



2013 SPECIAL REPORT

Global Energy

THE PRIVATE EQUITY

OPPORTUNITY OF THE CENTURY

“There’s been a big increase in private equity coming into the business, but energy is still the most under-represented business in the world in terms of private equity.”

Bill Macaulay, Co-Founder, Chairman and CEO, First Reserve¹

Introduction

This marks the second issue in BerchWood Partners’ 2013 series of private equity market surveys, which are intended as a vehicle to share our views and insights with colleagues in the private equity community about specific regions and sectors we think are particularly noteworthy.

Today the global opportunity in energy, across oil and gas and power, represents an enormous challenge in harnessing resources. The underlying industries are large, global, highly complex, capital intensive, and in a state of change. Energy’s essential role in driving economies and keeping on the lights indicates that it can generate attractive, stable cash flows as well as more volatile, higher returns.

Private equity has demonstrated its advantage building productive businesses and creating value for investors. By aligning the interests of investors, fund managers, and portfolio companies, private equity provides a superior governance structure and high-powered incentives.

Moreover, the private equity industry has a long history investing in the energy sector—both from a platform of generalist funds as well as more specialized energy-focused buyout and infrastructure funds.

As we highlight in this report, fundamental shifts in the global energy landscape, such as the unprecedented shale gas revolution, are creating massive investment opportunities in the near and longer term. These in turn are causing huge ripple effects down the value chain and into adjacent markets across the globe. For private equity, this does indeed represent the opportunity of the century—which is good news for investors and the broader economy.

1. Don Stowers, “First Reserve’s Co-Founders Share Their Investment Strategy,” *Oil & Gas Financial Journal*, June 11, 2013.

FUNDAMENTAL SHIFTS IN GLOBAL ENERGY LANDSCAPE

Three fundamental drivers are shaking up the energy sector and creating a significant number of opportunities for private equity to move resources to where they will create more value. These include:

- > **Shale Gas Revolution** – In the late 1990s, advances in horizontal drilling and hydraulic fracturing technologies ignited a production bonanza in North America, which KKR has estimated will require \$2 trillion in upstream investment for production and \$250 billion in capital expenditures for gas infrastructure development between 2011 and 2035.² A second and even larger shale gas revolution is unfolding across the rest of the world, one that could require \$9.7 trillion in cumulative investment in gas-supply infrastructure between 2012 and 2035, according to IEA’s favorable scenario.³
- > **Global Demand for Energy** – Accelerating economic growth in the emerging market economies is creating an insatiable demand for energy and new energy infrastructure. While North America and Europe/Eurasia’s energy demand is growing by 0.3 and -0.5 percent per annum respectively, the growth rate in China and India is 8.8 and 7.4 percent per annum, respectively (see Figure 1).⁴ The demand for cheaper and cleaner fuels such as natural gas is even greater—over 20 percent per annum in China.
- > **Regulation and Technology** – Fear over environmental risks, such as climate change and safety around nuclear power, is creating fundamental

2. Marc S. Lipschultz, *Historic Opportunities from the Shale Gas Revolution*, KKR Report, Kohlberg Kravis Roberts & Co. L.P., November 2012, p. 5.

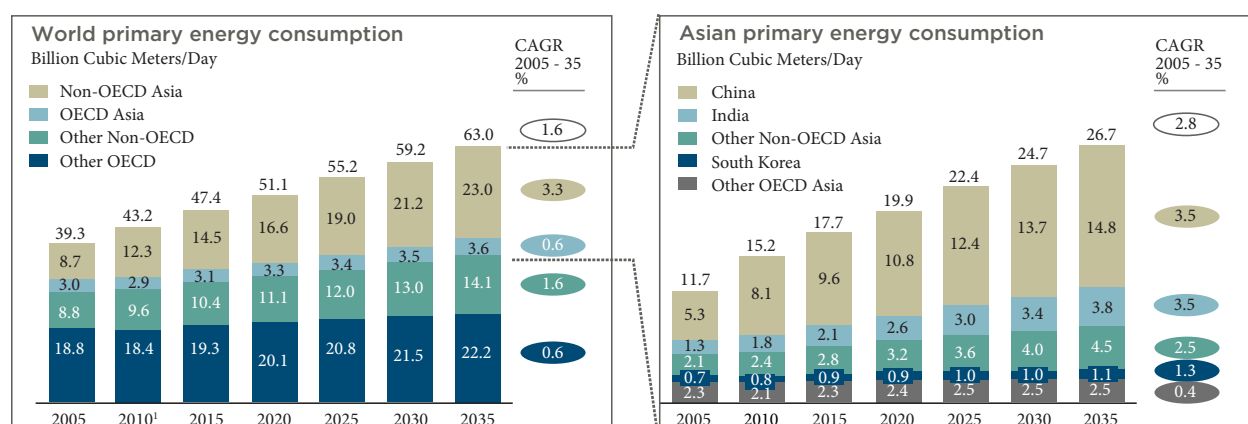
3. *Golden Rules for a Golden Age of Gas*, World Energy Outlook Special Report on Unconventional Gas, International Energy Agency, 2013, p. 88. Under the “Golden Rules Case” the industry moves forward in an open and transparent fashion, minimizing environmental impacts and thus gaining public support.

4. *BP Statistical Review of World Energy*, June 2012, p. 40-41. bp.com/statisticalreview

“The lead times may be long owing to the scale and complexity of the vast system of energy, but if this is to be an era of energy transition, then the \$6 trillion global energy market is contestable.”

Dan Yergin, *The Quest: Energy Security and the Remaking of the Modern World*, 2011

Figure 1: *World and Asian Energy Consumption*



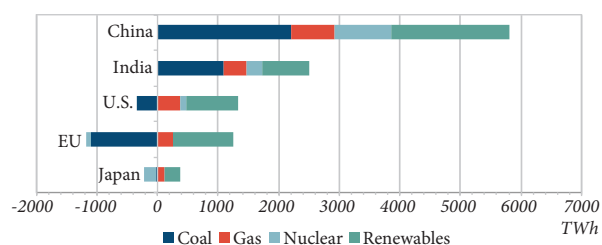
Source: BP Statistical Review of World Energy, June 2012.

shifts in energy production across the globe. Although softened by the recession, longstanding government targets for renewable energy production—renewable portfolio standards in the U.S. and a 20 percent of total energy consumption target in Europe—continue to drive the growth of solar and wind (see Figure 2). In the aftermath of the Fukushima disaster in Japan, Germany, Italy and Switzerland are phasing out nuclear power, and Japan is considering the option. Environmental regulation, renewables, and cheap gas are all expected to significantly reduce U.S. coal-fired power capacity, which now supplies nearly 50 percent of the country’s electric power.

The global energy business is undergoing a dramatic and important change, presenting near and longer term investment opportunities that are global. Kerogen Capital’s founder Jason Cheng notes that more than 90 percent of the oil and gas industry based on production or reserves is located outside North America, and “if you look at for example Exxon or Chevron’s portfolio, 75-80 percent of their assets are actually outside North

America.”⁵ Additionally, while North America has accounted for 99.9 percent of global shale production, 84 percent of the technically recoverable shale gas reserves are outside the U.S. and Canada.⁶

Figure 2: *Change in Power Generation, 2010-2035*



Source: International Energy Agency, *World Energy Outlook*, November 12, 2012.

Moreover, the investment opportunity goes beyond core energy as there will be ripple effects to downstream and adjacent industries. One example is the transformation

5. “Kerogen’s Chang Talks Global Energy Investing,” Privcap, Transcript, June 24, 2013, p. 1.

6. Ivan Marten and Eric Oudenot, “The Great, Global Shale-Gas Development Race,” *BCG Perspectives*, July 2013.

“The natural owner of an infrastructure asset is a pension or endowment fund that intends to hold the asset indefinitely.”

Leo de Bever, CEO, Alberta Investment Management Corp.⁸

of the transportation industry with the shift away from oil to gas. Commodities guru Ed Morse at Citi recently observed that the shale gas revolution is expected to lead to the adoption of compressed natural gas and liquefied natural gas vehicles, thus ensuring the end of oil's monopoly as a transport fuel.⁷

ABUNDANCE OF CAPITAL: GROWING POOL OF LONG-TERM INVESTORS

These drivers are creating shifts in supply and demand that will bring with them substantial needs for new capital to build, upgrade, and maintain a reconfigured global energy supply chain.

Favoring private equity's ability to capitalize on these unprecedented investment opportunities is the growing pool of capital seeking *alternative* investments. The energy investment opportunity is coming to the fore just as an increasing number of investors are becoming more comfortable with investing in alternative assets broadly, especially buyouts, infrastructure, and other real assets that include energy.

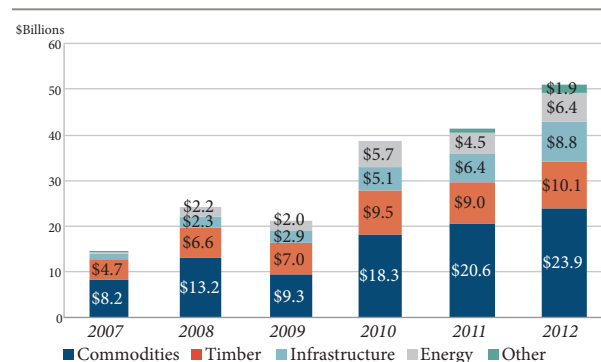
A broad spectrum of energy assets, such as gas transmission facilities, power plants, and LNG terminals, generate the type of stable, reliable, and long-term (and often-inflation linked) revenue streams that match the long-dated liabilities of investors such as pension funds, endowments, and insurance companies. As long-lived assets that often provide essential services—fuel, electric power, and heat—energy assets also are less correlated with the stock market and broader economy.

Taken together, these attributes spell out why investors are increasingly targeting a relatively new corner of the alternative asset space, “Real Assets.” These include energy, infrastructure, timber, real estate, and commodities. *Pensions & Investments* identified

real assets as “the alternative investment that has the brightest future” noting that in the last five years the asset class garnered an additional \$40 billion, as allocations doubled or tripled (see Figure 3).⁹

The pool of potential investors for energy and energy infrastructure investments is large and growing. Globally, the assets of pension funds, insurance companies, foundations/endowments, and sovereign wealth funds (SWFs) amount to over \$60 trillion.¹⁰ According to Preqin, over 70 percent of institutional investors have less than 5 percent of their capital invested in infrastructure. But this is changing as investment regulations loosen up for pension funds in developing countries such as Brazil and Mexico and U.S. pension funds look to fill the gap of their unfunded obligations to present and future retirees.

Figure 3: Real Asset Investments of the Largest 200 U.S. Pension Funds in Billions



Source: *Pensions & Investments*, “Asset Allocations: Past, Present and Future,” November 2012.

In June, Japan's Pension Fund Association, which manages \$100 billion of assets, announced that it is partnering with three other Japanese groups and the Ontario Municipal Employees Retirement System

7. Ajay Makan, “US Shale Gas to Lead to Lower Oil Prices,” *Financial Times*, June 3, 2013.

8. Vyvyan Tenorio and Christine Idzelis, “Can Private Equity Play the Infrastructure Game?” *The Deal Magazine*, April 3, 2009.

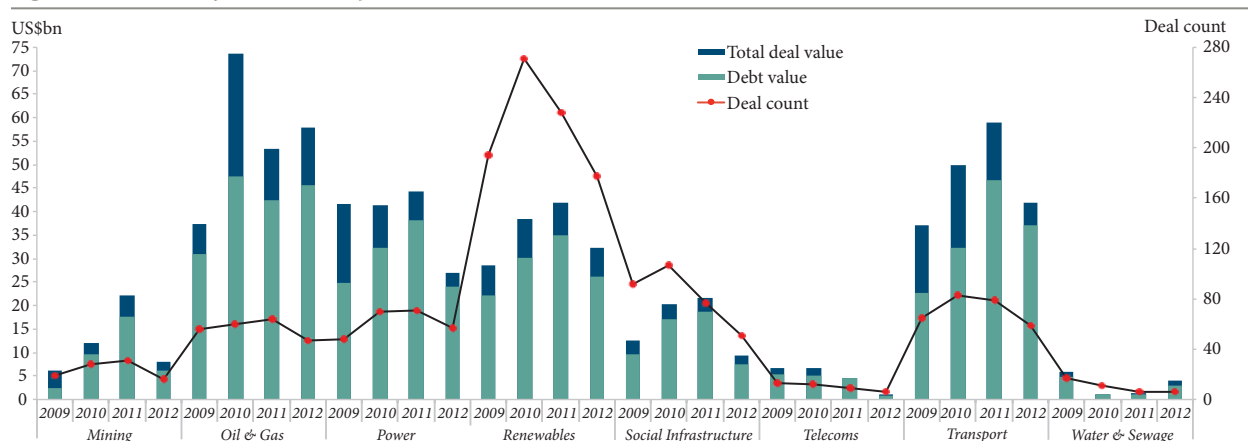
9. *Pensions & Investments*, “Asset Allocations: Past, Present and Future,” (slideshow), November 29, 2013.

10. David Haarmeyer, “The Quiet Revolution in Infrastructure Ownership,” *Infrastructure Journal*, June 12, 2013.

“We believe experienced private equity investors will have their pick from the outperforming, risk-adjusted investments in upstream, midstream and power.”

Andrea Kramer and John Shea, *Hamilton Lane*, 2013¹²

Figure 4: Global Project Finance By Sector



Source: *Infrastructure Journal*, 2013.

(OMERs) to buy Midland Co-Generation Venture, one of the largest gas-fired co-generation plants in the U.S., for \$2 billion.¹¹ This marks the first infrastructure acquisition by a Japanese public pension fund.

INVESTMENT OPPORTUNITIES AND VEHICLES

The enormous size of the global energy market and its disaggregated structure present unlimited opportunities for private equity groups to carve out niche areas. At the fund level, two of the paths taken by GPs are in raising a standard buyout fund or an infrastructure fund. These offer different risk and return profiles as well as terms and conditions with infrastructure having a longer investment horizon and returns that are less driven by exit strategy.

According to Prequin, 40 percent of infrastructure investors have a separate allocation for this asset class,

while 25 percent of these investors include it in their private equity allocation and 14 percent place it in their real asset allocation.¹³ Energy has accounted for the lion's share of infrastructure deals—65 percent of the total value in global deals in 2012, which came to over \$185 billion, according to *Infrastructure Journal* (see Figure 4).

The focus of the global energy buyout marketplace is shifting from power and utilities to oil and gas, driven by the shale gas tsunami. Energy accounted for 10 percent of global buyout deals last year, with oil and gas making up over 80 percent of the energy-related deal value and over half of this activity taking place in North America.¹⁴

With rapidly growing demand for electric power, the emerging markets have attracted much of the power and utilities deal flow. In Europe, private equity is stepping in to finance the massive shift away from coal and nuclear to renewable energy, consistent with government directives. According to KKR's projections, as a prime consumer of natural gas, the U.S. electric generation sector will

11. Jonathan Soble, "Japanese Fund Buys into U.S. Electricity," *Financial Times*, July 1, 2013.

12. Andrea Kramer and John Shea, "Is Private Equity Investment in the Energy Sector Getting Too Hot?" *Pensions & Investments*, August 1, 2013.

13. Prequin, *Global Infrastructure Trends in 2013*, Global Infrastructure Summit, April 2013.

14. Bain & Co., *Global Private Equity Report 2013*, p. 33.

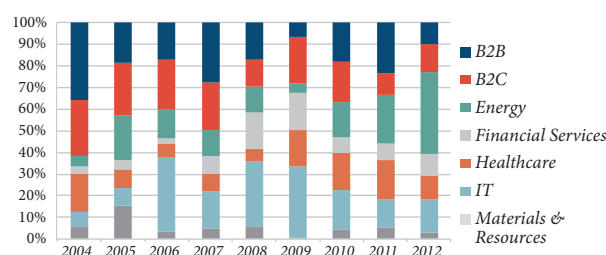
“Political risks tend to be much more about, not only selecting the right countries to go into, but whether or not the management teams and their strategies are really adapted to local conditions.”

Jason Cheng, Co-Founder and Managing Partner, Kerogen Capital²⁰

see an expansion of more than 65 percent in gas-fired generation capacity between 2011 and 2035—requiring about \$245 billion in capital investment.¹⁵

In the U.S., energy buyouts represented more than one-third of the capital exited in 2012, according to PitchBook (see Figure 5). Energy’s growing share of exit deals—from less than 5 percent in 2009 to over 30 percent in 2012—highlights the growing impact of shale gas revolution on new business and capital formation.

Figure 5: U.S. Private Equity Exit Value: Energy Represents More Than One Third in 2012



Source: PitchBook, Private Equity Presentation Deck, 4Q2012

Although it has long been involved in the oil and gas industry, today private equity is a significant partner. Annual deal volume has more than doubled between 2002 and 2012, reaching more than 35 deals valued at approximately \$35 billion, according to PricewaterhouseCoopers.¹⁶ Deal activity has been focused on the upstream as the race to develop shale gas and oil resources expands across North America and moves to the rest of the world. Following a similar trajectory, capital raised by private equity firms doubled to \$33 billion over the past three years.¹⁷

At more than \$1 trillion in annual capital and operating

expenditures, global oilfield equipment and services are another focus of buyout firms. Deals in this space accounted for 45 percent of the total energy deals in 2012 according to Bain & Co., and “will likely remain a mainstay of oil patch deal making going forward.”¹⁸ Providing investors steady returns over the five to 15 year horizon, midstream assets are often a focus of infrastructure funds catering to investors looking for less volatility.

As a highly decentralized and disciplined structure for focusing capital, private equity is particularly well positioned to take advantage of the wealth of opportunities in global energy. As Dan Revers, co-founder of ArcLight Capital observed: “And this is where I think energy is very interesting, because there’s a lot of silos of value that you can drill down into.”¹⁹ The opportunities are across different investment sizes, the energy value chain, and investment strategy, and can be expanded organically or through acquisitions.

RISKS AND RETURNS

Risks

Private equity investing always comes with risk balanced by generally healthy returns. Investing in the energy sector brings with it both industry-specific risks and a number of generic investment risks. These risks will vary by the specific industry—oil, gas, power, utilities, etc.—as well as where in the value chain the investment will be made. As in all energy subsectors, investments in oil and gas fall roughly along a risk continuum to match investor risk appetite (see Figure 6). Ultimately, the biggest risks will be country-specific given the predominate role of regulatory and political institutions.

15. Lipschultz, p. 13.

16. PricewaterhouseCoopers, *The US Energy Revolution: The Role of Private Equity in Oil and Gas*, February 2013, p. 1.

17. Chris Manning, 2013 “Private Equity Outlook: Trends that are Driving Private Capital Investment,” Trilantic Capital Partners, *Oil & Gas Financial Journal*, December 1, 2012.

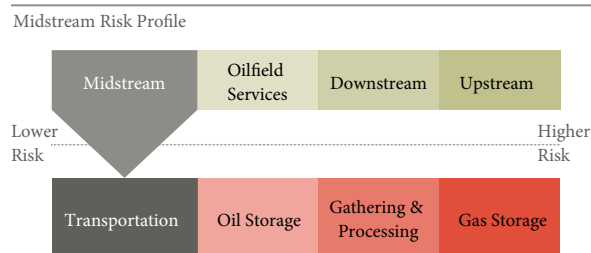
18. Bain & Co. p. 33.

19. Dan Revers, “Energy’s Big Moment,” Privcap (transcript), November 20, 2012, p. 2.

20. “Kerogen’s Chang Talks Global Energy Investing,” Privcap, Transcript, June 24, 2013, p. 2.

Private equity is known for its ability to mitigate commercial risks by choosing the right partners, aligning interests, structuring investments, and timing market entrance and exit.

Figure 6: Midstream Risk Profile



Source: PricewaterhouseCoopers, *The US Energy Revolution: The Role of Private Equity in Oil and Gas*, February 2013, p. 2.

A few of the leading risks that have received the most attention include:

- > **Regulation** – “This is an industry that probably is the most regulated. I can hedge interest rates. I can hedge commodity risk. But I can’t hedge politics,” a point made by Revers at ArcLight.²¹
- > **Public Resistance** – Particularly for shale gas development, the chief non-financial obstacles are real and perceived environmental and safety risks. In IEA’s scenario analysis, “only a small share of the unconventional resource base is accessible for development” if there is a lack of public acceptance.
- > **Volatility** – Oil and gas development, in particular, are cyclical businesses, which can deter investors looking for stable returns. The good news is that the shale gas boom should help to dampen volatility, at least in the medium to long term.
- > **Macroeconomic** – The health of the world economy and individual countries becomes important as economic activity drives energy demand and the need for investment. Thus uncertainty around the recovery of Europe and vibrancy of China’s economy play important roles in forecasting energy demand.

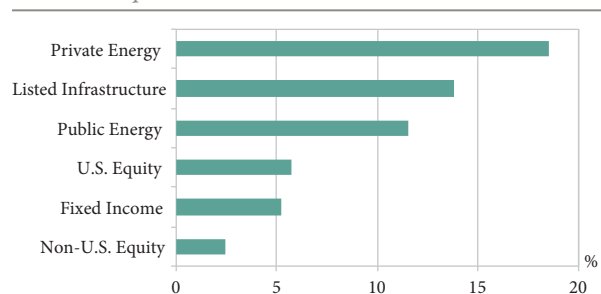
21. Dan Revers, “Energy’s Big Moment,” Privcap (transcript), November 20, 2012, p. 2.

Private equity is known for its ability to mitigate commercial risks by choosing the right partners, aligning interests, structuring investments, and timing market entrance and exit. These same principles apply in energy, but with more engagement with local regulators, environmental groups and other stakeholders where a higher level of transparency and dialogue are needed.

Returns

What will returns look like in future private equity transactions? Given the breadth of risks—industry, value chain, country—“risk-adjusted” returns are likely to vary considerably. What can be said is that private equity has a very good track record in energy. According to data compiled by Altius Associates, compared to other investments, private energy investments stand out as having seen the best returns over a 10-year period (See Figure 7).

Figure 7: Annualized Net Returns for 10 Years Ending September, 30 2012



Source: Altius Associates, *Infrastructure as Part of a Global Investment Portfolio*, 2013, p. 3.

The experience of long-term GPs supports this. A few highlights:

- > **Riverstone Holdings**, which just raised \$7.7 billion for the firm’s fifth fund, returned 2.7 times and 1.7 times investors’ money from the firms’ second and third funds raised in 2002 and 2005, respectively.²²

22. Jonathan Shieber, “Riverstone Holdings Just Raised \$7.7 billion: Here Are Some Reasons Why,” *Private Equity News*, June 25, 2013.

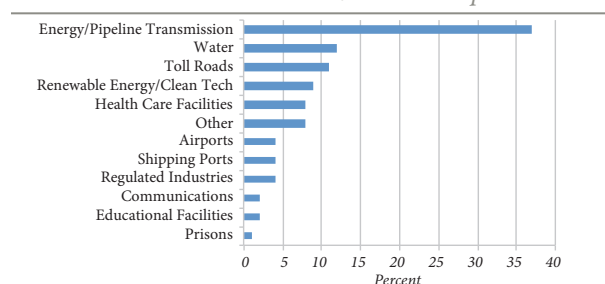
“The overall conclusion is that increased demand can be met as long as competition is present to drive innovation, unlock resources and encourage efficiency. This is why we remain optimistic the world will produce the energy it needs to fuel continued economic growth.”

Bob Dudley, Group Chief Executive, BP, Energy Outlook 2030, 2013, p. 5

- > **Energy Capital Partners**, which has raised more than \$8 billion for investments in the North American energy market, generated a 15.4 percent net IRR and 1.3x investment multiple as of year-end for its \$4.3 billion vintage 2010 fund, according to CalPERs.²³
- > **Blackstone Group**, which launched its first dedicated energy-focused private equity fund last fall, indicated that since 1997 it committed approximately \$6.3 billion in over 20 energy and natural resource transactions that generated a 37 percent net IRR, without a single realized loss of capital.²⁴

Finally, energy infrastructure plays tend not to provide returns as stellar as buyouts, but offer real asset attributes that are increasingly sought after by investors. For example, when asset owners were asked in a recent *Pensions & Investment* real asset survey what infrastructure sector they thought was the most attractive from a risk/return perspective, energy pipelines/transmission drew more than three times the votes than the next sector (see Figure 8).²⁵

Figure 8: What Infrastructure Sector Do You Find Most Attractive From a Risk/Return Perspective?



Source: *Pensions & Investments*, “Real Assets Survey Results,” December 10, 2012.

23. David Toll, “Energy Capital Gears Up for Fund III; To Offer European Waterfall, PEHub Wire, July 11, 2013.

24. “Blackstone Energy Partners Closes at \$2.5 Billion,” Blackstone Press Release, September 5, 2012.

25. *Pensions & Investments*, “Real Assets Survey Results,” December 10, 2012.

Conclusion

The energy opportunity for private equity is massive and unprecedented. It is global, unfolding in developing and developed countries; it is reverberating across the entire value chains of oil, gas, and electric power; and it will be a multi-decade, multi-trillion dollar endeavor. It is also a complicated investment market that favors informed, sophisticated investors.

As highlighted in this report, we see three long-term drivers of this market opportunity of a century:

- > **Shale Gas Revolution** – Access to abundant low cost gas (and oil) has been called the “most significant development in the energy industry for the last half a century.”²⁶
- > **Global Demand for Energy** – Emerging market economies have an insatiable thirst for energy to continue along their rapid growth trajectories.
- > **Regulation and Technology** – Tightening regulation of dirtier fuels such as coal combined with technology advances in renewable energy are driving a fundamental shift in the electric power fuel mix.

As an asset class that has demonstrated its value creation capabilities and long-term staying power, private equity is especially well placed to seize the opportunity. Investors have a multitude of ways to participate—whether it is with a higher risk, higher return buyout fund or a more stable return, inflation-hedged infrastructure vehicle.

These are all reasons why BerchWood believes that the combination of private equity and energy is unbeatable and is likely to be good not only for GPs and investors, but for the broader global economy and stakeholders.

We welcome your feedback and questions, and thank you for your interest.

This report was prepared by BerchWood Partners’ outside advisor and writer, David Haarmeyer.

26. Alan Riley, EU Must Respond to the Shale Revolution,” *Financial Times*, January 15, 2013.

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