

KAYNE ANDERSON MIDSTREAM/ENERGY FUND, INC.

Form N-30B-2

April 29, 2014

Table of Contents

Midstream/Energy Fund

KMF Quarterly Report

February 28, 2014

Table of Contents

CONTENTS

	Page
<u>Management Discussion</u>	1
<u>Schedule of Investments</u>	6
<u>Statement of Assets and Liabilities</u>	11
<u>Statement of Operations</u>	12
<u>Statement of Changes in Net Assets Applicable to Common Stockholders</u>	13
<u>Statement of Cash Flows</u>	14
<u>Financial Highlights</u>	15
<u>Notes to Financial Statements</u>	17
<u>Glossary of Key Terms</u>	34
<u>Repurchase Disclosure</u>	35

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 34 for a description of these investment categories and for the meaning of capitalized terms not otherwise defined herein.

As of February 28, 2014, we had total assets of \$1.2 billion, net assets applicable to our common stock of \$831 million (net asset value of \$37.55 per share), and 22.1 million shares of common stock outstanding. As of February 28, 2014, we held \$1.0 billion in equity investments and \$130 million in debt investments.

Recent Events

On April 14, 2014, we reached a conditional agreement with institutional investors relating to a private placement of \$30 million of senior unsecured notes (Notes) and \$40 million of mandatory redeemable preferred stock (MRP Shares). Net proceeds from such offerings will be used to make new portfolio investments, to refinance existing indebtedness and for general corporate purposes. The private placement is expected to close on April 30, 2014. The closing is subject to investor due diligence, legal documentation and other standard closing conditions.

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 Board decided to implement the share repurchase program with the expectation that it will increase net asset value (NAV) per share through the accretive nature of the purchases. The repurchase program will continue until the earlier of (i) the repurchase of \$20 million of common stock or (ii) September 30, 2014. We will authorize our agents to make purchases in the open market when shares are trading at a discount of at least 8% to our NAV per share and we have sufficient borrowing capacity relative to our target leverage ratios.

Table of Contents**KAYNE ANDERSON MIDSTREAM/ENERGY FUND, INC.****MANAGEMENT DISCUSSION****(UNAUDITED)****Our Top Ten Portfolio Investments**

Listed below are our top ten portfolio investments by issuer as of February 28, 2014.

Holding	Sector	Amount (\$ in millions)	Percent of Long-Term Investments
1. The Williams Companies, Inc.	Midstream Company	\$ 93.8	8.1%
2. Kinder Morgan Management, LLC	Midstream MLP	81.7	7.1
3. ONEOK, Inc.	Midstream Company	72.8	6.3
4. Enbridge Energy Management, L.L.C.	Midstream MLP	61.2	5.3
5. Plains GP Holdings, L.P.	Midstream Company	52.2	4.5
6. Kinder Morgan, Inc.	Midstream Company	45.7	4.0
7. Golar LNG Partners LP	Midstream Company	35.0	3.0
8. Regency Energy Partners LP ⁽¹⁾	Midstream MLP	28.0	2.4
9. Crestwood Midstream Partners LP	Midstream MLP	26.6	2.3
10. Plains All American Pipeline, L.P.	Midstream MLP	24.9	2.1
		\$ 521.9	45.1%

(1) The \$28.0 million includes our holdings in Regency Energy Partners LP (Regency) as well as our holdings in PVR Partners, L.P. (PVR). On March 21, 2014, PVR completed its merger with Regency.

Results of Operations For the Three Months Ended February 28, 2014