SPIRE CORP Form 11-K June 30, 2009

	UNITED STATES	
	SECURITIES AND EXCHANGE COMMISSION	
	Washington, D.C. 20549	
	FORM 11-K	
X	Annual Report Pursuant to Section 15(d) of the Securities Exchange of 1934.	ge Act
	For the fiscal year ended December 31, 2008; or	
_	Transition Report Pursuant to $15(d)$ of the Securities Exchange A of 1934 .	.ct
	For the transition period from to	
	Commission file number: 0-12742	
	Full title of the plan and the address of the plan, if different from that of the issuer named below:	
	Spire Corporation 401(k) Profit Sharing Plan	
	Name of issuer of the securities held pursuant to the plan and the address of its principal executive office:	l
	Spire Corporation	
	One Patriots Park	
	Bedford, Massachusetts 01730-2396	
=====		
	SPIRE CORPORATION 401(k) PROFIT SHARING PLAN	
	Table of Contents	
	Pa	ge Number
Repor	t of Independent Registered Public Accounting Firm	1
Finan	cial Statements:	
St	atements of Net Assets Available for Benefits	2
St	atement of Changes in Net Assets Available for Benefits	3

Notes to Financial Statements

4

Supplemental Schedule:

Schedule H, Line 4i - Form 5500, Schedule of Assets (Held at End of Year)

14

Signatures

15

Exhibits:

Consent of Independent Registered Public Accounting Firm (filed herewith)

REPORT OF INDEPENDENT REGISTERED PUBLIC ACCOUNTING FIRM

To the Plan Administrator and Participants of Spire Corporation 401(k) Profit Sharing Plan Bedford, Massachusetts

We have audited the accompanying statements of net assets available for benefits of Spire Corporation 401(k) Profit Sharing Plan (the Plan) as of December 31, 2008 and 2007, and the related statement of changes in net assets available for benefits for the year ended December 31, 2008. These financial statements and schedules 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. An audit includes examining, on a test basis, evidence supporting the amounts and disclosures in the financial statements. An audit also includes 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, the financial statements referred to above present fairly, in all material respects, the net assets available for benefits of the Plan as of December 31, 2008 and 2007 and the changes in net assets available for benefits for the year ended December 31, 2008 in conformity with accounting principles generally accepted in the United States of America.

Our audits were performed 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, 2008 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 under the Employee Retirement Income Security Act of 1974. The supplemental schedule is the responsibility of the Plan's management. The supplemental schedule has been subjected to the auditing procedures applied in the audits of the basic financial statements and, in our opinion, is fairly stated in all material respects in relation to the basic financial statements taken as a whole.

/s/ Siegrist and Cree, CPA's, PC

SIEGRIST AND CREE, P.C.

Wellesley Hills, Massachusetts June 23, 2009

1

SPIRE CORPORATION 401(k) PROFIT SHARING PLAN Statements of Net Assets Available for Benefits December 31, 2008 and 2007

	2008	2007
Assets		
Investments: At fair value:		
Common stock - Spire Corporation Mutual funds		\$ 3,284,103 5,341,544
Participant loans		133,171
Hartford Fixed Income Fund	182,660	179,031
Total investments	5,303,716	8,937,849
Money market receivable		4,732
Contribution receivable:		
Participants		15,294
Employeer	2,640 	
		15,294
Total assets	5,313,788	8,957,875
Liabilities		
Excess contributions payable	33,365	29,149
Net assets reflecting all investments at fair value	5,280,423	8,928,726
Adjustment from fair value to contract value for fully		
benefit responsive investment contracts	9 , 957	7 , 976
Net assets available for benefits	\$ 5,290,380	\$ 8,936,702
	=========	========

See notes to financial statements.

2

SPIRE CORPORATION 401(k) PROFIT SHARING PLAN
Statement of Changes in Net Assets Available for Benefits
For the Year Ended December 31, 2008

Additions to net assets: Investment income: Interest and dividends Interest on loans Net decline in fair value of investments	\$ 171,076 13,148 (4,220,586) (4,036,362)
Participant contributions Employer contributions	567,389 47,531
Total additions	(3,421,442)
Deductions from net assets: Benefits paid to participants Administrative fees	216,683
Total deductions	224,880
Net decrease	(3,646,322)
Net assets available for benefits:	
Beginning of year	8,936,702
End of year	\$ 5,290,380

See notes to financial statements.

3

SPIRE CORPORATION 401(k) PROFIT SHARING PLAN
Notes to Financial Statements
For the Year Ended December 31, 2008

1. Plan Description

The following brief description of the Spire Corporation 401(k) Profit Sharing Plan (the Plan) provides general information only. Participants should refer to the Plan agreement for a more complete description of the Plan's provisions.

General

The Plan is a defined contribution plan covering all eligible employees of Spire Corporation (the "Company"). The Plan was established January 1, 1985 and was most recently amended on December 29, 2004. Wachovia Retirement Services serves as the trustee (the "Trustee") of the Plan's assets. The Plan is subject to the provisions of the Internal Revenue Code of 1986, as amended, and the provisions of the Employee Retirement Income Security Act of 1974 (ERISA).

Eligibility, Vesting and Contributions

Eligibility and Contributions

Employees of the Company become eligible to participate in the Plan with voluntary contributions to their 401(k) salary deferral account upon reaching the age of 21 and upon completion of ninety (90) days of service with the Company. The entry dates are the first of the month following eligibility. Participants are immediately vested in their voluntary contributions plus actual earnings. A participant may contribute up to the maximum amount of pre-tax annual compensation allowed by the Internal Revenue Code. Participants may contribute amounts from distributions from other qualified plans. Participants direct the investment of their contributions into various investment funds offered by the Plan. Currently, the Plan offers to participant's investments in the Company's common stock, mutual funds and an insurance contract.

4

Matching Contribution and Profit Sharing Contribution Plan Component

The Company may contribute a discretionary matching contribution on the first 15% of compensation that a participant contributes to the Plan. The Company's matching contribution is invested directly in the Company's common stock. In 2008, the Company made a matching contribution for a portion of the year amounting to \$47,531. In addition, the Company may make a profit sharing contribution. In 2008, the Company did not make any profit sharing contribution.

Vesting

Participants are vested immediately in their voluntary contributions to the Plan plus actual earnings thereon. Vesting in the Company matching contribution is based on continuous years of service and a participant is 100 percent vested after six years of credited service.

Participant Accounts

Each participant's account is credited with the participant's contributions and allocations of any Company matching contribution and the Plan earnings. The benefit to which a participant is entitled is the benefit that can be provided from the participant's vested account. The participant directs the investment of his or her individual account by selecting among funds in a common/collective trust, an insurance contract or Company common stock. Each participant has the ability to change the investment percentage at any time.

Forfeited Accounts

Termination of a participant before being fully vested results in forfeiture of the non-vested portion of the participant's account balance. Forfeitures may be used to reduce future employer contributions. The forfeited amounts available at December 31, 2008 and 2007 amounted to \$33,523 and \$32,714, respectively.

Participant Loans

Participants may borrow from their fund accounts a minimum of \$1,000 up to a maximum equal to the lesser of \$50,000 or fifty percent of their vested account balance. The loan terms range from 1 to 5 years or up to

10 years for the purchase of a primary residence. The loans are secured by the balance in the participant's account and bear interest rate commensurate with local prevailing rates as determined by the plan administrator. The participant may have five outstanding loans at any given time. Interest rates are prime plus one percent. Principal and interest are repaid ratably through payroll deductions.

5

Payments of Benefits

Employees are permitted to withdraw funds from their accounts upon attaining the age of 59-1/2, retirement, termination, financial hardship, disability or death. The participant or beneficiary may elect to receive lump-sum cash payments or installment payments over the participant's and beneficiary's assumed life expectance determined at the time of distribution. Benefits are recorded when paid.

Plan Termination

Although management has not expressed any intent to do so, the Company has the right under the Plan to discontinue and terminate the Plan subject to the provisions of ERISA. In the event the Plan terminates, participants will become 100% vested in their accounts.

Administrative Costs

Certain administrative expenses of the Plan are borne by the Company for the year ended December 31, 2008 and amounted to \$24,000. Loan fees are charged against the borrowers' accounts.

2. Summary of Significant Accounting Policies

Basis of Accounting

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

Recent Accounting Pronouncements

Effective January 1, 2008, the Plan adopted Statement of Financial Accounting Standards ("SFAS") No. 157, Fair Value Measurements ("FAS 157"). In February 2008, the Financial Accounting Standards Board ("FASB") issued FASB Staff Position No. FAS 157-2, Effective Date of FASB Statement No. 157, which provides a one year deferral of the effective date of FAS 157for non-financial assets and non-financial liabilities, except those that are recognized or disclosed in the financial statements at fair value at least annually. Therefore, the Plan has adopted the provisions of FAS 157 with respect to its financial assets and liabilities only. FAS 157 defines fair value, establishes a framework for measuring fair value, and expands disclosures about fair value measurements. The new standard provides a consistent definition of fair value which focuses on an exit price which is the price that would be received to sell an asset or paid to transfer a liability in an orderly transaction between market participants at the measurement date. The standard also prioritizes, within the measurement of fair value, the use of market-based information over entity specific information and establishes a three-level hierarchy for fair value measurements based on the nature of inputs used in the valuation of an asset or liability as of the measurement date. The application of FAS 157

in situations where the market for a financial asset is not active was clarified by the issuance of FASB Staff Position No. FAS 157-3, Determining the Fair Value of a Financial Asset When the Market for That Asset Is Not Active, ("FAS 157-3") in October 2008. FAS 157-3 became effective immediately and did not significantly impact the methods by which the Plan determines the fair values of its financial assets.

6

On April 9, 2009, the FASB issued Staff Position No. FAS 157-4 Determining Fair Value When the Volume and Level of Activity for the Asset or Liability Have Significantly Decreased and Identifying Transactions That Are Not Orderly ("FAS 157-4"). FAS 157-4 provides additional guidance for estimating fair value when the volume and level of activity for the asset or liability have significantly decreased and includes guidance on identifying circumstances that indicate a transaction is not orderly. FAS 157-4 is effective for reporting periods ending after June 15, 2009, and is applied prospectively. Early adoption is not permitted for periods ending before March 15, 2009. Plan management does not expect the provisions of FAS 157-4 to have a material effect on the Plan's financial statements.

Investments

The Plans investments are valued at fair value. The mutual funds are valued based on quoted market prices which represent the net asset value of the underlying assets of the account. Investments in the Company's common stock are stated at fair value based on the unitized value of the fund on the last business day of the year.

Investments in benefit responsive insurance contracts are stated at fair value as determined by the custodian of those Plan assets. The difference between the contract value and the fair value of the benefit responsive insurance contracts are presented as an adjustment to net assets available for benefits.

Participant loans are valued at their outstanding balances, which approximate fair value. Other investment securities are stated at fair value based on their quoted market prices on the last day of the year.

Use of Estimates

The preparation of financial statements in conformity with generally accepted 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, liabilities and changes in net assets in the financial statements and accompanying notes. Actual results could differ from those estimates.

7

Risks and Uncertainties

The Plan provides to participants various investment options consisting primarily of mutual funds, Company common stock and an insurance contract. Mutual funds invest in securities, such as, stocks, bonds, and fixed rate income securities. Investment securities are exposed to risks including changing interest rates, market fluctuations and credit risks. Due to the level of risk associated with investment securities, it is reasonable to assume that changes in the values of the investment securities will occur

and that such changes could materially affect participants' account balances and the amounts reported in the statement of assets available for benefits.

Investment Transactions and Income

Purchase and sale transactions are recorded on a trade-date basis. Interest income is recorded on the accrual basis and dividend income is recorded on the ex-dividend date.

The Plan reports the net appreciation or decline in the fair value of its investments consisting of realized gains or losses and unrealized appreciation or depreciation on those investments in the statement of changes in net assets available for benefits.

Investments

Investments that represent five percent (5%) or more of the Plan's net assets are as follows:

	December 31,	
	 2008	2007
Mutual funds		
Oppenheimer Quest Opportunity Value	\$ 643 , 991	\$ 831,305
Franklin Flexible Capital Growth	720,284	1,114,589
American Funds Europacific Growth	395 , 254	725,646
AIM Cash Reserve Shares	367,515	287,845
PIMCO Funds	273 , 395	154,485
Eaton Vance Large Cap Value	124,996	451,696
Common stock		
Spire Corporation	923,532	3,284,103

During 2008 the Plan's investments (including investments bought, sold, and held during the year) depreciated in value as follows:

Mutual Common			\$	(1,635,479) (2,585,107)
			\$	(4,220,586)
			==	

8

4. Fair Value Measurements

FAS 157 establishes a Framework for measuring fair value. That framework provides a fair value hierarchy that prioritizes the inputs to valuation techniques used to measure fair value. The hierarchy gives the highest priority to unadjusted quoted prices in active markets for identical assets or liabilities (Level 1) and the lowest priority to unobservable inputs (Level 3). The three levels of the fair value hierarchy under FAS 157, and its applicability to the Plan, are described below:

Level 1 - Pricing inputs are quoted prices available in active markets for identical investments as of the reporting date. As required by FAS 157, the Plan does not adjust the quoted price for these investments, even in situations where the Plan holds a large position and a sale

could reasonably impact the quoted price.

Level 2 - Pricing inputs are quoted prices for similar investments, or inputs that are observable, either directly or indirectly, for substantially the full term through corroboration with observable market data. Level 2 includes investments valued at quoted prices adjusted for legal or contractual restrictions specific to these investments.

Level 3 - Pricing inputs are unobservable for the investment, that is, inputs that reflect the reporting entity's own assumptions about the assumptions market participants would use in pricing the asset or liability. Level 3 includes investments that are supported by little or no market activity.

The following table presents the financial instruments related to the Plan's assets carried at fair value as of December 31, 2008 by FAS 157 valuation hierarchy (as defined above).

	Level 1	Level 2	Level 3	Total
Common stock - Spire Corporation Mutual funds	\$ 4,022,348	\$ 923,532	\$	\$ 923,532 4,022,348
Hartford fixed income fund Participant Loans		182 , 660 	 175 , 176	182,660
Total investments at fair value	\$ 4,022,348 =======	\$ 1,106,192 =======	\$ 175,176	\$ 5,303,716

The following table presents a summary of changes in the fair value of the Plan's Level 3 assets for the year ended December 31, 2008.

9

Participant Loans:

	at January 1, 2008 issuances and settlements (net)	\$ 133,171 42,005
Ending balance at	December 31, 2008	\$ 175,176

5. Nonparticipant-Directed Investments

Information about the net assets and the significant components of the changes in net assets relating to nonparticipant-directed investments is as follows:

	December 31,		
	2008	2007	
Net assets: Common stock - Spire Corporation Other	\$ 722,115 434,846	\$3,268,876 393,040	
Total nonparticipant-directed	\$1,156,961 ======	\$3,661,916 ======	

Changes in net assets during 2008:
Employer contributions
Net decline in fair value of investments

\$ 47,531 (2,552,486) -----\$(2,504,955) -----

6. Investment Contract with Insurance Company

In 1995, the Plan entered into a benefit-responsive investment contract with The Hartford Group (Hartford). Hartford maintains the contributions in a general account. The account is credited with earnings on the underlying investments and charged for participant withdrawals and administrative expenses. The contract is included in the statements of net assets available for benefits at fair value as determined using the market approach based on market prices of similar contracts. The adjustment from fair value to contract value for the investment contract is based on the contract value as reported to the Plan by Hartford. Contract value represents contributions made under the contract, plus earnings, less participant withdrawals and administrative expenses. Participants may ordinarily direct the withdrawal or transfer of all or a portion of their investment at contract value.

10

The fair value of the investment contract at December 31, 2008 and 2007 was \$182,660 and \$179,031, respectively. The average yield was 3% for both 2008 and 2007. The interest crediting rate was 3% and 3.36% for 2008 and 2007, respectively.

Certain events, such as the premature termination of the contract by the Plan or the termination of the Plan, would limit the Plan's ability to transact at contract value with Hartford. The Plan administrator believes the occurrence of such events that would also limit the Plan's ability to transact at contract value with Plan participants is not probable.

7. Income Tax Status

The Internal Revenue Service has determined and informed the Company by a letter dated May 23, 1995, that the Plan and related trust are designed in accordance with applicable sections of the Internal Revenue Code (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 Internal Revenue Code. Therefore, no provision for income taxes has been included in the Plan's financial statements.

8. Excess Contributions

Benefit distributions for the plan year ended December 31, 2008 and 2007 include payments of \$33,365 and \$29,149, respectively, made to certain active participants to return to them excess deferral contributions as required to satisfy the relevant nondiscrimination provisions of the Plan for the prior year.

Contributions received for the year ended December 31, 2008 are net of payments of \$33,365 made on March 15, 2009 to certain active participants to return to them excess deferral contributions as required to satisfy the relevant nondiscrimination provisions of the Plan. That amount is also included in the plan's statement of net assets available for benefits as

excess contributions payable at December 31, 2008.

Loans to Participants

The Plan permits participants to obtain loans against their account balance. The loans are administered by the trustee and are recorded at their estimated fair value as reported by the administrator. As of December 31, 2008 and 2007, total loans outstanding were \$175,176 and \$133,171 respectively. Interest earned on such loans for the year ended December 31, 2008 amounted to \$13,148.

11

10. Related Party Transactions

Wachovia Retirement Services is the custodian of the Plan's assets and record keeper. Certain participant investments are in mutual funds managed by Wachovia Retirement Services and these transactions are considered as party-in-interest.

The Plan sponsor has paid the third party administrator fees and audit fees for 2008 aggregating \$24,000.

Participant loans granted in accordance with the Plan are considered as party-in-interest transactions.

11. Reconciliation of Financial Statements to Form 5500

The following is reconciliation per the financial statements at December 31, 2008 to the 2008 Form 5500 - Annual Return/Report of Employee Benefit Plan:

		2008
Net assets available for benefits per the financial statements Less: Contributions receivable Participants Employer match	\$	5,290,380 (7,432) (2,640)
		(10,072)
Add: Excess contributions payable		33,365
Net assets available for benefits per the 2008 Form 5500	\$ ==	5,313,673
Participant contributions per the financial statements Less: Current year excess contributions payable	\$	567,389 (7,432)
Add: Current year excess contributions payable Prior year contribution receivable Loan payment incorrectly posted as contribution		33,365 15,294 94
Participant contributions per Form 5500 - 2008	\$	608,710
Employer matching contributions per financial statements Less: Current year contribution receivable	\$	47,531 (2,640)

\$ ==

Employer matching contributions per Form 5500 - 2008

\$ 44,891 =======

12

12. Adjustment to Prior Year

The Plan financial statements for 2007 did not include the participant's contribution receivable. The following table restates 2007 for that item:

	2007
Net assets available for benefit as reported Add: Participants contribution receivable	\$ 8,921,408 15,294
Net assets available for benefits as restated	\$ 8,936,702

13

SPIRE CORPORATION 401(k) PROFIT SHARING PLAN

Schedule H, Line 4i - Form 5500 Schedule of Assets (Held at End of Year) December 31, 2008

E.I.N. 04-2457335 Plan Number 002

> OppenheimerFunds American Funds

(a)	(b)	(c)	(d)
		Description of Investment	
	Identity of Issue,	Including Maturity Date,	
	Borrower, Lessor or	Rate of Interest, Collateral,	
	Similar Party	Par or Maturity Value	Cost
*	Spire Corporation	168,538 shares of common stock	\$1,518,73
	Franklin Templeton Investments	Franklin Flexible Capital Growth	n/

Europacific Growth

Oppenheimer Quest Opportunity Value

n/

AIM Funds AIM Cash Reserve Shares Evergreen Investments Evergreen Money Market PIMCO Funds Total Return Eaton Vance Large Cap Value Fixed Income Hartford Life Insurance Co. Allianz NJF Dividend Value R OppenheimerFunds Oppenheimer Strategic Income Eaton Vance Income Fund of Boston American Funds New Perspective American Balanced Sentinel Small Company MidCap Value A American Funds Sentinel Group Funds Goldman Sachs Allianz Funds RCM Global Technology Davis Funds Davis New York Venture Franklin Templeton Investments Franklin Small-Mid Cap Growth Pioneer Investments
MFS Investment Management Pioneer Cash Reserves Mass Investors Growth Stock Third Avenue Third Avenue Small Cap Value A Cash

* Represents party-in-interest

* Participant Loans

The independent registered public accounting firm's report should be read with this supplementary schedule.

14

Interest rates 5% to 9.5%

SIGNATURE

Pursuant to the requirements of the Securities Exchange Act of 1934, the Investment Committee of the Spire Corporation 401(k) Profit Sharing Plan have duly caused this annual report to be signed on their behalf by the undersigned hereunto duly authorized.

SPIRE CORPORATION 401(k) PROFIT SHARING

Date: June 30, 2009 By: /s/ Christian Dufresne

Christian Dufresne

Chief Financial Officer and Treasurer

n/

n/ n/

n/

n/