

Kayne Anderson MLP Investment CO  
Form N-Q  
April 25, 2008

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

**FORM N-Q**

**QUARTERLY SCHEDULE OF PORTFOLIO HOLDINGS OF REGISTERED  
MANAGEMENT INVESTMENT COMPANY**

Investment Company Act file number 811-21593

**KAYNE ANDERSON MLP INVESTMENT COMPANY**

(Exact name of registrant as specified in charter)

1800 Avenue of the Stars, Second Floor, Los Angeles,  
California

90067

(Address of principal executive offices)

(Zip code)

David Shladovsky, Esq.

KA Fund Advisors, LLC, 1800 Avenue of the Stars, Second Floor, Los Angeles, California 90067

(Name and address of agent for service)

Registrant's telephone number, including area code: (310) 556-2721

Date of fiscal year end: November 30, 2008

Date of reporting period: February 29, 2008

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**Item 1: Schedule of Investments****KAYNE ANDERSON MLP INVESTMENT COMPANY  
SCHEDULE OF INVESTMENTS****FEBRUARY 29, 2008****(amounts in 000 s)****(UNAUDITED)**

<b><u>Description</u></b>	<b>No. of Shares/Units</b>	<b>Value</b>
<b>Long-Term Investments - 168.0%</b>		
<b>Equity Investments(a)(b) - 167.5%</b>		
<b>Midstream MLP - 129.4%</b>		
Atlas Pipeline Partners, L.P.	417	\$ 18,486
Boardwalk Pipeline Partners, LP	522	12,375
Buckeye Partners, L.P.(c)	156	7,642
Copano Energy, L.L.C.	3,429	125,002
Copano Energy, L.L.C. Class E Units(d)(e)	157	4,997
Crosstex Energy, L.P.	2,963	93,664
DCP Midstream Partners, LP	142	5,163
Duncan Energy Partners L.P.	193	4,077
Eagle Rock Energy Partners, L.P.	134	2,007
El Paso Pipeline Partners, L.P.	774	18,152
Enbridge Energy Management, L.L.C.(f)	669	34,983
Enbridge Energy Partners L.P.	1,400	69,957
Energy Transfer Partners, L.P.	3,875	185,673
Enterprise Products Partners L.P.	5,279	163,481
Global Partners LP(c)	1,452	39,671
Hiland Partners, LP	162	8,206
Holly Energy Partners, L.P.	209	8,582
Kinder Morgan Management, LLC(f)	2,719	148,237
Magellan Midstream Partners, L.P.	3,636	157,486
MarkWest Energy Partners, L.P.	2,183	75,309
Martin Midstream Partners L.P.	295	9,999
NuStar Energy L.P.	463	24,754
ONEOK Partners, L.P.	875	54,302
Plains All American Pipeline, L.P.(g)	3,112	148,586
Regency Energy Partners LP	1,949	57,815
SemGroup Energy Partners, L.P.	208	5,183
Spectra Energy Partners, LP	272	6,713
Sunoco Logistics Partners L.P.	100	5,374
Targa Resources Partners LP	398	9,655
TC PipeLines, LP	1,298	44,337
TEPPCO Partners, L.P.	677	25,556
Williams Partners L.P.	453	16,821
Williams Pipeline Partners L.P.(e)	242	4,792
		1,597,037

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**Propane MLP - 8.4%**

Ferrellgas Partners, L.P.	877	20,079
Inergy, L.P.	2,839	82,939
		103,018

**Shipping MLP - 2.4%**

Capital Product Partners L.P.	121	2,438
K-Sea Transportation Partners L.P.	221	7,974
OSG America L.P.	207	2,904
Teekay LNG Partners L.P.	329	9,895
Teekay Offshore Partners L.P.	263	6,658
		29,869

**Coal MLP - 5.5%**

Clearwater Natural Resources, LP Unregistered(d)(h)(i)	3,889	51,334
Natural Resource Partners L.P.	236	7,581
Penn Virginia Resource Partners, L.P.	319	8,519
		67,434

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**KAYNE ANDERSON MLP INVESTMENT COMPANY**  
**SCHEDULE OF INVESTMENTS (CONTINUED)**  
**FEBRUARY 29, 2008**  
(amounts in 000 s)  
(UNAUDITED)

<u>Description</u>	No. of Shares/Units	Value
<b>Upstream MLP - 10.0%</b>		
Atlas Energy Resources, LLC	1,649	\$ 54,881
BreitBurn Energy Partners L.P.	1,427	31,430
BreitBurn Energy Partners L.P. - Unregistered(d)	556	11,479
Constellation Energy Partners LLC	956	20,067
Dorchester Minerals, L.P.	74	1,571
Legacy Reserves LP	193	4,103
		123,531
<b>MLPAffiliates - 8.2%</b>		
Atlas Pipeline Holdings, L.P.	76	2,418
Buckeye GPHoldings L.P.	206	5,773
Crosstex Energy, Inc.	54	1,927
Energy Transfer Equity, L.P.	464	15,440
Enterprise GPHoldings L.P.	1,342	42,175
Hiland Holdings GP, LP	141	3,503
Magellan Midstream Holdings, L.P.	1,147	29,509
		100,745
<b>Other MLP- 3.5%</b>		
Calumet Specialty Products Partners, L.P.	685	20,653
Exterran Partners, L.P.	700	22,956
		43,609
<b>Other - 0.1%</b>		
Omega Navigation Enterprises, Inc.	91	1,335
<b>Total Equity Investments (Cost \$1,476,340)</b>		<b>2,066,578</b>

**KAYNE ANDERSON MLP INVESTMENT COMPANY**  
**SCHEDULE OF INVESTMENTS (CONCLUDED)**  
**FEBRUARY 29, 2008**  
(amounts in 000 s)  
(UNAUDITED)

	Interest Rate	Maturity Date	Principal Amount	Value
<b>Fixed Income Investment 0.5%</b>				
<b>Coal MLP 0.5%</b>				
Clearwater Natural Resources, LP(d)(h) (Cost \$6,142)	(j)	12/03/09	\$6,142	6,142
<b>Total Long-Term Investments (Cost \$1,482,482)</b>				2,072,720
<b>Short-Term Investment 0.0%</b>				
<b>Repurchase Agreement 0.0%</b>				
Bear, Stearns & Co. Inc. (Agreement dated 2/29/08 to be repurchased at \$383), collateralized by \$395 in U.S. Treasury Bonds (Cost \$383)	1.850%	3/03/2008		383
<b>Total Investments 168.0% (Cost \$1,482,865)</b>				2,073,103
<b>Liabilities</b>				
<b>Auction Rate Senior Notes</b>				(505,000)
<b>Deferred Taxes</b>				(211,725)
<b>Revolving Credit Line</b>				(21,000)
<b>Other Liabilities</b>				(9,153)
<b>Unrealized Depreciation on Interest Rate Swap Contracts</b>				(31,164)
<b>Total Liabilities</b>				(778,042)
<b>Income Tax Receivable</b>				1,161
<b>Other Assets</b>				12,862
<b>Total Liabilities in Excess of Other Assets</b>				(764,019)
<b>Preferred Stock at Redemption Value</b>				(75,000)
<b>Net Assets Applicable to Common Stockholders</b>				\$ 1,234,084

(a) Unless otherwise noted, equity investments are common units/common shares.

(b) Includes Limited

- Liability  
Companies.
- (c) Security or a portion thereof is segregated as collateral on interest rate swap contracts.
  - (d) Fair valued securities, restricted from public sale.
  - (e) Security is currently not paying cash distributions but is expected to pay cash distributions or convert to securities which pay cash distributions within the next 12 months.
  - (f) Distributions are paid in-kind.
  - (g) The Company believes that it may be an affiliate of Plains All American, L.P.
  - (h) Clearwater Natural Resources, LP is a privately-held MLP that the Company believes is a controlled affiliate.
  - (i) Security is non-income producing.
  - (j) Floating rate unsecured working capital term loan. Security pays interest at a rate

of the higher of  
one year LIBOR  
or 4.75% plus  
750 basis points  
(12.25% as of  
February 29,  
2008).

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From time to time, certain of the Company's investments may be restricted as to resale. For instance, securities that are not registered under the Securities Act of 1933 and cannot, as a result, be offered for public sale in a non-exempt transaction without first being registered. In other cases, certain of the Company's investments have restrictions such as lock-up agreements that preclude the Company from offering these securities for public sale.

At February 29, 2008 the Company held the following restricted investments:

Investment	Security(1)	Type of Restriction	Number of Units, Principal (\$ (in 000 s))	Acquisition Date	Cost Basis	Fair Value	Fair Value per Unit	Percent of Net Assets	Percent of Total Assets
BreitBurn Energy Partners L.P.	Common Units	(2)	556	10/30/07	\$ 13,442	\$ 11,479	\$ 20.66	0.9%	0.5%
Clearwater Natural Resources, LP	Common Units	(3)	3,889	(4)	72,746	51,334	13.20	4.2	2.5
Clearwater Natural Resources, LP	Term Loan	(3)	\$ 6,142	(5)	6,142	6,142	n/a	0.5	0.3
Copano Energy, L.L.C.	Class E Units	(2)	157	10/19/07	5,000	4,997	31.75	0.4	0.2
					\$ 97,330	\$ 73,952		6.0%	3.5%

(1) Restricted security that represents a Level 3 categorization under SFAS No. 157. Security is valued using inputs reflecting the Company's own assumptions.

(2) Unregistered security.

(3) Security of a privately-held MLP.

(4) The Company purchased common units on August 1, 2005 and October 2, 2006.

At February 29, 2008, the cost basis of investments for Federal income tax purposes was \$1,373,959. At February 29, 2008, gross unrealized appreciation and depreciation of investments for Federal income tax purposes were as follows:

Gross unrealized appreciation	\$749,664
Gross unrealized depreciation	(50,520)

Net unrealized appreciation

\$699,144

The identified cost basis for federal tax purposes is estimated based on information available from the Company's portfolio companies. In some cases, this information is very limited. Accordingly, the actual cost basis may prove higher or lower than the estimated cost basis included in this footnote.

Securities valuation policies and other investment related disclosures are hereby incorporated by reference to the Company's annual report previously filed with the Securities and Exchange Commission on Form N-CSR on February 7, 2008, with a file number 811-21593.

Other information regarding the Company is available in the Company's most recent annual report. This information is also available on the Company's website at <http://www.kaynefunds.com>; or on the website of the Securities and Exchange Commission, <http://www.sec.gov>.

*SFAS No. 157*. In September 2006, the Financial Accounting Standards Board (FASB) issued Statement of Financial Accounting Standards (SFAS) No. 157, Fair Value Measurements. This standard establishes a single authoritative definition of fair value, sets out a framework for measuring fair value and requires additional disclosures about fair value measurements. SFAS No. 157 applies to fair value measurements already required or permitted by existing standards. SFAS No. 157 is effective for financial statements issued for fiscal years beginning after November 15, 2007 and interim periods within those fiscal years. The changes to current generally accepted accounting principles from the application of this Statement relate to the definition of fair value, the methods used to measure fair value, and the expanded disclosures about fair value measurements.

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As of December 1, 2007, the Company adopted SFAS No. 157. The Company has performed an analysis of all existing investments and derivative instruments to determine the significance and character of all inputs to their fair value determination. Based on this assessment, the adoption of this standard did not have any material effect on the Company's net asset value. However, the adoption of the standard does require the Company to provide additional disclosures about the inputs used to develop the measurements and the effect of certain measurements on changes in net assets for the reportable periods as contained in the Company's periodic filings.

SFAS No. 157 establishes a fair value hierarchy that prioritizes the inputs to valuation techniques used to measure fair value into the following three broad categories.

*Level 1* Quoted unadjusted prices for identical instruments in active markets to which the Company has access at the date of measurement.

*Level 2* Quoted prices for similar instruments in active markets; quoted prices for identical or similar instruments in markets that are not active; and model-derived valuations in which all significant inputs and significant value drivers are observable in active markets. Level 2 inputs are those in markets for which there are few transactions, the prices are not current, little public information exists or instances where prices vary substantially over time or among brokered market makers.

*Level 3* Model derived valuations in which one or more significant inputs or significant value drivers are unobservable. Unobservable inputs are those inputs that reflect the Company's own assumptions that market participants would use to price the asset or liability based on the best available information.

The following table presents our assets and liabilities measured at fair value on a recurring basis at February 29, 2008.

<b>Assets at Fair Value</b>	<b>Total</b>	<b>Quoted Prices in Active Markets (Level 1)</b>	<b>Prices with Other Observable Inputs (Level 2)</b>	<b>Unobservable Inputs (Level 3)</b>
Long-Term Investments	\$ 2,072,720	\$ 1,998,768		\$ 73,952

**Liabilities at Fair Value**

Unrealized depreciation on interest rate swaps	\$ 31,164		\$ 31,164	
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The following table presents our assets and liabilities measured at fair value on a recurring basis using significant unobservable inputs (Level 3) at November 30, 2007 and at February 29, 2008.

<b>Assets at Fair Value Using Unobservable Inputs (Level 3)</b>	<b>Long-Term Investments</b>
Balance November 30, 2007	\$ 195,919
Transfers out of Level 3	(138,188)
Realized gains (losses)	
Unrealized gains, net	10,079
Purchases, issuances or settlements	6,142
Balance February 29, 2008	\$ 73,952

The \$10,079 of unrealized gains, presented in the table above relate to investments that are still held at February 29, 2008.

The Company did not have any liabilities that were measured at fair value on a recurring basis using significant unobservable inputs (Level 3) at November 30, 2007 and at February 29, 2008.

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**Item 2: Controls and Procedures**

(a) As of a date within 90 days from the filing date of this report, the principal executive officer and principal financial officer concluded that the registrant's disclosure controls and procedures (as defined in Rule 30a-3(c) under the Investment Company Act of 1940 (the Act)), were effective based on their evaluation of the disclosure controls and procedures required by Rule 30a-3(b) under the Act and Rules 13a-15(b) or 15d-15(b) under the Securities and Exchange Act of 1934.

(b) There were no changes in the registrant's internal control over financial reporting (as defined in Rule 30a-3(d) under the Act) that occurred during the registrant's last fiscal quarter that have materially affected, or are reasonably likely to materially affect, the registrant's internal control over financial reporting.

**Item 3: Exhibits**

1. The certifications of the registrant as required by Rule 30a-2(a) under the Act are exhibits to this report.
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**SIGNATURES**

Pursuant to the requirements of the Securities Exchange Act of 1934 and the Investment Company Act of 1940, the registrant has duly caused this report to be signed on its behalf by the undersigned, thereunto duly authorized.

KAYNE ANDERSON MLP INVESTMENT COMPANY

/s/ Kevin S. McCarthy

Name: Kevin S. McCarthy

Title: Chairman, President and Chief Executive Officer

Date: April 25, 2008

Pursuant to the requirements of the Securities Exchange Act of 1934 and the Investment Company Act of 1940, this report has been signed below by the following persons on behalf of the registrant and in the capacities and on the dates indicated.

/s/ Kevin S. McCarthy

Name: Kevin S. McCarthy

Title: Chairman, President and Chief Executive Officer

Date: April 25, 2008

/s/ Terry A. Hart

Name: Terry A. Hart

Title: Chief Financial Officer and Treasurer

Date: April 25, 2008