

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)**

| <b>Description</b>  | <b>No. of<br/>Shares/Units</b> | <b>Value</b> |
|---|--------------------------------|--------------|
| <b>Long-Term Investments - 147.9%</b>                               |                                |              |
| <b>Equity Investments(a) - 147.9%</b>                               |                                |              |
| <b>Pipeline MLP(b) - 122.2%</b>                                     |                                |              |
| 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    |
| <b>Propane MLP - 10.4%</b>  |                                |              |
| 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 |

|   |  |                  |
|---|--|------------------|
| <b>Total Long-Term Investments (Cost \$1,158,069)</b> |  | <b>1,531,907</b> |
|---|--|------------------|

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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<br>Rate | Maturity<br>Date | Value        |
|---|------------------|------------------|--------------|
| <b>Short-Term Investment - 4.2%</b>   |                  |                  |              |
| <b>Repurchase Agreement - 4.2%</b>  |                  |                  |              |
| 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    |
| <b>Total Investments - 152.1% (Cost \$1,201,297)</b>  |                  |                  | 1,575,135    |
| <b>Liabilities</b>  |                  |                  |              |
| <b>Auction Rate Senior Notes</b>  |                  |                  | (320,000)    |
| <b>Deferred Taxes</b>   |                  |                  | (146,683)    |
| <b>Other Liabilities</b>  |                  |                  | (15,266)     |
| <b>Total Liabilities</b>  |                  |                  | (481,949)    |
| <b>Unrealized Appreciation on Interest Rate Swap Contracts</b>  |                  |                  | 4,930        |
| <b>Income Tax Receivable</b>  |                  |                  | 3,372        |
| <b>Other Assets</b>   |                  |                  | 9,225        |
| <b>Total Liabilities in Excess of Other Assets</b>  |                  |                  | (464,422)    |
| <b>Preferred Stock at Redemption Value</b>  |                  |                  | (75,000)     |
| <b>Net Assets Applicable to Common Stockholders</b>   |                  |                  | \$ 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<br>of<br>Shares/Unit<br>(in 000 s) | Acquisition<br>Date | Purchase<br>Price<br>(in 000 s) | Cost<br>(in 000 s) | Fair<br>Value<br>(in 000 s) | Value<br>per<br>Share/Unit | Percent<br>of Net<br>Assets<br>(1) | Percent<br>of<br>Total<br>Assets |
|---|---------------------|---|---------------------|---------------------------------|--------------------|-----------------------------|----------------------------|------------------------------------|----------------------------------|
|   |                     |   |                     |                                 |                    |                             |                            |                                    |                                  |
| Clearwater<br>Natural<br>Resources,<br>L.P. | Common<br>Units (2) | 2,650                                     | 8/01/05             | \$53,000                        | \$49,287           | \$53,000                    | \$20.00                    | 5.1%                               | 3.3%                             |

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|                |              |     |         |          |          |          |       |      |      |
|----------------|--------------|-----|---------|----------|----------|----------|-------|------|------|
|                | Common       |     |         |          |          |          |       |      |      |
| Crosstex       | Shares       |     |         |          |          |          |       |      |      |
| Energy, Inc.   | (2)          | 57  | 6/29/06 | 4,000    | 4,000    | 5,106    | 89.57 | 0.5  | 0.3  |
| Crosstex       | Senior       | 356 | 6/29/06 | 10,000   | 10,000   | 10,825   | 30.37 | 1.1  | 0.7  |
| Energy, L.P.   | Subordinated |     |         |          |          |          |       |      |      |
|                | Units (2)    |     |         |          |          |          |       |      |      |
| Plains All     |              |     |         |          |          |          |       |      |      |
| America        | Common       |     |         |          |          |          |       |      |      |
| Pipeline, L.P. | 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