

KAYNE ANDERSON MIDSTREAM/ENERGY FUND, INC.

Form N-Q

April 27, 2012

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UNITED STATES
SECURITIES AND EXCHANGE COMMISSION

Washington, D.C. 20549

FORM N-Q

QUARTERLY SCHEDULE OF PORTFOLIO HOLDINGS OF REGISTERED
MANAGEMENT INVESTMENT COMPANY

Investment Company Act File Number 811-22467

Kayne Anderson Midstream/Energy Fund, Inc.

(Exact name of registrant as specified in charter)

717 Texas Avenue, Suite 3100,

Houston, Texas 77002

(Address of principal executive offices) (Zip code)

David Shladovsky, Esq.

KA Fund Advisors, LLC,

717 Texas Avenue, Suite 3100,

Houston, Texas 77002

(Name and address of agent for service)

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

Date of fiscal year end: November 30, 2012

Date of reporting period: February 29, 2012

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| Description | No. of Shares/Units | Value |
|---|------------------------|-----------|
| Long-Term Investments 134.8% | | |
| Equity Investments⁽¹⁾ 113.7% | | |
| United States 111.2% | | |
| Midstream Company⁽²⁾ 53.4% | | |
| Capital Product Partners L.P. ⁽³⁾ | 1,354 | \$ 10,115 |
| CenterPoint Energy, Inc. | 637 | 12,419 |
| El Paso Corporation | 1,576 | 43,829 |
| Golar LNG Partners LP ⁽³⁾ | 641 | 23,860 |
| Kinder Morgan, Inc. | 1,425 | 50,213 |
| Kirby Corporation | 71 | 4,899 |
| NiSource Inc. | 125 | 3,000 |
| ONEOK, Inc. ⁽⁴⁾ | 273 | 22,581 |
| Spectra Energy Corp. | 819 | 25,694 |
| Sunoco, Inc. ⁽⁴⁾ | 414 | 16,000 |
| Targa Resources Corp. ⁽⁴⁾ | 578 | 25,702 |
| Teekay Offshore Partners L.P. ⁽³⁾ | 734 | 21,563 |
| The Williams Companies, Inc. ⁽⁴⁾ | 2,639 | 78,846 |
| | | 338,721 |
| Midstream MLP⁽²⁾⁽⁵⁾⁽⁶⁾ 48.2% | | |
| Buckeye Partners, L.P. | 248 | 14,851 |
| Buckeye Partners, L.P. Class B Units ⁽⁷⁾⁽⁸⁾ | 288 | 15,694 |
| Chesapeake Midstream Partners, L.P. | 222 | 6,326 |
| Crestwood Midstream Partners LP | 182 | 5,243 |
| Crestwood Midstream Partners LP Class C Units ⁽⁷⁾⁽⁸⁾ | 175 | 4,614 |
| DCP Midstream Partners, LP ⁽⁴⁾ | 165 | 8,030 |
| Enbridge Energy Management, L.L.C. ⁽⁸⁾⁽⁹⁾ | 997 | 33,671 |
| Energy Transfer Equity, L.P. | 287 | 12,461 |
| Energy Transfer Partners, L.P. ⁽⁴⁾ | 384 | 18,179 |
| Enterprise Products Partners L.P. ⁽⁴⁾ | 61 | 3,186 |
| Exterran Partners, L.P. | 387 | 9,141 |
| Global Partners LP | 351 | 7,717 |
| Inergy Midstream, L.P. | 211 | 4,471 |
| Kinder Morgan Management, LLC ⁽⁴⁾⁽⁸⁾⁽⁹⁾ | 823 | 66,018 |
| MarkWest Energy Partners, L.P. ⁽⁴⁾ | 96 | 5,724 |
| Niska Gas Storage Partners LLC | 28 | 261 |
| NuStar Energy L.P. | 24 | 1,447 |
| PAA Natural Gas Storage, L.P. | 703 | 13,491 |
| Penn Virginia Resource Partners, L.P. | 387 | 9,663 |
| Plains All American GP LLC Unregistered ⁽⁷⁾⁽⁹⁾⁽¹⁰⁾ | 7 | 13,635 |

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| | | |
|--|-----|---------|
| Plains All American Pipeline, L.P. ⁽¹⁰⁾ | 198 | 16,371 |
| Regency Energy Partners L.P. | 740 | 19,597 |
| Targa Resources Partners L.P. ⁽⁴⁾ | 126 | 5,373 |
| TC PipeLines, LP | 77 | 3,582 |
| Teekay LNG Partners L.P. | 71 | 2,775 |
| Tesoro Logistics LP | 128 | 4,661 |
| | | 306,182 |

Table of Contents**KAYNE ANDERSON MIDSTREAM/ENERGY FUND, INC.****SCHEDULE OF INVESTMENTS****FEBRUARY 29, 2012****(amounts in 000 s, except number of option contracts)****(UNAUDITED)**

| Description | No. of Shares/Units | Value |
|--|--------------------------|--------------------------|
| Other Energy 6.0% | | |
| Chesapeake Granite Wash Trust ⁽¹¹⁾ | 9 | \$ 247 |
| Enduro Royalty Trust | 2 | 50 |
| OGE Energy Corp. | 388 | 20,352 |
| PPL Corporation 9.50% Preferred Shares ⁽¹²⁾ | 155 | 8,519 |
| SandRidge Permian Trust ⁽¹¹⁾ | 278 | 6,736 |
| SunCoke Energy, Inc. ⁽¹³⁾ | 63 | 905 |
| The Southern Company | 32 | 1,419 |
| | | 38,228 |
| Other 1.9% | | |
| Navios Maritime Partners L.P. ⁽³⁾ | 538 | 8,616 |
| Seaspan Corporation 9.50% Preferred Shares | 134 | 3,646 |
| | | 12,262 |
| Other MLP⁽⁶⁾ 1.7% | | |
| Alliance Holdings GP, L.P. | 13 | 669 |
| BreitBurn Energy Partners L.P. | 197 | 3,719 |
| Inergy, L.P. | 362 | 6,324 |
| | | 10,712 |
| Total United States (Cost \$587,221) | | 706,105 |
| Canada 2.5% | | |
| Midstream Company⁽²⁾ 2.5% | | |
| Keyera Corp. | 59 | 2,508 |
| Pembina Pipeline Corporation | 223 | 6,312 |
| Provident Energy Ltd. | 253 | 7,180 |
| Total Canada (Cost \$13,857) | | 16,000 |
| Total Equity Investments (Cost \$601,078) | | 722,105 |
| | Interest Rate | Maturity Date |
| Debt Instruments 21.1% | | |
| United States 17.9% | | |

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| Upstream 7.8% | | | | | |
|-----------------------------------|--------|----------|--------|--------|--------|
| Antero Resources LLC | 9.375% | 12/1/17 | \$ 250 | 276 | |
| Carrizo Oil & Gas, Inc. | 8.625 | 10/15/18 | 14,835 | 15,503 | |
| Chaparral Energy, Inc. | 9.875 | 10/1/20 | 5,500 | 6,215 | |
| Chaparral Energy, Inc. | 8.250 | 9/1/21 | 500 | 558 | |
| Clayton Williams Energy Inc. | 7.750 | 4/1/19 | 10,496 | 10,549 | |
| Comstock Resources, Inc. | 7.750 | 4/1/19 | 5,000 | 4,650 | |
| Kodiak Oil & Gas Corp. | 8.125 | 12/1/19 | 750 | 803 | |
| Laredo Petroleum, Inc. | 9.500 | 2/15/19 | 1,500 | 1,661 | |
| Petroleum Development Corporation | 12.000 | 2/15/18 | 8,750 | 9,581 | |
| | | | | | 49,796 |

Table of Contents**KAYNE ANDERSON MIDSTREAM/ENERGY FUND, INC.****SCHEDULE OF INVESTMENTS****FEBRUARY 29, 2012****(amounts in 000 s, except number of option contracts)****(UNAUDITED)**

| Description | Interest Rate | Maturity Date | Principal Amount | Value |
|--|-----------------|---------------|------------------|----------|
| Other 4.0% | | | | |
| Navios Maritime Holdings Inc. | 8.125% | 2/15/19 | \$ 10,000 | \$ 8,100 |
| PBF Holding Company LLC | 8.250 | 2/15/20 | 17,250 | 17,336 |
| | | | | 25,436 |
| Midstream⁽²⁾ 3.5% | | | | |
| Crestwood Holdings Partners, LLC | ⁽¹⁴⁾ | 10/1/16 | 5,951 | 6,070 |
| Navios Maritime Acquisition Corporation | 8.625 | 11/1/17 | 7,945 | 6,654 |
| Teekay Corporation | 8.500 | 1/15/20 | 9,325 | 9,581 |
| | | | | 22,305 |
| Coal 2.6% | | | | |
| Foresight Energy LLC | 9.625 | 8/15/17 | 15,233 | 16,299 |
| Total United States (Cost \$115,446) | | | | 113,836 |
| Canada 3.2% | | | | |
| Upstream 3.2% | | | | |
| Lone Pine Resources Inc. | 10.375 | 2/15/17 | 750 | 788 |
| Paramount Resources Ltd. | 8.250 | 12/13/17 | ⁽¹⁵⁾ | 7,620 |
| Southern Pacific Resource Corp. | ⁽¹⁶⁾ | 1/15/16 | 11,489 | 11,719 |
| Total Canada (Cost \$19,293) | | | | 20,127 |
| Total Debt Investments (Cost \$134,739) | | | | 133,963 |
| Total Long-Term Investments (Cost \$735,817) | | | | 856,068 |
| | | | No. of | |
| | | | Contracts | |
| Liabilities | | | | |
| Call Option Contracts Written⁽¹³⁾ | | | | |
| Midstream Company | | | | |
| ONEOK, Inc., call options expiring 4/20/12 @ \$82.50 | | | (1,000) | (222) |
| ONEOK, Inc., call options expiring 4/20/12 @ \$85.00 | | | (450) | (47) |
| Sunoco, Inc., call options expiring 3/16/12 @ \$40.00 | | | (650) | (18) |
| Targa Resources Corp., call options expiring 3/16/12 @ \$43.00 | | | (400) | (74) |
| Targa Resources Corp., call options expiring 3/16/12 @ \$48.00 | | | (50) | (3) |

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| | | |
|--|---------|---------|
| The Williams Companies, Inc., call options expiring 4/20/12 @ \$29.00 | (2,800) | (370) |
| | | (734) |
| Midstream MLP | | |
| DCP Midstream Partners, LP, call options expiring 3/16/12 @ \$50.00 | (200) | (4) |
| Energy Transfer Partners, L.P., call options expiring 3/16/12 @ \$47.50 | (1,000) | (51) |
| Enterprise Products Partners L.P., call options expiring 3/16/12 @ \$50.00 | (550) | (115) |
| Kinder Morgan Management, LLC, call options expiring 3/16/12 @ \$80.00 | (520) | (29) |
| MarkWest Energy Partners, L.P., call options expiring 3/16/12 @ \$57.50 | (250) | (68) |
| MarkWest Energy Partners, L.P., call options expiring 3/16/12 @ \$60.00 | (250) | (16) |
| Targa Resources Partners L.P., call options expiring 3/16/12 @ \$41.00 | (600) | (102) |
| | | (385) |
| Total Call Option Contracts Written (Premiums Received \$937) | | (1,119) |

Table of Contents**KAYNE ANDERSON MIDSTREAM/ENERGY FUND, INC.****SCHEDULE OF INVESTMENTS****FEBRUARY 29, 2012****(amounts in 000 s, except number of option contracts)****(UNAUDITED)**

| Description | Value |
|--|-------------|
| Revolving Credit Facility | \$ (73,000) |
| Senior Unsecured Notes | (115,000) |
| Mandatory Redeemable Preferred Stock at Liquidation Value | (35,000) |
| Other Liabilities | (14,078) |
| Total Liabilities | (238,197) |
| Other Assets | 17,036 |
| Total Liabilities in Excess of Other Assets | (221,161) |
| Net Assets Applicable to Common Stockholders | \$ 634,907 |

- (1) Unless otherwise noted, equity investments are common units/common shares.
- (2) Securities are categorized as Midstream if they (i) derive at least 50% of their revenues or operating income from operating Midstream Assets or (ii) have Midstream Assets that represent the majority of their assets.
- (3) This company is structured like an MLP but is not treated as a publicly-traded partnership for RIC qualification purposes.
- (4) Security or a portion thereof is segregated as collateral on option contracts written.
- (5) Includes limited liability companies.
- (6) 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 Kayne Anderson Midstream/Energy Fund, Inc. (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 less than 25% of its total assets invested in publicly traded partnerships at February 29, 2012. It is the Fund s intention to be treated as a RIC for tax purposes.
- (7) Fair valued securities, restricted from public sale.

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- (8) Distributions are paid-in-kind.
- (9) Security is not treated as a publicly-traded partnership for RIC qualification purposes.
- (10) The Fund believes that it is an affiliate of Plains All American GP LLC and Plains All American Pipeline, L.P.
- (11) Security is treated as a publicly-traded partnership for RIC qualification purposes.
- (12) Security is mandatorily convertible to common shares of PPL Corporation and consists of a purchase contract for a beneficial ownership interest in PPL Capital Funding, Inc. s 4.625% junior subordinated notes and a quarterly payment of 4.875% per annum of the \$50 per share stated amount of the security.
- (13) Security is non-income producing.
- (14) Floating rate first lien senior secured term loan. Security pays interest at a rate of LIBOR + 850 basis points with a 2% LIBOR floor (10.50% as of February 29, 2012).
- (15) Principal amount is 7,250 Canadian dollars.
- (16) Floating rate second lien senior secured term loan. Security pays interest at base rate + 750 basis points (10.75% as of February 29, 2012).

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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.

At February 29, 2012, the Fund held the following restricted investments:

| Investment | Security | Acquisition Date | Type of Restriction | Number of Units, Principal (\$) (in 000s) | Cost Basis | Fair Value | Fair Value Per Unit | Percent of Net Assets | Percent of Total Assets |
|---|-------------------|------------------|---------------------|---|------------------|------------------|---------------------|-----------------------|-------------------------|
| Level 3 Investments ⁽¹⁾ | | | | | | | | | |
| Buckeye Partners, L.P. | Class B Units | 1/18/11 | (2) | 288 | \$ 14,779 | \$ 15,694 | \$ 54.45 | 2.5% | 1.8% |
| Crestwood Midstream Partners LP | Class C Units | 4/1/11 | (2) | 175 | 4,001 | 4,614 | 26.44 | 0.7 | 0.5 |
| Plains All American GP LLC ⁽³⁾ | Common Units | (4) | (5) | 7 | 9,477 | 13,635 | 1,956.52 | 2.1 | 1.6 |
| Total | | | | | \$ 28,257 | \$ 33,943 | | 5.3% | 3.9% |
| Level 2 Investments ⁽⁶⁾ | | | | | | | | | |
| Crestwood Holdings Partners, LLC | Secured Term Loan | (4) | (5) | \$ 5,951 | \$ 6,124 | \$ 6,070 | n/a | 1.0% | 0.7% |
| Foresight Energy LLC | Senior Notes | (4) | (5) | 15,233 | 16,198 | 16,299 | n/a | 2.6 | 1.8 |
| Kodiak Oil & Gas Corp. | Senior Notes | (4) | (2) | 750 | 750 | 803 | n/a | 0.1 | 0.1 |
| Lone Pine Resources Inc. | Senior Notes | 2/9/12 | (2) | 750 | 739 | 788 | n/a | 0.1 | 0.1 |
| Paramount Resources Ltd. | Senior Notes | 11/30/10 | (2) | (7) | 7,063 | 7,620 | n/a | 1.2 | 0.9 |
| PBF Holding Company LLC | Senior Notes | (4) | (5) | 17,250 | 17,122 | 17,336 | n/a | 2.7 | 2.0 |
| Southern Pacific Resource Corp. | Secured Term Loan | (4) | (2) | 11,489 | 11,491 | 11,719 | n/a | 1.8 | 1.3 |
| Total | | | | | \$ 59,487 | \$ 60,635 | | 9.5% | 6.9% |
| Total of all restricted securities | | | | | \$ 87,744 | \$ 94,578 | | 14.8% | 10.8% |

(1) Securities are valued using inputs reflecting the Fund's own assumption.

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

(3) In determining the fair value for Plains All American GP, LLC (PAA GP), the Fund's valuation is based on publicly available information. Robert V. Sinnott, the CEO of Kayne Anderson Capital Advisors, L.P. (KACALP), sits on PAA GP's board of directors. Certain private investment funds managed by KACALP may value its investment in PAA GP based on non-public information, and, as a result, such valuation may be different than the Fund's valuation.

(4) Security was acquired at various dates during the three months ended February 29, 2012 and the previous fiscal years.

(5) Unregistered security of a private company.

(6) 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, principal market maker or an independent pricing service. These securities have limited trading volume and are not listed on a national

exchange.

(7) Principal amount is 7,250 Canadian dollars.

At February 29, 2012, the cost basis of investments for federal income tax purposes was \$736,386. At February 29, 2012, gross unrealized appreciation and depreciation of investments for federal income tax purposes were as follows:

| | |
|-------------------------------|------------|
| Gross unrealized appreciation | \$ 131,071 |
| Gross unrealized depreciation | (11,389) |
| Net unrealized appreciation | \$ 119,682 |

The identified cost basis of federal tax purposes is estimated based on information available from the Fund's portfolio companies. In some cases, this information is very limited. Accordingly, the actual cost basis may prove higher or lower than the estimated cost basis included above.

As required by the Fair Value Measurement and Disclosures of the Financial Accounting Standards Board (FASB) Accounting Standards Codification, 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.

The fair value hierarchy prioritizes the inputs to valuation techniques used to measure fair value into the following three broad categories. Note that the valuation levels below are not necessarily an indication of the risk or liquidity associated with the underlying investment.

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Level 1 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 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 February 29, 2012. The Fund presents these assets by security type and description on its Schedule of Investments.

| | Total | Quoted Prices in Active Markets (Level 1) | Prices with Other Observable Inputs (Level 2) | Unobservable Inputs (Level 3) |
|----------------------------------|------------|--|---|-------------------------------------|
| Assets at Fair Value | | | | |
| Equity investments | \$ 722,105 | \$ 688,162 | \$ | \$ 33,943 |
| Debt investments | 133,963 | | 133,963 | |
| Total assets at fair value | \$ 856,068 | \$ 688,162 | \$ 133,963 | \$ 33,943 |
| Liabilities at Fair Value | | | | |
| Call option contracts written | \$ 1,119 | \$ | \$ 1,119 | \$ |

For the three months ended February 29, 2012, there were no transfers between Level 1 and Level 2.

The following table presents the Fund's assets measured at fair value on a recurring basis using significant unobservable inputs (Level 3) for the three months ended February 29, 2012.

| | Equity Investments |
|---------------------------|-----------------------|
| Balance November 30, 2011 | \$ 38,063 |
| Purchases | |
| Issuances | 377 |
| Transfers out | (5,428) |
| Realized gain (losses) | |
| Unrealized gains, net | 931 |
| Balance February 29, 2012 | \$ 33,943 |

The \$931 of unrealized gains presented in the table above for the three months ended February 29, 2012 relate to investments that were still held at February 29, 2012.

The issuances of \$377 relate to additional units received from Buckeye Partners, L.P. (Class B Units) and Crestwood Midstream Partners LP (Class C Units). The Fund's investment in the common units of Teekay Offshore Partners L.P., which is noted as a transfers out of Level 3 in the tables above, became readily marketable during the three months ended February 29, 2012.

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As required by the Derivatives and Hedging Topic of the FASB Accounting Standards Codification, the following are the derivative instruments and hedging activities of the Fund.

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

| Derivatives Not Accounted for as | | Fair Value as of |
|----------------------------------|--|-------------------|
| Hedging Instruments | Statement of Assets and Liabilities Location | February 29, 2012 |
| Call options | Call option contracts written | \$ (1,119) |

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

| Derivatives Not Accounted for as Hedging Instruments | Location of Gains/(Losses) on Derivatives Recognized in Income | For the Three Months Ended February 29, 2012 | |
|---|---|--|--|
| | | Net Realized Gains/(Losses) on Derivatives Recognized in Income | Change in Unrealized Gains/(Losses) on Derivatives Recognized in Income |
| Call options | Options | \$ 764 | \$ 100 |

Securities valuation policies and other investment related disclosures are hereby incorporated by reference to the Fund's annual report previously filed with the Securities and Exchange Commission on form N-CSR on February 7, 2012 with a file number 811-22467.

Other information regarding the Fund is available in the Fund's most recent annual report. This information is also available on the Fund's website at www.kaynefunds.com; or on the website of the Securities and Exchange Commission at www.sec.gov.

Item 2: Controls and Procedures

(a) As of a date within 90 days from the filing date of this report, the principal executive officer and principal financial officer concluded that the registrant's disclosure controls and procedures (as defined in Rule 30a-3(c) under the Investment Company Act of 1940, as amended (the Act)), were effective based on their evaluation of the disclosure controls and procedures required by Rule 30a-3(b) under the Act and Rules 13a-15(b) or 15d-15(b) under the Securities and Exchange Act of 1934, as amended.

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

Item 3: Exhibits

1. The certifications of the registrant as required by Rule 30a-2(a) under the Act are exhibits to this report.

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SIGNATURES

Pursuant to the requirements of the Securities Exchange Act of 1934 and the Investment Company Act of 1940, the registrant has duly caused this report to be signed on its behalf by the undersigned, thereunto duly authorized.

KAYNE ANDERSON MIDSTREAM/ENERGY FUND, INC.

/s/ Kevin S. McCarthy

Name: Kevin S. McCarthy

Title: Chairman of the Board of Directors, President and Chief Executive Officer

Date: April 27, 2012

Pursuant to the requirements of the Securities Exchange Act of 1934 and the Investment Company Act of 1940, this report has been signed below by the following persons on behalf of the registrant and in the capacities and on the dates indicated.

KAYNE ANDERSON MIDSTREAM/ENERGY FUND, INC.

/s/ Kevin S. McCarthy

Name: Kevin S. McCarthy

Title: Chairman of the Board of Directors, President and Chief Executive Officer

Date: April 27, 2012

/s/ Terry A. Hart

Name: Terry A. Hart

Title: Chief Financial Officer and Treasurer

Date: April 27, 2012

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Exhibit 99.CERT

I, Kevin S. McCarthy, certify that:

1. I have reviewed this report on Form N-Q of Kayne Anderson Midstream/Energy Fund, Inc.;
2. Based on my knowledge, this report does not contain any untrue statement of a material fact or omit to state a material fact necessary to make the statements made, in light of the circumstances under which such statements were made, not misleading with respect to the period covered by this report;
3. Based on my knowledge, the schedules of investments included in this report fairly present in all material respects the investments of the registrant as of the end of the fiscal quarter for which the report is filed;
4. The registrant's other certifying officer(s) and I are responsible for establishing and maintaining disclosure controls and procedures (as defined in Rule 30a-3(c) under the Investment Company Act of 1940) and internal control over financial reporting (as defined in Rule 30a-3(d) under the Investment Company Act of 1940) for the registrant and have:
 - (a) Designed such disclosure controls and procedures, or caused such disclosure controls and procedures to be designed under our supervision, to ensure that material information relating to the registrant, including its consolidated subsidiaries, is made known to us by others within those entities, particularly during the period in which this report is being prepared;
 - (b) Designed such internal control over financial reporting, or caused such internal control over financial reporting to be designed under our supervision, to provide reasonable assurance regarding the reliability of financial reporting and the preparation of financial statements for external purposes in accordance with generally accepted accounting principles;
 - (c) Evaluated the effectiveness of the registrant's disclosure controls and procedures and presented in this report our conclusions about the effectiveness of the disclosure controls and procedures, as of a date within 90 days prior to the filing date of this report, based on such evaluation; and
 - (d) Disclosed in this report any change in the registrant's internal control over financial reporting that occurred during the registrant's most recent fiscal quarter that has materially affected, or is reasonably likely to materially affect, the registrant's internal control over financial reporting; and
5. The registrant's other certifying officer(s) and I have disclosed to the registrant's auditors and the audit committee of the registrant's board of directors (or persons performing the equivalent functions):
 - (a) All significant deficiencies and material weaknesses in the design or operation of internal control over financial reporting which are reasonably likely to adversely affect the registrant's ability to record, process, summarize, and report financial information; and
 - (b) Any fraud, whether or not material, that involves management or other employees who have a significant role in the registrant's internal control over financial reporting.

Date: April 27, 2012

/s/ Kevin S. McCarthy

Name: Kevin S. McCarthy

Title: Chairman of the Board of Directors,
President and Chief Executive Officer

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I, Terry A. Hart, certify that:

1. I have reviewed this report on Form N-Q of Kayne Anderson Midstream/Energy Fund, Inc.;
2. Based on my knowledge, this report does not contain any untrue statement of a material fact or omit to state a material fact necessary to make the statements made, in light of the circumstances under which such statements were made, not misleading with respect to the period covered by this report;
3. Based on my knowledge, the schedules of investments included in this report fairly present in all material respects the investments of the registrant as of the end of the fiscal quarter for which the report is filed;
4. The registrant's other certifying officer(s) and I are responsible for establishing and maintaining disclosure controls and procedures (as defined in Rule 30a-3(c) under the Investment Company Act of 1940) and internal control over financial reporting (as defined in Rule 30a-3(d) under the Investment Company Act of 1940) for the registrant and have:
 - (a) Designed such disclosure controls and procedures, or caused such disclosure controls and procedures to be designed under our supervision, to ensure that material information relating to the registrant, including its consolidated subsidiaries, is made known to us by others within those entities, particularly during the period in which this report is being prepared;
 - (b) Designed such internal control over financial reporting, or caused such internal control over financial reporting to be designed under our supervision, to provide reasonable assurance regarding the reliability of financial reporting and the preparation of financial statements for external purposes in accordance with generally accepted accounting principles;
 - (c) Evaluated the effectiveness of the registrant's disclosure controls and procedures and presented in this report our conclusions about the effectiveness of the disclosure controls and procedures, as of a date within 90 days prior to the filing date of this report, based on such evaluation; and
 - (d) Disclosed in this report any change in the registrant's internal control over financial reporting that occurred during the registrant's most recent fiscal quarter that has materially affected, or is reasonably likely to materially affect, the registrant's internal control over financial reporting; and
5. The registrant's other certifying officer(s) and I have disclosed to the registrant's auditors and the audit committee of the registrant's board of directors (or persons performing the equivalent functions):
 - (a) All significant deficiencies and material weaknesses in the design or operation of internal control over financial reporting which are reasonably likely to adversely affect the registrant's ability to record, process, summarize, and report financial information; and
 - (b) Any fraud, whether or not material, that involves management or other employees who have a significant role in the registrant's internal control over financial reporting.

Date: April 27, 2012

/s/ Terry A. Hart

Name: Terry A. Hart

Title: Chief Financial Officer and Treasurer