

ClearBridge Energy MLP Fund Inc.
Form N-CSR
January 28, 2011

UNITED STATES
SECURITIES AND EXCHANGE COMMISSION
Washington, D.C. 20549

FORM N-CSR

**CERTIFIED SHAREHOLDER REPORT OF REGISTERED
MANAGEMENT INVESTMENT COMPANIES**

Investment Company Act file number 811-22405

ClearBridge Energy MLP Fund Inc.
(Exact name of registrant as specified in charter)

55 Water Street, New York, NY
(Address of principal executive offices)

10041
(Zip code)

Robert I. Frenkel, Esq.

Legg Mason & Co., LLC

100 First Stamford Place

Stamford, CT 06902
(Name and address of agent for service)

Registrant's telephone number, including area code: (888) 777-0102

Date of fiscal year end: November 30

Date of reporting period: November 30, 2010

ITEM 1. REPORT TO STOCKHOLDERS.

The **Annual** Report to Stockholders is filed herewith.

November 30, 2010

Annual Report

ClearBridge Energy MLP Fund Inc.
(CEM)

INVESTMENT PRODUCTS: NOT FDIC INSURED • NO BANK GUARANTEE • MAY LOSE VALUE

II ClearBridge Energy MLP Fund Inc.

Fund objective

The Fund seeks to provide a high level of total return with an emphasis on cash distributions.

What's inside

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Letter from the chairman

Dear Shareholder,

We are pleased to provide the annual report of ClearBridge Energy MLP Fund Inc. for the period from the Fund's commencement of operations on June 25, 2010 through November 30, 2010 (the reporting period). Please read on for a detailed look at prevailing economic and market conditions during the Fund's reporting period and to learn how those conditions have affected Fund performance.

As always, we remain committed to providing you with excellent service and a full spectrum of investment choices. We also remain committed to supplementing the support you receive from your financial advisor. One way we accomplish this is through our website, www.leggmason.com/cef. Here you can gain immediate access to market and investment information, including:

- Fund prices and performance,
- Market insights and commentaries from our portfolio managers, and
- A host of educational resources.

We look forward to helping you meet your financial goals.

Sincerely,

R. Jay Gerken, CFA

Chairman, President and Chief Executive Officer

December 31, 2010

Investment commentary

Economic review

While the U.S. economy continued to expand during the period from the Fund's commencement of operations on June 25, 2010 through November 30, 2010 (the reporting period), economic data was mixed and unemployment remained elevated. The Federal Reserve Board (Fed) expressed concerns regarding the direction of the economy and took additional actions in an attempt to spur growth. This initially caused investor sentiment to improve, but the financial markets declined toward the end of the reporting period given a re-escalation of the European sovereign debt crisis.

In September 2010, the National Bureau of Economic Research (NBER), the organization charged with determining when recessions start and end, announced that the recession that began in December 2007 had concluded in June 2009. However, the NBER said, "In determining that a trough occurred in June 2009, the committee did not conclude that economic conditions since that month have been favorable or that the economy has returned to operating at normal capacity." The NBER's point is well-taken given continued areas of weakness in the U.S. economy.

Although the U.S. Department of Commerce continued to report positive U.S. gross domestic product (GDP) growth, the expansion has moderated since peaking at 5.0% in the fourth quarter of 2009. A slower drawdown in business inventories and renewed consumer spending were contributing factors spurring the economy's solid growth at the end of 2009. However, the economy has grown at a more modest pace thus far in 2010. According to the Commerce Department, GDP growth was 3.7% and 1.7% during the first and second quarters of 2010, respectively. GDP growth then edged somewhat higher to 2.6% in the third quarter.

Turning to the job market, after experiencing sharp job losses in 2009, the U.S. Department of Labor reported that over one million new positions were added during the first five months of 2010. Included in that number, however, were 700,000 temporary government jobs tied to the 2010 Census. From June through September, more than 525,000 of these temporary positions were eliminated. This more than offset private sector growth and resulted in a total net loss of 300,000 jobs from June through September. The employment picture then brightened somewhat in October, as 172,000 new jobs were created. Payrolls then increased a disappointing 39,000 in November and the unemployment rate inched up to end the period at 9.8%. The unemployment rate has now exceeded 9.0% since May 2009.

There was mixed news in the housing market during the period. According to the National Association of Realtors (NAR), existing-home sales increased 7.0% and 8.0% in March and April, respectively, after sales had fallen for the period from December 2009 through February 2010. The rebound was largely attributed to people rushing to take advantage of the government's \$8,000 tax credit for first-time home buyers that expired at the end of April. However, with the end of the tax credit, existing-home sales then declined from May through July. Sales then rose 7.3% and 10.0% in August and September, respectively. Sales then dipped 2.2% in October and rose 5.6% in November. Looking at home prices, the NAR reported that the median existing-home price for all housing types was \$170,600.

IV ClearBridge Energy MLP Fund Inc.

Investment commentary (cont d)

in November 2010, which was 0.4% higher than in November 2009. Prices appeared to stabilize somewhat as the number of existing homes on the market declined in November. The inventory of unsold homes was a 9.5 month supply in November at the current sales level, versus a 10.5 month supply in October.

One overall bright spot for the economy has been the manufacturing sector. Based on the Institute for Supply Management's PMIⁱⁱⁱ, the manufacturing sector has grown sixteen consecutive months since it began expanding in August 2009. After reaching a six-year peak of 60.4 in April 2010, PMI data indicated somewhat more modest growth from May through July (a reading below 50 indicates a contraction, whereas a reading above 50 indicates an expansion). The manufacturing sector then expanded at a faster pace in August, before moderating somewhat in September. Manufacturing then grew in October at its fastest pace since May with a reading of 56.9 for the month, before dipping to 56.6 in November.

Financial market overview

As the reporting period began, the financial markets were nearing the tail end of a sharp sell-off that had begun in late April. This continued throughout May and June, during which risk aversion was elevated and investors flocked to the relative safety of U.S. Treasury securities. Demand for riskier assets had resumed by July, followed by another flight to quality in August. Risk appetite then returned in September and October before the financial markets again weakened beginning in mid-November.

Due to signs that economic growth was slowing toward the end of the reporting period, the Fed took further actions to spur the economy. At its August 10th meeting, the Fed announced an ongoing program that calls for using the proceeds from expiring agency debt and agency mortgage-backed securities to purchase longer-dated Treasury securities.

In addition, the Fed remained cautious throughout the reporting period given pockets of weakness in the economy. At its meeting in September 2010, the Fed said, "The Committee will continue to monitor the economic outlook and financial developments and is prepared to provide additional accommodation if needed to support the economic recovery. . . . This led to speculation that the Fed may again move to purchase large amounts of agency and Treasury securities in an attempt to avoid a double-dip recession and ward off deflation.

The Fed then took additional action in early November. Citing that "the pace of recovery in output and employment continues to be slow," the Fed announced another round of quantitative easing to help stimulate the economy, entailing the purchase of \$600 billion of long-term U.S. Treasury securities by the end of the second quarter of 2011. This, coupled with the Fed's previously announced program to use the proceeds of expiring securities to purchase Treasuries, means it could buy a total of \$850 billion to \$900 billion of Treasury securities by the end of June 2011.

Equity market review

As the reporting period began, there was continued elevated risk aversion due to the escalating sovereign debt crisis in Europe, uncertainties regarding new financial reforms in the U.S. and some worse-than-expected economic data. After reaching a nineteen-month

high on April 23, 2010 (prior to the start of the reporting period), the stock market, as measured by the S&P 500 Index^v, fell into correction territory in May and plunged more than 10%. Despite continued disappointing economic data, strong second quarter corporate profits helped the market rally in July. The market then declined again in August, triggered by fears that the economy might slip back into recession. With the Fed indicating the possibility of another round of quantitative easing, stock prices then moved higher in September, October and early November. The stock market again weakened in mid-November given the re-emergence of the European sovereign debt crisis. All told, the S&P 500 Index returned 10.64% over the reporting period.

Looking at the energy master limited partnership (MLP) market, the structural benefits of energy MLPs as an asset class were readily apparent during the reporting period. Driven by a mix of acquisitions and organic growth projects, the average energy MLP, as measured by the Alerian MLP Index^v, increased its quarterly distribution by 6.80% during the reporting period in comparison to the same period for the prior year, continuing a ten-year track record of distribution growth. Coupled with inexpensive valuations, this growth in distributions led the Alerian MLP Index to rise by 19.34% over the reporting period.

As always, thank you for your confidence in our stewardship of your assets.

Sincerely,

R. Jay Gerken, CFA

Chairman, President and

Chief Executive Officer

December 31, 2010

All investments are subject to risk including the possible loss of principal. Past performance is no guarantee of future results. All index performance reflects no deduction for fees, expenses or taxes. Please note that an investor cannot invest directly in an index.

i The Federal Reserve Board (Fed) is responsible for the formulation of policies designed to promote economic growth, full employment, stable prices and a sustainable pattern of international trade and payments.

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- ii Gross domestic product (GDP) is the market value of all final goods and services produced within a country in a given period of time.
- iii The Institute for Supply Management s PMI is based on a survey of purchasing executives who buy the raw materials for manufacturing at more than 350 companies. It offers an early reading on the health of the manufacturing sector.
- iv The S&P 500 Index is an unmanaged index of 500 stocks and is generally representative of the performance of larger companies in the U.S.
- v The Alerian MLP Index is a composite of the fifty most prominent energy MLPs and is calculated using a float-adjusted, capitalization-weighted methodology.

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Fund overview

Q. What is the Fund's investment strategy?

A. The Fund's investment objective is to provide a high level of total return with an emphasis on cash distributions. The Fund seeks to achieve its objective by investing primarily in master limited partnerships (MLPs) in the Energy sector. The Fund considers an entity to be within the Energy sector if it derives at least 50% of its revenues from the business of exploring, developing, producing, gathering, transporting, processing, storing, refining, distributing, mining or marketing natural gas, natural gas liquids (including propane), crude oil, refined petroleum products or coal.

We focus primarily on energy-related MLPs with long-lived assets and predictable cash flows, using a bottom-up process to find MLPs that we believe offer sustainable and predictable distributions, as well as relatively low direct commodity exposure. We also seek out companies with the potential to grow their businesses, and thereby their distributions, over time, evaluating companies based on their geographic footprints, the markets and types of assets they invest in, their balance sheet strength and their ability to make accretive acquisitions.

Q. What were the overall market conditions during the Fund's reporting period?

A. Despite improvements in both the U.S. and global economies during the period, both the natural gas and crude oil markets remained oversupplied. In the case of natural gas, the market discounted little improvement in supply and demand fundamentals. In the case of crude oil, the market reflected the assumption of a healthy recovery in global demand – presenting potential downside risk for crude oil prices should such an improvement in demand not actually materialize. However, the energy-related MLP market, which emphasizes Energy sector infrastructure and operations that have historically been less sensitive to the underlying commodity prices of gas and oil, performed very well during the period.

Q. How did we respond to these changing market conditions?

A. Given the market conditions for the Energy sector as a whole, we concluded that, on a risk-adjusted basis, Energy infrastructure MLPs were among the best positions to own for Energy sector exposure. In particular, we favored companies with what we believed to be stable, fee-based business models, with long-term contracts, long-lived assets and low sensitivity to commodity prices. Within the Energy sector, we emphasized MLP positions in the Natural Gas/Natural Gas Liquids Pipelines sub-sector, the Crude/Refined Products Pipelines sub-sector and the Natural Gas Gathering/Processing sub-sector, with smaller allocations to the Exploration & Production, Propane Distribution, Shipping and Global Infrastructure sub-sectors.

Performance review

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For the period from its commencement of operations on June 25, 2010 through November 30, 2010, ClearBridge Energy MLP Fund Inc. returned 14.17% based on its net asset value (NAV)ⁱ and 10.05% based on its New York Stock Exchange (NYSE) market price per share. The Lipper Sector Equity Closed-End Funds Category Averageⁱⁱ returned 15.97% for the period from June 30, 2010 through November 30, 2010. Please note that Lipper performance returns are based on each fund 's NAV.

Fund overview (cont d)

During the period, the Fund made distributions to shareholders totaling \$0.70 per share, which included a return of capital of \$0.59 per share. The performance table shows the Fund's total return since its commencement of operations based on its NAV and market price as of November 30, 2010. **Past performance is no guarantee of future results.**

Performance Snapshot as of November 30, 2010 (unaudited)

| | Total Return* Since Commencement of Operations** |
|------------------------|---|
| Price Per Share | |
| \$21.03 (NAV) | 14.17% |
| \$21.26 (Market Price) | 10.05% |

All figures represent past performance and are not a guarantee of future results.

* Total returns are based on changes in NAV or market price, respectively. Total returns assume the reinvestment of all distributions in additional shares in accordance with the Fund's Dividend Reinvestment Plan. Performance figures for periods shorter than one year represent cumulative figures and are not annualized.

**The Fund commenced operations on June 25, 2010.

Q. What were the leading contributors to performance?

A. In terms of individual Fund holdings, leading contributors to performance for the period included Energy sector positions in **Linn Energy LLC** in the Exploration & Production sub-sector, **Enterprise Products Partners LP** and **Energy Transfer Equity LP**, both in the Natural Gas/Natural Gas Liquids Pipelines sub-sector, **Chesapeake Midstream Partners LP** in the Natural Gas Gathering/Processing sub-sector and **Magellan Midstream Partners LP** in the Crude/Refined Products Pipelines sub-sector.

Q. What were the leading detractors from performance?

A. On an absolute basis, there were no detractors from performance for the period.

Q. Were there any significant changes to the Fund during the reporting period?

A. The Fund's allocation to cash was atypically high over the period as we were in the process of investing the new Fund's assets and assembling its portfolio. We focused on establishing positions in MLPs in the Natural Gas/Natural Gas Liquids Pipelines, Crude/Refined Products Pipelines and Natural Gas Gathering/Processing sub-sectors of the Energy sector. Over the course of the period, we closed the Fund's position in **Kinder Morgan Energy Partners LP** in the Crude/Refined Products Pipelines sub-sector.

Looking for additional information?

The Fund is traded under the symbol **CEM** and its closing market price is available in most newspapers under the NYSE listings. The daily NAV is available on-line under the symbol **XCEMX** on most financial websites. *Barron's* and the *Wall Street Journal's* Monday edition both carry closed-end fund tables that provide additional information. In addition, the Fund issues a quarterly press release that can be found on most major financial websites as well as www.leggmason.com/cef.

In a continuing effort to provide information concerning the Fund, shareholders may call 1-888-777-0102 (toll free), Monday through Friday from 8:00 a.m. to 5:30 p.m. Eastern Time, for the Fund's current NAV, market price and other information.

Thank you for your investment in ClearBridge Energy MLP Fund Inc. As always, we appreciate that you have chosen us to manage your assets and we remain focused on achieving the Fund's investment goals.

Sincerely,

Michael Clarfeld, CFA

Portfolio Manager
ClearBridge Advisors, LLC

Chris Eades

Portfolio Manager
ClearBridge Advisors, LLC

Richard A. Freeman

Portfolio Manager
ClearBridge Advisors, LLC

Peter Vanderlee, CFA

Portfolio Manager
ClearBridge Advisors, LLC

December 21, 2010

RISKS: *The Fund's concentration of investments in energy-related MLPs subjects it to the risks of investing in MLPs and the energy sector, including the risks of declines in energy and commodity prices, decreases in energy demand, adverse weather conditions, natural or other disasters, changes in government regulation, and changes in tax laws. Leverage may result in greater volatility of NAV and the market price of common shares and increases a shareholder's risk of loss. The Fund may make significant investments in derivative instruments. Derivative instruments can be illiquid, may disproportionately increase losses and have a potentially large impact on Fund performance.*

Portfolio holdings and breakdowns are as of November 30, 2010 and are subject to change and may not be representative of the portfolio managers' current or future investments. The Fund's top ten holdings (as a percentage of total investments) as of this date were: Enterprise Products Partners LP (11.0%), Linn Energy LLC (9.2%), Magellan Midstream Partners LP (6.7%), Energy Transfer Partners LP (6.6%), Chesapeake Midstream Partners LP (5.7%), Williams Partners LP (5.3%), Energy Transfer Equity LP (5.3%), Plains All American Pipeline LP (4.9%), El Paso Pipeline Partners LP (4.6%) and NuStar Energy LP (4.3%). Please refer to pages 6 through 7 for a list and percentage breakdown of the Fund's holdings.

The mention of sector breakdowns is for informational purposes only and should not be construed as a recommendation to purchase or sell any securities. The information provided regarding such sectors is not a sufficient basis upon which to make an investment decision. Investors seeking financial advice regarding the appropriateness of investing in any securities or investment strategies discussed should consult their financial professional. The Fund's top five sector holdings (as a percentage of total investments) as of November 30, 2010 were: Natural Gas/Natural Gas Liquids Pipelines (37.8%), Crude/Refined Products Pipelines (26.0%), Natural Gas Gathering/Processing (15.9%), Exploration & Production (9.2%) and Propane Distribution (4.0%). The Fund's portfolio composition is subject to change at any time.

Fund overview (cont d)

All investments are subject to risk including the possible loss of principal. Past performance is no guarantee of future results. All index performance reflects no deduction for fees, expenses or taxes. Please note that an investor cannot invest directly in an index.

The information provided is not intended to be a forecast of future events, a guarantee of future results or investment advice. Views expressed may differ from those of the firm as a whole.

i Net asset value (NAV) is calculated by subtracting total liabilities and outstanding preferred stock (if any) from the closing value of all securities held by the Fund (plus all other assets) and dividing the result (total net assets) by the total number of the common shares outstanding. The NAV fluctuates with changes in the market prices of securities in which the Fund has invested. However, the price at which an investor may buy or sell shares of the Fund is the Fund's market price as determined by supply of and demand for the Fund's shares.

ii Lipper, Inc., a wholly-owned subsidiary of Reuters, provides independent insight on global collective investments. Returns are based on the period from June 30, 2010 through November 30, 2010, including the reinvestment of all distributions, including returns of capital, if any, calculated among the 31 funds in the Fund's Lipper category.

Fund at a glance (unaudited)

Investment breakdown (%) as a percent of total investments

The bar graph above represents the composition of the Fund's investments as of November 30, 2010. The Fund is actively managed. As a result, the composition of the Fund's investments is subject to change at any time.

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Schedule of investments

November 30, 2010

ClearBridge Energy MLP Fund Inc.

| | Shares/ Units | | Value |
|--|--------------------------|----|--------------------|
| Security | | | |
| Master Limited Partnerships 98.9% | | | |
| Crude/Refined Products Pipelines 26.0% | | | |
| Buckeye Partners LP | 580,000 | \$ | 39,480,600 |
| Enbridge Energy Partners LP | 600,000 | | 36,510,000 |
| Holly Energy Partners LP | 445,000 | | 22,761,750 |
| Magellan Midstream Partners LP | 2,142,294 | | 119,968,464 |
| NuStar Energy LP | 1,150,000 | | 77,567,500 |
| NuStar GP Holdings LLC | 1,138,500 | | 40,280,130 |
| Plains All American Pipeline LP | 1,439,240 | | 88,513,260 |
| Sunoco Logistics Partners LP | 534,794 | | 43,131,136 |
| Total Crude/Refined Products Pipelines | | | 468,212,840 |
| Exploration & Production 9.2% | | | |
| Linn Energy LLC | 4,550,001 | | 165,165,036 |
| Global Infrastructure 2.1% | | | |
| Brookfield Infrastructure Partners LP | 1,763,940 | | 37,095,658 |
| Natural Gas Gathering/Processing 15.9% | | | |
| Chesapeake Midstream Partners LP | 3,600,000 | | 102,600,000 |
| Copano Energy LLC | 800,000 | | 23,944,000 |
| Crestwood Midstream Partners LP | 414,997 | | 11,034,770 |
| DCP Midstream Partners LP | 250,003 | | 8,725,105 |
| Exterran Partners LP | 352,000 | | 8,490,240 |
| MarkWest Energy Partners LP | 930,000 | | 39,366,900 |
| Regency Energy Partners LP | 1,424,999 | | 36,622,474 |
| Targa Resources Partners LP | 1,283,960 | | 38,891,149 |
| Western Gas Partners LP | 594,000 | | 17,689,320 |
| Total Natural Gas Gathering/Processing | | | 287,363,958 |
| Natural Gas/Natural Gas Liquids Pipelines 37.8% | | | |
| Boardwalk Pipeline Partners LP | 398,632 | | 12,357,592 |
| El Paso Pipeline Partners LP | 2,525,000 | | 83,628,000 |
| Energy Transfer Equity LP | 2,405,780 | | 95,172,657 |
| Energy Transfer Partners LP | 2,345,000 | | 118,821,150 |
| Enterprise Products Partners LP | 4,692,400 | | 197,456,192 |
| ONEOK Partners LP | 704,700 | | 55,819,287 |
| TC Pipelines LP | 478,000 | | 22,222,220 |
| Williams Partners LP | 2,025,118 | | 95,281,802 |
| Total Natural Gas/Natural Gas Liquids Pipelines | | | 680,758,900 |
| Propane Distribution 4.0% | | | |
| Inergy LP | 1,838,118 | | 71,723,364 |

See Notes to Financial Statements.

ClearBridge Energy MLP Fund Inc.

| Security | Shares/ Units | Value |
|---|--------------------------|----------------------|
| Shipping 3.9% | | |
| Teekay LNG Partners LP | 1,947,685 | \$ 70,778,873 |
| Total Investments Before Short-Term Investments (Cost \$1,528,536,945) | | 1,781,098,629 |

| Short-Term Investments 1.1% | Rate | Maturity Date | Face Amount | Value |
|---|-------------|--------------------------|------------------------|------------------------|
| Repurchase Agreements 1.1% | | | | |
| State Street Bank & Trust Co. repurchase agreement, dated 11/30/10; Proceeds at maturity \$19,799,006; (Fully collateralized by U.S. government obligations, 2.500% due 4/30/15; Market value \$20,195,448) (Cost \$19,799,000) | 0.010% | 12/1/10 | 19,799,000 | 19,799,000 |
| Total Investments 100.0% (Cost \$1,548,335,945#) | | | | \$1,800,897,629 |

All or a portion of these securities are held as collateral pursuant to two loan agreements.

Aggregate cost for federal income tax purposes is \$1,540,834,752.

See Notes to Financial Statements.

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Statement of assets and liabilities

November 30, 2010

Assets:

| | |
|--|----------------------|
| Investments, at value (Cost \$1,548,335,945) | \$1,800,897,629 |
| Cash | 649 |
| Dividends, distributions and interest receivable | 485,089 |
| Prepaid expenses | 17,878 |
| Total Assets | 1,801,401,245 |

Liabilities:

| | |
|-----------------------------------|------------------------|
| Loan payable (Note 5) | 350,000,000 |
| Deferred tax liability | 96,223,264 |
| Payable for securities purchased | 4,537,164 |
| Current tax liability | 2,794,694 |
| Investment management fee payable | 1,418,383 |
| Interest payable | 56,710 |
| Trustees' fees payable | 15,880 |
| Accrued expenses | 309,785 |
| Total Liabilities | 455,355,880 |
| Total Net Assets | \$1,346,045,365 |

Net Assets:

| | |
|--|------------------------|
| Par value (\$0.001 par value, 64,018,285 shares issued and outstanding; 100,000,000 shares authorized) | \$ 64,018 |
| Paid-in capital in excess of par value | 1,184,563,428 |
| Accumulated net investment loss, net of income taxes, less dividends | (7,325,354) |
| Accumulated net realized gain on investments, net of income taxes | 9,629,412 |
| Net unrealized appreciation on investments, net of income taxes | 159,113,861 |
| Total Net Assets | \$1,346,045,365 |

| | |
|---------------------------|------------|
| Shares Outstanding | 64,018,285 |
|---------------------------|------------|

| | |
|------------------------|---------|
| Net Asset Value | \$21.03 |
|------------------------|---------|

See Notes to Financial Statements.

Statement of operations

For the Period Ended November 30, 2010

Investment Income:

| | |
|--|------------------|
| Dividends and Distributions | \$ 48,353,378 |
| Return of Capital | (40,254,116) |
| Net Dividends and Distributions | 8,099,262 |
| Interest | 5,705 |
| Total Investment Income | 8,104,967 |

Expenses:

| | |
|--|--------------------|
| Investment management fee (Note 2) | 6,543,119 |
| Interest expense (Note 5) | 1,167,710 |
| Audit and tax | 175,000 |
| Legal fees | 121,656 |
| Trustees fees | 103,562 |
| Organization fees | 65,120 |
| Commitment fee (Note 5) | 61,111 |
| Shareholder reports | 58,666 |
| Transfer agent fees | 54,805 |
| Stock exchange listing fees | 20,735 |
| Custody fees | 10,302 |
| Insurance | 8,663 |
| Miscellaneous expenses | 10,000 |
| Total Expenses | 8,400,449 |
| Less: Fee waivers and/or expense reimbursements (Note 2) | (65,120) |
| Net Expenses | 8,335,329 |
| Net Investment Loss, before income taxes | (230,362) |
| Current tax benefit | 2,860,675 |
| Deferred tax expense | (2,775,441) |
| Net Investment Loss, net of income taxes | (145,128) |

Realized and Unrealized Gain (Loss) on Investments (Notes 1, 3 and 6):

| | |
|--|----------------------|
| Net Realized Gain (Loss) From: | |
| Investment transactions | 15,284,781 |
| Current tax expense | (5,655,369) |
| Net Realized Gain, net of income taxes | 9,629,412 |
| Net Change in Unrealized Appreciation (Depreciation) From: | |
| Investments | 252,561,684 |
| Deferred tax expense | (93,447,823) |
| Change in Net Unrealized Appreciation (Depreciation), net of income taxes | 159,113,861 |
| Net Gain on Investments, net of income taxes | 168,743,273 |
| Increase in Net Assets From Operations | \$168,598,145 |

For the period June 25, 2010 (commencement of operations) to November 30, 2010.

See Notes to Financial Statements.

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Statement of changes in net assets**For the Period Ended November 30,****2010****Operations:**

| | |
|---|---------------------------|
| Net investment loss, net of income taxes | \$ (145,128) |
| Net realized gain, net of income taxes | 9,629,412 |
| Change in net unrealized appreciation (depreciation), net of income taxes | 159,113,861 |
| <i>Increase in Net Assets From Operations</i> | <i>168,598,145</i> |

Distributions/Dividends to Shareholders (Note 1):

| | |
|---|----------------------------|
| Dividends | (7,180,226) |
| Return of capital | (37,338,441) |
| <i>Decrease In Net Assets From Distributions/Dividends To Shareholders</i> | <i>(44,518,667)</i> |

Fund Share Transactions:

| | |
|---|-----------------------------|
| Net proceeds from sale of shares (63,420,524 shares issued) | 1,210,056,217 |
| Reinvestment of distributions (597,761 shares reinvested) | 11,909,670 |
| <i>Increase in Net Assets From Fund Share Transactions</i> | <i>1,221,965,887</i> |
| <i>Increase in Net Assets</i> | <i>1,346,045,365</i> |

Net Assets:

| | |
|---|------------------------|
| Beginning of period | |
| End of period* | \$1,346,045,365 |
| * Includes accumulated net investment loss, net of income taxes, less dividends of: | \$(7,325,354) |

For the period June 25, 2010 (commencement of operations) to November 30, 2010.

See Notes to Financial Statements.

Statement of cash flows

For the Period Ended November 30, 2010

Cash Flows Provided (Used) by Operating Activities:

| | |
|--|------------------------|
| Dividends, distributions and interest received | \$ 47,873,994 |
| Operating expenses paid | (5,441,449) |
| Interest paid | (1,111,000) |
| Net purchases of short-term investments | (19,799,000) |
| Purchases of long-term investments | (1,725,199,955) |
| Proceeds from disposition of long-term investments | 176,230,839 |
| Net Cash Used By Operating Activities | (1,527,446,571) |

Cash Flows Provided (Used) by Financing Activities:

| | |
|--|----------------------|
| Cash distributions paid on Common Stock | (32,608,997) |
| Proceeds from sale of shares | 1,210,056,217 |
| Proceeds from loan | 350,000,000 |
| Net Cash Provided By Financing Activities | 1,527,447,220 |
| Net Increase in Cash | 649 |
| Cash, Beginning of period | 0 |
| Cash, End of period | \$ 649 |

Reconciliation of Increase in Net Assets from Operations to Net Cash Flows Provided (Used) by Operating Activities:

| | |
|--|--------------------------|
| Increase in Net Assets From Operations | \$ 168,598,145 |
| Increase in investments, at value | (1,800,897,629) |
| Increase in payable for securities purchased | 4,537,164 |
| Increase in dividends, distributions and interest receivable | (485,089) |
| Increase in prepaid expenses | (17,878) |
| Increase in interest payable | 56,710 |
| Increase in current tax expense | 2,794,694 |
| Increase in deferred tax expense | 96,223,264 |
| Increase in accrued expenses | 1,744,048 |
| Total Adjustments | (1,696,044,716) |
| Net Cash Flows Used by Operating Activities | \$(1,527,446,571) |

Non-Cash Financing Activities:

| | |
|---|--------------|
| Proceeds from reinvestment of dividends | \$11,909,670 |
|---|--------------|

For the period June 25, 2010 (commencement of operations) to November 30, 2010.

See Notes to Financial Statements.

12 ClearBridge Energy MLP Fund Inc. 2010 Annual Report

Financial highlights**For a share of capital stock outstanding throughout the period ended November 30:**

| | 2010^{1,2} |
|--|---------------------------|
| Net asset value, beginning of period | \$19.073 |
| Income from operations: | |
| Net investment loss | (0.00) |
| Net realized and unrealized gain | 2.66 |
| <i>Total income from operations</i> | <i>2.66</i> |
| Less distributions/dividends: | |
| Dividends | (0.11) |
| Return of capital | (0.59) |
| <i>Total distributions</i> | <i>(0.70)</i> |
| Net asset value, end of period | \$21.03 |
| Market price, end of period | \$21.26 |
| <i>Total Return, Based on NAV^{4,5}</i> | <i>14.17%</i> |
| <i>Total Return, Based on Market Prices⁵</i> | <i>10.05%</i> |
| Net assets, end of period (millions) | \$1,346 |
| Ratios to average net assets: | |
| Management fees ⁶ | 1.22% |
| Other expenses ^{6,7} | 0.13 |
| <i>Subtotal</i> | <i>1.35</i> |
| Interest expense ⁶ | 0.22 |
| Income tax expense ⁶ | 18.50 |
| <i>Total expenses^{6,8}</i> | <i>20.07%</i> |
| Net investment loss, net of income taxes | (0.03)% |
| Portfolio turnover rate | 13% |
| Supplemental Data: | |
| Loans Outstanding, End of Period (000s) | \$350,000 |
| Asset Coverage for Loan Outstanding | 485% |
| Weighted Average Loan (000s) | \$329,470 |
| Weighted Average Interest Rate on Loans | 0.97% |

1 For the period June 25, 2010 (commencement of operations) to November 30, 2010.

2 Per share amounts have been calculated using the average shares method.

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- 3 Initial public offering price of \$20.00 per share less offering costs and sales load totaling \$0.93 per share.
- 4 Performance figures may reflect compensating balance arrangements, fee waivers and/or expense reimbursements. In the absence of compensating balance arrangements, fee waivers and/or expense reimbursements, the total return would have been lower. Past performance is no guarantee of future results. Total returns for periods of less than one year are not annualized.
- 5 The total return calculation assumes that distributions are reinvested in accordance with the Fund's dividend reinvestment plan. Past performance is no guarantee of future results. Total returns for periods of less than one year are not annualized.
- 6 Annualized.
- 7 Ratio includes commitment fees incurred on the lines of credit.
- 8 Excludes the impact of reimbursement for organization fees in the amount of 0.01%. Inclusive of the reimbursement the ratio is 20.06%. The investment manager has agreed to reimburse all organization expenses (Note 2). Amount represents less than \$0.01 per share.

See Notes to Financial Statements.

Notes to financial statements

1. Organization and significant accounting policies

ClearBridge Energy MLP Fund Inc. (the Fund) is a newly organized, non-diversified, closed-end management investment company under the Investment Company Act of 1940, as amended (the 1940 Act). The Board of Directors authorized 100 million shares of \$0.001 par value common stock. The Fund's investment objective is to provide a high level of total return with an emphasis on cash distributions. The Fund seeks to achieve its objective by investing primarily in master limited partnerships (MLPs) in the energy sector. There can be no assurance that the Fund will achieve its investment objective.

Under normal market conditions, the Fund will invest at least 80% of its Managed Assets in MLPs in the energy sector (the 80% policy). For purposes of the 80% policy, the Fund considers investments in MLPs to include investments that offer economic exposure to public and private MLPs in the form of equity securities of MLPs, securities of entities holding primarily general partner or managing member interests in MLPs, securities that are derivatives of interests in MLPs, including I-Shares, and debt securities of MLPs. Entities in the energy sector are engaged in the business of exploring, developing, producing, gathering, transporting, processing, storing, refining, distributing, mining or marketing of natural gas, natural gas liquids (including propane), crude oil, refined petroleum products or coal.

The following are significant accounting policies consistently followed by the Fund and are in conformity with U.S. generally accepted accounting principles (GAAP). Estimates and assumptions are required to be made regarding assets, liabilities and changes in net assets resulting from operations when financial statements are prepared. Changes in the economic environment, financial markets and any other parameters used in determining these estimates could cause actual results to differ. Subsequent events have been evaluated through the date the financial statements were issued.

(a) Investment valuation. Equity securities for which market quotations are available are valued at the last reported sales price or official closing price on the primary market or exchange on which they trade. Debt securities are valued at the mean between the last quoted bid and asked prices provided by an independent pricing service, which are based on transactions in debt obligations, quotations from bond dealers, market transactions in comparable securities and various other relationships between securities. When prices are not readily available, or are determined not to reflect fair value, such as when the value of a security has been significantly affected by events after the close of the exchange or market on which the security is principally traded, but before the Fund calculates its net asset value, the Fund values these securities at fair value as determined in accordance with procedures approved by the Fund's Board of Directors. Short-term obligations with maturities of 60 days or less are valued at amortized cost, which approximates fair value.

Notes to financial statements (cont d)

The Fund has adopted Financial Accounting Standards Board Codification Topic 820 (ASC Topic 820). ASC Topic 820 establishes a single definition of fair value, creates a three-tier hierarchy as a framework for measuring fair value based on inputs used to value the Fund's investments, and requires additional disclosure about fair value. The hierarchy of inputs is summarized below.

- Level 1 quoted prices in active markets for identical investments

- Level 2 other significant observable inputs (including quoted prices for similar investments, interest rates, prepayment speeds, credit risk, etc.)

- Level 3 significant unobservable inputs (including the Fund's own assumptions in determining the fair value of investments)

The inputs or methodology used for valuing securities are not necessarily an indication of the risk associated with investing in those securities.

The Fund uses valuation techniques to measure fair value that are consistent with the market approach and/or income approach, depending on the type of security and the particular circumstance. The market approach uses prices and other relevant information generated by market transactions involving identical or comparable securities. The income approach uses valuation techniques to discount estimated future cash flows to present value.