q: Are you familiar with the ALSTOM Settlement Agreement?**

23 A: Yes.

1 Q: What was your involvement with the ALSTOM Settlement Agreement?

2 A: During my first week as Vice President of Construction, I was involved in the negotiation  
3 of the terms of the ALSTOM Settlement Agreement. I was part of a team that engaged in  
4 direct negotiations with ALSTOM's management. I was engaged in the negotiations  
5 until the ALSTOM Settlement Agreement was completed on July 18, 2008.

6 Q: Are you familiar with the terms of the ALSTOM Settlement Agreement?

7 A: Yes. Under the ALSTOM Settlement Agreement, ALSTOM agreed \*\* [REDACTED]  
8 [REDACTED]  
9 [REDACTED]  
10 [REDACTED]  
11 [REDACTED]  
12 [REDACTED]  
13 [REDACTED]  
14 [REDACTED]  
15 [REDACTED]  
16 [REDACTED]  
17 [REDACTED]  
18 [REDACTED]  
19 [REDACTED]  
20 [REDACTED]  
21 [REDACTED]  
22 [REDACTED]  
23 [REDACTED]

1 [REDACTED]  
2 [REDACTED]  
3 [REDACTED]  
4 [REDACTED]\*\*

5 **Q: Do you have an opinion as to the whether the ALSTOM Settlement Agreement was**  
6 **advantageous for KCP&L?**

7 A: I believe the Settlement Agreement benefitted KCP&L. As I stated to the Commission  
8 Staff in the third quarter update meeting on September 17, 2008, I believe the ALSTOM  
9 Settlement Agreement made an already strong contract with ALSTOM even stronger, in  
10 that we secured ALSTOM's commitment \*\* [REDACTED]

11 [REDACTED]  
12 [REDACTED]\*\* In  
13 addition, the timing of ALSTOM's Settlement was sufficient to allow successful  
14 completion of ALSTOM's work.

15 **Q: Did you observe any change in ALSTOM's performance after the ALSTOM**  
16 **Settlement Agreement was executed?**

17 A: Yes. ALSTOM was able to ramp up its management and add craft personnel to prepare  
18 for and execute the work in the Unit 1 Outage. In addition, the level of cooperation and  
19 communication between ALSTOM's site management team and KCP&L's project team  
20 immediately increased. ALSTOM also was cooperative with the other key contractors on  
21 site, most notably with Kiewit. ALSTOM worked with Kiewit to allow Kiewit access to  
22 work on a staged-basis.

23 **Q: Is there anything else that you believe positively impacted ALSTOM's performance**



1 **on the Unit 1 Outage?**

2 A: Yes. My team aggressively managed ALSTOM's and Kiewit's work on a daily basis.  
3 We instituted a Plan of the Day meeting that held the contractors accountable for their  
4 performance and caused the contractors to report their progress on key evolutions. We  
5 also had detailed, near-daily meetings with ALSTOM's project management team in  
6 which we discussed ALSTOM's earned value, productivity, completed and open tasks,  
7 rework and inefficiencies. ALSTOM's level of transparency regarding issues impacting  
8 its work significantly increased over the course of the Unit 1 Outage preparation period  
9 and the outage itself. Additionally, we initiated a weekly meeting with the senior project  
10 management of ALSTOM, Kiewit, Burns & McDonnell and Kissick ("Senior  
11 Management Meetings"). The purpose of the Senior Management Meetings is to look  
12 ahead several weeks in the construction process to identify potential conflicts or other  
13 construction issues and achieve timely resolution. KCP&L's active engagement with the  
14 contractors greatly increased the success of the Unit 1 Outage.

15 **IMPACT OF THE ECONOMIZER CASING ON THE UNIT 1 OUTAGE**

16 **Q: Are you familiar with a latent condition found in the Unit 1 economizer casing**  
17 **during the course of the outage?**

18 A: Yes. Company witness Brent Davis testifies as to this issue. My understanding is  
19 consistent with Mr. Davis' testimony.

20 **Q: Do you have an opinion as to the impact of the economizer casing issue on the Unit 1**  
21 **Outage?**

22 A: As stated in our fourth quarter 2008 Strategic Infrastructure Investment Status Report to  
23 the Commission Staff, the Unit 1 Outage was impacted by thirty-two (32) days due to the

1 economizer issue. But for this issue occurring, the construction work on the Unit 1  
2 Outage could have concluded during the first two weeks of January, 2009, if not earlier.

3 **Q: What is the basis for your opinion?**

4 A: Due to the improvements that ALSTOM was making, its recovery plan was effective in  
5 meeting the dates in the Revised Unit 1 Schedule. In addition, KCP&L's active  
6 engagement of ALSTOM and Kiewit on a daily basis resulted in our ability to mitigate  
7 the impact of potential issues before they occurred.

8 **Q: Did the improved relationship with ALSTOM have any other benefits during the  
9 Unit 1 Outage?**

10 A: Yes. When the economizer cracking issue became apparent, we shared all necessary  
11 information with ALSTOM immediately, and ALSTOM was equally forthcoming with  
12 KCP&L regarding the actual impact of the economizer cracking and the workarounds it  
13 was able to perform. We also agreed to fairly compensate ALSTOM for its impacts so  
14 long as these impacts were real and quantifiable. Although ALSTOM's original estimate  
15 regarding these impacts was high, ALSTOM was reasonable in its analysis and agreed to  
16 cooperate with KCP&L in providing the documentation and information necessary to  
17 allow KCP&L to evaluate its claim in order to reach a quick resolution. ALSTOM was  
18 willing to work with KCP&L on a safety plan within the economizer outlet duct that  
19 allowed for its work and that of Babcock & Wilcox, the performing contractor for the  
20 economizer surface area contract, to proceed. But for KCP&L's active engagement with  
21 ALSTOM, the delays associated with the economizer could have been more severe.

22 **Q: Does that conclude your testimony?**

23 A: Yes, it does.

**BEFORE THE STATE CORPORATION COMMISSION  
OF THE STATE OF KANSAS**

In the Matter of the Application of Kansas City                    )  
Power & Light Company to Modify Its Tariffs to                ) Docket No. 09-KCPE-246-RTS  
Continue the Implementation of Its Regulatory Plan            )

**AFFIDAVIT OF CARL CHURCHMAN**


STATE OF MISSOURI    )  
                                  ) ss  
COUNTY OF JACKSON )

Carl Churchman, being first duly sworn on his oath, states:

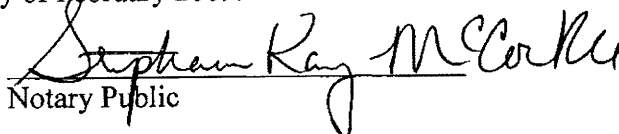
1. My name is Carl Churchman. I work in Kansas City, Missouri, and I am employed as Vice President of Construction for Kansas City Power & Light.

2. Attached hereto and made a part hereof for all purposes is my Rebuttal Testimony on behalf of Kansas City Power & Light Company consisting of eight (8) pages and Schedule(s)            through           , all of which having been prepared in written form for introduction into evidence in the above-captioned docket.

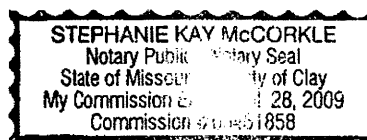
3. I have knowledge of the matters set forth therein. I hereby swear and affirm that my answers contained in the attached testimony to the questions therein propounded, including any attachments thereto, are true and accurate to the best of my knowledge, information and belief.

  
\_\_\_\_\_  
Carl Churchman

Subscribed and sworn before me this 20<sup>th</sup> day of February 2009.

  
\_\_\_\_\_  
Notary Public

My commission expires: July 28, 2009





**SCHEDULE CC2010-4 AND  
SCHEDULE CC2010-5  
THESE DOCUMENTS CONTAIN  
CONFIDENTIAL INFORMATION NOT  
AVAILABLE TO THE PUBLIC  
ORIGINAL FILED UNDER SEAL**