ClearBridge Energy MLP Fund Inc.
Form N-CSR
January 28, 2013

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)

620 Eighth Avenue, 49th Floor, New York, NY	10018
(Address of principal executive offices)	(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, 2012

ITEM 1. REPORT TO STOCKHOLDERS.

The Annual Report to Stockholders is filed herewith.

November 30, 2012

Annual Report

ClearBridge Energy MLP Fund Inc.
(CEM)

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

Fund objective

The Fund s investment objective is to provide a high level of total return with an emphasis on cash distributions.

What s inside

Letter from the chairman

Dear Shareholder,

We are pleased to provide the annual report of ClearBridge Energy MLP Fund Inc. for the twelve-month reporting period ended November 30, 2012. 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.

Recent regulations adopted by the Commodity Futures Trading Commission (the CFTC) require operators of registered investment companies, including closed-end funds, to register as commodity pool operators unless the fund limits its investments in commodity interests. Effective December 31, 2012, your Fund s manager has claimed the exclusion from the definition of commodity pool operator. More information about the CFTC rules and their effect on the Fund is included later in this report on page 25.

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.lmcef.com. 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 28, 2012

Investment commentary

Economic review

While the U.S. economy continued to grow over the twelve months ended November 30, 2012, it did so at an uneven pace. U.S. gross domestic product (GDP)i growth, as reported by the U.S. Department of Commerce, was 4.1% in the fourth quarter of 2011. Economic growth in the U.S. then decelerated, as first quarter 2012 GDP growth was 2.0%. This was primarily due to less robust private inventory and non-residential fixed investments. The economy slowed further in the second quarter, as GDP growth was a tepid 1.3%. GDP growth then moved to 3.1% in the third quarter. The increase was partially due to increased private inventory and investment, higher federal government spending and a deceleration in imports.

The U.S. job market remained weak. While there was some improvement during the reporting period, unemployment remained elevated. When the reporting period began, unemployment, as reported by the U.S. Department of Labor, was 8.5%. Unemployment then generally declined and was 8.1% in April 2012, the lowest rate since January 2009, but still high by historical standards. The unemployment rate then rose to 8.3% in July, before falling to 7.8% in September and ending the reporting period at 7.7% in November. However, the number of longer-term unemployed remained high, as roughly 40% of the 12 million people without a job have been out of work for more than six months.

Meanwhile, the housing market brightened, as sales have started to improve of late and home prices continued to rebound. According to the National Association of Realtors (NAR), existing-home sales rose 5.9% on a seasonally adjusted basis in November 2012 versus the previous month and they were 14.5% higher than in November 2011. In addition, the NAR reported that the median existing-home price for all housing types was $180,600 in November 2012, up 10.1% from November 2011. This marked the ninth consecutive month that home prices rose compared to the same period a year earlier. Furthermore, the inventory of homes available for sale fell 3.8% in November, which represents a 4.8 month supply at the current sales pace. This represents the lowest inventory since September 2005.

The manufacturing sector appeared to overcome a soft patch that occurred in the summer of 2012 as it improved toward the end of the reporting period, only to experience another setback in November 2012. Based on the Institute for Supply Management s PMI (PMI)ii, after expanding 34 consecutive months, the PMI fell to 49.7 in June 2012, which represented the first contraction in the manufacturing sector since July 2009 (a reading below 50 indicates a contraction, whereas a reading above 50 indicates an expansion). Manufacturing continued to contract in July and August before ticking up to 51.5 in September and 51.7 in October. However, the PMI fell back to contraction territory with a reading of 49.5 in November, its lowest level since July 2009.

The Federal Reserve Board (Fed)iii took a number of actions as it sought to meet its dual mandate of fostering maximum employment and price stability. As has been the case since December 2008, the Fed kept the federal funds rateiv at a historically low range between zero and 0.25%. In September 2011, prior to the beginning of the reporting period, the Fed announced its intention to purchase

Investment commentary (cont d)

$400 billion of longer-term Treasury securities and to sell an equal amount of shorter-term Treasury securities by June 2012 (often referred to as Operation Twist). In January 2012, the Fed extended the period it expects to keep rates on hold until at least through late 2014. Operation Twist was then extended in June 2012 until the end of the year. In September the Fed announced a third round of quantitative easing, which involves purchasing $40 billion each month of agency mortgage-backed securities (MBS) on an open-end basis. In addition, the Fed said that Operation Twist would continue and that it will keep the federal funds rate on hold until at least mid-2015. Finally, at its meeting in December, after the reporting period ended, the Fed announced that it would continue purchasing $40 billion per month of agency MBS, as well as initially purchasing $45 billion a month of longer-term Treasuries. The Fed also said that it would keep the federal funds rate on hold ...as long as the unemployment rate remains above 6.5%, inflation between one and two years ahead is projected to be no more than a half percentage point above the Committee s 2.0% longer-run goal, and longer-term inflation expectations continue to be well anchored.

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 28, 2012

All investments are subject to risk including the possible loss of principal. Past performance is no guarantee of future results.

i Gross domestic product (GDP) is the market value of all final goods and services produced within a country in a given period of time.

ii 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.

iii 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.

iv The federal funds rate is the rate charged by one depository institution on an overnight sale of immediately available funds (balances at the Federal Reserve) to another depository institution; the rate may vary from depository institution to depository institution and from day to day.

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.

ClearBridge Investments, LLC (formerly ClearBridge Advisors, LLC) (ClearBridge) is the Fund s subadviser. The portfolio managers primarily responsible for overseeing the day-to-day management of the Fund are Richard A. Freeman, Michael Clarfeld, CFA, Chris Eades, and Peter Vanderlee, CFA.

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

A. The reporting period began amid significant stock market volatility and weakness, stemming largely from uncertainty over the state of the European sovereign debt crisis and the failure of the U.S. Congressional super committee to produce a deficit reduction plan. However, the start of the new calendar year saw stocks rise significantly, with both the Dow Jones Industrial Average (DJIA)[i] and the S&P 500 Index[ii] making strong advances in the first calendar quarter of 2012. The key catalysts for the rise were the European Central Bank s (ECB) introduction of the Long-Term Refinancing Operations (LTRO) in December 2011, which alleviated much of the concern about a potential European bank liquidity crisis and financial contagion, and modest improvement seen in U.S. economic data.

As the period progressed, both the domestic economic recovery and the bull market for equities managed to continue despite weaker corporate earnings guidance and slowing economic growth in both the U.S. and China. Increasingly, stock market performance was correlated with central bank activity, as additional policy easing actions taken by the ECB and the Federal Reserve Board (Fed)[iii] sparked solid stock market gains. Over the summer and fall, uncertainty over the outcome of the U.S. Presidential election and fears of the fiscal cliff remained in the forefront, but were not enough to stop the market s rise to multi-year highs in September and October. The market dipped following President Obama s re-election in early

Fund overview (cont d)

November, but rapidly recovered to end the period with significant gains.

Energy MLP stocks slightly lagged the broader U.S. equity market over the reporting period. However, the sector still posted solid gains. Of importance, energy MLP fundamentals remain robust. U.S. energy production continued to grow at a robust pace, with crude oil production up roughly 14% over the prior year. We expect that increasing production volumes will continue to drive a large scale build-out of the infrastructure necessary to transport the incremental production from the wellhead to the end user. This backlog of organic growth projects also continues to drive distribution growth for holders of energy MLP stocks.

With stock valuations within their normalized range and with accelerating distribution growth, we continue to view the outlook for MLPs quite favorably particularly in a world of low yields and heightened global economic uncertainty. Relative to common stocks and fixed-income securities, we believe MLPs remain uniquely positioned offering compelling yields, visible growth in yield, limited interest rate cycle sensitivity, and limited economic cycle sensitivity. In our view, legislative, regulatory and capital markets risks remain low.

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

A. We have been very consistent in our investment approach and our investment philosophy remains unchanged. We have continued to focus on well capitalized companies, with what we believe are strong asset bases, fee-based revenue streams and attractive partnership structures that are well positioned for growth. We look for MLPs with operations focused on energy infrastructure. We prefer fee-based business models often backed by long-term contracts. We also intentionally limit direct commodity price exposure as we seek sustainable and visible cash flow streams. During times of market dislocation, we have endeavored to take advantage of weak markets to add to our favorite positions and upgrade our portfolio where possible.

We focus our investments in companies that we believe are best positioned to take advantage of the dynamic shifts we see going on in the U.S. energy market. We expect oil and gas production from domestic shale sources to continue to grow at a high rate and have been focused on those MLPs we think are best positioned to capitalize on the anticipated resulting infrastructure growth.

Performance review

For the twelve months ended November 30, 2012, ClearBridge Energy MLP Fund Inc. returned 16.74% based on its net asset value (NAV)[iv] and 13.30% based on its New York Stock Exchange (NYSE) market price per share. The Lipper Sector Equity Closed-End Funds Category Average[v] returned 10.36% over the same time frame. Please note that Lipper performance returns are based on each fund s NAV.

During the twelve-month period, the Fund made distributions to shareholders totaling $1.47 per share, all of which will be treated for tax purposes as a return of capital. The performance table shows the Fund s twelve-month total return based on its NAV and market price as of November 30, 2012. **Past performance is no guarantee of future results.**

Performance Snapshot as of November 30, 2012

Price Per Share		12-Month Total Return*
$22.91 (NAV)		16.74%
$23.20 (Market Price)		13.30%

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 return assumes the reinvestment of all distributions, including returns of capital, at NAV. Prior to January 1, 2012, total return assumed the reinvestment of all distributions in additional shares in accordance with the Fund s Dividend Reinvestment Plan.

Total return assumes the reinvestment of all distributions, including returns of capital, in additional shares in accordance with the Fund s Dividend Reinvestment Plan.

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 Plains All American Pipeline LP and, Magellan Midstream Partners LP, both in the Liquid Transportation & Storage sub-sector, Energy Transfer Equity LP in the Natural Gas Transportation & Storage sub-sector, Enterprise Products Partners LP in the Diversified Energy Infrastructure sub-sector and Access Midstream Partners LP, in the Gathering/Processing sub-sector.

Q. What were the leading detractors from performance?

A. In terms of individual Fund holdings, leading detractors from performance for the period included Energy sector positions in Buckeye Partners LP in the Liquids Transportation & Storage sub-sector, Williams Partners LP, Crestwood Midstream Partners LP, and DCP Midstream Partners LP, all in the Gathering/Processing sub-sector, and Inergy LP in the Propane sub-sector.

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

A. During the reporting period, we established new Fund positions in Kinder Morgan Management LLC, Spectra Energy Partners LP and PVR Partners LP, while we closed an existing position in Inergy LP.

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.lmcef.com.

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.

Fund overview (cont d)

Sincerely,

Michael Clarfeld, CFA

Portfolio Manager
ClearBridge Investments, LLC

Chris Eades

Portfolio Manager
ClearBridge Investments, LLC

Richard A. Freeman

Portfolio Manager
ClearBridge Investments, LLC

Peter Vanderlee, CFA

Portfolio Manager
ClearBridge Investments, LLC

December 20, 2012

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, 2012 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 net assets) as of November 30, 2012 were: Enterprise Products Partners LP (11.5%), Plains All American Pipeline LP (10.3%), Magellan Midstream Partners LP (9.7%), Energy Transfer Equity LP (9.5%), Kinder Morgan Management LLC (8.8%), Linn Energy LLC (8.7%), Access Midstream Partners LP (7.8%), MarkWest Energy Partners LP (6.3%), Brookfield Infrastructure Partners LP (5.9%) and El Paso Pipeline Partners LP (5.7%). Please refer to pages 7 through 8 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 net assets) as of November 30, 2012 were: Diversified Energy Infrastructure (46.0%), Liquids Transportation & Storage (38.1%), Gathering/Processing (33.1%), Natural Gas Transportation & Storage (11.5%) and Exploration & Production (8.7%). The Fund s portfolio composition is subject to change at any time.

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 The Dow Jones Industrial Average (DJIA) is a widely followed measurement of the stock market. The average is comprised of thirty stocks that represent leading companies in major industries. These stocks, widely held by both individual and institutional investors, are considered to be all blue-chip companies.

ii 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.

iii 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.

iv 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 investments) 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.

v Lipper, Inc., a wholly-owned subsidiary of Reuters, provides independent insight on global collective investments. Returns are based on the twelve-month period ended November 30, 2012, including the reinvestment of all distributions, including returns of capital, if any, calculated among the 44 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, 2012 and November 30, 2011. The Fund is actively managed. As a result, the composition of the Fund s investments is subject to change at any time.

Schedule of investments

November 30, 2012

ClearBridge Energy MLP Fund Inc.

Security	Shares/ Units	Value
Master Limited Partnerships 148.8%		
Diversified Energy Infrastructure 46.0%		
Energy Transfer Equity LP	3,191,464	$145,115,868
Energy Transfer Partners LP	804,297	35,300,595
Enterprise Products Partners LP	3,394,099	175,916,151
Genesis Energy LP	687,632	24,665,360
Kinder Morgan Management LLC	1,783,456	135,364,294
ONEOK Partners LP	1,317,111	76,721,716
Regency Energy Partners LP	1,443,753	32,296,755
Williams Partners LP	1,596,222	81,263,662
Total Diversified Energy Infrastructure		***706,644,401***
Exploration & Production 8.7%		
Linn Energy LLC	3,367,795	***133,465,716***
Gathering/Processing 33.1%		
Access Midstream Partners LP	3,409,295	119,291,232
Copano Energy LLC	1,899,685	59,897,068
Crestwood Midstream Partners LP	1,104,349	25,775,506
DCP Midstream Partners LP		