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„The Impact of Non-US Climate Change Legislation and
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Abstract

This paper analyzes the impact of foreign legislation and litigation related to climate change on a pension investor's ability to invest in the fossil fuel industry. The Employee Retirement Income Security Act (ERISA) requires investors to use prudence when determining whether to make an investment and to act impartially with regard to the beneficiaries of the pension fund. Despite the current debate in the US over the physical risks climate change, international agreements, such as the Paris Climate Agreement, and foreign national laws restricting greenhouse gas emissions pose significant risks for fossil fuel investments, including risks of stranded assets and new technological innovation. Investment risks also increase with the rise of litigation related to climate change, such as the Urgenda case in the Netherlands. Although ERISA will likely not prohibit investments in the fossil fuel industry, fiduciary law would require pension investors to analyze risks related to international climate change laws and litigation and determine whether such investments are prudent based on such analysis.

Diese *Masterarbeit* analysiert die Auswirkungen ausländischer Gesetze und Rechtsstreitigkeiten im Zusammenhang mit dem Klimawandel auf *den Handlungsspielraum* eines *Pensionsfondsmanagers in den USA*, in die fossile Brennstoffindustrie zu investieren. Das US-Rentengesetz (*Employee Retirement Income Security Act -ERISA*) verlangt von den *Fondsmanagern*, bei der *Investitionsentscheidung* und unparteiisch zu handeln. Trotz der aktuellen Debatte in den USA über die Risiken des Klimawandels stellen internationale Vereinbarungen wie das Pariser Klimaabkommen und ausländische nationalen Gesetze, die die Treibhausgasemissionen einschränken, erhebliche Risiken für Investitionen in fossiler Brennstoffe, einschließlich der Risiken von *Verlusten* und neuer technologischer Innovationen. Die Investitionsrisiken steigen auch mit dem Anstieg der Rechtsstreitigkeiten im Zusammenhang mit dem Klimawandel wie dem Urgenda Rechtsfall in den Niederlanden. Obwohl das US-Rentenrecht wahrscheinlich keine Investitionen in die fossile Brennstoffindustrie verbieten wird, wird das Treuhandrecht die Renteninvestoren dazu verpflichtet, Risikobewertungen im Zusammenhang mit internationalen Klimaschutzgesetzen und Rechtsstreitigkeiten durchzuführen.

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I. Introduction

This paper examines the extent to which climate change legislation and litigation outside of the United States (US) impacts fiduciary duty obligations under US pension law related to investment decisions. Specifically, the paper analyzes whether and to what extent pension fund investment fiduciaries must take into account foreign legal regulations and court actions related to climate change when making investments in the fossil fuel industry, and whether such investments might be considered a breach of fiduciary duty under the Employee Retirement Income Security Act of 1974 (ERISA).

Pension plans are financial investment schemes created to provide income to employees following their retirement from employment. Under US pension law, a plan fiduciary generally includes any individual who exercises discretionary authority over a pension plan's management or assets or otherwise provides investment advice to the plan for compensation.¹ Further, US pension law requires fiduciaries investing plan assets to comply with numerous fiduciary obligations, including the duties to act both prudently and impartially, solely in the best interests of plan participants and beneficiaries.² A fiduciary that violates his or her fiduciary duties will be held personally liable for such breach. The penalty for such violation is steep – the responsible fiduciary must compensate fund participants and beneficiaries for losses resulting from the improper investment.³

Climate change legislation and litigation may affect investment requirements of pension plan fiduciaries. Climate change generally refers to a long-term significant change in the climate that affects the global environment. Scientific evidence has shown that, to date, climate change has led to extreme weather events and impacted natural and human systems around the world, causing an average global temperature increase of 0.85 degrees Celsius since the end of the 19th century.⁴

A vast majority of scientists have determined that this global warming can be attributed to anthropogenic causes, further concluding that changes to human behavior, including a reduction of greenhouse gas emissions, will be necessary to combat this effect.⁵ The United Nations Intergovernmental Panel on Climate Change (IPCC), an intergovernmental body established by the World Meteorological Organization and the United Nations Environment Programme that has been tasked with providing objective scientific and technical assessments related to climate change, has reported that climate change is “unequivocal” and has extensive impact on the global environment.⁶ Specifically, the IPCC found that

“[c]ontinued emission of greenhouse gases will cause further warming and long-lasting changes in all components of the climate system, increasing the likelihood of severe,

¹ 29 U.S. Code § 4975(e)(3). Tax on Prohibited Transactions.

² Richardson, Benjamin. 2007. “Do the Fiduciary Duties of Pension Funds Hinder Socially Responsible Investment?” *Banking and Finance Law Review* Vol. 22, No. 2: 145 - 201, 147; 29 U.S. Code § 1104(a); Restatement (Third) of Trusts §§ 77, 90 (2007); Uniform Prudent Investor Act §§1, 5.

³ 29 U.S. Code § 1109(a).

⁴ Intergovernmental Panel on Climate Change. 2014. *Climate Change 2014: Synthesis Report*. Contribution of Working Groups I, II and III to the Fifth Assessment Report of the Intergovernmental Panel on Climate Change [Core Writing Team, R. K. Pachauri and L. A. Meyer (eds.)]. Geneva, Switzerland: IPCC, 2.

⁵ *Ibid.*, 2 - 8.

⁶ *Ibid.*, 2.

pervasive and irreversible impacts for people and ecosystems. Limiting climate change would require substantial and sustained reductions in greenhouse gas emissions which, together with adaptation, can limit climate change risks.”⁷

In order to prevent further dangerous climate change, legislation is being implemented around the world, on both international and national levels, to reduce greenhouse gas emissions. In addition, in some jurisdictions, individuals and organizations are bringing litigation in the court systems of their own countries in order to require further government action to combat climate change.

Currently, debate exists over the extent to which divestments from fossil fuel investments and/or investment in sectors and companies that are working to reduce the impact of climate change would satisfy the fiduciary obligations of investment fiduciaries under ERISA. Whether pension fund investors must take into account climate change risk in light of fiduciary obligations is not settled under existing laws. Based on the potentially harsh damages that could accrue to the imprudent fiduciary, fiduciaries have been cautious to divest from industries and sectors that have historically been profitable investments, such as the fossil fuel industry, or to invest in renewable energy or other innovative areas without a proven profitable financial record.⁸

The debate over the fiduciary responsibility to take the risks of climate change into account in making pension investment decisions is exacerbated by the US trend of weakening domestic legislation related to climate change regulation and the US withdrawal from the Paris Climate Agreement. Strong legislation or other regulatory changes by the government related to the risks of climate change and greenhouse gas emissions could result in energy companies taking on the social costs and benefits related to the externalities of climate change risks. Such internalization of costs would undoubtedly affect investment values, both of fossil fuel companies (negatively) and companies seeking to promote alternative or renewable energy sources (positively).

Although restrictive US government regulations related to climate change risk and the resultant internalization of costs would likely trigger a requirement for greater fiduciary prudence related to the consideration of additional economic risk in an investment portfolio attributable to such regulations, foreign legislation and litigation may result in similar economic impact on carbon-intensive investments in a pension fund’s investment portfolio. Worldwide, concerns over climate change not only continue to grow, but to produce action frameworks bolstered by legal regulation, intended to reduce greenhouse gas emissions.⁹ Climate litigation is also pressing forward on a global basis.¹⁰ These foreign legal actions may themselves impact the

⁷ Intergovernmental Panel on Climate Change. 2014. *Climate Change 2014: Synthesis Report*, 8.

⁸ Hutchinson, James and Charles Cole. 1980. “Legal Standards Governing Investment of Pension Assets for Social and Political Goals.” *University of Pennsylvania Law Review*. Vol. 128, No. 4: 1340 - 1388.

⁹ Grantham Research Institute on Global Climate Change. 2016. “The Global Climate Legislation Study: Summary of key trends 2016.” Accessed on 20 January 2017 from http://www.lse.ac.uk/GranthamInstitute/wp-content/uploads/2016/11/The-Global-Climate-Legislation-Study_2016-update.pdf; European Commission. “The roadmap for transforming the EU into a competitive, low-carbon economy by 2050.” Accessed 20 January 2017 from https://ec.europa.eu/clima/sites/clima/files/2050_roadmap_en.pdf

¹⁰ Darby, Megan. 2015. “Around the World in 5 Climate Change Lawsuits.” Climate Home. (August 7). Accessed 25 January 2017 from <http://www.climatechangenews.com/2015/07/08/around-the-world-in-5-climate-change-lawsuits/>; Klein, Jennifer. 2015. “Lawsuit Seeks to Force Belgian Government to Take Action Against Climate Change.” Sabin Center for Climate Change. Climate Law Blog. (June 8). Accessed on January 25, 2017 from <http://blogs.law.columbia.edu/climatechange/2015/06/08/lawsuit-seeks-to-force-belgian-government-to-take-action-against-climate-change/>.

internalization of the externalities of climate change risk by the fossil fuel industry, regardless of whether the US takes steps to further regulate fossil fuel industries or support innovation in the renewable energy sector.

The analysis herein deliberately avoids the consideration of both the potential financial costs related to the physical impacts of climate change and the impact of potential or existing US climate change regulations or litigation on a pension investor's fiduciary duty related to climate change risk. Whether or not the US government or its environmental agencies take steps to enhance regulations to mitigate climate change risk, economic globalization will likely result in financial impacts on the fossil fuel industry. The actions of the rest of the world, including the physical and regulatory steps taken to address climate change, have the potential to affect global markets.

An examination of the impact of global laws and regulations related to climate change on investment assets, industries and sectors will provide a more certain and comprehensive basis to analyze US pension fiduciary obligations. This paper argues that the international reaction to climate change alone, in the form of legislation and litigation, is sufficient to impact the fiduciary duties of US pension investors. Such foreign legislation and litigation attempting to counter climate change will have economic consequences for the fossil fuel industry, requiring changes to US pension investment strategy.

II. Literature Review and Framework

The Employee Retirement Income Security Act of 1974¹¹ is the law governing US private-employer employee pension plans.¹² Under both ERISA and state laws that govern public pensions, the prudent man standard of care applies to investments of pension fund assets.¹³ This standard of prudence does not reflect the necessity for complete risk avoidance, but of prudent management of risk.¹⁴ In addition to the duty of prudence, fiduciaries must also comply with a strict duty of loyalty to pension participants and beneficiaries. Respecting the investment of pension fund assets, all actions of the fiduciary must be “solely in the interest of the participants and beneficiaries.”¹⁵

With regard to pension fund investments, compliance with these fiduciary requirements of prudence and loyalty has historically been determined on a solely financial basis.¹⁶ Writing in 1980, shortly after ERISA came into law, James Hutchinson and Charles Cole examined whether a non-financial based investment policy would be permissible under ERISA. The authors analyzed the permissibility of a “social investment policy,” specifically with regard to ERISA duties of prudence and acting solely in the benefit of plan participants and beneficiaries. The authors argued that a “social investment” policy that sacrifices traditional investment quality in terms of risk, return, diversification or marketability/liquidity likely violates the fiduciary obligation of prudence.¹⁷ The prudence requirement may, however, be met for investments based on non-financial factors so long as each such investment is evaluated in light of the needs of the pension fund itself,¹⁸ as well as its place within the entire fund’s portfolio.¹⁹

The requirement of acting solely in the best interest of participants and beneficiaries was less flexible under Hutchinson and Cole’s analysis. In order to determine if such non-financially-based investment was made solely in the best interests of beneficiaries and participants in the fund, the authors considered the issue of whether the investment confers benefits on the beneficiaries in their role as plan participants or as part of a larger group.²⁰ Analyzing congressional history and determining that the objective in the enactment of ERISA was to ensure only the financial security of retired workers, the authors concluded that investing based on non-financial issues would likely violate the fiduciary requirement to invest “solely in the interest” of plan participants and beneficiaries, regardless of whether the investment produced a benefit to the participants and beneficiaries outside of their role as such.²¹ The authors concluded that, except in cases where the fiduciary can show a social investment policy is entirely otherwise equal to a standard investment policy on the basis of financial investment quality, ERISA provides significant barriers to using pension trust assets to achieve “socially desirable objectives.”²²

¹¹ 29 U.S. Code, Chapter 18.

¹² 29 U.S. Code § 1101(a) – government and church plans are exempted from ERISA requirements.

¹³ 29 U.S. Code § 1104(a); Schanzenback, Max and Robert Sitkoff. 2015. “The Prudent Investor Rule and Market Risk: An Empirical Analysis.” Harvard John M. Olin Discussion Paper Series – Discussion Paper. (March): 1.

¹⁴ Schanzenback and Sitkoff, “The Prudent Investor Rule and Market Risk,” 1.

¹⁵ 29 U.S. Code § 1104(a)(1).

¹⁶ Hutchinson and Cole, “Legal Standards for Social and Political Goals,” 1340 - 1388.

¹⁷ *Ibid.*, 1346.

¹⁸ *Ibid.*, 1354.

¹⁹ *Ibid.*, 1356.

²⁰ *Ibid.*, 1364.

²¹ *Ibid.*, 1368.

²² *Ibid.*, 1388.

Since Hutchinson and Cole wrote their article, Schanzenbach and Sitkoff have argued that modern portfolio theory has influenced fiduciary investment obligations.²³ Under both ERISA and US trust law, investments must be made taking into account the appropriate degree of risk for the portfolio as a whole, as well as the purpose of the trust.²⁴ Modern portfolio theory helps to flesh out this requirement. Because an asset should be evaluated in the context of the entire portfolio, Schanzenbach and Sitkoff explained that an investment that may be deemed “risky” on an individual level may balance certain idiosyncratic risks of the portfolio, in compliance with fiduciary obligations.²⁵

In 2015, the US Department of Labor issued an Interpretive Bulletin (IB) 2015-01 related to fiduciary obligations in the consideration of “economically targeted investments” that are selected for their economic benefits separate from investment return to the fund.²⁶ Such economically targeted investments would include investments based on environmental, social and governance factors. The Department of Labor issued IB 2015-1 because of the concern that previous guidance under ERISA prevented fiduciaries from investing in economically targeted investments, even if such investments provided an investment return to the fund equivalent to investments unrelated to environmental, social and governance factors. In addition, the Department of Labor believed the previous guidance may have improperly stopped fiduciaries from adopting investment strategies considering environmental, social and governance factors, even if the environmental, social and governance factors were used only to determine whether such strategy was economically superior to one that did not take environmental, social and governance factors into account.²⁷ IB 2015-1 clarifies that a fiduciary may properly invest in economically targeted investments, so long as they comply with the standards related to fund investments generally.²⁸

To a large extent, however, the IB only confirmed Hutchinson and Cole’s argument. If an investment that is otherwise economically equal to all other possible investments also provides a social (or other non-economic) benefit, the fiduciary will not violate his fiduciary duty by making such investment. Confirming that a fiduciary is prohibited from subordinating economic interest to unrelated objectives, the IB further clarifies that any factor with a “direct relationship to the economic value of the plan’s investment,” including an environmental, social or governance factor, should be a component of the fiduciary’s analysis in making his or her investment decision.²⁹ Fiduciaries must consider all facts he or she “knows or should know are relevant.”³⁰ The IB stops short, however, of determining the overall relevance of environmental, social and governance factors or otherwise requiring non-financial factors such as climate change to be analyzed in making such economic assessment.

²³ Schanzenbach, Max and Robert Sitkoff. 2016. “Financial Advisors Can’t Overlook the Prudent Investor Rule.” *Journal of Financial Planning*. (August): 28 - 31, 29.

²⁴ *Ibid.*, 30.

²⁵ Schanzenbach and Sitkoff, “The Prudent Investor Rule and Market Risk, 1.

²⁶ Department of Labor Interpretive Bulletin Relating to the Fiduciary Standard under ERISA in Considering Economically Targeted Investments. 29 C.F.R. 2509.2015-01. (26 October 2015).

²⁷ *Ibid.*

²⁸ *Ibid.*

²⁹ *Ibid.*

³⁰ *Ibid.*

In “It’s Not Easy Being Green,” Walley and Whitehouse argue that corporations that pursue environmentally sustainable strategies suffer economically for such strategies,³¹ impacting shareholder returns. Because of the fiduciary duty of prudence, this argument would result in the conclusion that sustainable investments are fiduciary violations unless additional reasons existed to consider them otherwise. While Walley and Whitehouse acknowledge that corporate adoption of environmental initiatives can be a catalyst for innovation and market opportunity (thereby increasing the value of such company), they argue that corporate pursuit of environmental goals will be disproportionately financially costly.³² Since they expect financial gains to shareholders from environmental expenditures in areas such as product innovation will be minimal, the authors conclude that any environmental investments made should be focused on a strategy to provide the biggest return, such as increasing overall efficiency through environmental measures.³³

In “An Empirical Study of the World Price of Sustainability,” Xiao, Faff, Gharghori and Lee performed an empirical investigation to determine whether sustainability investments have an impact on global equity returns, such that fiduciaries making such sustainability investments would realistically fear violation of a prudent man standard that was based solely on financial return.³⁴ Using global Fama-French factors to explain global equity returns, Xiao, Faff, Gharghori and Lee determined that, contrary to the arguments of Walley and Whitehead, sustainability factors do not have a significant impact on returns, either positively or negatively.³⁵ The study argues that this result should permit implementation of a sustainability strategy, without violating fiduciary obligations. Although this study could be used in conjunction with IB 2015-01 to support an otherwise economically equal sustainability investment, the conclusion does not go so far as to provide support for the idea that environmental factors should be affirmatively considered in making investment decisions in order to satisfy fiduciary requirements.

Neither Walley and Whitehouse’s article, nor Xiao, Faff, Gharghori and Lee’s study take into account the environmental progress made in recent years or the potential impact of globalized efforts to combat climate change. Because of the more recent global urgency regarding a climate change solution, both private industries and government have fostered greater research and development, and barriers to environmental innovations have been reduced.³⁶ The profitability of alternative technologies has grown significantly from the increased investment. As the world becomes more aware of the dangers of a carbon-based economy, and as international legislation ensures that the costs of climate change are increasingly internalized by polluting sources, corporate investments in sustainability have the ability to be more profitable than even as recently as five years ago.³⁷

³¹ Walley, Noah and Bradley Whitehead. 1994 “It’s Not Easy Being Green.” *Harvard Business Review*. (May-June): 46 - 52.

³² Ibid.

³³ Ibid., 51 - 52.

³⁴ Xiao, Yuchao, Robert Faff, Philip Gharghori, and Darren Lee. 2013. “An Empirical Study of the World Price of Sustainability.” *Journal of Business Ethics*. Vol. 114, No. 2 (May): 297 - 310.

³⁵ Ibid., 298.

³⁶ For example, the EU has funded numerous environmental projects leading to profitable innovations. See European Commission Research and Innovation Success Stories: http://ec.europa.eu/research/infocentre/success_stories_en.cfm?item=Environment&subitem=Climate%20%26%20global%20change&start=11

³⁷ “[T]he tripling of public and private sector investment in clean tech over the last five years has resulted in the price of solar panels declining by 75 percent and wind turbines by 25 percent, after no price declines in the prior

International legal agreements, including the Paris Agreement, will likely have significant impact on certain sectors of the financial market, including fossil fuels and renewable energy sectors. The Paris Agreement entered into force on November 4, 2016, and to date, over 130 parties have ratified the Agreement.³⁸ With the goal of limiting global temperature increases to less than 2 degrees Celsius above pre-industrial levels,³⁹ the Paris Agreement will require its signatory states to implement significant legal measures to achieve their nationally determined contributions. The market costs and benefits related to new regulations are currently unknown; however, an impact is certain.

Although the US originally ratified the Paris Agreement, its 2017 withdrawal from the agreement means that regulations that otherwise would have likely been introduced to reduce greenhouse gas emissions in the US may not be implemented. However, if the remaining signatories take steps to achieve their nationally determined contributions in their own territories, global economic implications may still result.

As discussed by Joseph Schumpeter in *Capitalism, Socialism and Democracy*, “creative destruction” reflects the nature of capitalism as a non-stagnant, evolutionary process.⁴⁰ Creative destruction can be described as a process of economic growth and increased productivity resulting from technological innovation (creation) accompanied by disappearing jobs, companies and industries related to such same technological advancements (destruction). Instead of focusing on price competition, Schumpeter states that the form of competition that will effectively lead to creative destruction is the “competition which commands a decisive cost or quality advantage and which strikes not at the margins of the profits and the outputs of the existing firms but at their foundations and their very lives.”⁴¹ Fundamentally, it is innovation that triggers change in capitalist markets.⁴²

A classic and ongoing example of creative destruction can be shown by analysis of the transportation industry. In the 19th century, the innovation of the steam engine produced the railroads. In the 20th century, the internal combustion engine led to mass-produced automobiles and the invention of airplanes later resulted in common commercial air travel. Each new technological advancement expanded markets, created jobs and built new industries. However, each innovation came at an economic cost to certain parts of the existing industries. The railroad not only displaced horse and buggy drivers, but also put blacksmiths and carriage makers out of work. Likewise, railway workers suffered when automobiles and airplanes became omnipresent.⁴³

five-year period.” Nordhaus, Ted and Michael Shellenberger. 2012. “The Creative Destruction of Climate Economics.” *The Breakthrough*. (May 16).

³⁸ As of 27 April 2017, 144 out of 197 parties have ratified the Paris Agreement. United Nations Framework Convention on Climate Change. “Paris Agreement – Status of Ratification.” Accessed 27 April 2017 from http://unfccc.int/paris_agreement/items/9444.php.

³⁹ Ibid., Article 2(1)(a).

⁴⁰ Schumpeter, Joseph. 1950. *Capitalism, Socialism and Democracy*. 3rd ed. New York: Harper & Brothers, p. 81.

⁴¹ Ibid., 83.

⁴² Ibid., 82.

⁴³ Cox, Michael and Alm, Richard. 2008. “Creative Destruction.” *The Concise Encyclopedia of Economics*. 2nd ed. Accessed 3 March 2017 from <http://www.econlib.org/library/Enc/CreativeDestruction.html>.

In “Climate Change, Innovation and Jobs,”⁴⁴ Fankhauser, Sehleier and Stern argue that climate change could trigger widespread economic adjustment from creative destruction. Although the authors focus on job loss and creation, the principles of the article can be extrapolated to show the financial success or failure of the relevant industries or sectors. Fankhauser, Sehleier and Stern suggest that in the short term, climate change would lead to the creation and loss of jobs in directly-affected industries.⁴⁵ This could lead to a decline in share value of fossil fuel companies, and a corresponding increase in value of companies focusing on mitigating technologies.

Economic growth theory identifies technical change and innovation as a source of economic growth, as such technical advancements trigger a process of “technology diffusion, adaptation and experimentation.”⁴⁶ Over the long term, adoption of the new technology would set off a secondary wave of innovations, as industries adapt such new technologies to their own needs.⁴⁷ Fankhauser, Sehleier and Stern cite to additional empirical studies in which higher energy prices were shown to increase energy-saving innovations.⁴⁸ If the Paris Agreement fosters innovation in alternative energy or other low-carbon technologies while contemporaneously driving away investment from the fossil fuel industry, economic impacts on the relevant industries will occur, regardless of US participation in the Paris Agreement. These economic impacts could have global applicability, triggering fiduciary obligations of prudence in pension fund investors.

Feit’s 2016 article, “Trillion Dollar Transformation: Fiduciary Duty, Divestment, and Fossil Fuels in an Era of Climate Risk,” emphatically argues that US pension fiduciaries are currently required to take climate change risks into account in making their investment decisions for pension funds. Feit asserts that the effects of climate change, as well as the public efforts to address climate change, will have material impacts on global markets and industries.⁴⁹ This climate-related market risk triggers fiduciary duties owed to participants and beneficiaries of pension funds.⁵⁰

Noting the obligations of a pension fund fiduciary to all classes of participants and beneficiaries, Feit describes the risk of violation of the fiduciary duty of impartiality, part of the duty of loyalty.⁵¹ The duty of impartiality prohibits fiduciaries from favoring one group of pension plan participants or beneficiaries over another. Based on the longer-term projected value decline in carbon-intensive assets, a portfolio heavily invested in such assets would favor shorter-term, older participants in the pension funds at the expense of younger participants with longer-term investment horizons.⁵²

Feit describes four types of financial risks that will occur as a result of climate change: (1) a risk of loss due to physical effects of climate change (e.g. the destruction of wealth and disruption of economic activity brought about by extreme weather events); (2) a risk of “stranded assets” (e.g.

⁴⁴ Fankhauser, Samuel, Friedel Sehleier, and Nicholas Stern. 2008. “Climate Change, Innovation and Jobs.” *Climate Policy*. Vol. 8: 421 - 429.

⁴⁵ *Ibid.*, 422.

⁴⁶ *Ibid.*, 426.

⁴⁷ *Ibid.*

⁴⁸ *Ibid.*, 426 - 427.

⁴⁹ Feit, Steven. 2016. “Trillion Dollar Transformation: Fiduciary Duty, Divestment, and Fossil Fuels in an Era of Climate Risk.” Center for International Environmental Law. (December): 5.

⁵⁰ *Ibid.*, 3.

⁵¹ *Ibid.*, 11.

⁵² *Ibid.*, 3.

carbon reserves that cannot be fully developed by fossil fuel companies due to increasingly restrictive greenhouse gas regulations); (3) a risk of negative impact on various business models that occurs as a result of the shift away from fossil fuel use, either from social attitudes or restrictive regulations (e.g. diminishing demand for fossil fuels as alternative energy becomes cheaper, or changes to the automobile industry to incorporate new fuel alternatives); and (4) a risk of litigation against companies for contributing to climate change (e.g. Urgenda Foundation v. the State of the Netherlands, Our Children’s Trust multi-state US litigation).⁵³ As a result of these various risks, Feit argues that what may have previously been a well-diversified portfolio (as required by the fiduciary prudence standard), may no longer be so.⁵⁴

Although persuasive, Feit’s article does not take into account the possibility of the US’s withdrawal from the Paris Agreement, a general reduction in US regulations restricting greenhouse gas emissions, or new laws and regulations to build up the domestic fossil fuel industry. With a reversal in US policy away from protection against climate change risks, both Feit’s second and third enumerated risks as stated could actually bolster the fossil fuel prices and related shareholder valuations for an undetermined period. Because Feit’s arguments are generally based on the financial efficacy of sustainability investments, these possibilities cannot be overlooked.

Though the majority of Feit’s article focuses on the economic reasons to take environmental, social and governance factors into account, Feit also considers the possibility of a fiduciary duty to participants and beneficiaries of a pension fund based on improved quality of life from a global shift away from fossil fuels.⁵⁵ Based on legislative history of ERISA discussed by Walley and Whitehead, as yet uncontroverted by regulation or other guidance, this seems unlikely to be the case.

Directive 2016/2341⁵⁶ on Institutions for Occupational Retirement Provision (IORP Directive) entered into force in the European Union (EU) January 12, 2017. In part, this IORP Directive sets forth investment and disclosure requirements of occupational pension funds related to consideration of environmental, social and governance factors. EU member states must bring their laws and regulations into compliance with the IORP Directive by January 13, 2019.⁵⁷

Although the IORP Directive addresses a number of rules related to occupational pension funds generally, among the provisions of the IORP Directive related to environmental, social and governance factors are the following:

- Defining the “prudent person rule,” in compliance with which the pension funds must be invested, by specifying that the pension funds may take into account the “potential long-term impact of investment decisions on” environmental, social and governance factors.⁵⁸

⁵³ Ibid., 5 - 7.

⁵⁴ Ibid., 10.

⁵⁵ Ibid., 17.

⁵⁶ Directive (EU) 2016/2341 of the European Parliament and of the Council of 14 December 2016 on the Activities and Supervision of Institutions for Occupational Retirement Provision (IORPs), 2016 O.J. L 354/37.

⁵⁷ Ibid.

⁵⁸ Ibid., Article 19(1)(b).

- Requiring a “sound remuneration policy” that is in line with long-term interests (rather than rewarding quick, short-term gains that may, for example, come from investments that have negative externalities related to environmental factors).⁵⁹
- Establishing a risk management function that identifies and reports risks to which the fund may be exposed, including risks related to the effect of climate change on the portfolio.⁶⁰
- Requiring production of a Statement of Investment Policy Principles that will be publicly available, explaining how the investment policy takes environmental, social and governance factors into account.⁶¹

In the Willis Towers Watson analysis of the world’s top 300 pension funds of 2015,⁶² the world’s largest pension funds held close to \$15T. Over 27% of these pension fund assets under management were European.⁶³ The enormous amount of pension assets under management that will be subject to the laws of EU Member States in compliance with the IORP Directive could arguably affect US fiduciary obligations. Because other large pension funds will be required to take environmental, social and governance factors into account in making their investment decisions, US regulators will have a benchmark against which to compare pension fund fiduciaries who ignore climate change risk in making their investment decisions. If large European pension funds that are required to analyze environmental, social and governance factors are producing better returns than their US counterparts, a stronger argument will exist for breach of fiduciary duty against those investors who do not. The knowledge alone that such benchmark exists could encourage US pension fiduciaries to proactively take such environmental, social and governance factors, including factors related to climate change, into account in their own pension investment decisions.

The IORP Directive may also impact the value of pension fund investments under the theory of “universal ownership.” A “universal owner” is generally defined as a large institution that invests over a long-term period in widely diversified asset classes and industries that represent global capital markets.⁶⁴ Under this definition, large, diversified pension funds, with their focus on longer-term investment horizons,⁶⁵ would generally be considered universal owners. Because of the global representation in the universal owner’s portfolio, the theory of “universal ownership” provides that overall economic performance will influence portfolio value more than the performance of a single industry or asset class.⁶⁶ In other words, because of the wide ranging and long-term nature of a universal owner’s investments, externalities of a sector that affect the entire economy will directly impact such universal owner’s portfolio.

⁵⁹ Ibid., Article 23(1) & (3)(b).

⁶⁰ Ibid., preamble para. 57, Article 25(2)(g).

⁶¹ Ibid., Article 30.

⁶² Willis Towers Watson. 2016. “Willis Towers Watson 300 Analysis: Year End 2015.” *Pensions & Investments*. (September).

⁶³ Ibid., 4.

⁶⁴ UNEP. 2010. “Universal Ownership: Why Environmental Externalities Matter to Institutional Investors.” UNEP Finance Initiative with PRI. Accessed 17 January 2017 from http://www.unepfi.org/fileadmin/documents/universal_ownership.pdf.

⁶⁵ Urwin, Roger. 2010. “Allocations to Sustainable Investing.” Presentation to UN PRI Conference – Copenhagen. (May): 1 - 32, 11.

⁶⁶ Urwin, Roger. 2011. “Pension Funds as Universal Owners: Opportunity Beckons and Leadership Calls.” *Rotman International Journal of Pension Management*. Vol. 4, No. 1 (Spring): 26 - 33.

As described by Lydenberg in his 2012 article, “Reason, Rationality, and Fiduciary Duty,” protecting the value of the portfolio of a universal owner will require protecting the value of the economy as a whole.⁶⁷ Unlike smaller portfolios that do not necessarily have the global diversification across most industries and sectors, large pension funds must consider universal economic well-being, including the minimization of negative externalities, in order to maximize their portfolio value.⁶⁸

In “Pension Funds as Universal Owners: Opportunity Beckons and Leadership Calls,” Urwin further examines universal ownership as an impetus for investment behavior changes of pension fund fiduciaries.⁶⁹ Because a universal owner owns significant amounts of externalities at risk of being internalized to the detriment of the portfolio, investment allocations that systemically invest in technologies that would mitigate environmental degradation challenges could act as a hedge against future risk to the overall portfolio.⁷⁰ As the motivation and analysis behind all such investments is purely financial (since improvement of the overall economy would positively impact a global, diversified portfolio), the investments would meet required fiduciary standards related to promoting the economic interests of the participants and beneficiaries of a pension fund.⁷¹

The IORP Directive, combined with the theory of universal ownership, may increase the likelihood of sustainability investment implications for US pension fund fiduciaries. The IORP Directive provides a testing ground for universal ownership theory. By requiring EU pension investors to take environmental, social and governance factors into account, universal owner pension funds may begin to change their investment behavior. Although universal ownership arguably focuses on long-term investment strategies, analysis of portfolio performance that considers environmental, social and governance factors may provide an economic basis for requiring analysis of such factors in large US pension funds, if portfolio performance is noticeably improved. Not only will the IORP Directive potentially establish a benchmark for universal owner US pension funds, but the implications of investments of European universal owner pension funds may extend into the overall market. As described above, significant additional investment into alternative energy sectors and away from carbon-intensive industries by European universal owner pension funds may have economic market implications beyond Europe based on economic growth theories related to technological advancements.

In addition to the potential ramifications of European legislation on US pension fund fiduciary duties, European litigation may also have an impact. In Urgenda Foundation v. the State of the Netherlands (2015),⁷² the Hague District Court ruled that the Netherlands must take increased action to reduce its greenhouse gas emissions. Although the existing greenhouse gas emissions policies of the Netherlands would have, by 2020, reduced emissions by 17% from 1990 levels, the Court determined that this would not satisfy its duty of care to protect its citizens against the

⁶⁷ Lydenberg, Steve. 2012. “Reason, Rationality and Fiduciary Duty.” Initiative for Responsible Investment. (February): 11.

⁶⁸ Ibid., 11 - 12.

⁶⁹ Urwin, “Pension Funds as Universal Owners,” 26 - 33.

⁷⁰ Ibid., 26, 29.

⁷¹ Ibid., 27.

⁷² Urgenda Foundation v. The State of the Netherlands, C/09/456689/HA ZA 13-1396 (24 June 2015).

imminent dangers of climate change. The Court held that the Dutch government must revise its policy to set the required reduction for 2020 at a minimum of 25% from 1990 levels.⁷³

Under the facts of the case, in 2012, Urgenda, a Dutch citizens' platform, had requested that the Netherlands do more to reduce greenhouse gas emissions.⁷⁴ Urgenda insisted that the 20% reduction from 1990 levels promised by the EU was not enough to prevent a dangerous level of climate change, and these dangerous levels threatened people and human rights.⁷⁵

Among its arguments, Urgenda claimed that the Netherlands was violating the State's obligation of due care to its citizens under various European and international laws.⁷⁶ Further, Urgenda argued that because the emission of greenhouse gases was occurring in the State (the Netherlands has one of the highest rates of greenhouse gas emissions per capita in the world), and the State is able to regulate and control such emissions, the Netherlands has a "systemic responsibility" with regard to such emissions.⁷⁷ Following a lengthy analysis, the Court determined that no obligation of the Netherlands toward Urgenda existed under European or international law.⁷⁸ However, the Court went on to examine the Netherlands liability under tort law for a potential breach of its duty of care to its citizens.

Because no Dutch case law existed as to whether the State violated its obligations of due care to prevent/limit dangerous climate change, the Court examined whether the Netherlands exhibited "hazardous negligence" with regard to climate change.⁷⁹ This evaluation took into account the following six factors: (i) the nature and extent of damage from climate change, (ii) foreseeability of damage, (iii) likelihood of the occurrence of damage from climate change, (iv) the nature of State action/omission, (v) the difficulty of taking precautionary measures, and (vi) the discretion of the State to act.⁸⁰ The court examined the first three factors together, giving as an established fact the high likelihood of serious damage from climate change and the previous knowledge of the state as to such likely damage (foreseeability).⁸¹ The Court noted that these factors obliged the State to mitigate in its own territory, and to act expeditiously.

With regard to the fourth factor, the Court concluded that the State had the power to control greenhouse gas emissions. Because of this necessary role in the transition to a sustainable society, the Court considered the Netherlands responsible for a high level of care.⁸² For the fifth factor, the Court determined that immediate mitigation would be more cost effective than adaptation. Immediate actions to prevent or reduce negative impacts of climate change would be more cost-effective than attempting to cure damages already done. The State, therefore, would have a duty of care to act quickly.⁸³

⁷³ Ibid., 4.93.

⁷⁴ Ibid., 2.6.

⁷⁵ Ibid., 3.1(1) - (2).

⁷⁶ Ibid., 3.2.

⁷⁷ Ibid., 3.2.

⁷⁸ Ibid., 4.52.

⁷⁹ Ibid., 4.53 - 4.54.

⁸⁰ Ibid., 4.63.

⁸¹ Ibid., 4.65.

⁸² Ibid., 4.66.

⁸³ Ibid., 4.73.

In its analysis of the sixth factor, the discretion of the State to act, the Court recognized that Article 21 of the Dutch Constitution,⁸⁴ providing that the government must ensure the protection and improvement of the environment, gives the State extensive (though not unlimited) powers to act with regard to climate change.⁸⁵ The Court concluded that the Netherlands owed a duty of care to Urgenda that would require the State to enact mitigation measures.⁸⁶ Because its current mitigation measures were insufficient to prevent dangerous climate change, the State violated its duty of care to Urgenda.⁸⁷

Historically in climate change litigation, one significant barrier to success has been establishing a causal link to the harm as an element of the case.⁸⁸ In Urgenda, the Court concluded causation was sufficient, regardless of the fact that Dutch emissions, compared to those of other countries, was relatively minor. The Court stated that, no matter how minor, any greenhouse gas emissions will contribute to an increase in carbon dioxide level, leading to dangerous climate change.⁸⁹ Therefore, even small contributions toward greenhouse gas emissions will be considered a causal link, triggering the State's duty of care.⁹⁰

In making its decision, the Court stated that it considered "as certain" that global anthropogenic greenhouse gas emissions are increasing.⁹¹ The severe impact of climate change, on both a global and local level, was undisputed between the parties.⁹² The Court stated:

"Anthropogenic greenhouse gas emissions are causing climate change. A highly hazardous situation for man and the environment will occur with a temperature rise of over 2 °C compared to the preindustrial level. It is therefore necessary to stabilise the concentration of greenhouse gases in the atmosphere, which requires a reduction of the current anthropogenic greenhouse gas emissions."⁹³

The Netherlands government submitted grounds for appeal in the Urgenda case April 9, 2016. As of the date of this writing, the appeal has not been decided. de Graaf and Jans, in their analysis of Urgenda,⁹⁴ have noted certain controversial aspects to the Court's decision that may impact the appeal. First, de Graaf and Jans discuss the separation of powers issue inherent in the Court's potential encroachment into policy-making. The Court, aware that separation of powers could be an issue upon appeal, addressed this issue by noting the Dutch law distinction between traditional separation of powers, as opposed to the Dutch system's balance between the judiciary and the executive.⁹⁵ The Court further asserted that the Court may, as in the Urgenda case, provide legal protection from the State in the form of judicial review.⁹⁶

⁸⁴ *Grondwet voor het Koninkrijk der Nederlanden van 24 augustus 1815*, Stb. 45 (The Constitution of the Kingdom of the Netherlands).

⁸⁵ Urgenda, 4.74.

⁸⁶ *Ibid.*, 4.75.

⁸⁷ *Ibid.*, 4.83.

⁸⁸ Wood, Stepan. 2016. "Climate Change Litigation in Ontario: Hot Prospects and International Influences." OBA Institute. (February 3): 1 - 2.

⁸⁹ Urgenda, 4.79, 4.90.

⁹⁰ *Ibid.*

⁹¹ *Ibid.*, 4.15.

⁹² *Ibid.*, 4.16.

⁹³ *Ibid.*, 4.18.

⁹⁴ de Graaf, K.J. and J.H. Jans. 2015. "The Urgenda Decision: Netherlands Liable for Role in Causing Dangerous Global Climate Change." *Journal of Environmental Law*. Volume 27, No. 3 (November): 517 - 527.

⁹⁵ Urgenda, 4.95.

⁹⁶ *Ibid.*, 4.97, 4.98.

de Graaf and Jans cite to case law from the Dutch Supreme Court that they consider likely grounds for overturning Urgenda on this point. Under Waterpakt v. The State of the Netherlands, the Supreme Court held that Dutch courts are not permitted to intervene in political decision-making procedure, even when it is clear that the legislature is required to act.⁹⁷ The Urgenda Court, however, did not direct the government in how to achieve the additional emissions reduction or order the adoption of a legislative act.⁹⁸ As a result, the appeals court may find the Urgenda judgement to fit better under the recognized exception to Waterpakt for informal orders and declaratory judgements, though neither directly applies.

de Graaf and Jans also point to the fact that the Court relied heavily on international law and the latest scientific evidence regarding climate change to establish the standard of due care that the Netherlands owed to Urgenda.⁹⁹ Under Articles 93 and 94 of the Dutch Constitution, individual rights can only be derived from international law if they are binding on all persons by their contents. The Urgenda Court specifically determined that Urgenda's rights could not be derived from international law, but used such law to determine the scope of the Netherlands' duty.¹⁰⁰ This could be questioned by an appeals court. In addition, in interpreting the scientific evidence regarding climate change, the Urgenda Court relied heavily on interpretation of scientific fact, opening the issue of whether the appeals court will interpret such facts differently from the Hague District Court.¹⁰¹

The national attention to the case started a discussion in the Dutch government and the population. Many petitioned the Parliament not to appeal the case.¹⁰² Although the Netherlands government has since appealed the judgement of the Court, it has begun concurrently to implement the Court's order. Parliament passed a motion to begin setting forth an emissions reduction policy into a governmental decree, consistent with the order of the Court.¹⁰³

The Urgenda case, as well as the popular reaction to the case and government appeal, are all factors of concern that must be taken into account by a US pension plan fiduciary. Similar litigation has been initiated in Belgium to demand the reduction of greenhouse gas emissions, based on arguments related to human rights laws.¹⁰⁴ Additional climate change lawsuits are being brought and considered all over the world, including in the Phillipines, Peru and Australia.¹⁰⁵

In 2014, Richard Heede aggregated historical greenhouse gas emissions data, tracing approximately two-thirds of carbon dioxide emitted since 1750 to 90 of the largest fossil fuel companies, many of which are still in operation today.¹⁰⁶ This study is pivotal to allowing a

⁹⁷ Waterpakt v. The State of the Netherlands, ECLI:NL:HR:2003:AE8462 (21 March 2003).

⁹⁸ de Graaf and Jans, "The Urgenda Decision," 524 - 525.

⁹⁹ *Ibid.*, 525.

¹⁰⁰ *Ibid.*

¹⁰¹ *Ibid.*, 526.

¹⁰² *Ibid.*

¹⁰³ *Ibid.*

¹⁰⁴ Abate, Randall, ed. 2016. *Climate Justice: Case Studies in Global and Regional Governance Challenges*. Washington D.C.: Environmental Law Institute.

¹⁰⁵ Darby, "Around the World in 5 Climate Change Lawsuits."

¹⁰⁶ Heede, Richard. 2014. "Tracing Anthropogenic Carbon Dioxide and Methane Emissions to Fossil Fuel and Cement Producers, 1854 - 2010: Climatic Change." Climate Mitigation Services Report. (April 7).

number of potential legal actions to move forward. As mentioned in the discussion of the Urgenda case, causation is a common barrier that is difficult to overcome in attributing harm and damages to specific companies and countries. Heede's work has the potential to serve as the causal basis of numerous climate change lawsuits that were previously unable to proceed.¹⁰⁷ Although Heede's report acknowledges the greater uncertainties in the attribution of greenhouse gas emissions to carbon producers than to specific states based on historical data gaps,¹⁰⁸ the report is a comprehensive first attempt at attribution that can be further narrowed as additional data is provided. Even were courts to reduce damages by calculations of the enunciated uncertainties, a basis of causation will be provided for moving climate change litigation forward. By allowing more climate change litigation to proceed (and to potentially succeed), Heede's work will impact valuations of fossil fuel and alternative energy industries, which may trigger fiduciary obligation to reassess the investment decision of the US pension fund investors.

¹⁰⁷ Environmental Law Alliance Worldwide. 2014. "Holding Corporations Accountable for Damaging the Climate."

¹⁰⁸ Heede, 2014, "Tracing Anthropogenic Carbon Dioxide and Methane Emissions," 12 - 15.

III. Methodology

This paper specifically analyzes issues of fiduciary duty obligations of ERISA. Research was focused on the duties of prudence, loyalty and impartiality, on the basis of regulatory guidance and relevant case law. In addition, research was conducted into international laws, treaties and litigation related to climate change. Although an examination of international legislation and litigation is essential to determine potential impact on industries and sectors of global financial markets, an exhaustive global search of laws and legal actions outside of the US is unnecessary for purposes related to the determination of pension fund fiduciary requirements. The analysis of whether existing laws and judicial actions will have an economic effect sufficient to trigger a fiduciary duty of prudence need not be made based on the entirety of global laws but need reach only a minimum threshold to determine whether potential effects exist. In addition, with regard to litigation, while the determination of prospects of success for ongoing and future litigation is helpful for the assessment of market impact, this paper will also analyze whether climate change lawsuits in and of themselves may have economic or reputational effects on the relevant industries.

The determination of potential economic impacts of non-US legislation and litigation for purposes of assessing fiduciary obligation has been made on a generally qualitative basis. Analysis of market consequences related to possible Schumpeterian creative destruction in the energy sector has been made in part by comparison to previous changes to economic markets in industries following significant technological innovation.

IV. Analysis

1. Fiduciary Obligation of Prudence

Section 404(a)(1)(B) of ERISA requires a pension plan fiduciary to invest with the “care, skill, prudence, and diligence...that a prudent man acting in a like capacity and familiar with such matters would use.”¹⁰⁹ US case law interprets ERISA to require more than simple market analysis of the investment in order to satisfy this fiduciary obligation of prudence.¹¹⁰ Prudence must be analyzed instead in the context of the specific needs of the fund and its participants.¹¹¹ Under US trust law from which ERISA principles are often derived,¹¹² no specific type of investment is, in and of itself, categorically impermissible under the prudent man standard.¹¹³ Fiduciaries must make investments prudently within the entire pension plan portfolio and consistent with its risk tolerances.

Although often called a “prudent man standard,” this ERISA standard requires more than the prudence of an average individual. As stated by the Fifth Circuit Court of Appeals in Donovan v. Cunningham in rejecting a claim of subjective good faith as defense for making an imprudent investment, “a pure heart and an empty head are not enough.”¹¹⁴ The fiduciary prudence standard calls for the care and skill of an individual familiar with the matters in question to be used in evaluating investment decisions, and has been likened to a “prudent expert” standard.¹¹⁵

Under ERISA, the requirement that fiduciary actions be consistent with the actions of someone familiar with matters of pension plan investments and other activities is not specifically restricted to US persons familiar with such matters. With regard to the standard, the legislative history of ERISA is informative. The Conference Committee Report specifically set forth the expectation that future courts would interpret the prudent man standard “bearing in mind the special nature and purposes of employee benefit plans” that are intended to be covered under ERISA.¹¹⁶ In other words, prudent pension plan investment fiduciaries must make their investments in accordance with care and skill that a prudent man acting on behalf of and familiar with pension plan investments would use.

Because of the global nature of the economy and world-wide investment opportunities that currently exist, as well as the European Union’s own pension investment schemes and regulations, the EU is home to numerous individuals skilled in the evaluation of investment decisions that take into account “the special nature and purpose” of employee retirement benefit plans. Like ERISA, the IORP Directive of the European Union that governs financial institutions managing employer collective retirement schemes to provide employee retirement benefits includes prudence obligations, requiring such financial institutions to invest compliant

¹⁰⁹ 29 U.S. Code § 1104(a).

¹¹⁰ *GIW Industries Inc. v. Trevor, Stewart, Burton & Jacobsen, Inc.*, 895 F.2d 729 (11th Cir. 1990).

¹¹¹ *Ibid.*, para. 25 - 26.

¹¹² For example, in Tibble v. Edison, the Supreme Court “noted that an ERISA fiduciary’s duty is ‘derived from the common law of trusts.’” *Tibble v. Edison Int’l*, 135 S. Ct. 1823, 1828 (S. Ct. 2015).

¹¹³ Restatement (Third) of Trusts § 90 comment e(1).

¹¹⁴ *Donovan v. Cunningham*, 716 F.2d 1455 (5th Cir. 1983), para. 42.

¹¹⁵ Piper/Bach, Betsy. 2013. “ERISA Plans: What is Your Fiduciary Responsibility?” Investment Management Consultants Association; Droms, William. 1992. “Fiduciary Responsibilities of Investment Managers and Trustees.” *Financial Analysts Journal*. Vol. 48, No. 4 (Jul - Aug).

¹¹⁶ House Report No. 93 - 533 (1973), 12.

with the “prudent person rule.”¹¹⁷ The requirements for a plan fiduciary to have a diversified portfolio, consider profitability and liquidity factors relative to the return requirements of the fund, and ensure risk tolerances are appropriate for a retirement portfolio are present under both US pension fiduciary law and the IORP Directive.¹¹⁸

The IORP Directive was updated in late 2016, and its provisions must be transposed into EU member state law by early 2019. The Directive requires, in part, certain consideration of environmental factors in making fiduciary investment decisions. Under the Directive, IORPs must produce risk assessments that include, if relevant, risks related to climate change and potential asset depreciation from changes in regulation (such as fossil fuel stranded assets).¹¹⁹ IORPs must have in place systems of governance that include consideration of environmental factors in investment decisions.¹²⁰

Although the provisions of the IORP Directive that require consideration of environmental factors will not directly regulate US pension fiduciary behavior, this additional investigation and analysis required by the EU law will mean that fiduciaries representing billions of dollars of pension fund assets will take climate change risk into account in making investment decisions. Because of the similarities in employee benefit pension structures and requirements between the US and the EU, the new IORP Directive of the EU may help to actually indirectly mold a prudent person standard under US pension law by providing a wider range of prudent experts against which to evaluate a US plan fiduciary’s “care, skill, prudence, and diligence” in making pension investment decisions.

2. Obligations of Prudence and Business Risks of Climate Change

The duty of prudence is procedural. In *Fink v. National Savings and Trust Company*, the DC Circuit Court of Appeals concluded that a “fiduciary’s independent investigation of the merits of a particular investment is at the heart of the prudent person standard.”¹²¹ Prudence will not be determined based on hindsight or unknowable future economic results of the investment,¹²² but will instead be determined based on fiduciary investigation and analysis of each investment for portfolio suitability at the time such investment is made.¹²³ Part of this duty of prudence requires fiduciaries to take into account both the risks of loss and the opportunities for gain of the entities in which they invest, and to ensure such risks and opportunities are suitable for the plan portfolio.¹²⁴

Risk of loss applicable to a pension fund investment would include regulatory risk from changes in law that may impact an organization, sector or industry. With regard to carbon-intensive industries, such as the fossil fuel industry, typical regulatory risk would include government

¹¹⁷ IORP Directive, 2016, Article 19(1).

¹¹⁸ 29 C.F.R. §2550.404a-1(b)(2)(ii); IORP Directive, 2016, Article 19.

¹¹⁹ IORP Directive, 2016, preamble para. 57, Article 25.

¹²⁰ *Ibid.*, Article 21.

¹²¹ *Fink v. National Savings & Trust Company*, 772 F.2d 951 (D.C. Cir. 1985), para. 25.

¹²² Hutchinson, James and Charles Cole. 1980. “Legal Standards Governing Investment of Pension Assets for Social and Political Goals.” *University of Pennsylvania Law Review*. Vol. 128, No. 4: 1340-1388, 1383; 25 C.F.R. 2550.404a-1(b).

¹²³ *Donovan v. Mazzola*, 716 F. 2d 1226 (9th Cir. 1983), para. 26; *In re Unisys Savings Plan Litigation*, 173 F.3d 145 (3d Cir. 1999).

¹²⁴ 29 C.F.R. §2550.404a-1(b)(2).

implementation of laws and regulations related to climate change that may constrain the activities of such organization. Although non-US climate change legislation or litigation would likely not directly increase regulatory risk of a US company (potentially excluding import restrictions), numerous indirect implications exist. Business risks for the fossil fuel industry related to non-US climate change legislation and litigation include increased supply chain risk, reputational risk, litigation risk, risk of technological change, stranded asset risk, and divestment risk. As ERISA case law specifies that in a determination of prudence the focus must be on the thoroughness of a fiduciary's investigation,¹²⁵ a pension fiduciary should analyze each such risk in making the determination of whether an investment decision is prudent for a pension fund investment.

Supply Chain Risk

Foreign climate change regulations may directly affect supply chains for US fossil fuel companies. Regulation in the source country of a needed product in the supply chain could result in cessation of production or increased costs for such product.¹²⁶

Governments around the world are introducing significant amounts of legislation in order to promote efforts to reduce the harmful effects of climate change. In addition to country-level regulations aimed at reducing greenhouse gas emissions, the Paris Agreement, with 195 state signatories, entered into force at the end of 2016 to combat climate change on an international basis. The Paris Agreement requires its signatory states to establish and attain nationally determined contributions¹²⁷ to address climate change in their own countries.

Regardless of whether the US participates in the Paris Agreement, as a majority of countries around the world have signed onto the Paris Agreement, increased regulation will likely impact supply chains for US fossil fuel companies. As an example, regulations brought about under the Paris Agreement will likely affect large European oilfield service and equipment companies that frequently contract with US fossil fuel companies.¹²⁸ If the Paris Agreement results in higher compliance costs for such oilfield service and equipment companies, this will eventually translate into higher supply costs for US fossil fuel companies in need of outsourced oilfield services. Even though not all oilfield service and equipment companies will be subject to regulations of states that are signatories to the Paris Climate Agreement, the reduced competition from those that are will likely result in increased supply chain costs across the industry.

Supply chain increased costs and disruptions can have serious economic consequences for industries and organizations relying on products within supply chains to conduct their regular business activities. It has been estimated that procurement and supply chain management

¹²⁵ *Howard v. Shay*, 100 F.3d 1484 (9th Cir. 1996).

¹²⁶ Jira, Chonnikarn and Michael Toffel. 2013. "Engaging Supply Chains in Climate Change." *Journal of Manufacturing & Service Operations Management*. Vol. 15, Issue 4. (October): 559 - 577.

¹²⁷ Nationally determined contributions are climate actions each signatory pledges to make under the Paris Agreement. United Nations Framework Convention on Climate Change. 2015. *Adoption of the Paris Agreement*, 21st Conference of the Parties, Paris: United Nations. (December 12), Article 3.

¹²⁸ Debarre, Romain, Tancrede Fulop and Bruno Lajoie. 2016 "Energy Perspectives: Consequences of COP21 for the Oil and Gas Industry." Accenture Strategy Policy Paper.

accounts for approximately 90% of capital spending in the oil and gas industry.¹²⁹ Because of the nature of the oil and gas industry, oil and gas companies have little control over prices and revenues from sales.¹³⁰ As a result, increased supply chain and procurement costs translate into potentially significant decreased profitability for the affected organizations.

Reputational Risk

Non-US climate change legislation and litigation may also increase reputational risk for investment in the fossil fuel industry. It has been estimated that between 70% and 80% of market value of an organization comprises intangible assets, including brand equity, goodwill and intellectual capital.¹³¹ As a result, organizations are vulnerable to negative publicity and reputational risk.¹³² Reputational risk may be company specific or relate to the public perception of the entire industry, including the perception of potential profitability loss.¹³³

Regulatory action can impact the reputation of an industry. In a 2014 global survey by the Deloitte consulting firm related to reputational risk management, organizational leaders consistently tied reputational risk to other business risks, such as noncompliance with industry regulations.¹³⁴ In addition, regulations may indicate safety and trustworthiness of an industry, or the lack thereof.¹³⁵ Although non-US regulations may not have as great an impact on the reputation of the US fossil fuel industry as would US regulations, such foreign regulations may still increase general reputational risks related to long-term global existential concerns about the industry and its profitability potential. Non-compliance with the basis of foreign regulations may indicate to consumers that there are potential safety risks or a lack of consideration of externalities.

Foreign litigation may also contribute to reputational risk.¹³⁶ Studies examining reputational effect of environmental litigation against organizations have shown a statistically significant negative return following initial public notifications of charges filed.¹³⁷ Litigation can help to form the opinion of stakeholders and the public about an organization or industry.¹³⁸ With the world-wide reach of the internet, a “parallel trial” in the public sphere may occur in social media

¹²⁹ Brun, Anders, Gus Aerts and Marte Jerkø. 2015. *Oil and Gas Practice: How to Achieve 50% Reduction in Offshore Drilling Costs*. McKinsey & Company. (May): 7.

¹³⁰ Maltaverne, Bertrand. 2016. “4 Best Practices for Procurement in Oil and Gas.” *Pool 4 Tool Procurement World*. (August 16).

¹³¹ Eccles, Robert, Scott Newquist and Roland Schatz. 2007. “Reputation and Its Risks.” *Harvard Business Review*. (February): 104 - 105.

¹³² Allen, Gregory and Rachel Derr. 2015. *Threat Assessment and Risk Analysis: An Applied Approach*. Massachusetts: Butterworth-Heinemann. 16.

¹³³ Engel, Hauke, Per-Anders Enkvist and Kimberly Henderson. 2015. “How Companies Can Adapt to Climate Change.” McKinsey & Company. (July): 5.

¹³⁴ Deloitte. 2014. “2014 Global Survey on Reputation Risk.” (October). Accessed April 23, 2017 from https://www2.deloitte.com/content/dam/Deloitte/pl/Documents/Reports/pl_Reputation_Risk_survey_EN.pdf.

¹³⁵ Referring to banking industry regulatory reform as impacting the reputation of the banking industry, see Johannsen, Rolland. 2017. “The Reputational Risk of Regulatory Reform.” *American Banker*. (March 2).

¹³⁶ Allen, Gregory and Rachel Derr. 2015. *Threat Assessment and Risk Analysis: An Applied Approach*. Massachusetts: Butterworth-Heinemann. 17.

¹³⁷ Lott, John, Jonathan Karpoff and Graeme Rankine. 1999. “Environmental Violations, Legal Penalties, and Reputation Costs.” University of Chicago Law School, Coase-Sandor Working Paper Series in Law and Economics; Haslem, Bruce, Aime Hoffmann Smith, and Irena Hutton. 2017. “How Much Do Corporate Defendants Really Lose? A New Verdict on the Reputation Loss Induced by Corporate Litigation.” *Financial Management*. (March 9).

¹³⁸ Sanchez-Junco, Javier, Luis Peña and Juan Cardona. 2015. “Litigations and Reputational Risk: Measuring the Impact of Legal Proceedings on the Reputation of Companies.” *Developing Ideas*, Llorente & Cuenca. (April).

along with the actual trial, influencing public opinion.¹³⁹ Because of global access to information, this influence is not limited to the individuals in the location of the litigation.

The 2015 Volkswagen emissions fraud highlights the potential danger of reputational risk to shareholder price from threat of litigation. The US Environmental Protection Agency's allegation that certain of Volkswagen's diesel cars violated emissions laws resulted in a more than 30% drop in share price of Volkswagen shares immediately following the claim. This drop far exceeded the expected loss to the company from litigation costs alone.¹⁴⁰ The additional amounts lost may be attributable to the reputation loss stemming from the legal violations and the numerous governmental, consumer and investor lawsuits filed against the company.

As legislation and litigation related to climate change increases around the world, such legal actions may harm the reputation of the fossil fuel industry, potentially impacting the prices of fossil fuel shares. The increased availability of alternative fuel sources and products compatible with a lower carbon footprint allows consumers to act on reputational concerns more easily, by changing behavior away from fossil fuel consumption, increasing investment risk related to reputation.

Litigation Risk

In addition to an increase in reputational risk to the fossil fuel industry from international litigation, direct litigation risk itself must be considered. Risk of increased shareholder and mass tort litigation against US fossil fuel companies will likely increase with an increase in successful non-US climate change litigation. The success of the Urgenda litigation in the Netherlands has been closely watched by plaintiffs in the US seeking to duplicate public trust arguments in the US courts. Although foreign case law will not be determinative in US judgments, rulings from outside jurisdictions may be considered in judicial decision-making. The Urgenda district court decision has already been influential. In the US District Court of Oregon, a magistrate judge cited the Urgenda case when recommending denial of a motion to dismiss a case against the US in which plaintiffs alleged a violation of public trust and constitutional rights from excessive carbon emissions.¹⁴¹

A similar reaction may occur in cases against the fossil fuel companies themselves. Although the US Courts have not adopted a clear position on litigation against carbon emitters for their role in climate change, numerous scholars argue that such litigation is conceptually similar to common law tort litigation and could be pursued in the same manner.¹⁴² As litigation succeeds in non-US jurisdictions, plaintiffs may become emboldened to pursue similar cases in the US.

Chevron v. Yaiguaje demonstrates the existence of transnational litigation risk for fossil fuel companies.¹⁴³ Following a judgement for environmental damage against Chevron (a US,

¹³⁹ Ibid.

¹⁴⁰ Fairchild, Richard. 2015. "Why the Volkswagen Share Price Slump Goes Beyond Market Logic." *The Conversation*. (September 25).

¹⁴¹ *Juliana, et. al vs. US*, Case 6:15-cv-01517-TC Document 68, Filed 8 April 2016, 11.

¹⁴² Gage, Andrew and Michael Byers. 2014. "Payback Time? What the Internationalization of Climate Litigation Could Mean for Canadian Oil and Gas Companies." Report of Canadian Center for Policy Alternatives. (October).

¹⁴³ *Chevron v. Yaiguaje*, 2015 SCC 42, [2015] 3 R.C.S. 69.

multinational oil and gas company) in Ecuador, the Supreme Court of Canada held that the Ontario court may hear an action for enforcement of such judgement against the US-based corporation and its Canadian subsidiary, regardless of the fact that Chevron US had no ties to or assets in Ontario and that Chevron Canada was not part of the underlying judgment.¹⁴⁴

In reaching its conclusions, the court distinguished enforcement actions from actions in the first instance. The court refuted the need to find a significant connection between the defendant and the enforcing forum, citing fairness and the realities of globalization with regard to “international business relations, cross-border transactions, and mobility” to support its liberal interpretation of enforcement jurisdiction.¹⁴⁵

Although Chevron v. Yaiguaje was not a climate change lawsuit, the Canadian Supreme Court’s decision has implications for plaintiffs claiming damages from climate change against multinational corporations with underlying entities in Canada. Chevron v. Yaiguaje could open the door for such plaintiffs to litigate in jurisdictions that would be friendlier to those harmed by climate change-related losses, later seeking court enforcement in Canada. Notably, in climate change cases, the jurisdiction in which the case is brought need not be limited to the site of the greenhouse gas emissions. Depending on applicable law, such case could be brought in the jurisdiction of the location in which the harm occurred. Countries that suffer disproportionately from the effects of climate change but have little enforcement capabilities against multi-national fossil fuel companies, such as island nations facing an existential threat from rising sea levels, could be ideal locations to bring such climate change lawsuits.

Recently, the Philippines has become another battleground in the fight to hold fossil fuel companies accountable for their part in damage from climate change. In 2015, Greenpeace Southeast Asia and Philippine Rural Reconstruction Movement submitted a complaint (the Philippines Complaint) to the Commission on Human Rights of the Philippines requesting an investigation into the responsibility of major carbon producers (Carbon Majors) for human rights violations resulting from climate change. The Philippines Complaint used Heede’s research on the attribution of dangerous climate change to the fossil fuel industry to establish causation for the stated violations.¹⁴⁶

Although the Philippines Complaint focused on the question of the accountability of the Carbon Majors for human rights violations related to climate change and ocean acidification, economic harms from climate change were also enumerated. Based on World Bank Data, the Philippines Complaint asserts that the Philippines spends 0.5% of its annual GDP on natural disasters, a large proportion of which were weather-related. In the 11-year period between 1998 and 2009, the Philippines had costs of approximately US\$24 Billion due to storms, affecting 12.1 million people.¹⁴⁷

¹⁴⁴ Ibid., 72.

¹⁴⁵ Ibid.

¹⁴⁶ Greenpeace Southeast Asia and Philippine Rural Reconstruction Movement. 2015. Petition to the Commission on Human Rights of the Philippines Requesting for Investigation of the Responsibility of the Carbon Majors for Human Rights Violations or Threats of Violations Resulting from the Impacts of Climate Change. (Submitted September 22).

¹⁴⁷ Ibid., 2.

The Philippines Complaint noted that certain of the publicly-traded Carbon Majors have a substantial connection to the Philippines. The complaint further alleged, however, that the trans-boundary nature of the violation, as well as the requirement of states to prevent their corporations from engaging in both territorial and extraterritorial human rights violations, means that the extraterritorial nature of the harms alleged are not a bar to action by the Commission on Human Rights of the Philippines.¹⁴⁸

Only twenty-one of the forty-seven Carbon Majors responded to the Philippines Complaint following a July 2016 order by the Commission on Human Rights of the Philippines for such responses.¹⁴⁹ All responses failed to address the companies' responsibility toward creating the harms caused by climate change. In December 2016, the Commission on Human Rights of the Philippines confirmed its intent to proceed with the inquiry and related public hearings.¹⁵⁰

The Philippines Complaint demonstrates an additional means to conduct potentially expensive litigation against fossil fuel companies. Not only can such companies be pursued in court on a basis of violation of the public trust or economic damages, but also for human rights violations related to climate change. As the public searches for ways for fossil fuel companies to internalize the negative externalities of climate change, litigation risks can only increase for the industry. These risks have the potential to impact the value of investments in the fossil fuel industry.

Risk of Technological Innovation

Foreign legislation and litigation may also increase the risk to the fossil fuel industry of technological innovation. Innovation can be defined as “new creations of economic significance.”¹⁵¹ Technological innovations introduce new knowledge, or new combinations of existing knowledge, into the economy.¹⁵² Although innovation can be a driver of economic growth and increased wages,¹⁵³ the risk of disruptive technological innovation related to alternative energy could reduce demand in the fossil fuel industry, leading to a decline in value reflected in share price.

Schumpeter's concept of “creative destruction” describes the process and results of disruptive technological innovation in an organization or industry. As discussed in Chapter II, creative destruction explains how certain technological innovations in competition with existing technology will succeed to the extent that it is no longer a question of the old technology retaining profit margins, but whether the old technology can even survive.¹⁵⁴ A disruptive technological innovation threatens an existing organization or industry, as new products and

¹⁴⁸ Ibid., 10 - 11.

¹⁴⁹ Included responses counted in the 21 received were both those to the Commission on Human Rights of the Philippines and informally to the NGO Business and Human Rights Resource Centre. Greenpeace Philippines. 2017. “Petitioners’ Consolidated Reply to the Respondent Carbon Majors in the National Public Inquiry Being Conducted by Commission on Human Rights of the Philippines.” Press Release (February 14).

¹⁵⁰ Greenpeace Philippines. 2017. “Petitioners’ Consolidated Reply to the Respondent Carbon Majors.”

¹⁵¹ Edquist, Charles (ed.). 1997. *Systems of Innovation: Technologies Institutions and Organizations*. London & New York: Routledge.

¹⁵² Ibid., 42.

¹⁵³ Greenstone, Michael and Looney, Adam. 2011. “A Dozen Economic Facts about Innovation.” The Hamilton Project. Policy Memo. (August).

¹⁵⁴ Schumpeter, Joseph. 1950. *Capitalism, Socialism and Democracy*. 3rd ed. New York: Harper & Brothers, 83.

technologies replace the old, and the skills and knowledge of those working with the old technology become obsolete.¹⁵⁵

The energy industry is an industry that has gone through tremendous amounts of technological change throughout the centuries, resulting in both competition and transition related to fuel sources. In modern history, the transition from use of charcoal to coal coke in the beginning of the 18th century revolutionized the smelting process and transformed the iron and steel industries. Compared to wood, coal was a much more advanced and less bulky fuel. The heating value of coal over wood was significant.¹⁵⁶ By the late 18th century, coal and its derivatives had begun to steadily displace most other energy sources, such as wood, water, wind, sperm oil and tallow.¹⁵⁷

Although coal was occasionally used as a substitute for whale oil lamps in the mid 19th century, coal was not ideal for lighting purposes. Whale oil prices skyrocketed as demand for sources of illumination continued to increase with growing industrialization. In 1853, however, a Canadian chemist discovered how to distill kerosene from petroleum, providing an illumination solution.¹⁵⁸ Further technological advancement, culminating in the drilling of the first commercial oil well in 1859, contributed to the spread of kerosene lighting. The accessibility and utility of kerosene had the effect of reducing the American whale fishing industry significantly.¹⁵⁹ By 1950, petroleum was the most used fuel in the US, and the whale fishing industry had all but disappeared.

The history of these energy sources reflects Schumpeter's principles of creative destruction. The major cost and quality advantages of coal coke over charcoal and petroleum over whale oil resulted in the destruction of the markets for those forms of energy. As described by Schumpeter in his description of creative destruction, for charcoal and whale oil, the fuel source competition was not one for greater profits, but was existential.¹⁶⁰ Better and cheaper energy sources permanently replaced those that had once been the main sources of fuel and illumination. Changes in the market, as well as the discovery of new products of higher quality or lower cost, all conspired to destroy industries that were formerly indispensable.

The current decline of the coal industry also appears to be a result of creative destruction, exacerbated by the Paris Agreement and foreign regulations. The decline of coal has resulted in large part from increased availability and use of renewable energy, as well as a cheap supply of domestic natural gas.¹⁶¹ While domestic regulations have not helped the coal industry in recent years, the repeal of such regulations and assistance to the industry in the form of subsidies would be unlikely to significantly increase its ultimate longevity. Although exporting coal may be more economically viable than attempting to sell coal domestically, the ability to increase

¹⁵⁵ Kivimaa, Paula and Florian Kern. 2016. "Creative Destruction or Mere Niche Support? Innovation Policy Mixes for Sustainability Transitions." *Research Policy*. Vol. 45, Issue 1. (February): 205 - 217, 210.

¹⁵⁶ White, John. 1979. *A History of the American Locomotive: Its Development, 1830 - 1880*. New York: Dover, 86.

¹⁵⁷ Mumford, Lewis. 1934. *Technics and Civilization*. London: Routledge, 157.

¹⁵⁸ Crosby, Alfred. 2006. *Children of the Sun: A History of Humanity's Unappeasable Appetite for Energy*. New York/London: W.W. Norton & Company.

¹⁵⁹ Ibid.

¹⁶⁰ Schumpeter, Joseph. 1950. *Capitalism, Socialism and Democracy*. 3rd ed. New York: Harper & Brothers, p. 83.

¹⁶¹ Rossetti, Philip. 2017. "Coal Declines Explained Mostly by Markets." American Action Forum Research Report. (April 6); Lubber, Mindy. 2017. "Can Coal Miners Save the Paris Climate Agreement?" World Economic Forum. (April 12).

exports to countries such as India and China are hampered by such countries' own movements toward lower-carbon energy solutions and focus on renewable energy.¹⁶²

Regulation or other government intervention may sometimes, however, have the effect of facilitating or delaying creative destruction. The history of ethanol in the US is illustrative. In 1860, ethanol was one of the best-selling chemicals in the US, used both as a solvent and as an illuminant. In order to help fund the Civil War, Abraham Lincoln enacted a tax on ethanol in 1862.¹⁶³ Ethanol essentially disappeared as a fuel source for the next 44 years, until the tax was lifted in 1906. At that time, the nascent automobile industry began to use ethanol as a gasoline booster, increasing production to approximately 50 million gallons of ethanol per year by the end of World War I.¹⁶⁴ With Prohibition in 1920 came permit requirements for ethanol, again taking its toll on the use of ethanol as a fuel source.¹⁶⁵ Regulations dictated the success or failure of the ethanol industry.

As companies and industries comply with non-US climate change legislation, changes in the US market may result from this foreign regulation, fostering the creative destruction of the fossil fuel industry. As an example, EU regulations governing the greenhouse gas emissions of automobiles have led to innovations in technology related to improved catalytic emission control devices and internal combustion engine design.¹⁶⁶ As such new innovations are adopted and diffusion of the technologies becomes cheaper, automakers unbound by equivalent greenhouse gas regulations will decide based on economic reasons whether to include such fuel-conserving innovations in their automobile design. Historically, significant rise in gasoline prices has correlated to increased consumer preference for fuel-efficient vehicles that are less expensive to own.¹⁶⁷ Although the reverse has also been shown, there are indications of weaker correlation between a decline in gasoline prices and consumer preference for larger, less fuel-efficient vehicles.¹⁶⁸ If an increase in fuel efficiency is not countered by an increase in usage, the oil and gas industry will suffer financially from the decrease in use.

On the other hand, subsidies and supportive regulatory action may have the opposite effect on industry survival, prolonging an industry's influence when capitalist forces would otherwise have led to its destruction.¹⁶⁹ When a technology is institutionalized, creative destruction

¹⁶² Lubber, 2017, "Can Coal Miners Save the Paris Climate Agreement?"

¹⁶³ Morris, David. 2005. "The West Wing's Ethanol Problem." *Alternet*. Accessed 28 April 2017 from http://www.alternet.org/story/21147/west_wing%27s_ethanol_problem.

¹⁶⁴ *Ibid.*

¹⁶⁵ *Ibid.*

¹⁶⁶ Business Europe. 2016. "Impact of EU Regulation on Innovation." *Repository of Industry Cases*. (December). Applicable regulations include Commission Regulation (EC) No 692/2008 of 18 July 2008 implementing and amending Regulation (EC) No 715/2007 of the European Parliament and of the Council on type-approval of motor vehicles with respect to emissions from light passenger and commercial vehicles (Euro 5 and Euro 6) and on access to vehicle repair and maintenance information; Commission Regulation (EU) 2016/646 of 20 April 2016 amending Regulation (EC) No 692/2008 as regards emissions from light passenger and commercial vehicles (Euro 6); and Regulation (EC) No 443/2009 of the European Parliament and of the Council of 23 April 2009 setting emission performance standards for new passenger cars as part of the Community's integrated approach to reduce CO₂ emissions from light-duty vehicles (consolidated version including Commission Regulation (EU) No 397/2013 and Regulation (EU) No 333/2014).

¹⁶⁷ Leard, Benjamin, Joshua Linn and Virginia McConnell. 2016. "Fuel Prices, New Vehicle Fuel Economy, and Implications for Attribute-Based Standards." *Resources for the Future - Discussion Paper*. (February).

¹⁶⁸ *Ibid.*, 4.

¹⁶⁹ Tripsas, Mary. 1997. "Unraveling the Process of Creative Destruction: Complementary Assets and Incumbent Survival in the Typesetter Industry." *Strategic Management Journal*. Vol. 18. (Summer): 119 - 142.

becomes more difficult, as support for the existing technology prevents its displacement.¹⁷⁰ This can be shown through an analysis of the history of nuclear energy in the US.

The first time a nuclear power reactor generated useful electricity was in 1951.¹⁷¹ Advocates of nuclear power began asserting that nuclear would be a cheap and clean energy source that would lead to the end of traditional fossil fuel or hydroelectric dam powered electricity. Promises of economic and environmental benefits resulted in government subsidies, needed to overcome the initial large start-up costs.¹⁷² In 1957, in order to stimulate private investment in the nuclear industry, the government lessened liability concerns related to nuclear power by passing the Price-Anderson Act, which promised government indemnification of utilities in the event of nuclear disaster.¹⁷³

Nuclear power never fulfilled the promise of a cheap energy source in the US. Continued subsidies are required to keep consumer rates competitive with other energy sources.¹⁷⁴ Without a significant amount of government support, it is estimated that the majority of currently-operating nuclear reactors would close by the middle of the 21st century.¹⁷⁵

Subsidies in the US to producers of oil, gas and coal are annually over US\$20 Billion, mostly in the form of tax or royalty breaks.¹⁷⁶ Worldwide, subsidies have been much higher. The International Energy Agency estimates for 2013 show international fossil fuel subsidies to be approximately US \$548 Billion, compared to US \$121 Billion of subsidies for renewable energy sources.¹⁷⁷ These fossil fuel subsidies impair cost-competitiveness for alternative energy sources, creating an incumbent advantage for such sources.¹⁷⁸ Lack of support for an infant renewables industry has historically biased the competition between traditional and alternative energy sources in favor of the fossil fuel industry.

Sustainability transitions will benefit from both the movement of subsidies from the fossil fuel industry toward renewables and regulations supportive of alternative energy sources. Dislodging institutionalized incumbent energy sources has been shown historically to involve both a disruptive technological innovation and a corresponding flow of resources to ensure the widespread distribution of the innovation.¹⁷⁹

¹⁷⁰ Smith, Adrian and Rob Raven. 2012. "What is Protective Space? Reconsidering Niches in Transitions to Sustainability." *Research Policy*. Vol. 41, Issue 6. (July): 1025 - 1036.

¹⁷¹ MacNeil, Jessica. 2016. "1st Nuclear Power Plant Generates Electricity, December 20, 1951." EDN Network (20 December). Accessed 29 April 2017 from <http://www.edn.com/electronics-blogs/edn-moments/4426303/1st-nuclear-power-plant-generates-electricity--December-20--1951>.

¹⁷² Bradford, Peter. 2016. "Compete or Suckle: Should Troubled Nuclear Reactors Be Subsidized?" *Energy Post*. (12 September). Accessed 29 April 2017 from <http://energypost.eu/compete-suckle-troubled-nuclear-reactors-subsidized/>.

¹⁷³ Johnson, Jeff. 2011. "Long History of U.S. Energy Subsidies." *Chemical and Engineering News*. Vol. 89, Issue 51. (19 December).

¹⁷⁴ Bradford, 2016, "Compete or Suckle."

¹⁷⁵ Ibid.

¹⁷⁶ Pandey, Avaneesh. 2015. "US Fossil Fuel Subsidies Increase 'Dramatically' Despite Climate Change Pledge." *International Business Times*. (12 November).

¹⁷⁷ Bridle, Richard and Lucy Kitson. 2014. "The Impact of Fossil-Fuel Subsidies on Renewable Electricity Generation." *International Institute for Sustainable Development Report*. (December).

¹⁷⁸ Ibid.

¹⁷⁹ Kivimaa and Kern, 2016, "Creative Destruction or Mere Niche Support?" 210.

The Paris Agreement is setting the stage for changes to the institutionalization of fossil fuel energy supplies. The climate policies of numerous countries support the renewable energy industry through subsidies and feed-in tariffs.¹⁸⁰ The EU is already pursuing emissions targets set pursuant to the Paris Agreement not only through regulation, but also through funding to support climate protection.¹⁸¹ The EU has helped to fund numerous successful projects designed to reduce greenhouse gas emissions, including partially solar-powered electric urban green vehicles and mobile food vans,¹⁸² an underground carbon storage solution that increases safety and reduces the carbon mineralization time,¹⁸³ and greener truck tires that will reduce fuel consumption,¹⁸⁴ to name a few.

Low-carbon technology costs are decreasing quickly and forecasted to continue doing so. In the period from 2010 to 2015, onshore wind generation plant costs decreased by approximately 30%. During the same period, utility-scale solar costs decreased approximately 66%.¹⁸⁵ Technological initiatives taken by nations around the world to reduce greenhouse gas emissions, such as India's vow to sell only electric cars by 2030,¹⁸⁶ have the potential to further stimulate additional technological innovations and take advantage of economies of scale.

In order to meet the standards set forth in the Paris Agreement, more stringent regulations than those already proposed or enacted across the fossil fuel industry may be necessary.¹⁸⁷ The five-year review cycle provided for in the Paris Agreement will allow for progressive regulation from governments worldwide.¹⁸⁸ As additional regulatory measures and movement of subsidies occurs, the fossil fuel industry will likely become less competitive, potentially resulting in a reduction in investment value across the industry.

Risk of Stranded Assets

"Stranded assets" are devalued assets or assets that become liabilities before the end of their economic life.¹⁸⁹ Carbon reserves that cannot be fully developed by fossil fuel companies due to increasingly restrictive greenhouse gas regulations are considered stranded assets. These stranded assets represent investment risk for fossil fuel companies, as such assets are substituted

¹⁸⁰ Paun, Ashim, Zoe Knight and Wai-Shin Chan. 2015. "Stranded Assets: What Next?" (April 16). HSBC Global Research Report. Accessed 4 June 2017 from https://www.businessgreen.com/digital_assets/8779/hsbc_stranded_assets_what_next.pdf.

¹⁸¹ European Commission. "Climate Action." Accessed 27 April 2017 from https://ec.europa.eu/clima/citizens/eu_en.

¹⁸² European Commission. "New Solar-Powered Electric Vehicle to Lower Daily Travel Costs." Research and Innovation Website, Accessed 30 April 2017 from http://ec.europa.eu/research/infocentre/article_en.cfm?&artid=39097&caller=SuccessStories.

¹⁸³ European Commission. "A Quick Fix for Underground Carbon Storage." Research and Innovation Website, Accessed 30 April 2017 from http://ec.europa.eu/research/infocentre/article_en.cfm?&artid=33318&caller=SuccessStories.

¹⁸⁴ European Commission. "Greener Tyres on the Road." Research and Innovation Website, Accessed 30 April 2017 from http://ec.europa.eu/research/infocentre/article_en.cfm?&artid=32780&caller=SuccessStories.

¹⁸⁵ International Energy Agency. 2015. "Medium-Term Renewable Energy Market Report 2015." Paris: OECD/IEA Publishing.

¹⁸⁶ New York Times Editorial Board. 2017. "China and India Make Big Strides on Climate Change." *The New York Times*. (May 22).

¹⁸⁷ Mitchell, John and Beth Mitchell. 2016. "Paris Mismatches: The Impact of the COP 21 Climate Change Negotiations on the Oil and Gas Industries." Chatham House, Energy, Environment and Resource Department Research Paper. (August).

¹⁸⁸ Ibid.

¹⁸⁹ Paun, Knight and Chan, 2015, "Stranded Assets: What Next?"

for purposes of meeting carbon reduction goals before their investment value can be fully recovered.¹⁹⁰ In order to meet the Paris Agreement goals to limit global temperature rise to below 2°C Celsius above pre-industrial levels and to comply with other climate change regulations, a significant amount of fossil fuel reserves will likely remain in the ground, becoming stranded.¹⁹¹

Regardless of whether the US participates currently in the Paris Agreement, the risk of stranded assets will likely only grow over time. Certain studies have shown that the longer the delay in actions to mitigate through more stringent regulation, the greater the risk of stranded assets and lost investment.¹⁹² Innovations in the market brought about by increased regulation (as described in the “Risk of Technological Innovation” section above) further increase risk of stranded assets, as both gains in efficiency and disruptive technological advancements decrease the economic appeal of fossil fuels.¹⁹³

Divestment Risk

Non-US regulations leading to divestment of fossil fuel investments may result in additional risk of worsening economic performance in the industry. Divestment can have economic consequences for the value of fossil fuel investments. If a large number of shareholders divest from fossil fuel investments, this reduced demand may increase the cost of capital to such organizations, limiting their ability to finance additional projects, potentially affecting share price.¹⁹⁴

The initial movement towards institutional divestment from fossil fuels began as a mission to address the climate change crisis.¹⁹⁵ With an increasing perception and understanding of financial risks from stranded assets and other regulatory impacts, however, additional investors have committed to divest from their fossil fuel investments for purely economic reasons.¹⁹⁶

As discussed under Section 1, “Fiduciary Obligation of Prudence,” above, under the IORP Directive of the European Union, investment rules, systems of governance, as well as mandatory risk assessments for environmental risk related to IORPs all have the potential to lead to greater divestment of high carbon investments. In addition, divestment is already beginning to occur by European investors concerned over possible losses in share value due to additional taxes and costs from increased regulation, as well as from concerns over stranded assets.¹⁹⁷ Certain public sector pension funds in the United Kingdom have announced their intentions to divest partially

¹⁹⁰ International Energy Agency/International Renewable Energy Agency. 2017. “Perspectives for the Energy Transition: Investment Needs for a Low-Carbon Energy System.” Retrieved from http://www.irena.org/DocumentDownloads/Publications/Perspectives_for_the_Energy_Transition_2017.pdf.

¹⁹¹ Paun, Knight and Chan, 2015, “Stranded Assets: What Next?”

¹⁹² International Energy Agency/ International Renewable Energy Agency, 2017, “Perspectives for the Energy Transition.”

¹⁹³ Paun, Knight and Chan, 2015, “Stranded Assets: What Next?”

¹⁹⁴ Ibid.

¹⁹⁵ Arabella Advisors. 2016. “The Global Fossil Fuel Divestment and Clean Energy Investment Movement.” Annual Report. (December).

¹⁹⁶ Ibid.

¹⁹⁷ Mooney, Attracta. 2017. “Growing Number of Pension Funds Divest from Fossil Fuels.” *Financial Times*. (April 28).

(and in certain cases, entirely) from fossil fuel investments.¹⁹⁸ In one analysis, following the Paris Agreement, a world-wide group of investors including universities, faith-based organizations, individuals and foundations with over US \$5 Trillion assets under management have committed to divesting from fossil fuels.¹⁹⁹

The concept of universal ownership in large funds may contribute to this divestment risk. As discussed in Chapter II above, “universal owners” are generally large institutions investing over a long-term period in widely diversified asset classes and industries across global capital markets, such as large pension funds.²⁰⁰ Under the theory of “universal ownership,” global representation in a universal owner’s fund means that overall economic performance of the market will influence portfolio value more than the performance of a single industry or asset class.²⁰¹ Externalities of a sector or industry that impact the entire economy will directly affect such universal owner’s portfolio. To maximize the return of a universal owner’s portfolio, negative externalities within the portfolio would need to be minimized.²⁰²

Legislation such as the IORP Directive has the potential to bring renewed attention to the concept of universal ownership for large European pension funds. European fund investors who are required to take climate change risk into consideration as part of their risk assessment requirements under the Directive²⁰³ should take into account the implications of related negative externalities of climate change for their entire portfolios. A large fund with a universal ownership-type portfolio will have greater incentive to divest from an industry that could harm share prices across such portfolio, rather than attempting a diversified investment strategy to counter the economic risks related solely to such industry. Therefore, in the case of large, long-term pension funds subject to the IORP Directive, investment fiduciaries of such funds may consider divestment a more appropriate solution for maximization of portfolio gains than attempted diversification, in order to minimize risks of the negative externalities of the fossil fuel industry across their portfolio. Divestment from the larger funds, and in large enough numbers, may have a multiplying effect, further harming share value in the fossil fuel industry.

3. Continuing Duty of Prudence and Statute of Limitations

Penalties for ignoring rules regarding fiduciary prudence obligations related to risks brought about by non-US climate change legislation and litigation are substantial for the affected fiduciary. A civil action may be brought against a fiduciary by the US Department of Labor, plan participants, plan beneficiaries or other plan fiduciaries on behalf of the plan to recover any losses that result from a breach of such fiduciary’s obligations.²⁰⁴ Violation of the duty of prudence carries a high monetary penalty. Any fiduciary that violates their duty of prudence under ERISA will be held personally liable for such breach and must restore to the plan any resulting losses.²⁰⁵

¹⁹⁸ Fixsen, Rachel. 2016. “Waltham Forest PF Becomes First LGPS Fund to Divest Fossil Fuels.” *Investment & Pensions Europe*. (September 23).

¹⁹⁹ Arabella Advisors, 2016, “The Global Fossil Fuel Divestment and Clean Energy Investment Movement.”

²⁰⁰ UNEP, 2010, “Universal Ownership”; Urwin, 2010, “Allocations to Sustainable Investing.”

²⁰¹ Urwin, 2011, “Pension Funds as Universal Owners,” 26 - 33.

²⁰² *Ibid.*, 11 - 12.

²⁰³ EU Directive 2016/2341, preamble para. 57.

²⁰⁴ 29 U.S. Code §1132(a)(2)

²⁰⁵ 29 U.S. Code § 1109(a).

Depending on the size of the fund and the amount of the imprudent investment, such losses to be reimbursed by the errant fiduciary can be tremendous. In Donovan v. Bierwirth, the Second Circuit Court of Appeals concluded that the loss to the pension plan must be calculated based on “a comparison between the actual performance of the Plan and the performance that otherwise would have taken place.”²⁰⁶ In the event of a loss to a pension fund determined to be imprudent for reason of lack of appropriate investigation and analysis, this would mean repayment not only of the direct loss from the investment itself, but also of the loss of potential gains from a prudent investment. The Second Circuit court further concluded that such gains could be calculated based on the most profitable prudent alternative investment strategies found within the fund.²⁰⁷

In general, a breach of fiduciary duty would require that a civil action be brought under ERISA within six years of the date of the breach, or three years from the date the plaintiff had actual knowledge of the breach, if earlier.²⁰⁸ This statute of limitations for bringing an action against a fiduciary could enable a fiduciary to leave an imprudent investment in a pension’s portfolio, so long as the investment was prudent (according to the investment process) when made. It is clear, however, from relevant case law that a pension plan trustee has a duty to ensure that plan investments continue to be prudent throughout the life of the investment.²⁰⁹ Under Tibble v. Edison, the US Supreme Court recognized, consistent with US trust law, the existence of a fiduciary duty to monitor existing pension plan investments for prudence, separate from the obligation to prudently select such investments in the first instance.²¹⁰ If circumstances change that render a previous investment imprudent, the trustee must make corresponding changes to the pension plan portfolio.

For purposes of determining the satisfaction of an obligation of prudence related to the impact of non-US climate change legislation and litigation risk on a pension portfolio, this distinction is essential. The existence, cause, and future consequences of climate change has not always been (and is currently not) universally agreed upon. As nations around the world adopt new regulations or join related multinational agreements, and as the economic risks related to international climate change legislation and litigation becomes more demonstrable, fiduciaries must examine existing pension portfolios in order to satisfy their fiduciary obligations to monitor existing investments and ensure their continued prudence. Previous investments in the fossil fuel industry cannot remain in a pension portfolio without prudent analysis of the potential risks of the continuing investment and the place of such investments in the overall portfolio.

4. Fiduciary Duties of Loyalty and of Impartiality

Like the duty of prudence, the duty of loyalty is a fundamental principle of ERISA. The general purpose of this duty is to prevent fiduciary self-dealing and conflicts of interest. The duty of loyalty requires every pension fiduciary to act “solely in the interest” of the participants and

²⁰⁶ *Donovan v. Bierwirth*, 754 F. 2d 1049 (2d Cir. 1985), 1057.

²⁰⁷ *Ibid.*, 1056.

²⁰⁸ 29 U.S. Code §1113.

²⁰⁹ *Tibble v. Edison International*, 135 S. Ct. 1823, 1828 - 1829 (S. Ct. 2015).

²¹⁰ *Ibid.*

beneficiaries of the pension fund, for the exclusive purpose of providing retirement benefits to them.²¹¹

The US Department of Labor’s Interpretive Bulletin 2015-01 makes clear that investing pension fund assets based entirely on climate change or other environmental factors, without a financial basis for such investments, would likely violate the fiduciary duty of loyalty. The IB states that pension fiduciaries may not promote collateral goals that could sacrifice economic interests of a pension fund.²¹² The duty of loyalty requires fiduciaries to put the economic interests of participants and beneficiaries ahead of all other interests. The Department of Labor, however, goes on to acknowledge that environmental issues may directly relate to the economic value of an investment. In these cases, fiduciaries should consider such environmental issues as “proper components of the fiduciary’s primary analysis” in determining the economic merits of an investment.²¹³ As discussed in Section 2, “Obligations of Prudence and Business Risks of Climate Change,” above, climate change risk from non-US legislation and litigation could influence risk and return of fossil fuel investments, and would therefore satisfy both the duty of loyalty and the duty of prudence when considered by pension fiduciaries in making their investment decisions.

The duty to act impartially with regard to all of the participants and beneficiaries of a pension plan is derived from both trust law and from the ERISA duty of loyalty.²¹⁴ This fiduciary duty of impartiality requires a pension plan trustee to treat all beneficiaries and participants of a plan in an impartial manner.²¹⁵ As part of this duty, the Supreme Court has recognized that a fiduciary must preserve pension fund assets to satisfy both present and future claims, impartially taking into account the interests of all participants and beneficiaries.²¹⁶ An investor of pension fund assets cannot put the interests of a present participant ahead of the interests of a future beneficiary under the fund.

In the case of large pension funds that are expected to continue to provide benefits to participants and beneficiaries for an extended period of time, this duty of impartiality is of particular importance. Because future beneficiaries must also be assured of access to their benefits under the pension fund, existing trust law requires fiduciaries to protect the principle to the extent needed to secure long-term income, rather than maximizing short-term benefits for current participants.²¹⁷ Investment decisions that may be considered prudent in the short-term may improperly benefit older plan participants over younger future beneficiaries, violating this duty of impartiality. Fiduciaries of pension funds must examine investments in fossil fuel companies to determine whether such investments violate this duty of impartiality. Although fiduciaries must protect impartiality on a portfolio basis, rather than an individual investment basis,²¹⁸ investors must consider the risks related to fossil fuel investments in order to ensure proper diversification.

²¹¹ 29 U.S. Code §1104(a)(1).

²¹² Department of Labor Interpretive Bulletin 2015-1, 65136.

²¹³ Ibid.

²¹⁴ *Morse v. Stanley*, 732 F.2d 1139, 1145 (2nd Cir. 1984).

²¹⁵ Ibid.

²¹⁶ *Varity v. Howe*, 516 US 489 (S. Ct. 1996).

²¹⁷ *White v. Public Employees Retirement Board*, 268 P.3d 600, 607 (Or. 2011); Restatement (Third) of Trusts § 90, comments e, e(1), i.

²¹⁸ Restatement (Third) of Trusts § 90, comment i.

Business risks related to non-US climate change laws and legal actions, such as those set forth in Section 2, “Obligations of Prudence and Business Risks of Climate Change,” above, will likely increase not only when nations begin to more fully implement existing legislation, but also as new regulations and litigation arise. Although the financial markets responded to the signing of the Paris Agreement with a drop in prices of fossil fuel company shares and a rise for shares of renewable energy stocks, the non-binding nature of the agreement likely dampened some of the reaction.²¹⁹ Binding regulations that implement the Paris Agreement on a national level have the potential to have a more significant impact on share values. The exact timing of the effect on the market, however, will be difficult to predict for pension investors hoping to time the market to maximize short-term gain, yet avoid longer-term legal pitfalls of the business risks of climate change. For pension funds that cover current workers (rather than a fund under a terminated plan supporting only retired older workers), an investment in the fossil fuel industry, not properly considered and diversified, could violate the duty of impartiality by improperly favoring current retired participants in a pension fund, while harming younger future beneficiaries.

²¹⁹ Kar-Gupta, Sudip, Annabella Nielsen and Swetha Gopinath. 2015. “Paris Climate Pact Sinks Coal Stocks, Lifts Renewable Energy.” *Reuters*, December 14. Accessed on 24 January 2017 from <http://www.reuters.com/article/climatechange-summit-stocks-idINKBN0TX22G20151214>.

V. Conclusion

The Employee Retirement Income Security Act of 1974 and relevant US trust law demand a high standard of conduct from pension plan fiduciaries, as they fulfil their obligations to plan participants and beneficiaries. Fiduciary obligations not only require a pension plan investor to perform their duties to the fund impartially, but also to make investments prudently within the entire pension plan portfolio, consistent with the risk tolerances of the pension fund. The determination of whether specific investments satisfy these fiduciary requirements is less clear.

From the relevant statutes, regulations, case law and other applicable guidance, it is clear that fiduciary responsibility under ERISA does not preclude any specific investments, but requires instead skillful and careful consideration of all investments and their risks by an individual knowledgeable and familiar with investment matters. Increased global economic integration has further complicated the analysis of whether an investment will be considered prudent under fiduciary standards. The requirement to use “care, skill, prudence, and diligence” in performance of a pension investor’s fiduciary duty cannot be limited by a national border, but must necessarily include an examination of worldwide factors that could likely affect the economic performance of the pension portfolio.

The question of potential physical risks of climate change is hotly debated in the US. Such debate could allow a pension fiduciary acting prudently to conclude that the impact of such physical risks on a pension portfolio need not be fully examined, as differing sides of the debate hold differing views of the future of the fossil fuel industry. Those that question the validity of scientific evidence related to the physical impacts of climate change may, in fact, conclude that a divestment from the fossil fuel industry based only on consideration such physical risks would be economically imprudent, considering the previous financial success of the industry.

Determination of validity of the physical risks of climate change, however, is unnecessary to come to the conclusion regarding the risk of international laws and legal actions related to climate change. There is no debate over the existence of foreign regulations addressing climate change or the increasing number of court actions around the world that have the potential to impact the fossil fuel industry. This existing world-wide climate change legislation and litigation will contribute significantly to the inherent risks of investments in the fossil fuel industry.

Although investments in the fossil fuel industry would not be categorically impermissible under existing US pension law, fiduciary obligations of pension fund investors would require any such investment to be undertaken only following due consideration of the economic risks of the investment. A determination that, based on non-US legislation and litigation, a fossil fuel investment may be biased toward short-term profit to the detriment of long-term stability could potentially harm future beneficiaries under the fund and may violate the fiduciary duty to act impartiality with regard to all fund participants and future beneficiaries. Further, to satisfy fiduciary obligations of prudence, risks of non-US climate change legislation and litigation cannot be ignored. To comply with prudence obligations, pension plan investment fiduciaries should undergo risk assessments of their fossil fuel investments, analyzing climate change legislation and litigation on an international level and taking into account the numerous risks

such laws and legal actions may create for the economic profitability of such fossil fuel investments.

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On my honour as a student of the Diplomatic Academy of Vienna, I submit this work in good faith and pledge that I have neither given nor received unauthorized assistance on it.