

SECURITIES AND EXCHANGE COMMISSION
Washington, D.C. 20549

FORM 8-K

Current Report

Pursuant to Section 13 or 15(d) of the
Securities Exchange Act of 1934

Date of Report (Date of earliest event reported): August 26, 2010

Commission File Number	Registrant, State of Incorporation, Address and Telephone Number	I.R.S. Employer Identification Number
001-32206	GREAT PLAINS ENERGY INCORPORATED (A Missouri Corporation) 1200 Main Street Kansas City, Missouri 64105 (816) 556-2200 NOT APPLICABLE (Former name or former address, if changed since last report)	43-1916803
000-51873	KANSAS CITY POWER & LIGHT COMPANY (A Missouri Corporation) 1200 Main Street Kansas City, Missouri 64105 (816) 556-2200 NOT APPLICABLE (Former name or former address, if changed since last report)	44-0308720

Check the appropriate box below if the Form 8-K filing is intended to simultaneously satisfy the filing obligation of the registrant under any of the following provisions:

- Written communications pursuant to Rule 425 under the Securities Act (17 CFR 230.425)
 - Soliciting material pursuant to Rule 14a-12 under the Exchange Act (17 CFR 240.14a-12)
 - Pre-commencement communications pursuant to Rule 14d-2(b) under the Exchange Act (17 CFR 240.14d-2(b))
 - Pre-commencement communications pursuant to Rule 13e-4(c) under the Exchange Act (17 CFR 240.13e-4(c))
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This combined Current Report on Form 8-K is being filed by Great Plains Energy Incorporated (Great Plains Energy) and Kansas City Power & Light Company (KCP&L). KCP&L is a wholly owned subsidiary of Great Plains Energy and represents a significant portion of its assets, liabilities, revenues, expenses and operations. Thus, all information contained in this report relates to, and is filed by, Great Plains Energy. Information that is specifically identified in this report as relating solely to Great Plains Energy, such as its financial statements and all information relating to Great Plains Energy's other operations, businesses and subsidiaries, including KCP&L Greater Missouri Operations Company (GMO), does not relate to, and is not filed by, KCP&L. KCP&L makes no representation as to that information. Neither Great Plains Energy nor GMO has any obligation in respect of KCP&L's debt securities and holders of such securities should not consider Great Plains Energy's or GMO's financial resources or results of operations in making a decision with respect to KCP&L's debt securities. Similarly, KCP&L has no obligation in respect of securities of Great Plains Energy or GMO.

Item 8.01 Other Events

On August 26, 2010, Great Plains Energy and KCP&L issued a press release announcing that they believe the Iatan Unit No. 2 electric generating facility has successfully completed the regulatory in-service criteria established by the Missouri Public Service Commission and the Kansas Corporation Commission. Completion of the in-service criteria is subject to the verification by the staff of both Commissions and final determination by the Commissions in KCP&L's and GMO's pending rate cases. A copy of the press release is attached to this Report as Exhibit 99.1.

KCP&L owns approximately 55%, and GMO owns 18%, of Iatan Unit No. 2. Pursuant to a Missouri Public Service Commission order, construction accounting will continue to apply to KCP&L's ownership interest in the unit allocated to its Missouri operations. GMO has filed a request with the Commission for similar authority, after entering into a stipulation and agreement for same with the Commission's staff and other parties. The amounts resulting from the continuation of construction accounting will be deferred as regulatory assets until the unit is included in the respective company's Missouri rates, which is expected to be May 4, 2011 for KCP&L and June 4, 2011 for GMO. Construction accounting will result in the treatment of expenditures and credits consistent with the treatment for the unit prior to its in-service date, and will include calculated carrying costs as provided for in the Commission orders. Amortization of these regulatory assets is expected to be determined by the Missouri Commission in the pending rate cases.

Forward-looking statements

Statements made in this report that are not based on historical facts are forward-looking, may involve risks and uncertainties, and are intended to be as of the date when made. Forward-looking statements include, but are not limited to, the outcome of regulatory proceedings, cost estimates of the Comprehensive Energy Plan and other matters affecting future operations. In connection with the safe harbor provisions of the Private Securities Litigation Reform Act of 1995, Great Plains Energy and Kansas City Power & Light Company (KCP&L) are providing a number of important factors that could cause actual results to differ materially from the provided forward-looking information. These important factors include: future economic conditions in regional, national and international markets and their effects on sales, prices and costs, including but not limited to possible further deterioration in economic conditions and the timing and extent of any economic recovery; prices and availability of electricity in regional and national wholesale markets; market perception of the energy industry, Great Plains Energy and KCP&L; changes in business strategy, operations or development plans; effects of current or proposed state and federal legislative and regulatory actions or developments, including, but not limited

to, deregulation, re-regulation and restructuring of the electric utility industry; decisions of regulators regarding rates the companies can charge for electricity; adverse changes in applicable laws, regulations, rules, principles or practices governing tax, accounting and environmental matters including, but not limited to, air and water quality; financial market conditions and performance including, but not limited to, changes in interest rates and credit spreads and in availability and cost of capital and the effects on nuclear decommissioning trust and pension plan assets and costs; impairments of long-lived assets or goodwill; credit ratings; inflation rates; effectiveness of risk management policies and procedures and the ability of counterparties to satisfy their contractual commitments; impact of terrorist acts; increased competition including, but not limited to, retail choice in the electric utility industry and the entry of new competitors; ability to carry out marketing and sales plans; weather conditions including, but not limited to, weather-related damage and their effects on sales, prices and costs; cost, availability, quality and deliverability of fuel; ability to achieve generation goals and the occurrence and duration of planned and unplanned generation outages; delays in the anticipated in-service dates and cost increases of additional generating capacity and environmental projects; nuclear operations; workforce risks, including, but not limited to, increased costs of retirement, health care and other benefits; the timing and amount of resulting synergy savings from the GMO acquisition; and other risks and uncertainties.

This list of factors is not all-inclusive because it is not possible to predict all factors. Other risk factors are detailed from time to time in Great Plains Energy's and KCP&L's most recent quarterly report on Form 10-Q and annual report on Form 10-K filed with the Securities and Exchange Commission. Each forward-looking statement speaks only as of the date of the particular statement. Great Plains Energy and KCP&L undertake no obligation to publicly update or revise any forward-looking statement, whether as a result of new information, future events or otherwise.

Item 9.01 Financial Statements and Exhibits

(d) Exhibit No.

99.1 Press release issued by Great Plains Energy Incorporated and Kansas City Power & Light Company on August 26, 2010.

SIGNATURES

Pursuant to the requirements of the Securities Exchange Act of 1934, the registrant has duly caused this report to be signed on its behalf by the undersigned hereunto duly authorized.

GREAT PLAINS ENERGY INCORPORATED

/s/ Lori A. Wright
Lori A. Wright
Vice President and Controller

KANSAS CITY POWER & LIGHT COMPANY

/s/ Lori A. Wright
Lori A. Wright
Vice President and Controller

Date: August 26, 2010.

Exhibit Index

Exhibit No.	Title
99.1	Press release issued by Great Plains Energy Incorporated and Kansas City Power & Light Company on August 26, 2010.



**KCP&L ANNOUNCES IATAN 2
HAS COMPLETED IN-SERVICE TESTING**

*Power plant meets in-service criteria
subject to confirmation by regulatory authorities*

Kansas City, Mo. (August 26, 2010) — Kansas City Power & Light Company and KCP&L Greater Missouri Operations Company (formerly Aquila), subsidiaries of Great Plains Energy Incorporated (NYSE: GXP), today announced Iatan 2, a high efficiency 850 megawatt power plant, has successfully completed in-service testing, subject to confirmation by regulatory staff at the Kansas Corporation Commission and the Missouri Public Service Commission. The plant, which includes state-of-the-art environmental equipment, has generated more than 350,000 megawatt hours of electricity since beginning its in-service testing in late July 2010. The electricity produced during testing was used to serve customers during the recent hot summer months and will reduce the total cost of the project.

“Meeting the in-service requirements for Iatan 2 this summer is a testament to the quality of work done by our engineering, construction and start-up teams,” said Mike Chesser, chief executive officer of KCP&L. “This will mark the successful completion of our Comprehensive Energy Plan, which will provide customers affordable and reliable energy to meet our region’s growing energy demand for generations to come.”

In-service criteria are used to evaluate Iatan 2 in a variety of operational areas to ensure it is ready to be used for service for the benefit of KCP&L customers. These criteria were agreed upon pursuant to KCP&L’s Comprehensive Energy Plan, which was approved by the Kansas and Missouri Commissions in the summer of 2005. Although in-service testing is complete, KCP&L is currently in the final stages of working through commercial acceptance with key project vendors.

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“KCP&L is pleased to announce we believe Iatan 2 has successfully met the in-service criteria requirements. Our team carefully managed the Iatan 2 project through an extremely challenging construction environment and an economic recession,” said Bill Downey, president and chief operating officer of KCP&L. “Iatan 2 was the largest construction project in the state of Missouri over the last five years, creating thousands of local jobs to build the plant.”

Completion of the in-service criteria is subject to the verification by the staff of both Commissions and final determination by the Commissions in the pending rate cases. KCP&L is working with both the Kansas Corporation Commission and the Missouri Public Service Commission staffs, as well as other parties, to confirm that Iatan 2 has met all the required criteria.

In 2004, KCP&L recognized additional generation was needed to meet the region’s growing energy demand. The Comprehensive Energy Plan was created through a highly collaborative process involving the community, customers and regulators. The Plan includes renewable energy projects, additional generation capacity, environmental equipment on existing power plants, transmission and distribution infrastructure upgrades and customer energy efficiency programs.

About The Companies:

Headquartered in Kansas City, Mo., Great Plains Energy Incorporated (NYSE: GXP) is the holding company of Kansas City Power & Light Company and KCP&L Greater Missouri Operations Company, two of the leading regulated providers of electricity in the Midwest. Kansas City Power & Light and KCP&L Greater Missouri Operations use KCP&L as a brand name. More information about the companies is available on the Internet at: www.greatplainsenergy.com or www.kcpl.com.

Forward-Looking Statements:

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