

Kayne Anderson MLP Investment CO  
Form N-Q  
April 29, 2010

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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)

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, 2010

Date of reporting period: February 28, 2010

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SCHEDULE OF INVESTMENTS****FEBRUARY 28, 2010****(amounts in 000 s except number of option contracts)****(UNAUDITED)**

<b>Description</b>	<b>No. of Shares/Units</b>	<b>Value</b>
<b>Long-Term Investments 151.9%</b>		
<b>Equity Investments(a) 147.9%</b>		
<b>Midstream MLP(b) 105.1%</b>		
Boardwalk Pipeline Partners, LP	350	\$ 10,464
Buckeye Partners, L.P.	830	48,799
Copano Energy, L.L.C.	3,634	86,491
Crosstex Energy, L.P.(c)	2,868	27,188
DCP Midstream Partners, LP	861	26,546
Duncan Energy Partners L.P.	592	15,087
El Paso Pipeline Partners, L.P.	1,064	27,540
Enbridge Energy Partners, L.P.	1,307	66,945
Energy Transfer Partners, L.P.(d)	1,846	85,450
Enterprise Products Partners L.P.	4,416	144,678
Exterran Partners, L.P.	1,092	23,960
Global Partners LP	1,302	32,346
Holly Energy Partners, L.P.	562	23,951
Magellan Midstream Partners, L.P.	3,130	141,580
MarkWest Energy Partners, L.P.	3,502	103,581
Martin Midstream Partners L.P.	318	10,051
ONEOK Partners, L.P.(d)	951	57,657
Plains All American Pipeline, L.P.(e)	2,876	159,380
Quicksilver Gas Services LP	612	12,352
Regency Energy Partners LP(d)	3,383	71,860
Spectra Energy Partners, LP	381	11,415
Sunoco Logistics Partners L.P.	114	7,716
Targa Resources Partners LP	952	23,797
TC PipeLines, LP	772	28,469
TransMontaigne Partners L.P.	502	13,850
Western Gas Partners, LP	932	19,921
Williams Partners L.P.	1,430	55,555
Williams Pipeline Partners L.P.	722	21,065

1,357,694

**MLP Affiliates(b) 13.5%**

Enbridge Energy Management, L.L.C.(f)	782	39,090
Kinder Morgan Management, LLC(d)(f)	2,351	134,825
		173,915

**General Partner MLP 12.6%**

Alliance Holdings GP L.P.	874	25,096
Buckeye GP Holdings L.P.	57	1,857
Energy Transfer Equity, L.P.	2,473	79,919
Enterprise GP Holdings L.P.	1,347	55,299
Inergy Holdings, L.P.	8	555
		162,726

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**KAYNE ANDERSON MLP INVESTMENT COMPANY**  
**SCHEDULE OF INVESTMENTS**  
**FEBRUARY 28, 2010**  
(amounts in 000 s except number of option contracts)  
(UNAUDITED)

Description	No. of Shares/Units	Value
<b>Propane MLP 9.5%</b>		
Inergy, L.P.(d)	3,404	\$ 122,938
<b>Shipping MLP 6.3%</b>		
Capital Product Partners L.P.	895	7,766
K-Sea Transportation Partners L.P.	78	737
Navios Maritime Partners L.P.	1,247	19,617
Teekay LNG Partners L.P.	1,132	30,886
Teekay Offshore Partners L.P.	876	16,456
Teekay Tankers Ltd.	524	5,354
		80,816
<b>Upstream MLP 0.5%</b>		
Legacy Reserves LP	313	6,632
<b>Coal MLP 0.4%</b>		
Alliance Resource Partners, L.P.	83	3,466
Penn Virginia Resource Partners, L.P.	98	2,266
		5,732
<b>Total Equity Investments (Cost \$1,346,541)</b>		1,910,453

	Interest Rate	Maturity Date	Principal Amount	
<b>Energy Debt Investments 4.0%</b>				
<b>Midstream MLP (b) 2.1%</b>				
Copano Energy, L.L.C.	7.750 %	6/1/18	\$ 1,800	1,759

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Copano Energy, L.L.C.	8.125	3/1/16	500	504
Crosstex Energy, L.P.	8.875	2/15/18	20,000	20,300
Niska Gas Storage U.S., LLC	8.875	3/15/18	5,000	5,000
				27,563
<b>Upstream MLP(b) 1.5%</b>				
Atlas Energy Resources, LLC	12.125	8/1/17	9,000	10,125
Atlas Energy Resources, LLC	10.750	2/1/18	9,000	9,743
				19,868
<b>Coal MLP 0.4%</b>				
Clearwater Natural Resources, LP(c)(g)(h)	(i)	12/3/09	13,601	4,420
<b>Total Energy Debt Investments (Cost \$57,421)</b>				51,851
<b>Total Long-Term Investments (Cost \$1,403,962)</b>				1,962,304

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**KAYNE ANDERSON MLP INVESTMENT COMPANY**  
**SCHEDULE OF INVESTMENTS**  
**FEBRUARY 28, 2010**  
(amounts in 000 s except number of option contracts)  
(UNAUDITED)

Description	Interest Rate	Maturity Date	Value
<b>Short-Term Investment</b>	<b>0.2%</b>		
<b>Repurchase Agreement</b>	<b>0.2%</b>		
J.P. Morgan Securities Inc. (Agreement dated 2/26/10 to be repurchased at \$2,087), collateralized by \$2,152 in U.S. Treasury note (Cost \$2,087)	0.020	3/1/10	\$ 2,087
<b>Total Investments</b>	<b>152.1% (Cost \$1,406,049)</b>		1,964,391
			<b>No. of Contracts</b>
<b>Liabilities</b>			
<b>Call Option Contracts Written(c)</b>			
<b>Midstream MLP</b>			
Energy Transfer Partners, L.P., call option expiring 3/19/10 @ \$45.00			906 (136)
ONEOK Partners, L.P., call option expiring 3/19/10 @ \$60.00			1,000 (115)
Regency Energy Partners LP, call option expiring 3/19/10 @ \$20.00			250 (34)
			(285)
<b>Propane MLP</b>			
Inergy, L.P., call option expiring 3/19/10 @ \$35.00			1,000 (145)
<b>Total Call Option Contracts Written (Premiums Received \$391)</b>			(430)
<b>Senior Unsecured Notes</b>			(370,000)
<b>Unrealized Depreciation on Interest Rate Swap Contracts</b>			(416)
<b>Revolving Credit Line</b>			(40,000)
<b>Deferred Tax Liability</b>			(174,308)
<b>Other Liabilities</b>			(17,708)
<b>Total Liabilities</b>			(602,862)
<b>Other Assets</b>			5,331
<b>Total Liabilities in Excess of Other Assets</b>			(597,531)
<b>Preferred Stock at Redemption Value</b>			(75,000)
<b>Net Assets Applicable to Common Stockholders</b>			\$ 1,291,860



- (a) Unless otherwise noted, equity investments are common units/common shares.
- (b) Includes Limited Liability Companies.
- (c) Security is non-income producing.
- (d) Security or a portion thereof is segregated as collateral on option contracts written or interest rate swap contract.
- (e) The Company believes that it is an affiliate of Plains All American, L.P.
- (f) Distributions are paid in-kind.
- (g) Fair valued securities, restricted from public sale.
- (h) Clearwater Natural Resources, LP is a privately-held MLP that the Company believes is a controlled affiliate. On

January 12, 2010, Clearwater closed on the sale of all of its reserves and a substantial portion of its operating assets to International Resource Partners, L.P. ( IRP ). On March 16, 2010, the Bankruptcy Court confirmed Clearwater s plan of reorganization (including such sale of assets to IRP).

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**KAYNE ANDERSON MLP INVESTMENT COMPANY  
SCHEDULE OF INVESTMENTS  
FEBRUARY 28, 2010  
(amounts in 000 s except number of option contracts)  
(UNAUDITED)**

As part of  
Clearwater's  
plan of  
reorganization,  
the Company  
will receive  
consideration  
for its unsecured  
term loan. Such  
consideration  
will be in the  
form of cash  
and a royalty  
interest in the  
reserves sold.  
Pursuant to the  
plan of  
reorganization,  
the Company  
will not receive  
any  
consideration  
for its equity  
investment in  
Clearwater or  
CNR GP  
Holdco, LLC. In  
addition to the  
unsecured term  
loan, the  
Company owns  
3,889 common  
units, 34  
warrants and 41  
unregistered,  
deferred  
participation  
units of  
Clearwater. The  
Company  
assigned no  
value to these  
equity  
investments as

of February 28, 2010. CNR GP Holdco, LLC is the general partner of Clearwater. The Company owns 83.7% of CNR GP Holdco, LLC, which was assigned no value as of February 28, 2010, and believes it is a controlled affiliate.

- (i) Floating rate unsecured working capital term loan. Interest is paid-in-kind at a rate of the higher of (i) one year LIBOR or (ii) 4.75%, plus 900 basis points (13.75% as of February 28, 2010). The Company is not accruing interest on this investment.
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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, 2010, the Company held the following restricted investments:

<b>Investment</b>	<b>Security</b>	<b>Acquisition Date</b>	<b>Type of Restriction</b>	<b>Number of Units, Principal (\$)</b> (in 000s)	<b>Cost Basis</b>	<b>Fair Value</b>	<b>Percent of Net Assets</b>	<b>Percent of Total Assets</b>
Clearwater Natural Resources, L.P.	Common Units	(1)	(2)	3,889	\$ 72,860	\$		
Clearwater Natural Resources, L.P.	Unsecured Term Loan	(3)	(2)	\$ 13,601	13,690	4,420	0.3%	0.2%
Clearwater Natural Resources, L.P.	Deferred Participation Units	3/5/08	(2)	41				
Clearwater Natural Resources, L.P.	Warrants	9/29/08	(2)	34				
CNR GP Holdco, LLC	LLC Interests	3/5/08	(2)	n/a	1,082			
<b>Total of securities valued in accordance with procedures established by the Board of Directors<sup>(4)</sup></b>					\$ 87,632	\$ 4,420	0.3%	0.2%
Niska Gas Storage U.S., LLC	Senior Notes	(5)	(6)	\$ 5,000	\$ 5,023	\$ 5,000	0.4%	0.3%
<b>Total of securities valued by prices provided by market maker or independent pricing services</b>					\$ 5,023	\$ 5,000	0.4%	0.3%
<b>Total of all restricted securities</b>					\$ 92,655	\$ 9,420	0.7%	0.5%

- (1) The Company purchased common units on August 1, 2005 and October 2, 2006.
- (2) On January 7, 2009, Clearwater Natural Resources, LP ( Clearwater ) filed a voluntary petition under Chapter 11 of the U.S. Bankruptcy Code. Clearwater continued operations as a debtor-in-possession during fiscal 2009. On January 12, 2010, Clearwater closed on the sale of substantially all of its reserves and operating assets. See Clearwater Update below for a status update.
- (3) The Company purchased term loans on January 11, 2008; February 28, 2008; May 5, 2008; July 8, 2008; August 6, 2008; and September 29, 2008. The Company is not accruing interest income on this investment.
- (4) Restricted securities that are classified as a Level 3. Security is valued using inputs reflecting the Company's own assumptions.

- (5) These securities were acquired during the three months ended February 28, 2010.
  
- (6) Unregistered security of a public company that are classified as a Level 2. 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.

**Clearwater Update.** On January 12, 2010, Clearwater closed on the sale of all of its reserves and a substantial portion of its operating assets to International Resource Partners, L.P. ( IRP ). On March 16, 2010, the Bankruptcy Court confirmed Clearwater's plan of reorganization (including such sale of assets to IRP). As part of Clearwater's plan of reorganization, the Company will receive consideration for its unsecured term loan. Such consideration will be in the form of cash and a royalty interest in the reserves sold. The Company will not receive any consideration for its equity investment in Clearwater or CNR GP Holdco, LLC. The Company will receive such consideration when Clearwater's plan of reorganization becomes effective, which is expected to be May or June 2010.

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At February 28, 2010, the cost basis of investments for federal income tax purposes was \$1,224,870. At February 28, 2010, gross unrealized appreciation and depreciation of investments for federal income tax purposes were as follows:

Gross unrealized appreciation of investments	\$ 803,173
Gross unrealized depreciation of investments	(63,652)
Net unrealized appreciation	\$ 739,521

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 in this footnote.

As required by the Fair Value Measurement and Disclosures of the 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.

*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 the Company's assets and liabilities measured at fair value at February 28, 2010. 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.

	<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)(1)</b>
<b><u>Assets at Fair Value</u></b>				
Equity investments	\$ 1,910,453	\$ 1,910,453	\$	\$
Energy debt investments	51,851		47,431	4,420
Repurchase agreement	2,087		2,087	
<b>Total assets at fair value</b>	<b>\$ 1,964,391</b>	<b>\$ 1,910,453</b>	<b>\$ 49,518</b>	<b>\$ 4,420</b>
<b><u>Liabilities at Fair Value</u></b>				
	\$ 416	\$	\$ 416	\$



Unrealized depreciation on interest rate  
swaps

Option contracts written	430	430
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<b>Total liabilities at fair value</b>	<b>\$ 846</b>	<b>\$ 846</b>	<b>\$</b>
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(1) The Company's investments in Level 3 represent its investments in Clearwater Natural Resources, L.P. and CNR GP Holdco, LLC.

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The following table presents the Company's assets measured at fair value on a recurring basis using significant unobservable inputs (Level 3) for the period ended February 28, 2010.

<b><u>Assets at Fair Value Using Unobservable Inputs (Level 3)</u></b>	<b>Long-Term Investments</b>
Balance November 30, 2009	\$ 4,080
Transfers out of Level 3	
Realized gains/(losses)	
Unrealized gains, net	340
Purchases, issuances or settlements	
 Balance February 28, 2010	 \$ 4,420

The \$340 of unrealized gains presented in the table above relate to investments that are still held at February 28, 2010. 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, 2010 and at November 30, 2009.

In January 2010, the FASB issued Accounting Standards Update ( ASU ) No. 2010-06 Improving Disclosures about Fair Value Measurements. ASU 2010-06 amends FASB Accounting Standards Codification Topic, Fair Value Measurements and Disclosures, to require additional disclosures regarding fair value measurements. Certain disclosures required by ASU No. 2010-06 are effective for interim and annual reporting periods beginning after December 15, 2009, and other required disclosures are effective for fiscal years beginning after December 15, 2010, and for interim periods within those fiscal years. Management is currently evaluating the impact ASU No. 2010-06 will have on its financial statement disclosures.

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

<b>Derivatives Not Accounted for as Hedging Instruments Liabilities</b>	<b>Statement of Assets and Liabilities Location</b>	<b>Fair Value as of February 28, 2010</b>
Call options	Call option contracts written	\$430
Interest rate swap contracts	Unrealized depreciation on interest rate swap contracts	416
		\$846

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

		For the Three Months Ended	
		February 28, 2010	
<b>Derivatives Not Accounted For as Hedging Instruments</b>	<b>Location of Gains/(Losses) on Derivatives Recognized in Income</b>	<b>Net Realized Gains (Losses) on Derivatives Recognized in Income</b>	<b>Change in Unrealized Gains/(Losses) on Derivatives Recognized in Income</b>
Put options	Options	\$ (90)	\$ 76
Call options	Options	74	767
Interest rate swap contracts	Interest rate swap contracts	(240)	(211)
		\$ (256)	\$ 632

Securities valuation policies and other investment related disclosures are hereby incorporated by reference to the Fund's annual report previously filed with the Securities and Exchange Commission on form N-CSR on February 8, 2010 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 at [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 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 of the Board of Directors,  
President and Chief Executive Officer  
Date: April 29, 2010

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, 2010

/s/ Terry A. Hart  
Name: Terry A. Hart  
Title: Chief Financial Officer and Treasurer  
Date: April 29, 2010