

PROSPECTUS SUPPLEMENT

(To Prospectus Supplement dated August 14, 2008 and Prospectus dated May 8, 2006)



Great Plains Energy Incorporated

Common Stock

Pursuant to a Sales Agency Financing Agreement, dated as of August 14, 2008, between Great Plains Energy Incorporated, a Missouri corporation (the “Company”) and BNY Mellon Capital Markets, LLC (“BNYMCM”), which has been filed as an exhibit to our report on Form 8-K with the Securities and Exchange Commission (“SEC”) on August 14, 2008, and which is incorporated by reference herein, during the period October 1, 2008 through December 31, 2008, we sold, through BNYMCM, as our agent, an aggregate of 189,300 shares of our common stock, no par value, pursuant to ordinary brokers’ transactions on the New York Stock Exchange (“NYSE”).

	<u>October 1, 2008 — December 31, 2008</u>
Gross Proceeds to the Company	\$ 3,534,507.33
Commission to Agent	35,335.14
Net Proceeds to Company	<u>\$ 3,499,172.19</u>

The reported last sale price of our common stock on December 31, 2008, as reported in the consolidated reporting system, was \$19.33 per share.

Note: SEC fees were not used in arriving in any of the above figures.

Neither the Securities and Exchange Commission nor any state securities regulators or other regulatory bodies have approved or disapproved of these securities or determined if this prospectus supplement or the accompanying prospectus is truthful or complete. Any representation to the contrary is a criminal offense.

BNY Mellon Capital Markets, LLC

The date of this prospectus supplement is March 3, 2009