

KAYNE ANDERSON MIDSTREAM/ENERGY FUND, INC.

Form N-30B-2

October 30, 2014

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Midstream/Energy Fund

KMF Quarterly Report

August 31, 2014

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CAUTIONARY NOTE REGARDING FORWARD-LOOKING STATEMENTS: This report of Kayne Anderson Midstream/Energy Fund, Inc. (the Fund) contains forward-looking statements as defined under the U.S. federal securities laws. Generally, the words believe, expect, intend, estimate, anticipate, project, will and similar expressions identify forward-looking statements, which generally are not historical in nature. Forward-looking statements are subject to certain risks and uncertainties that could cause actual results to materially differ from the Fund's historical experience and its present expectations or projections indicated in any forward-looking statement. These risks include, but are not limited to, changes in economic and political conditions; regulatory and legal changes; MLP industry risk; leverage risk; valuation risk; interest rate risk; tax risk; and other risks discussed in the Fund's filings with the Securities and Exchange Commission (SEC). You should not place undue reliance on forward-looking statements, which speak only as of the date they are made. The Fund undertakes no obligation to publicly update or revise any forward-looking statements made herein. There is no assurance that the Fund's investment objectives will be attained.

Table of Contents**KAYNE ANDERSON MIDSTREAM/ENERGY FUND, INC.****MANAGEMENT DISCUSSION****(UNAUDITED)****Fund Overview**

Kayne Anderson Midstream/Energy Fund, Inc. is a non-diversified, closed-end fund. We commenced operations on November 24, 2010. Our shares of common stock are listed on the New York Stock Exchange under the symbol KMF.

Our investment objective is to provide a high level of total return with an emphasis on making quarterly cash distributions to our stockholders. We seek to achieve that investment objective by investing at least 80% of our total assets in the securities of companies in the Midstream/Energy Sector, consisting of (a) Midstream MLPs, (b) Midstream Companies, (c) Other MLPs and (d) Other Energy Companies. We anticipate that the majority of our investments will consist of investments in Midstream MLPs and Midstream Companies. Please see the Glossary of Key Terms on page 38 for a description of these investment categories and for the meaning of capitalized terms not otherwise defined herein.

As of August 31, 2014, we had total assets of \$1.5 billion, net assets applicable to our common stock of \$1.0 billion (net asset value of \$47.50 per share), and 21.6 million shares of common stock outstanding. As of August 31, 2014, we held \$1.3 billion in equity investments and \$100 million in debt investments.

Recent Events

On September 3, 2014, our stock repurchase program was completed as we had purchased \$20 million of our common stock. Under this program, we repurchased 519,364 shares of our common stock at an average price of \$38.50, which represented an average discount to our net asset value per share of approximately 9.3%.

Our Top Ten Portfolio Investments

Listed below are our top ten portfolio investments by issuer as of August 31, 2014.

| | Holding | Sector⁽¹⁾ | Amount (\$ millions) | Percent of Long-Term Investments |
|-----|--|-----------------------------|---------------------------------|---|
| 1. | Kinder Morgan Management, LLC ⁽²⁾ | Midstream MLP | \$ 125.7 | 8.7% |
| 2. | The Williams Companies, Inc. | Midstream Company | 115.5 | 8.0 |
| 3. | Enbridge Energy Management, L.L.C. | Midstream MLP | 96.6 | 6.7 |
| 4. | Plains GP Holdings, L.P. | Midstream Company | 67.6 | 4.7 |
| 5. | ONEOK, Inc. | Midstream Company | 67.5 | 4.7 |
| 6. | Kinder Morgan, Inc. ⁽²⁾ | Midstream Company | 53.8 | 3.7 |
| 7. | Golar LNG Partners LP | Midstream Company | 48.6 | 3.4 |
| 8. | Regency Energy Partners LP | Midstream MLP | 44.1 | 3.0 |
| 9. | Crestwood Midstream Partners LP | Midstream MLP | 27.8 | 1.9 |
| 10. | Plains All American Pipeline, L.P. | Midstream MLP | 27.5 | 1.9 |
| | | | \$ 674.7 | 46.7% |

(1) See Glossary of Key Terms for definitions.

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(2) On August 10, 2014, Kinder Morgan, Inc. (KMI) announced that it will acquire all of the outstanding equity securities of Kinder Morgan Management, LLC (KMR), Kinder Morgan Energy Partners, L.P. (KMP) and El Paso Pipeline Partners, L.P. (EPB). At August 31, 2014, in addition to our KMR and KMI shares, we owned common units of EPB (\$9.6 million) and we did not hold common units of KMP.

Results of Operations For the Three Months Ended August 31, 2014

Investment Income. Investment income totaled \$8.3 million for the quarter and consisted primarily of net dividends and distributions and interest income on our investments. We received \$12.4 million of dividends and

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MANAGEMENT DISCUSSION

(UNAUDITED)

distributions, of which \$6.1 million was treated as return of capital. Interest was \$2.0 million. We received \$3.2 million of paid-in-kind dividends during the quarter, which are not included in investment income, but are reflected as an unrealized gain.

Operating Expenses. Operating expenses totaled \$8.7 million, including \$4.3 million of investment management fees, \$2.8 million of interest expense (including non-cash amortization of debt issuance costs of \$0.2 million), \$0.4 million of other operating expenses and \$1.3 million of preferred stock distributions (including non-cash amortization of offering costs of \$0.1 million).

Net Investment Loss. Our net investment loss totaled \$0.4 million.

Net Realized Gains. We had net realized gains of \$27.8 million, which includes \$0.7 million of net realized gains from option activity.

Net Change in Unrealized Gains. We had a net increase in unrealized gains of \$128.4 million. The net increase consisted of \$130.1 million of unrealized gains from investments and \$1.7 million of net unrealized losses from option activity.

Net Increase in Net Assets Resulting from Operations. We had an increase in net assets resulting from operations of \$155.8 million. This increase was comprised of net investment loss of \$0.4 million, net realized gains of \$27.8 million and net increase in unrealized gains of \$128.4 million, as noted above.

Distribution to Common Stockholders

We pay quarterly distributions to our common stockholders, funded generally by net distributable income (*NDI*) generated from our portfolio investments. *NDI* is the amount of income received by us from our portfolio investments less operating expenses, subject to certain adjustments as described below. *NDI* is not a financial measure under the accounting principles generally accepted in the United States of America (*GAAP*). Refer to the *Reconciliation of NDI to GAAP* section below for a reconciliation of this measure to our results reported under *GAAP*.

Income from portfolio investments includes (a) cash dividends and distributions, (b) paid-in-kind dividends received (*i.e.*, stock dividends), (c) interest income from debt securities and commitment fees from private investments in public equity (*PIPE investments*) and (d) net premiums received from the sale of covered calls.

Operating expenses include (a) investment management fees paid to our investment adviser, (b) other expenses (mostly comprised of fees paid to other service providers), (c) an accrual for estimated excise taxes and (d) interest expense and preferred stock distributions.

Table of Contents**KAYNE ANDERSON MIDSTREAM/ENERGY FUND, INC.****MANAGEMENT DISCUSSION****(UNAUDITED)****Net Distributable Income (NDI)**

(amounts in millions, except for per share amounts)

| | Three Months Ended August 31, 2014 |
|--|---|
| Distributions and Other Income from Investments | |
| Dividends ⁽¹⁾ | \$ 12.4 |
| Paid-In-Kind Dividends and Distributions ⁽¹⁾ | 3.2 |
| Interest | 2.0 |
| Net Premiums Received from Call Options Written | 1.7 |
| Total Distributions and Other Income from Investments | 19.3 |
| Expenses | |
| Investment Management Fee | (4.3) |
| Other Expenses | (0.4) |
| Excise Taxes ⁽²⁾⁽³⁾ | |
| Interest Expense | (2.6) |
| Preferred Stock Distributions | (1.2) |
| Net Distributable Income (NDI) | \$ 10.8 |
| Weighted Shares Outstanding | 21.8 |
| NDI per Weighted Share Outstanding | \$ 0.497 |
| Adjusted NDI per Weighted Share Outstanding⁽⁴⁾ | \$ 0.497 |
| Distributions paid per Common Share⁽⁵⁾ | \$ 0.4875 |

(1) See Note 2 (Investment Income) to the Financial Statements for additional information regarding paid-in-kind and non-cash dividends and distributions.

(2) During the nine months ended August 31, 2014, we paid \$0.79 million of excise taxes related to undistributed income during 2013. At November 30, 2013, we accrued \$0.75 million in excise taxes and increased this amount by \$0.04 million during the nine months ended August 31, 2014 based on the actual amount of taxes paid. As of August 31, 2014, we did not accrue any excise taxes related to undistributed income for 2014 because the liability was not probable and estimable.

(3)

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Our Board of Directors currently intends to declare a special distribution prior to the end of calendar 2014 to eliminate any excise tax liability. The amount of the special distribution, if any, will depend on many factors, including the amount of our undistributed income at year end (if any), as well as our leverage levels at such time. Based on the current intentions of our Board of Directors, we have assumed no excise tax expense for purposes of calculating NDI for fiscal 2014.

(4) There were no adjustments to NDI during the quarter.

(5) The distribution of \$0.4875 per share for the third quarter of fiscal 2014 was paid on October 24, 2014. Payment of future distributions is subject to Board of Directors approval, as well as meeting the covenants of our debt agreements and terms of our preferred stock. In determining our quarterly distribution to common stockholders, our Board of Directors considers a number of factors that include, but are not limited to:

NDI and adjusted NDI generated in the current quarter;

Expected NDI over the next twelve months; and

Realized and unrealized gains generated by the portfolio.

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MANAGEMENT DISCUSSION

(UNAUDITED)

On September 29, 2014, we declared a quarterly distribution of \$0.4875 per common share for the third quarter of fiscal 2014 (a total distribution of \$10.5 million). The distribution represents an increase of 1.6% from the prior quarter's distribution and an increase of 6.0% from the distribution for the quarter ended August 31, 2013.

Reconciliation of NDI to GAAP

The difference between distributions and other income from investments in the NDI calculation and total investment income as reported in our Statement of Operations is reconciled as follows:

GAAP recognizes that a significant portion of the cash distributions received from MLPs is characterized as a return of capital and therefore excluded from investment income, whereas the NDI calculation includes the return of capital portion of such distributions.

NDI includes the value of paid-in-kind dividends and distributions whereas such amounts are not included as investment income for GAAP purposes, but rather are recorded as unrealized gains upon receipt.

NDI includes commitment fees from PIPE investments, whereas such amounts are generally not included in investment income for GAAP purposes, but rather are recorded as a reduction to the cost of the investment.

Certain of our investments in debt securities were purchased at a discount or premium to the par value of such security. When making such investments, we consider the security's yield to maturity, which factors in the impact of such discount (or premium). Interest income reported under GAAP includes the non-cash accretion of the discount (or amortization of the premium) based on the effective interest method. When we calculate interest income for purposes of determining NDI, in order to better reflect the yield to maturity, the accretion of the discount (or amortization of the premium) is calculated on a straight-line basis to the earlier of the expected call date or the maturity date of the debt security.

We may sell covered call option contracts to generate income or to reduce our ownership of certain securities that we hold. In some cases, we are able to repurchase these call option contracts at a price less than the call premium that we received, thereby generating a profit. The premium we receive from selling call options, less (i) the amount that we pay to repurchase such call option contracts and (ii) the amount by which the market price of an underlying security is above the strike price at the time a new call option is written (if any), is included in NDI. For GAAP purposes, premiums received from call option contracts sold are not included in investment income. See Note 2 Significant Accounting Policies for a full discussion of the GAAP treatment of option contracts.

The treatment of expenses included in NDI also differs from what is reported in the Statement of Operations as follows:

The non-cash amortization or write-offs of capitalized debt issuance costs and preferred stock offering costs related to our financings is included in interest expense and distributions on preferred stock for GAAP purposes, but is excluded from our calculation of NDI.

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NDI also includes recurring payments (or receipts) on interest rate swap contracts (excluding termination payments) whereas for GAAP purposes, these amounts are included in the realized gains/losses section of the Statement of Operations.

Under GAAP, excise taxes are accrued when probable and estimable. For NDI, we have assumed no excise tax expense for fiscal 2014.

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MANAGEMENT DISCUSSION

(UNAUDITED)

Liquidity and Capital Resources

Total leverage outstanding at August 31, 2014 of \$409 million was comprised of \$235 million of unsecured notes (Notes), \$19 million outstanding under our unsecured revolving credit facility (the Credit Facility), \$50 million outstanding under our unsecured revolving term loan (Term Loan) and \$105 million of mandatory redeemable preferred stock (MRP Shares). Total leverage represented 28% of total assets at August 31, 2014. As of October 28, 2014, we had \$27 million and \$50 million borrowed under our Credit Facility and Term Loan, respectively, and we had \$0.3 million of cash.

Our Credit Facility has a total commitment of \$105 million and matures on November 21, 2016. The interest rate varies between LIBOR plus 1.50% and LIBOR plus 2.15%, depending on our asset coverage ratios. Outstanding loan balances accrue interest daily at a rate equal to LIBOR plus 1.50% based on current asset coverage ratios. We pay a fee of 0.25% per annum on any unused amounts of the Credit Facility.

Our Term Loan has a total commitment of \$50 million and matures on July 25, 2019. Borrowings under the Term Loan will bear interest at a rate of LIBOR plus 1.30%. We pay a fee of 0.25% per annum on any unused amount of the Term Loan.

At August 31, 2014, we had \$235 million of Notes outstanding which mature between 2016 and 2023, and we had \$105 million of MRP Shares outstanding, which are subject to mandatory redemption in 2018, 2020 and 2021.

At August 31, 2014, our asset coverage ratios under the Investment Company Act of 1940, as amended (the 1940 Act), were 472% for debt and 351% for total leverage (debt plus preferred stock). Our long-term target asset coverage ratio with respect to our debt is 400%, but at times we may be above or below our target depending on market conditions.

As of August 31, 2014, our total leverage consisted of both fixed rate (83%) and floating rate (17%) obligations. At such date, the weighted average interest/dividend rate on our total leverage was 3.77%.

On April 15, 2014, we announced that our Board of Directors approved a program to purchase up to \$20 million of our common stock. The repurchase program was to continue until the earlier of (i) the repurchase of \$20 million of common stock or (ii) September 30, 2014. Under this program, we authorized our agents to make purchases in the open market when shares were trading at a discount of at least 8% to our net asset value (NAV) per share and we had sufficient borrowing capacity relative to our target leverage ratios. On September 3, 2014, the repurchase program was completed as we had purchased \$20 million of our common stock. Under the program, we repurchased 519,364 shares of our common stock at an average price of \$38.50, which represented an average discount to our NAV per share of approximately 9.3%.

Table of Contents**KAYNE ANDERSON MIDSTREAM/ENERGY FUND, INC.****SCHEDULE OF INVESTMENTS****AUGUST 31, 2014****(amounts in 000 s, except number of option contracts)****(UNAUDITED)**

| Description | No. of Shares/Units | Value |
|---|------------------------|----------|
| Long-Term Investments 141.1% | | |
| Equity Investments⁽¹⁾ 131.4% | | |
| United States 122.2% | | |
| Midstream MLP⁽²⁾⁽³⁾ 54.7% | | |
| Access Midstream Partners, L.P. | 87 | \$ 5,618 |
| Arc Logistics Partners LP | 82 | 2,139 |
| Atlas Pipeline Partners, L.P. | 65 | 2,400 |
| Buckeye Partners, L.P. | 135 | 10,661 |
| Compressco Partners, L.P. | 43 | 1,163 |
| Crestwood Midstream Partners LP | 1,190 | 27,791 |
| DCP Midstream Partners, LP ⁽⁴⁾ | 354 | 20,003 |
| El Paso Pipeline Partners, L.P. ⁽⁵⁾ | 231 | 9,596 |
| Enable Midstream Partners, LP | 47 | 1,199 |
| Energy Transfer Equity, L.P. | 88 | 5,313 |
| Enbridge Energy Management, L.L.C. ⁽⁶⁾⁽⁷⁾ | 2,696 | 96,558 |
| Energy Transfer Partners, L.P. ⁽⁴⁾⁽⁸⁾ | 418 | 23,986 |
| EnLink Midstream Partners, LP | 498 | 15,426 |
| Enterprise Products Partners L.P. ⁽⁴⁾⁽⁸⁾ | 407 | 16,536 |
| Exterran Partners, L.P. | 297 | 8,607 |
| Global Partners LP | 266 | 11,467 |
| Holly Energy Partners, L.P. | 144 | 5,211 |
| Kinder Morgan Management, LLC ⁽⁴⁾⁽⁵⁾⁽⁶⁾⁽⁷⁾ | 1,286 | 125,690 |
| MarkWest Energy Partners, L.P. ⁽⁴⁾⁽⁹⁾ | 309 | 24,607 |
| Martin Midstream Partners L.P. | 46 | 1,807 |
| Midcoast Energy Partners, L.P. | 128 | 2,873 |
| Niska Gas Storage Partners LLC | 76 | 1,101 |
| ONEOK Partners, L.P. | 431 | 25,594 |
| Plains All American Pipeline, L.P. ⁽⁹⁾ | 459 | 27,502 |
| QEP Midstream Partners, LP | 37 | 962 |
| Regency Energy Partners LP | 1,338 | 44,100 |
| Sprague Resources LP | 26 | 669 |
| Summit Midstream Partners, LP | 79 | 4,362 |
| Targa Resources Partners LP | 89 | 6,622 |
| USA Compression Partners, LP | 31 | 816 |
| Western Gas Partners, LP | 76 | 5,893 |
| Williams Partners L.P. | 475 | 25,173 |
| | | 561,445 |
| Midstream Company⁽²⁾ 51.0% | | |
| Capital Product Partners L.P. ⁽¹⁰⁾ | 1,298 | 14,196 |
| Capital Products Partners L.P. Class B Units ⁽⁴⁾⁽¹¹⁾⁽¹²⁾ | 606 | 6,630 |

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| | | |
|---|-------|--------|
| CenterPoint Energy, Inc. | 599 | 14,867 |
| Dynagas LNG Partners LP ⁽¹⁰⁾ | 1,134 | 27,432 |
| Golar LNG Partners LP ⁽¹⁰⁾ | 1,276 | 48,586 |
| Höegh LNG Partners LP ⁽¹⁰⁾⁽¹³⁾ | 151 | 3,901 |
| Kinder Morgan, Inc. ⁽⁵⁾ | 1,336 | 53,792 |
| KNOT Offshore Partners LP ⁽¹⁰⁾ | 757 | 21,222 |
| National Fuel Gas Company ⁽⁴⁾ | 195 | 14,913 |
| NiSource Inc. ⁽⁴⁾ | 301 | 11,937 |

See accompanying notes to financial statements.

Table of Contents**KAYNE ANDERSON MIDSTREAM/ENERGY FUND, INC.****SCHEDULE OF INVESTMENTS****AUGUST 31, 2014****(amounts in 000 s, except number of option contracts)****(UNAUDITED)**

| Description | No. of Shares/Units | Value |
|---|--------------------------------|--------------|
| Midstream Company⁽²⁾ (continued) | | |
| Nordic American Offshore Ltd. | 65 | \$ 1,265 |
| ONEOK, Inc. ⁽⁴⁾ | 962 | 67,548 |
| Plains GP Holdings, L.P. ⁽⁹⁾⁽¹⁰⁾ | 411 | 12,696 |
| Plains GP Holdings, L.P. Unregistered ⁽⁹⁾⁽¹⁰⁾⁽¹¹⁾⁽¹⁴⁾ | 1,836 | 54,913 |
| Spectra Energy Corp. | 505 | 21,051 |
| Teekay Corporation ⁽⁴⁾ | 45 | 2,759 |
| Teekay Offshore Partners L.P. ⁽¹⁰⁾ | 419 | 14,775 |
| Teekay Offshore Partners L.P. Series A Preferred Units ⁽¹⁰⁾ | 300 | 7,623 |
| VTTI Energy Partners LP ⁽¹⁰⁾⁽¹³⁾ | 318 | 8,700 |
| The Williams Companies, Inc. | 1,943 | 115,482 |
| | | 524,288 |
| Other Energy Company 13.0% | | |
| Abengoa Yield plc ⁽¹³⁾ | 239 | 9,566 |
| CONSOL Energy Inc. | 301 | 12,141 |
| Dominion Resources, Inc. 6.375% Series A Preferred Shares ⁽¹³⁾ | 13 | 635 |
| Enduro Royalty Trust | 320 | 4,211 |
| HollyFrontier Corporation ⁽⁴⁾ | 125 | 6,259 |
| LinnCo, LLC ⁽¹⁰⁾ | 326 | 10,253 |
| Marathon Petroleum Corporation ⁽⁴⁾ | 155 | 14,125 |
| NRG Yield, Inc. ⁽⁴⁾ | 41 | 2,219 |
| Pacific Coast Oil Trust | 376 | 4,429 |
| Phillips 66 ⁽⁴⁾ | 228 | 19,849 |
| Seadrill Limited | 278 | 10,348 |
| Seadrill Partners LLC ⁽¹⁰⁾ | 405 | 13,974 |
| Tesoro Corporation ⁽⁴⁾ | 57 | 3,671 |
| The Southern Company | 105 | 4,640 |
| Transocean Ltd. | 185 | 7,143 |
| Transocean Partners LLC ⁽¹⁰⁾⁽¹³⁾ | 115 | 3,290 |
| Valero Energy Corporation ⁽⁴⁾ | 109 | 5,901 |
| VOC Energy Trust | 58 | 876 |
| | | 133,530 |
| Other MLP⁽³⁾ 2.1% | | |
| Alliance Holdings GP, L.P. | 14 | 1,020 |
| AmeriGas Partners, L.P. | 111 | 5,150 |
| BreitBurn Energy Partners L.P. | 119 | 2,730 |
| Foresight Energy LP | 285 | 5,406 |
| LRR Energy LP | 22 | 418 |

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| | | |
|---|-----|------------------|
| Northern Tier Energy LP | 69 | 1,814 |
| Suncoke Energy Partners, L.P. | 177 | 5,352 |
| | | 21,890 |
| Other 1.4% | | |
| Navios Maritime Holdings Inc. 8.625% Series H Preferred Share ⁽¹³⁾ | 132 | 3,234 |
| Seaspan Corporation 7.95% Series D Preferred Shares | 200 | 5,394 |
| Seaspan Corporation 8.25% Series E Preferred Shares | 200 | 5,294 |
| | | 13,922 |
| Total United States (Cost \$817,314) | | 1,255,075 |

See accompanying notes to financial statements.

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| Description | No. of Shares/Units | Value |
|--|------------------------|------------------|
| Canada 9.2% | | |
| Midstream Company⁽²⁾ 7.2% | | |
| AltaGas Ltd. | 374 | \$ 18,105 |
| Enbridge Inc. | 498 | 24,840 |
| Gibson Energy Inc. ⁽⁸⁾ | 112 | 3,739 |
| Inter Pipeline Ltd. | 199 | 6,650 |
| Keyera Corp. ⁽⁴⁾ | 77 | 6,792 |
| Pembina Pipeline Corporation | 206 | 9,474 |
| TransCanada Corporation | 82 | 4,415 |
| | | 74,015 |
| Other Energy Company 2.0% | | |
| ARC Resources Ltd. ⁽⁸⁾ | 161 | 4,642 |
| Baytex Energy Corp. | 140 | 6,271 |
| Bonavista Energy Corporation | 153 | 2,082 |
| Bonterra Energy Corp. | 31 | 1,859 |
| Crescent Point Energy Corp. ⁽⁸⁾ | 127 | 5,244 |
| Pengrowth Energy Corporation | 47 | 302 |
| | | 20,400 |
| Total Canada (Cost \$75,729) | | 94,415 |
| Total Equity Investments (Cost \$893,043) | | 1,349,490 |

| | Interest Rate | Maturity Date | Principal Amount | Value |
|-----------------------------------|------------------|------------------|---------------------|--------|
| Debt Instruments 9.7% | | | | |
| Upstream 8.6% | | | | |
| American Eagle Energy Corporation | 11.000% | 9/1/19 | \$ 4,800 | 4,806 |
| BlackBrush Oil & Gas, L.P. | (15) | 7/30/21 | 12,700 | 12,668 |
| Chief Oil & Gas LLC | (16) | 8/8/21 | 4,000 | 4,033 |
| CrownRock, L.P. | 7.125 | 4/15/21 | 2,500 | 2,594 |
| Goodrich Petroleum Corporation | 8.875 | 3/15/19 | 6,950 | 7,332 |
| Halcón Resources Corporation | 9.750 | 7/15/20 | 10,500 | 11,366 |
| Jonah Energy LLC | (17) | 5/29/21 | 3,000 | 3,015 |
| Midstates Petroleum Company, Inc. | 10.750 | 10/1/20 | 3,500 | 3,889 |
| Midstates Petroleum Company, Inc. | 9.250 | 6/1/21 | 6,750 | 7,341 |
| Parsley Energy, Inc. | 7.500 | 2/15/22 | 6,025 | 6,417 |
| Resolute Energy Corporation | 8.500 | 5/1/20 | 3,775 | 3,907 |

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|---|-------|----------|--------|-----------|
| RKI Exploration & Production, LLC | 8.500 | 8/1/21 | 12,500 | 13,500 |
| Triangle USA Petroleum Corporation | 6.750 | 7/15/22 | 800 | 822 |
| Vantage Energy, LLC | (18) | 12/31/18 | 6,469 | 6,525 |
| | | | | 88,215 |
| Other Energy Company 0.6% | | | | |
| Arch Coal, Inc. | 7.250 | 6/15/21 | 9,500 | 6,341 |
| Other 0.5% | | | | |
| Navios Maritime Holdings, Inc. | 7.375 | 1/15/22 | 5,000 | 5,188 |
| Total Debt Investments (Cost \$98,190) | | | | 99,744 |
| Total Long-Term Investments (Cost \$991,233) | | | | 1,449,234 |

See accompanying notes to financial statements.

Table of Contents**KAYNE ANDERSON MIDSTREAM/ENERGY FUND, INC.****SCHEDULE OF INVESTMENTS****AUGUST 31, 2014****(amounts in 000 s, except number of option contracts)****(UNAUDITED)**

| Description | Strike Price | Expiration Date | No. of Contracts | Value |
|---|--------------|-----------------|------------------|---------|
| Liabilities | | | | |
| Call Option Contracts Written⁽¹⁹⁾ | | | | |
| United States | | | | |
| Midstream MLP | | | | |
| DCP Midstream Partners, LP | \$ 55.00 | 10/17/14 | 450 | \$ (89) |
| Energy Transfer Partners, L.P. | 57.50 | 9/19/14 | 450 | (34) |
| Enterprise Products Partners L.P. | 38.75 | 9/19/14 | 900 | (176) |
| Kinder Morgan Management, LLC | 100.00 | 9/19/14 | 450 | (27) |
| Kinder Morgan Management, LLC | 100.00 | 10/17/14 | 450 | (56) |
| Kinder Morgan Management, LLC | 80.00 | 9/19/14 | 700 | (1,211) |
| MarkWest Energy Partners, L.P. | 77.50 | 9/19/14 | 450 | (128) |
| | | | | (1,721) |
| Midstream Company | | | | |
| National Fuel Gas Company | 75.00 | 9/19/14 | 350 | (67) |
| NiSource Inc. | 39.00 | 9/19/14 | 900 | (89) |
| NiSource Inc. | 40.00 | 10/17/14 | 450 | (36) |
| ONEOK, Inc. | 67.50 | 9/19/14 | 900 | (252) |
| ONEOK, Inc. | 70.00 | 10/17/14 | 450 | (81) |
| Teekay Corporation | 62.50 | 10/17/14 | 200 | (30) |
| | | | | (555) |
| Other Energy Company | | | | |
| HollyFrontier Corporation | 48.50 | 9/19/14 | 450 | (90) |
| HollyFrontier Corporation | 49.50 | 10/17/14 | 800 | (160) |
| Marathon Petroleum Corporation | 85.00 | 9/19/14 | 200 | (124) |
| Marathon Petroleum Corporation | 87.50 | 9/19/14 | 130 | (53) |
| Marathon Petroleum Corporation | 90.00 | 9/19/14 | 980 | (245) |
| Marathon Petroleum Corporation | 92.50 | 9/19/14 | 200 | (26) |
| NRG Yield, Inc. | 55.00 | 9/19/14 | 250 | (22) |
| Phillips 66 | 85.00 | 9/19/14 | 375 | (96) |
| Phillips 66 | 86.00 | 9/19/14 | 650 | (123) |
| Phillips 66 | 90.00 | 10/17/14 | 500 | (48) |
| Tesoro Corporation | 62.50 | 9/19/14 | 125 | (36) |
| Tesoro Corporation | 65.00 | 9/19/14 | 400 | (57) |
| Tesoro Corporation | 67.00 | 9/19/14 | 42 | (3) |
| Valero Energy Corporation | 52.50 | 9/19/14 | 440 | (98) |
| Valero Energy Corporation | 55.00 | 9/19/14 | 500 | (42) |
| | | | | (1,223) |

Total United States (Premium Received \$1,518)

(3,499)

See accompanying notes to financial statements.

Table of Contents**KAYNE ANDERSON MIDSTREAM/ENERGY FUND, INC.****SCHEDULE OF INVESTMENTS****AUGUST 31, 2014****(amounts in 000 s, except number of option contracts)****(UNAUDITED)**

| Description | Strike Price | Expiration Date | No. of Contracts | Value |
|--|--------------|-----------------|------------------|--------------|
| Canada | | | | |
| Midstream Company | | | | |
| Keyera Corp. (Premiums Received \$26) | \$ 98.00 | 10/17/14 | 250 | \$ (24) |
| Total Call Option Contracts Written (Premiums Received \$1,544) | | | | (3,523) |
| Debt | | | | (304,000) |
| Mandatory Redeemable Preferred Stock at Liquidation Value | | | | (105,000) |
| Other Liabilities | | | | (21,220) |
| Total Liabilities | | | | (433,743) |
| Other Assets | | | | 11,818 |
| Total Liabilities in Excess of Other Assets | | | | (421,925) |
| Net Assets Applicable to Common Stockholders | | | | \$ 1,027,309 |

- (1) Unless otherwise noted, equity investments are common units/common shares.
- (2) Refer to the Glossary of Key Terms (page 38) for the definitions of Midstream Companies and Midstream MLPs.
- (3) Unless otherwise noted, securities are treated as a publicly-traded partnership for regulated investment company (RIC) qualification purposes. To qualify as a RIC for tax purposes, the Fund may directly invest up to 25% of its total assets in equity and debt securities of entities treated as publicly-traded partnerships. The Fund had 24.7% of its total assets invested in publicly-traded partnerships at August 31, 2014. It is the Fund's intention to be treated as a RIC for tax purposes.
- (4) Security or a portion thereof is segregated as collateral on option contracts written.
- (5) On August 10, 2014, Kinder Morgan, Inc. announced that it will acquire all of the outstanding equity securities of Kinder Morgan Management, LLC, Kinder Morgan Energy Partners, L.P. and El Paso Pipeline Partners, L.P. As of August 31, 2014, the Fund did not hold any securities of Kinder Morgan Energy Partners, L.P.

- (6) Dividends are paid-in-kind.
- (7) Security is not treated as a publicly-traded partnership for RIC qualification purposes.
- (8) In lieu of cash distributions, the Fund has elected to receive distributions in additional units/stock through the issuer's dividend reinvestment program.
- (9) The Fund believes that it is an affiliate of MarkWest Energy Partners, L.P., Plains All American Pipeline, L.P. and Plains GP Holdings, L.P. (Plains GP). See Note 5 Agreements and Affiliations.
- (10) This company is structured like an MLP, but is not treated as a publicly-traded partnership for RIC qualification purposes.
- (11) Fair valued security, restricted from public sale. See Notes 2, 3 and 7 in Notes to Financial Statements.
- (12) Class B Units are convertible on a one-for-one basis into common units of Capital Product Partners L.P. (CPLP) and are senior to the common units in terms of liquidation preference and priority of distributions. The Class B Units pay quarterly cash distributions of \$0.21375 per unit and are convertible at any time at the option of the holder. If CPLP increases the quarterly cash distribution per common unit, the distribution per Class B Unit will increase by an equal amount. If CPLP does not redeem the Class B Units by May 2022, then the distribution increases by 25% per quarter to a maximum of \$0.33345 per unit. CPLP may require that the Class B Units convert into common units after May 2015 if the common unit price exceeds \$11.70 per unit, and the Class B Units are callable after May 2017 at a price of \$9.27 per unit and after May 2019 at \$9.00 per unit.

See accompanying notes to financial statements.

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KAYNE ANDERSON MIDSTREAM/ENERGY FUND, INC.

SCHEDULE OF INVESTMENTS

AUGUST 31, 2014

(amounts in 000 s, except number of option contracts)

(UNAUDITED)

- (13) Security is not currently paying cash distributions but is expected to pay cash distributions within the next 12 months.
- (14) The Fund holds an interest in Plains AAP, L.P. (PAA GP), which controls the general partner of Plains All American, L.P. The Fund s ownership of PAA GP is exchangeable into shares of Plains GP (which trades on the NYSE under the ticker PAGP) on a one-for-one basis at the Fund s option. See Note 3 Fair Value.
- (15) Floating rate first lien secured term loan. Security pays interest at a rate of LIBOR + 650 basis points with a 1.00% LIBOR floor or alternative base rate + 550 basis points (8.75% as of August 31, 2014).
- (16) Floating rate second lien secured term loan. Security pays interest at a rate of LIBOR + 650 basis points with a 1.00% LIBOR floor (7.50% as of August 31, 2014).
- (17) Floating rate second lien secured term loan. Security pays interest at a rate of LIBOR + 650 basis points with a 1.00% LIBOR floor (7.50% as of August 31, 2014).
- (18) Floating rate second lien secured term loan. Security pays interest at a rate of LIBOR + 750 basis points with a 1.00% LIBOR floor (8.50% as of August 31, 2014).
- (19) Security is non-income producing.

See accompanying notes to financial statements.

Table of Contents**KAYNE ANDERSON MIDSTREAM/ENERGY FUND, INC.****STATEMENT OF ASSETS AND LIABILITIES****AUGUST 31, 2014****(amounts in 000 s, except share and per share amounts)****(UNAUDITED)****ASSETS**

| | |
|---|------------------|
| Investments, at fair value: | |
| Non-affiliated (Cost \$944,325) | \$ 1,329,516 |
| Affiliated (Cost \$46,908) | 119,718 |
| Total investments (Cost \$991,233) | 1,449,234 |
| Cash | 1,208 |
| Deposits with brokers | 249 |
| Receivable for securities sold | 3,140 |
| Interest, dividends and distributions receivable | 2,620 |
| Deferred debt and preferred stock offering costs and other assets | 4,601 |
| Total Assets | 1,461,052 |

LIABILITIES

| | |
|---|----------------|
| Payable for securities purchased | 13,443 |
| Investment management fee payable | 1,469 |
| Call option contracts written (Premiums received \$1,544) | 3,523 |
| Accrued directors' fees and expenses | 50 |
| Accrued expenses and other liabilities | 6,258 |
| Credit facility | 19,000 |
| Term loan | 50,000 |
| Notes | 235,000 |
| Mandatory redeemable preferred stock, \$25.00 liquidation value per share (4,200,000 shares issued and outstanding) | 105,000 |
| Total Liabilities | 433,743 |

NET ASSETS APPLICABLE TO COMMON STOCKHOLDERS \$ 1,027,309**NET ASSETS APPLICABLE TO COMMON STOCKHOLDERS CONSIST OF**

| | |
|---|----------|
| Common stock, \$0.001 par value (22,141,297 shares issued, 21,625,539 shares outstanding and 195,800,000 shares authorized) | \$ 22 |
| Paid-in capital | 508,028 |
| Accumulated net investment income less distributions not treated as tax return of capital | (41,209) |
| Accumulated net realized gains less distributions not treated as tax return of capital | 104,448 |
| Net unrealized gains | 456,020 |

NET ASSETS APPLICABLE TO COMMON STOCKHOLDERS \$ 1,027,309**NET ASSET VALUE PER COMMON SHARE** \$ 47.50

See accompanying notes to financial statements.

Table of Contents**KAYNE ANDERSON MIDSTREAM/ENERGY FUND, INC.****STATEMENT OF OPERATIONS**

(amounts in 000 s)

(UNAUDITED)

| | For the Three Months Ended August 31, 2014 | For the Nine Months Ended August 31, 2014 |
|---|--|---|
| INVESTMENT INCOME | | |
| Income | | |
| Dividends and distributions: | | |
| Non-affiliated investments | \$ 11,379 | \$ 32,023 |
| Affiliated investments | 980 | 2,650 |
| Total dividends and distributions (after foreign taxes withheld of \$103 and \$273, respectively) | 12,359 | 34,673 |
| Return of capital | (6,087) | (17,781) |
| Net dividends and distributions | 6,272 | 16,892 |
| Interest | 2,058 | 7,203 |
| Total Investment Income | 8,330 | 24,095 |
| Expenses | | |
| Investment management fees | 4,270 | 11,551 |
| Professional fees | 110 | 355 |
| Administration fees | 79 | 233 |
| Directors' fees and expenses | 56 | 149 |
| Insurance | 39 | 115 |
| Reports to stockholders | 37 | 108 |
| Custodian fees | 25 | 60 |
| Other expenses | 53 | 167 |
| Total Expenses before interest expense, preferred distributions and excise taxes | 4,669 | 12,738 |
| Interest expense and amortization of offering costs | 2,760 | 7,798 |
| Distributions on mandatory redeemable preferred stock and amortization of offering costs | 1,261 | 3,082 |
| Excise taxes | 32 | 42 |
| Total Expenses | 8,722 | 23,660 |
| Net Investment Income (Loss) | (392) | 435 |
| REALIZED AND UNREALIZED GAINS (LOSSES) | | |
| Net Realized Gains | | |
| Investments non-affiliated | 26,799 | 75,591 |
| Investments affiliated | 335 | 335 |
| Foreign currency transactions | | (15) |
| Options | 675 | 2,217 |
| Interest rate swap contracts | | (431) |
| Net Realized Gains | 27,809 | 77,697 |

| | | |
|---|-------------------|-------------------|
| Net Change in Unrealized Gains | | |
| Investments non-affiliated | 114,437 | 183,943 |
| Investments affiliated | 15,631 | 26,763 |
| Foreign currency translations | (1) | 5 |
| Options | (1,718) | (1,792) |
| Net Change in Unrealized Gains | 128,349 | 208,919 |
| Net Realized and Unrealized Gains | 156,158 | 286,616 |
| NET INCREASE IN NET ASSETS APPLICABLE TO COMMON STOCKHOLDERS RESULTING FROM OPERATIONS | \$ 155,766 | \$ 287,051 |

See accompanying notes to financial statements.

Table of Contents**KAYNE ANDERSON MIDSTREAM/ENERGY FUND, INC.****STATEMENT OF CHANGES IN NET ASSETS APPLICABLE TO COMMON STOCKHOLDERS**

(amounts in 000 s, except share amounts)

| | For the Nine Months Ended August 31, 2014 (Unaudited) | For the Fiscal Year Ended November 30, 2013 |
|--|--|--|
| OPERATIONS | | |
| Net investment income (loss) ⁽¹⁾ | \$ 435 | \$ (2,315) |
| Net realized gains | 77,697 | 43,922 |
| Net change in unrealized gains | 208,919 | 146,243 |
| Net Increase in Net Assets Resulting from Operations | 287,051 | 187,850 |
| DIVIDENDS AND DISTRIBUTIONS TO COMMON STOCKHOLDERS⁽¹⁾ | | |
| Dividends | (31,176) ⁽²⁾ | (25,108) ⁽³⁾ |
| Distributions net long-term capital gains | (2) | (14,572) ⁽³⁾ |
| Dividends and Distributions to Common Stockholders | (31,176) | (39,680) |
| CAPITAL STOCK TRANSACTIONS | | |
| Issuance of 97,252 and 148,803 shares of common stock from reinvestment of dividends and distributions, respectively | 3,220 | 4,661 |
| Common stock purchased under the share repurchase program (515,758 shares) | (19,843) | |
| Net Increase (Decrease) in Net Assets Applicable to Common Stockholders from Capital Stock Transactions | (16,623) | 4,661 |
| Total Increase in Net Assets Applicable to Common Stockholders | 239,252 | 152,831 |
| NET ASSETS APPLICABLE TO COMMON STOCKHOLDERS | | |
| Beginning of period | 788,057 | 635,226 |
| End of period | \$ 1,027,309 | \$ 788,057 |

(1) Distributions on the Fund's mandatory redeemable preferred stock (MRP Shares) are treated as an operating expense under GAAP and are included in the calculation of net investment loss. See Note 2 Significant Accounting Policies. The distributions in the amount of \$2,959 paid to MRP shareholders during the nine months ended August 31, 2014 are characterized as dividend income (a portion of which may be eligible to be treated as qualified dividend income) until after the end of the fiscal year when the Fund can determine its earnings and profits for the full year, which includes gains and losses on the sale of securities for the remainder of the fiscal year. The final tax character may differ substantially from this preliminary information. The tax character for each distribution paid during the year will be the same as the tax character of the total distributions paid during the full year. Distributions in the amount of \$3,212 paid to MRP shareholders for the fiscal year ended November 30, 2013 were characterized as dividend income (\$2,007) and as long-term capital gains (\$1,205). A portion of the distributions characterized as dividend income, for the fiscal year ended November 30, 2013, was eligible to be treated as qualified dividend income. This characterization is based on the Fund's earnings and profits.

(2)

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The distributions paid to common stockholders for the nine months ended August 31, 2014 are characterized as dividend income (a portion of which may be eligible to be treated as qualified dividend income) until after the end of the fiscal year when the Fund can determine its earnings and profits for the full year, which includes gains and losses on the sale of securities for the remainder of the fiscal year. The final tax character may differ substantially from this preliminary information. The tax character for each distribution paid during the year will be the same as the tax character of the total distributions paid during the full year.

- (3) Distributions paid to common stockholders for the fiscal year ended November 30, 2013 are characterized as either dividends (a portion was eligible to be treated as qualified dividend income) or distributions (long-term capital gains or return of capital). This characterization is based on the Fund's earnings and profits. The tax character for each distribution paid during the year was the same as the tax character of the total distributions paid during the full year.

See accompanying notes to financial statements.

Table of Contents**KAYNE ANDERSON MIDSTREAM/ENERGY FUND, INC.****STATEMENT OF CASH FLOWS****FOR THE NINE MONTHS ENDED AUGUST 31, 2014****(amounts in 000 s)****(UNAUDITED)****CASH FLOWS FROM OPERATING ACTIVITIES**

| | |
|---|------------|
| Net increase in net assets resulting from operations | \$ 287,051 |
| Adjustments to reconcile net increase in net assets resulting from operations to net cash used in operating activities: | |
| Return of capital distributions | 17,781 |
| Net realized gains (excluding foreign currency transactions) | (77,712) |
| Net unrealized gains (excluding foreign currency translations) | (208,914) |
| Accretion of bond discounts, net | (18) |
| Purchase of long-term investments | (518,280) |
| Proceeds from sale of long-term investments | 445,355 |
| Decrease in deposits with brokers | 269 |
| Decrease in receivable for securities sold | 1,327 |
| Decrease in interest, dividends and distributions receivable | 1,437 |
| Amortization of deferred debt offering costs | 454 |
| Amortization of mandatory redeemable preferred stock offering costs | 123 |
| Increase in other assets | (637) |
| Increase in payable for securities purchased | 7,984 |
| Increase in investment management fee payable | 356 |
| Decrease in premiums received on call option contracts written | (206) |
| Decrease in accrued excise taxes | (750) |
| Increase in accrued expenses and other liabilities | 2,909 |

Net Cash Used in Operating Activities (41,471)**CASH FLOWS FROM FINANCING ACTIVITIES**

| | |
|--|----------|
| Decrease in borrowings under credit facility | (31,000) |
| Increase in borrowings under term loan | 50,000 |
| Proceeds from offering of notes | 30,000 |
| Proceeds from offering of mandatory redeemable preferred stock | 40,000 |
| Shares of common stock repurchased | (19,843) |
| Costs associated with offering of notes | (251) |
| Costs associated with offering of mandatory redeemable preferred stock | (585) |
| Costs associated with issuance of term loan | (344) |
| Cash distributions paid to common stockholders | (27,956) |

Net Cash Provided by Financing Activities 40,021**NET DECREASE IN CASH** (1,450)**CASH BEGINNING OF PERIOD** 2,658**CASH END OF PERIOD** \$ 1,208

Supplemental disclosure of cash flow information:

Non-cash financing activities not included herein consisted of reinvestment of distributions of \$3,220 pursuant to the Fund's dividend reinvestment plan.

During the nine months ended August 31, 2014, interest paid was \$4,903 and federal excise tax paid was \$792.

During the nine months ended August 31, 2014, the Fund received \$10,592 of paid-in-kind and non-cash dividends and distributions. See Note 2 Significant Accounting Policies.

See accompanying notes to financial statements.

Table of Contents**KAYNE ANDERSON MIDSTREAM/ENERGY FUND, INC.****FINANCIAL HIGHLIGHTS**

(amounts in 000 s, except share and per share amounts)

| | For the Nine Months Ended August 31, 2014 (Unaudited) | For the Fiscal Year Ended November 30, | | | For the Period November 24, 2010 ⁽¹⁾ through November 30, 2010 |
|---|---|---|----------|----------|---|
| | | 2013 | 2012 | 2011 | |
| Per Share of Common Stock⁽²⁾ | | | | | |
| Net asset value, beginning of period | \$ 35.75 | \$ 29.01 | \$ 25.94 | \$ 23.80 | \$ 23.83 ⁽³⁾ |
| Net investment income (loss) ⁽⁴⁾ | 0.02 | (0.06) | 0.17 | 0.29 | (0.02) |
| Net realized and unrealized gains (losses) | 13.07 | 8.61 | 4.64 | 3.12 | (0.01) |
| | | | | | |
| Total income (loss) from operations | 13.09 | 8.55 | 4.81 | 3.41 | (0.03) |
| | | | | | |
| Common dividends – dividend income ⁽⁵⁾ | (1.42) | (1.15) | (1.30) | (1.20) | |
| Common distributions – long-term capital gain ⁽⁵⁾ | | (0.66) | (0.41) | | |
| Common distributions – return of capital ⁽¹⁾ | | | | | |
| | | | | | |
| Total dividends and distributions – common | (1.42) | (1.81) | (1.71) | (1.20) | |
| | | | | | |
| Effect of shares issued in reinvestment of distributions | (0.01) | | (0.03) | (0.04) | |
| Effect of issuance of common stock | | | | (0.03) | |
| Effect of common stock repurchased | 0.09 | | | | |
| | | | | | |
| Net asset value, end of period | \$ 47.50 | \$ 35.75 | \$ 29.01 | \$ 25.94 | \$ 23.80 |
| | | | | | |
| Market value per share of common stock, end of period | \$ 43.91 | \$ 32.71 | \$ 28.04 | \$ 22.46 | \$ 25.00 |
| | | | | | |
| Total investment return based on common stock market value ⁽⁶⁾ | 39.6% ⁽⁷⁾ | 23.5% | 33.3% | (5.5)% | 0.0% ⁽⁷⁾ |

See accompanying notes to financial statements.

Table of Contents**KAYNE ANDERSON MIDSTREAM/ENERGY FUND, INC.****FINANCIAL HIGHLIGHTS**

(amounts in 000 s, except share and per share amounts)

| | For the Nine Months Ended August 31, 2014 (Unaudited) | For the Fiscal Year Ended November 30, | | | For the Period November 24, 2010 ⁽¹⁾ through November 30, 2010 |
|---|---|---|------------|------------|---|
| | | 2013 | 2012 | 2011 | |
| Supplemental Data and Ratios⁽⁸⁾ | | | | | |
| Net assets applicable to common stockholders, end of period | \$ 1,027,309 | \$ 788,057 | \$ 635,226 | \$ 562,044 | \$ 452,283 |
| Ratio of expenses to average net assets | | | | | |
| Management fees ⁽⁹⁾ | 1.8% | 1.8% | 1.7% | 1.6% | 1.3% |
| Other expenses | 0.2 | 0.2 | 0.3 | 0.3 | 0.3 ⁽¹⁰⁾ |
| Subtotal | 2.0 | 2.0 | 2.0 | 1.9 | 1.6 |
| Interest expense and distributions on mandatory redeemable preferred stock ⁽⁴⁾ | 1.6 | 1.8 | 1.8 | 1.3 | |
| Management fee waiver | | | | (0.3) | (0.3) |
| Excise taxes | | 0.1 | | | |
| Total expenses | 3.6% | 3.9% | 3.8% | 2.9% | 1.3% |
| Ratio of net investment income (loss) to average net assets ⁽⁴⁾ | 0.1% | (0.2)% | 0.6% | 1.1% | (1.3)% ⁽¹⁰⁾ |
| Net increase (decrease) in net assets applicable to common stockholders resulting from operations to average net assets | 33.2% ⁽⁷⁾ | 25.9% | 16.8% | 13.4% | (0.1)% ⁽⁷⁾ |
| Portfolio turnover rate | 36.0% ⁽⁷⁾ | 49.1% | 67.6% | 74.1% | 0.0% ⁽⁷⁾ |
| Average net assets | \$ 865,540 | \$ 726,248 | \$ 620,902 | \$ 537,044 | \$ 452,775 |
| Notes outstanding, end of period | 235,000 | 205,000 | 165,000 | 115,000 | |
| Credit facility outstanding, end of period | 19,000 | 50,000 | 48,000 | 45,000 | |
| Term loan outstanding, end of period | 50,000 | | | | |
| Mandatory redeemable preferred stock, end of period | 105,000 | 65,000 | 65,000 | 35,000 | |
| Average shares of common stock outstanding | 21,989,209 | 21,969,288 | 21,794,596 | 21,273,512 | 19,004,000 |
| Asset coverage of total debt ⁽¹¹⁾ | 472.5% | 434.5% | 428.7% | 473.2% | |
| Asset coverage of total leverage (debt and preferred stock) ⁽¹²⁾ | 351.2% | 346.3% | 328.5% | 388.2% | |
| Average amount of borrowings per share of common stock during the period ⁽²⁾ | \$ 12.38 | \$ 10.51 | \$ 8.85 | \$ 6.50 | |

See accompanying notes to financial statements.

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KAYNE ANDERSON MIDSTREAM/ENERGY FUND, INC.

FINANCIAL HIGHLIGHTS

(amounts in 000 s, except share and per share amounts)

- (1) Commencement of operations.
- (2) Based on average shares of common stock outstanding.
- (3) Initial public offering price of \$25.00 per share less underwriting discounts of \$1.125 per share and offering costs of \$0.05 per share.
- (4) Distributions on the Fund's MRP Shares are treated as an operating expense under GAAP and are included in the calculation of net investment income (loss). See Note 2 Significant Accounting Policies.
- (5) The actual characterization of the distributions made during the nine months ended August 31, 2014 will not be determinable until after the end of the fiscal year when the Fund can determine its actual earnings and profits for the full year (including gains and losses on the sale of securities for the remainder of the fiscal year) and may differ substantially from this preliminary information. The information presented for each of the other periods is a characterization of the total distributions paid to the preferred stockholders and common stockholders as either a dividend (a portion was eligible to be treated as qualified dividend income) or a distribution (capital gains or return of capital) and is based on the Fund's earnings and profits.
- (6) Total investment return is calculated assuming a purchase of common stock at the market price on the first day and a sale at the current market price on the last day of the period reported. The calculation also assumes reinvestment of distributions at actual prices pursuant to the Fund's dividend reinvestment plan.
- (7) Not annualized.
- (8) Unless otherwise noted, ratios are annualized.
- (9) Ratio reflects total management fee before waiver.
- (10) For purposes of annualizing other expenses of the Fund, professional fees and reports to stockholders are fees associated with the annual audit and annual report and therefore have not been annualized.
- (11)

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Calculated pursuant to section 18(a)(1)(A) of the 1940 Act. Represents the value of total assets less all liabilities not represented by unsecured notes (Notes) or any other senior securities representing indebtedness and MRP Shares divided by the aggregate amount of Notes and any other senior securities representing indebtedness. Under the 1940 Act, the Fund may not declare or make any distribution on its common stock nor can it incur additional indebtedness if at the time of such declaration or incurrence its asset coverage with respect to senior securities representing indebtedness would be less than 300%. For purposes of this test, the Credit Facility and the Term Loan are considered senior securities representing indebtedness.

- (12) Calculated pursuant to section 18(a)(2)(A) of the 1940 Act. Represents the value of total assets less all liabilities not represented by Notes, any other senior securities representing indebtedness and preferred stock divided by the aggregate amount of Notes, any other senior securities representing indebtedness and preferred stock. Under the 1940 Act, the Fund may not declare or make any distribution on its common stock nor can it issue additional preferred stock if at the time of such declaration or issuance, its asset coverage with respect to all senior securities would be less than 200%. In addition to the limitations under the 1940 Act, the Fund, under the terms of its MRP Shares, would not be able to declare or pay any distributions on its common stock if such declaration would cause its asset coverage with respect to all senior securities to be less than 225%. For purposes of these asset coverage ratio tests, the Credit Facility and the Term Loan are considered senior securities representing indebtedness.

See accompanying notes to financial statements.

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KAYNE ANDERSON MIDSTREAM/ENERGY FUND, INC.

NOTES TO FINANCIAL STATEMENTS

(amount in 000 s, except number of option contracts, share and per share)

(UNAUDITED)

1. Organization

Kayne Anderson Midstream/Energy Fund, Inc. (the Fund) was organized as a Maryland corporation on August 26, 2010 and commenced operations on November 24, 2010. The Fund is registered under the Investment Company Act of 1940, as amended (the 1940 Act), as a non-diversified, closed-end investment management company. The Fund's investment objective is to provide a high level of return with an emphasis on making quarterly cash distributions to its stockholders. The Fund seeks to achieve that investment objective by investing at least 80% of its total assets in the securities of companies in the Midstream/Energy Sector, consisting of (a) Midstream MLPs, (b) Midstream Companies, (c) Other MLPs and (d) Other Energy Companies. The Fund's shares of common stock are listed on the New York Stock Exchange, Inc. (NYSE) under the symbol KMF.

2. Significant Accounting Policies

A. Use of Estimates The preparation of financial statements in conformity with accounting principles generally accepted in the United States of America (GAAP) requires management to make estimates and assumptions that affect the reported amount of assets and liabilities and disclosure of contingent assets and liabilities as of the date of the financial statements and the reported amounts of revenue and expenses during the period. Actual results could differ materially from those estimates.

B. Cash and Cash Equivalents Cash and cash equivalents include short-term, liquid investments with an original maturity of three months or less and include money market fund accounts.

C. Calculation of Net Asset Value The Fund determines its net asset value no less frequently than as of the last day of each month based on the most recent close of regular session trading on the NYSE, and makes its net asset value available for publication monthly. Currently, the Fund calculates its net asset value on a weekly basis. Net asset value is computed by dividing the value of the Fund's assets (including accrued interest and distributions), less all of its liabilities (including accrued expenses, distributions payable and any indebtedness) and the liquidated value of any outstanding preferred stock, by the total number of common shares outstanding.

D. Investment Valuation Readily marketable portfolio securities listed on any exchange other than the NASDAQ Stock Market, Inc. (NASDAQ) are valued, except as indicated below, at the last sale price on the business day as of which such value is being determined. If there has been no sale on such day, the securities are valued at the mean of the most recent bid and ask prices on such day. Securities admitted to trade on the NASDAQ are valued at the NASDAQ official closing price. Portfolio securities traded on more than one securities exchange are valued at the last sale price on the business day as of which such value is being determined at the close of the exchange representing the principal market for such securities.

Equity securities traded in the over-the-counter market, but excluding securities admitted to trading on the NASDAQ, are valued at the closing bid prices. Debt securities that are considered bonds are valued by using the mean of the bid and ask prices provided by an independent pricing service. For debt securities that are considered bank loans, the fair market value is determined by using the mean of the bid and ask prices provided by the agent or syndicate bank or principal market maker. When price quotes are not available, fair market value will be based on prices of comparable securities. In certain cases, the Fund may not be able to purchase or sell debt securities at the quoted prices due to the lack of liquidity for these securities.

Exchange-traded options and futures contracts are valued at the last sales price at the close of trading in the market where such contracts are principally traded or, if there was no sale on the applicable exchange on such day, at the mean between the quoted bid and ask price as of the close of such exchange.

The Fund holds securities that are privately issued or otherwise restricted as to resale. For these securities, as well as any other portfolio security held by the Fund for which reliable market quotations are not readily available,

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valuations are determined in a manner that most accurately reflects fair value of the security on the valuation date. Unless otherwise determined by the Board of Directors, the following valuation process is used for such securities:

Investment Team Valuation. The applicable investments are valued by senior professionals of KA Fund Advisors, LLC (KAFAs or the Adviser) who are responsible for the portfolio investments. The investments will be valued monthly, with new investments valued at the time such investment was made.

Investment Team Valuation Documentation. Preliminary valuation conclusions will be determined by senior management of KAFAs. Such valuations and supporting documentation is submitted to the Valuation Committee (a committee of the Fund's Board of Directors) and the Board of Directors on a quarterly basis.

Valuation Committee. The Valuation Committee meets to consider the valuations submitted by KAFAs at the end of each quarter. Between meetings of the Valuation Committee, a senior officer of KAFAs is authorized to make valuation determinations. All valuation determinations of the Valuation Committee are subject to ratification by the Board of Directors at its next regular meeting.

Valuation Firm. Quarterly, a third-party valuation firm engaged by the Board of Directors reviews the valuation methodologies and calculations employed for these securities, unless the aggregate fair value of such security is less than 0.1% of total assets.

Board of Directors Determination. The Board of Directors meets quarterly to consider the valuations provided by KAFAs and the Valuation Committee and ratify valuations for the applicable securities. The Board of Directors considers the report provided by the third-party valuation firm in reviewing and determining in good faith the fair value of the applicable portfolio securities.

As of August 31, 2014, the Fund held 6.0% of its net assets applicable to common stockholders (4.2% of total assets) in securities that were fair valued pursuant to the procedures adopted by the Board of Directors. The aggregate fair value of these securities at August 31, 2014 was \$61,543. See Note 3 Fair Value and Note 7 Restricted Securities.

E. Repurchase Agreements From time to time, the Fund has agreed to purchase securities from financial institutions subject to the seller's agreement to repurchase them at an agreed-upon time and price (repurchase agreements). The financial institutions with whom the Fund enters into repurchase agreements are banks and broker/dealers which KAFAs considers creditworthy. The seller under a repurchase agreement is required to maintain the value of the securities as collateral, subject to the agreement, at not less than the repurchase price plus accrued interest. KAFAs monitors daily the mark-to-market of the value of the collateral, and, if necessary, requires the seller to maintain additional securities, so that the value of the collateral is not less than the repurchase price. Default by or bankruptcy of the seller would, however, expose the Fund to possible loss because of adverse market action or delays in connection with the disposition of the underlying securities. As of August 31, 2014, the Fund did not have any repurchase agreements.

F. Short Sales A short sale is a transaction in which the Fund sells securities it does not own (but has borrowed) in anticipation of or to hedge against a decline in the market price of the securities. To complete a short sale, the Fund may arrange through a broker to borrow the securities to be delivered to the buyer. The proceeds received by the Fund for the short sale are retained by the broker until the Fund replaces the borrowed securities. In borrowing the securities to be delivered to the buyer, the Fund becomes obligated to replace the securities borrowed at their market price at the time of replacement, whatever the price may be.

The Fund's short sales, if any, are fully collateralized. The Fund is required to maintain assets consisting of cash or liquid securities equal in amount to the liability created by the short sale. These assets are adjusted daily to reflect changes in the value of the securities sold short. The Fund is liable for any dividends or distributions paid on securities sold short.

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The Fund may also sell short against the box (*i.e.*, the Fund enters into a short sale as described above while holding an offsetting long position in the security which it sold short). If the Fund enters into a short sale against the box, the Fund would segregate an equivalent amount of securities owned as collateral while the short sale is outstanding. During the three and nine months ended August 31, 2014, the Fund did not engage in any short sales.

G. Derivative Financial Instruments The Fund may utilize derivative financial instruments in its operations.

Interest rate swap contracts. The Fund may use hedging techniques such as interest rate swaps to mitigate potential interest rate risk on a portion of the Fund's leverage. Such interest rate swaps would principally be used to protect the Fund against higher costs on its leverage resulting from increases in interest rates. The Fund does not hedge any interest rate risk associated with portfolio holdings. Interest rate transactions the Fund uses for hedging purposes expose it to certain risks that differ from the risks associated with its portfolio holdings. A decline in interest rates may result in a decline in the value of the swap contracts, which, everything else being held constant, would result in a decline in the net assets of the Fund. In addition, if the counterparty to an interest rate swap defaults, the Fund would not be able to use the anticipated net receipts under the interest rate swap to offset its cost of financial leverage.

Interest rate swap contracts are recorded at fair value with changes in value during the reporting period, and amounts accrued under the agreements, included as unrealized gains or losses in the Statement of Operations. Monthly cash settlements under the terms of the interest rate swap agreements or termination payments are recorded as realized gains or losses in the Statement of Operations. The Fund generally values its interest rate swap contracts based on dealer quotations, if available, or by discounting the future cash flows from the stated terms of the interest rate swap agreement by using interest rates currently available in the market. See Note 8 Derivative Financial Instruments.

Option contracts. The Fund is also exposed to financial market risks including changes in the valuations of its investment portfolio. The Fund may purchase or write (sell) call options. A call option on a security is a contract that gives the holder of the option, in return for a premium, the right to buy from the writer of the option the security underlying the option at a specified exercise price at any time during the term of the option.

The Fund would realize a gain on a purchased call option if, during the option period, the value of such securities exceeded the sum of the exercise price, the premium paid and transaction costs; otherwise the Fund would realize either no gain or a loss on the purchased call option. The Fund may also purchase put option contracts. If a purchased put option is exercised, the premium paid increases the cost basis of the securities sold by the Fund.

The Fund may also write (sell) call options with the purpose of generating realized gains or reducing its ownership of certain securities. If the Fund writes a call option on a security, the Fund has the obligation upon exercise of the option to deliver the underlying security upon payment of the exercise price. The Fund will only write call options on securities that the Fund holds in its portfolio (*i.e.*, covered calls).

When the Fund writes a call option, an amount equal to the premium received by the Fund is recorded as a liability and is subsequently adjusted to the current fair value of the option written. Premiums received from writing options that expire unexercised are treated by the Fund on the expiration date as realized gains from investments. If the Fund repurchases a written call option prior to its exercise, the difference between the premium received and the amount paid to repurchase the option is treated as a realized gain or loss. If a call option is exercised, the premium is added to the proceeds from the sale of the underlying security in determining whether the Fund has realized a gain or loss. The Fund, as the writer of an option, bears the market risk of an unfavorable change in the price of the security underlying the written option. See Note 8 Derivative Financial Instruments.

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H. *Security Transactions* Security transactions are accounted for on the date these securities are purchased or sold (trade date). Realized gains and losses are reported on an identified cost basis.

I. *Return of Capital Estimates* Dividends and distributions received from the Fund's investments are comprised of income and return of capital. The payments made by MLPs (and other entities treated as partnerships for federal income tax purposes) are categorized as distributions and payments made by corporations are categorized as dividends. At the time such dividends and distributions are received, the Fund estimates the amount of such payments that is considered investment income and the amount that is considered a return of capital. The Fund estimates that 90% of the MLP distributions received will be treated as a return of capital. Such estimates for MLPs and other investments are based on historical information available from each investment and other industry sources. These estimates may subsequently be revised based on information received from investments after their tax reporting periods are concluded.

The following table sets forth (i) the components of total dividends and distributions, (ii) the percentage of return of capital attributable to each category and (iii) the estimated total return of capital portion of the dividends and distributions received that are attributable to net realized gains (losses) and net change in unrealized gains (losses). The return of capital portion of the dividends and distributions received is a reduction to investment income, results in an equivalent reduction in the cost basis of the associated investments, and increases net realized gains (losses) and net change in unrealized gains (losses). In accordance with GAAP, the return of capital cost basis reductions for the Fund's MLP investments are limited to the total amount of the cash distributions received from such investments. For income tax purposes, the cost basis reductions for the Fund's MLP investments typically exceed cash distributions received from such investments due to allocated losses from these investments.

| | For the Three Months Ended August 31, 2014 | For the Nine Months Ended August 31, 2014 |
|--|---|--|
| Dividends from investments | \$ 7,332 | \$ 20,130 |
| Distributions from investments | 5,130 | 14,816 |
| Total dividends and distributions from investments (before foreign taxes withheld of \$103 and \$273, respectively) | \$ 12,462 | \$ 34,946 |
| Dividends % return of capital | 20% | 23% |
| Distributions % return of capital | 89% | 89% |
| Total dividends and distributions % return of capital | 49% | 51% |
| Return of capital attributable to net realized gains (losses) | \$ 1,904 | \$ 3,918 |
| Return of capital attributable to net change in unrealized gains (losses) | 4,183 | 13,863 |
| Total return of capital | \$ 6,087 | \$ 17,781 |

J. *Investment Income* The Fund records dividends and distributions on the ex-dividend date. Interest income is recognized on the accrual basis, including amortization of premiums and accretion of discounts. When investing in securities with payment in-kind interest, the Fund will accrue interest income during the life of the security even though it will not be receiving cash as the interest is accrued. To the extent that interest income to be received is not expected to be realized, a reserve against income is established. During the three and nine months ended August 31,

2014, the Fund did not have a reserve against interest income, since all interest income accrued is expected to be received.

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Many of the debt securities that the Fund holds were purchased at a discount or premium to the par value of the security. The non-cash accretion of a discount to par value increases interest income while the non-cash amortization of a premium to par value decreases interest income. The accretion of a discount and amortization of a premium are based on the effective interest method. The amount of these non-cash adjustments can be found in the Fund's Statement of Cash Flows. The non-cash accretion of a discount increases the cost basis of the debt security, which results in an offsetting unrealized loss. The non-cash amortization of a premium decreases the cost basis of the debt security, which results in an offsetting unrealized gain. To the extent that par value is not expected to be realized, the Fund discontinues accruing the non-cash accretion of the discount to par value of the debt security.

The Fund receives paid-in-kind and non-cash dividends and distributions in the form of additional units or shares from the investments listed in the table below. For paid-in-kind dividends, the additional units are not reflected in investment income during the period received but are recorded as unrealized gains upon receipt. Non-cash distributions are reflected in investment income because the Fund has the option to receive its distribution in cash or in additional units of the security. During the three and nine months ended August 31, 2014, the Fund received the following paid-in-kind and non-cash dividends and distributions.

| | For the Three Months Ended August 31, 2014 | For the Nine Months Ended August 31, 2014 |
|---|---|--|
| <u>Paid-in-kind dividends</u> | | |
| Enbridge Energy Management, L.L.C. | \$ 1,448 | \$ 3,911 |
| Kinder Morgan Management, LLC | 1,724 | 4,861 |
| | 3,172 | 8,772 |
| <u>Non-cash dividends and distributions</u> | | |
| ARC Resources Ltd. | 51 | 51 |
| Bonavista Energy Corporation | | 38 |
| Crescent Point Energy Corp. | 75 | 75 |
| Enbridge, Inc. | | 148 |
| Energy Transfer Partners, L.P. | 338 | 883 |
| Enterprise Products Partners L.P. | 145 | 586 |
| Gibson Energy Inc. | 22 | 39 |
| | 631 | 1,820 |
| Total paid-in-kind and non-cash dividends and distributions | \$ 3,803 | \$ 10,592 |

K. Distributions to Stockholders Distributions to common stockholders are recorded on the ex-dividend date. Distributions to MRP shareholders are accrued on a daily basis as described in Note 12 Preferred Stock. As required by the Distinguishing Liabilities from Equity topic of the Financial Accounting Standards Board (FASB) Accounting Standards Codification (ASC 480), the Fund includes the accrued distributions on its MRP Shares as an operating expense due to the fixed term of this obligation. For tax purposes the payments made to the holders of the Fund's MRP Shares are treated as dividends or distributions.

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The distributions paid to preferred and common stockholders for the nine months ended August 31, 2014 are characterized as dividend income until after the end of the fiscal year when the Fund can determine its actual earnings and profits for the full year (including gains and losses on the sale of securities for the remainder of the fiscal year). The final tax character may differ substantially from this preliminary information. The tax character for each distribution paid during the year will be the same as the tax character of the total distributions paid during the full year.

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L. Partnership Accounting Policy The Fund records its pro-rata share of the income (loss) and capital gains (losses), to the extent of distributions it has received, allocated from the underlying partnerships and adjusts the cost basis of the underlying partnerships accordingly. These amounts are included in the Fund's Statement of Operations.

M. Taxes It is the Fund's intention to continue to be treated as and to qualify each year for special tax treatment afforded a regulated investment company (RIC) under Subchapter M of the Internal Revenue Code of 1986, as amended. As long as the Fund meets certain requirements that govern its source of income, diversification of assets and timely distribution of earnings to stockholders, the Fund will not be subject to U.S. federal income tax. See Note 6 Taxes.

All RICs are subject to a non-deductible 4% excise tax on income that is not distributed on a timely basis in accordance with the calendar year distribution requirements. To avoid the tax, the Fund must distribute during each calendar year an amount at least equal to the sum of (i) 98% of its ordinary income for the calendar year, (ii) 98.2% of its net capital gains for the one-year period ending on November 30, the last day of our taxable year, and (iii) undistributed amounts from previous years on which the Fund paid no U.S. federal income tax. A distribution will be treated as paid during the calendar year if it is paid during the calendar year or declared by the Fund in October, November or December of the year, payable to stockholders of record on a date during such a month and paid by the Fund during January of the following year. Any such distributions paid during January of the following year will be deemed to be received by stockholders on December 31 of the year the distributions are declared, rather than when the distributions are actually received.

There can be no assurance that sufficient amounts of the Fund's taxable income and capital gains will be distributed in future periods to avoid the imposition of the 4% excise tax. In that event, the Fund will be liable for the excise tax on the amount by which it does not meet the distribution requirement and will accrue an excise tax liability at the time that the liability is estimable and probable. In each of the past two years, the Board of Directors has determined not to make a special distribution of income in order to avoid the excise tax. The Fund's Board of Directors continues to review the merits of making a special distribution of undistributed income or paying the excise tax on such undistributed income. Currently, the Board of Directors intends to declare a special distribution prior to the end of calendar 2014 to eliminate the Fund's potential excise tax liability. The amount of the special distribution, if any, will depend on many factors, including the amount of the Fund's undistributed income at year end (if any) as well as the Fund's leverage levels relative to its stated target levels and financial covenants at such time. The Fund's Board of Directors may come to a different conclusion at the end of the year based on the facts and circumstances at such time. See Note 6 Taxes.

Dividend income received by the Fund from sources within Canada is subject to a 15% foreign withholding tax. For non-cash dividends from ARC Resources Ltd., Bonavista Energy Corporation, Crescent Point Energy Corp. and Gibson Energy Inc. received during the three and nine months ended August 31, 2014, there was no foreign withholding tax. Interest income on Canadian corporate debt obligations may be subject to a 10% withholding tax unless an exemption is met. The most common exemption available is for corporate bonds that have a tenor of at least 5 years, provided that not more than 25% of the principal is repayable in the first 5 years and provided that the borrower and lender are not associated. Further, interest is exempt if derived from debt obligations guaranteed by the Canadian government.

The Accounting for Uncertainty in Income Taxes Topic of the FASB Accounting Standards Codification (ASC 740) defines the threshold for recognizing the benefits of tax-return positions in the financial statements as more-likely-than-not to be sustained by the taxing authority and requires measurement of a tax position meeting the more-likely-than-not criterion, based on the largest benefit that is more than 50% likely to be realized.

The Fund's policy is to classify interest and penalties associated with underpayment of federal and state income taxes, if any, as income tax expense on its Statement of Operations. For the three and nine months ended

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August 31, 2014, the Fund did not have any interest or penalties associated with the underpayment of any income taxes. All tax years since inception remain open and subject to examination by federal and state tax authorities.

N. Foreign Currency Translations The books and records of the Fund are maintained in U.S. dollars. Foreign currency amounts are translated into U.S. dollars on the following basis: (i) market value of investment securities, assets and liabilities at the rate of exchange as of the valuation date; and (ii) purchases and sales of investment securities, income and expenses at the relevant rates of exchange prevailing on the respective dates of such transactions.

The Fund does not isolate that portion of gains and losses on investments in equity and debt securities which is due to changes in the foreign exchange rates from that which is due to changes in market prices of equity and debt securities. Accordingly, realized and unrealized foreign currency gains and losses with respect to such securities are included in the reported net realized and unrealized gains and losses on investment transactions balances.

Net realized foreign exchange gains or losses represent gains and losses from transactions in foreign currencies and foreign currency contracts, foreign exchange gains or losses realized between the trade date and settlement date on security transactions, and the difference between the amounts of interest and dividends recorded on the Fund's books and the U.S. dollar equivalent of such amounts on the payment date.

Net unrealized foreign exchange gains or losses represent the difference between the cost of assets and liabilities (other than investments) recorded on the Fund's books from the value of the assets and liabilities (other than investments) on the valuation date.

O. Indemnifications Under the Fund's organizational documents, its officers and directors are indemnified against certain liabilities arising out of the performance of their duties to the Fund. In addition, in the normal course of business, the Fund enters into contracts that provide general indemnification to other parties. The Fund's maximum exposure under these arrangements is unknown, as this would involve future claims that may be made against the Fund that have not yet occurred, and may not occur. However, the Fund has not had prior claims or losses pursuant to these contracts and expects the risk of loss to be remote.

3. Fair Value

The Fair Value Measurement Topic of the FASB Accounting Standards Codification (ASC 820) defines fair value as the price at which an orderly transaction to sell an asset or to transfer a liability would take place between market participants under current market conditions at the measurement date. As required by ASC 820, the Fund 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. Inputs are the assumptions, along with considerations of risk, that a market participant would use to value an asset or a liability. In general, observable inputs are based on market data that is readily available, regularly distributed and verifiable that the Fund obtains from independent, third-party sources. Unobservable inputs are developed by the Fund based on its own assumptions of how market participants would value an asset or a liability.

Accounting Standards Update (ASU) No. 2011-04 Amendments to Achieve Common Fair Value Measurement and Disclosure Requirements in U.S. GAAP and IFRSs amends ASC 820. The amended guidance clarifies the wording used to describe many requirements in accounting literature for fair value measurement and disclosure to establish consistency between U.S. GAAP and International Financial Reporting Standards (IFRSs).

ASU No. 2011-04 requires the inclusion of additional disclosures on assumptions used by the Fund to determine fair value. Specifically, for assets measured at fair value using significant unobservable inputs (Level 3), ASU No. 2011-04 requires that the Fund (i) describe the valuation process, (ii) disclose quantitative information

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about unobservable inputs and (iii) provide a qualitative discussion about the sensitivity of the fair value measurement to changes in the unobservable inputs and inter-relationships between the inputs.

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

Level 1 Valuations based on quoted unadjusted prices for identical instruments in active markets traded on a national exchange to which the Fund has access at the date of measurement.

Level 2 Valuations based on 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 Fund'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 Fund's assets and liabilities measured at fair value on a recurring basis at August 31, 2014, and the Fund presents these assets and liabilities by security type and description on its Schedule of Investments or on its Statement of Assets and Liabilities. Note that the valuation levels below are not necessarily an indication of the risk or liquidity associated with the underlying investment.

| | Total | Quoted Prices in Active Markets (Level 1) | Prices with Other Observable Inputs (Level 2) | Unobservable Inputs (Level 3) |
|---|--------------|---|---|-------------------------------------|
| <u>Assets at Fair Value</u> | | | | |
| Equity investments | \$ 1,349,490 | \$ 1,287,947 | \$ | \$ 61,543 |
| Debt investments | 99,744 | | 99,744 | |
| Total assets at fair value | \$ 1,449,234 | \$ 1,287,947 | \$ 99,744 | \$ 61,543 |
| <u>Liabilities at Fair Value</u> | | | | |
| Call option contracts written | \$ 3,523 | \$ | \$ 3,523 | \$ |

For the nine months ended August 31, 2014, there were no transfers between Level 1 and Level 2.

As of August 31, 2014, the Fund had Notes outstanding with aggregate principal amount of \$235,000 and 4,200,000 shares of MRP Shares outstanding with a total liquidation value of \$105,000. The Notes and MRP Shares were issued in private placements to institutional investors and are not listed on any exchange or automated quotation system. See Note 11 Notes and Note 12 Preferred Stock. As a result, the Fund categorizes the Notes and MRP Shares as Level 3 and determines the fair value of these instruments based on estimated market yields and credit spreads for comparable instruments with similar maturity, terms and structure.

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The Fund records these securities on its Statement of Assets and Liabilities at principal amount or liquidation value. As of August 31, 2014, the estimated fair values of these leverage instruments are as follows.

| Security | Principal Amount/ Liquidation Value | Fair Value |
|-----------------|--|-----------------------|
| Notes | \$ 235,000 | \$ 247,200 |
| MRP Shares | \$ 105,000 | \$ 109,400 |

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The following tables present the Fund's assets measured at fair value on a recurring basis using significant unobservable inputs (Level 3) for the three and nine months ended August 31, 2014.

| Three Months Ended August 31, 2014 | | Equity Investments |
|---|-----------------|-------------------------------|
| Balance | May 31, 2014 | \$ 54,606 |
| Purchases | | |
| Issuances | | |
| Transfers out to Level 1 and 2 | | |
| Realized gains (losses) | | |
| Unrealized gains, net | | 6,937 |
| Balance | August 31, 2014 | \$ 61,543 |

| Nine Months Ended August 31, 2014 | | Equity Investments |
|--|-------------------|-------------------------------|
| Balance | November 30, 2013 | \$ 45,096 |
| Purchases | | |
| Issuances | | |
| Transfers out to Level 1 and 2 | | |
| Realized gains (losses) | | |
| Unrealized gains, net | | 16,447 |
| Balance | August 31, 2014 | \$ 61,543 |

The \$6,937 and \$16,447 of unrealized gains presented in the tables above for the three and nine months ended August 31, 2014 relate to investments that were still held at August 31, 2014, and the Fund includes these unrealized gains on the Statement of Operations - Net Change in Unrealized Gains.

Valuation Techniques and Unobservable Inputs

Unless otherwise determined by the Board of Directors, the Fund values its private investments in public equity (PIPE) investments that are convertible into or otherwise will become publicly-tradeable (e.g., through subsequent registration or expiration of a restriction on trading) based on the market value of the publicly-traded security less a discount. This discount is initially equal to the discount negotiated at the time the Fund agrees to a purchase price. To the extent that such securities are convertible or otherwise become publicly traded within a time frame that may be reasonably determined, this discount will be amortized on a straight line basis over such estimated time frame.

The Fund's investment in Plains AAP, L.P. (PAA GP), which controls the general partner of Plains All American, L.P., is valued as a PIPE investment. The Fund's ownership of PAA GP is exchangeable into shares of Plains GP Holdings, L.P. (Plains GP) on a one-for-one basis at the Fund's option. Plains GP completed its initial public offering in October 2013 and in connection with the offering, the Fund agreed to a 15-month lock-up on any Plains GP shares it receives in exchange for its ownership in PAA GP (lock-up expires in January 2015). During the 15-month

lock-up period, the Fund is valuing its investment in PAA GP on an as exchanged basis based on the public market value of Plains GP less a discount because of the lack of liquidity.

One of the Fund's private investments is Class B Units of Capital Product Partners L.P. (CPLP). The Class B Units are convertible units (convertible on a one-for-one basis into common units) and are senior to CPLP's common units in terms of liquidation preference and priority of distributions. The Fund's Board of Directors has determined that it is appropriate to value the Class B Units using a convertible pricing model. This model takes into account the attributes of the Class B Units, including the preferred dividend, conversion ratio and call features to determine the estimated value of such units. In using this model, the Fund estimates (i) the

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credit spread for CPLP's Class B Units, which is based on credit spreads for companies in a similar line of business as CPLP and (ii) the expected volatility for CPLP's common units, which is based on CPLP's historical volatility. The Fund applies a discount to the value derived from the convertible pricing model to account for an expected discount in market prices for convertible securities relative to the values calculated using pricing models. To the extent this resulting price per Class B Unit is less than the public market price for CPLP's common units at such time, the public market price is used for the Class B Units.

Due to the inherent uncertainty of determining the fair value of investments that do not have a readily available market value, the fair value of the Fund's investments may fluctuate from period to period. Additionally, the fair value of the Fund's investments may differ from the values that would have been used had a ready market existed for such investments and may differ materially from the values that the Fund may ultimately realize.

The following table summarizes the significant unobservable inputs that the Fund used to value its portfolio investments categorized as Level 3 as of August 31, 2014:

Quantitative Table for Valuation Techniques

| Assets at Fair Value | Fair Value | Valuation Technique | Unobservable Inputs | Range | | |
|---|------------------|--|---------------------------------|---------------|---------------|---------------|
| | | | | Low | High | Average |
| Equity securities of public companies (PIPE) valued based on a discount to market value | \$ 54,913 | - Discount to publicly-traded securities | - Current discount | 3.1% | 3.1% | 3.1% |
| Equity securities of public companies valued based on pricing model | 6,630 | - Convertible pricing model | - Credit spread - Volatility | 6.0% 25.0% | 6.5% 30.0% | 6.3% 27.5% |
| | | | - Discount for marketability | 8.0% | 8.0% | 8.0% |
| Total | \$ 61,543 | | | | | |

4. Concentration of Risk

The Fund's investments are concentrated in the Energy Sector. The focus of the Fund's portfolio within the Energy Sector may present more risks than if the Fund's portfolio were broadly diversified across numerous sectors of the economy. A downturn in the Energy Sector would have a larger impact on the Fund than on an investment company that does not concentrate in energy. The performance of securities in the Energy Sector may lag the performance of other industries or the broader market as a whole. Additionally, to the extent that the Fund invests a relatively high percentage of its assets in the securities of a limited number of issuers, the Fund may be more susceptible than a more widely diversified investment company to any single economic, political or regulatory occurrence. At August 31, 2014, the Fund had the following investment concentrations.

| Category | Percent of Long-Term Investments |
|---|---|
| Securities of Energy Companies ⁽¹⁾ | 98.7% |
| Equity securities | 93.1% |
| Debt securities | 6.9% |
| Securities of MLPs ⁽¹⁾ | 40.3% |
| Largest single issuer | 8.7% |
| Restricted securities | 8.4% |

(1) Refer to the Glossary of Key Terms (page 38) for the definitions of Energy Companies and MLPs.

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KAYNE ANDERSON MIDSTREAM/ENERGY FUND, INC.

NOTES TO FINANCIAL STATEMENTS

(amount in 000 s, except number of option contracts, share and per share)

(UNAUDITED)

5. Agreements and Affiliations

A. Administration Agreement The Fund has an administration and accounting agreement with Ultimus Fund Solutions, LLC (Ultimus) that may be amended from time to time. Pursuant to the agreement, Ultimus will provide certain administrative and accounting services for the Fund. The agreement has an initial term of two years (expiring on November 14, 2015) and has automatic one-year renewals unless earlier terminated by either party as provided under the terms of the agreement.

B. Investment Management Agreement The Fund has entered into an investment management agreement with KAFA under which KAFA, subject to the overall supervision of the Fund's Board of Directors, manages the day-to-day operations of, and provides investment advisory services to, the Fund. For providing these services, KAFA receives an investment management fee from the Fund. On September 29, 2014, the Fund renewed its agreement with KAFA for a period of one year, which expires on October 19, 2015. The agreement may be renewed annually upon the approval of the Fund's Board of Directors (including a majority of the Fund's directors who are not interested persons of the Fund, as such term is defined in the 1940 Act). For the nine months ended August 31, 2014, the Fund paid management fees at an annual rate of 1.25% of the average monthly total assets of the Fund.

For purposes of calculating the management fee, the average total assets for each monthly period are determined by averaging the total assets at the last business day of that month with the total assets at the last business day of the prior month. The total assets of the Fund shall be equal to its average monthly gross asset value (which includes assets attributable to the Fund's use of debt and preferred stock, minus the sum of the Fund's accrued and unpaid dividends and distributions on any outstanding common stock and accrued and unpaid dividends and distributions on any outstanding preferred stock and accrued liabilities (other than liabilities associated with borrowing or leverage by the Fund). Liabilities associated with borrowing or leverage include the principal amount of any debt issued by the Fund, the liquidation preference of any outstanding preferred stock, and other liabilities from other forms of borrowing or leverage such as short positions and put or call options held or written by the Fund.

C. Portfolio Companies From time to time, the Fund may control or may be an affiliate of one or more of its portfolio companies, as each of these terms is defined in the 1940 Act. In general, under the 1940 Act, the Fund would be presumed to control a portfolio company if the Fund and its affiliates owned 25% or more of its outstanding voting securities and would be an affiliate of a portfolio company if the Fund and its affiliates owned 5% or more of its outstanding voting securities. The 1940 Act contains prohibitions and restrictions relating to transactions between investment companies and their affiliates (including the Fund's investment adviser), principal underwriters and affiliates of those affiliates or underwriters.

The Fund believes that there are several factors that determine whether or not a security should be considered a voting security in complex structures such as limited partnerships of the kind in which the Fund invests. The Fund also notes that the Securities and Exchange Commission (the SEC) staff has issued guidance on the circumstances under which it would consider a limited partnership interest to constitute a voting security. Under most partnership agreements, the management of the partnership is vested in the general partner, and the limited partners, individually or collectively, have no rights to manage or influence management of the partnership through such activities as participating in the selection of the managers or the board of the limited partnership or the general partner. As a result, the Fund believes that many of the limited partnership interests in which it invests should not be considered voting securities. However, it is possible that the SEC staff may consider the limited partner interests the Fund holds in certain limited partnerships to be voting securities. If such a determination were made, the Fund may be regarded as a person affiliated with and controlling the issuer(s) of those securities for purposes of Section 17 of the 1940 Act.

In making such a determination as to whether to treat any class of limited partnership interests the Fund holds as a voting security, the Fund considers, among other factors, whether or not the holders of such limited partnership interests have the right to elect the board of directors of the limited partnership or the general partner.

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(amount in 000 s, except number of option contracts, share and per share)

(UNAUDITED)

If the holders of such limited partnership interests do not have the right to elect the board of directors, the Fund generally has not treated such security as a voting security. In other circumstances, based on the facts and circumstances of those partnership agreements, including the right to elect the directors of the general partner, the Fund has treated those securities as voting securities. If the Fund does not consider the security to be a voting security, it will not consider such partnership to be an affiliate unless the Fund and its affiliates own more than 25% of the outstanding securities of such partnership. Additionally, certain partnership agreements give common unitholders the right to elect the partnership's board of directors, but limit the amount of voting securities any limited partner can hold to no more than 4.9% of the partnership's outstanding voting securities (*i.e.*, any amounts held in excess of such limit by a limited partner do not have voting rights). In such instances, the Fund does not consider itself to be an affiliate if it owns more than 5% of such partnership's common units.

There is no assurance that the SEC staff will not consider that other limited partnership securities that the Fund owns and does not treat as voting securities are, in fact, voting securities for the purposes of Section 17 of the 1940 Act. If such determination were made, the Fund will be required to abide by the restrictions on control or affiliate transactions as proscribed in the 1940 Act. The Fund or any portfolio company that it controls, and its affiliates, may from time to time engage in certain of such joint transactions, purchases, sales and loans in reliance upon and in compliance with the conditions of certain exemptive rules promulgated by the SEC. The Fund cannot make assurances, however, that it would be able to satisfy the conditions of these rules with respect to any particular eligible transaction, or even if the Fund were allowed to engage in such a transaction, that the terms would be more or as favorable to the Fund or any company that it controls as those that could be obtained in an arm's length transaction. As a result of these prohibitions, restrictions may be imposed on the size of positions that may be taken for the Fund or on the type of investments that it could make.

As of August 31, 2014, the Fund believes that MarkWest Energy Partners, L.P. meets the criteria described above and is therefore considered an affiliate of the Fund.

Plains GP Holdings, L.P., Plains AAP, L.P. and Plains All American Pipeline, L.P. Robert V. Sinnott is Chief Executive Officer of Kayne Anderson Capital Advisors, L.P. (KACALP), the managing member of KAFA. Mr. Sinnott also serves as a director of (i) PAA GP Holdings LLC, which is the general partner of Plains GP Holdings, L.P. (Plains GP) and (ii) Plains All American GP LLC (Plains All American GP), which controls the general partner of Plains All American Pipeline, L.P. (PAA). Members of senior management of KACALP and KAFA and various affiliated funds managed by KACALP, including the Fund, own shares of Plains GP as well as interests in Plains AAP, L.P. (PAA GP) (which are exchangeable into shares of Plains GP as described in Note 3 Fair Value). The Fund believes that it is an affiliate of Plains GP and PAA under the 1940 Act by virtue of (i) the Fund's and other affiliated Kayne Anderson funds' ownership interest in Plains GP and PAA GP and (ii) Mr. Sinnott's participation on the boards of Plains GP and Plains All American GP.

6. Taxes

Income and capital gain distributions made by RICs often differ from GAAP basis net investment income (loss) and any net realized gains (losses). For the Fund, the principal reason for these differences is the return of capital treatment of dividends and distributions from MLPs and certain other of its investments. Net investment income and net realized gains for GAAP purposes may differ from taxable income for federal income tax purposes due to wash sales, disallowed partnership losses from MLPs and foreign currency transactions.

As of August 31, 2014, the principal temporary differences were (a) realized losses that were recognized for book purposes, but disallowed for tax purposes due to wash sale rules; (b) disallowed partnership losses related to the Fund's MLP investments; and (c) other basis adjustments in the Fund's MLPs and other investments. For purposes of characterizing the nature of the dividends/distributions to investors, the amounts in excess of the Fund's earnings and profits for federal income tax purposes are treated as a return of capital. Earnings and profits differ from taxable income due principally to adjustments related to the Fund's investments in MLPs.

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For the fiscal year ended November 30, 2013, the tax character of the total \$39,680 distributions paid to common stockholders was \$25,108 of dividend income and \$14,572 of long-term capital gains, and the tax character of the total \$3,212 distributions paid to MRP shareholders was \$2,007 of dividend income and \$1,205 of long-term capital gains.

The Fund is subject to a non-deductible 4% excise tax on income that is not distributed in accordance with the calendar year distribution requirements. See Note 2 Significant Accounting Policies. As of November 30, 2013, the Fund accrued \$750 for excise taxes related to estimated undistributed income of \$18,800 for the calendar year ended December 31, 2013. The Fund's Board of Directors elected not to distribute the Fund's undistributed income and incur this excise tax. During the nine months ended August 31, 2014, the Fund paid \$792 in estimated excise taxes attributable to the Fund's activities during calendar 2013. The incremental amount paid (\$42) is reflected as an expense on the Fund's Statement of Operations. As of August 31, 2014, the Fund did not accrue any excise taxes related to undistributed income for 2014 because the liability was not probable and estimable.

The Fund's Board of Directors continues to review the merits of making a special distribution of undistributed income or paying the excise tax on such undistributed income. Currently, the Board of Directors intends to declare a special distribution prior to the end of calendar 2014 to eliminate the Fund's potential excise tax liability. The amount of the special distribution, if any, will depend on many factors, including the amount of the Fund's undistributed income at year end (if any) as well as the Fund's leverage levels relative to its stated target levels and financial covenants at such time. The Fund's Board of Directors may come to a different conclusion at the end of the year based on the facts and circumstances at such time.

Under the Regulated Investment Company Modernization Act of 2010, any net capital losses recognized after December 31, 2010 may be carried forward indefinitely, and their character is retained as short-term and/or long-term losses.

At August 31, 2014, the cost basis of investments for federal income tax purposes was \$1,005,859, and the premiums received on outstanding option contracts written were \$1,544. At August 31, 2014, gross unrealized appreciation and depreciation of investments and options for federal income tax purposes were as follows:

| | |
|---|------------|
| Gross unrealized appreciation of investments (including options) | \$ 451,841 |
| Gross unrealized depreciation of investments (including options) | (10,445) |
| Net unrealized appreciation of investments before foreign currency related translations | 441,396 |
| Unrealized depreciation on foreign currency related translations | (4) |
| Net unrealized appreciation of investments | \$ 441,392 |

7. Restricted Securities

From time to time, certain of the Fund'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 Fund's investments have restrictions such as lock-up agreements that preclude the Fund from offering these securities for public sale.

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(amount in 000 s, except number of option contracts, share and per share)

(UNAUDITED)

At August 31, 2014, the Fund held the following restricted investments:

| Investment | Acquisition Date | Type of Restriction | Number of Units, Principal (\$) (in 000s) | Cost Basis (GAAP) | Fair Value | Fair Value Per Unit | Percent of Net Assets | Percent of Total Assets |
|---|------------------|---------------------|--|-------------------|-------------------|---------------------|-----------------------|-------------------------|
| Level 2 Investments⁽¹⁾ | | | | | | | | |
| Senior Notes and Secured Term Loans | | | | | | | | |
| American Eagle Energy Corporation | 8/13/14 | (2) | \$ 4,800 | \$ 4,755 | \$ 4,806 | n/a | 0.5% | 0.3% |
| BlackBrush Oil & Gas, L.P. | 7/21/14 | (3) | 12,700 | 12,605 | 12,668 | n/a | 1.2 | 0.9 |
| Chief Oil & Gas LLC | 5/12/14 | (3) | 4,000 | 3,960 | 4,033 | n/a | 0.4 | 0.3 |
| CrownRock, L.P. | (4) | (3) | 2,500 | 2,500 | 2,594 | n/a | 0.3 | 0.2 |
| Jonah Energy LLC | 5/8/14 | (3) | 3,000 | 2,956 | 3,015 | n/a | 0.3 | 0.2 |
| Navios Maritime Holdings, Inc. | (4) | (2) | 5,000 | 5,186 | 5,188 | n/a | 0.5 | 0.4 |
| Parsley Energy, Inc. | (4) | (2) | 6,025 | 6,145 | 6,417 | n/a | 0.6 | 0.4 |
| RKI Exploration & Production, LLC | 7/15/13 | (3) | 12,500 | 12,685 | 13,500 | n/a | 1.3 | 0.9 |
| Triangle USA Petroleum Corporation | 7/15/14 | (3) | 800 | 800 | 822 | n/a | 0.1 | 0.1 |
| Vantage Energy, LLC | 12/19/13 | (3) | 6,469 | 6,421 | 6,525 | n/a | 0.6 | 0.4 |
| Total | | | | \$ 58,013 | \$ 59,568 | | 5.8% | 4.1% |
| Level 3 Investments⁽⁵⁾ | | | | | | | | |
| Capital Products Partners L.P. | | | | | | | | |
| Class B Units | (4) | (2) | 606 | \$ 4,341 | \$ 6,630 | \$ 10.94 | 0.6% | 0.4% |
| Plains GP Holdings, L.P. | | | | | | | | |
| Common Units | (4) | (6) | 1,836 | 6,481 | 54,913 | 29.90 | 5.4 | 3.8 |
| Total | | | | \$ 10,822 | \$ 61,543 | | 6.0% | 4.2% |
| Total of all restricted securities | | | | \$ 68,835 | \$ 121,111 | | 11.8% | 8.3% |

(1) These securities have a fair market value determined by the mean of the bid and ask prices provided by an agent or a syndicate bank, a principal market maker or an independent pricing service as more fully described in Note 2 – Significant Accounting Policies. These securities have limited trading volume and are not listed on a national exchange.

(2) Unregistered or restricted security of a publicly-traded company.

- (3) Unregistered security of a private company.
- (4) Security was acquired at various dates during the nine months ended August 31, 2014 and/or in prior fiscal years.
- (5) Securities are valued using inputs reflecting the Fund's own assumptions as more fully described in Note 2 Significant Accounting Policies and Note 3 Fair Value.
- (6) The Fund holds an interest in PAA GP, which controls the general partner of Plains All American, L.P. The Fund's ownership of PAA GP is exchangeable into shares of Plains GP (which trades on the NYSE under the ticker PAGP) on a one-for-one basis at the Fund's option. The Fund agreed to a 15-month lock-up on any Plains GP shares it receives in exchange for its ownership in PAA GP (lock-up expires in January 2015). See Note 3 Fair Value.

8. Derivative Financial Instruments

As required by the Derivatives and Hedging Topic of the FASB Accounting Standards Codification (ASC 815), the following are the derivative instruments and hedging activities of the Fund. The total number of outstanding options at August 31, 2014 is indicative of the volume of this type of option activity during the period. See Note 2 Significant Accounting Policies.

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(amount in 000 s, except number of option contracts, share and per share)

(UNAUDITED)

Option Contracts Transactions in option contracts for the three and nine months ended August 31, 2014 were as follows:

| Three Months Ended August 31, 2014 | Number of Contracts | Premium |
|---|--------------------------------|----------------|
| Call Options Written | | |
| Options outstanding at May 31, 2014 | 17,110 | \$ 1,734 |
| Options written | 18,345 | 2,149 |
| Options subsequently repurchased ⁽¹⁾ | (4,008) | (531) |
| Options exercised | (14,094) | (1,372) |
| Options expired | (3,961) | (436) |
| Options outstanding at August 31, 2014 ⁽²⁾ | 13,392 | \$ 1,544 |

(1) The price at which the Fund subsequently repurchased the options was \$293, which resulted in net realized gains of \$238.

(2) The percentage of total investments subject to call options written was 6.4% at August 31, 2014.

| Nine Months Ended August 31, 2014 | Number of Contracts | Premium |
|---|--------------------------------|----------------|
| Call Options Written | | |
| Options outstanding at November 30, 2013 | 19,189 | \$ 1,750 |
| Options written | 63,672 | 7,003 |
| Options subsequently repurchased ⁽¹⁾ | (11,483) | (1,413) |
| Options exercised | (43,009) | (4,331) |
| Options expired | (14,977) | (1,465) |
| Options outstanding at August 31, 2014 | 13,392 | \$ 1,544 |

(1) The price at which the Fund subsequently repurchased the options was \$666, which resulted in net realized gains of \$747.

Interest Rate Swap Contracts The Fund may enter into interest rate swap contracts to partially hedge itself from increasing expense on its leverage resulting from increasing interest rates. At the time the interest rate swap contracts reach their scheduled termination, there is a risk that the Fund would not be able to obtain a replacement transaction or that the terms of the replacement transaction would not be as favorable as on the expiring transaction. In addition, if the Fund is required to terminate any swap contract early, then the Fund could be required to make a termination payment.

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During the fiscal second quarter of 2014, the Fund entered into interest rate swap contracts (\$30,000 notional amount) in anticipation of a private placement of Notes and MRP Shares. On April 14, 2014, the interest rate swap contracts were terminated and resulted in a \$431 realized loss. As of August 31, 2014, the Fund did not have any interest rate swap contracts outstanding.

The following table sets forth the fair value of the Fund's derivative instruments on the Statement of Assets and Liabilities:

| Derivatives Not Accounted for as Hedging Instruments | Statement of Assets and Liabilities Location | Fair Value as of August 31, 2014 |
|---|--|-------------------------------------|
| Call options written | Call option contracts written | \$ (3,523) |

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On July 25, 2014, the Fund entered into an additional \$50,000 unsecured revolving credit agreement (Term Loan). The Term Loan has a five-year commitment and borrowings under the Term Loan will bear interest at a rate of LIBOR plus 1.30%. The Fund pays a fee of 0.25% per annum on any unused amount of the Term Loan.

From the initial borrowing on July 30, 2014 through August 31, 2014, the average amount outstanding under the Term Loan was \$50,000 with a weighted average interest rate of 1.46%. As of August 31, 2014, the Fund had \$50,000 outstanding under the Term Loan at an interest rate of 1.46%.

11. Notes

At August 31, 2014, the Fund had \$235,000 aggregate principal amount of Notes outstanding. On April 30, 2014, the Fund completed a \$30,000 private placement of Notes. Net proceeds from the Notes offering were used to make new portfolio investments, to refinance existing indebtedness and for general corporate purposes.

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(amount in 000 s, except number of option contracts, share and per share)

(UNAUDITED)

The table below sets forth the key terms of each series of the Notes at August 31, 2014.

| Series | Principal Outstanding, November 30, 2013 | Principal Issued | Principal Outstanding, August 31, 2014 | Estimated Fair Value August 31, 2014 | Fixed Interest Rate | Maturity |
|--------|--|------------------|--|--------------------------------------|---------------------|----------|
| A | \$ 55,000 | \$ | \$ 55,000 | \$ 57,900 | 3.93% | 3/3/16 |
| B | 60,000 | | 60,000 | 65,700 | 4.62% | 3/3/18 |
| C | 50,000 | | 50,000 | 53,000 | 4.00% | 3/22/22 |
| D | 40,000 | | 40,000 | 40,000 | 3.34% | 5/1/23 |
| E | | 30,000 | 30,000 | 30,600 | 3.46% | 7/30/21 |
| | \$ 205,000 | \$ 30,000 | \$ 235,000 | \$ 247,200 | | |

Holders of the Notes are entitled to receive cash interest payments semi-annually (on September 3 and March 3) at the fixed rate. During the nine months ended August 31, 2014, the weighted average interest rate on the outstanding Notes was 4.00%.

As of August 31, 2014, each series of Notes were rated AAA by FitchRatings. In the event the credit rating on any series of Notes falls below A-, the interest rate on such series will increase by 1% during the period of time such series is rated below A-. The Fund is required to maintain a current rating from one rating agency with respect to each series of Notes.

The Notes were issued in private placement offerings to institutional investors and are not listed on any exchange or automated quotation system. The Notes contain various covenants related to other indebtedness, liens and limits on the Fund's overall leverage. Under the 1940 Act and the terms of the Notes, the Fund may not declare dividends or make other distributions on shares of its common stock or make purchases of such shares if, at any time of the declaration, distribution or purchase, asset coverage with respect to the outstanding Notes would be less than 300%.

The Notes are redeemable in certain circumstances at the option of the Fund. The Notes are also subject to a mandatory redemption to the extent needed to satisfy certain requirements if the Fund fails to meet an asset coverage ratio required by law and is not able to cure the coverage deficiency by the applicable deadline, or fails to cure a deficiency as stated in the Fund's rating agency guidelines in a timely manner.

The Notes are unsecured obligations of the Fund and, upon liquidation, dissolution or winding up of the Fund, will rank: (1) senior to all of the Fund's outstanding preferred shares; (2) senior to all of the Fund's outstanding common shares; (3) on a parity with any unsecured creditors of the Fund and any unsecured senior securities representing indebtedness of the Fund; and (4) junior to any secured creditors of the Fund.

At August 31, 2014, the Fund was in compliance with all covenants under the agreements of the Notes.

12. Preferred Stock

At August 31, 2014, the Fund had 4,200,000 shares of MRP Shares outstanding, with a total liquidation value of \$105,000 (\$25.00 per share). On April 30, 2014, the Fund completed a \$40,000 private placement MRP Shares. Net proceeds from the MRP Shares offering were used to make new portfolio investments, to refinance existing indebtedness and for general corporate purposes.

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(amount in 000 s, except number of option contracts, share and per share)

(UNAUDITED)

The table below sets forth the key terms of each series of the MRP Shares at August 31, 2014.

| Series | Liquidation Value | | August 31, 2014 | Estimated Fair Value August 31, 2014 | Rate | Maturity |
|--------|-------------------------|------------------|--------------------|---|-------|--------------------|
| | November 30, 2013 | Shares Issued | | | | Redemption Date |
| A | \$ 35,000 | \$ | \$ 35,000 | \$ 37,700 | 5.32% | 3/3/18 |
| B | 30,000 | | 30,000 | 31,300 | 4.50% | 3/22/20 |
| C | | 40,000 | 40,000 | 40,400 | 4.06% | 7/30/21 |
| | \$ 65,000 | \$ 40,000 | \$ 105,000 | \$ 109,400 | | |

Holders of the MRP Shares are entitled to receive cumulative cash dividend payments on the first business day following each quarterly period (February 28, May 31, August 31 and November 30).

As of August 31, 2014, each series of the Fund's MRP Shares was rated AA by FitchRatings. The dividend rate on the Fund's MRP Shares will increase between 0.5% and 4.0% if the credit rating is downgraded below A by FitchRatings. Further, the annual dividend rate for all series of MRP Shares will increase by 4.0% if no ratings are maintained, and the annual dividend rate will increase by 5.0% if the Fund fails to make quarterly dividend or certain other payments. The Fund is required to maintain a current rating from one rating agency with respect to each series of MRP Shares.

The MRP Shares rank senior to all of the Fund's outstanding common shares and on parity with any other preferred stock. The MRP Shares are redeemable in certain circumstances at the option of the Fund and is also subject to a mandatory redemption if the Fund fails to meet a total leverage (debt and preferred stock) asset coverage ratio of 225% or fails to maintain its basic maintenance amount as stated in the Fund's rating agency guidelines.

Under the terms of the MRP Shares, the Fund may not declare dividends or make other distributions on shares of its common stock or make purchases of such shares if, at any time of the declaration, distribution or purchase, asset coverage with respect to total leverage would be less than 225%.

The holders of the MRP Shares have one vote per share and will vote together with the holders of common stock as a single class except on matters affecting only the holders of MRP Shares or the holders of common stock. The holders of the MRP Shares, voting separately as a single class, have the right to elect at least two directors of the Fund.

At August 31, 2014, the Fund was in compliance with the asset coverage and basic maintenance requirements of its MRP Shares.

13. Common Stock

At August 31, 2014, the Fund had 195,800,000 shares of common stock authorized and 21,625,539 shares outstanding. As of that date, KAFA owned 4,000 shares. On April 15, 2014, the Fund announced that its Board of Directors approved a program to purchase up to \$20,000 of the

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Fund's common stock. The repurchase program was to continue until the earlier of (i) the repurchase of \$20,000 of common stock or (ii) September 30, 2014. Under this program, the Fund authorized its agents to make purchases in the open market when shares were trading at a discount of at least 8% to the Fund's net asset value (NAV) per share and the Fund had sufficient borrowing capacity relative to its target leverage ratios. As of August 31, 2014, the Fund had repurchased 515,758 shares of its common stock at an average price of \$38.47 (total cost of \$19,843), which represented an average

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discount to the Fund's NAV per share of approximately 9.3%. Transactions in common shares for the nine months ended August 31, 2014 were as follows:

| | |
|---|------------|
| Shares outstanding at November 30, 2013 | 22,044,045 |
| Shares issued through reinvestment of distributions | 97,252 |
| Shares repurchased | (515,758) |
| Shares outstanding at August 31, 2014 | 21,625,539 |

On September 3, 2014, the repurchase program was completed. See Note 14 - Subsequent Events.

14. Subsequent Events

On September 3, 2014, the repurchase program was completed as the Fund had purchased \$20,000 of the Fund's common stock. Under this program, the Fund repurchased 519,364 shares of its common stock at an average price of \$38.50, which represented an average discount to the Fund's NAV per share of approximately 9.3%.

On September 29, 2014, the Fund declared its quarterly distribution of \$0.4875 per common share for the third quarter of fiscal 2014 for a total quarterly distribution payment of \$10,541. The distribution was paid on October 24, 2014 to common stockholders. Of this total, pursuant to the Fund's dividend reinvestment plan, \$1,173 was reinvested into the Fund through open market purchases of common stock.

The Fund has performed an evaluation of subsequent events through the date the financial statements were issued and has determined that no additional items require recognition or disclosure.

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KAYNE ANDERSON MIDSTREAM/ENERGY FUND, INC.

GLOSSARY OF KEY TERMS

(UNAUDITED)

This glossary contains definitions of certain key terms, as they are used in our investment objective and policies and as described in this Quarterly Report. These definitions may not correspond to standard sector definitions.

Energy Assets means assets that are used in the energy sector, including assets used in exploring, developing, producing, generating, transporting, transmitting, storing, gathering, processing, refining, distributing, mining or marketing of natural gas, natural gas liquids, crude oil, refined products, coal or electricity.

Energy Companies means companies that own and operate Energy Assets or provide energy-related services. For purposes of this definition, this includes companies that (i) derive at least 50% of their revenues or operating income from operating Energy Assets or providing services for the operation of such Energy Assets or (ii) have Energy Assets that represent the majority of their assets.

General Partner MLPs means Master Limited Partnerships whose assets consist of ownership interests of an affiliated Master Limited Partnership (which may include general partnership interests, incentive distribution rights, common units and subordinated units).

Master Limited Partnerships means limited partnerships and limited liability companies that are publicly traded and are treated as partnerships for federal income tax purposes.

Midstream Assets means assets used in energy logistics, including, but not limited to, assets used in transporting, storing, gathering, processing, distributing, or marketing of natural gas, natural gas liquids, crude oil or refined products.

Midstream Companies means companies, other than Midstream MLPs, that own and operate Midstream Assets and are taxed as corporations for federal income tax purposes. This includes companies structured like MLPs, but not treated as a publicly-traded partnership for RIC qualification purposes. For purposes of this definition, this includes companies that (i) derive at least 50% of their revenue or operating income from operating Midstream Assets or (ii) have Midstream Assets that represent the majority of their assets.

Midstream/Energy Sector consists of (a) Midstream MLPs, (b) Midstream Companies, (c) Other MLPs and (d) Other Energy Companies.

Midstream Sector consists of (a) Midstream MLPs and (b) Midstream Companies.

Midstream MLPs means MLPs that principally own and operate Midstream Assets. Midstream MLPs also include (a) MLPs that provide transportation and distribution services of energy related products through the ownership of marine transportation vessels, (b) General Partner MLPs whose assets consist of ownership interests of an affiliated Midstream MLP and (c) MLP Affiliates of Midstream MLPs.

MLPs means entities that are structured as Master Limited Partnerships and their affiliates and includes Midstream MLPs, Other MLPs and MLP Affiliates.

MLP Affiliates means affiliates of Master Limited Partnerships, substantially all of whose assets consist of i-units. MLP Affiliates are not treated as partnerships for federal income tax purposes.

Other Energy Companies means Energy Companies, excluding MLPs and Midstream Companies.

Other MLPs consists of (a) upstream MLPs, (b) coal MLPs, (c) propane MLPs and (d) MLPs that operate other energy assets or provide energy-related services.

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KAYNE ANDERSON MIDSTREAM/ENERGY FUND, INC.

REPURCHASE DISCLOSURE

(UNAUDITED)

Notice is hereby given in accordance with Section 23(c) of the 1940 Act, that the Fund may from time to time purchase shares of its common and preferred stock and its Notes in the open market or in a privately negotiated transactions.

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Directors and Corporate Officers

| | |
|---------------------|--|
| Kevin S. McCarthy | Chairman of the Board of Directors, President and Chief Executive Officer |
| William R. Cordes | Director |
| Barry R. Pearl | Director |
| Albert L. Richey | Director |
| William L. Thacker | Director |
| Terry A. Hart | Chief Financial Officer and Treasurer |
| David J. Shladovsky | Secretary |
| Michael O Neil | Chief Compliance Officer |
| J.C. Frey | Executive Vice President, Assistant Secretary and Assistant Treasurer |
| James C. Baker | Executive Vice President |
| Ron M. Logan, Jr. | Senior Vice President |
| Jody C. Meraz | Vice President |

Investment Adviser

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Administrator

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Legal Counsel

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San Francisco, CA 94105

Please visit us on the web at <http://www.kaynefunds.com> or call us toll-free at 1-877-657-3863.

This report, including the financial statements herein, is made available to stockholders of the Fund for their information. It is not a prospectus, circular or representation intended for use in the purchase or sale of shares of the Fund or of any securities mentioned in this report.