

Kayne Anderson MLP Investment CO  
Form N-Q  
April 29, 2011

**Table of Contents**

**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)

717 Texas Avenue, Suite 3100, Houston, Texas

77002

(Address of principal executive offices)

(Zip code)

David Shladovsky, Esq.

KA Fund Advisors, LLC, 717 Texas Avenue, Suite 3100, Houston, Texas 77002

(Name and address of agent for service)

Registrant's telephone number, including area code: (713) 493-2020

Date of fiscal year end: November 30, 2011

Date of reporting period: February 28, 2011

**TABLE OF CONTENTS**

Item 1: Schedule of Investments

Item 2: Controls and Procedures

Item 3: Exhibits

SIGNATURES

EX-99.CERT

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**Table of Contents****Item 1: Schedule of Investments**

**KAYNE ANDERSON MLP INVESTMENT COMPANY**  
**SCHEDULE OF INVESTMENTS**  
**FEBRUARY 28, 2011**  
(amounts in 000 s, except number of option contracts)  
**(UNAUDITED)**

| Description  | No. of<br>Shares/Units | Value     |
|--|------------------------|-----------|
| <b>Long-Term Investments 167.9%</b>                                  |                        |           |
| <b>Equity Investments<sup>(1)</sup> 166.2%</b>                       |                        |           |
| <b>Midstream MLP<sup>(2)</sup> 117.0%</b>                            |                        |           |
| Boardwalk Pipeline Partners, LP                                      | 510                    | \$ 16,935 |
| Buckeye Partners, L.P.   | 691                    | 44,789    |
| Buckeye Partners, L.P. Unregistered, Class B Units <sup>(3)(4)</sup> | 535                    | 29,903    |
| Chesapeake Midstream Partners, L.P.                                  | 1,154                  | 30,038    |
| Copano Energy, L.L.C.  | 3,257                  | 117,922   |
| Crestwood Midstream Partners LP                                      | 1,132                  | 34,085    |
| Crosstex Energy, L.P.  | 2,641                  | 44,901    |
| DCP Midstream Partners, L.P.   | 1,599                  | 67,590    |
| Duncan Energy Partners L.P. <sup>(5)</sup>                           | 511                    | 20,820    |
| Eagle Rock Energy Partners, L.P.                                     | 237                    | 2,300     |
| El Paso Pipeline Partners, L.P.                                      | 2,763                  | 104,160   |
| Enbridge Energy Partners, L.P.                                       | 1,309                  | 87,783    |
| Energy Transfer Partners, L.P.                                       | 2,094                  | 114,839   |
| Enterprise Products Partners L.P.                                    | 6,574                  | 286,617   |
| Exterran Partners, L.P.  | 1,627                  | 48,308    |
| Global Partners LP   | 1,825                  | 49,830    |
| Holly Energy Partners, L.P.  | 635                    | 37,893    |
| Magellan Midstream Partners, L.P.                                    | 3,582                  | 216,495   |
| MarkWest Energy Partners, L.P.                                       | 3,490                  | 156,687   |
| Martin Midstream Partners L.P.                                       | 240                    | 9,511     |
| Niska Gas Storage Partners LLC                                       | 725                    | 14,687    |
| ONEOK Partners, L.P. <sup>(5)</sup>                                  | 1,302                  | 108,250   |
| PAA Natural Gas Storage, L.P.  | 261                    | 6,367     |
| PAA Natural Gas Storage, L.P. Unregistered <sup>(3)</sup>            | 1,402                  | 31,841    |
| Plains All American Pipeline, L.P. <sup>(6)</sup>                    | 2,876                  | 188,317   |
| Regency Energy Partners L.P.   | 3,762                  | 104,459   |
| Spectra Energy Partners, L.P.  | 813                    | 26,715    |
| Sunoco Logistics Partners L.P.                                       | 283                    | 25,076    |
| Targa Resources Partners L.P.  | 1,243                  | 42,586    |
| Transmontaigne Partners L.P.   | 614                    | 24,408    |
| Western Gas Partners L.P.  | 1,638                  | 59,369    |
| Williams Partners L.P.   | 3,008                  | 155,979   |

|   |              |           |
|---|--------------|-----------|
|   |              | 2,309,460 |
| <b>MLP Affiliates<sup>(2)</sup></b>                       | <b>13.9%</b> |           |
| Enbridge Energy Management, L.L.C. <sup>(4)</sup>         | 1,043        | 69,767    |
| Kinder Morgan Management, LLC <sup>(4)</sup>              | 3,099        | 203,331   |
|   |              | 273,098   |
| <b>General Partner MLP</b>                                | <b>13.6%</b> |           |
| Alliance Holdings GP L.P.                                 | 1,092        | 60,213    |
| Energy Transfer Equity, L.P.                              | 2,810        | 112,916   |
| Penn Virginia GP Holdings, L.P.                           | 2,211        | 58,821    |
| Plains All American GP LLC Unregistered <sup>(3)(6)</sup> | 24           | 36,974    |
|   |              | 268,924   |
| <b>Propane MLP</b>  | <b>8.4%</b>  |           |
| Inergy, L.P. <sup>(5)</sup>                               | 4,007        | 166,215   |

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**Table of Contents**

**KAYNE ANDERSON MLP INVESTMENT COMPANY**  
**SCHEDULE OF INVESTMENTS**  
**FEBRUARY 28, 2011**  
(amounts in 000 s, except number of option contracts)  
**(UNAUDITED)**

| Description  | No. of<br>Shares/Units | Value            |
|--|------------------------|------------------|
| <b>Shipping MLP 7.5%</b>                           |                        |                  |
| Capital Product Partners L.P.                      | 2,646                  | \$ 25,721        |
| Navios Maritime Partners L.P.                      | 1,685                  | 33,465           |
| Teekay LNG Partners L.P.                           | 1,182                  | 45,018           |
| Teekay Offshore Partners L.P.                      | 1,536                  | 44,194           |
|  |                        | 148,398          |
| <b>Midstream &amp; Other 3.9%</b>                  |                        |                  |
| Clearwater Trust <sup>(3)(6)(7)</sup>              | N/A                    | 3,980            |
| Kinder Morgan, Inc. <sup>(8)</sup>                 | 1,021                  | 31,140           |
| Knightsbridge Tankers Ltd.                         | 184                    | 4,476            |
| ONEOK, Inc.  | 385                    | 24,840           |
| Teekay Tankers Ltd.                                | 1,168                  | 12,483           |
|  |                        | 76,919           |
| <b>Upstream MLP 1.7%</b>                           |                        |                  |
| EV Energy Partners, L.P.                           | 254                    | 11,603           |
| Legacy Reserves L.P.                               | 701                    | 21,751           |
|  |                        | 33,354           |
| <b>Coal MLP 0.2%</b>                               |                        |                  |
| Penn Virginia Resource Partners, L.P.              | 157                    | 4,481            |
| <b>Total Equity Investments (Cost \$1,907,863)</b> |                        | <b>3,280,849</b> |

|                                  | Interest<br>Rate | Maturity<br>Date | Principal<br>Amount |        |
|----------------------------------|------------------|------------------|---------------------|--------|
| <b>Debt Investments 1.7%</b>     |                  |                  |                     |        |
| <b>Midstream 1.3%</b>            |                  |                  |                     |        |
| Crestwood Holdings Partners, LLC | <sup>(9)</sup>   | 10/1/16          | \$ 6,151            | 6,366  |
| El Paso Corporation              | 7.750%           | 1/15/32          | 5,000               | 5,294  |
| Genesis Energy, L.P.             | 7.875            | 12/15/18         | 14,500              | 14,863 |

|  |       |          |       |           |
|--|-------|----------|-------|-----------|
|  |       |          |       | 26,523    |
| <b>Upstream 0.4%</b>   |       |          |       |           |
| Breitbart Energy Partners L.P.   | 8.625 | 10/15/20 | 6,375 | 6,702     |
| <b>Total Debt Investments (Cost \$31,993)</b>  |       |          |       | 33,225    |
| <b>Total Long-Term Investments (Cost \$1,939,856)</b>  |       |          |       | 3,314,074 |
| <b>Short-Term Investment 0.4%</b>  |       |          |       |           |
| <b>Repurchase Agreements 0.4%</b>  |       |          |       |           |
| J.P. Morgan Securities Inc. (Agreement dated 2/28/11<br>to be repurchased at \$7,161), collateralized by \$10,380<br>in U.S. Treasury securities |       |          |       |           |
| (Cost \$7,161)   | 0.050 | 3/1/11   |       | 7,161     |
| <b>Total Investments 168.3% (Cost \$1,947,017)</b>   |       |          |       | 3,321,235 |

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**Table of Contents**

**KAYNE ANDERSON MLP INVESTMENT COMPANY**  
**SCHEDULE OF INVESTMENTS**  
**FEBRUARY 28, 2011**  
(amounts in 000 s, except number of option contracts)  
**(UNAUDITED)**

| Description  | No. of<br>Contracts | Value        |
|--|---------------------|--------------|
| <b>Liabilities</b>   |                     |              |
| <b>Call Option Contracts Written<sup>(10)</sup></b>                  |                     |              |
| <b>Midstream MLP</b>   |                     |              |
| Duncan Energy Partners L.P., call option expiring 3/18/11 @ \$40.00  | 615                 | \$ (55)      |
| ONEOK Partners, L.P., call option expiring 3/18/11 @ \$80.00         | 1,425               | (492)        |
|  |                     | (547)        |
| <b>Propane MLP</b>   |                     |              |
| Inergy, L.P., call option expiring 3/18/11 @ \$40.00                 | 1,386               | (232)        |
| <b>Total Call Option Contracts Written (Premiums Received \$405)</b> |                     | (779)        |
| <b>Revolving Credit Facility</b>                                     |                     | (56,000)     |
| <b>Senior Unsecured Notes</b>  |                     | (620,000)    |
| <b>Mandatory Redeemable Preferred Stock at liquidation value</b>     |                     | (160,000)    |
| <b>Deferred Tax Liability</b>  |                     | (494,428)    |
| <b>Other Liabilities</b>   |                     | (27,409)     |
| <b>Total Liabilities</b>   |                     | (1,358,616)  |
| <b>Other Assets</b>  |                     | 11,321       |
| <b>Total Liabilities in Excess of Other Assets</b>                   |                     | (1,347,295)  |
| <b>Net Assets Applicable to Common Stockholders</b>                  |                     | \$ 1,973,940 |

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

(2) Includes limited liability companies.

(3) Fair valued securities, restricted from public sale.

(4) Distributions are paid-in-kind.

(5) Security or a portion thereof is segregated as collateral on option contracts written.

(6)



Kayne Anderson MLP Investment Company (the Company) believes that it may be an affiliate of the Clearwater Trust and that it is an affiliate of Plains All American Pipeline, L.P. and Plains All American GP LLC.

- (7) On September 28, 2010, the Bankruptcy Court finalized the plan of reorganization of Clearwater Natural Resources, L.P. ( Clearwater ). As part of the plan of reorganization, the Company received an interest in the Creditors Trust of Miller Bros. Coal, LLC ( Clearwater Trust ) consisting of cash and a coal royalty interest as consideration for its unsecured loan to Clearwater.
  - (8) Security is not currently paying cash distributions but is expected to pay cash distributions within the next 12 months.
  - (9) Floating rate first lien senior secured term loan. Security pays interest at a rate of LIBOR + 850 basis points, with a LIBOR floor of 2% (10.50% as of February 28, 2011).
  - (10) Security is non-income producing.
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**Table of Contents**

From time to time, certain of the Company's investments may be restricted as to resale. For instance, private investments that are not registered under the Securities Act of 1933, as amended, cannot 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 28, 2011, the Company held the following restricted investments.

| Investment                               | Security      | Acquisition Date | Type of Restriction | Number of Units, Principal (\$)(in 000s) | Cost Basis        | Fair Value        | Percent of Net Assets | Percent of Total Assets |
|--|---------------|------------------|---------------------|--|-------------------|-------------------|-----------------------|-------------------------|
| <b>Level 3 Investments<sup>(1)</sup></b> |               |                  |                     |  |                   |                   |                       |                         |
| Buckeye Partners, L.P.                   | Class B Units | 1/18/2011        | (2)                 | 535                                      | \$ 30,000         | \$ 29,903         | 1.5%                  | 0.9%                    |
| Clearwater Trust                         | Trust         | (3)              | (4)                 | N/A                                      | 3,266             | 3,980             | 0.2                   | 0.1                     |
| PAA Natural Gas Storage, L.P.            | Common Units  | 2/8/2011         | (2)                 | 1,402                                    | 29,700            | 31,841            | 1.6                   | 1.0                     |
| Plains All American GP LLC               | Common Units  | 12/23/10         | (4)                 | 24                                       | 34,928            | 36,974            | 1.9                   | 1.1                     |
|  |               | 12/31/10         |                     |  |                   |                   |                       |                         |
| Total                                    |               |                  |                     |  | \$ 97,894         | \$ 102,698        | 5.2%                  | 3.1%                    |
| <b>Level 2 Investments<sup>(5)</sup></b> |               |                  |                     |  |                   |                   |                       |                         |
| Breitburn Energy Partners L.P.           | Senior Notes  | <u>10/1/10</u>   | (2)                 | <u>\$ 6,375</u>                          | <u>\$ 6,452</u>   | <u>\$ 6,702</u>   | <u>0.3%</u>           | <u>0.2%</u>             |
| Crestwood Holdings Partners LLC          | Bank Loan     | <u>9/29/10</u>   | (4)                 | <u>6,151</u>                             | <u>6,034</u>      | <u>6,366</u>      | <u>0.3</u>            | <u>0.2</u>              |
| Genesis Energy, L.P.                     | Senior Notes  | <u>11/12/10</u>  | (2)                 | <u>14,500</u>                            | <u>14,500</u>     | <u>14,863</u>     | <u>0.8</u>            | <u>0.4</u>              |
| Total                                    |               |                  |                     |  | <u>\$ 26,986</u>  | <u>\$ 27,931</u>  | <u>1.4%</u>           | <u>0.8%</u>             |
| Total of all restricted securities       |               |                  |                     |  | <u>\$ 124,880</u> | <u>\$ 130,629</u> | <u>6.6%</u>           | <u>3.9%</u>             |

(1) Securities are valued using inputs reflecting the Company's own assumptions.

(2) Unregistered security of a public company.

(3) On September 28, 2010, the Bankruptcy Court finalized the plan of reorganization of Clearwater. As part of the plan of reorganization, the Company received an interest in the Clearwater Trust consisting of cash and a coal royalty interest as consideration for its unsecured loan to Clearwater.

(4) Unregistered security of a private company.

- (5) These securities have a fair market value determined by the mean of the bid and ask prices provided by a syndicate bank, principal market maker or an independent pricing service. These securities have limited trading volume and are not listed on a national exchange.

At February 28, 2011, the cost basis of investments for federal income tax purposes was \$1,799,152. At February 28, 2011, gross unrealized appreciation and depreciation of investments for federal income tax purposes were as follows:

|  |              |
|--|--------------|
| Gross unrealized appreciation of investments | \$ 1,522,919 |
| Gross unrealized depreciation of investments | (836)        |
| Net unrealized appreciation                  | \$ 1,522,083 |

The identified cost basis of 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 above.

As required by the Fair Value Measurement and Disclosures of the Financial Accounting Standards Board ( FASB ) Accounting Standards Codification, the Company has performed an analysis of all assets and liabilities measured at fair value to determine the significance and character of all inputs to their fair value determination.

The fair value hierarchy prioritizes the inputs to valuation techniques used to measure fair value into the following three broad categories.

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**Table of Contents**

*Level 1* Quoted unadjusted prices for identical instruments in active markets traded on a national exchange 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.

Note that the valuation levels below are not necessarily an indication of the risk or liquidity associated with the underlying investment. For instance, the Company's repurchase agreements, which are collateralized by U.S. Treasury notes, are generally high quality and liquid; however, the Company reflects these repurchase agreements as Level 2 because the inputs used to determine fair value may not always be quoted prices in an active market.

The following table presents the Company's assets and liabilities measured at fair value on a recurring basis at February 28, 2011. The Company presents these assets by security type and description on its Schedule of Investments.

|   | <b><u>Total</u></b> | <b><u>Quoted Prices<br/>in<br/>Active Markets<br/>(Level 1)</u></b> | <b><u>Prices with<br/>Other<br/>Observable<br/>Inputs<br/>(Level 2)</u></b> | <b><u>Unobservable<br/>Inputs<br/>(Level 3)<sup>(1)</sup></u></b> |
|---|---------------------|---|---|---|
| <b><u>Assets at Fair Value</u></b>      |                     |   |   |   |
| Equity investments                      | \$ 3,280,849        | \$ 3,178,151  | \$  | \$ 102,698  |
| Debt investments                        | 33,225              |   | 33,225  |   |
| Repurchase agreements                   | 7,161               |   | 7,161   |   |
| Total assets at fair value              | \$ 3,321,235        | \$ 3,178,151  | \$ 40,386   | \$ 102,698  |
| <b><u>Liabilities at Fair Value</u></b> |                     |   |   |   |
| Call option contracts written           | \$ 779              | \$  | \$ 779  | \$  |

(1) The Company's investments in Level 3 represent its investments in Buckeye Partners, L.P. (Class B Units), Clearwater Trust, PAA Natural Gas Storage, L.P. (Unregistered Units), and Plains All American GP LLC.

The Company did not have any liabilities that were measured at fair value on a recurring basis using significant unobservable inputs (Level 3) at February 28, 2011 or at November 30, 2010. For the three months ended February 28, 2011, there were no transfers between Level 1 and Level 2.

The following table presents the Company's assets measured at fair value on a recurring basis using significant unobservable inputs (Level 3) for the three months ended February 28, 2011.

| <b>Assets at Fair Value Using Unobservable Inputs (Level 3)</b> | <b>Long-Term Investments</b> |
|---|------------------------------|
| Balance November 30, 2010                                       | \$ 63,514                    |
| Transfers out of Level 3  | (88,999)                     |
| Realized gains/(losses)   |                              |
| Unrealized gains, net   | 4,415                        |
| Purchases, issuances or settlements                             | 123,768                      |
| Balance February 28, 2011                                       | \$ 102,698                   |

The \$4,415 of unrealized gains presented in the table above for the three months ended February 28, 2011 related to investments that are still held at February 28, 2011.

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**Table of Contents**

The purchases, issuances or settlements of \$123,768 for the three months ended February 28, 2011 relate to the Company's investments in Buckeye Partners, L.P. (Class B Units), Buckeye Partners, L.P. (Common Units), PAA Natural Gas Storage, L.P., Plains All American GP LLC and Clearwater Trust. The Company's investments in the common units of Buckeye Partners, L.P., Inergy, LP and Magellan Midstream Partners, L.P. which are noted as a transfer out of Level 3 in the table above, became registered during the period.

As required by the Derivatives and Hedging Topic of the FASB Accounting Standards Codification, the following are the derivative instruments and hedging activities of the Company. The total number of outstanding options at February 28, 2011 is indicative of the volume of this type of derivative for the period ended February 28, 2011.

The following table sets forth the fair value of the Company's derivative instruments.

| <b>Derivatives Not Accounted for as</b> |   | <b>Fair Value as of</b>  |
|---|---|--------------------------|
| <b>Hedging Instruments</b>              | <b>Statement of Assets and Liabilities Location</b> | <b>February 28, 2011</b> |
| Call options                            | Call option contracts written                       | (\$ 779)                 |

The following table sets forth the effect of the Company's derivative instruments.

| <b>Derivatives Not Accounted for as</b> | <b>Location of Gains/(Losses) on</b> | <b>For the Three Months</b> |                       |
|---|--------------------------------------|-----------------------------|-----------------------|
|   |                                      | <b>Net</b>                  | <b>Change in</b>      |
| <b>Hedging Instruments</b>              | <b>Derivatives</b>                   | <b>Realized</b>             | <b>Unrealized</b>     |
|   |                                      | <b>Gains/(Losses)</b>       | <b>Gains/(Losses)</b> |
|   |                                      | <b>on</b>                   | <b>on</b>             |
|   |                                      | <b>Derivatives</b>          | <b>Derivatives</b>    |
|   |                                      | <b>Recognized</b>           | <b>Recognized in</b>  |
|   |                                      | <b>in</b>                   | <b>Income</b>         |
|   |                                      | <b>Income</b>               |                       |
| Call options                            | Options                              | 1,579                       | (799)                 |

**Table of Contents**

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 4, 2011 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 [www.kaynefunds.com](http://www.kaynefunds.com); or on the website of the Securities and Exchange Commission, [www.sec.gov](http://www.sec.gov).

**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 registrants disclosure controls and procedures (as defined in Rule 30a-3(c) under the Investment Company Act of 1940, as amended (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, as amended.

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

**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 of the Board of Directors,

President and Chief Executive Officer

Date: April 29, 2011

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 of the Board of Directors,

President and Chief Executive Officer

Date: April 29, 2011

/s/ Terry A. Hart

Name: Terry A. Hart

Title: Chief Financial Officer and Treasurer

Date: April 29, 2011