

Kayne Anderson MLP Investment CO
Form N-Q
October 31, 2006

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**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, 90067
California

(Address of principal executive offices) (Zip code)

David Shladovsky, Esq.

Kayne Anderson Capital Advisors, L.P., 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, 2006

Date of reporting period: August 31, 2006

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SCHEDULE OF INVESTMENTS****AUGUST 31, 2006
(amounts in 000 s)
(UNAUDITED)**

Description	No. of Shares/Units	Value
Long-Term Investments - 147.9%		
Equity Investments(a) - 147.9%		
Pipeline MLP(b) - 122.2%		
Atlas Pipeline Partners, L.P.	375	\$ 16,291
Boardwalk Pipeline Partners, LP	345	9,981
Buckeye Partners, L.P.	46	1,982
Copano Energy, L.L.C.	2,068	107,476
Crosstex Energy, L.P.	2,619	95,552
Crosstex Energy, L.P. Senior Subordinated Units, Unregistered(c)(d)	356	10,825
DCP Midstream Partners, LP	90	2,524
Enbridge Energy Management, L.L.C.(e)	384	18,021
Enbridge Energy Partners, L.P.	1,598	77,471
Energy Transfer Partners, L.P.	4,444	211,867
Enterprise Products Partners L.P.	5,363	143,555
Global Partners LP	369	8,215
Hiland Partners, LP	76	3,458
Holly Energy Partners, L.P.	220	8,458
Kinder Morgan Management, LLC(e)	2,821	119,059
Magellan Midstream Partners, L.P.	3,937	145,062
MarkWest Energy Partners, L.P.	912	43,660
Martin Midstream Partners L.P.	199	6,636
ONEOK Partners, L.P.	768	42,719
Pacific Energy Partners, L.P.	422	14,743
Plains All American Pipeline, L.P.	1,989	91,506
Plains All American Pipeline, L.P.(c)	233	10,441
Regency Energy Partners LP	636	15,133
Sunoco Logistics Partners L.P.	60	2,703
TC PipeLines, LP	198	6,562
TEPPCO Partners, L.P.	473	17,719
TransMontaigne Partners L.P.	71	2,199
Valero L.P.	473	24,434
Williams Partners L.P.	211	7,542
		1,265,794
Propane MLP - 10.4%		
Ferrellgas Partners, L.P.	1,229	28,931
Inergy, L.P.	2,856	78,505

107,436

Shipping MLP - 1.6%

K-Sea Transportation Partners L.P.	105	3,465
Teekay LNG Partners L.P.	291	8,830
U.S. Shipping Partners L.P.	242	4,497
		16,792

Coal MLP - 1.5%

Natural Resource Partners L.P.	171	9,595
Penn Virginia Resource Partners, L.P.	231	6,241
		15,836

MLP Affiliate - 5.4%

Atlas America, Inc.(f)	23	1,046
Atlas Pipeline Holdings, L.P.(g)	67	1,562
Buckeye GP Holdings L.P.(g)	290	4,656
Crosstex Energy, Inc.	30	2,733
Crosstex Energy, Inc. Unregistered (c)	57	5,106
Energy Transfer Equity, L.P.	257	6,973
Kinder Morgan, Inc.	179	18,639
Magellan Midstream Holdings, L.P.	295	6,617
MarkWest Hydrocarbon, Inc.	302	8,123
		55,455

Other - 6.8%

Calumet Specialty Products Partners, L.P.	546	17,594
Clearwater Natural Resources, LP Unregistered(c)(h)	2,650	53,000
		70,594

Total Long-Term Investments (Cost \$1,158,069)		1,531,907
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KAYNE ANDERSON MLP INVESTMENT COMPANY
SCHEDULE OF INVESTMENTS (CONCLUDED)
AUGUST 31, 2006
(amounts in 000 s, except per share/unit amounts)
(UNAUDITED)

Description	Interest Rate	Maturity Date	Value
Short-Term Investment - 4.2%			
Repurchase Agreement - 4.2%			
Bear, Stearns & Co. Inc. (Agreement dated 8/31/06 to be repurchased at \$43,234), collateralized by \$44,482 in U.S. Treasury Bond Strips (Cost \$43,228)	5.230%	9/01/06	\$ 43,228
Total Investments - 152.1% (Cost \$1,201,297)			1,575,135
Liabilities			
Auction Rate Senior Notes			(320,000)
Deferred Taxes			(146,683)
Other Liabilities			(15,266)
Total Liabilities			(481,949)
Unrealized Appreciation on Interest Rate Swap Contracts			4,930
Income Tax Receivable			3,372
Other Assets			9,225
Total Liabilities in Excess of Other Assets			(464,422)
Preferred Stock at Redemption Value			(75,000)
Net Assets Applicable to Common Stockholders			\$ 1,035,713

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

(b) Includes Limited Liability Companies.

(c) Fair valued securities,

restricted from public sale.

- (d) Security is currently not paying cash distributions but is expected to pay cash distributions within the next 18 months.
- (e) Distributions are paid-in-kind.
- (f) Security is non-income producing.
- (g) Security is currently non-income producing but is expected to pay distributions within the next 12 months.
- (h) Clearwater Natural Resources, LP is a privately-held company.

Certain of the Company's investments are restricted as to resale and are valued as determined in accordance with procedures established by the Board of Directors. The table below shows the number of shares/units held, the acquisition date, aggregate cost, fair value as of August 31, 2006, value per share/unit of such security, percent of net assets applicable to common stockholders and percent of total assets which the security comprises:

Investment	Security	Number of Shares/Unit (in 000 s)	Acquisition Date	Purchase Price (in 000 s)	Cost (in 000 s)	Fair Value (in 000 s)	Value per Share/Unit	Percent of Net Assets (1)	Percent of Total Assets
Clearwater Natural Resources, L.P.	Common Units (2)	2,650	8/01/05	\$53,000	\$49,287	\$53,000	\$20.00	5.1%	3.3%

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Crosstex Energy, Inc.	Common Shares (2)	57	6/29/06	4,000	4,000	5,106	89.57	0.5	0.3
Crosstex Energy, L.P.	Senior Subordinated Units (2)	356	6/29/06	10,000	10,000	10,825	30.37	1.1	0.7
Plains All America Pipeline, L.P.	Common Units	233	7/26/06	10,000	9,848	10,441	44.90	1.0	0.7
				\$77,000	\$73,135	\$79,372		7.7%	5.0%

(1) Applicable to common stockholders.

(2) Unregistered security.

At August 31, 2006, the identified cost basis of investments for Federal income tax purposes was \$1,198,977. At August 31, 2006, gross unrealized appreciation and depreciation of investments for Federal income tax purposes were as follows:

Gross unrealized appreciation	\$ 376,772
Gross unrealized depreciation	(613)
Net unrealized appreciation	\$ 376,159

The cost basis for federal tax purposes is estimated based on information available from the Fund'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 semi-annual report previously filed with the Securities and Exchange Commission on Form N-CSR on August 3, 2006, with a file number 811-21593.

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

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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: October 30, 2006

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: October 30, 2006

/s/ Terry A. Hart

Name: Terry A. Hart

Title: Chief Financial Officer and Treasurer

Date: October 30, 2006