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

FORM 11-K

(Mark One)

[X] ANNUAL REPORT PURSUANT TO SECTION 15(D) OF THE SECURITIES EXCHANGE ACT OF 1934 For The Fiscal Year Ended December 31, 2004

OR

[] TRANSITION REPORT PURSUANT TO SECTION 15(D) OF

THE SECURITIES EXCHANGE ACT OF 1934

For the transition period from _____ to ____.

COMMISSION FILE NO: 001-13739

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

TUCSON ELECTRIC POWER COMPANY 401(K) PLAN

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

UniSource Energy Corporation One South Church Avenue, Suite 100 Tucson, AZ 85701

TUCSON ELECTRIC POWER COMPANY 401(K) PLAN TNDEX _____ DECEMBER 31, 2004 AND 2003 PAGE(S) Report of Independent Registered Public Accounting Firm......4 FINANCIAL STATEMENTS Statements of Net Assets Available for Benefits......5 Notes to Financial Statements......7-11 SUPPLEMENTAL SCHEDULES Schedule H, Line 4(i) - Schedule of Assets (Held at End of Year).....13-14 Signature Page.....15 Exhibit 23 - Consent of Independent Registered Public Accounting Firm.....16

Note: 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.

REQUIRED INFORMATION

The Tucson Electric Power Company 401(k) Plan (the Plan) is subject to the Employee Retirement Income Security Act of 1974 (ERISA). Therefore, in lieu of the requirements of Items 1 - 3 of Form 11-K, the financial statements and schedules of the Plan for the fiscal year ended December 31, 2004, which have been prepared in accordance with the financial reporting requirements of ERISA, are filed herewith and incorporated herein by this reference.

The written consent of PricewaterhouseCoopers LLP with respect to the annual financial statements of the Plan is filed as Exhibit 23 to this Annual Report.

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REPORT OF INDEPENDENT REGISTERED PUBLIC ACCOUNTING FIRM

To the Participants and Administrator of the Tucson Electric Power Company 401 (k) Plan:

In our opinion, the accompanying statements of net assets available for benefits and the related statements of changes in net assets available for benefits present fairly, in all material respects, the net assets available for benefits of the Tucson Electric Power Company 401 (k) Plan (the "Plan") at December 31, 2004 and December 31, 2003, and the changes in net assets available for benefits for the years then ended in conformity with accounting principles generally accepted in the United States of America. 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 of these statements 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. An audit 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, and evaluating the overall financial statement presentation. We believe that our audits provide a reasonable basis for our opinion.

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) is presented for the purpose of additional analysis and is not a required part of the basic 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. These supplemental schedules are the responsibility of the Plan's management. The supplemental schedules have been subjected to the auditing procedures applied in the audits of the basic financial statements and, in our opinion, are fairly stated in all material respects in relation to the basic financial statements taken as a whole.

/s/ PricewaterhouseCoopers LLP

PricewaterhouseCoopers LLP Los Angeles, CA June 27, 2005

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TUCSON ELECTRIC POWER COMPANY 401(K) PLAN STATEMENTS OF NET ASSETS AVAILABLE FOR BENEFITS DECEMBER 31, 2004 AND 2003

ASSETS	2004	2003
Investment:	\$137,015,679	\$121,155,621

Receivables:

Employer contributions	122,682	92,651
Participant contributions	246,495	206,410
Due from broker for securities sold	21,051	
Total receivables	390,228	299,061
Net assets available for benefits	\$137,405,907	\$121,454,682

The accompanying notes are an integral part of these financial statements.

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TUCSON ELECTRIC POWER COMPANY 401(K) PLAN STATEMENTS OF CHANGES IN NET ASSETS AVAILABLE FOR BENEFITS YEARS ENDED DECEMBER 31, 2004 AND 2003

	2004	2003
ADDITIONS TO NET ASSETS ATTRIBUTED TO:		
Investment income:		
Interest and dividend income Net appreciation in fair value of investments		\$ 459,113 21,472,737
Total investment income	10,703,473	21,931,850
Contributions:		
Employer contributions	3,669,184	3,274,061
Participant contributions	8,044,632	6,868,251
Participant rollovers	671,420	6,114,968
Total contributions	12,385,236	16,257,280
Total additions		38,189,130
DEDUCTIONS FROM NET ASSETS ATTRIBUTED TO:		
Benefits paid to participants	7,123,951	6,127,855
Administrative expenses	13,533	11,503
Total deductions	7,137,484	6,139,358
Net increase	15,951,225	32,049,772

NET ASSETS AVAILABLE FOR BENEFITS:

Beginning of year	121,454,682	89,404,910
End of year	\$137,405,907	\$121,454,682
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The accompanying notes are an integral part of these financial statements.

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TUCSON ELECTRIC POWER COMPANY 401(K) PLAN NOTES TO FINANCIAL STATEMENTS DECEMBER 31, 2004 AND 2003

1. DESCRIPTION OF PLAN

The following description of the Tucson Electric Power Company 401(k) Plan (the "Plan") provides only general information. Participants should refer to the Plan agreement for a more complete description of the Plan's provisions.

GENERAL

All regular employees of Tucson Electric Power Company and participating subsidiaries of UniSource Energy Corporation, the parent company of the Plan sponsor, (collectively, the "Company"), who are employed by the Company on or after November 1, 1985 are eligible to participate. The Plan is subject to the provisions of the Employee Retirement Income Security Act of 1974 ("ERISA").

ADMINISTRATION

The Company's Pension Committee (the "Committee"), comprised of three or more employees, administers the Plan. Fidelity Management Trust Company (the "Trustee") serves as trustee of all Plan investments. Fidelity Investments Institutional Operations Company, Inc. serves as recordkeeper for the Plan. The Company funds the Plan's administrative costs, except for loan administrative fees and brokerage account fees, which are paid directly by the participants out of their accounts.

CONTRIBUTIONS

Upon admission to the Plan, participants may contribute, by way of payroll deductions, a percentage up to but not in excess of 15% of their pre-tax compensation. Participants may direct their contributions to be invested entirely into any one of the individual investment funds or, in multiples of 1% into any combination of these funds. Contributions are subject to certain limitations.

The Plan also allows for rollovers from participants' other external 401(k) plans ("Qualified Rollovers") into the Plan. Qualified Rollovers are accounted for as participant contributions in a separate account of the participant, and are directed in the same manner as discussed above for participant contributions.

Each payroll period during the two years ended December 31, 2004, the Company contributed Company Matching Contributions to the Plan with respect to each participant in an amount equal to the lesser of (i) the excess of the participant's Compensation Deferral Contributions to the Plan in the Plan Year over the Company Matching Contributions previously made in respect to the participant in the Plan year or (ii) 4.5% of the participant's compensation for that payroll period. Participants direct the investment of such Company contributions in the same manner as discussed above for participant contributions. Effective July 1, 2000, the Board of Directors of Tucson Electric Power Company has the discretion each year to establish the formula for Company Matching Contributions.

LOANS TO PARTICIPANTS

Loan amounts shall not exceed the lesser of \$50,000 or 50% of the vested balance of the participant's accounts at the date of the loan. Loan terms must be for at least six months and no more than five years, except that loans used to purchase a principal residence may have a term up to 15 years. Loan repayments are made every two weeks through payroll deductions and are considered to be in default if all payments are not made for any three month period. If a participant fails to repay a loan in full, the Committee may immediately reduce the value of the participant's account by the amount of unpaid principal and interest and/or reduce any distribution by the amount of the remaining unpaid principal and interest. Each loan is

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TUCSON ELECTRIC POWER COMPANY 401(K) PLAN NOTES TO FINANCIAL STATEMENTS DECEMBER 31, 2004 AND 2003

secured by the balance of the participant's account and bears a fixed rate of interest of the prime rate plus 2%. Interest rates for the years ended December 31, 2004 and 2003 ranged from 4.00% to 11.50%. Loan transactions are treated as a transfer to (from) the investment fund from (to) the Participant Loans fund.

DISTRIBUTIONS

A participant's account becomes distributable upon termination of employment, total disability, death or retirement. A participant or beneficiary of a deceased participant may elect to have his or her account distributed a) as soon as practicable following the date of termination or death, or b) in the plan year following such date. Absent such an election, distributions do not occur until the close of the quarter in which the last Company matching contribution is made.

The amount distributable to a participant or beneficiary is equal to the balance in the account valued as of the most recent date preceding such distribution as the Trustee can determine. Benefits payable to a participant or the beneficiary are paid in a cash lump sum.

Under certain conditions, once each plan year a participant may withdraw all or a portion of his or her account while still employed by the Company. Withdrawals from a participant's account are only permitted (i) for participants who have attained age 59-1/2 or (ii) in the event of a participant's hardship as defined in Section 401(k) of the Internal Revenue

Code of 1954, as amended. Beginning with the plan year in which participants reach age 59-1/2, they may withdraw any portion up to the entire amount of their Salary Deferral Contributions Account and/or their Company Matching Contributions Account. In addition, participants may withdraw any portion of their Salary Deferral Contributions Account, excluding earnings credited after December 31, 1988, if they have incurred a financial hardship. The amount which may be withdrawn in the case of a participant's hardship may not exceed the amount needed and is subject to the approval of the Committee.

INVESTMENTS

Participants may direct the investment of their Pretax Contributions and Company Matching Contributions in a variety of investment vehicles comprised of common stocks, mutual funds, money market funds and common/collective funds. The Plan is intended to comply with Section 404(c) of ERISA.

VESTING

A participant's interest in each of his accounts is at all times 100% vested.

PLAN TERMINATION

Although it has not expressed any intent to do so, the Company has the right under the Plan to terminate the Plan. Upon termination of the Plan, the accounts under the Plan will be valued and distributed to participants at the time of such termination, subject to the provisions of ERISA.

2. ACQUISITION

On August 11, 2003, UniSource Energy completed the purchase of the Arizona electric and gas utility businesses from Citizens Communications Company (Citizens). Upon closing and transfer of employment to UniSource Energy Services, Inc., the participants of the Citizens' 401(k) Savings Plan were allowed to roll over their account balance, including outstanding loan

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TUCSON ELECTRIC POWER COMPANY 401(K) PLAN NOTES TO FINANCIAL STATEMENTS DECEMBER 31, 2004 AND 2003

balances, to the Tucson Electric Power Company 401(k) Plan. Rollovers from the Citizens Plan of \$5,986,061 are included in 2003 participant rollovers.

3. SUMMARY OF ACCOUNTING POLICIES

BASIS OF ACCOUNTING

The financial statements of the Plan are prepared using the accrual basis of accounting and in accordance with accounting principles generally accepted in the United States of America.

USE OF ESTIMATES

The preparation of financial statements in conformity with generally accepted accounting principles requires management to make estimates and assumptions that affect the reported amounts of assets and liabilities and changes therein, and disclosure of contingent assets and liabilities.

Actual results could differ from those estimates.

INVESTMENT VALUATION AND INCOME RECOGNITION Plan investments other than the Fidelity Managed Income Portfolio, are presented at fair value. The fair values of common stock, mutual funds and common/collective fund shares are based upon the closing market price on the valuation date. Investments in the Fidelity Managed Income Portfolio are valued based upon the net asset value of the unit value of each specific fund. Participant loans are valued at cost, which approximates fair value.

Security transactions are recorded on the trade date basis. Expenses paid by the Plan in connection with such transactions include brokerage commissions and taxes that are included in the cost of securities purchased and deducted from the proceeds of securities sold. Net appreciation (depreciation) in the fair value of the Plan's investments consists of the realized gains (losses) and the unrealized appreciation (depreciation) on those investments. Dividend income is recognized on the ex-dividend date. Interest income is recognized as earned. Employer and Participant contributions are recognized on the accrual basis.

PAYMENT OF BENEFITS Benefits are recorded when paid. Net assets available for benefits of \$29,963 at December 31, 2004 are due to participants who have withdrawn from participation in the Plan.

4. INVESTMENTS

The following investments represent 5% or more of the Plan's net assets as of December 31:

	2004	2003
Fidelity Growth Company Fund 533,412 and 542,172 units, respectively	\$29,908,412	\$27,146,554
Fidelity Magellan Fund 255,162 and 258,840 units, respectively	\$26,483,275	\$25,298,986
Fidelity Equity Income Fund 355,352 and 330,876 units, respectively	\$18,755,502	\$16,461,069

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TUCSON ELECTRIC POWER COMPANY 401(K) PLAN NOTES TO FINANCIAL STATEMENTS DECEMBER 31, 2004 AND 2003

Fidelity Retirement Money Market Fund 12,126,473 and 12,146,654 units, respectively	\$12,126,473	\$12,146,654
Fidelity Low Priced Stock Fund 247,534 and 191,768 units, respectively	\$ 9,963,258	\$ 6,708,029

Fidelity Managed Income Portfolio 7,196,002 and 5,968,993 units, respectively	\$ 7,196,002	\$ 5,968,993
Fidelity Intermediate Bond Fund 655,130 and 619,266 units, respectively	\$ 6,891,963	\$ 6,601,380

During 2004 and 2003 the Plan's investments appreciated (including gains and losses on investments purchased and sold, as well as held during the year) in value by \$10,212,694 and \$21,472,737 as follows:

	2004	2003
Mutual Funds Common Stock	\$ 10,275,573 (62,879)	\$ 20,550,764 921,973
Total	\$ 10,212,694	\$ 21,472,737

5. CONCENTRATION OF CREDIT RISK

At December 31, 2004 and 2003, the Plan's assets consist primarily of investments in financial instruments, money market funds, investment contracts, mutual funds, UniSource Energy Corporation stock and participant loans. Investment securities are exposed to various risks such as interest rate, market, and credit risks. Due to the level of risk associated with certain investment securities, it is at least reasonably possible that changes in the values of investment securities will occur in the near term and that such changes could materially affect participants' account balances and the amounts reported in the statement of net assets available for benefits.

6. TAX STATUS

The Plan is qualified under Section 401 of the Internal Revenue Code ("IRC") and is, therefore, considered to be exempt from federal income taxes under the provisions of Section 501(a). A tax qualification letter, dated September 27, 2002, has been received from the IRS. The Plan has since been amended; however, the Plan administrator believes that the Plan, as amended, is currently designed and 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.

7. RELATED PARTY TRANSACTIONS

In 2004 and 2003, the Plan's investments in shares of mutual funds managed by the Trustee of \$117,202,526 and \$103,532,978, respectively, as well as in stock of UniSource Energy Corporation in the amounts of \$2,638,328 and \$2,866,040, respectively, qualify as party-in-interest transactions for which a statutory exemption exists.

TUCSON ELECTRIC POWER COMPANY 401(K) PLAN NOTES TO FINANCIAL STATEMENTS DECEMBER 31, 2004 AND 2003

The Trustee invests in the Company's common stock in accordance with the provisions of the Plan. The following is a summary of transactions in the Company's common stock:

	2004	2003
Cost of shares purchased	\$ 645,633	\$ 764,754
Number of shares purchased	26,375	39,453
Proceeds from shares sold	\$ 810,466	\$ 802,246
Number of shares sold	33,168	37,838

8. RECONCILIATION OF FINANCIAL STATEMENTS TO FORM 5500

The following reconciles net assets available for plan benefits per the financial statements at December 31, 2004 to Form 5500:

	2004
Net assets available for benefits per the financial statements	\$137,405,907
Amounts allocated to withdrawing participants at December 31, 2004	(29,963)
Net assets available for benefits per Form 5500	\$137,375,944

The following reconciles benefits paid to participants per the financial statements for the year ended December 31, 2004, to Form 5500:

	2004
Benefits paid to participants per the financial statements Add: Amounts allocated to withdrawing participants	\$ 7,123,951
at December 31, 2004	29,963
Benefits paid to participants per Form 5500	\$ 7,153,914

Amounts allocated to withdrawing participants are for benefit claims that have been processed and approved for payment prior to December 31, 2004, but not yet paid as of that date.

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SUPPLEMENTAL SCHEDULES

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TUCSON ELECTRIC POWER COMPANY 401(K) PLAN SCHEDULE H, LINE 4(I) - SCHEDULE OF ASSETS (HELD AT END OF YEAR) DECEMBER 31, 2004

		IDENTITY	OF	ISSUE,	BORROWER,
(a)	(b)	LESSOR	OR	SIMILAR	PARTY

- * Fidelity Growth Company Fund
- * Fidelity Magellan Fund
- * Fidelity Equity Income Fund
- * Fidelity Retirement Money Market
 Portfolio
- * Fidelity Low-Priced Stock Fund
- * Fidelity Intermediate Bond Fund
- * Fidelity Managed Income Portfolio

Spartan U.S. Equity Index Fund

* Fidelity Asset Manager Fund

Janus Worldwide Fund

* UniSource Energy Stock Fund

DESCRIPTION OF INVESTMENT INCLUDING MATURITY DATE, RATE OF INTEREST,

(c) COLLATERAL, PAR OR MATURITY VALUE

Investment in 533,412 units of a growth fund

Investment in 255,162 units of a growth fund

- Investment in 355,352 units of a growth and income fund
- Investment in 12,126,473 units of a money market fund

Investment in 247,534 units of a growth fund

- Investment in 655,130 units of an income fund
- Investment in 7,196,002 units of an open ended commingled pool
- Investment in 104,172 units of a growth fund
- Investment in 261,135 units of an asset allocation fund

Investment in 73,008 units of a growth fund

Investment in 109,429 units of a unitized company stock fund

	BrokerageLink Account	Investment in 3,394,157 units of a self- directed investment fund
	Janus Flexible Bond Fund	Investment in 180,805 units of an income fund
*	Fidelity Diversified International Fund	Investment in 13,260 units of a growth fund
*	Fidelity Freedom 2005	Investment in 31,489 units of an income fund
	American Beacon Small Cap Value Plan	Investment in 16,525 units of an growth fund
*	Fidelity Freedom 2010	Investment in 23,404 units of an income fund
	Franklin Utilities A	Investment in 28,489 units of an growth and income fund
*	Fidelity Freedom 2015	Investment in 24,063 units of an growth fund
*	Fidelity Freedom 2025	Investment in 16,557 units of an growth fund

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TUCSON ELECTRIC POWER COMPANY 401(K) PLAN SCHEDULE H, LINE 4(I) - SCHEDULE OF ASSETS (HELD AT END OF YEAR) DECEMBER 31, 2004

 IDENTITY OF ISSUE, BORROWER,
 DESCRIPTION OF INVESTMENT INCLUDING

 (a) (b)
 LESSOR OR SIMILAR PARTY
 (c)

 COLLATERAL, PAR OR MATURITY VALUE

- * Fidelity Small Cap Stock Investment in 4,290 units of an growth fund
- * Fidelity Freedom 2020
- * Fidelity Freedom 2030
- * Fidelity Freedom 2035 Investment in 1,661 units of an growth fund
- * Fidelity Freedom 2040 Investment in 1,778 units of an growth fund
- * Loans to participants Loans with maturities ranging from 1 month to 180 months and interest rates from 4.00% to 11.50%

* Denotes party-in-interest

** Historical cost information is not required for participant-directed investments.

Investment in 1,586 units of an growth fund

Investment in 1,393 units of an growth fund

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SIGNATURES

The Plan. Pursuant to the requirements of the Securities Exchange Act of 1934, the trustees (or other persons who administer the employee benefit plan) have duly caused this annual report to be signed on its behalf by the undersigned hereunto duly authorized.

TUCSON ELECTRIC POWER COMPANY 401(k) PLAN

By: Tucson Electric Power Company 401(k) Plan Administrative Committee

- By: /s/ Kevin P. Larson Date: June 29, 2005 Kevin P. Larson Member of Plan Administrative Committee
- By: /s/ Steven J. Glaser Date: June 29, 2005 Steven J. Glaser Date: June 29, 2005
- By: /s/ Michael J. DeConcini Date: June 29, 2005 Michael J. DeConcini Member of Plan Administrative Committee

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