

Leveling the Playing Field: The Case for Master Limited Partnerships for Renewables

W. Bruce Bullock*

Bernard L. Weinstein**

Ben Johnson***



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* Director, Maguire Energy Institute, Cox School of Business,
Southern Methodist University, Dallas, TX

** Associate Director, Maguire Energy Institute, Cox School of Business,
Southern Methodist University, Dallas, TX

*** MBA Candidate, Cox School of Business

Executive Summary

Two essential objectives are required to spur investment in energy, or most any other venture – the mobilization of capital and the reduction of risk. Utilizing markets and policies by extending Master Limited Partnership (MLP) status to renewable energy investments can help achieve both of these goals. MLPs offer individual investors a tax-advantaged and relatively predictable investment. For companies seeking capital, the MLP structure offers financial, economic and legal benefits that have been demonstrated to attract capital.

In the years that MLPs have been present in the energy sector, this vehicle has attracted significant investment capital. In 1996, there were 12 publicly traded MLPs with a market capitalization of approximately \$8 billion. As of January 2011, there were about 75 publicly traded MLPs representing over \$270 billion in market capitalization, a compounded annual growth rate of 20%. Further, the proportion of MLPs focused on the energy sector has grown significantly. In 1990, a little over a third of all MLPs were energy focused. Today, that figure stands at 80%. According to our financial modeling, expanding the MLP structure to renewables could result in an additional \$3.2 billion to \$5.6 billion capital inflow into the industry between now and 2021, depending upon economic and market conditions.

However, the renewable energy sector has been largely excluded from these benefits. Expanding MLPs to include renewable energy sources could attract capital to the sector, reduce the risk of investments, impose some market

discipline on the players, and offer a way to grow a sector of the economy that will be important in meeting America's future energy needs.

Background

Master limited partnerships began to appear in the 1980s as a result of the Tax Reform Act of 1986 (TRA) and the Revenue Act of 1987 (IRC). The TRA created tax-free publicly traded partnerships. As a result of lower marginal individual income tax rates under TRA, the partnership business structure became more attractive in relation to the corporate business structure, which had a higher marginal tax rate.

IRC required that these structures generate at least 90% of their income from qualified sources such as real estate or natural resources. Section 613 of the Federal Tax Code defines qualified sources as crude oil, natural gas, petroleum products, coal, other minerals, timber and any other depletable resource. In 2008, the list was broadened to include carbon dioxide, ethanol and biodiesel. Activities that can be used to generate income include exploration and production, mining, gathering and processing, refining, transportation, storage, marketing and distribution.

Most MLPs operate in the energy sector, especially midstream activities including pipelines, gathering systems, processing systems and storage facilities. Today, 80 percent of the roughly 75 publicly traded MLPs earn their income from natural resources.

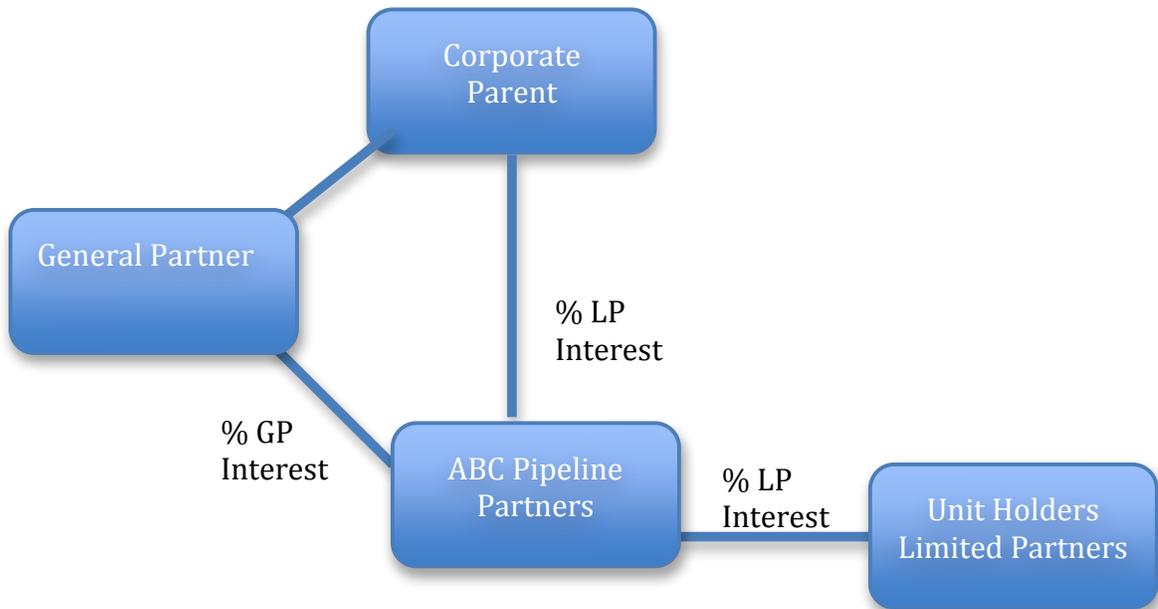
The Need

Development of renewable energy sources has been driven primarily by policy initiatives. Prior to the financial crisis of 2008 and the collapse of several Wall Street investment houses, tax-equity markets served as a source of investment capital for renewable energy. Institutional investors, in particular, were attracted to renewable energy projects. After the financial crisis, and the scarcity of tax-equity financing that followed, Congress enacted a direct grant program, known as the Section 1603 grant program. This program allows renewable energy developers to apply for and receive a one-time direct grant from the Treasury in the place of other tax credits. If the Section 1603 program lapses at the end of 2012, this will further limit the flow of capital into the renewable sector. Given current Federal budget pressures and the public concerns over some green energy loan guarantees already made, MLPs may provide an opportunity to attract necessary capital to the industry without a concomitant drain on Federal resources.

Structure

Figure 1 shows a representative business structure of a Master Limited Partnership. Individual ownership structures can and do vary by company. However, the various MLP structures all have three common characteristics: tax efficiency, strong cash flow generation, and increased distribution to unit holders over time.

FIGURE 1



**Table 1
Benefits of Various Corporate Structures**

| Structure | MLP | LLC | C-Corp |
|-------------------------------|------------|------------|---------------|
| Non-taxable at entity level | Yes | Yes | No |
| Tax items flow to investor | Yes | Yes | No |
| Tax reporting | K-1 | K-1 | 1099 |
| General partner | Yes | No | No |
| Incentive Distribution Rights | Yes | No | No |
| Voting Rights | No | Yes | Yes |

Source: Morgan Stanley Research

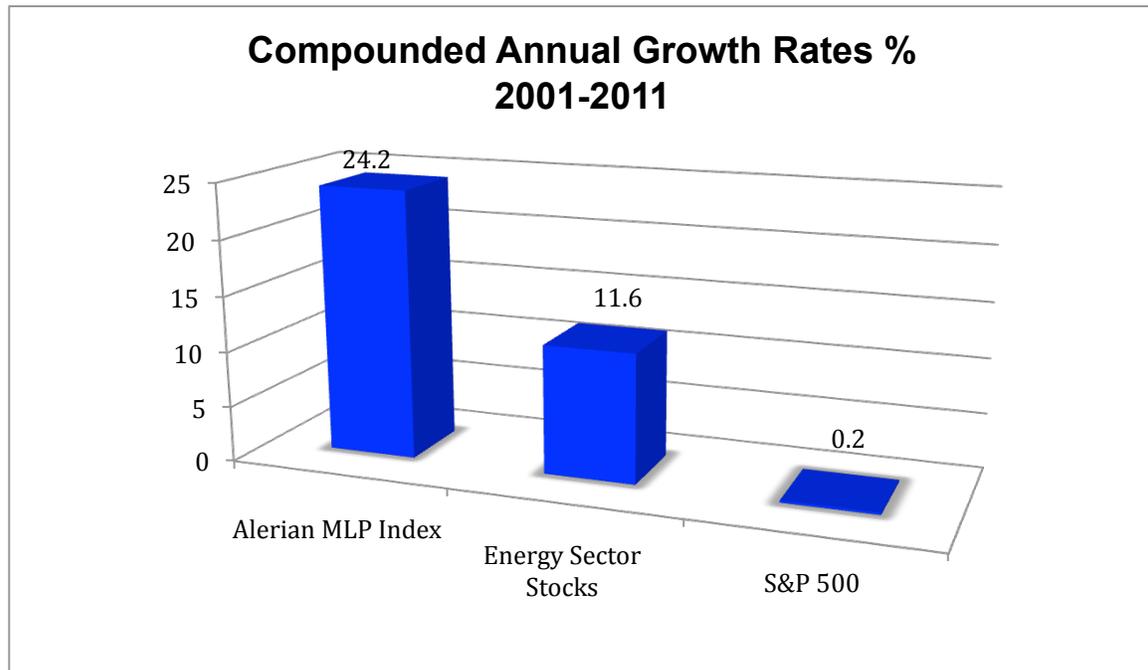
Benefits, Characteristics and Requirements of Master Limited Partnerships

Master Limited Partnerships offer a host of tax and financial benefits that aid in attracting capital to the energy sector as listed in Table 1. Because no entity level taxation occurs, all taxable income flows through to limited partners or members who pay taxes at partnership rates. Double taxation, such as taxation of corporate income and dividends or corporate taxation and capital gains, is thus avoided. As a result, more cash is available for distribution to investors. In the energy industry, the majority of MLPs have been either pipelines or long-life resources that generate a consistent cash flow over a long period of time.

The benefits of MLPs come with certain restrictions, both from a legal perspective and an investor perspective. Ninety percent of the MLP's income must come from eligible sources, currently defined as natural resources, commodities or real estate. Additionally, the MLP must return most of its cash to investors. As a result, the MLP must go back to the capital markets to secure additional funding for expansion opportunities. This stipulation places a competitive rate-of-return requirement and capital discipline on companies that is not required with other non-debt financial instruments.

Historically, MLPs have performed well across a variety of market conditions. Figure 2 provides some examples of these returns for the Alerian MLP Index (AMZX) versus the S&P 500. The Alerian MLP index (AMZX) has outperformed the S&P 500 every year over the past decade. The AMZX has returned an average of 24% over the last ten years versus .2% for the S&P 500 and 11.6% for the energy sector as a whole.

Figure 2
MLP Returns Versus the S&P



Source: Morgan Stanley Research and Wells Fargo Securities Research

Successful MLPs all have a number of similar characteristics. They require assets that are stable cash flow generators over a long period. They must be in markets with steady predicted growth rates so that distributions can increase over time. Currently, MLPs have been increasing distributions between 4 and 10% annually. The infrastructure boom in the domestic oil and gas industry has to a large extent driven the growth in energy MLPs and their relative attractiveness to investors. As these new sources of domestic energy have been tapped, new pipelines, processing facilities, compression facilities and other assets have been required.

Perhaps the best summation of MLPs' characteristics comes from Stephen Maresca, Morgan Stanley's lead MLP analyst:

Cash flow stability is part of the MLP DNA. . . . These pipeline and other related assets typically use a "toll-road" type of business model to transport energy (e.g., oil, gas, gas liquids, refined products) from point A (place of production) to point B (pre-distribution). These entrenched and regulated assets have typically predictable income from long-term contracts and limited commodity price exposure (although degree of exposure varies) given their largely fee revenue model (most do not take title to the commodity, but instead are paid a fee for assets used). These stocks have historically low correlation with other assets making them an attractive and compelling sector.¹

MLPs are long-term in visibility and tied to long-term contracts. According to John Edwards, Morgan Keegan's lead analyst for MLPs:

But the whole thesis behind MLPs is that they are a defensively oriented sector. They are designed to provide investors with predictable returns over the long term. They're an income-oriented instrument. They're tied to assets that are typically contracted for the long term. They provide lots of stability and predictability and have some growth characteristics. With that backdrop, you would expect MLPs to generally outperform in bear markets and to lag in bull markets. Remember, in bull markets there tends to be rising incomes, rising appetite for risk and rising confidence in economic performance. MLPs are the type of asset that is designed to provide a certain predictable type of income whether the economy is in an expansion mode or in a contraction mode.²

Appeals to Various Investors

Because of their high yield and relative safety, MLPs have traditionally appealed to individual investors. However, ownership by institutional investors has grown from 12% in 1988 to approximately a quarter of total investors today.

¹ *Midstream Energy MLPs Primer*. Morgan Stanley & Co. Incorporated. January 12, 2011.

² John Edwards: "Looking at MLPs for the Long-Term" *The Energy Report*. January 18, 2011.

Additionally, mutual funds and exchange-traded funds have provided investors with even more opportunities to tap the MLP market and in a diversified manner.

Results in the Energy Sector to Date

The MLP structure has proven to be an enormously efficient and successful way to raise investment capital in the energy sector. As shown in Figure 3, both the number of MLPs in the market and the total market capitalization has grown significantly over the last 15 years.

In 1996, there were 12 publicly traded MLPs with a market capitalization of approximately \$8 billion. As of May 2011, there were about approximately 75 publicly-traded MLPs representing over \$270 billion in market capitalization, a compounded annual growth rate of 20%. Further, the proportion of MLPs focused on the energy sector has grown significantly. As figures 4 and 5 show, in 1990, a little over a third of all MLPs were energy focused; today, that figure stands at 80%.

Finally, distributions from energy sector MLPs have grown as they have generated increasing amounts of cash. In the current market environment, this steady increase has been a powerful factor in attracting investors.

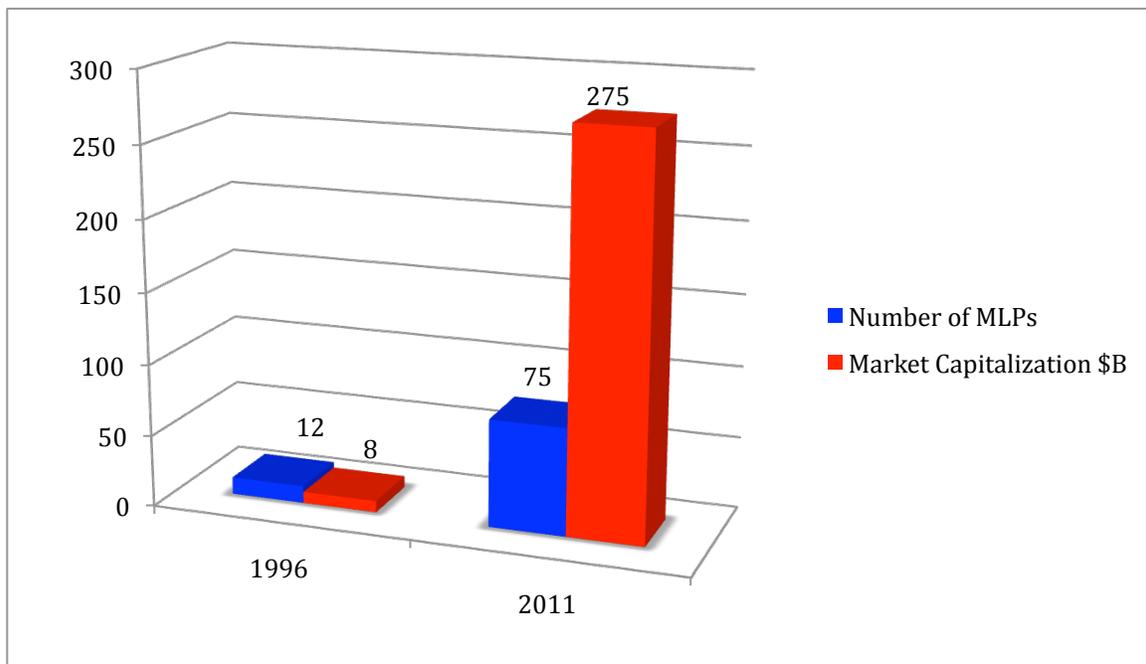
Figure 6 shows the distribution growth to unit holders over the last ten years, which significantly exceeds the rate of overall inflation in the economy.

Potential for Renewable Energy

By any forecast, electricity generated from renewables is projected to grow at a faster rate than any other energy source for the next 25 years.

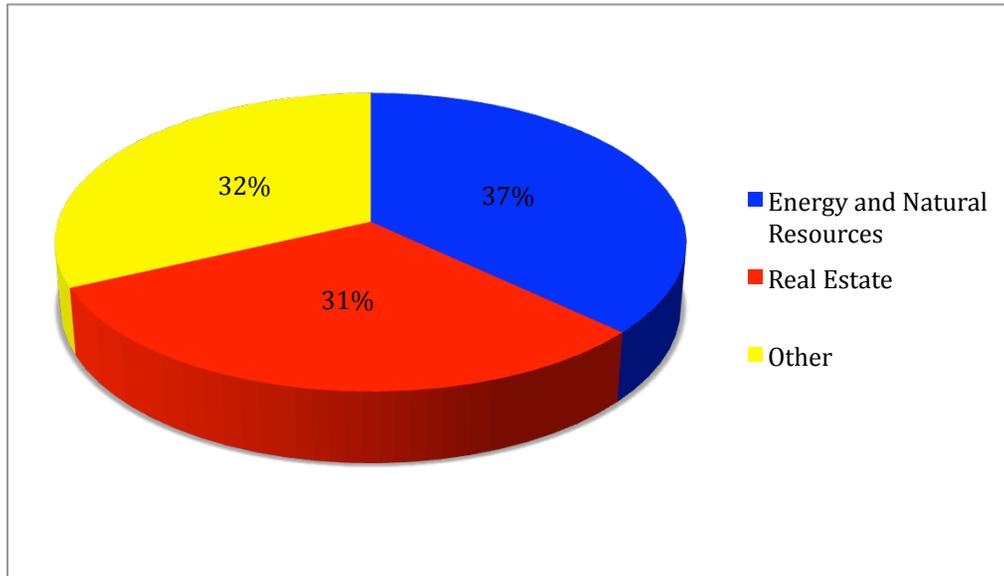
This development, however, is contingent on efficient deployment of capital to and within the sector.

Figure 3
Growth of Energy MLPs
1996-2011



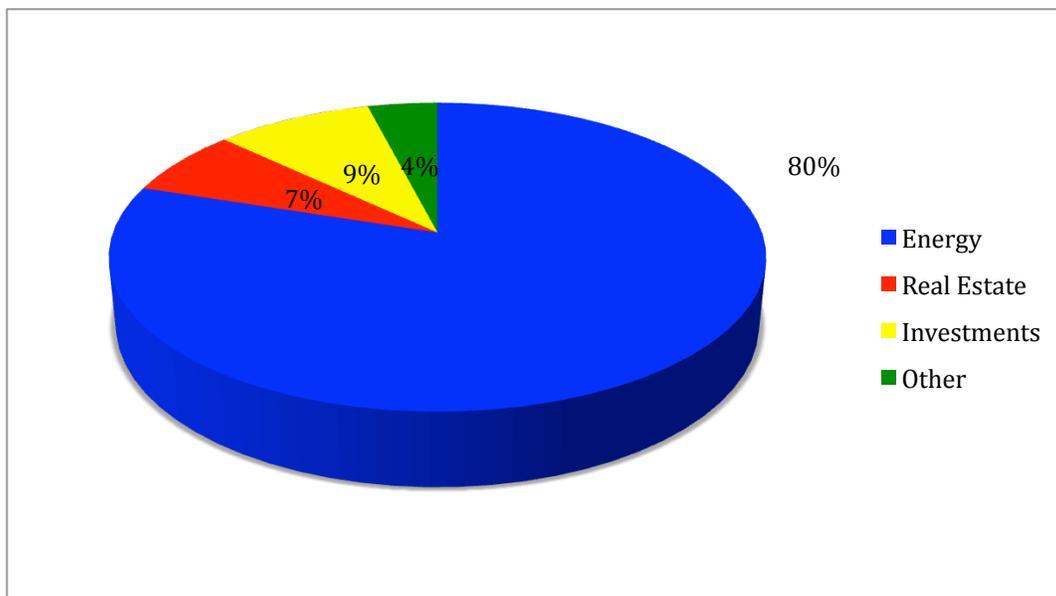
Source: Morgan Stanley Research

Figure 4
MLP Distribution by Industry Group
1990



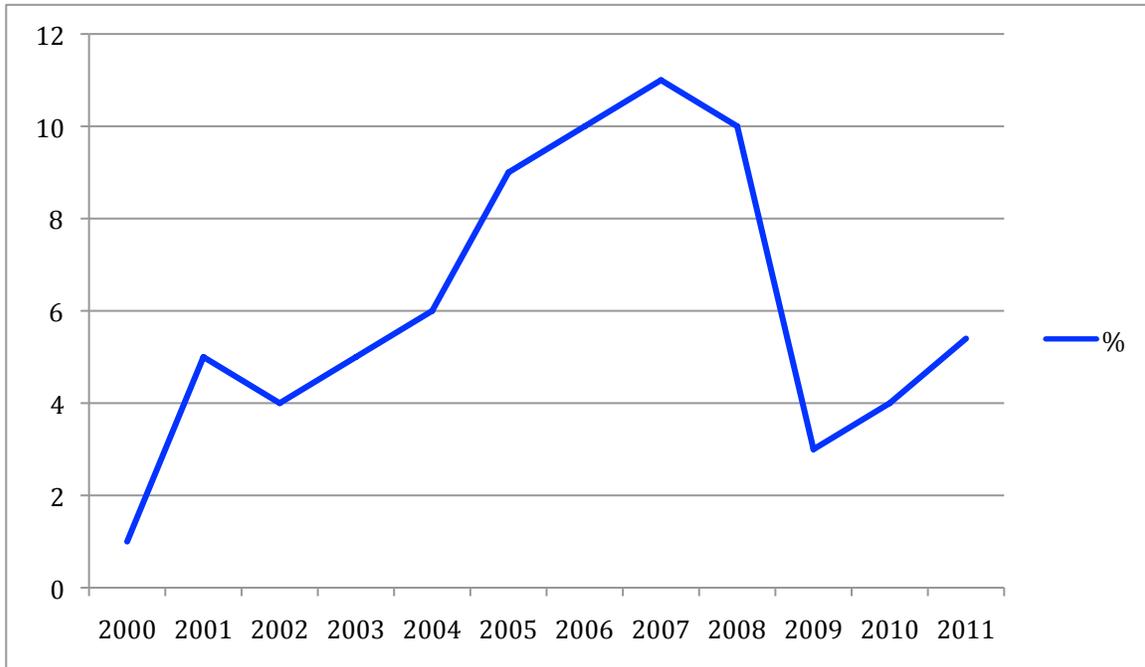
Source: National Association of Publicly Traded Partnerships

Figure 5
MLP Distribution by Industry Group
2011



Source: National Association of Publicly Traded Partnerships

Figure 6
MLP Median Distribution Growth



Source: Wells Fargo Securities, MLP Primer Fourth Edition and Morningstar

As previously discussed, the MLP structure is a tried and true method for raising capital that, in theory, could be employed to spur greater investment in the renewable energy industry—provided the renewable energy projects meet a number of criteria.

1. Strong, stable long-term distributable cash flow. Purchased Power Agreements (PPAs) will need to be long-term, 15 to 20 years, to ensure consistent and predictable distributions to investors, irrespective of tax benefits which face inherent political risk.

2. Contracts structured to insure low commodity price exposure and volatility.
3. Effective risk management mitigation measures. Potential measures include parent company guarantees, financial risk instruments, or insurance.
4. Growth potential. Those companies seeking MLP status will need access to additional market opportunities to grow and increase distributions over time.

Provided these requirements are met, MLP status for renewables could open up new opportunities for individual investors.

Previously, capital to the renewable sector flowed primarily through non-recourse private placement markets in debt and tax equity. With the MLP mechanism, an additional class of investors could tap into growing public interest in renewable energy. Globally, investments in renewal energy in 2010 totaled \$243 billion in 2010, up from \$186 billion in 2009. In the U.S. however, retail and institutional investors such as mutual funds have very limited options in terms of pure-play renewable investment opportunities that focus on the U.S. market. Opening MLPs to renewables could create additional options.

Additionally, MLPs for renewables could provide a tool for utilities to invest in renewables and enjoy a higher price-earnings multiple on those assets if held in an MLP entity rather than a traditional utility entity. MLPs currently trade at price earnings multiples in the mid- to high teens as opposed to traditional utility stocks that record single-digit multiples.

MLPs are also particularly suited to the state-by-state partially deregulated utility market as noted by the Congressional Research Service:

Today, operating companies are often used by MLPs to limit liability among various ventures operating in different states. The use of an operating company also gives MLPs more options and protection when structuring its debt financing since it can subordinate and separate debt along its various lines of business more easily. Additionally, MLPs can use an operating company to “filter” income generated by a subsidiary that would otherwise violate the qualified MLP income restrictions. This can happen when an MLP has business investments in closely related, but unqualified, lines of business.³

Thus, traditional utilities would be incentivized both financially and legally to consider an MLP structure for their renewable assets.

Finally, MLPs could have some benefits in the Research and Development area, especially in terms of further development of cost reduction technologies and scale development technologies. Successful MLPs are characterized by increasing cash flows. While MLPs are not particularly suited to development of projects with technology risk, the vehicle could help steer investors toward companies that develop and deploy technologies designed to lower costs of production and increase scale efficiencies in order to ensure safe, predictable cash flows.

In U.S. private markets, R&D funding has been the almost exclusive domain of venture capital and private equity with a slant towards early stage technologies. Across all industries, approximately 28% of R&D funds have been

³ M. Sherlock and M. Knightly, *Master Limited Partnerships: A Policy Option for the Renewable Energy Industry*. Congressional Research Service, June 28, 2011.

allocated to operational improvements within an industry or company.⁴ Applying this percentage across the renewable energy industry based on 2009 investment levels, we would expect an additional \$1 billion in R&D funds to flow into the sector focused primarily on operational improvements.

Marginal Capital Inflows Due to MLP Structure

Financial modeling of the value of the tax benefit of MLPs indicates that adoption of the MLP structure could result in substantial additional capital mobilized initially and in follow-on years. The exact amounts and timing will depend on the overall growth rate of the adoption of renewable electricity sources, capital market conditions and competing fuel sources. Potential capital inflows are detailed in the table below.

**Table 2
Potential Marginal Capital Inflows**

| Renewable Growth Case | Additional Value of Capital Inflows Years 2013-2015 \$B | Additional Value of Capital Inflows Years 2016-2021 \$B |
|----------------------------------|----------------------------------------------------------------|----------------------------------------------------------------|
| 2.7% Annual Growth in Renewables | 1.7 | 1.5 |
| 10% Annual Growth in Renewables. | 2.3 | 2.0 |
| 15% Annual Growth in Renewables. | 3.0 | 2.6 |

These figures represent an estimate of additional market valuation due to the tax benefits of the MLP structure (avoidance of taxation at entity level), which is a

⁴ *R&D Budgets: Leaders Allocate project Portfolios Differently.* Corporate Executive Board. 2008.

close approximation of additional or marginal capital that would flow into in the sector in addition to the normal market capital that would flow into the sector. Companies will be incentivized to place renewable assets with high market growth potential and high return potential, affected by such policies as renewable portfolio standards and state utility regulation. Those markets with pro-growth policies will receive a higher share of the overall capital.

Modeling Assumptions and Implications

The model utilizes discounted cash flow analysis based on the forecasted growth in generation of power from renewables over the period. The model assumes that over time, 80% of the renewable assets --generation, transmission and distribution -- would be placed in the master limited partnership structure with the assets that generate the highest distributable cash flow placed in the structures initially. A combined Federal and state tax rate of 40% is used in the calculations. A required cash flow coverage ratio of 1.52, the average for pipelines is assumed. Pricing assumptions are based on EIA forecasts and include generation as well as transmission and distribution pricing, plus a 2-cent per kilowatt-hour tax credit.

Three separate growth rate scenarios were modeled for the growth in the adoption of solar and wind energy and the results are presented. The higher growth rate scenarios were modeled to show the benefits that may accrue under some private forecasts and public studies as outlined in Appendix B. These growth rates are used as scenarios and not forecasts. Actual growth rates can

and will vary widely according to any number of market, industry and competitive conditions.

The model assumes that capital markets would assign a multiple of 11 to the cash flow. Cash flow multiples of MLPs stocks average 12.8 year to date according to the December 4, 2011 MLP report by Morgan Stanley. Various sensitivity analyses are available in the Appendix B according to the multiple assigned. Electricity-based MLPs exhibit similar business model characteristics that should afford similar valuations. Long-term purchased power agreements limit business risk, volatility, and insure consistency of distribution streams. The emergence of the sector as an asset class should provide sufficient opportunities to grow distributions over time.

MLPs in the energy space that can show multi-year distribution growth potential provide an attractive yield alternative for investors in the current low interest rate environment and continued global economic challenges. In this regard, renewable energy MLPs should be no different than pipeline or other energy MLPs. But as in all investments, the attractiveness will depend on the total return potential, individual economics of the assets in the partnerships, management teams, and other financial and non-financial factors. Risks include commodity risk, access to capital markets, and economic growth.

Further, investor valuation of renewable MLPs poses two problematic issues. First, the current U.S. fiscal situation draws attention to any expiring tax credit or incentive. Thus, we believe the uncertainty surrounding the extension of the renewable tax credits would likely result in a lower valuation being applied to

the tax benefits of the renewable electricity based MLPs. If policy measures were enacted to provide additional certainty around these credits, additional market capitalization and increased capital flow into the sector would result. Second, valuation of MLPs on a cash flow basis is generally dependent on distributable cash flow. Our modeling assumes most of the cash flow from renewables in MLPs would be distributable but that will ultimately depend on how the general partner/limited partner structures are set up and the types of assets that are ultimately placed in the MLPs.

Policy Implications

Structured properly, MLP status for renewables such as wind and solar could have substantial economic and energy security benefits. Congress would have to expand the definition of “qualifying income” to allow renewable energy producers to structure as MLPs. Additionally, passive loss rules may have to be restructured to allow investors to use losses to offset income from other sources, a practice not currently allowed for MLPs. Policy makers would also have to determine whether these benefits would be granted in addition to or in lieu of current programs such as the Section 1603 grant program. In the current political climate, the impact on Federal revenues from the combination of these measures would likely be examined closely before Congressional approval.

MLPs would put renewable energy sources on a level playing field with fossil fuels, depending on how current tax incentives are treated. Currently, markets favor MLPs as investors chase yield and a predictable source of income. Treatment of all energy sources in a similar manner would remove any market bias towards fossil fuels in the MLP structure.

History has shown that MLPs can attract capital to an industry segment over time. As capital needs in the renewable energy sector grow, MLPs can provide a more tax-advantaged option for investors and thereby enhance the renewable energy sector as an investment category.

Finally, MLPs can impose a market discipline on renewable energy investments not currently present. MLPs require a stable cash flow. Valuations are frequently determined by the management team's proven ability to grow distributions. Because such a high proportion of cash is returned to investors, access to capital requirements for expansion is critical. Companies seeking additional capital for business expansion must adopt disciplined capital allocation strategies while maintaining a solid return performance. Such requirements would force all renewable energy companies seeking MLP status to present a sustainable business plan with a short- and long- term profitable growth strategy and deliver consistent results on that plan.

Financial Incentives for Renewable Energy

Appendix A

| State | Personal Tax | Corp. Tax | Sales Tax | Prop. Tax | Rebates | Grants | Loans | Industry Support | Bonds | Performance-Based Incentive |
|-------------|--------------|-----------|-----------|-----------|--------------|-------------|-----------------|------------------|-------|-----------------------------|
| Federal | 3-F | 4-F | | | | 4-F | 5-F | 1-F | | 1-F |
| Alabama | 1-S | | | | 1-U | 1-S | 2-S 2-U | | | 2-U |
| Alaska | | | | 1-S | | 1-S | 2-S | | | 1-U |
| Arizona | 4-S | 2-S | 1-S | 2-S | 8-U 1-L | | 1-U | 1-S | | |
| Arkansas | | | | | 1-U | | 1-S 1-U | 1-S | | |
| California | | | | 1-S | 7-S 45-U 4-L | | 1-S 1-U 3-L | 1-S | | 1-S 1-L |
| Colorado | | | 2-S 1-L | 3-S | 19-U 7-L | 1-L | 2-S 1-U 1-L | | | |
| Connecticut | | | 2-S | 1-S | 3-S 1-U 1-L | 2-S | 3-S 1-U 1-P | 3-S | | |
| Delaware | | | | | 2-S 3-U | | 2-S | | | 1-S |
| Florida | | | 1-S | | 17-U 4-L | | 1-S 6-U 3-L | 1-L | | 2-U |
| Georgia | 1-S | 1-S | 1-S | | 12-U 1-L | 1-P | 1-S 1-U 1-L 1-P | | | 3-U |
| Hawaii | 1-S | 1-S | | 1-L | 1-S 1-U | | 2-S 2-U 1-L | | | 1-S |
| Idaho | 1-S | | | 1-S | 1-U | 1-P | 1-S | | 1-S | |
| Illinois | | | 1-S | 2-S | 2-S 7-U | 3-S 1-L 1-P | 2-S | 1-S | 1-S | 1-P |
| Indiana | 1-S | | | 1-S | 29-U | | 1-U | | | 2-U |

| | | | | | | | | | | |
|----------------|-----|-----|---------|----------|-------------|---------|-----------------|-----|-----|---------|
| Iowa | 1-S | 2-S | 1-S | 3-S | 21-U | | 2-S 2-U | | | 1-U |
| Kansas | 1-S | 1-S | | 1-S | 2-U | | 1-S | 1-S | | |
| Kentucky | 1-S | 2-S | 1-S | | 1-S 10-U | 1-S | 2-S 1-U 1-L 1-P | | | 2-U |
| Louisiana | 1-S | 1-S | | 1-S | 1-S 1-U | | 2-S 1-L | | | |
| Maine | | | 1-S | | 1-S | 1-S | 3-S 1-L 1-P | | | 1-S |
| Maryland | 3-S | 3-S | 4-S | 4-S 10-L | 4-S | | 4-S | | | 1-S |
| Massachusetts | 1-S | 2-S | 1-S | 1-S | 4-S 9-U 1-L | 4-S | 2-S 1-U 1-P | 2-S | | 1-S |
| Michigan | | | | 2-S | 6-U | 2-S | 4-S 2-P | 5-S | | 1-U |
| Minnesota | | | 2-S | 1-S | 4-S 50-U | 1-S 2-U | 7-S 2-U | | | 1-S |
| Mississippi | | | | | 6-U | | 1-S 2-U | 1-S | | 2-U |
| Missouri | | 1-S | | 1-S | 11-U | | 2-S 2-U 1-L | | | |
| Montana | 3-S | 1-S | | 3-S | 4-U | 1-U | 1-S | 2-S | | |
| Nebraska | 1-S | 1-S | 1-S | 1-S | 2-U | | 1-S | | | |
| Nevada | | | 1-S | 3-S | 2-S 2-U | | 1-S 1-U | | | 1-S |
| New Hampshire | | | | 1-S | 3-S 6-U | 1-S | 4-S 1-P | | | |
| New Jersey | | | 1-S | 2-S | 6-S | | 1-S | 3-S | | 2-S |
| New Mexico | 6-S | 5-S | 4-S | 1-S | 1-U | | 1-S | 1-S | 1-S | 3-U |
| New York | 2-S | 1-S | 3-S 1-L | 2-S 1-L | 8-S 7-U | 2-S | 3-S | | | 2-S |
| North Carolina | 1-S | 1-S | 1-S | 2-S | 8-U 1-L | | 3-S 3-U 1-L | 1-S | | 5-U 1-P |
| North Dakota | 1-S | 1-S | 3-S | 2-S | 3-U | | 2-U | | | |
| Ohio | | | 1-S | 2-S 2-L | 6-U 1-P | | 2-S 1-U 1-L | 1-S | | 1-S 2-U |

| | | | | | | | | | | |
|----------------------|-----|-----|-----|---------|----------|-------------|-------------|-----|--|-------------|
| | | | | L | | | U 1-L | | | |
| Oklahoma | | 1-S | | | 7-U | | 4-S 3-U | 1-S | | |
| Oregon | 1-S | 1-S | | 1-S | 6-S 20-U | 2-S 1-P | 3-S 9-U | 1-S | | 1-S 1-U |
| Pennsylvania | | | | 1-S | 1-S 6-U | 7-S 1-U 2-L | 7-S 1-U 5-L | 3-S | | 1-S |
| Rhode Island | 1-S | 1-S | 1-S | 2-S | | 1-S | 1-S 1-P | | | 1-S |
| South Carolina | 1-S | 2-S | 1-S | | 5-U | | 1-S 5-U | | | 1-S 3-U 1-P |
| South Dakota | | | 1-S | 2-S | 6-U | | 1-S 2-U | | | |
| Tennessee | | | 1-S | 1-S | 1-U | 1-S | 2-S 1-U | 2-S | | 2-U |
| Texas | | 1-S | | 1-S 2-L | 29-U 2-L | 1-S 1-L | 2-S 1-U | 1-S | | 2-U |
| Utah | 1-S | 1-S | 1-S | | 1-S 4-U | | | 1-S | | |
| Vermont | | 1-S | 1-S | 1-S | 1-S | 1-U | 2-S 1-P | | | 1-S 2-U |
| Virginia | | | | 1-S | 1-S | | 2-S 1-U | 3-S | | 2-U |
| Washington | | | 1-S | | 14-U | 1-P | 10-U | 1-S | | 1-S 3-U |
| West Virginia | 1-S | 1-S | | 1-S | 1-U | | | | | |
| Wisconsin | 1-S | 1-S | 1-S | 1-S | 7-S 5-U | | 2-S 2-L | | | 4-U |
| Wyoming | | | 1-S | | 6-U | | 1-S 2-U | | | |
| District of Columbia | | | | | 1-S | | 1-S | | | 1-S |
| Palau | | | | | | | | | | |
| Guam | | | | | | | | | | |
| Puerto Rico | 1-S | | 2-S | 1-S | 1-S | 1-S | | 1-S | | |
| Virgin Islands | | | | | 1-S | 1-S | 1-S | | | |
| N. Mariana Islands | | | | | | | | | | |

| | | | | | | | | | | |
|----------------|----|----|----|----|-----|----|-----|----|---|----|
| Islands | | | | | | | | | | |
| American Samoa | | | | | | | | | | |
| Totals | 41 | 40 | 46 | 74 | 496 | 52 | 203 | 40 | 3 | 70 |

F = Federal S = State/Territory L = Local U = Utility P = Private

Appendix B

| Renewable Growth Case | Valuation Multiple Price/Cash Flow | Additional Value of Market Capital 2013-2015 \$B | Additional Value of Market Capital 2016-2020 \$B |
|----------------------------------|-------------------------------------------|---------------------------------------------------------|---------------------------------------------------------|
| 2.7% Annual Growth in Renewables | 14 | 1.8 | 2.0 |
| 10% Annual Growth in Renewables | 14 | 2.5 | 2.9 |
| 15% Annual Growth in Renewables | 14 | 3.2 | 3.7 |
| | | | |
| 2.7% Annual Growth in Renewables | 11 | 1.7 | 1.5 |
| 10% Annual Growth in Renewables | 11 | 2.3 | 2.0 |
| 15% Annual Growth in Renewables | 11 | 3.0 | 2.6 |
| | | | |
| 2.7% Annual Growth in Renewables | 9 | 1.5 | 1.0 |
| 10% Annual Growth in Renewables | 9 | 2.2 | 1.5 |
| 15% Annual Growth in Renewables | 9 | 2.8 | 1.9 |

Scenario Assumptions

2.7% Annual Growth in Renewables. This scenario is consistent with approximate forecasted growth in renewables as outlined in the EIA 2011 Base Case for electricity growth, with some smoothing of the growth for forecasting purposes. These assumptions include expiration of the Production Tax Credits as the laws are currently written. The complete assumptions are outlined in their base case scenario at <http://www.eia.gov/forecasts/aeo/er/>.

15% Annual Growth in Renewables. This scenario models an approximate growth in wind consistent with that outlined in the Department of Energy joint effort with industry, government and the nations national laboratories entitled *20% Wind Energy by 2030: Increasing Wind Energy's Contribution to U.S. Electricity Supply*. The economic, policy and technological assumptions are outlined in the report and can be downloaded at <http://www.20percentwind.org/>. Additionally, we assumed the Production Tax Credits would be renewed for the forecasted period. For solar, the growth rates are consistent with a number of private industry forecasts and the Department of Energy's *Sunshot Vision Study*.

10% Growth in Renewables. This scenario corresponds to a middle ground. The EIA forecasts have had a bias towards underestimating renewable deployments. The 15% growth case utilizes assumptions regarding natural gas prices that have proven to be unrealistically high. Thus, the study attempts to model a middle ground scenario.

Appendix C—Texas Incentives

In addition to Federal grants and tax credits, many states have also enacted fiscal incentives to encourage investment in renewable energy. A complete list of these incentives can be found in Appendix A. Perhaps the most active state in this regard is Texas, which leads the nation with more than 10,000 megawatts of installed wind power generation capacity. Texas has become the nation's leading wind power state not only because of ERCOT (Electric Reliability Council of Texas) mandates, available land, and usually reliable winds but also in response to several state and local fiscal incentives that make the return on investment analysis in wind and other renewables extremely attractive.

For example, businesses that either use, manufacture or install wind energy generators can deduct the total cost of the system from the company's taxable capital or take 10 percent of the system's cost off the company's income under the state's franchise tax. The state also allows counties and municipalities to grant property tax exemptions for wind-powered energy devices if they are used primarily for production and distribution of energy for on-site use.

Under Chapter 313 of the Texas Economic Development Act, developers of wind farms for commercial use can apply for a "value limitation" that significantly reduces their public school district tax obligation. The value at which the property is limited (and therefore taxed) varies with the size of the school district. For small districts, the cap on projects can be as low as \$1 million while for large school districts the cap can go as high as \$100 million. When an agreement is

reached between the wind company and the school district, the value of the property is capped and the state makes up the difference between the capped value and the appraised value. The valuation cap then reduces the taxes paid by the wind company for a 10-year period.