

UNITED STATES  
SECURITIES AND EXCHANGE COMMISSION  
Washington, D.C. 20549

**FORM 11-K**

ANNUAL REPORT PURSUANT TO SECTION 15(d) OF THE SECURITIES EXCHANGE ACT OF 1934

For the fiscal year ended December 31, 2010

OR

TRANSITION REPORT PURSUANT TO SECTION 15(d) OF THE SECURITIES EXCHANGE ACT OF 1934

For the transition period from \_\_\_\_\_ to \_\_\_\_\_

Commission file number 0-33207

A. Full title of the plan and the address of the plan, if different from that of the issuer named below:

Great Plains Energy Incorporated  
401(k) Savings Plan  
(hereinafter referred to as Plan)

B. Name of issuer of the securities held pursuant to the Plan and the address of its principal executive office:

Great Plains Energy Incorporated  
1200 Main Street  
Kansas City, Missouri 64105

**GREAT PLAINS ENERGY INCORPORATED 401(K) SAVINGS PLAN**

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SUPPLEMENTAL SCHEDULE:	
Form 5500, Schedule H, Part IV, Line 4i - Schedule of Assets (Held at End of Year) as of December 31, 2010	166
Note:	
All other schedules required by Section 2520.103-10 of the Department of Labor's Rules and Regulations for Reporting and Disclosure under the Employee Retirement Income Security Act of 1974 have been omitted because they are not applicable.	

**EXHIBITS**

Exhibit No.	Description
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**REPORT OF INDEPENDENT REGISTERED PUBLIC ACCOUNTING FIRM**

To the Participants and Management Administrative Committee of the  
Great Plains Energy Incorporated 401(k) Savings Plan  
Kansas City, Missouri

We have audited the accompanying statements of net assets available for benefits of the Great Plains Energy Incorporated 401(k) Savings Plan (the "Plan") as of December 31, 2010 and 2009, and the related statement of changes in net assets available for benefits for the year ended December 31, 2010. These financial statements are the responsibility of the Plan's management. Our responsibility is to express an opinion on these financial statements based on our audits.

We conducted our audits in accordance with the standards of the Public Company Accounting Oversight Board (United States). Those standards require that we plan and perform the audit to obtain reasonable assurance about whether the financial statements are free of material misstatement. The Plan is not required to have, nor were we engaged to perform, an audit of its internal control over financial reporting. Our audits included consideration of internal control over financial reporting as a basis for designing audit procedures that are appropriate in the circumstances, but not for the purpose of expressing an opinion on the effectiveness of the Plan's internal control over financial reporting. Accordingly, we express no such opinion. An audit also includes examining, on a test basis, evidence supporting the amounts and disclosures in the financial statements, assessing the accounting principles used and significant estimates made by management, as well as evaluating the overall financial statement presentation. We believe that our audits provide a reasonable basis for our opinion.

In our opinion, such financial statements present fairly, in all material respects, the net assets available for benefits of the Plan as of December 31, 2010 and 2009, and the changes in net assets available for benefits for the year ended December 31, 2010, in conformity with accounting principles generally accepted in the United States of America.

Our audits were conducted for the purpose of forming an opinion on the basic financial statements taken as a whole. The supplemental schedule of assets (held at end of year) as of December 31, 2010, is presented for the purpose of additional analysis and is not a required part of the basic 2010 financial statements, but is supplementary information required by the Department of Labor's Rules and Regulations for Reporting and Disclosure under the Employee Retirement Income Security Act of 1974. This schedule is the responsibility of the Plan's management. Such schedule has been subjected to the auditing procedures applied in our audit of the basic 2010 financial statements and, in our opinion, is fairly stated in all material respects when considered in relation to the basic 2010 financial statements taken as a whole.

/s/ DELOITTE & TOUCHE LLP

Kansas City, Missouri

June 20, 2011

**GREAT PLAINS ENERGY INCORPORATED**  
**401(k) SAVINGS PLAN**

**STATEMENTS OF NET ASSETS AVAILABLE FOR BENEFITS**  
**DECEMBER 31, 2010 AND 2009**

	2010	2009
ASSETS:		
Participant-directed investments—at fair value (Note 3)	\$ 402,577,987	\$ 363,808,855
NOTES RECEIVABLE FROM PARTICIPANTS—at amortized cost	9,530,279	8,600,308
EMPLOYER CONTRIBUTION RECEIVABLE	131,735	50,580
CASH	21,511	23,335
	<u>433,939,512</u>	<u>436,383,078</u>

NET ASSETS AVAILABLE FOR BENEFITS AT FAIR VALUE	412,261,512	372,483,078
Adjustment from fair value to contract value for fully benefit-responsive stable value funds	436,747	1,426,020
NET ASSETS AVAILABLE FOR BENEFITS	\$ 412,698,259	\$ 373,909,098

See notes to financial statements.

**GREAT PLAINS ENERGY INCORPORATED  
401(k) SAVINGS PLAN**

**STATEMENT OF CHANGES IN NET ASSETS AVAILABLE FOR BENEFITS  
YEAR ENDED DECEMBER 31, 2010**

Additions:		
Investment income:		
Net appreciation in fair value of investments	\$	32,920,515
Interest		3,136
Dividends		8,559,507
Net investment income		41,483,158
Contributions:		
Employer contributions		7,873,640
Employee contributions		20,690,837
Rollovers		529,872
Total contributions		29,094,349
Interest income on participant loans		577,361
Total additions		71,154,868
Deductions:		
Benefits paid to participants		32,166,168
Dividend distributions		120,452
Expenses paid		79,087
Total deductions		32,365,707
INCREASE IN NET ASSETS		38,789,161
NET ASSETS AVAILABLE FOR BENEFITS		
Beginning of year		373,909,098
End of year	\$	412,698,259

See notes to financial statements.

**GREAT PLAINS ENERGY INCORPORATED 401(K) SAVINGS PLAN**

**NOTES TO FINANCIAL STATEMENTS  
AS OF DECEMBER 31, 2010 AND 2009 AND FOR THE YEAR ENDED DECEMBER 31, 2010**

**1. PLAN DESCRIPTION**

The following description of the Great Plains Energy Incorporated 401(k) Savings Plan (the Plan) is provided for general information purposes only. Participants should refer to the Plan document for more complete information.

**General** - The Plan is a defined contribution plan covering all full time and part time employees of Kansas City Power & Light Company (KCP&L), sponsored by Great Plains Energy Incorporated (the Company). The Plan provides that employees are eligible to make elective contributions to the Plan as of the first payroll period beginning on or after date of hire. The Company serves as the administrator of the Plan. Through June 30, 2009, Fidelity Management Trust Company (Fidelity) served as the trustee and recordkeeper of the Plan. Effective July 1, 2009, JP Morgan Retirement Plan Services (JP Morgan) serves as the recordkeeper for the Plan and JPMorgan Chase Bank, N.A. serves as the Plan's trustee. The Plan is subject to the provisions of the Employee Retirement Income Security Act of 1974 (ERISA).

An Employee Stock Ownership Plan (ESOP) component was added to the Plan on January 1, 2002. The ESOP component consists of the portion of the Plan that is invested in Great Plains Energy Incorporated common stock. Adding this component gives participants the option of receiving a direct cash distribution of any dividends paid on such stock held in participant elective contribution accounts and, if they are 100% vested as of the dividend record date, their Company match accounts. Dividends paid on Company stock are automatically reinvested, unless the cash distribution was elected.

**Contributions** - The Plan was restated on January 1, 2008, January 1, 2009 and on July 1, 2009. Prior to the effective date of the January 1, 2008 restatement, management employees who were hired prior to September 1, 2007 could elect to continue to participate under the existing (old program) plan provisions (provisions prior to January 1, 2008) or under modified plan provisions (new program). All union employees participate in the old program and all management employees hired on or after September 1, 2007 participate in the new program.

Under the old program, each year participants may contribute between 2% and 40% of their annual compensation as defined in the Plan. Effective January 1, 2008, the new program allowed new program participants to make salary deferrals up to 75% of annual compensation. Contributions under the old program and new program are subject to statutory limitations. Under either program, participants who have attained age 50 and who elect to make the maximum level of elective contributions, as defined by the Plan, may elect to make catch-up contributions. Participants direct the investment of their contributions into various investment options offered by the Plan.

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The Plan was restated effective January 1, 2009 in connection with the application for an updated IRS determination ruling letter, in addition to amending the Plan to lower the mandatory cash-out limit from \$5,000 to \$1,000, and to expand the installment distribution options.

The Plan currently offers investment options which include 24 mutual funds, Company stock, two common/collective trust funds and a brokerage account. Eighteen mutual funds and one common/collective trust fund that were investment options in the Plan were eliminated and the balances transferred to corresponding investment options representing the same asset class in the current investment line-up on July 2, 2010. Participants may purchase shares of mutual funds not offered by the Plan through the brokerage account option. Prior to January 1, 2010, matching contributions were invested in Great Plains Energy Incorporated Common Stock unless the participant made an affirmative election for a different investment option(s). The Plan was amended effective January 1, 2010 to direct matching contributions into a target date fund appropriate to the participant's normal retirement age unless the employee makes an affirmative election for a different investment option(s). Employee contributions are also invested in a target date fund appropriate to the participant's age unless the participant makes an affirmative election for a different investment option(s).

Effective January 1, 2008, new program management participants became eligible for matching contributions immediately upon participation after hire; old program management participants and all union participants continued to be eligible for matching contributions after completing one year of service. The Company contributes 50% of the employee's elective contribution, not to exceed 3% of annual compensation, as defined in the Plan under the old program. Under the new program, the Company contributes up to 100% of the first 6% of annual compensation, as defined in the Plan.

In the old program, compensation is defined as base pay and, depending on bargaining status, shift differentials and some overtime. Under the new program, compensation is defined as base, bonus, incentive, and overtime pay. In the 2008 restatement of the Plan, Flex Dollars were inadvertently included in the definition of compensation under the new program. However, this was an unintended change and was neither communicated to participants nor implemented. When the error was realized in 2009, the Company amended the Plan effective July 1, 2009 to remove Flex Dollars from the definition of compensation. The Company completed a filing under the IRS Voluntary Correction Program to secure approval to remove Flex Dollars from the definition of compensation retroactive to January 1, 2008. The IRS approved this change in November 2010.

Additionally, all employees hired on or after January 1, 2008, unless they opt out or make an affirmative election for a different deferral rate, are automatically enrolled in the Plan at a 6% contribution level. Employees have a 30-day notice period in which to opt-out or modify the automatic enrollment. Automatically enrolled participants have 90 days after the first employee contribution to withdraw funds that have been automatically contributed, without penalty.

Contributions are subject to certain Internal Revenue Code (IRC) limitations.

Subsequent to December 31, 2010, employer contributions of \$156,735 attributable to the 2010 plan year were credited to participant accounts. These contributions were funded in part through utilizing forfeitures of \$25,000 and the remainder of the amount was contributed by the Company in cash and stock, and is therefore presented as a receivable on the statement of net assets as of December 31, 2010. Subsequent to December 31, 2009, employer contributions of \$150,707

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attributable to the 2009 plan year were credited to participant accounts. These contributions were funded in part through utilizing forfeitures of \$100,127 and the remainder of the amount was contributed by the Company in cash, and is therefore presented as a receivable on the statement of net assets as of December 31, 2009.

**Participant Accounts** - Each participant's account is credited with the participant's contribution and allocations of (a) the Company's contribution, (b) Plan earnings, and charged with an allocation of administrative expenses as applicable. Allocations are based on participant earnings or account balances, as defined. The benefit to which a participant is entitled is the benefit that can be provided from the participant's vested account.

**Vesting** - Participants are immediately vested in their voluntary contributions plus actual earnings thereon. If the employee continues to participate under the old program, vesting in the Company matching contributions portion of their accounts plus earnings thereon is based on years of continuous service. A participant is partially vested after two years and 100% vested after six years of credited service. However, full vesting of the employer match under the Plan is preserved for former Aquila, Inc. employees who became employees of KCP&L when GPE acquired Aquila, Inc. effective July 14, 2008. Employees participating in the new program are immediately vested in the Company matching contributions. Participants who retire after age 55, die or become totally or permanently disabled while an employee of the Company are considered 100% vested in the Company matching contributions, regardless of their length of service.

**Notes Receivable from Participants** - The Plan allows participants to borrow up to the lesser of one-half of the vested amount of their participant account, or \$50,000 reduced by the excess of the participant's highest loan balance that existed during the one year period ending on the day before the date a new loan is made over the outstanding balance of any loan on the date a new loan is made. The minimum loan amount is \$1,000. Loans for the acquisition of the participant's primary residence must be repaid within 15 years. All other loans must be repaid within 5 years. Interest is charged at prevailing market rates at the time the loan is funded plus 2% and is fixed over the life of the loan. Participants pay a one-time loan origination fee at the time the loan is executed. Notes receivable from participant are valued at amortized cost of the outstanding loan balance.

**Payment of Benefits** - If the value of the participant's account balance is \$1,000 or less, payment shall be made to the participant as soon as practicable in a single lump sum distribution unless the participant directs the Plan to roll his or her account balance to another qualified plan or IRA. In all other cases, at the election of the participant in a manner prescribed by the Management Administrative Committee or its designee, distribution of account balances may be deferred until April 1 following the calendar year in which the participant reaches age 70 1/2, or may be paid in a single lump sum distribution, one or more partial payments of \$1,000 each, or in a series of substantially equal monthly or annual installments over a period of not longer than five years. Participants may also elect to have their vested account balances rolled over to another qualified plan or to an IRA. In the absence of a written directive from the participant as to the manner of payment, if the value of the participant's account balance is greater than \$1,000, payment shall be made in annual installments over a period of five years.

**Forfeited Accounts** - At December 31, 2010 and 2009 there were \$58,407 and \$136,563 in forfeited non-vested accounts, respectively. Forfeitures in the amount of \$100,127 were used to

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fund the 2009 match true-up contributions in March 2010. Forfeitures in the amount of \$25,000 were used to fund the 2010 match true-up contributions in March 2011.

## 2. SUMMARY OF SIGNIFICANT ACCOUNTING POLICIES

**Basis of Accounting** - The accompanying financial statements have been prepared in accordance with accounting principles generally accepted in the United States of America (GAAP).

**Use of Estimates** - The preparation of financial statements in conformity with accounting principles generally accepted in the United States of America requires management to make estimates and assumptions that affect the reported amounts of net assets available for benefits and changes therein. Actual results could differ from those estimates.

**Risks and Uncertainties** - The Plan utilizes various investment instruments, including common stock, mutual funds, a brokerage account and common/collective trust funds. Investment securities, in general, are exposed to various risks, such as interest rate, credit, and overall market volatility. Due to the level of risk associated with certain investment securities, it is reasonably possible that changes in the values of investment securities will occur in the near term and such changes could materially affect the amounts reported in the financial statements.

**Investment Valuation and Income Recognition** - The Plan's investments are stated at fair value. Fair value of a financial instrument is the price that would be received to sell an asset in an orderly transaction between market participants at the measurement date. Shares of Company stock are valued at quoted market price. Shares of mutual funds and cash reserves are valued at quoted market prices, which represent the net asset value of shares held by the Plan at year-end. The common/collective trust funds are stated at estimated fair value as determined by the issuer of the common/collective trust fund based on the fair market value of the underlying investments.

The Fidelity Managed Income Portfolio (the Portfolio) is a common/collective trust fund that is considered to be a stable value fund with underlying investments in investment contracts and is valued at fair value and then adjusted by the issuer to contract value. Fair value of the stable value fund is the net asset value of its underlying investments and contract value is principal plus accrued interest. The Portfolio is a stable value fund that is an open-end commingled pool dedicated exclusively to the management of assets of defined contribution plans. The Portfolio's investment objective is to seek preservation of capital and a competitive level of income over time. To achieve its investment objective, the Portfolio invests in underlying assets (typically fixed income securities or bond funds and may include derivative instruments such as futures contracts and swap agreements) and enters into a "wrapper" contract issued by a third party. Participants may ordinarily direct the withdrawal or transfer of all or a portion of their investment at contract value. Contract value represents contributions made to the fund, plus earnings, less participant withdrawals. The Portfolio was eliminated as an investment option in the Plan effective July 1, 2010. Participant account balances in the Portfolio were liquidated and reinvested in the JPMorgan Stable Asset Income Fund, unless redirected to other investment options by the participants.

net asset value of its underlying investments and contract value is principal plus accrued interest. Individual participant accounts invested in the common/collective trust fund are maintained on a unit value basis. Participants do not have beneficial ownership in specific underlying securities or other assets in the various funds, but have an interest therein represented by units valued as of the last business day of the period. The JPMorgan Stable Asset Income Fund is a stable value fund that is a common/collective trust fund operated and maintained by JPMorgan Chase Bank, N.A. The fund invests in synthetic guaranteed investment contracts, U.S. treasury and agency securities, and cash and cash equivalents, including money market instruments. Participants can ordinarily direct the withdrawal or transfer of all or a portion of their investment at contract value. Contract value represents contributions made to the fund, plus earnings, less participant withdrawals and administrative expenses.

Purchases and sales of securities are recorded on a trade-date basis. Interest income is recorded on the accrual basis. Dividends are recorded on the ex-dividend date.

In accordance with Generally Accepted Accounting Principles (GAAP), the stable value funds are included at fair value in participant-directed investments in the statements of net assets available for benefits and an additional line item showing an adjustment from fair value to contract value. The statement of changes in net assets available for benefits is presented on a contract value basis.

Management fees and operating expenses charged to the Plan for the Plan's investments are deducted from income earned on a daily basis and are not separately reflected. Consequently, management fees and operating expenses are reflected as a reduction of investment return for such investments.

**Unit Values** - Individual participant accounts for the common/collective trust funds are maintained on a unit value basis. Participants do not have beneficial ownership in the specific underlying securities or other assets in the funds, but do have an interest therein represented by units valued daily. The funds earn dividends and interest which are automatically reinvested in additional units. Generally, contributions to and withdrawals from each fund are converted to units by dividing the amounts of such transactions by the unit values as last determined, and the participants' accounts are charged or credited with the number of units properly attributable to each participant.

**Administrative Expenses** - Administrative expenses of the Plan are paid by either the Plan or the Company, as provided in the Plan document.

**Payment of Benefits** - Benefits payments to participants are recorded upon distribution.

#### ***New Accounting Standards Adopted*** -

**ASU No. 2010-06, Fair Value Measurements and Disclosures** - In January 2010, the FASB issued ASU No. 2010-06, *Fair Value Measurements and Disclosures* (ASU No. 2010-06), which amends ASC 820 (originally issued as FASB Statement No. 157, *Fair Value Measurements*), adding new disclosure requirements for Levels 1 and 2, separate disclosures of purchases, sales, issuances, and settlements relating to Level 3 measurements and clarification of existing fair value disclosures. ASU No. 2010-06 was effective for periods beginning after December 15, 2009, except for the requirement to provide Level 3 activity of purchases, sales, issuances, and settlements on a gross basis, which will be effective for fiscal years beginning after

December 15, 2010. The Plan prospectively adopted the new guidance in 2010, except for the Level 3 reconciliation disclosures, which are required in 2011. The adoption in 2010 did not materially affect, and the future adoption is not expected to materially affect, the Plan's financial statements.

**ASU No. 2010-25, Reporting Loans to Participants by Defined Contribution Pension Plans** - In September 2010, the FASB issued ASU 2010-25, *Reporting Loans to Participants by Defined Contribution Pension Plans*. The ASU requires that participant loans be classified as notes receivable rather than a plan investment and measured at unpaid principal balance plus accrued but unpaid interest rather than fair value. The Plan retrospectively adopted the new accounting in 2010. The adoption did not have a material effect on the Plan's financial statements.

### **3. FAIR VALUE OF INVESTMENTS**

ASC 820, *Fair Value Measurements and Disclosures*, established a single authoritative definition of fair value, set a framework for measuring fair value, and requires additional disclosures about fair value measurements. In accordance with ASC 820, the Plan classifies its investments into Level 1, which refers to securities valued using quoted prices from active markets for identical assets; Level 2, which refers to securities not traded on an active market but for which observable market inputs are readily available; and Level 3, which refers to securities valued based on significant unobservable inputs. Assets are classified in their entirety based on the lowest level of input that is significant to the fair value measurement.

The following tables set forth by level within the fair value hierarchy a summary of the Plan's investments measured at fair value on a recurring basis at December 31, 2010 and 2009.

	Total December 31, 2010	Quoted Prices in Active Markets for Identical Assets (Level 1)	Significant Other Observable Inputs (Level 2)	Significant Unobservable Inputs (Level 3)
Company common stock	\$ 68,362,068	\$ 68,362,068	\$ -	\$ -
Mutual funds:				
US equity funds	135,064,308	135,064,308	-	-
International equity funds	26,631,226	26,631,226	-	-
Asset allocation funds	86,239,026	86,239,026	-	-
Bond funds	29,565,144	29,565,144	-	-
Total mutual funds	277,499,704	277,499,704	-	-
Common/collective trust funds:				
Equity index fund	7,212,075	-	7,212,075	-
Fixed income fund	41,940,620	-	41,940,620	-
Total common/collective trust funds	49,152,695	-	49,152,695	-
Brokerage account: (a)				
Common stocks	2,962,882	2,962,882	-	-
Mutual funds	2,736,701	2,736,701	-	-
Cash equivalents	1,636,930	1,636,930	-	-
Company common stock	67,865	67,865	-	-
Other	159,142	-	159,142	-
Total brokerage account	7,563,520	7,404,378	159,142	-
Total Investments	\$ 402,577,987	\$ 353,266,150	\$ 49,311,837	\$ -

	Total December 31, 2009	Quoted Prices in Active Markets for Identical Assets (Level 1)	Significant Other Observable Inputs (Level 2)	Significant Unobservable Inputs (Level 3)
Company common stock	\$ 67,259,761	\$ 67,259,761	\$ -	\$ -
Mutual funds:				
US equity funds	123,852,378	123,852,378	-	-
International equity funds	23,982,170	23,982,170	-	-
Asset allocation funds	75,818,774	75,818,774	-	-
Bond funds	23,860,959	23,860,959	-	-
Total mutual funds	247,514,281	247,514,281	-	-
Common/collective trust funds:				
Equity index fund	1,229,720	-	1,229,720	-
Fixed income funds	41,214,547	-	41,214,547	-
Total common/collective trust funds	42,444,267	-	42,444,267	-
Brokerage account: (a)				
Common stocks	2,526,349	2,526,349	-	-
Mutual funds	2,188,844	2,188,844	-	-
Cash equivalents	1,653,565	1,653,565	-	-
Company common stock	68,835	68,835	-	-
Other	152,953	-	152,953	-
Total brokerage account	6,590,546	6,437,593	152,953	-
Total Investments	\$ 363,808,855	\$ 321,211,635	\$ 42,597,220	\$ -

(a) The brokerage account is invested in a variety of classes of common stocks, mutual funds and other investments as directed by participants.

For the year ended December 31, 2010, there were no significant transfers in or out of levels 1, 2 or 3. The valuation methods as described in Note 2 may produce a fair value calculation that may not be indicative of net realizable value or reflective of future fair values. Furthermore, although the Plan believes its valuation methods are appropriate and consistent with other market participants, the use of different methodologies or assumptions to determine the fair value of certain financial instruments could result in a different fair value measurement at the reporting date.

#### 4. INVESTMENTS

The Plan's investments that represented five percent or more of the Plan's net assets available for benefits as of December 31, 2010 and 2009 are as follows:

	December 31,	
	2010	2009
Great Plains Energy Incorporated Common Stock, 3,525,635 and 3,468,786 shares, respectively	\$ 68,362,068	\$ 67,259,761
American Funds Growth Fund of America, 1,470,081 shares	44,675,774	*
JPMorgan Stable Value Asset Income Fund, 104,604 and 71,609 shares, respectively	41,940,620	27,243,308
Artisan Mid-Cap Fund Investor Class, 672,004 shares	22,599,489	*
PIMCO Total Return Fund – Institutional Class, 2,072,037 shares	22,481,605	*

\* As of December 31, 2009, investment did not represent 5% of net assets available for benefits

During 2010, the Plan's investments (including gains and losses on investments bought and sold, as well as held during the year) increased (decreased) in value by \$32,920,515 as follows:

Mutual funds -	
US equity funds	\$ 20,098,021
International equity funds	2,226,495
Asset allocation funds	7,687,886
Bond funds	204,417
Total mutual funds	<u>30,216,819</u>
Common/collective trust funds:	
Equity index fund	1,252,628
Fixed income funds	757,143
Total common/collective trust funds	<u>2,009,771</u>
Brokerage account	709,694
Company common stock	(15,769)
Net appreciation in fair value	<u>\$ 32,920,515</u>

#### 5. EXEMPT PARTY-IN-INTEREST TRANSACTIONS

JP Morgan Retirement Plan Services and JPMorgan Chase Bank N.A., respectively, serve as recordkeeper and trustee of the Plan. Certain Plan investments at December 31, 2010 and 2009 are units in a common/collective trust fund issued by JP Morgan, a brokerage account managed by JP Morgan, and shares of Company stock. Certain Plan investments at December 31, 2009, also included shares of mutual funds issued by Fidelity Investments and units in a common/collective trust fund managed by Fidelity Investments. Fidelity Management Trust Company (Fidelity) served as the trustee of the Plan through June 30, 2009. Effective July 1, 2009, Fidelity was removed as recordkeeper and trustee for the Plan. Therefore, these transactions qualify as party-in-interest transactions.

As of December 31, 2010 and 2009, respectively, the Plan held 3,525,635 and 3,468,786 shares of common stock of Great Plains Energy Incorporated, the sponsoring employer. During the year ended December 31, 2010, the Plan recorded dividend income from the stock of \$2,886,726.

#### 6. PLAN TERMINATION

Although it has not expressed any intent to do so, the Company has the right under the Plan to discontinue its contributions at any time and to terminate the Plan subject to the provisions of ERISA. In the event of Plan termination, the participants would become 100% vested in their Company matching contributions.



## 7. FEDERAL INCOME TAX STATUS

The Internal Revenue Service has determined and informed the Company by a letter dated June 4, 2004, that the Plan and related trust are designed in accordance with applicable sections of the IRC. Although the Plan has been amended since receiving the determination letter, the Plan administrator believes that the Plan is designed and is currently being operated in compliance with the applicable requirements of the IRC. Therefore, no provision for income taxes has been included in the Plan's financial statements.

GAAP requires plan management to evaluate tax positions taken by the Plan and recognize a tax liability (or asset) if the Plan has taken an uncertain position that more likely than not would not be sustained upon examination by the Internal Revenue Service. The plan administrator has analyzed the tax positions taken by the Plan, and has concluded that as of December 31, 2010, there are no uncertain tax positions taken or expected to be taken that would require recognition of a liability (or asset) or disclosure in the financial statements. The Plan is subject to routine audits by taxing jurisdictions; however, there are currently no audits for any tax periods in progress. The plan administrator believes it is no longer subject to income tax examinations for years prior to 2007.

## 8. NET ASSET VALUE (NAV) PER SHARE

The following table for December 31, 2010 and 2009 sets forth a summary of the Plan's investments with a reported NAV.

Investment	Fair Value – December 31, 2010*	Fair Value – December 31, 2009*	Redemption Frequency	Other Redemption Restrictions	Redemption Notice Period
SSgA S&P 500 Index NL-C Fund (a)	\$ 7,212,075	\$ 1,229,720	Daily	None	None
JPMorgan Stable Asset Income Fund (b)	41,940,620	27,243,308	Daily (b)	None	None (b)
Fidelity Managed Income Portfolio (c)	–	13,971,239	(c)	(c)	(c)
Total	<u>\$49,152,695</u>	<u>\$42,444,267</u>			

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\*The fair values of the investments have been estimated using the net asset value of the investment.

(a) Equity index fund strategy that seeks to replicate the movements of the Standard & Poor's (S&P) 500 Index, regardless of market conditions.

(b) The fund strategies seek current income while maintaining stability of invested principal. The fund invests in synthetic guaranteed investment contracts, U.S. Treasury and agency securities, and cash and cash equivalents, including money market instruments. The Plan is required to give notice one year in advance of a partial or total liquidation of the investment for any purpose other than for benefit payments and participant-directed investment transfers.

(c) The portfolio strategies seek to preserve capital and to provide a competitive level of income over time. The portfolio invests in fixed-income securities, bond funds, futures contracts, and money market funds. On May 15, 2009, the Plan gave timely notice to Fidelity to liquidate its investment in this fund effective July 2, 2010 in order to transfer the assets to other investment options as directed by participants, or if not directed by participants, to the JPMorgan Stable Asset Income Fund.

## 9. RECONCILIATION OF FINANCIAL STATEMENTS TO FORM 5500

The following is a reconciliation of net assets available for benefits as of December 31, 2010 and 2009, per the financial statements to the Form 5500:

	2010	2009
Net assets available for benefits per the financial statements	\$ 412,698,259	\$ 373,909,098
Adjustment from contract value to fair value for fully benefit-responsive stable value fund	(436,747)	(1,426,020)
Net assets available for benefits per Form 5500	<u>\$ 412,261,512</u>	<u>\$ 372,483,078</u>

The following is a reconciliation of the net increase in net assets per the financial statements to the net income per the Form 5500 for the year ended December 31, 2010:

Net increase in net assets per the financial statements	\$ 38,789,161
Change in adjustment from contract value to fair value for fully benefit-responsive stable value fund	989,273
Net income per Form 5500	<u>\$ 39,778,434</u>

**GREAT PLAINS ENERGY INCORPORATED**  
**401(k) SAVINGS PLAN**  
**EMPLOYER ID NO. 43-1916803, PLAN NO. 006**

**FORM 5500, SCHEDULE H, PART IV, LINE 4i - SCHEDULE OF ASSETS (HELD AT END OF YEAR)**  
**DECEMBER 31, 2010**

(a)	(b) Identity of Issue, Borrower, Lessor or Similar Party	(c) Description of Investment Including Maturity Date, Rate of Interest, Collateral, Par or Maturity Value	(d) Cost	(e) Current Value
*	Great Plains Energy Incorporated	Common stock	\$	** \$ 68,362,068
	American Funds Growth Fund of America R5	Registered Investment Company	**	44,675,774
*	JPMorgan Stable Asset Income Fund	Common/Collective Trust Fund	**	41,940,620
	Artisan Mid Cap Fund-Investor Class	Registered Investment Company	**	22,599,489
	PIMCO Total Return Fund-Inst Class	Registered Investment Company	**	22,481,605
	American Funds Fundamental Investors R5 Fund	Registered Investment Company	**	20,498,736
	American Century Livestrong 2025	Registered Investment Company	**	19,094,979
*	Fidelity Diversified International Fund	Registered Investment Company	**	17,947,545
	American Century Livestrong 2015	Registered Investment Company	**	17,307,024
	American Century Livestrong 2020	Registered Investment Company	**	13,523,364
	American Century Small Cap Value Fund	Registered Investment Company	**	11,520,989
	T. Rowe Price Equity Income Fund	Registered Investment Company	**	11,255,043
	American Century Livestrong 2035	Registered Investment Company	**	10,176,123
	American Century Livestrong Income Fund	Registered Investment Company	**	8,846,168
	American Century Livestrong 2030	Registered Investment Company	**	8,375,652
*	Fidelity Small Cap Stock Fund	Registered Investment Company	**	8,011,669
	Vanguard Extended Market Index Fund	Registered Investment Company	**	7,933,997
	SSgA S&P 500 Index NL-C Fund	Common/Collective Trust Fund	**	7,212,075
	Vanguard Inflation-Protection Securities Fund	Registered Investment Company	**	5,764,602
	Harbor International Fund – Institutional	Registered Investment Company	**	5,269,330
*	Fidelity Low-Priced Stock Fund	Registered Investment Company	**	4,846,662
	American Century Livestrong 2045	Registered Investment Company	**	4,486,362
	Janus Mid Cap Value Fund-I	Registered Investment Company	**	3,721,949
	American Century Livestrong 2040	Registered Investment Company	**	3,485,696
	Morgan Stanley Institutional Emerging Markets I Portfolio	Registered Investment Company	**	3,414,351
	Neuberger Berman High Income Bond Fund	Registered Investment Company	**	1,318,937
	American Century Livestrong 2050	Registered Investment Company	**	943,658
	CISC Brokerage Account	Brokerage Account	**	7,563,520
*	Notes Receivable from Participants	Various participants, interest rates ranging from 5.25% to 11.5% maturing through 2025	**	9,530,279
				<u>\$ 412,108,266</u>

\* Represents party-in-interest to the Plan.

\*\* Cost information is not required for participant-directed investments and, therefore, is not included.

(Concluded)

SIGNATURES

Pursuant to the requirements of the Securities Exchange Act of 1934, the Administrative Committee of the Great Plains Energy Incorporated 401(k) Savings Plan has duly caused this annual report to be signed on its behalf by the undersigned hereunto duly authorized.

GREAT PLAINS ENERGY  
 INCORPORATED  
 401(k) SAVINGS PLAN

By: /s/ Charles A. Caisley

Charles A. Caisley

By: /s/ Ellen E. Fairchild  
Ellen E. Fairchild

By: /s/ Heather A. Humphrey  
Heather A. Humphrey

By: /s/ John M. Wallis  
John M. Wallis

By: /s/ Lori A. Wright  
Lori A. Wright

June 20, 2011

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**CONSENT OF INDEPENDENT REGISTERED PUBLIC ACCOUNTING FIRM**

We consent to the incorporation by reference in Registration Statement No. 333-132828 and 333-147939 of Great Plains Energy Incorporated on Form S-8 of our report relating to the financial statements of the Great Plains Energy Incorporated 401(k) Savings Plan dated June 20, 2011, appearing in this Annual Report on Form 11-K of the Great Plains Energy Incorporated 401(k) Savings Plan for the year ended December 31, 2010.

/s/ DELOITTE & TOUCHE LLP

Kansas City, Missouri

June 20, 2011