

**UNITED STATES OF AMERICA  
BEFORE THE FEDERAL ENERGY REGULATORY COMMISSION**

**Certification of New Interstate Natural Gas Facilities**        )

**Docket No. PL18-1-000**

**AFFIDAVIT OF JAMES J. MURCHIE  
on behalf of  
The Environmental Defense Fund**

**I. Introduction**

1. My name is James J. Murchie.<sup>1</sup> I am Co-founder and CEO of Energy Income Partners, LLC (EIP). EIP is a Registered Investment Adviser that oversees about \$4.1 billion<sup>2</sup> of client assets. EIP advises or sub-advises seven mutual funds (five of which are New York Stock Exchange listed funds), two investment partnerships and hundreds of separately managed accounts for individuals and institutions. EIP invests all of these client assets in equity securities of publicly traded energy infrastructure companies located primarily in the U.S. with some investments in Canada and nominal investments overseas. EIP invests in companies that operate natural gas and petroleum pipelines and related storage and terminals and regulated power generation, transmission and distribution facilities, as well as developers and operators of renewable energy selling power on long term contracts. Our investment strategy seeks stable cash flows being generated by regulated assets with modest growth.
2. EIP was established in 2003 and is an outgrowth of my personal investments in energy

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<sup>1</sup> This Affidavit represents solely the views of James Murchie as of the submittal date. The views expressed herein address certain matters set forth in the May 26, 2021 Comments of the Environmental Defense Fund, but do not address all of the matters covered therein. No inferences should be drawn regarding the views of Mr. Murchie or Energy Income Partners, LLC, regarding any matter not specifically addressed in this Affidavit.

<sup>2</sup> As of March 31, 2021.

infrastructure dating back to the late 1990s. My experience includes 8 years at British Petroleum and its predecessor company the Standard Oil Company of Ohio, 5 years at the Wall Street research house Sanford C. Bernstein and 2 years at Julian Robertson's Tiger Management. EIP's original fund, started in 2003, has generated a double digit compounded annual growth rate that exceeds the returns of the S&P 500, the PHLX Utility Sector Index, the Alerian MLP Index and the NAREIT REIT Index over the same time period.<sup>3</sup> Such outperformance is rare; recent studies by Standard & Poor's have shown that, on average, about 94% of active fund managers have underperformed their benchmarks over the last 15 years.<sup>4</sup> EIP's success in achieving these returns is a result of three main factors. The first is our long-term investment horizon, the second is our focus on investing in companies with stable and predictable earnings and the third is EIP's emphasis on the track record and capabilities of the management teams that run our portfolio companies.

3. This affidavit was prepared at the request of the Environmental Defense Fund (EDF) to present the view of a successful long-term investor whose clients provide the capital that funds North America's energy infrastructure. In my experience, EDF has a deep understanding of the energy sector, and its approach is informed by evidence to develop market-based solutions, values that we share. My comments and recommendations focus on the importance of optimizing the efficient use of capital invested in natural gas pipeline infrastructure in a manner that supports system reliability while minimizing end-

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<sup>3</sup> Bloomberg. The references to the performance of accounts is not representative of other EIP accounts that may not have experienced the same performance described above. Past performance is no guarantee of future results.

<sup>4</sup> SPIVA ® U.S. Scorecard, S&P Global, Year-End 2017.

user costs and environmental impact. In my experience, optimal and efficient use of energy infrastructure is not only the best way to achieve those objectives, but also the best way to achieve superior returns on capital invested in that infrastructure.

4. I am attaching the following exhibit to my affidavit:
  - Exhibit JJM-01: July 12, 2018 Testimony of James J. Murchie Before the U.S. Senate Committee on Energy and Natural Resources Regarding Natural Gas Pipeline Development

## **II. Summary of Recommendations**

5. The Federal Energy Regulatory Commission's ("Commission") February 18, 2021 Notice of Inquiry ("Notice of Inquiry")<sup>5</sup> seeks input on whether, and if so how, the Commission should revise the currently effective policy statement on the certification of new interstate natural gas transportation facilities (Policy Statement). I believe this inquiry is an appropriate venue to consider pipeline economic incentives and regulatory compensatory structures and have three specific observations from the perspective of a seasoned energy infrastructure investor:
  6. The first is that among the greatest risks associated with investing in any form of infrastructure are redundancy and obsolescence. Historically, this risk was addressed by sustained growth in both supply and demand for gas as well as a regulatory regime where rewards were based on costs incurred rather than value created. Today, rising development costs, slowing growth in new shale supplies, and public opposition have elevated the risk of financial impairment, as reflected in the over \$5 billion write-off of a recently canceled gas pipeline project in Appalachia. There is a risk that investor capital

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<sup>5</sup> *Certification of New Interstate Natural Gas Facilities*, Notice of Inquiry, 174 FERC ¶ 61,125 (2021).

dedicated to other Commission certificated projects that currently lack necessary state and federal permits will face a similar fate.

7. Less than fulsome use of a capital asset drives lower investment returns, write-off of project development costs, or both. *It can also drive higher customer rates with no attendant benefit.* Conversely, well-crafted incentives that recognize the value created by, not just the costs incurred for, new investment would likely drive more efficient use of incumbent infrastructure, lower costs to consumers, reduced environmental impact, and reduced risk of redundancy, yet still reward the private capital provided by investors.
8. My second observation is that while the need to build new large-scale pipeline infrastructure may have waned, the industry's need to access capital on favorable economic terms has not. Ongoing investment is needed to address safety and reliability and to address issues such as fugitive methane emissions. A regulatory regime that lowers the cost of financing this capital benefits consumers who ultimately bear the cost of these needed investments. The core utility regulatory construct should be preserved to maintain capital access on affordable terms.
9. My third observation is that to align the interests of the public, ratepayers and investors, returns should be permitted to vary from the Base ROE to provide incentives for companies to perform better in terms of cost, reliability, safety and environmental impact. The current ROE methodology descends from a long line of legislative, judicial and regulatory guidance intended to incentivize new investment. While this remains a central reason for providing a just and reasonable return, the increased complexity of the energy delivery system, the new demands being placed on that system by state-level initiatives, rapid growth of renewable and natural gas generation (and the attendant need for

increased coordination), and growing demand for reduced environmental impact calls for a more flexible approach to incentivizing energy delivery solutions other than simply putting more steel in the ground. At the state level, going back decades, electric and natural gas utilities have been rewarded for investing in conservation if that conservation is a cheaper alternative to new capacity. Likewise, there may be opportunities for pipelines to utilize existing infrastructure more efficiently, providing better investor returns without simply adding new capacity, thereby lowering costs to customers and mitigating environmental impact. The product that pipeline utilities should provide is more than just the delivery of energy, it is the delivery of safe, reliable, clean and low-cost energy. The ROEs allowed should not only reflect these public benefits but should further incentivize and reward the companies who best deliver them above a baseline of average performance, while penalizing those that fall short.

### **III. Historical Context and Investor Perspective**

10. The natural gas industry, once underpinned by sustainable growth, today faces a different sustainability challenge that requires adaptation of the business model to meet changing end-user needs as well as pressing social, environmental and economic issues. The U.S. natural gas system is responding to many of these needs as evidenced by its critical supporting role in facilitating significant penetration of renewable energy in the U.S., without the attendant harsh economic penalties imposed by the same transition in some European nations.
11. What is lacking is an alignment of desired outcomes (e.g. renewable balancing, fugitive methane abatement and reduced environmental impact, lowering costs to end-use

consumers) with a regulatory framework that appropriately compensates gas pipeline companies, protects consumers, and attracts investor capital.

12. My perspective on capital formation, pricing, and allowed ROEs for utility businesses is informed by the history of utility regulation as detailed in my July 12, 2018 testimony before the Senate Committee on Energy and Natural Resources, provided as Exhibit JJM-01 to my affidavit.

13. Natural monopolies are a rarity and somewhat of an anomaly in classical economics, but their existence was made evident during the railroad boom in the middle of the 19<sup>th</sup> century. During that time Charles Francis Adams Jr., the grandson of John Quincy Adams, head of the Massachusetts Railroad Commission (and later the Union Pacific Railroad) observed that the railroad industry was a natural monopoly where “competition and the cheapest possible transportation are wholly incompatible” and that “the cheapest possible transportation [results from] the largest possible volume of movement through the fewest possible channels.”<sup>6</sup>

14. Subsequently, regulatory constructs evolved at the state and federal levels to provide the power of eminent domain and a “just and reasonable return” on privately sourced energy infrastructure capital in exchange for limited competition, an obligation to serve, open access, reliability and safety. Regulators are charged with approving new capital investment upon a determination that these conditions have been met and that an investment’s public benefits exceed the public’s costs.

15. The downside of the utility model, as history has demonstrated, is the moral hazard that

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<sup>6</sup> Prophets of Regulation: Charles Francis Adams; Louis Brandeis; James M. Landis; Alfred E. Kahn, by Thomas K. McCraw, 1984, Harvard University Press.

comes from a return on investment to a private enterprise that may view that allowed return as a *guarantee*. These hazards have included over-leverage, cost inflation and forays into highly risky businesses because of the comfort provided by the base business being perceived by management as guaranteed. The challenge for society is to reap the benefits of the privately funded regulated monopoly business model while avoiding the accompanying hazards.

16. Despite this moral hazard, the investor-owned utility has proven the superior model relative to the alternative of government ownership as can be seen in today's critical lack of capital available for publicly owned civil infrastructure in the United States. But this is not to say that regulation cannot be improved by blending the benefits of competition in terms of operating efficiency while retaining the characteristics that lower the cost of financing by reducing investor risk. As articulated by Alfred E. Kahn:

Merely permitting all regulated companies as a matter of course to earn rates of return in excess of the cost of capital does not supply the answer; there has to be some means of seeing to it that those...returns are earned, some means, for example, of identifying the companies that have been unusually enterprising or efficient and offering higher profits to them while denying them to others.<sup>7</sup>

I will further address this concept in Section IV.

17. Perhaps the most important concept that emerges in separating the cost of equity from allowed ROE is that regulators can use this spread as a tool to achieve policy goals:

Many in the regulatory community appear to believe that the utility's rate of return is the sole value driver, and that rates of return are set at the cost of equity. Neither of these perceptions is correct. Instead, the financial "value engine" – the difference between a utility's return on investment and its cost of capital – drives shareholder returns. Regulators should use this value engine to align utilities' financial motivations with delivering value to customers and society. They can offer utilities and regulated pipelines opportunities to earn increased revenues when they provide value-based products and

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<sup>7</sup> The Economics of Regulation, Alfred E. Kahn, 1988, MIT Press.

services. Regulators can also influence utilities' cost of capital by taking actions that increase the predictability of returns on valuable investments.<sup>8</sup>

I next turn to aligning financial motivations with delivering value to customers and society.

#### **IV. Aligning Incentives with Desired Outcomes**

18. Our nation's energy system is undergoing profound change. The prominent role of natural gas in power generation initially stemmed from its lower cost resulting from shale drilling, but is today increasingly reflective of the critical role gas plays in balancing the intermittency of renewables. As a result, the electricity and natural gas systems are becoming ever more interdependent, as was amply demonstrated by the loss of electricity service in California in August of 2020 and more recently in Texas during the extreme winter events of February 2021. This interdependency calls for a more synchronized coordination between the gas transportation and power generation segments of the business that operate under different regulatory constructs. The growth in the use of intermittent renewables, battery storage, and the emergence of a more distributed model are also driving significant changes. These are just a few of the technological changes occurring at a time when the public is demanding a lower cost, more resilient energy system with less environmental impact.

19. Traditional cost-of-service regulation (COSR) has provided a return sufficient to finance and build essential pipeline and utility infrastructure, but it offers few incentives to achieve higher levels of reliability and safety and lower levels of cost and environmental

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<sup>8</sup> "You Get What You Pay For: Moving Toward Value in Utility Compensation – Part 2 Regulatory Alternatives" Dan Aas and Michael O'Boyle. America's Power Plan, Energy Innovation and U.C. Berkeley, [https://americaspowerplan.com/wp-content/uploads/2016/08/2016\\_Aas-OBoyle\\_Reg-Alternatives.pdf](https://americaspowerplan.com/wp-content/uploads/2016/08/2016_Aas-OBoyle_Reg-Alternatives.pdf).



impact being demanded today:

This regulatory model works reasonably well to align utility motivation with public interest when rapid system build-out is the top goal for policy makers. In fact, without a rate of return above the cost of equity for utilities, the system would stagnate – no activities would be profitable. But when capital-based solutions are not preferred, or new technology creates room for competition, COSR may create a disconnect between utility shareholder value and outcomes that most benefit society.<sup>9</sup>

20. The impetus for restructuring of electric generation was a series of events that led to cost overruns for new power plants at a time of lower demand that drove up customer prices to levels that were uncompetitive with non-utility independent alternatives. While restructuring did lower the cost of wholesale electricity by introducing competition, a significant portion of those savings were then offset by a substantially higher cost of equity and debt financing as markets correctly perceived greater risk to these assets in a competitive versus a regulated construct. By some estimates, the cost of capital for merchant power producers is about twice the levels of regulated utilities.
21. Of course, power generation does not exhibit the same natural monopoly characteristics as transmission infrastructure, but many parts of the natural gas transmission network have sufficient alternative routes to be deemed competitive. While still operating with regulatory oversight, arms-length agreements (“black-box settlements”) between shippers and pipeline operators have generally been approved with a wide range of resulting returns on equity.
22. In the non-competitive markets, however, the challenge is to incentivize efficiency without risking cash flow stability and undermining those efficiencies with a higher cost of equity and debt financing. Even if competition could be introduced, it is not clear that

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<sup>9</sup> *Id.*

competitive markets would provide greater reliability and safety and lower environmental impact. For this reason, many state regulators have developed “patches” to the competitive markets to incentivize ample capacity, supply diversity and carbon-free generation. Of course, the inability of any competitive market to deal with externalities is not new and drives a wide range of regulation across many industries. For natural monopolies, cost of service regulation can broadly penalize negative externalities such as environmental impact, inattention to safety, or inadequate storm recovery, but it cannot specifically target performance differences in these negative externalities among utility companies nor reward positive externalities such as reliability and capital and operational efficiency. The Connecticut Public Utility Regulatory Authority’s recent order directing a reduction in allowed utility ROE stems from inadequate storm preparedness and response, but it also opens the door to the identification of outcomes (e.g. better storm preparedness) tied to financial incentives to reward desired behavior.<sup>10</sup> In a separate natural gas local distribution utility company (LDC) rate proceeding approving a performance-based ratemaking model, the Massachusetts Department of Public Utilities determined that “...the LDC industry is rapidly changing and that a PBR plan is the appropriate ratemaking model to allow the Company to adapt to this change.”<sup>11</sup>

23. Incentive ratemaking providing higher equity returns for better performance in reliability, safety, cost efficiency and environmental impact would impart the benefits of competition and accounting of externalities while preserving the lower cost of financing

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<sup>10</sup> *Investigation into Electric Distribution Companies’ Preparation For and Response to Tropical Storm Isaias*, Conn. PURA Docket No. 20-08-03, Decision (April 28, 2021).

<sup>11</sup> *NSTAR Gas Company d/b/a Eversource Energy*, Mass. DPU Docket No. 19-120, Order Approving a General Increase in Base Distribution Rates for Gas Service and a Performance Based Ratemaking Mechanism (October 30, 2020).

owing to lower risk and stable cash flows that are lacking in a purely competitive construct.

24. An incentive approach, for example, could be applied to the challenge of better allocating contracted but unused capacity in interstate pipelines when merchant power generators have a higher short-term willingness to pay for that capacity. I would caution against any changes that would be viewed by the capital markets as tantamount to converting a regulated utility into a trading/cyclical merchant business with a correspondingly higher cost of equity and debt financing. As this Commission is aware, allowing some competitive precepts into a COSR marketplace, can and does foster more efficient allocation of capital serving the interests market participants, investors and public welfare.<sup>12</sup>
25. Incentivizing higher utilization of existing assets by such methods might reduce the need for new pipelines, improving the capital efficiency of the entire network and reducing externalities such as environmental impact. Sharing some of those benefits with the pipeline company in the form of a higher allowed ROE would stimulate more efficient use of the assets without raising the cost of equity and debt financing. As an investor, I believe pipeline companies should be working to improve efficiency of existing assets. Building unnecessary pipelines exposes investors to risks of inferior returns on capital,

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<sup>12</sup> *Pipeline Service Obligations and Revisions to Regulations Governing Self-Implementing Transportation; and Regulation of Natural Gas Pipelines After Partial Wellhead Decontrol*, Order No. 636, FERC Stats. & Regs. ¶ 30,939 (1992) (the Commission’s primary aim in issuing Order No. 636 was “to improve the competitive structure of the natural gas industry”); *Certification of New Interstate Natural Gas Pipeline Facilities, Statement of Policy*, 88 FERC ¶ 61,227 at p. 61,743 (1999) (in issuing the 1999 Certificate Policy Statement, the Commission explained that an effective certificate policy “should further the goals and objectives of the Commission’s natural gas regulatory policies” and “should be designed to foster competitive markets.”).

write-offs, or both.

26. An important starting place could be FERC's 1996 Incentive Ratemaking Policy

Statement.<sup>13</sup> That policy stated:

Where companies have market power, market-based rates are not appropriate. However, in order to enhance productive efficiency in non-competitive markets, the Commission will allow utilities to propose incentive rate mechanisms as alternatives to traditional cost-of-service regulation. Such proposals should result in lower rates to consumers and provide utilities the opportunity to earn higher returns.<sup>14</sup>

Although certain updates may be needed to that policy, its observation that "ratemaking flexibility would permit pipelines to tailor natural gas transportation rates for electric generators to meet the swings in gas consumption often experienced by such generators"<sup>15</sup> can help inform the challenges faced by the Commission today in this evolving regulatory environment.

**V. Conclusion**

27. The nation's natural gas pipeline infrastructure and regulatory policy are rooted in the context of development and capital investment driven by a need to reliably and affordably meet growing demand for natural gas as a heating and industrial fuel. Today, electricity generation has become the largest end-use of natural gas, and the nation's gas and power systems have become highly intertwined and interdependent. Expanding deployment of renewable wind and solar resources may diminish natural gas usage over time, but not necessarily the need for the capacity to transport that gas, as peak levels of demand may be higher in the future than today as the natural gas and pipeline

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<sup>13</sup> *Alternatives to Traditional Cost-of-Service Ratemaking for Natural Gas Pipelines (1996 Incentive Ratemaking Policy Statement)*, 74 FERC ¶ 61,076 (1996).

<sup>14</sup> *Id.* at p. 61,237.

<sup>15</sup> *Id.* at p. 61,226.

infrastructure's role in balancing renewable intermittency grows.

28. Infrastructure of any kind achieves greatest cost and capital efficiency when utilized to its optimal potential. Underutilization of any capital asset drives up its cost on a per-unit basis, wastes capital, drives higher costs to end-users, and can contribute needless negative environmental and social externalities. Investor, consumer, and social interest are aligned when an infrastructure system is optimally sized and utilized. The companies regulated by the Commission today face a changing energy landscape in which future profitability will derive more from optimal use of what is already built—and attendant identification of new revenue opportunities—than from simply putting new steel in the ground as was done in the past.
29. Better alignment of interests among pipeline and utility shareholders, regulated energy infrastructure companies and their many stakeholders can be achieved with a regulatory system that incentivizes monopolies toward the efficiency of a competitive business while retaining the lower cost of equity and debt financing attendant to stable cash flows and lower market risk embodied in the regulatory construct to ultimately serve the public with safe, reliable, low-cost energy with the least environmental impact. In such a system the utilities that provide the most public benefits will enjoy better returns on invested capital at a lower cost of debt and equity financing. Capital would then flow to those companies creating the most value for all stakeholders and away from those that create the least. The certification process for *new* pipeline capacity is an appropriate venue to address the economic incentives that drive use of *existing* capacity.

**UNITED STATES OF AMERICA  
BEFORE THE FEDERAL ENERGY REGULATORY COMMISSION**

**Certification of New Interstate Natural     )  
Gas Facilities                                             )**

**Docket No. PL18-1-000**

I, James J. Murchie, declare under penalty of perjury that I am the author of the foregoing Affidavit and that the facts set forth herein are true and correct to the best of my knowledge.

*/s/ James J. Murchie*  
James J. Murchie  
Chief Executive Office  
Energy Income Partners, LLC

**TESTIMONY OF  
JAMES J. MURCHIE  
CEO AND CO-FOUNDER  
ENERGY INCOME PARTNERS, LLC**

**BEFORE THE  
U.S. SENATE COMMITTEE ON ENERGY AND NATURAL RESOURCES**

**REGARDING  
NATURAL GAS PIPELINE DEVELOPMENT**

**JULY 12, 2018**

Madam Chair and Members of the Committee:

My name is Jim Murchie. I am Co-founder and CEO of Energy Income Partners, LLC or EIP for short. EIP is a Registered Investment Adviser that oversees about \$6 billion<sup>1</sup> of client assets. EIP advises or sub-advises six mutual funds (five of which are New York Stock Exchange listed funds), two investment partnerships and hundreds of separately managed accounts for individuals and institutions. EIP invests all of these client assets in equity securities of publicly traded energy infrastructure companies located primarily in the U.S. with significant investments in Canada and nominal investments overseas. EIP invests in companies that operate natural gas and petroleum pipelines and related storage and terminals, regulated power generation, transmission and distribution as well as developers and operators of renewable energy selling power on long term contracts. Our investment strategy seeks stable cash flows being generated by regulated assets with modest growth.

EIP was established in 2003 and is an outgrowth of my personal investments in energy infrastructure dating back to the late 1990s. My firm and I appreciate the opportunity to present testimony to the Committee today.

I am joined here today by my colleague Sam Brothwell. The investment team at EIP is comprised of six individuals, including myself and Sam; we all have extensive energy and financial industry experience. My own experience includes 8 years at British Petroleum and its predecessor company the Standard Oil Company of Ohio, 5 years at the well-known Wall Street research house Sanford C. Bernstein and 2 years at Julian Robertson's Tiger Management. Sam

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<sup>1</sup> As of June 30, 2018

has worked in the industry at Public Service of New Mexico and Questar as well as on Wall Street at Merrill Lynch and Wells Fargo and has testified before the Federal Energy Regulatory Commission on pipeline ratemaking policy.

EIP's original fund which started in 2003 has generated a double digit compounded annual growth rate that exceeds the returns of the S&P 500, the PHLX Utility Sector Index, the Alerian MLP Index and the NAREIT REIT Index over the same time period.<sup>2</sup> Such outperformance is rare as recent studies by Standard & Poor's have shown that, on average, about 94% of active fund managers have underperformed their benchmarks over the last 15 years.<sup>3</sup> We believe EIP's success in achieving these returns is a result of three main factors. The first is our long-term investment horizon, the second is our focus on investing in companies with stable and predictable earnings and the third is that EIP does not adhere to the typical asset allocation guardrails imposed on most money managers by institutional investors that would pigeonhole us into being either a "utility" manager or an "MLP" manager.

One of the tenets of EIP's approach is a focus on total or absolute investment returns rather than returns relative to index benchmarks. In assessing both past and forecasted returns, we disaggregate the portion of the investment return contributed by dividend yield from the portion of the return contributed by share price appreciation. Separating these two components is critical to understanding how we invest and what factors we seek in our portfolio companies to maximize our returns. The yield component of our returns is about 6%, the balance has come from appreciation of the underlying share prices.

While share prices fluctuate daily, the long-term driver of share price appreciation is growth in per-share earnings and dividends. For investment managers with a short investment horizon, these fluctuations are far more important to their strategy and approach. Since those short-term fluctuations are caused so often by transient factors in the news for the economy, an industry or a particular company, it is those short-term factors that most investment managers focus on. Watching most portfolio managers speak on television business programs provides a good window into this investing style.

The higher yield of our portfolio over time versus the stock market averages (the yield on the S&P 500 is currently 1.9%<sup>4</sup>) is mostly a result of a higher dividend payout ratio, which is the portion of a company's earnings paid to its shareholders each quarter. Higher payout ratios tend to be found in companies with more stable earnings and in slower-growing mature industries. Stability of earnings matter because dividends are viewed by investors a little like the coupon payment of a bond. A dividend cut is a broken promise and often indicates more serious problems at a company. As a result, company boards of directors strive to set dividends at a level they will never have to cut. The more stable the earnings, the higher the payout ratio can

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<sup>2</sup> Source: Bloomberg. The references to the performance of account is not representative of other EIP accounts that may not have experienced the same performance described above. Past performance is no guarantee of future results.

<sup>3</sup> Source: SPIVA ® U.S. Scorecard, S&P Global, Year-End 2017.

<sup>4</sup> Source: Bloomberg. Data as of July 3, 2018.



be. Slower growing industries also tend to have higher payout ratios because there are fewer growth opportunities requiring reinvestment of earnings.

We believe that pipelines and related storage as well as certain electric and natural gas utilities possess both of these attributes. Energy is a mature business (U.S. primary energy demand grows less than 1% per year<sup>5</sup>) and these businesses tend to operate under federal or state jurisdiction that earn allowed rates of return on their invested capital.<sup>6</sup> That means that they are less subject to the cycles of the economy, commodity prices or changes in the rate of inflation. Businesses that have these allowed rates of return are often referred to as Regulatory Asset Base businesses or RAB for short.

In the early history of the electric and natural gas industries, these regulated asset base businesses represented an alternative to public ownership. Today, the vast majority of electric and natural gas transportation infrastructure in the United States is owned by publicly traded corporations and publicly traded partnerships. By contrast, over 85% of water and sewer infrastructure is owned by municipalities and special government districts.<sup>7</sup> That U.S. energy consumers enjoy some of the lowest electricity and natural gas rates in the OECD is partially the result of an abundance of available capital to build and maintain energy infrastructure at reasonable cost, in our view. Again, by contrast, many municipal water systems are today reaching the end of their useful life and are increasingly being sold to investor-owned publicly traded utilities that can access the capital needed to modernize their pipes and related equipment without unduly increasing rates charged to consumers. Infrastructure assets have long—but not infinite—lives, and over time face stricter safety and environmental standards as well as ongoing technological evolution in the sources and uses of the products they transport that require constant reinvestment.

This RAB model in the U.S. traces its history back to a famous speech given by Sam Insull at the June 1898 (that's **eighteen**-ninety-eight) meeting of the National Electric Light Association, the forerunner of today's Edison Electric Institute. Insull had left the General Edison Electric Company (now General Electric) as Thomas Edison's right-hand man to head up what became Commonwealth Edison in Chicago. He was arguing for a regulated investor-owned utility framework that would benefit all stakeholders, including the customers buying the electricity during a time when the electric industry was in its "Wild West" infancy. Here's the essence of his message:

*"Acute competition necessarily frightens the investor, and compels corporations to pay a very high price for capital....The best service at the lowest possible price can only be obtained....by exclusive control of a given territory being placed in the hands of one undertaking.....The more certain this protection is made, the lower the rate of interest and the lower the total cost of*

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<sup>5</sup> Sources: BP Statistical Review of World Energy: June 2018; U.S. Energy Information Administration (EIA)

<sup>6</sup> Sources: BP Statistical Review of World Energy: June 2018; U.S. Energy Information Administration (EIA).

<sup>7</sup> Source: American Water Investor Presentation: June 2018.

*operation will be, and consequently the lower the price of the service to public and private users.”<sup>8</sup>*

Recognizing that regulation has since evolved to bring the benefits of competition to utility consumers, the essence of Insull’s message remains as relevant today as it was 120 years ago; *that risk and cost of capital are highly correlated.* The regulatory framework under which pipelines and utilities operate reduces risk, takes advantage of scale, and is critical to achieving reliable, low cost service to customers, while providing reasonable and competitive returns to investors. The regulatory model articulated by Insull has resulted in an extensive U.S. energy infrastructure system that provides abundant energy to businesses and consumers at prices that are among the lowest in the developed world.<sup>9</sup>

The yield component of EIP’s returns for its clients is a direct result of a regulatory framework that provides stable and more predictable earnings that allows for a payout ratio well above that for other industries or the stock market as a whole. As most of the investors in our funds and other investment products are individuals, this higher yield is a critical component of the investment return they are seeking.

Nonetheless, the growth component has been a larger contributor to our returns. At first glance it seems incongruous to have enjoyed growth in earnings and dividends from an industry whose unit demand grows at less than 1%.<sup>10</sup> There are two factors that explain the difference. The first is that unit demand growth of about 1% might still result in sales growth of 2-4% depending on the rate of inflation. This matches the average dividend growth over the last 15 years for the utility and MLP indices of about 4%.<sup>11</sup> The second factor is our successful stock selection as we have been able to identify companies with higher than average growth rates.

In assessing our own track record, we have found that higher growth rates result from our ability to select companies with good management teams operating under consistent and balanced regulation. If we can get these two parts right, a third component kicks in, which is a lowering of the company’s cost of debt and equity financing also referenced in Insull’s 1898 speech.

While we analyze financial statements and valuation like all other fund managers, our extreme focus on the quality of management is unusual among investment managers but consistent with our long-term approach. It is the management teams that determine where their competitive advantages lie and how to best allocate capital. It is the management teams that work with the regulators at the state and federal levels. It is the management teams that hire and retain the best employees. It is the management teams that determine the safety and environmental record of the company. All these activities determine a company’s ability to deliver energy to its customers in

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<sup>8</sup> Source: Insull, Samuel. “Standardization, Cost System of Rates, and Public Control” (1898). Reprinted in S. Insull, *Central-Station Electric Service*, 34–47. Chicago: Privately Printed, 1915.

<sup>9</sup> Based on electricity pricing data sourced from U.S. Energy Information Administration as of December 2017 and the European residential electricity prices sourced from Eurostat as of December 2017.

<sup>10</sup> BP Statistical Review of World Energy: June 2018; U.S. Energy Information Administration (EIA).

<sup>11</sup> Source: Bloomberg. MLPs are represented by the Alerian MLP Index. Utilities are represented by the PHLX Utility Sector Index.

an economical, safe, reliable and responsible manner. Companies that consistently do this well over time tend to have superior shareholder returns. Companies that give short shrift to issues of worker safety, system reliability and environmental stewardship also tend to be poor allocators of capital, have higher operating costs and usually have poor relationships with regulators and other stakeholders. They also tend to have lower shareholder returns.

Just as the quality of management teams varies, so does the tenor of regulation, so all else equal, we seek the best regulatory constructs that we can find. One recent success is reflected in a portfolio shift we made several years ago to increase our weighting in state-regulated natural gas utilities also known as Local Distribution Companies or LDCs.

The leak and tragic explosion of a natural gas utility pipeline in San Bruno, California in 2010 and a similar incident in New York City in 2014 led many state regulators to encourage the accelerated replacement of old pipe through the use of incentives and rate tracking mechanisms that added regulatory certainty, facilitating a step change in the pace of investment. This, in turn, has driven improved worker and public safety, system reliability and perhaps even a reduction in fugitive releases of methane, a potent greenhouse gas. Shareholders also benefitted from lower regulatory risk and higher rates of earnings and dividend growth, and as those higher growth rates were recognized in the market, these stocks traded at higher valuations. Those higher valuations reduce the cost of equity just as a higher credit rating lowers the cost of debt. Lower capital costs benefit consumers, who ultimately bear the cost of utility financing.

The case of accelerated pipe replacement for LDCs and the regulatory structures that enabled them at the state level are a great example of the Regulatory Asset Base regulated model working for all stakeholders.

I once met a financial adviser who derided regulation as “a lot of red tape.” My response was that so-called “red tape” consists of extensive public hearings, the consideration of all relevant testimony by regulators and oversight by an independent judiciary that insures that regulatory decisions have considered all the evidence and are arrived at by reasoned judgment and are therefore neither arbitrary nor capricious. This process, *so long as it follows established law and procedures*, protects all stakeholders including customers, the environment, as well as investors.

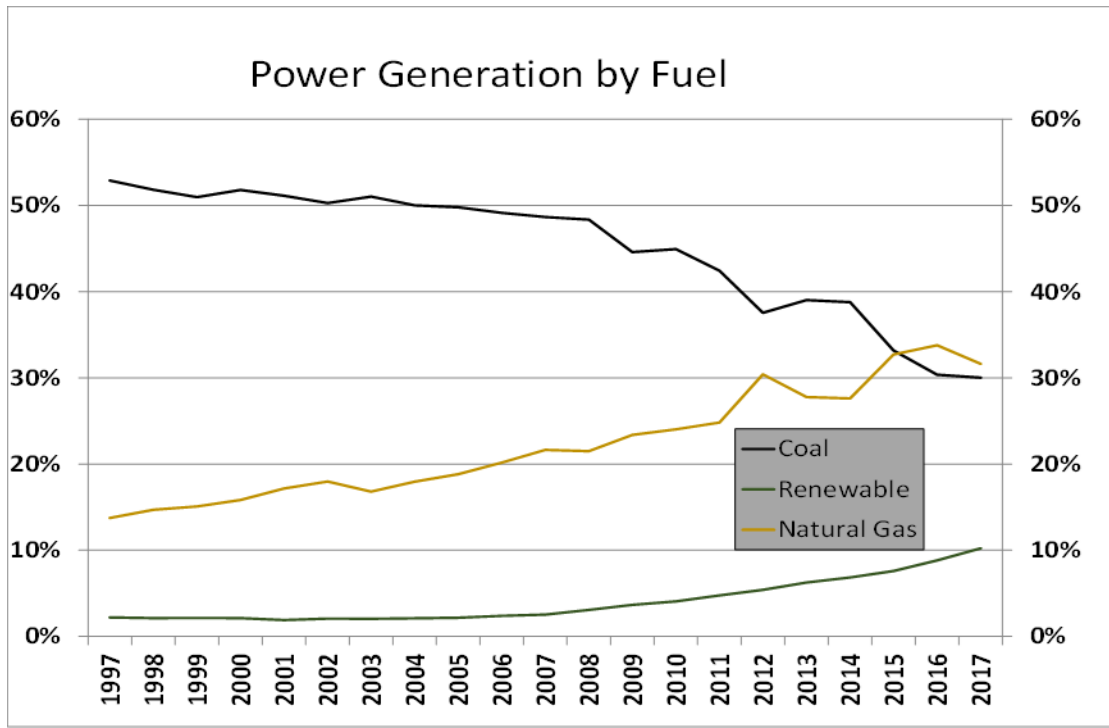
The 120-year history of these industries is also one of technological advancements that have driven lower costs, better worker and public safety, increased reliability and lower emissions of pollutants of all kinds. That holds true today as technological advances continue improving the performance and cost-effectiveness of renewable energy resources such as wind, solar, and energy storage the costs of which have declined about 70% over the last 8 years and have emerged as the most cost-effective source of new supply in many regions of the U.S.

Increased use of renewables, however, has actually been facilitated by another technological advancement: shale gas. The dramatically lower cost of natural gas has shifted electricity generation away from coal in favor of natural gas and increasingly, renewables. Contrary to the public debate pitting fossil fuels against renewables, natural gas and renewables actually complement each other because of the intermittent and variable output of wind and solar and the flexibility of gas-fired generation to respond quickly to the rapid changes in output from wind

and solar that coal and nuclear generation lack. As battery costs decline, more of this back up function can be borne by storage of electricity in the future. But cleaner generation of electricity is *happening now* in large part because of the availability of cheap natural gas.

The graph in Exhibit 1 shows how electricity generated by natural gas and renewables has grown while generation from coal has declined. These changes have led to a 13.2%<sup>12</sup> decline in U.S. CO2 emissions since their peak in 2005. Emission of other pollutants such as sulfur dioxide, nitrous oxides and mercury are also lower.<sup>13</sup>

**Exhibit 1 – Electricity Generation: Coal, Natural Gas and Renewables**



Sources: U.S. Energy Information Administration, Electric Power Monthly, February 2018.

Germany, by contrast, embarked on a bold strategy which accelerated in 2011 with Fukushima to eliminate nuclear power and fully embrace renewable wind and solar. While on a path to achievement, this initiative came at great cost to the country’s electricity consumers as German residential electricity prices have risen nearly 45% in the past decade. Retail customers in Germany today pay about 35 cents per kilowatt hour vs around 13 cents in the U.S. and 22 cents for the rest of Europe.<sup>14</sup> Germany’s initiative has had another almost surely unintended consequence; lacking access to abundant and reliable sources of natural gas as a back-up fuel for renewables, Germany continues to rely on lignite, a domestic but environmentally hostile fuel.

<sup>12</sup>Source: BP Statistical Review of World Energy: June 2018

<sup>13</sup> Source: US Environmental Protection Agency Website

<sup>14</sup> Eurostat, UBS Research, U.S. Energy Information Administration Electric Power Monthly, December 2017.

Since these goals were laid out in 2011, Germany's CO2 emissions have actually increased by 0.4% while over this same time frame the U.S. has lowered its CO2 emissions by 5.3%.<sup>15</sup>

It is in this context that we view the debate about the Greenhouse gas (GHG) impact of permitting new natural gas pipelines. To be direct, we view the debate as a false choice. When regulators and the courts are asked to address the impact of a particular new natural gas pipeline on GHGs, the discussion centers around considering the impact upstream of the pipeline (more natural gas production) and downstream of the pipeline (more natural gas usage). Missing from the discussion, in our view, is recognition that natural gas pipeline infrastructure enables natural gas to reduce coal usage, reducing power plant emissions of all kinds, including CO2 and further facilitates adding more renewables to the mix.

From a portfolio management perspective, we see uncertainty surrounding pipeline certification and approval as a growing risk that we must factor into how and where we allocate our investor's capital. These risks affect primarily the growth component of our returns but in the rare case of an existing pipeline being shut down, the impact could also affect the dividend payments of the company that owns that pipeline.

Perhaps more important than any changes we would make to the EIP portfolios are fund redemptions by investors as they see the cancellation of new pipeline projects due to objections by regulators as well as some of the recent rulings by FERC as risks that outweigh the rewards of a 6% portfolio yield. We believe that this flight of capital from the equity securities of companies that own federally regulated pipelines has had a negative effect on valuation and therefore a negative effect on the cost of capital for building new pipelines which is ultimately paid for by consumers.

As investors in a capital-intensive commodity industry we recognize that lower costs ultimately win out. And in our analysis, we include the costs of externalities like pollution and safety because under our system of government the cost of those externalities are eventually paid for by those who cause them. *In short, we want to own the low-cost way of shipping the lowest-cost form of energy.*

While natural gas pipelines are a significant part of our portfolio, so too are operators and developers of low cost renewable power, including a growing number of utilities that recognize the opportunity in aligning their strategy with the direction of public policy. In the future we expect to have a significant investment in companies providing infrastructure for electric vehicles as we see them as eventually being the low-cost, higher performance means of transportation.

We believe our investment success in the future will be directly impacted by policy makers' and regulators' ability to use our existing regulatory construct to facilitate rather than frustrate the increased adoption of these new technologies that improve the reliability, cost, safety and environmental impact of our domestic energy system. Because adoption of these new

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<sup>15</sup> Source: BP Statistical Review of World Energy: June 2018

technologies cuts across industries and therefore the mandate of the relevant regulatory agencies, there is an important role to play for policy makers as well as regulators.

Our investors have benefitted from great management teams operating essential businesses under a consistent rule of law administered by regulation that balances consumer and investor interests to the benefit of all. We will continue to manage the allocation of the capital we are entrusted with to seek fair returns and minimize risk by investing in well-run companies operating under the guidance of balanced, reasoned and predictable regulation.

This concludes my testimony. Thank you for the opportunity to share my Firm's views on these very important issues.

EIP submits this testimony at the request of the U.S. Senate Committee on Energy and Natural Resources. The information provided is accurate as of the date submitted but may change at any time without notice. EIP cited sources from third parties believed to be accurate but does not warrant the accuracy of any third-party information. The testimony is not an offer to purchase or sell or a solicitation of an offer to purchase or sell any security, investment services or products.