

Kayne Anderson Midstream/Energy Fund Announces its Net Asset Value as of December 31, 2010 and Provides Update on Investment of IPO Proceeds

Houston, TX – January 3, 2011 – Kayne Anderson Midstream/Energy Fund, Inc. (the “Fund”) today announced its net asset value as of December 31, 2010, provided an update on investment of net proceeds from its initial public offering and provided a summary unaudited balance sheet.

As of December 31, 2010, the Fund’s net assets were \$497 million and its net asset value per share was \$24.18. The Fund’s net asset value per share was \$23.83 at November 24, 2010, the date the Fund commenced operations.

As of December 31, 2010, the Fund has received net proceeds of \$490 million from its IPO, which includes the net proceeds from the exercise of 1,550,000 shares pursuant to the underwriters’ over-allotment option. At such date, the Fund had invested \$410 million (or 84%) of the net proceeds.

The Fund has committed to invest an additional \$55 million in two privately negotiated “PIPE” transactions with MLPs, increasing the total proceeds invested or agreed to be invested to \$465 million (95% of the net proceeds). The two privately negotiated transactions are expected to close in the next two months and include a \$30 million equity investment in Buckeye Partners, L.P. and a \$25 million equity investment in PAA Natural Gas Storage, L.P. Both investments provide partial financing for pending acquisitions. In addition, the Fund has already closed on a \$10 million equity investment in Plains All American GP LLC, the general partner of Plains All American Pipeline, L.P.

Kevin S. McCarthy, President and CEO of the Fund said, “We are very pleased with the progress we have made investing proceeds from the Fund’s IPO. Including the private investments we’ve committed to make, we expect to have the IPO proceeds fully invested by the end of January 2011. We plan to make additional investments over the next few months with proceeds from leverage. As a result, we expect to be fully invested well within the 3-6 months guidance provided during the IPO. We plan to announce the Fund’s initial distribution in mid to late January with a payment date in late March.”

Long-term investments were comprised of MLPs (23%), MLP Equivalents (2%), Midstream Companies (45%), Other Energy (12%) and Energy Debt (18%).

The Fund’s ten largest holdings by issuer at December 31, 2010 were:

| | Units (in thousands) | Amounts (\$ millions) | Percent of Long-Term Investments |
|---|-------------------------|--------------------------|--|
| 1. The Williams Companies, Inc. (Midstream Company) | 1,622 | \$40.1 | 9.6% |
| 2. ONEOK, Inc. (Midstream Company) | 474 | 26.3 | 6.3% |
| 3. CenterPoint Energy, Inc. (Midstream Company) | 1,470 | 23.1 | 5.5% |
| 4. Enterprise Products Partners L.P. (MLP) | 530 | 22.0 | 5.3% |
| 5. Williams Partners L.P. (MLP) | 459 | 21.4 | 5.1% |
| 6. NiSource Inc. (Other Energy) | 1,044 | 18.4 | 4.4% |
| 7. Targa Resources Corp. (Midstream Company) | 658 | 17.6 | 4.2% |
| 8. Energy Transfer Partners, L.P. (MLP) | 301 | 15.6 | 3.7% |
| 9. Carrizo Oil & Gas, Inc. (Energy Debt - Upstream) | N/A | 12.4 | 3.0% |
| 10. Foresight Energy LLC (Energy Debt - Coal) | N/A | 12.1 | 2.9% |

Kayne Anderson Midstream/Energy Fund, Inc.
Balance Sheet
December 31, 2010
(Unaudited)

| | (in millions) |
|----------------------------------|---------------|
| Investments | \$ 417.1 |
| Repurchase agreement and cash | 93.3 |
| Deposits | 0.2 |
| Accrued income | 1.9 |
| Receivable for securities sold | 0.4 |
| Other assets | 0.1 |
| Total assets | 513.0 |
| | |
| Payable for securities purchased | 14.3 |
| Other liabilities | 1.8 |
| Total liabilities | 16.1 |
| | |
| Net assets | \$ 496.9 |

The Fund had 20.55 million common shares as of December 31, 2010

###

Kayne Anderson Midstream/Energy Fund, Inc. is a non-diversified, closed-end management investment company registered under the Investment Company Act of 1940, whose common stock is traded on the New York Stock Exchange. The Fund's investment objective is to provide a high level of total return with an emphasis on making quarterly cash distributions to its stockholders by investing at least 80% of its total assets in securities of companies in the Midstream/Energy Sector, consisting of: (a) Midstream Master Limited Partnerships ("MLPs"), (b) Midstream Companies, (c) Other MLPs and (d) Other Energy Companies. The Fund anticipates that the majority of its investments will consist of investments in Midstream MLPs and Midstream Companies. See Glossary of Key Terms on page ii of the Prospectus for definitions of certain key terms.

CAUTIONARY NOTE REGARDING FORWARD-LOOKING STATEMENTS: This press release 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 differ from the Fund's historical experience and its present expectations or projections indicated in any forward-looking statements. 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 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 objective will be attained.

CONTACT:
KA Fund Advisors, LLC
Monique Vo, 877-657-3863
<http://www.kaynefunds.com>