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Inaction is BlackRock's Biggest Risk During the Energy Transition

Still Lagging in Sustainable Investing Leadership

Executive Summary

BlackRock, the world's largest fund managing US$6.5 trillion, has lost investors over US$90 billion in value destruction and opportunity cost in just a few select holdings over the past decade, due largely to ignoring global climate risk.

A detailed review of BlackRock's policies and disclosures makes clear that the largest investor in the world's action on climate risk does *not* match its rhetoric.

For all the opportunities BlackRock has had to demonstrate global leadership, the firm appears to only just be beginning to embark on an evaluation of the issues surrounding sustainable investing and climate risk.

The Bank of England, the Intergovernmental Panel on Climate Change (IPCC) and others have repeatedly highlighted the growing magnitude of climate risks to financial markets, including in April 2019 estimating stranded asset losses at over US$20 trillion globally by 2050. A back-testing of financial markets conducted today cannot delineate the scope of the approaching-but-yet-to-be-realized investor wealth risks gradually being identified.

THIS REPORT HAS IDENTIFIED US$90BILLION IN VALUE DESTRUCTION and opportunity cost for BlackRock investors over the last decade in a select group of fossil fuel-heavy investments. Should the Bank of England's analysis be correct, this represents just the tip of the iceberg.

BlackRock's myopic management of its fossil fuel holdings, as part of its $6.5 trillion global portfolio, drags down investor returns. In holding after holding across the coal, oil and gas space around the world, weak performance over the last decade lags the market and weakens both actively and passively managed investments.

Most recently, the failure of BlackRock to clearly and systematically address the problems of value destruction in the fossil fuel sector has lost the investment house US$19bn in just over three years in one holding alone—General Electric.

Any reasonable assessment of stranded asset risks relating to climate change would recognize that coal and gas turbine demand has been clearly impacted by a global pivot towards renewable energy.

Rather than identifying and managing this risk, GE doubled down on thermal power in 2015 with its acquisition of Alstom and then again with Baker Hughes in oil and gas. Since then, GE's market capitalization has declined by over US$150bn (-67%).

Summary of Shareholders' Value Loss by BlackRock Jan. '09 - Mar. '19

	Company	Country of Domicile	Value Loss in Millions		Currency	US$ in Millions	
Major Oil & Gas Companies	Exxon Mobil	USA	$	45,116	USD	$	45,116
	Chevron	USA	$	12,364	USD	$	12,364
	Royal Dutch Shell	Netherlands	€	1,856	EUR	$	2,097
	BP	UK	£	2,590	GBP	$	3,367
Europe and USA Power Utilities	E.ON	Germany	€	1,933	EUR	$	2,184
	RWE	Germany	€	964	EUR	$	1,089
	Iberdrola	Spain	€	(200)	EUR	$	(226)
	NextEra	USA	$	(894)	USD	$	(894)
	Duke Energy	USA	$	992	USD	$	992
	PG&E	USA	$	1,722	USD	$	1,722
USA Coal Mining	Peabody Energy	USA	$	2,316	USD	$	2,316
	Cloud Peak	USA	$	199	USD	$	199
Thermal Turbine Manufacturers	GE	USA	$	19,080	USD	$	19,080
	Doosan	South Korea	₩	40,410	KRW	$	34
	Siemens	Germany	€	417	EUR	$	471
	Mitsubishi Heavy Industries	Japan	¥	8,280	JPY	$	76
Asian Power Utilities	Chubu Electric	Japan	¥	21,679	JPY	$	199
	China Light & Power	Hong Kong	$	211	HKD	$	27
	KEPCO	South Korea	₩	56,575	KRW	$	48
	Huaneng Power International	China	¥	46	CNY	$	7
	NTPC	India	₹	7,387	INR	$	103
					Total	**$**	**90,373**

Source: Thomson Reuters, IEEFA estimates.
Notes: A negative value for the loss means BlackRock has created value through share price performance above the market performance. We have translated these losses into US$ at the spot exchange rates on 31 March 2019.

As GE's biggest shareholder, BlackRock investors have shouldered a disproportionate share of this wealth destruction.

In January 2019, the giant Californian utility Pacific Gas & Electric (PG&E) filed for bankruptcy due to well over $20bn in potential liabilities associated with recent wildfires—what the Wall Street Journal called "The first climate-change bankruptcy." In 2018, BlackRock owned 5% of PG&E.

BlackRock investors have shouldered a disproportionate share of GE's wealth destruction.

BlackRock makes public statements about how capitalism needs to change to deal with climate change, yet at the same time, the firm has become the world's largest passive investor in fossil fuels.[1]

[1] The Guardian. World's biggest investor accused of dragging feet on climate crisis. 21 May 2019.

A 2019 survey of 127 pension plans with €2.2tn in assets under management by Create Research found that more than one-quarter (27%) of those surveyed said index managers were not meeting their stewardship goals at all, while 23% said they were only meeting them to a limited extent. The report concludes "passive funds should not mean passive owners."

AN INCREASING NUMBER OF BLACKROCK'S KEY CLIENTS ARE NOTING THIS FAILURE OF STEWARDSHIP across passive investing.

A simple move to adopt even a slightly lower carbon intensity index benchmark as the default option for investors in global exchange-traded funds could have profound implications for the market and the flow of global capital.

BlackRock has steered away from the world-leading climate strategies of Divest-Invest taken up by the likes of the Norwegian Sovereign Wealth Fund (SWF), the New York State Common Retirement Fund, Local Government Super of Australia, AP4 of Sweden, and Legal & General Investment Management U.K. (refer Section 6).

Passive funds should not mean passive owners.

Instead, BlackRock has opted for an engagement strategy with the aim of changing the corporate behavior of companies.

IEEFA NOTES IT IS ENTIRELY QUESTIONABLE WHETHER BLACKROCK'S ENGAGEMENT ACTIVITIES ARE ACHIEVING MATERIAL RESULTS, particularly given that the firm does not provide full disclosure or evaluation of its company engagement actions.

Clearly, engagement with firms like General Electric, ExxonMobil and Chevron have not aligned with BlackRock's climate strategy nor its fiduciary duty to protect investor capital. As the Government Pension Fund of Norway notes, effective engagement requires consequences for non-compliance with investor directives.

Nor has BlackRock shown leadership in spearheading investor moves to get major companies to align with the Paris Agreement.

Even though the International Energy Agency has repeatedly warned that the world is on the wrong trajectory to deliver on the Paris Agreement, BlackRock is one of the largest funds most likely to align itself with fossil fuel boards and their entirely inadequate sustainability plans.

In April 2019, BlackRock published a report entitled "Getting Physical," an analysis for the assessment of climate-related risk. Accepting that climate, as well as societies and technology are all changing, the report notes that the consequences of such change brings both risks and opportunities for investors. The report authors highlight a key conclusion:

> ***"Our early work already strengthens our conviction that sustainable investing is increasingly a 'why not?' proposition."***

IEEFA concurs, and asks: why is BlackRock talking the talk, but has yet to walk the walk?

BlackRock plays a powerful leadership role in the current global investment debate over the direction of fossil fuel investing, but the direction it is largely offering is backward. The company stands exposed as its investments are blind to mounting losses, its engagement strategies timid and ineffective and its board conflicted. A new path is needed that leads the company, its clients and the global economy toward climate health and a new cycle of profitability and growth.

Investment

- **BlackRock needs to lead the way on investing in low carbon indexes,** working with index and ratings providers to develop a clear and transparent rating of companies. It needs to develop and promote low carbon indexes that are already available—as Moody's announced in May 2019.[2] Low carbon indexes are no longer a niche offering and need to be progressively incorporated as the lead option for investors.

- **BlackRock needs to expand investments in renewable energy.** The flow of capital into renewable energy and ESG (Environment, Social and Corporate Governance) needs to increase. Upward trends in ESG and renewable investment show consistent, stable, inflation-protected cash flow, a robust growing market and a positive outlook. At the same time, trends in coal, oil and gas show diminished cash flow, and a mature, declining market with a negative outlook.

Divestment

- **BlackRock needs to adopt a strategic use of fossil fuel divestment**. Divestment is a powerful tool of engagement. There comes a time when an engaged shareholder must weigh the benefit and cost of its engagement strategy against the actual and potential value of holding the stock. Ongoing efforts by investors need to be stepped up to eliminate climate and value-destroying companies from investment portfolios. One hundred and thirteen significant global financial institutions, including banks, insurers and asset managers, have already divested from coal. The Norwegian SWF has led the world on Divest-Invest in a very transparent way, with the Council of Ethics publicly reporting its engagement and financial, fiduciary and climate risk analysis in a fair, considered process.

[2] Utility Drive. Moody's developing new system to score companies on carbon transition risk. 9 May 2019.

Board Governance

- **BlackRock's board needs to be weighted toward broad climate-aligned, economic growth and not weighed down by old commitments to fossil fuels.** The profile of Blackrock's board is weighted to an economy of the past. Too many of its board members with key decision-making posts have significant ties to the fossil fuel sector. Conflicts, both real or perceived, harm Blackrock's investment decisions and reputation (refer Section 2).

Engagement

- **BlackRock should adopt an all-encompassing engagement strategy** with transparency when it addresses individual company issues. Shareholder engagement should consist of a series of actions that investors use as they assess company responses to their issues. Investor letters, meetings and corrective action agreements are just the start of an engagement process.

  When investors are met with recalcitrance, as is the almost universal case with fossil fuel companies, shareholders have additional tools. These tools vary but generally consist of shareholder resolutions, votes for or against individual board members, shareholder discovery litigation, class action lawsuits and divestment strategies and policies.

Meaningful reforms include:

- Critical analysis of Blackrock's engagement strategy to increase transparency and remove companies with value-destroying policies.

- Applying consistent standards on environmental, social and governance (ESG) products.

- Implementing its fiduciary duties to investors with transparent, timely and results-oriented engagement.

- Remedying the value loss to investors and shareholders through engagement that supports companies and initiatives with policies consistent with the goals of the Paris Agreement.

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1. BlackRock, the World's Largest Investor

BlackRock is the world's largest asset manager, with US$6.5 trillion assets under management (AUM). IEEFA's analysis shows BlackRock is lagging behind its peers in integrating climate risk into its portfolio and lacks transparency in its company engagement. This report identifies a starting point of US$90bn in value destruction and opportunity cost for investors, with BlackRock continuing to put its investors' funds—a huge share of the world's capital—at risk in stranded assets. As the world's largest investor, BlackRock is highly exposed and in IEEFA's view inadequately prepared for climate-related investment risk. Yet it is also perfectly positioned to play a leadership role in redirecting fossil fuel investing to meet Paris Agreement targets.

Based in New York, BlackRock is the world's largest asset manager with US$6.5 trillion[3] assets under management (AUM), leading Vanguard Group ($4.9 trillion), State Street Global ($2.7 trillion) and Fidelity Investments ($2.4 trillion).

The sheer size of the investments it manages, and the influence it subsequently wields, have led to BlackRock being dubbed the world's largest shadow bank.

The firm was initially founded in 1988 to provide asset management services specifically from a risk management perspective. This business approach is still a cornerstone of its brand identity.

BlackRock is a New York Stock Exchange listed firm, with PNC Financial Services Group being the major shareholder (with holdings of 22%). Somewhat ironically, three of PNC's largest shareholders are the world's three dominant index managers, namely, Vanguard Group (5.8%), State Street Corporation (3.3%) and BlackRock (4.9%).

BLACKROCK'S TOTAL AUM IS $6,515BN AS OF 31 MARCH 2019, including $455bn of cash management (7% of the total), fixed income (31.2%), and multi-assets/alternatives (10%). Half of BlackRock's AUM is invested in equities (51.8%).

Institutional funds under management represent 53.5% of AUM, with the balance including retail funds (9.9%), iShare exchange traded funds (ETFs) (29.5%), and cash management (7%). (Figure 1.1)

BlackRock has been dubbed the world's largest shadow bank.

Of the total $6,058bn long-term AUM, less than one-third (28.5%) is actively managed, while over two-thirds (71.5%) are passively managed in index funds.

[3] All dollar figures are US$ unless otherwise denoted.

BlackRock is a major shareholder in the world's top publicly listed corporations as it deploys investment capital for its retail and institutional clients. In the U.S. and Europe, BlackRock holds investments on behalf of its clients averaging 6.4% and 5.7% respectively of the total equity in the top 20 listed firms (as of 31 March 2019).

BLACKROCK IS ACTIVELY MANAGING AUM TOTALING US$1.7 TRILLION. BlackRock managers can choose to divest from these assets or companies on an ongoing basis, based on performance, or any other metric they choose.

The size of BlackRock's shareholdings in these corporations explicitly allows BlackRock to influence the companies' actions through voting rights on shareholder proposals, and to engage with companies on an active basis.

Figure 1.1: BlackRock's AUM by Investment Style as of 31 March 2019

		US$ Billion		Share of Total
Retail *		646		9.9%
iShares ETFs		1,925		29.5%
Institutional: Active	1,160			
Institutional: Index	2,327			
Total institutional		3,487		53.5%
Total Long Term			6,058	
Cash management			455	7.0%
Advisory			2	0.0%
Total Assets Under Management			6,515	100.0%
Active Long Term				28.5%
Passive Long Term				71.5%
Asset Split:				
Equity				51.8%
Fixed Income				31.2%
Multi-asset / Alternatives				10.0%
Cash Management				7.0%

*Note: * 88% of the retail funds are active.*
Source: BlackRock 1Q2019 Results Briefing.

BlackRock has passive holdings of US$4.3 trillion AUM in the world's largest corporations and bond markets, providing the asset manager with a highly influential position.

Passive funds are a basket of stock designed as a free-standing investment product. They track the investment performance of an index or sub-index like the MSCI World Index or S&P 500. Fund managers regularly rebalance portfolios to maintain consistent adherence to the stated goals of the fund which usually means following the chosen index.

BLACKROCK'S PASSIVE INVESTMENT TOTAL IS SPLIT between its passively managed institutional mandates (US$2.3 trillion) and its ETF offerings under its iShares brand which represents $1.9 trillion in AUM for clients around the world.

BlackRock owns the iShares branded platform which consists of nearly 1,000 ETFs. The breadth of this platform enables BlackRock to serve the needs of every type of investor.

ETFs are investment funds that replicate a specified market index, are listed on stock exchanges, and are traded with real-time pricing. ETFs combine the flexibility of on-exchange trading with the simplicity and efficiency of index-based investing.

The global ETF market is estimated at US$5.3 trillion. The top three firms have an oligopoly over the global ETF sector, with BlackRock's iShares holding an estimated 32% share, leading Vanguard (25%) and State Street Global Investors (16%).[4]

BLACKROCK'S SUSTAINABLE INVESTING PLATFORM INVESTS MORE THAN $50BN in dedicated Environmental, Social and Governance (ESG) strategies. BlackRock also manages $440bn in solutions that eliminate exposure to certain sectors or activities.

BlackRock's 'Aladdin' platform serves as its own investment and risk management system. Aladdin is also sold to and used by a significant number of other institutional investors around the world.

The Aladdin platform gives BlackRock exclusive access to data and tools to evaluate online the world's largest financial institutions, companies, bonds and investment products. This tool provides both BlackRock staff and its clients with updated data and analytics in order to assist with allocation strategies, trade execution, rebalancing, and other decision-driven exercises.

BlackRock has the capacity to play a powerful leadership role in the direction of fossil fuel investing.

BLACKROCK'S SIZE AND STATURE ENSURES THAT ITS ACTIONS, WHEN COMMUNICATED APPROPRIATELY, HAVE THE POWER TO MOVE AND DEFINE GLOBAL MARKETS beyond the direct scope of its assets under management and its client relationships.

The scope and nature of its holdings provides BlackRock with a unique strategic position to set investment policy through a wide variety of communication tools in the market. It has sufficient flexibility in its holdings to take investment actions as both an engaged shareholder and an active manager, and to support and re-design index funding to direct asset allocations for itself and its clients.

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[4] Strategic Insight Actuaries & Researchers. ETF assets hit US5.3tn - Global ETF FlowWatch - March 2019 Results. 19 May 2019.

IEEFA notes BlackRock has the capacity to play a powerful leadership role in the current investment discussion over the direction of fossil fuel investing.

Company management is, by reason of its dominant position, a market leader in the articulation of the current meaning and direction of capital allocation strategies. Its shareholder votes are leadership statements; its decision to divest or not is much more than a 'Buy-Sell-Hold' technical adjustment; and the product design it offers for investors could be an industry-wide model.

BlackRock's Climate Risk Focuses Only on the Physical

In April 2019, BlackRock published a report entitled "Getting Physical," an analysis for the assessment of climate-related risk.[5] The report accepts that climate as well as societies and technology are all changing, and notes that the consequences are creating an environment with both risks and opportunities for investors.

Focusing on just physical climate risk like extreme weather events and wildfires, BlackRock's narrow definition avoids using the generally accepted three-tiered distinction of physical, transition and liability risk management, clearly articulated by the Bank of England.[6]

The report builds on earlier BlackRock research signed off by BlackRock Vice Chairman Philipp Hildebrand,[7] finding that understanding and integrating the lessons of climate-related risk analysis "can help enhance portfolio resilience."

BlackRock remains highly exposed and largely unprepared for climate-related investment risk.

While the report focuses on U.S. assets, with BlackRock committing to a deeper follow-up analysis, the report's authors highlight a conclusion that can clearly be drawn globally:

> *"[O]ur early work already strengthens our conviction that sustainable investing is increasingly a '**why not**?' proposition."*

Despite the recognition of physical climate risk from this highly risk-focused firm, and acknowledging the insuffiicent in U.S. government policies and mispricing by global financial markets, leadership has not prevailed.

BlackRock remains highly exposed and in IEEFA's view largely unprepared for climate-related investment risk.

BlackRock is one of the top shareholders in many of the world's largest oil and gas, coal mining, and thermal power development companies—industries bound to be

[5] BlackRock. Getting physical: assessing climate risks. 4 April 2019.
[6] Bank of England. Climate change: what are the risks to financial stability? 2019.
[7] BlackRock. Sustainable investing: a "why not" moment. May 2018.

significantly impacted by both the rise of cheaper, clean energy technology, and further efforts by governments and businesses globally to limit climate change.

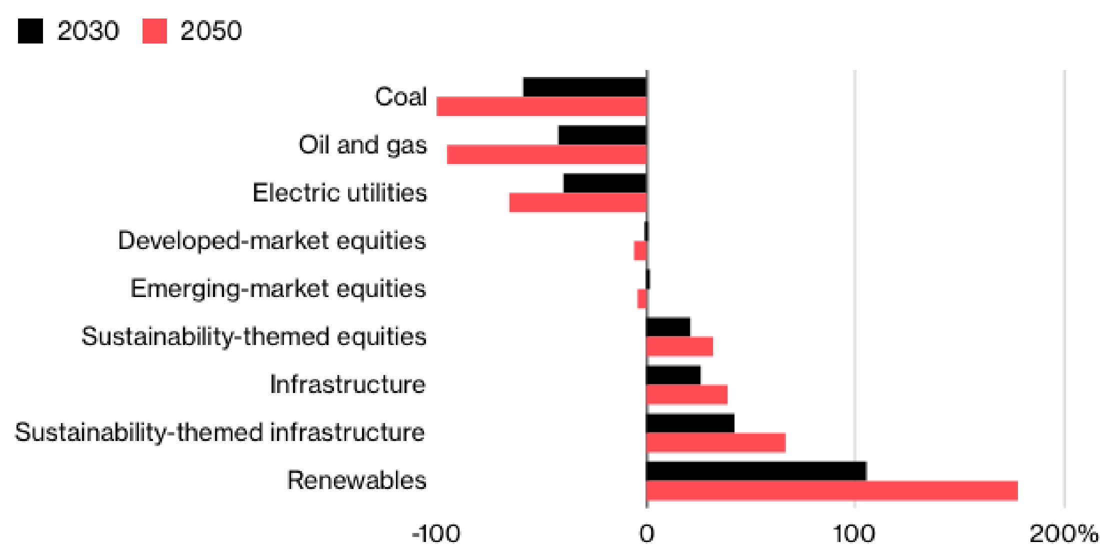
THIS REPORT REVIEWS THE IMPACT OF BLACKROCK'S OWN BUSINESS MODEL ON THE OVERALL CLIMATE CRISIS and its failure to provide a leadership role and to look more closely at the fossil fuel companies it is investing in.

BlackRock's views on climate change are currently at the level of corporate attitude and market dialogue—general warnings of things to come with regard to investment policy.

As will be argued throughout this report, the corporation's broad statements have yet to be integrated into BlackRock's passive index products, active trading regimes, or shareholder engagement programs. The result is a long series of decisions related to specific company investments that appear inconsistent with its own high-level general policy statements while also representing lost opportunities in value enhancements for its clients.

IEEFA NOTES THAT BLACKROCK'S 2019 REPORT CONTRASTS DISTINCTLY with the broader, more comprehensive work of Mercer.[8] Mercer's report highlights the many asset sectors that will be negatively impacted by the changing climate, including those also significantly impacted by global efforts to reduce the impact.

Figure 1.2: Sectoral Impact if Global Warming is Limited to 2°C



Source: Mercer, Bloomberg.

According to Mercer, sectors including fossil fuels and electricity utilities would see negative investment returns in a scenario where global warming is limited to 2°C.

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[8] Mercer. Investing in a Time of Climate Change – The Sequel. 2019.

Under this scenario, the coal sector would experience an effective 100% absolute loss of value by 2041.[9] (Figure 1.2) The oil and gas sector would see a 42% cumulative loss of value by 2030 and 95% loss by 2050, and the losses for electric utilities (excluding renewable energy) would be 39% by 2030 and 66% by 2050.

"Humans have never lived in a world much warmer than today; yet the current trajectory of at least 3°C above the preindustrial average by 2100 could put us beyond the realm of human experience sometime in the next 30 years."
- Mercer

The renewables sector sees 106% cumulative value gain by 2030 and 178% by 2050, according to Mercer's 2°C model.

Other sectors, including agriculture and industrials, face significant losses in scenarios where limiting warming to 2°C is unable to be achieved. Real estate will also suffer losses, as this sector faces physical climate risks, also identified in BlackRock's "Getting Physical" report.

IN THIS REPORT, WE HAVE SINGLED OUT A SELECT GROUP OF SECTORS—including thermal power utilities, thermal power turbine manufacturers, and thermal coal mining companies—where BlackRock investors have already incurred substantial capital losses as well as a major opportunity cost due to the firm's unwillingness to turn talk into real climate action.

IEEFA notes that it makes much more economic sense for BlackRock to help limit global emissions through effective engagement with its companies than for it to prepare for a plus 3-4°C world.

Among Mercer's recommendations is that investors seek to increase their holdings of renewable energy and sustainable infrastructure assets.

Following publication of the Mercer report, Mercer's Global Head of Investment Research Deb Clarke stated:

> *"Asset owners should consider climate change at every stage of the investment process, from investment beliefs, policy and process to portfolio construction decisions."*[10]

As the world's largest investor, IEEFA sees BlackRock as perfectly positioned to implement a comprehensive risk management framework throughout their global $6.5 trillion investment mandate, and in doing so, take the lead in directing global capital flows in a more economically rational manner to address and adapt to the changing climate.

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[9] For the coal sector, the effective absolute loss of value is expected to occur in 2041 under a scenario in which global warming is limited to 2°C by 2100.
[10] Mercer. Investing in a Time of Climate Change – The Sequel. 2019.

2. BlackRock's Rhetoric Has Not Led to Action

Each year, BlackRock's Chairman sends an annual letter to CEOs. In his latest letter, climate risk was barely mentioned. As a de facto global systemically important financial institution (SIFI) and the world's leading passive investor, BlackRock's inaction on climate change is financially perilous. With investors, scientists and civil society calling for more action to manage climate risk, the firm's investors remain in the dark as to whether BlackRock's company engagement strategy is changing corporate behavior, and whether their investments are protected from stranded asset risks. BlackRock must invite greater investee Board and public engagement scrutiny, implement climate disclosure across its entire $6.5 trillion portfolio, and use its advantaged position to influence investor choices.

Despite a "Sense of Purpose," Inaction on Climate Risk Continues

Each year, BlackRock's Chairman and Chief Executive Larry Fink sends an annual letter to CEOs. In 2018, the letter was entitled: 'A Sense of Purpose.'[11] In the letter, Fink stated that the company's long-term future requires a view that looks beyond the bottom line:

> *"To prosper over time, every company must not only deliver financial performance, but also show how it makes a positive contribution to society."*

In 2019, Fink's letter built on this theme with a letter entitled: 'Purpose and Profit: An Inextricable Link'.[12] The letter announced an increased emphasis on engagement with the companies BlackRock invests in, beyond just proxy voting on shareholder resolutions.

Climate risk was tellingly absent in the 2019 letter, while in 2018 Fink had asked companies to be prepared to articulate their long-term strategies in more than just financial terms, which included their response to climate change:

> *"Your company's strategy must articulate a path to achieve financial performance. To sustain that performance, however, you must also understand the societal impact of your business as well as the ways that broad, structural trends—from slow wage growth to rising automation to climate change—affect your potential for growth."*

Fink had also asked CEOs to take social and environmental considerations into account when communicating their strategies:

> *"Companies must ask themselves: What role do we play in the community? How are we managing our impact on the environment? Are we working to*

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[11] BlackRock. Larry Fink's Letter to CEOs: A Sense of Purpose. January 2018.
[12] BlackRock. Larry Fink's Letter to CEOs: Purpose & Profit. January 2019.

create a diverse workforce? Are we adapting to technological change?"

BlackRock's unwillingness and claimed inability to sell securities held within its index funds was the justification for its increased emphasis on engagement. The 2018 letter noted that the firm can react to unsatisfactory long-term strategy by selling securities out of its US$1.7 trillion of actively managed funds.

BLACKROCK HAS PREVIOUSLY RESPONDED TO CLAIMS ASSERTING A LACK OF ACTION ON CLIMATE RISK BY HIGHLIGHTING its preference for engagement with the companies it invests in. IEEFA suggests this approach is an attempt to influence the companies' climate policies behind the scenes.

According to data provider Proxy Insight, BlackRock has in the past consistently voted against shareholder resolutions calling on companies to provide more details about how they are approaching climate risk.[13]

The 50/50 Climate Project (now the Climate Majority Project) found that BlackRock's support for shareholder resolutions on climate change was lagging. In its September 2018 Asset Manager Climate Scorecard, it found BlackRock had only backed 23% of key climate proposals (by comparison, Fidelity voted for 58% and Vanguard 33%). The report noted that BlackRock does not vote in favor of shareholder proposals if it is currently engaging the company behind the scenes, and that BlackRock voted with management of the companies in this study 98% of the time.[14]

One of Europe's largest asset managers, Legal & General Investment Management (AUM £985bn) leads the way on supporting climate resolutions, with 85% support.

BLACKROCK SUPPORTED JUST 10% OF CLIMATE-RELATED SHAREHOLDER PROPOSALS IN 2018 IN THE U.S. according to an analysis by Ceres (Figure 2.1). Ceres also notes that BlackRock conspicuously failed to join Climate Action 100+, an initiative led by more than 300 investors with a collective $33 trillion in assets that has pressed companies to strengthen climate action.[15]

A European asset manager is leading the way in support of climate resolutions.

Further, in December 2018, 420 global investors managing a collective US$32 trillion signed a Global Investor Statement calling for increased action on climate change. BlackRock was not a signatory.[16]

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[13] *Financial Times*. BlackRock and Vanguard's climate change efforts are glacial. 15 October 2017.
[14] 50/50 Climate Project. 2018 Asset Manager Climate Scorecard. September 2018.
[15] *Financial Times*. Time's up for a golden age of corporate greenwashing. 26 May 2019.
[16] The Investor Agenda. Policy Advocacy. December 2018.

Many in civil society, as well as investors, are asking for greater resolution on climate change.

In June 2019, seven investor networks encompassing a total of 477 global investors managing a collective US$34 trillion—half the world's total—published the Investor Agenda that called on global governments to enact policies to deliver on the Paris Agreement, including joining China in strengthening their Nationally Determined Contributions, plus the phasing out of thermal coal power and the pricing of carbon. Although BlackRock is a member of one of the seven investor networks (PRI) that make up the Investor Agenda, it did not sign the letter.

BlackRock Fails to Hold Company Engagement to Account

Although BlackRock thinks it has acknowledged the urgency of the need for a strong climate response, there is growing frustration with its "engagement" defense. BlackRock is notably absent from asset manager initiatives to push for a suitable government policy framework that would allow financial markets to function effectively to price in emissions, align goals and reallocate capital efficiently.[17]

BlackRock released its new proxy voting guidelines in January 2019,[18] but IEEFA notes a lack of similar guidelines evaluating BlackRock's firm engagements. BlackRock holds its portfolio companies to a consistent set of performance standards. It does not, however, show evidence of subjecting its company engagement activities to a similar level of discipline.

Engagement strategies are used by asset managers to change the corporate behavior of companies on ESG issues with the aim of improving company performance and, therefore, the quality of the investment on behalf of clients.

It is IEEFA's view that BlackRock's rhetoric is more greenwash than reality.

IEEFA notes it is questionable whether BlackRock's engagement activities are getting such results, particularly as details are not available. For instance, BlackRock has not indicated:

1) What is the strategic purpose of a company engagement?

2) What must a company change, and over what period of time, to allow BlackRock to say it is meeting the goals of its engagement strategy?

3) What are the steps being taken by a company, and are its plans being carried out both consistently and achieving actual results over time?

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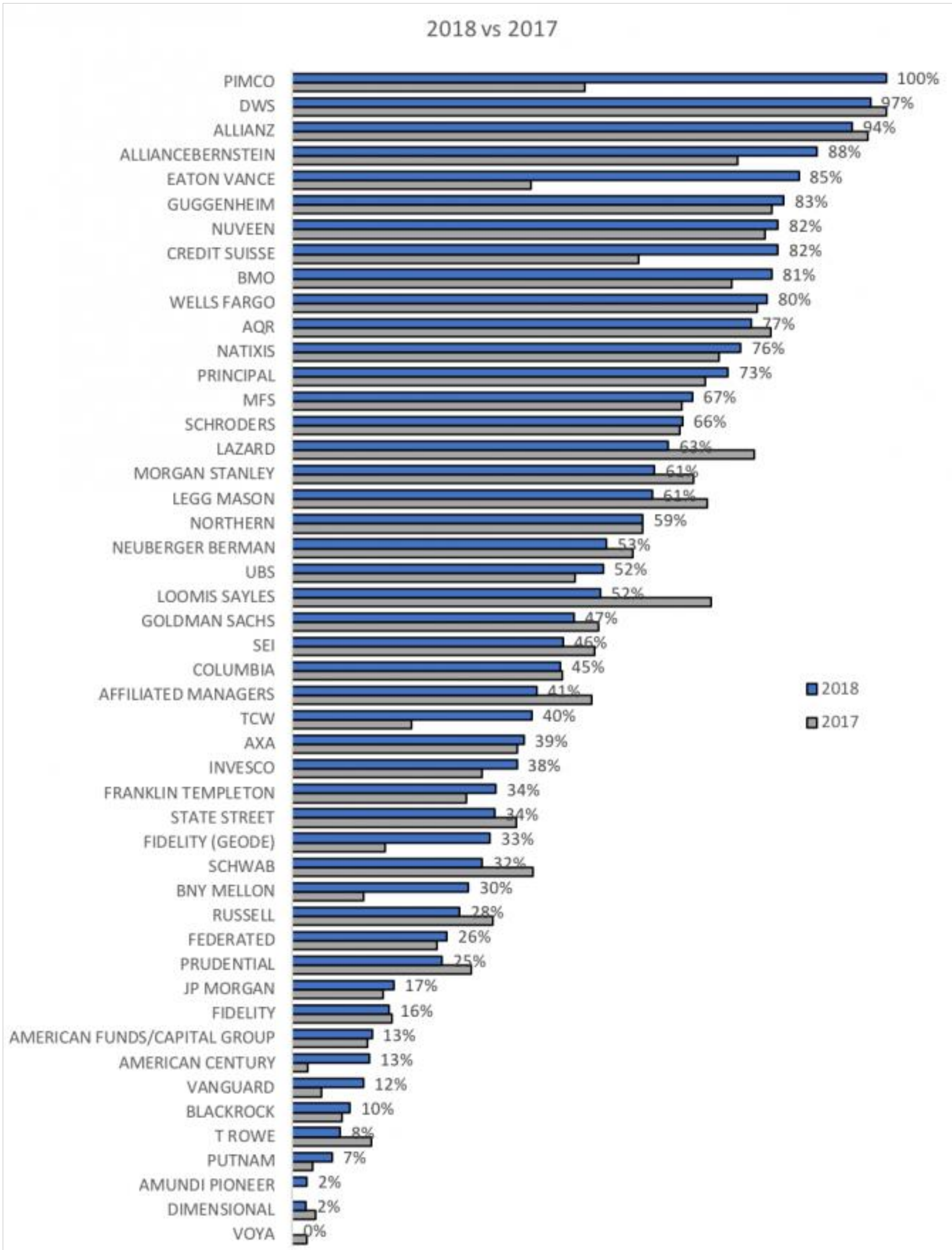
[17] *The Australian Financial Review*. Super funds join 'unprecedented' climate action. 26 June 2019
[18] BlackRock. Proxy voting guidelines for U.S. securities. January 2019.

Figure 2.1: Voting by U.S. Fund Managers on Climate Related Proposals



Source: CERES, March 2019.

The Climate Majority Project concluded that while BlackRock states in its Investment Stewardship report that it has engaged with a number of companies, it does not explain the results, if any, from these engagements. The firm's investors thus remain 'in the dark' as to whether or how BlackRock's engagement strategy is actually changing corporate behavior.

It is IEEFA's view that BlackRock's rhetoric is more greenwash than reality.

BlackRock's in-house actions to heed and drive the change being called for under the Paris Agreement are entirely insufficient. IEEFA notes BlackRock needs to:

1. Apply consistent standards on environmental, social, and governance (ESG) products;
2. Apply screens which take commodities like thermal coal, heavy utilities, and tar sands, all known to materially impact global warming, out of "sustainable funds;"
3. Expand low carbon indexes to become the primary default benchmark in its investment strategy, rather than a tiny niche offering, and
4. Implement its fiduciary duties to investors with transparent, time-bound and results-oriented engagement, backed up by active proxy voting that is long-term value oriented, rather than being conciliatory to the incumbent management.

"We Have to Change Capitalism" to Address Climate Change

Two weeks after Larry Fink's 2018 letter to CEOs, BlackRock's Vice-Chairman Philipp Hildebrand expanded on Fink's theme of social responsibility at the World Economic Forum in Davos.

Hildebrand suggests if asset managers are *not* taking ESG concerns into account, they may in fact be in breach of that duty.

From an analytical perspective, Hildebrand called for a "new contract" between companies, investors and governments, stating that in order to successfully address climate change:

> *"We have to be realistic, we also have an enterprise to run, we have shareholders, this is a complicated story. Nobody is served by reducing this to very simple, fast things that we have to do immediately. We have to change capitalism. This is really what's at stake here. And frankly we need a new contract between companies, investors and governments."*[19]

[19] *Climate Change News*. 'We have to change capitalism' to beat climate change, says BlackRock vice-Chair. 24 January 2018.

Hildebrand went on to note that the definition of fiduciary duty is necessarily evolving to the point where, if asset managers are *not* taking ESG concerns into account, they may in fact be in breach of that duty. Furthermore, he noted there is no need to trade off ESG actions with investment returns, and that such concerns could even improve investment performance.

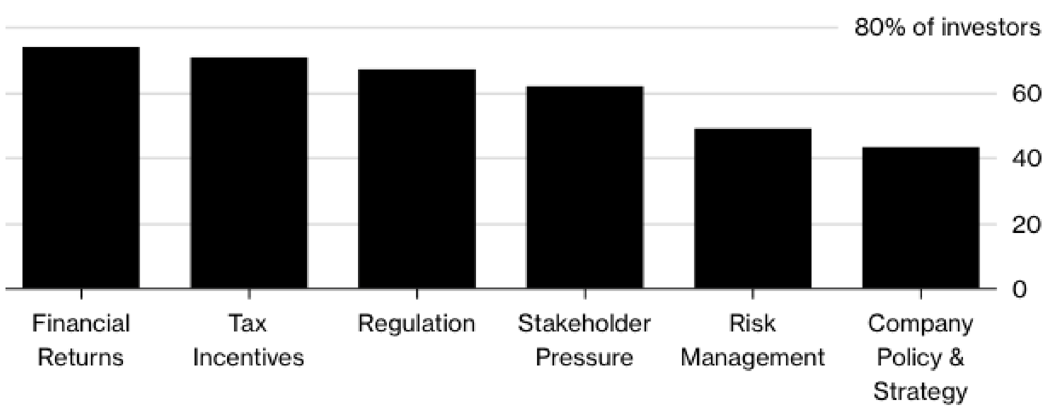
Environmental, Social and Governance: "Why Wouldn't You Look at These Factors?"

In February 2018 John McKinley, a director in BlackRock's sustainable investment team said of ESG criteria:

> "*Why wouldn't you look at these factors?*"[20]

BLACKROCK HAS WIDELY ENDORSED ESG-DRIVEN INVESTING. It manages around US$287bn of sustainable assets, more than US$50bn of which is allocated to ESG, impact investing (in which a portfolio includes companies with stated social or environmental goals that can be measured) and dedicated environmental sustainability screening.

Figure 2.2: Institutional Investors Reasons for Adopting an ESG Strategy



Source: HSBC Sustainable Financing and ESG Investing Report.
Note: Data only includes investors with an ESG strategy.

Separately, BlackRock's Global Head of Sustainable Investing, Brian Deese, has stated that firms with high ESG scores:

> "*tend to exhibit operational excellence—and are more resilient to perils ranging from ethical lapses to climate risks*." He further added that: "*We also believe that sustainable portfolios do not have to compromise return goals, and may even enhance risk-adjusted returns in the long run.*"[21]

[20] *Environmental Finance*. BlackRock: 'Why wouldn't you look at ESG.' 15 February 2018.
[21] *Bloomberg*. Most Investors Are Going Green to Make Money, HSBC Says. September 12, 2018.

Better financial returns are now the number one reason given for considering ESG factors in investments, according to a September 2018 HSBC survey of 868 institutional investors (Figure 2.2). Financial return was cited by nearly 74% of respondents, making it the key driver of ESG investment decision-making for the first time.[22]

RECOGNIZING THE NEED TO END ENERGY POVERTY AS WELL AS THE URGENT REQUIREMENT FOR CARBON EMISSIONS TO START FALLING towards zero as fast as possible, Legal & General Investment Management called for investors to play a greater role in the world's energy transition, published in an April 2019 op-ed in the Financial Times.[23]

Legal and General Investment Management noted the huge investment required to achieve these goals and the important role of investors, but lamented that global investors do not see decarbonization as the primary concern, stating:

> "*We worry that some players may be hiding behind the dual nature of the energy challenge as an excuse to continue allocating capital in exactly the same way they always have.*"

Accepting there is little point in solving energy poverty if much of the world has become sub-habitable, Legal and General highlighted the potential of ESG-based investing to drive a significant positive impact on solutions that address both equity and climate risk.

Climate Rankings of Global Investors Identifies BlackRock as a "Learner"

The Asset Owners Disclosure Project (AODP) rates and ranks the world's largest institutional investors on their response to climate risks and opportunities, based on direct disclosures and publicly available information.

The 500 asset managers in the Global Climate Index 2017 managed US$43 trillion AUM in total. They were scored on three key capabilities—Governance and Strategy, Portfolio Carbon Risk Management, and Metrics & Targets—within four key areas highlighted by the FSB Task Force on Climate-related Financial Disclosures.

BlackRock scored a C grade, placing it amongst the lowest of the "Learners" category.

AODP's Global Climate Index 2017 found the top 500 global asset managers well ahead of their asset owner clients when it comes to managing climate-related

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[22] HSBC/Easts & Partners. Sustainable Financing and ESG Investing report. September 2018.
[23] *Financial Times*. Investors must play a bigger part in the world's energy transition. 11 April 2019.

financial risks in their investment portfolios.[24]

Even so, only two asset managers, Legal & General Investment Management and top ranking APG Asset Management, were rated "Leaders" (scoring an A or above) (Figure 2.3). BlackRock scored a C grade, placing it amongst the lowest of the "Learners" category and leaving plenty of room for improvement (see Annexure I).

Figure 2.3: AODP Global Climate Index Ratings for The World's Top 500 Asset Managers

Category	Rating Band	Asset Owners	Asset Managers
Leaders	A-AAA	Top 7%	Top 4%
Challengers	B-BBB	7% - 14%	4% - 20%
Learners	C-CCC	14% - 22%	20% - 46%
Bystanders	D	22% - 60%	46% - 94%
Laggards	X	Bottom 40% Zero score	Bottom 6% Zero score

Source: AODP Global Climate Index 2017.

Climate Related Disclosures Are Expanding

It is becoming increasingly easy to judge companies on their climate impacts and responses.

The CDP, formerly the Carbon Disclosure Project, evaluates companies' environmental disclosures and scores them under three areas of environmental concern—climate change, forests and water security.

In 2018 over 7,000 companies disclosed through CDP, an 11% increase in participation over 2017 (Figure 2.4). Reporting companies now represent over 50% of global market capitalization.[25] CDP placed 139 companies on its "A" list, indicating those classified as pioneers for action on climate change.

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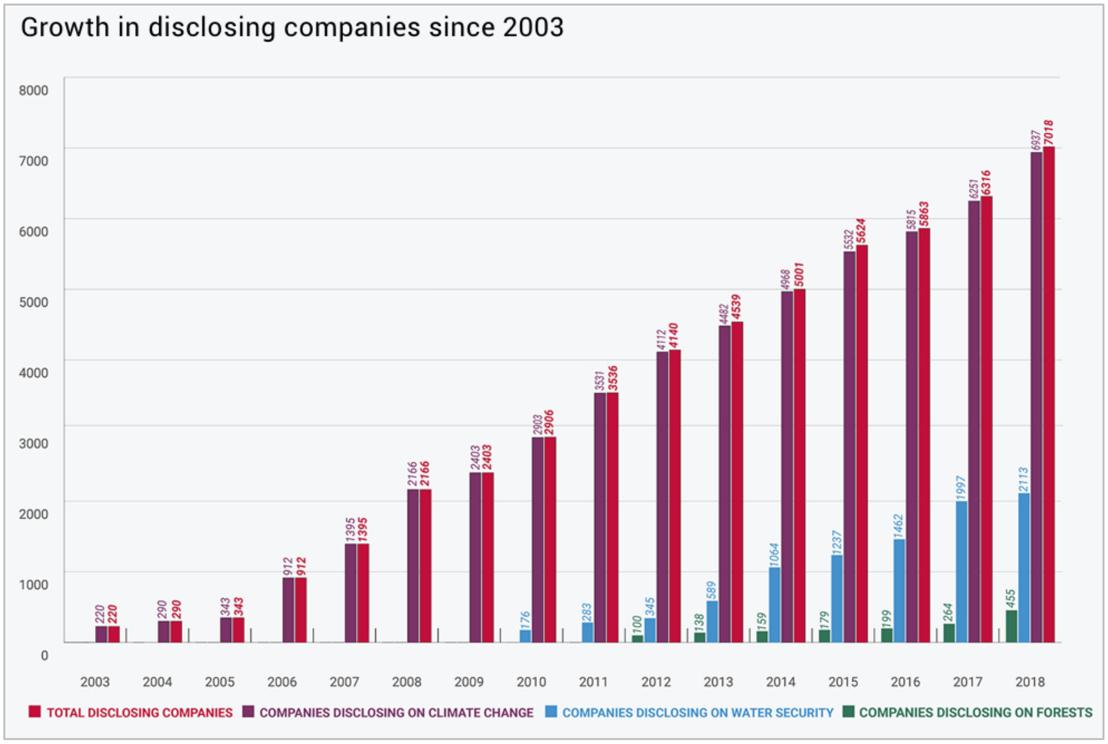
[24] AODP. Global Climate Index 2017.
[25] CDP. The A List 2018.

Figure 2.4: The Growth in Companies Disclosing Climate Change Issues (2003-2018)



Source: CDP 2018.

As corporate disclosures improve, fund managers' excuses for inaction are ringing increasingly hollow. IEEFA notes that as urgency for action on climate risk increases with every year of insufficient change, information disclosures are rapidly accelerating.

Transparency over companies' climate-related activities and actions is increasing, while the financial market tools to evaluate company action on climate change are in place. IEEFA notes BlackRock occupies a prime position to show global leadership by implementing financial market tools to address climate risk across its entire $6.5 trillion portfolio.

Fund managers' excuses for climate inaction are ringing increasingly hollow.

BlackRock is the World's Leading Passive Investor

BlackRock has passive holdings of US$4.3 trillion AUM in the world's largest corporations and bond markets, making it the world's leading passive investor (refer Section 1).

In a 2019 survey of 127 pension plans with €2.2tn in assets under management by Create Research, more than one-quarter (27%) of those surveyed said index managers were not meeting their stewardship goals at all, while 23% said they were only meeting them to a limited extent.

Passively managed funds make up a growing proportion of pension fund assets, the survey found, accounting for 34%, up from 32% in 2018, with this share expected to continue to rise over time.[26] The report concludes "passive funds should not mean passive owners."

Stewardship is seen to involve good long-term investment returns (83%), but also meeting social responsibilities (57%) and managing reputational risk (49%).

The report highlights that BlackRock's 43 engagement staff have little capacity to effectively engage with tens of thousands of investee companies. This is giving rise to greater power being outsourced to third party proxy advisory firms, a sector dominated globally by a duopoly—Institutional Shareholder Services and Glass Lewis.

IEEFA notes this outsourced, passive management of a substantive and growing part of the global financial market gives clear substance to Philipp Hildebrand's call to change capitalism; entrusting engagement assessments to a flawed oligopoly on auto-pilot is *not* going to deal with the systemic global financial risks of climate change.

Passive Investing is Used as an Excuse for Climate Inaction

BlackRock generally excuses its relative inaction on climate change by noting the majority of its assets under management (71.5% as of March 2019) are passive index funds, and that with ongoing fee compression, BlackRock has no material capacity to influence investor choice.

IEEFA disagrees. BlackRock markets its investment products, and has also developed products promoted as providing low carbon investing alternatives.

Two of BlackRock's flagship low carbon funds both have an oversized exposure to coal reserves.

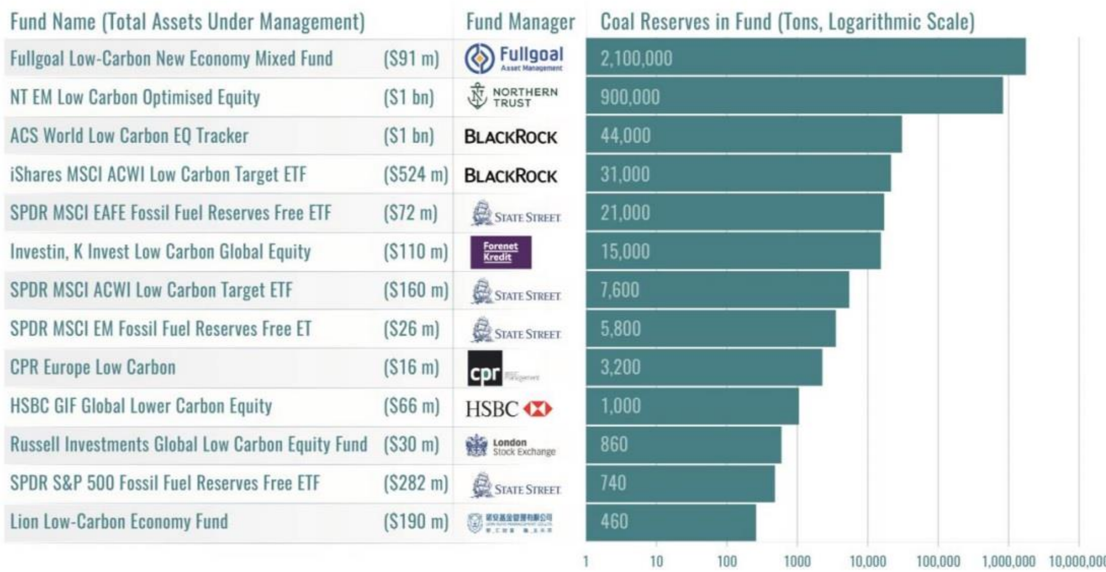
The Influence Map report of December 2018 suggests that two of BlackRock's flagship low carbon funds with a collective $1.5bn invested (ACS World Low Carbon EQ Tracker Fund, and iShares MSCI ACWI Low Carbon Target ETF[27]) both have an oversized exposure to coal reserves. (Figure 2.5) BlackRock has picked two indices that are overexposed to coal despite there being a number of other options available.

[26] *Financial Times*. Pension funds raise concern over index manager stewardship. 23 June 2019.
[27] The website for BlackRock's iShares MSCI ACWI Low Carbon Target ETF does disclose the "MSCI Weighted Average Carbon Intensity" of the fund as 64 tons per $M of sales, but no comparison information is provided.

Index providers including FTSE Russell, MSCI, S&P Dow Jones Indices, and Stoxx all run indices that take into account ESG concerns. However, so-called environmental stock market indices for each also include some of the world's biggest contributors to fossil fuel pollution, including key fossil fuel service providers, so it is key that the quality of the ESG screen be sharpened.[28 29 30]

IEEFA notes that in July 2019 the London Stock Exchange made a noteworthy change to the FTSE Russell index, relabeling the group of oil and gas producers as "non-renewable energy." The report notes that the Russell US Index will make a similar move in June 2020.[31]

Figure 2.5: Thermal Coal Intensity of Selected Funds



Source: Influence Map, Who Owns the World's Fossil Fuel?, December 2018.

BlackRock: A Global Systematically Important Financial Institutions (G-SIFI)

One of the associated themes encountered in preparing this report is the issue relating to Systematically Important Financial Institutions (SIFI).

SIFIs are defined as institutions that are Too Big to Fail.

SIFIs are defined basically as institutions that are *Too Big to Fail* (TBTF). This brings about a moral hazard, as it implies that the institution enjoys an implicit sovereign

[28] *The Guardian*. Just how ethical is ethical investment? 23 February 2019.
[29] Friends of the Earth. BlackRock's Sustainable ETFs: Green Business or Greenwash? May 2019.
[30] *The Financial Times*. Vanguard 'green' fund invests in oil and gas-related stocks, 10 July 2019.
[31] *The Financial Times*. 'Oil' and 'gas' become dirty words in FTSE rebranding, 3 July 2019.

guarantee against its failure, as was evidenced during the global financial crisis of 2007/08.

BlackRock has AUM of $6.5trillion, almost double that of the largest bank in the world, Industrial and Commercial Bank of China (ICBC), which has assets of US$3.5 trillion, and well above JPMorgan Chase & Co., the largest U.S. bank with US$2.5 trillion of assets.

The Financial Stability Board (FSB) released its first substantive paper on SIFI in 2010, defining these as institutions "whose distress or disorderly failure, because of their size, complexity and systemic interconnectedness, would cause significant disruption to the wider financial system and economic activity.

The FSB notes that institutions that are clearly systemic in a global context (G-SIFIs) must be subject to more intensive coordinated supervision and resolution planning to reduce the probability and impact of their failure. The early framework focused on banking entities, given their financially leveraged and inter-connectedness, and concluded higher capital adequacy requirements should be enforced.

In 2011, G20 Leaders asked the FSB, in consultation with the International Organization of Securities Commissions (IOSCO), to prepare methodologies to identify systemically important non-bank non-insurer (NBNI) financial entities, with a focus on: (i) finance companies; (ii) market intermediaries (securities broker-dealers); and (iii) investment funds (including hedge funds).

BlackRock would be a leading non-bank non-insurer global-SIFI contender.

The March 2015 report detailed the likely impact as being a factor of the size, interconnectedness, substitutability, complexity and cross-jurisdictional nature of activities. The three channels whereby financial distress of an NBNI financial entity could be transmitted to other firms was defined as a reflection of counterparty risk, asset liquidation and the critical function or substitutability.

Given the highly regulated and robust settlement nature of stock markets, BlackRock is unlikely to cause counterparty risk. However, asset liquidation could well cause systemic issues. In the U.S. and Europe, BlackRock holds investments on behalf of its clients averaging 6.4% and 5.7% respectively of the total equity in the top 20 listed companies as of 31 March 2019.

The global ETF market is estimated at US$5.3 trillion. The top three firms have an oligopoly over the global ETF sector, with BlackRock's iShares holding an estimated 32% share overall, leading Vanguard (25%) and State Street Global Investors (16%).[32]

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[32] Strategic Insight Actuaries & Researchers. ETF assets hit US5.3tn - Global ETF FlowWatch - March 2019 Results. 19 May 2019.

On both these measures, BlackRock would be a leading NBNI G-SIFI contender.

BlackRock's Board Governance—Who Sets the Tone?

Little 360° Awareness of How Issues Will Emerge for This De Facto G-SIFI

BlackRock is a company that wants the world to know it takes governance seriously, both on behalf of its investor clients and on behalf of its shareholders.

There is merit to some of these claims. Unfortunately, the legacy nature of the board, a bias toward carefully parsed legalistic claims, and a lack of transparency around investor engagement processes and outcomes robs these claims of the credibility the market should expect of a company broadly regarded to be in a systemically important market position.

A Mixed Board Report Card

BlackRock's 2019 proxy statement[33] is filled with good faith commitments to the optics of board excellence. But the reality is that the board has struggled to modernize, despite bringing in more women and well-connected international members.

All of these individuals have senior professional qualifications, but too few of them appear to have the stakeholder orientation needed to inform a strategic debate with board insiders or senior management. New board members do not have enough stakeholder power to effect real change, particularly as the board is dominated by long-serving members.

Moreover, while they nod in the direction of the perils of over-boarding, most have very significant professional obligations that could tend to reinforce business-as-usual thinking on increasingly complex strategic and governance issues.

BLACKROCK'S PRODUCT STRATEGY RELIES INCREASINGLY ON RAPID GROWTH IN PASSIVE, GLOBAL EXPANSION IN ASIA, higher fee alternatives, and IT-dependent solutions like Aladdin—the firm's "operating system for investment management."[34] This seems to be an odd fit with a board that has strands of common DNA, raising questions about the perils of groupthink.

BlackRock, has failed to provide leadership by example in separating the critical role of board Chair and Chief Executive Officer, a key failure of corporate governance and a point of hypocrisy.

[33] BlackRock. 2019 Proxy Statement. 23 May 2019.
[34] BlackRock. Aladdin Platform Overview. Larry Fink's 2019 Letter to CEOs.

Despite the effort to inject fresh blood into the board, all of the key board positions are held by long-tenured board members with notable insider and/or energy industry links.

This matters to governance experts because BlackRock, like most U.S. companies, has failed to separate the role of board Chair and Chief Executive Officer (CEO). While this is a best practice that BlackRock's governance team advocates globally,[35] at home, Larry Fink has the power to set the test and mark the results.

When both executive and oversight roles are combined, governance experts look to a lead independent director to ensure that stakeholder interests are reflected at the core of a board's culture.

THIS IS WHERE THE RED FLAGS START AT BLACKROCK FOR RISK-AWARE INVESTORS. The lead independent director, Murry S. Gerber, is the longest-standing "independent" board member with a 19-year tenure. Any normal board mapping exercise would raise questions about Gerber's independence precisely due to his long tenure.

The second concern about Mr. Gerber is that his professional track record reflects deep roots in the United States natural gas fracking industry with no evidence of engagement with market-relevant themes related to energy transition. Until May 2011, he was the CEO, Chair, and Executive Chair of EQT, an integrated energy production company. Since leaving EQT, he has stayed close to the industry by serving on the boards of Halliburton and U.S. Steel.

This energy industry DNA becomes a governance concern because Mr. Gerber plays a crucial role in shaping the board's orientation to the many strategic climate risks that can affect BlackRock's regulatory license to operate. Specifically, as the lead independent director, Gerber helps set board meeting agendas, facilitating dialogue between independent board members—15 of the 18-member total—and overseeing the work of key board committees which have a climate risk oversight role. For stakeholders, it is notable that the board mandate includes the valuation and product risks associated with the global repricing of climate risks.

The energy DNA of the BlackRock board is not limited to Gerber, however. Bader Alsaad, Patricia Daley, William Demchak, and Gordon Nixon all—to varying degrees—are or have been in roles at companies with strategies that directly benefitted from the growth of carbon-intensive sources of energy. This places them in a sensitive position as the credibility of their professional credentials largely rests on their roles in organizations that are perceived as significant contributors to or funders of greenhouse gas emitters. This is particularly true of their professional engagement with the growth of gas—a sector which now faces complex competitive challenges from renewables as GE's value-destroying meltdown has demonstrated.[36]

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[35] Harvard Law School Forum on Corporate Governance and Financial Regulation. BlackRock Investment Stewardship Engagement Priorities for 2019.
[36] IEEFA. General Electric Misread the Energy Transition: A Cautionary Tale. 6 June 2019.

Regardless of their governance credentials, available disclosure leaves important questions about the suitability of some of BlackRock's board members as effective stewards on behalf of diverse stakeholders.

Figure 2.6: BlackRock Board of Directors Energy Sector Positions and Interests

	Years on Board	Energy Sector Exposure: Current	Energy Sector Exposure: Previous	Nature of Exposure
Bader M. Alsaad	0		Former Managing Director of Kuwait Investment Authority (Kuwait Sovereign Wealth Fund)	Energy funding & investments; Kuwait Fund finances EM fossil fuel power
Mathis Cabiallavetta	12			
Pamela Daley	5	Independent Non-Executive Director of BP	Former Senior Vice President of General Electric Company, Non-Executive Director of BG group	Governance of significant fossil fuel assets; power equipment strategy
William S. Demchak	16	Chairman, CEO and President of PNC		PNC lends to the sector and downstream users in the steel sector
Jessica P. Einhorn	7			
Laurence D. Fink	20			
William E. Ford	1			
Fabrizio Freda	7			
Murry S. Gerber	19	Director for Halliburton	Former Executive Chairman, Chairman, President and CEO of EQT Corporation	US gas sector development and energy services.
Margaret L. Johnson	1			
Robert S. Kapito	13			
Cheryl D. Mills	6		On the Board of Directors for Orion Power	Gas-inked power technology
Gordon M. Nixon	4		Former President, CEO and Director of Royal Bank of Canada (RBC)	RBC became the largest funder of Canadian tar sands development under Nixon's tenure
Charles H. Robbins	2			
Ivan G. Seidenberg	8			
Marco Antonio Slim Domit	8			
Susan L. Wagner	7	Director for Apple Inc. and Non-Executive Director for Swiss Re		Apple is a renewables advocate; Swiss RE has a long history of climate risk analysis
Mark Wilson	1		Former CEO of Aviva plc and former President and CEO of AIA	Aviva had strong responsible investment capabilities

Source: BlackRock Proxy Statement 2019, Company Website.

At the very least, more disclosure about board oversight on climate impacts and public engagement would be appropriate if the goal is to create confidence that these board members have a current understanding of the scope of the energy transition and how it affects BlackRock's role in markets.

THE NEED FOR MORE CLARITY ON THESE ISSUES IS CRUCIAL because this energy DNA collides with responsibilities that some of these board members carry in their committee roles. For example, Gordon Nixon chairs the governance committee, which can provide a cross-check on the management and disclosure of climate risk exposures.

More disclosure about board oversight on climate impacts and public engagement would be appropriate.

The same is true of the audit committee, chaired by Patricia Dailey. In the matrix structure of the BlackRock board, responsibility for oversight of climate risk issues, especially as it relates to valuation of assets, could fall to the audit committee in certain circumstances. That potentially makes Dailey's role, and her GE roots, particularly relevant in setting the tone that she brings to these issues. Indeed, it is notable that BlackRock's new head of global public affairs also had a long tenure at GE.[37]

THE INSIDER THEME RAISES ITS HEAD AGAIN with the leadership of the Risk Committee. On the surface, it appears that the Risk Committee may play a leading role in oversight of BlackRock's climate risks and product strategy.[38] Here questions about Susan Wagner's independence are unfortunately relevant. As a BlackRock founder and former Chief Operations Officer (COO), it is hard not to avoid questions about whether she has the objective drive to bring a rigorous forward-looking mindset to oversight of non-standard risks that are inevitably intertwined with the governance of passive funds.

The Risk Committee, by design, has a mix of legal, finance, global policy, and IT insights to draw on, but this is a group that should be motivated to address uncomfortable issues with regular input from stakeholder consultation. While Wagner may have relevant insights from the climate and policy risk management issues that she also faces on the Apple and Swiss Re boards, there is little in BlackRock's disclosure to indicate whether she or the committee have a clear mandate.

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[37] Linkedin/Thomas Clark. and BlackRock. Public policy engagement and political activities policies. Retrieved July 17, 2019.
[38] BlackRock. Governance Overview. Retrieved July 2019.

The same can be said of committee member, Mark Wilson, the former CEO of Aviva, whose bio cites his "leadership on sustainability issues."[39] Wilson could play a meaningful board role on climate change given his previous statements that sustainability should be a "competitive sport" in the financial service sector and that transparency and reporting are crucial because it:

Leadership is BlackRock's credibility challenge with its many stakeholders.

> "*allows people like us to make decisions. We are making those decisions and we are divesting in companies until we get the information to certain levels.*"

Clearly, Wilson is someone who knows how companies like BlackRock may be viewed by investors. Unfortunately, we lack evidence that he is the leader-in-waiting on climate strategy that BlackRock's board needs, particularly in terms of being heard on the dysfunctionally large board.

The Question is Leadership

Leadership, in a crux, is BlackRock's credibility challenge with its many stakeholders. This is a company that does have policies and, in some instances, disclosure. Unfortunately, that is no longer the question.

What stakeholders are asking is why performance on reasonable climate strategies and governance has been so slow.

Muddying the waters with halfway gestures is not an effective strategy for a company that has global market impact and as a G-SIFI, one that needs to be able to demonstrate impeccable governance and a willingness to move past superficial solutions.

[39] *Edie.net*. Aviva chief: It's time to make sustainability a competitive sport. 27 March 2017.

3. Backing Fossil Fuel Wealth Destroyers

BlackRock maintains that its "buy-and-hold" position on fossil fuels including coal, oil and gas, is rooted in its fiduciary duty to protect and expand value for its clients, while maintaining that it has little control over its US$4.3 trillion passively managed portfolio. Yet leading peers, such as Amundi, Norges Bank, AP4, Storebrand and KLP, have all developed low carbon investing strategies that provide at least comparable-risk adjusted returns. Instead, BlackRock has remained or increased its shareholdings in global companies that deny and/or have failed to successfully grapple with the global energy transition, causing significant capital loss for its investors. This is a clear indicator of poor risk management.

BlackRock maintains that its "buy-and-hold" position on fossil fuels is rooted in its fiduciary duty to protect and expand value for its clients.

The Cost of Climate Risk in the Trillions

The International Energy Agency (IEA) has modelled the global energy system, incorporating its estimates of government policies, technologies and relative cost analysis, as well as how the system is expected to change over time.

The IEA concludes that the current trajectory puts the world on track for *at least* a 2.7°C rise in average temperatures above pre-industrial era levels. The world is currently *not* aligned with the Paris Agreement.

How climate cost is borne is yet to be allocated.

This policy disconnect highlights the serious and growing economic cost of climate risk, estimated to be up to $20 trillion by the Bank of England in their co-leadership role with the Network for Greening the Financial System, a group of 36 central banks working on integrating climate risk into their mandate.[40] The Intergovernmental Panel on Climate Change (IPCC) report (October 2018) projects to 2100 and estimates the cost to the financial system at $69 trillion if only reaching the 2°C target.[41]

How climate cost is borne is yet to be allocated. In a way similar to that in which the financial crisis engulfed western markets in 2008 (triggered by the collapse of Bear Steans), it is not usually possible to correctly forecast and model the costs of financial bubbles before they collectively burst.

IN THIS SECTION WE PRESENT A GROUP OF CASE STUDIES ON THE WEALTH DESTRUCTION INCURRED BY BLACKROCK INVESTORS from certain fossil fuel

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[40] EBRD. NGFS calls for action by central banks, supervisors and all relevant stakeholders for greening the financial system. 17 April 2019.
[41] IPCC. Chapter 3: Impacts of 1.5ºC global warming on natural and human systems. Page 3-153. October 2018.

companies over the last decade. It is by definition selective. This analysis attempts to draw out the value destruction in certain sectors that have already partly experienced stranded asset risks.

Continued thermal coal mining is entirely inconsistent with the world delivering on the Paris Agreement. Burning coal is the largest source of emissions of carbon dioxide, which is one of the main greenhouse gases that contributes to global warming. To meet the Paris Agreement targets, emissions need to fall rapidly.

Those likely to be first and worst hit by climate risks include shareholders in thermal coal mining firms.

Likewise, absent commercialization and the widespread retrofitting of carbon capture and storage (CCS), the continued operation of coal-fired power plants must cease on IEA estimates by 2030 across the OECD, and globally by 2050.

Those likely to be first and worst hit by climate risk include shareholders in thermal coal mining firms, and utility owners of coal-fired power plants and their equipment suppliers.

Examining the financial market performance of key stocks in these sectors shows that some wealth destruction has already occurred; not comprehensively, but sufficient to illustrate our point.

Given the necessary speed of decarbonization, many other fossil fuel exposed industries will be progressively stranded. Canadian tar sands and deep sea drilling for oil are obvious candidates for value destruction, but to-date the financial markets do not appear to be factoring in this risk reflecting the 'tragedy of the horizon' as detailed by Bank of England Governor Mark Carney back in 2015.

Utilities That Lag Lose Value and Deliver Poor Returns

Recent research shows that, in the power sector BlackRock's fiduciary defense looks increasingly misplaced.

A 2018 McKinsey study showed that despite sharp growth in electricity demand worldwide, many utilities have lost value or delivered below-average returns. Their analysis of 50 major publicly listed utilities from Asia, Europe, and North America showed average total cumulative returns to shareholders of about 1% from July 2007 to July 2017, compared with 55% for the MSCI World Index.[42]

IEEFA NOTES THERE ARE KEY LESSONS TO LEARN, especially from the historic downfall of European power utilities that were too slow to acknowledge the global energy transition.

[42] McKinsey & Company. How utilities can keep the lights on. May 2018.

European power utilities that operated in the conventional generation merchant space suffered from a permanent erosion of profits. On the other hand, utilities like Enel and NextEra that chose to embrace opportunities provided by the energy transition have found themselves outperforming. And other less forward-looking utilities are only now undergoing major restructuring and changing their business models in a bid to catch up.

India's Stranded Asset Losses Due to Overestimating Energy Market

In India, despite very strong 5-6% annual energy demand growth over the last ten years, upwards of US$100bn of stranded asset losses have been incurred in the power sector over the past decade.

Indian state-owned utilities, just like European utilities, have been in massive financial distress with a cumulative debt of a staggering US$40bn (the balance of US$60bn of the US$100bn of stranded assets come from coal- and gas-fired generation assets).

India overestimated demand growth, under-estimated the benefits of energy efficiency technologies and failed to anticipate the 50% decline in renewable energy costs in 2017, which put renewable energy tariffs 20% below existing thermal power generation. As a result, they over-built thermal power capacity, compounding India's thermal sector stress. Structural challenges in India's rail network and coal mining industry hastened the losses.

Today, it is no coincidence that India is a world leader in deploying renewable energy projects that are today generating electricity at 20% below grid parity. To IEEFA, India is illustrative of the likely losses still to come in other markets as grid parity is reached (China is set to reach grid parity by 2020).

Shareholders Losing as BlackRock Fails to Act on Climate Risk

BlackRock claims its $4.3 trillion passively managed portfolio is optimally invested, consistent with the dictates of its investors. However, IEEFA notes climate-leading asset managers such as Amundi, Norges Bank, AP4, Storebrand and KLP with deep historical roots in investment banking have developed low carbon investing strategies that provide comparable returns while still deploying passive index discipline.

As the McKinsey and IEEFA research indicates, these funds are also better positioned to capture the value from the positive outlook of fossil-free investing. The companies themselves have identified that ESG factors are as important as other market-driven factors that contribute to the success or failure of the business.

The failure of some companies within the fossil fuel sectors to accept and actively manage technology changes driving the energy transition has wasted time and lost value for public and private investors.

Figure 3.1: Summary of Shareholder's Value Loss by BlackRock

	Company	Country of Domicile	Value Loss in Millions		Currency	US$ in Millions	
Major Oil & Gas Companies	Exxon Mobil	USA	$	45,116	USD	$	45,116
	Chevron	USA	$	12,364	USD	$	12,364
	Royal Dutch Shell	Netherlands	€	1,856	EUR	$	2,097
	BP	UK	£	2,590	GBP	$	3,367
Europe and USA Power Utilities	E.ON	Germany	€	1,933	EUR	$	2,184
	RWE	Germany	€	964	EUR	$	1,089
	Iberdrola	Spain	€	(200)	EUR	$	(226)
	NextEra	USA	$	(894)	USD	$	(894)
	Duke Energy	USA	$	992	USD	$	992
	PG&E	USA	$	1,722	USD	$	1,722
USA Coal Mining	Peabody Energy	USA	$	2,316	USD	$	2,316
	Cloud Peak	USA	$	199	USD	$	199
Thermal Turbine Manufacturers	GE	USA	$	19,080	USD	$	19,080
	Doosan	South Korea	₩	40,410	KRW	$	34
	Siemens	Germany	€	417	EUR	$	471
	Mitsubishi Heavy Industries	Japan	¥	8,280	JPY	$	76
Asian Power Utilities	Chubu Electric	Japan	¥	21,679	JPY	$	199
	China Light & Power	Hong Kong	$	211	HKD	$	27
	KEPCO	South Korea	₩	56,575	KRW	$	48
	Huaneng Power International	China	¥	46	CNY	$	7
	NTPC	India	₹	7,387	INR	$	103
					Total	**$**	**90,373**

Source: Thomson Reuters, IEEFA estimates.
Notes: A negative value for the loss means BlackRock has created value through share price performance above the market performance. We have translated these losses into US$ at the spot exchange rates on 31 March 2019.

Case Studies of Firms Continuing to Invest in Fossil Fuels

In the following section, we highlight some examples of fossil fuel-based companies in which BlackRock has remained a major shareholder, even as some of these firms deny and/or fail to successfully grapple with the global energy transition.

We compare BlackRock's positions (number of shares held) in these companies between January 2009 and March 2019 (10 years, 3 months[43]) and account for what happened to their value in terms of their share price performance.

In IEEFA's view, the opportunity cost of share price underperformance relative to the market performance is equivalent to shareholders' value destruction. In other words, BlackRock's choices have caused an underperformance in its investment returns.

The companies we focus on are a non-representative sample of BlackRock's fossil fuel exposures. However, they are manifestation of a larger theme of BlackRock's position in the top global fossil fuel companies.

3.1 Major Conglomerates

General Electric

General Electric Company (GE) is a case study in how rapidly and unexpectedly thermal power stranded asset risk can materialize, particularly when compounded with excessive financial leverage and management failures.

GE destroyed an almost unprecedented US$193bn or 76% of its market capitalization over three years from 2016-2018. The recent collapse of the new thermal power construction market globally had caught GE entirely by surprise.[44]

BlackRock held 491 million shares in GE at the end of 2008. It continues to remain one of the biggest shareholders with 504 million shares at the end of March 2019, taking its ownership stake from 5% to 6%.

Roughly ten years ago, the value of BlackRock's holding was worth US$7.6bn, however it reduced to US$5bn at the end of March 2019. GE's share price tanked 36% during this period whilst the S&P 500 index rose by 214%.

THE TOTAL INVESTOR WEALTH DESTRUCTION FOR BLACKROCK INVESTORS ALONE HAS BEEN US$19BN, including opportunity cost of underperformance relative to the market—refer Figure 3.1.1.

During the second quarter of 2014, GE offered to acquire the Thermal, Renewables and Grid power businesses of Alstom for €12bn (US$13bn). The deal brought over US$20bn of "goodwill" and other intangibles with it, however the timing was very poor.[45]

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[43] For each of the case studies we have chosen a timeframe starting 1 January 2009 and ending 31 March 2019. This equates to ten years and three months. Rather than round up to a decade, we have added the extra data from the latest quarter, noting the report took three months longer than expected. The exception to this is the US coal mining section, which evaluates the bankruptcies of Peabody Energy and Cloud Peak (refer section 3.5).
[44] IEEFA. General Electric Misread the Energy Transition: A Cautionary Tale. 6 June 2019.
[45] In December 2014, Alstom pled guilty in the U.S. to multiple violations of the Foreign Corrupt Practices Act relating to anti-competitive conduct and improper payments, resulting in GE having to pay a criminal penalty of US$772m.

With the Alstom acquisition completed in November 2015, GE had doubled down on its exposure to the thermal power market just as global demand unexpectedly collapsed. GE was the world leader in manufacturing gas turbines, the market for which halved in the three years to 2018.

Figure 3.1.1: BlackRock Investor's Total Loss from GE (Jan. '08 - Mar. '19)

	1st January 2009	31st March 2019	Change
Black Rock's shareholding in GE (# shares in millions)	491	504	3%
Share Price (US$)	15.6	9.99	-36%
Total Holding (US$bn)	7.6	5.0	-2.6
S&P 500 Index	903	2,834	214%
Value destruction through opportunity cost of market performance (US$bn)	**16.3**		
Total value lost for the above period (US$bn)	**19.0**		

Source: General Electric Annual Report, Thomson Reuters, IEEFA calculations.

In addition to this acquisition, GE planned to bid for a host of coal, gas and nuclear power assets across Asia, Europe and the Middle East. Until 2014, GE's power segment was operating at 19.4% profit margin and sales were expanding, up 11% in 2014. On the other hand, the demand for GE's oil-field services was on a downturn.

GE COMPLETELY OVERLOOKED THE TRANSITION UNDERWAY IN GLOBAL ENERGY MARKETS which was largely driven by deflationary renewable energy sources.

The thermal turbine development business had been hit by costly operational misses owing to softer markets globally for new thermal capacity additions. In 2018, the most telling statistic was GE's gas turbine unit sales dropping 60% year-on-year from 102 in 2017 to just 42 in 2018.

In 2018, GE Power reported revenue down 22% year-on-year to US$27.3bn, and the new orders backlog dropped 23% year-on-year. GE Power reported a record loss of US$808m, a massive decline in just two years from the $4,187m record profit booked in 2016 (despite 2016 including a loss from Alstom of US$0.3bn on US$13bn of revenues). In addition, GE booked a record $22bn write-down for its Power division, more than the entire investment in Alstom and only three years after that acquisition was completed.

GE expected to generate earnings per share of US$0.05-0.08 by 2016 and US$0.15-0.20 by 2018 from the Alstom transaction.[46] However, GE's share price is down 67%

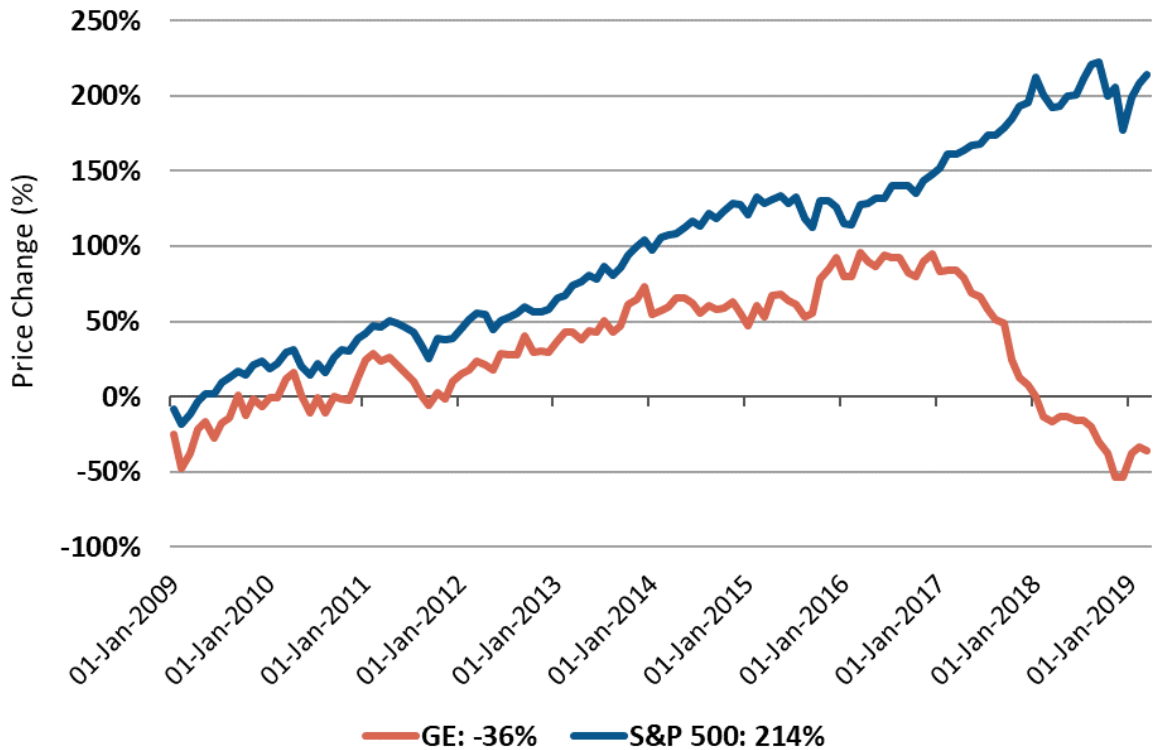
[46] GE. GE completes acquisition of Alstom Power and Grid Businesses, 3 November 2015.

since 31st December 2015 whilst the S&P 500 index is up 35%—as shown in Figure 3.1.2. Despite this, BlackRock continues to hold significant shareholdings in GE.

GE has seen a series of credit rating downgrades after the collapse of its share price, and massive write-downs including in its insurance and financial services businesses.

On October 31, 2018, Moody's lowered the credit ratings of GE long-term debt from A2 to Baa1—down two notches, putting it just two notches above the non-investment grade cut-off.[47] In November 2018, Fitch lowered the credit ratings of GE from A to BBB+, with a Stable outlook. Then in February 2019, Fitch changed its outlook for GE from Stable to Negative.

Figure 3.1.2: GE (Orange) vs. S&P 500 (Blue), Jan. '09 - Mar. '19



Source: Thomson Reuters.

By the end of 2018, U.S. financial markets were pricing in a material probability of bankruptcy for GE. GE had reported a loss of US$22.8bn in 2018, after a net loss of U$8.9bn in 2017, down from US$6.8bn net profit in 2016.

In March 2019, GE announced a further downgrade on earnings expectations. It noted that excessive financial leverage, combined with the expectation the global gas turbine market was now expected to run at a range of 25-30 gigawatts (GW)

[47] Moody's. Moody's rating scale and definitions.

annually for the foreseeable future, had left excess capacity across the industry and had driven down GE Power's revenues and margins even further.

GE flagged that its industrial group overall would have negative free operating cashflow in 2019.

Doosan, Mitsubishi and Siemens

The 'unexpected' collapse of the global coal and gas turbine market over 2016-2018 created enormous financial distress for GE and its shareholders.

The impact on major international competitors was varied, with Doosan investors losing 88% of market value and Mitsubishi Heavy Industries underperforming on the Tokyo Stock Exchange by 69%.

In October 2018 Doosan Heavy Industries, a leading Korean thermal turbine manufacturer, transferred its employees to its other subsidiaries or sent them on paid leave due to falling profit. The stagnating global power plant market, and the Korean government's policy against nuclear and coal energy, all took a toll on the company's bottom line.[48]

Siemens started a similar journey to GE, but a decade earlier, progressively simplifying and downsizing the once sprawling and cumbersome German conglomerate. Over the last decade, Siemens actually performed in line with the German market overall.

In May 2019, Siemens announced plans to spin-off its struggling gas and power division into a separately listed company, including its controlling 59% stake in the stand-alone Siemens Gamesa wind turbine business.[49] This move was reported as an attempt to proactively avoid the conglomerate woes evident at GE,[50] and followed a 76% collapse in profits on a 19% decline in revenues from Siemens' Power and Gas division in the year to 30 September 2018.[51]

3.2 Global Oil and Gas Majors

The CDP reports that since 2010, the 24 largest global oil and gas companies have invested US$22bn in alternative energies. This is a large investment, but immaterial to the annual cashflows of these giants of old.

The value destruction in oil and gas stocks over the last decade suggests the financial markets considers these corporations ill-prepared to take advantage of changing markets.

The degree to which many companies are highlighting alternative investments while maintaining adherence to traditional drill, drill, drill strategies represents an

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[48] *The Korea Bizwire*, Doosan Heavy Industries Trims Workforce as Profits Fall. 25 October 2018.
[49] Siemens Press release. Siemens to build focused energy powerhouse and further boost performance. 7 May 2019.
[50] *Financial Times*. Siemens tries to avoid GE fate with gas and power spin-off. 8 May 2019.
[51] Siemens Press release. Earnings Release Q4 FY2018. 8 November 2018.

exercise in public relations branding at the expense of serious strategies for value creation.

Relative to the ongoing investment of 98.7% of total annual capital expenditure in exploring and developing the core business of oil and gas, the average spend on low-carbon assets for the sector is expected to account for just 1.3% of the 2018 total.[52]

In 2018, after almost three years of rising oil prices, the oil and gas sector placed 'dead last' in the S&P 500. This follows a ten-year trend of lagging in the market.

In 2018, after almost three years of rising oil prices, the oil and gas sector placed 'dead last' in the S&P 500.

Figure 3.2.1: Energy No Longer Dominates S&P 500's Top 10 List

	1980	2018
1	IBM	Apple
2	AT&T	Microsoft
3	Exxon	Amazon
4	Standard Oil of Indiana	Facebook
5	Schlumberger	Berkshire Hathaway
6	Shell Oil	JP Morgan
7	Mobil	ExxonMobil
8	Standard Oil of California	Alphabet, Inc. B
9	Atlantic Richfield	Alphabet, Inc. C
10	GE	Johnson & Johnson

Source: Oil and Gas: Production Boom, Financial Bust.

[52] CDP. Beyond the Cycle. November 2018.

The Rise in the Global New Electric Vehicle Market

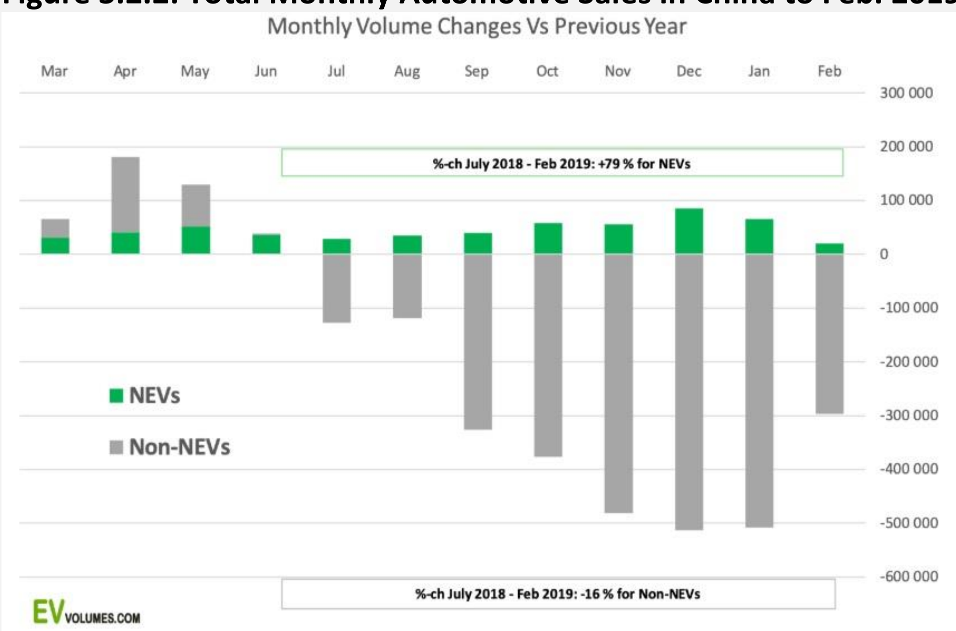
The rise of the global new electric vehicle (NEV) market is being driven by China, for both air pollution and energy security reasons.

While there has been a decline in overall auto sales in China since July 2018, China's NEV sales almost doubled in 2018 to 1.25mn units, with another 50% year-on-year growth forecast for 2019. While NEVs represented just 4.4% of total 2018 auto sales in China, the rate of change is seeing deployments doubling every 1-2 years.

The Chinese target to move to 100% NEV is on track for 2030, while India is targeting 30% NEV penetration of annual sales by 2030, and Japan is targeting 20-30% by 2030. Global transport analysts are now increasingly talking about the world already having passed peak auto sales.

Put in the context of the decline in overall auto sales in China since July 2018 (Figure 3.2.1), the demand for oil looks set for a technology-driven disruption as transport and energy sectors converge.

Figure 3.2.2: Total Monthly Automotive Sales in China to Feb. 2019



Source: EV-Volumes.com.

IN THIS SECTION, WE LOOK AT FOUR OF THE TOP TEN GLOBAL OIL & GAS MAJORS—ExxonMobil, Chevron, Royal Dutch Shell, and BP—by market capitalization, analyzing the period between January 2008 and March 2019.

We then calculate the shareholders' value destruction that occurred as BlackRock maintained major shareholdings over the last 41 quarters (10 years & 3 months) while the companies all significantly underperformed the market.

BlackRock's holdings in these four companies alone has seen shareholder value destruction worth US$68bn in this period. (Refer to Appendix 2 for calculations.)

In all four examples, BlackRock has been 'catching the falling knife,' expanding their shareholding percentage even as the four oil and gas majors consistently underperformed over the last decade.

ExxonMobil

ExxonMobil had an equity market capitalization of US$325bn as of May 2019, making it the world's largest oil and gas company. Headquartered in Texas, U.S., ExxonMobil reported liquid production of 2.2 million barrels per day (mbpd) and gas (oil equivalent) production of 3.8mbpd in 2018.

Being the world's largest energy company means ExxonMobil's shareholders are most exposed to risks from climate change.

At the beginning of the period under consideration, BlackRock held around 266 million shares of ExxonMobil, which at the time were priced at US$79.80 per share. BlackRock accounted for 5% of the total outstanding shares of ExxonMobil.

ExxonMobil's shareholders are most exposed to risks from climate change.

Over the past decade, BlackRock has maintained a substantial shareholding. At the end of March 2019, BlackRock owned 280 million shares, 7% of the total outstanding shares. On 31st March 2019, ExxonMobil's share price was US$80.80, a 1% increase in a decade. In contrast, the market benchmark, S&P500, had grown 214% during the same period.

This accounts for the great majority of the total BlackRock shareholders' value destruction of US$45bn over the last decade. (Refer to Appendix 2, Figure II.1.)

IN IEEFA'S VIEW, EXXONMOBIL IS A MAJOR CLIMATE LAGGARD.[53]

ExxonMobil's $41bn acquisition of XTO Energy, completed in June 2010 by then-CEO Rex Tillerson, proved extremely ill-timed and strategically misguided. Predicated on gas becoming the global transition fuel of choice, it saddled

[53] IEEFA. ExxonMobil's Empty Climate Risk Report. 03 April 2018.

ExxonMobil with a major North American gas producer just before the spot Henry Hub prices halved to below $2.00 per million Btu (British thermal unit) in April 2012, driven by overcapacity.[54]

ExxonMobil's return on average capital employed, an impressive 34.2% in 2008, had crumpled to 9.2% by 2018.[55]

After a decade of underperformance, the new CEO Darren Woods has set a strategy this year to do more of the same. He has targeted US$200bn of fossil fuel capital investment by 2025, acknowledging: "There is a tremendous amount of growth required in a depletion business just to stand still."[56] This is predicated on a forecast of fossil fuel demand growth entirely inconsistent with the Paris Agreement.

RECENT PERFORMANCE AT EXXONMOBIL DOES *NOT* SUGGEST ANY CHANGE IS IMMINENT. In the first quarter of 2019, ExxonMobil's $8.4bn of operating cashflow was insufficient to cover its $6.9bn of capital investment and $3.5bn of dividends.[57] The profit trend (down 50% year-on-year) is again in stark contrast to the capital expenditure (up 42% year-on-year).[58]

In December 2018, a group of shareholders led by the New York State Common Retirement Fund and the Church of England proposed ExxonMobil set annual targets to reduce greenhouse gas (GHG) emissions. The company successfully blocked the shareholder's proposal by writing to the U.S. Securities and Exchange Commission (SEC). ExxonMobil argued it was an unnecessary interference from shareholders, claiming the company was already reducing its annual greenhouse gas emissions.[59]

In the wake of the SEC's decision and the long history of evasion by the company, a group of shareholders announced a 'no' vote campaign at ExxonMobil in early 2019.[60]

In April 2019, it was reported that ExxonMobil was the top tax avoider of all multinationals operating in Australia[61] according to the data released by the Australian Tax Office.

In June 2019, Mobil emerged as a key funder of climate denialism decades ago.

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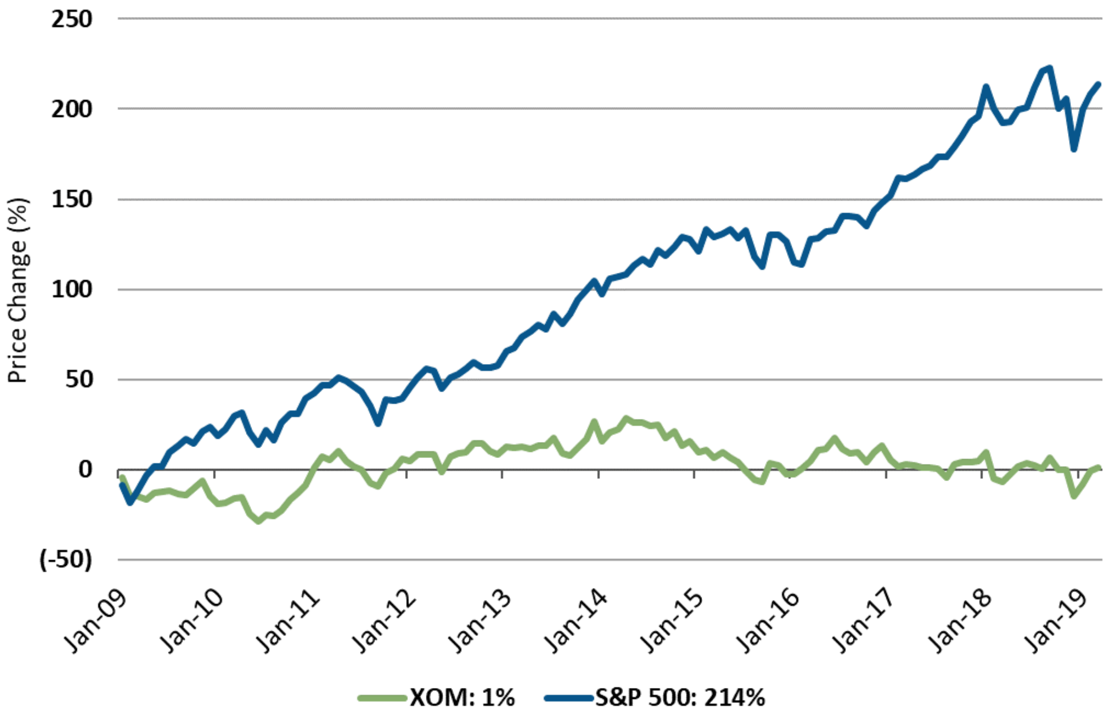
[54] Breaking Energy. Timing was Off for XTO Deal, says Exxon CEO. 30 May 2013.
[55] ExxonMobil Financial Accounts 2008 vs 2018.
[56] *The Economist*. ExxonMobil gambles on growth. 9 February 2019.
[57] IEEFA. IEEFA update: ExxonMobil's drill, drill, drill strategy earns a "D-". 3 May 2019.
[58] Exxon Press Release. ExxonMobil Earns $2.4 Billion in First Quarter 2019. 26 April 2019.
[59] *Financial Times*. Exxon seeks to block vote on investor proposal on emissions. 25 February 2019.
[60] *Bloomberg*. Exxon Directors Face Shareholder Revolt Over Climate Change. 4 May 2019.
[61] *The New Daily*. Exxon Mobil tops list of Australia's top 10 tax dodgers. 20 March 2019.

Figure 3.2.3: Exxon Mobil (Green) vs. S&P 500 (Blue), Jan. '09 - Mar. '19



Source: S&P Global Market Intelligence.

Chevron

Chevron, another U.S. oil and gas giant with market capitalization of US$227bn, also ranks amongst those climate laggards that have destroyed enormous shareholder value.

Chevron is engaged in every aspect of the oil and gas industries, including hydrocarbon exploration and production; refining, marketing and transport; chemicals manufacturing and sales; and power generation. Chevron produced net oil equivalent production of 2.9mbpd in 2018.

Chevron's downstream operations manufacture and sell products such as fuels, lubricants, additives and petrochemicals. The company's most significant areas of operations are the west coast of North America, the U.S. Gulf Coast, Southeast Asia, South Korea, Australia and South Africa.

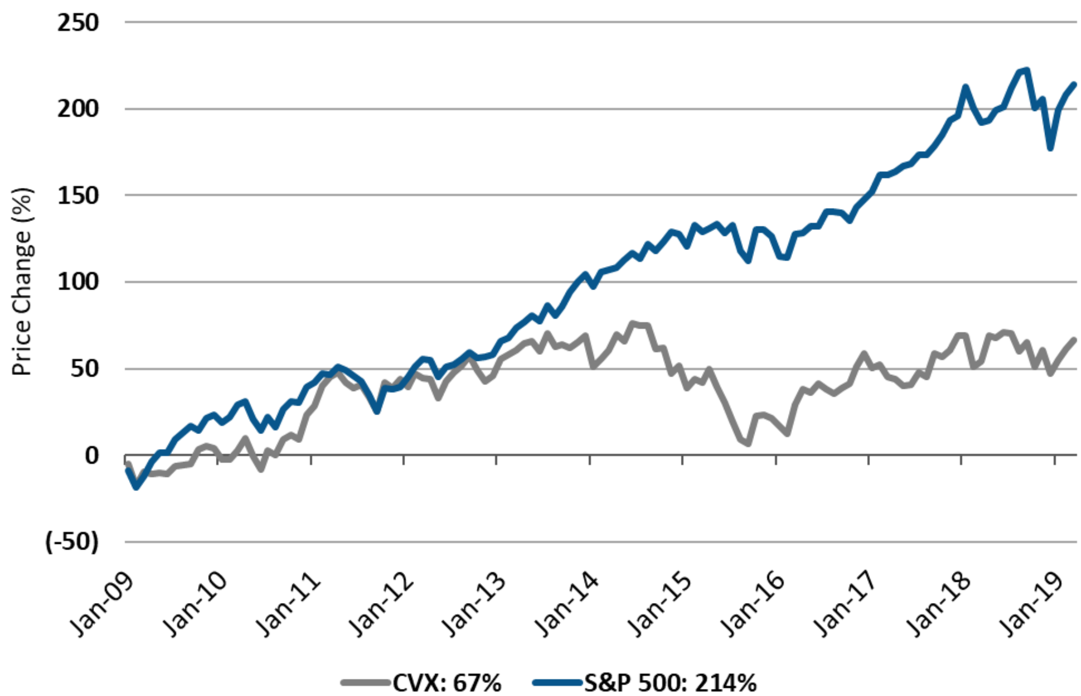
BlackRock held 113 million shares of Chevron on behalf of its investors in January 2009, 4% of Chevron's total outstanding shares. BlackRock's shareholding in the company saw an increase of 12% to 127 million shares by March 2019, taking BlackRock's holding to 7% ownership of the company.

During the given period, the share price increased 67% from US$74 on 31st December 2008 to US$123 on 31st March 2019. However as with ExxonMobil, BlackRock has seen major shareholders' value destruction totaling US$12.3bn through opportunity cost loss due to significant underperformance relative to the market. (Refer to Appendix 2, Figure II.1.)

A 2018 shareholder resolution to require Chevron to set methane emissions reduction targets received 45% support. Without explanation, BlackRock voted against the proposal. With a 6.4% holding at the time, the resolution would have passed if BlackRock had voted in favor.[62]

In April 2019, it was reported that Chevron was one of the top tax avoiders of all multinationals operating in Australia, paying zero Australian corporate tax[63] according to data released by the Australian Tax Office.

Figure 3.2.4: Chevron (Gray) vs. S&P 500 (Blue), Jan. '09 - Mar. '19



Source: S&P Global Market Intelligence.

Royal Dutch Shell

This British-Dutch company has a market capitalization of €226bn (US$253bn) making Royal Dutch Shell the second largest oil and gas company globally.

Commonly known as Shell, the company is vertically integrated and has operations in over 70 countries and has 44,000 service stations worldwide. Shell produced around 3.7mbpd of oil equivalent in 2018.

[62] 50/50 Climate Project. 2018 Asset Manager Climate Scorecard. 2018.
[63] Michael.west.com.au. Australia's Top 40 tax dodgers 2019. March 2019.

SHELL'S MARKET UNDERPERFORMANCE IN THE LAST 10 YEARS & 3 MONTHS has seen BlackRock shareholders' value destruction of €1.8bn (Refer to Appendix 2, Figure II.1). The S&P 500 benchmark index increased 123% over the period,[64] whilst Royal Dutch Shell's share price increased only by 49%.

Meanwhile, BlackRock increased its position by 158% from 134 million shares in January 2009 to 352 million by the end of March 2019. BlackRock's ownership in Shell increased from 4% in January 2009 to 9% in March 2019.

In June 2019, Shell's CEO Ben van Beurden stated:

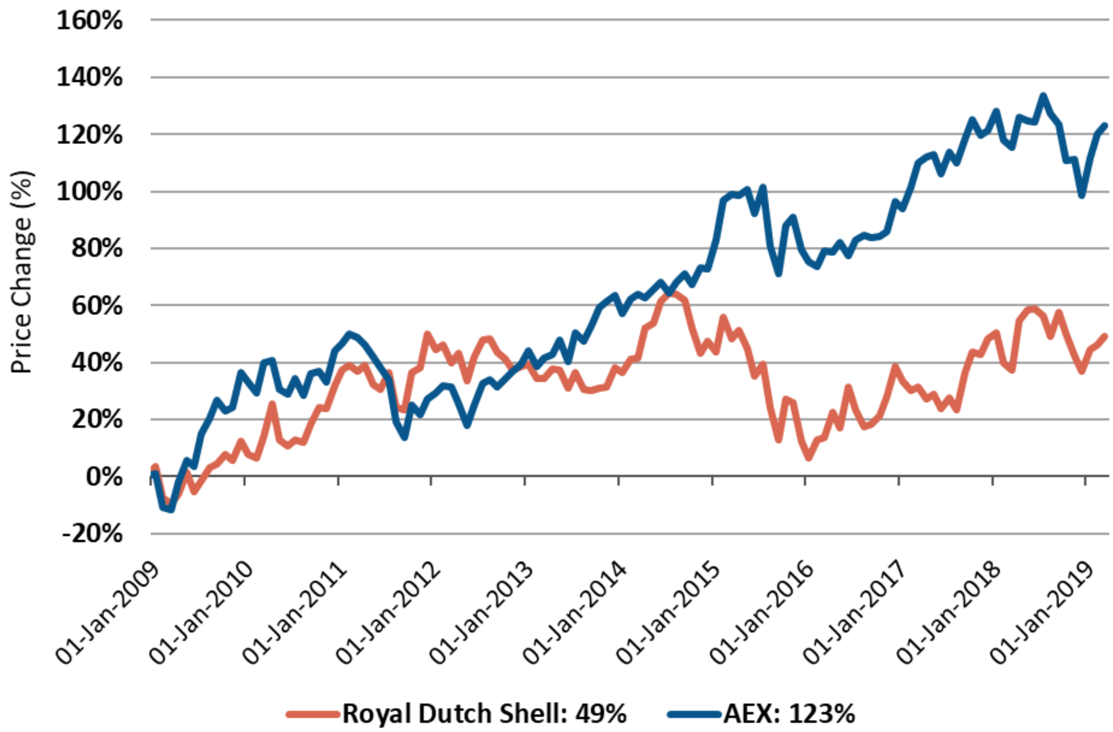
> *"We want to position the company for the future of energy… The world will have to consume its energy much more in the form of low-carbon electricity than it has in the past... we see a tremendous growth opportunity in electricity. We think the power business of the past is going to be disrupted and replaced with something that's much closer to a business that plays to our strengths."*

Van Beurden's referencing of $1.5bn annual investment in new energies needs to be viewed in relation to the company's annual capex of $25-30bn.[65] In this context, 95% of Shell's investment is being used to sustain its current, unsustainable business model which does *not* align with meeting the Paris Agreement goals.

IEEFA remains entirely unconvinced of empty greenwash rhetoric; material actions are what count. However, Shell may actually intend to change this time.

[64] We compare the companies with their benchmark index in their country of domicile.
[65] *Bloomberg*. Shell Promises Significant Increase in Returns to Investors. 4 June 2019.

Figure 3.2.5: Royal Dutch Shell (Orange) vs. Amsterdam Exchange Index, AEX (Blue), Jan. '09 - Mar. '19



Source: Thomson Reuters.

Bloomberg's David Fickling highlighted in June 2019[66] that of all the global oil giants, Shell has been progressively reducing its already low (by industry standards) reserve life.

Having 10 years of reserve life is traditionally considered the minimum for oil giants. Shell crossed below the 10-year level back in 2016, and at the end of 2018, the figure stood at just 8.5 years.

Shell's reserve-replacement ratio, measuring the amount added to reserves in new fields as a percentage of barrels sold during the year, fell to an unsustainable 27% in 2017, then limped up to 53% in 2018. A reserve-replacement ratio of below 100% means oil production is likely to continue to decline.

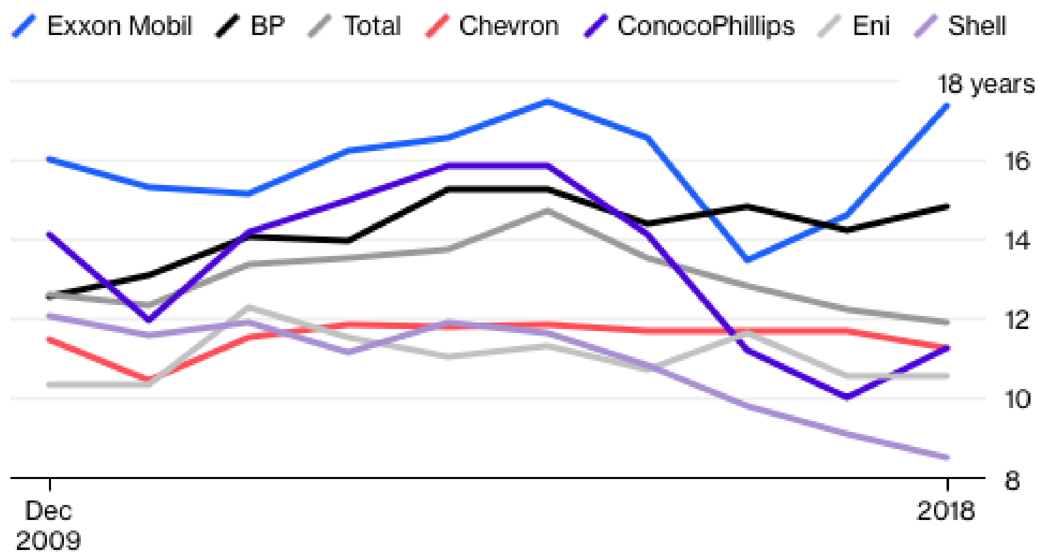
Shell is acting as though it accepts the need to decarbonize and transition to 100% infinite reserve life renewables.

In a likely future where fossil fuel reserves are unusable, stranded assets, Shell is making a few tentative steps towards the idea that it accepts the need to

[66] *Bloomberg*. Sunset for Oil is No Longer Just Talk. 5 June 2019.

decarbonize and transition to 100% infinite reserve life renewables. Against this, Shell still invested $25bn in its core oil & gas business in 2018 alone, so at best, the jury is still out, at worst, this is simply another effort at greenwash.[67]

Figure 3.2.6: Fossil Fuel Reserve Life of Oil Majors



Source: Bloomberg, David Fickling, 5 June 2019.

BP

BP is a British multinational oil and gas giant headquartered in London. It is a vertically integrated company operating in all areas of the oil and gas industry, and it also has some small renewable energy interests. BP has operations in approximately 70 countries and has around 19,000 service stations worldwide.

BLACKROCK HAS INCURRED INVESTOR VALUE DESTRUCTION OF £2.6BN FROM ITS HOLDINGS IN BP during the 10 years & 3 months period. (Refer to Appendix 2, Figure II.1) Its position in BP increased by 103% from 849 million shares in January 2009 to 1,725 million by March 2019, taking total shareholding in BP from 4% to 8% during the same period.

BP's CEO, Bob Dudley in April 2019 claimed he supported carbon pricing. This claim is somewhat undermined given only six months earlier BP funded a lobbying campaign against a ballot for a carbon tax in the U.S. State of Washington.[68]

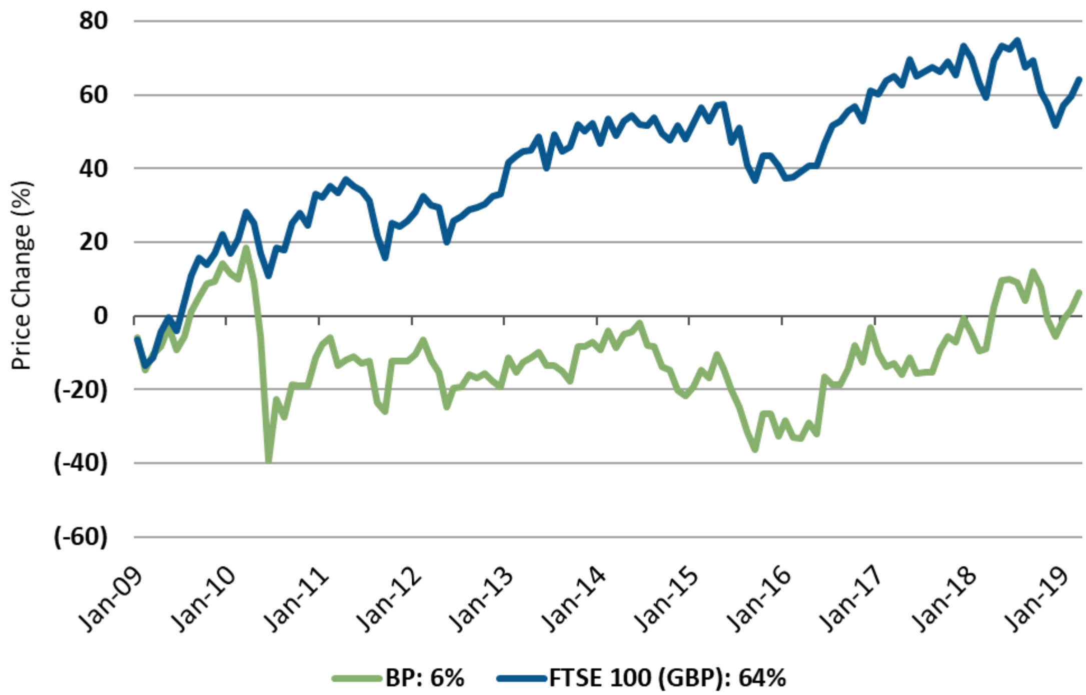
BP is belatedly starting to acknowledge climate risks.

[67] *The Guardian*. Shell is not a green saviour. It's a planetary death machine. 26 June 2019.
[68] *Financial Times*. Time's up for a golden age of corporate greenwashing. 26 May 2019.

However, in the same month, BP accepted a resolution drafted by Climate Action 100+, a group of 300 investors with over $33 trillion in AUM, calling for the company to align its business strategy with the 2015 Paris Agreement. The global accord aims to keep global warming "well below" 2°C. Over 99% of shareholders voted in favor of the resolution.[69]

BP is belatedly starting to acknowledge the climate risks for its exploration and development pipeline, but much of the discussion is predicated on scenarios that assume the Paris Agreement fails.[70]

Figure 3.2.7: BP (Green) vs. FTSE 100 (Blue), Jan. '09 - Mar. '19



Source: S&P Global Market Intelligence.

3.3 Power Utilities – Europe

Power markets are in transition across the globe. Renewables have achieved grid parity with thermal power in an ever-growing number of territories and are only set to become cheaper going forward. Cheap renewable energy is already disrupting major power markets.

With the rise of bidirectional trade of electricity, flexible generation capacities, independent corporate renewable power purchase agreements (PPAs), electric vehicles and smart grid networks, power utilities are forced to change their traditional business models. Rising pressure of emission targets from the global

[69] *CNN Business*, BP resists calls to match Shell's climate change goals, 21 May 2019.
[70] *Bloomberg.* BP Says Some of Its Oil 'Won't See the Light of Day'. 3 July 2019.

community creates the risk of further, ambitious government policy to address emissions.

In this section, we review three of the largest listed European power utilities in which BlackRock has held material shareholdings on behalf of its investors. The continued value destruction at the thermal power dominated E.ON and RWE utilities stands in stark contrast to the outperformance of Spain's Iberdrola, one of the largest investors in renewable energy in Europe. IEEFA has previously written on the leaders and laggards in the global utilities sector.[71]

The stark contrast of investment returns as well as the opportunity cost of market performance seen in the three European utilities provides a good example of how investment returns can be enhanced by divesting from emission-intensive companies at an early stage. IEEFA notes reports that coal use collapsed 40% year-on-year in the June 2019 quarter across Western Europe as the EU ETS pricing of carbon emissions is driving an accelerated transition.[72]

E.ON & RWE

Once amongst the largest utilities in Germany, RWE and E.ON waited too long to adapt to the rapidly changing power generation technology aggressively adopted during Germany's energy transition to renewables (called *energiewende*).

RWE and E.ON have both dramatically restructured after energiewende impacted their coal and nuclear-based electricity generation assets.

Germany has seen wholesale power prices decline significantly over the last decade. Entering 2009, the average wholesale electricity price was €58/MWh. In May 2019, the wholesale price averaged €37/MWh, down 45% in a decade driven largely by the roll-out of domestic renewable energy capacity, and resulting in huge write-downs of electricity generation assets totaling almost €30bn across the market.[73] RWE and E.ON have also been burdened with liabilities arising from the shutdown of nuclear power stations.

While the share price kept declining, BlackRock kept increasing its holdings.

In January 2009, BlackRock held 39 million shares of E.ON which were priced at €24.90 at that time. While the share price kept declining, BlackRock kept increasing its holdings. BlackRock held 192 million shares by March 2019, taking its shareholdings from 2% to 9%. The share price of E.ON had declined by 60%, while the market (the German

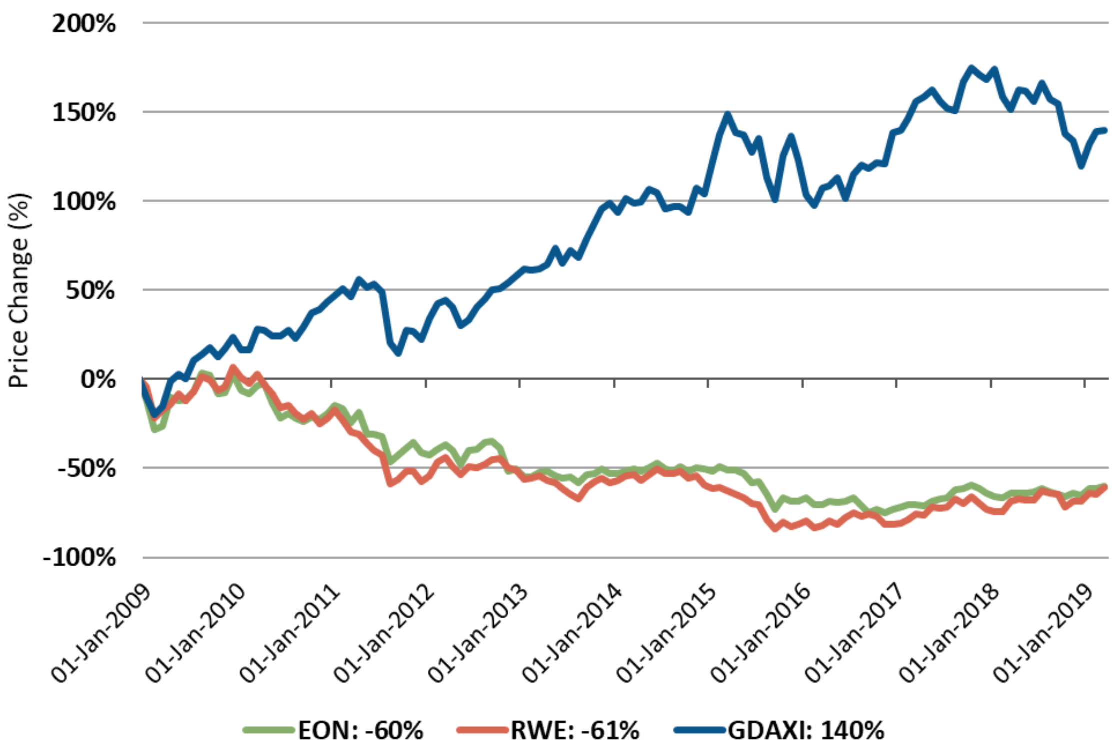
[71] IEEFA. Winners and Losers Among Big Utilities as Renewables Disrupt Markets Across Asia, Europe, the U.S., and Africa. 4 October 2017.
[72] Bloomberg. Coal's Demise Quickens in Europe as Market Shift Idles Plants. 22 July 2019.
[73] *Bloomberg*. Engie Eyes Bid for $19.8 Billion Utility Firm Innogy. 14 March 2017.

Dax) was up 140% at the end of the 10 years & 3 months period under consideration.

BLACKROCK'S HOLDINGS IN E.ON DESTROYED INVESTOR VALUE TO THE TUNE OF €1.9BN during this period. (Refer to Appendix 2, Figure II.2.)

Similarly, in the case of RWE, BlackRock increased its shareholdings from 8 million at the start of the period under consideration to 44 million at the end of it, taking its shareholding from 1% to 8%. Meanwhile its share price declined by 61%, consistently underperforming the market. This cost BlackRock's investors a value loss of €1bn in just over 10 years.

Figure 3.3.1: E.ON (Green) vs. RWE (Orange) vs. Dax Performance Index (Blue), Jan. '09 - Mar. '19



Source: Thomson Reuters.

Iberdrola

In contrast, the Spanish power utility Iberdrola is one of the most progressive utilities in Europe with two-thirds of its total installed capacity coming from renewable energy sources.

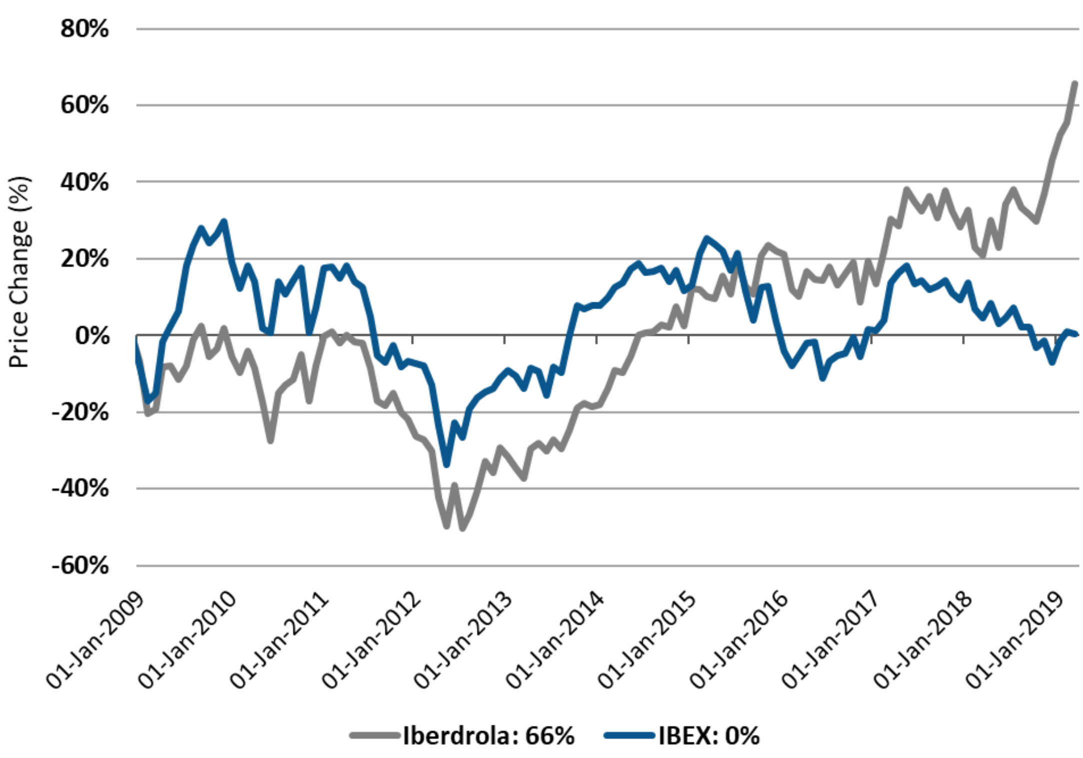
Indeed, in 2017 Iberdrola was part of a group rallying against the European Union (EU) for setting clean energy targets too low. The EU had suggested a target for renewables to meet only 27% of the EU's total consumption by 2030, relative to 16.7% in 2015.[74]

Iberdrola registered a net profit of €3bn in FY2018, a growth of 7% from €2.8bn in FY2017. In 2018, investments in new renewable energy assets contributed 31% of the total new capital investment of €5.2bn.[75]

In contrast to the two laggard German utilities, Iberdrola created shareholder value of €200m in the last 10 years and 3 months.

BlackRock increased its shareholding in the company by 601% from 65 million shares in 2009 to 455 million shares in January 2019, taking its shareholdings from 1% to 7%. Iberdrola's share price outperformed its benchmark by 65% during the same period.

Figure 3.3.2: Iberdrola (Gray) vs. IBEX Composite Index (Blue), Jan. '09 - Mar. '19



Source: Thomson Reuters.

[74] *Financial Times*. European energy groups push EU for tougher climate change goals. 6 November 2017.
[75] Iberdrola. Results Presentation 2018.

3.4 Power Utilities – U.S.

BlackRock's ineffective engagement strategy means it has failed to divest from utilities that are clear, ongoing climate laggards—including Duke Energy and Pacific Gas & Electric.

These utilities have been too slow to respond to the global energy transition and it has severely impacted their profitability relative to utility industry leaders. For BlackRock's investors, divesting this capital into low carbon funds would have been a significantly better value-creating option.

NextEra Energy and Duke Energy

NextEra Energy is currently the world's largest power utility by market capitalization (excluding China's state-owned utilities).

In the bottom quartile of major U.S. utilities, NextEra Energy has grown from a market capitalization of $16bn a decade ago to $90bn as of end March 2019. NextEra Energy operates 51GW of generation capacity out of which 34% is renewable (17GW).

NextEra Energy has been an exemplar of the clean energy transition over the last decade. It is reaping the benefits of being an early and consistent innovator and investor in renewable energy and the associated emerging technologies, like smart meters, rooftop solar and utility-scale batteries.

BY COMPARISON, DUKE ENERGY IS A LAGGING UTILITY IN THE U.S., RESISTING THE DECARBONIZATION AGENDA and suffering ongoing, expanding losses from its legacy fossil fuel-based investments and costly, long-delayed nuclear energy expansions.

A recent study evaluating the U.S.'s largest electricity utilities using 2016 data estimated Duke Energy released 106Mt of carbon emissions, ranking it the largest emitter in the country. Duke Energy's carbon emissions intensity was 968 pounds of carbon dioxide (CO_2) per megawatt hour of electricity generation, more than double that of NextEra Energy.[76]

NextEra Energy has six times more exposure to renewable energy than Duke Energy.

Post the merger with Progress Energy in 2012, Duke Energy was the largest utility in the U.S. both in terms of installed capacity (58GW, principally coal and nuclear) and equity capitalization. Entering 2019, Duke Energy operated 52GW of coal, gas and nuclear capacity, with renewable energy representing just 6% of capacity (3.4GW).

[76] Climate Majority Project. Net-Zero By 2050. February 2019.

NextEra Energy has six times more exposure to renewable energy than Duke Energy. In addition to continuing its world-leading new renewable capacity roll-out, NextEra executed wind repowering of 2.5GW in FY2017/18,[77] a cost-effective model which entails retrofitting depreciated and outdated wind power generation capacity with new technology that augments the generation output of the same site up to tenfold.

DUKE ENERGY'S MARKET CAPITALIZATION IS NOW US$66BN, having trailed both its technology cognizant peer and the U.S. stock market for a decade.

In 2016, the Government Pension Fund of Norway completely divested from Duke Energy. The fund had backed the recommendation of the Norwegian government's Council on Ethics and put Duke Energy in its then-list of 110 companies *not* to invest in going forward.[78] The sovereign wealth fund had owned a 0.62% stake in Duke Energy—worth US$304m—at the end of 2015.

Duke Energy failed to diversify away from its legacy fossil fuel capacity base over time and was responsible for extreme environmental damage.

The Norwegian government's Council on Ethics reported that Duke Energy, for many years, had discharged environmentally harmful substances from a large number of ash basins at coal-fired power plants in North Carolina. Duke Energy had been storing ash slurries in unlined ash basins in the ground, and a large number of those ash basins had been leaking metals and other components into the surrounding area, including drinking water.[79]

Duke Energy failed to diversify away from its legacy fossil fuel capacity base.

> *"The Council also perceives the long-lasting and extensive breaches of the environmental legislation to be a considerable risk factor… given repeated fines for leaks and pollution."* [80]

DUKE ENERGY HAS INCURRED MASSIVE SHAREHOLDER WEALTH DESTRUCTION over its historic failure to deal appropriately with its environmental remediation obligations to the communities in which it operates.

In April 2019, the North Carolina Department of Environmental Quality (DEQ) ordered the closure and full excavation of all Duke Energy's coal ash ponds. The DEQ concluded that Duke Energy's cap-in-place closure methods were not an effective and safe way to store coal ash, with the ponds giving rise to ground water

[77] NextEra Energy Corp. March 2019 Investor Presentation. 2019.
[78] Norway's Council on Ethics, Recommendations to exclude Duke Energy from the Government Pension Fund Global, April 25, 2016.
[79] IEEFA, Coal ash clean up could cost Duke's N.C. Customers $5 billion, 9 July 2018.
[80] IEEFA, Coal ash clean up could cost Duke's N.C. Customers $5 billion, 9 July 2018.

contamination from ongoing leeching, and knowingly causing extreme health consequences for communities downriver, particularly in times of flooding.

Duke Energy has estimated its failure to adequately deal with 147Mst (million short tons) of toxic coal ash the first time around is set to cost shareholders and its insurers US$7bn.[81] [82]

In April 2019, Duke Energy tendered out 602 megawatts (MW) of solar, achieving average costs of US$37/megawatt hour (MWh) in North Carolina and just US$31/MWh for solar in South Carolina. These tenders were required as part of complying with the two states' renewable energy targets. Duke Energy estimated consumer avoided costs of US$375m over the projects' 20-year contract period, highlighting the obvious benefits of deflationary renewable energy.[83]

BLACKROCK INCREASED ITS SHAREHOLDINGS IN NEXTERA by 46%, from 25 million shares in January 2009 to 37 million in January 2019, taking its shareholding from 6% to 8%.

NextEra's share price during the 10 years & 3 months period increased 284% from US$50 to US$193, outperforming the S&P 500's rise of 214%. In this case, BlackRock's holdings in NextEra created additional value of US$894m on top of the market performance during the same period. (Refer to Appendix II, Figure II.3)

BlackRock's decision to place a largely equivalent investment stake in the fossil fuel focused Duke Energy to that of NextEra Energy has resulted in an opportunity cost for investors value of some US$992m over the last decade (Refer to Appendix II, Figure II.3).

While Duke Energy's share price rose 100% between January 2009 to March 2019, it has significantly underperformed in the market, which rose 214% during the same period. BlackRock, meanwhile, increased its shareholdings in the company by 157% over that time, taking its shareholding from 5% to 7%.

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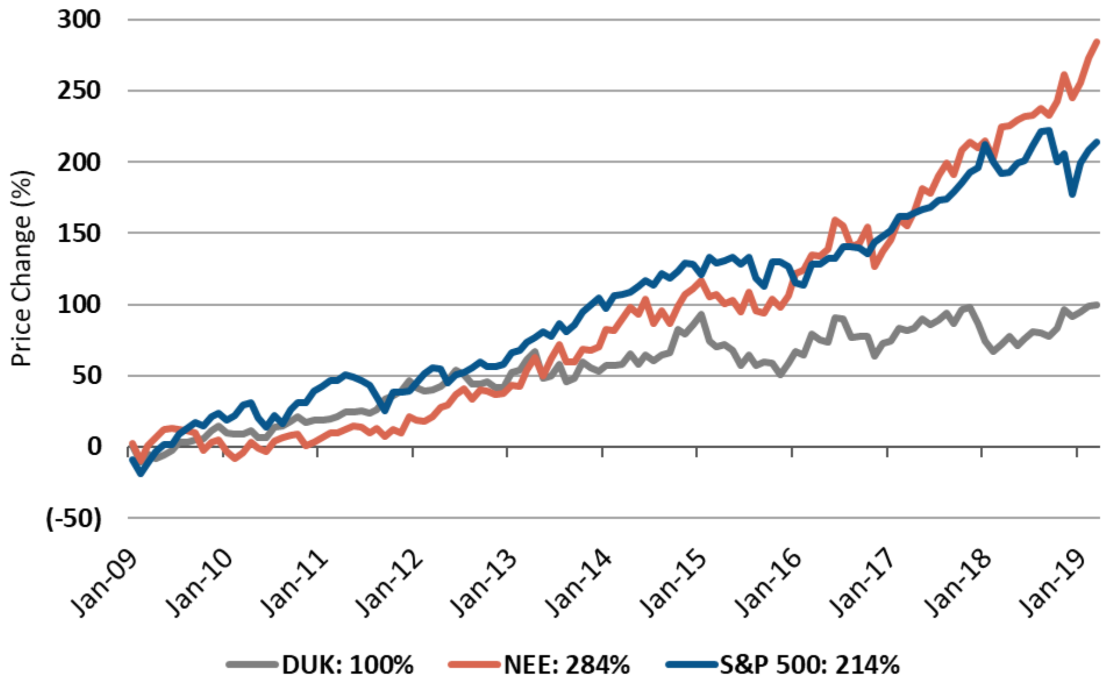
81 Utility Dive, Duke to resist North Carolina DEQ's 'disruptive' and 'expensive' coal ash excavation order, April 12, 2019.
82 Duke Energy, FOURTH QUARTER 2018 Duke Energy Earnings Review & Business Update, 14 February 2019.
83 *Greentech Media*. Duke Energy Contracts for 602MW of Solar in North Carolina—Nearly Half of It From Itself. 17 April 2019.

Figure 3.4.1: NextEra (Orange) vs. Duke (Gray) vs. S&P 500 (Blue), Jan. '09 - Mar. '19



Source: S&P Global Market Intelligence.

Pacific Gas & Electric (PG&E)

In January 2019, the Californian utility giant Pacific Gas & Electric (PG&E) filed for Chapter 11 bankruptcy due to well over $20bn in potential liabilities associated with the Californian wildfires started by its equipment faults—what the Wall Street Journal called "The first climate-change bankruptcy."

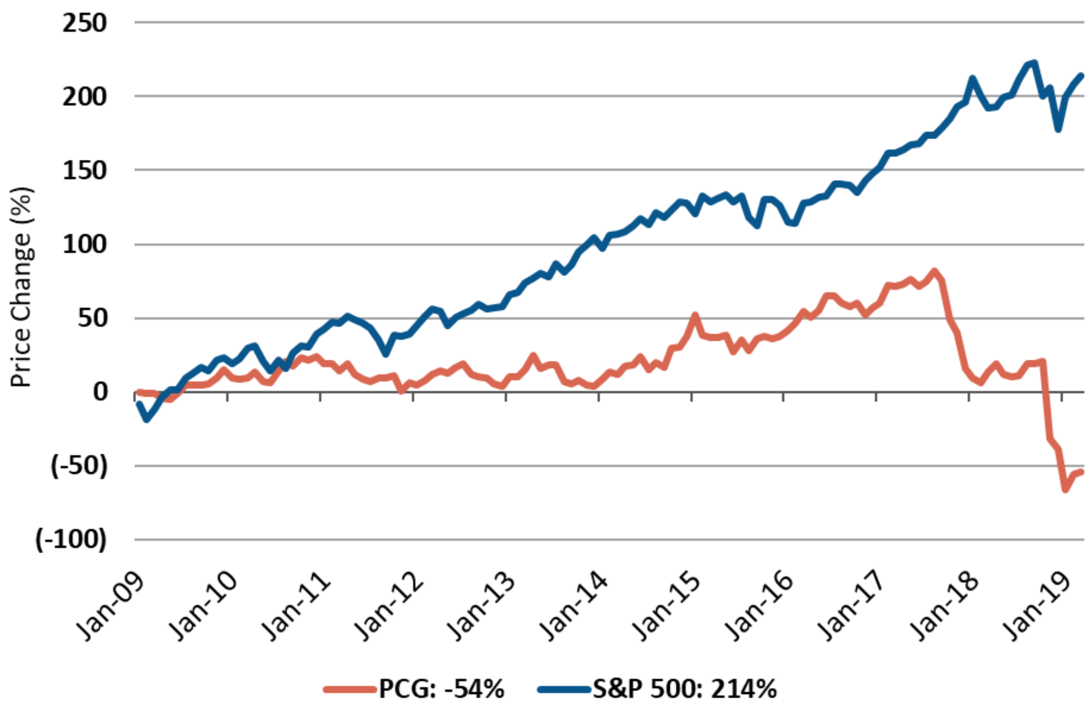
PG&E had accepted the science of climate change and actively invested in low emissions generation—from wind and solar, to smart meters and battery storage, and had concurrently worked to reduce fire risks by shoring up power lines and trimming millions of trees. But the company's equipment kept setting fires—about 1,550 between mid-2014 through 2017.

In December 2018, BlackRock was the second largest shareholder with 9%, then it decided to cut its losses in early 2019.

During the period between January 2009 to March 2019, PG&E saw a share price decline of 54% whilst the S&P 500 was up by 214%. BlackRock owned a 5% stake in the company in January 2009. The value destruction for BlackRock's investees in PG&E's case during this period amounts to US$1.72bn. However, this is an underestimation as BlackRock reduced its position in PG&E between December 2018 and March 2019 from 9% to 2% of the total outstanding shares.

The implications of BlackRock's decision to divest from PG&E affected the equity investors, PG&E bond holders, as well as those invested in Southern California Edison and San Diego Gas & Electric. They all faced credit downgrades and are on the verge of being cut to junk status.[84]

Figure 3.4.2: PG&E (Orange) vs. S&P 500 (Blue), Jan. '09 - Mar. '19



Source: S&P Global Market Intelligence.

3.5 Asian Utilities

BlackRock's shareholdings in major Asian electricity utilities are relatively immaterial as most are state-owned. Therefore, the shareholder value loss for BlackRock's investees is relatively insignificant. However, BlackRock's expanding role in Asia and the firm's increasing shareholding in these utilities, despite their dismal financial performance, is a worrying sign.

Chubu Electric

Chubu Electric is Japan's top electric utility with market capitalization of US$10.4bn. A total of 85% of its generation capacity is thermal-based.

In the aftermath of the Fukushima nuclear disaster in 2011, the top Japanese utilities have continually lost market share to new entrants due to requirements

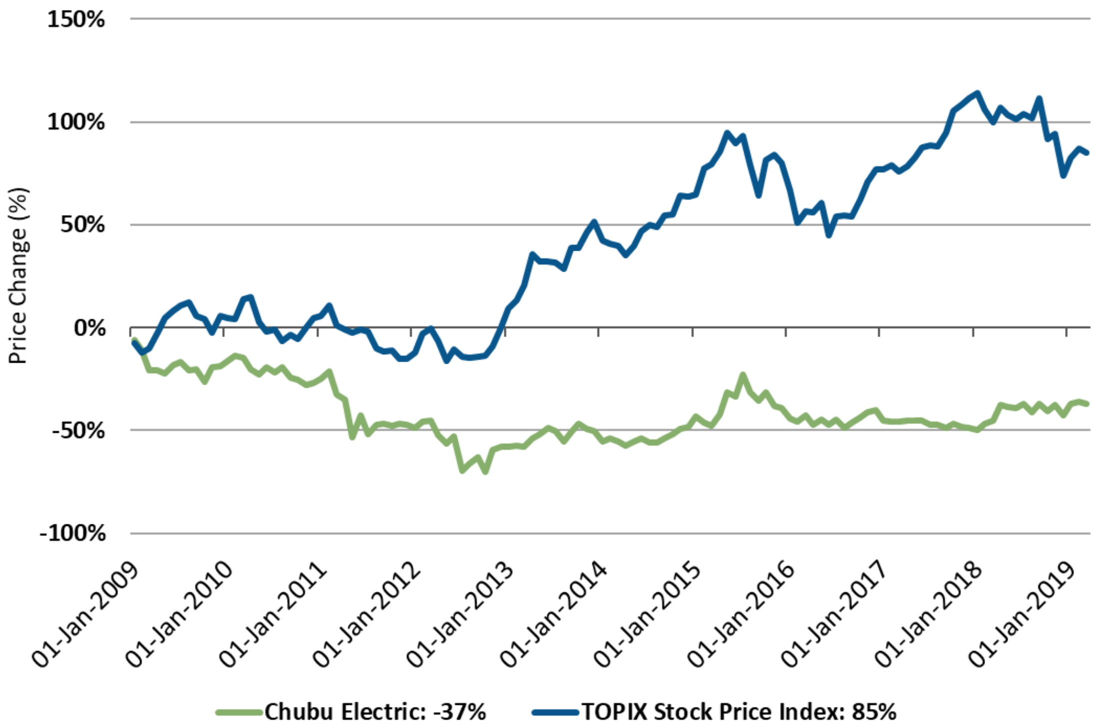
[84] *Greentech Media*. California Lawmakers Grapple With Risks and Uncertainties of PG&E's Bankruptcy. 11 March 2019.

including costly safety upgrades and high fuel costs.[85] Chubu Electric's electricity trade volumes have stagnated since 2010, at 121.8 terawatt hour (TWh) in 2018.

BlackRock increased its position in Chubu Electric from 6.5 million to 14.2 million shares making itself a 4% stakeholder in the company. Over the same period, Chubu's share price dropped by 37% while the Tokyo Stock Exchange rose 85%.

BlackRock's increasing position in Chubu Electric has incurred a value loss of JP¥21,679m (US$199m) to its investors.

Figure 3.5.1: Chubu Electric (Green) vs. Tokyo Stock Exchange (Blue), Jan. '09 - Mar. '19



Source: Thomson Reuters.

China Light & Power (CLP) Holdings

CLP Holdings is one of the top two electric utilities, with a market capitalization of US$28.2bn, on the Hong Kong Stock Exchange. In addition to Hong Kong, CLP has a presence in Mainland China, India, Australia, Taiwan and other Southeast Asian countries. In Hong Kong, CLP operates a vertically-integrated regulated power business.

Hong Kong has a duopoly of CLP and Hong Kong Electric, regulated by a framework —or "scheme of control"—under which both must provide a steady supply of

[85] *Reuters*. Japan's top power utilities see power sales decline. 27 April 2018.

electricity at agreed prices. In exchange, the two suppliers are permitted guaranteed earnings of 9.99% of their average net fixed assets—a highly protected business regime.

BlackRock increased its position in CLP by 251% from 32.8 million in January 2009, to 115.2 million shares at the end of March 2019. Its share price gained 73% while the market rose by 85%. This amounts to a shareholder opportunity cost of HK$211m (US$27m) during the same period for BlackRock's investees.

Korea Electric Power Corporation (KEPCO)

KEPCO is South Korea's largest electric utility. As of the end of 2017, the government, directly or through Korea Development Bank, owns a 51% stake in the company and the National Pension Service, another financial institution controlled by the Korean Government holds 5.7% of KEPCO shares.

KEPCO's power generation capacity of 121GW is dominated by nuclear (21%) and thermal (60%), with the remaining from hydro (10%) and renewables (9%).[86] KEPCO plans to grow its generation capacity to 174GW by 2030, with the renewables share growing to 20% of the mix. 7.3GW of new coal-fired power plants are under construction in Korea, among which 5.2 GW are partly owned by KEPCO subsidiaries.

KEPCO is going through turbulent transition.

KEPCO is going through turbulent transition due to technological innovations in the power sector, deteriorating public opinion against coal fired-power and a South Korean government imposed nuclear-free energy policy.[87] The utility has recently experienced poor business performance with three consecutive loss-making quarters in 2018.[88] KEPCO as the nation's only authorized retail power seller, purchases almost all its power at spot price. Although part of those spot payments are adjusted to make the utilities' margins low, the level of the power market spot price significantly affects the financial situation of KEPCO. Lower nuclear fleet utilization rates and an increase in global fuel prices means that the spot market price of power increases and KEPCO is paying more for wholesale power.

In sum, the nuclear-dependent utility has suffered a severe underperformance with respect to its domestic market. Despite this, BlackRock increased its position in KEPCO from 2 million shares in January 2009 to 9 million shares at the end of March 2019, making BlackRock a 1.4% owner of its total stock. During the same period, the

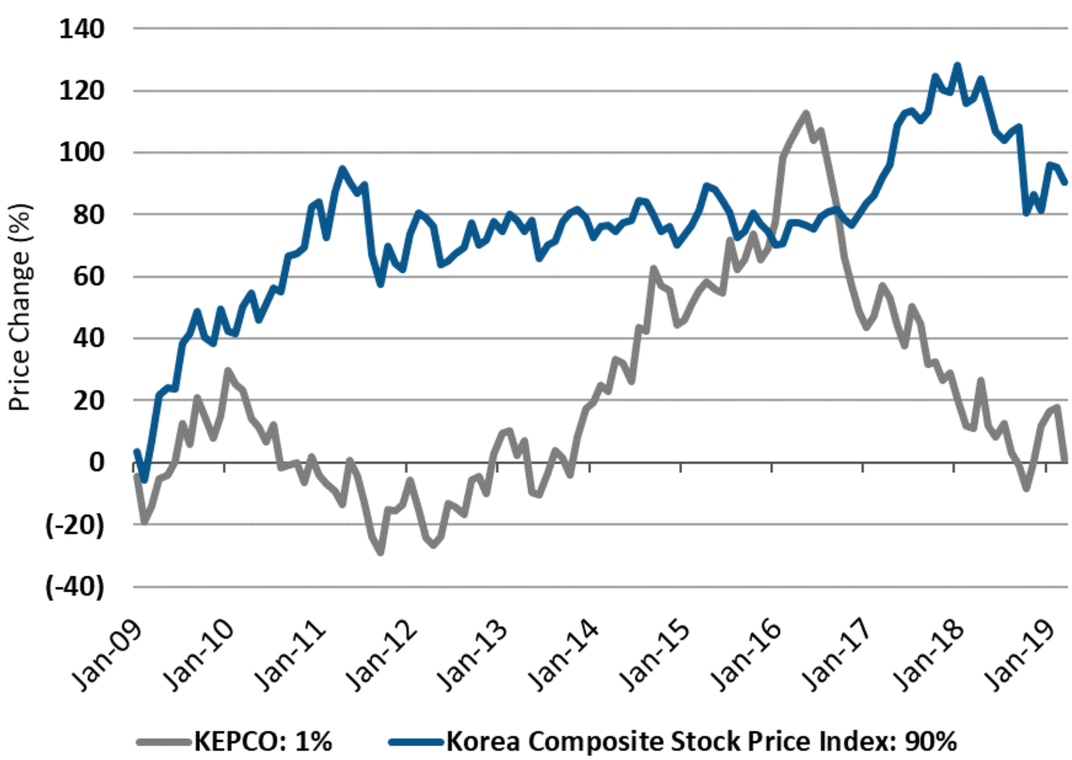
[86] KEPCO. Investor presentation, March 2019.
[87] *Reuters*. South Korea's nuclear reactor surge to hamper Moon's renewable push. 29 November 2017.
[88] *Business Korea*. KEPCO suffers huge losses as a result of nuclear-free energy policy. 17 August 2018.

company's share prices gained only 1% while the Korea SE KOSPI Index rose 90%.

BlackRock's position in the company has a shareholder opportunity cost of KRW56,575m (US$48m) for its investees.

In contrast to BlackRock's approach, Legal & General Investment Management (LGIM U.K.) has rated KEPCO as the lowest-scoring firm in the global utility sector, both for its strategy and lack of preparedness for a low carbon economy, as well as board composition, and that attempts to engage with KEPCO had been rebuffed. LGIM has announced plans to divest KEPCO from its Future World fund in June 2019.[89]

Figure 3.5.2: KEPCO (Gray) vs. Korea SE KOSPI Index (Blue), Jan. '09 - Mar. '19



Source: S&P Global Market Intelligence.

We also reviewed some of Asia's other utilities, including China's Huaneng Power International (CHNG) and NTPC of India, two of the largest utilities in their respective home countries as well as in Asia overall. Both of these giant power companies have seen significant market underperformance, with CHNG's share price going down by 5% and NTPC's share price declining by 3%, whilst their

[89] *Nikkei*. Japan and South Korea lag on climate action: UK asset manager. 23 June 2019.

benchmarks have grown by 70% and 293% respectively between January 2009 and March 2019 (Refer to Appendix II, figure II.4).

Indian power utilities, just like European utilities, have been in massive financial distress with a cumulative debt of a staggering US$40bn (the balance of US$60bn of the US$100bn of stranded assets come from coal- and gas-fired generation assets).

India overestimated demand growth and under-estimated the benefits of energy efficiency technologies. As a result, they over-built thermal power capacity, compounding India's thermal sector stress. Structural challenges in India's rail network and coal mining industry hastened the losses.

Today, it is no coincidence that India is a world leader in deploying renewable energy projects that are today generating electricity at 20% below grid parity. To IEEFA, India is illustrative of the likely losses still to come in other markets as grid parity is reached (China is set to reach grid parity by 2020).

3.6 Thermal Coal Mining

In May 2017, Jim Barry, the global head of BlackRock's infrastructure investment group, stated, "Coal is dead. That's not to say all the coal plants are going to shut tomorrow. But anyone who's looking to take beyond a 10-year view on coal is gambling very significantly." Barry noted that thermal coal's outlook is one of terminal decline owing to ever-improving cost competitiveness offered by renewable energy sources globally.[90]

In direct contradiction of this, a report published by Urgewald in 2018 identified BlackRock as the number one investor in coal-fired power plants around the world with US$11bn invested in 56 coal plant developers.[91]

IEEFA finds that BlackRock continues to hold shareholding positions in companies with no clear acceptance of the stranded asset risks of climate change nor any visible plan to divest or diversify into lower cost zero emissions generation capacity.

BLACKROCK HAS ALSO SHOWN NO OBVIOUS SUCCESS IN INFLUENCING COMPANIES TO STOP CLIMATE DENIALISM and to act in the interests of shareholders on the globally critical issue of climate risk.

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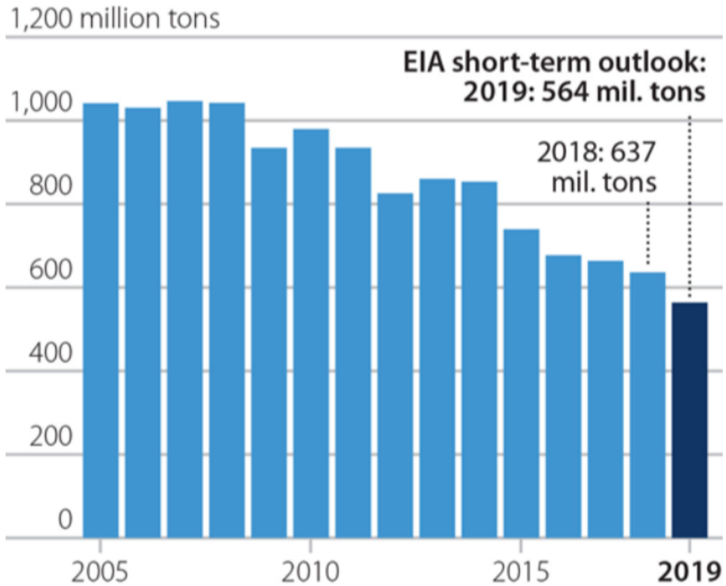
[90] *Financial Review*. BlackRock says coal is dead as it eyes renewable power splurge. 26 May 2017.
[91] Urgewald. New Research Reveals the Banks and Investors Financing the Expansion of the Global Coal Plant Fleet. 2018.

Figure 3.6.1: U.S. Coal Consumption for Electricity Generation, 2005-2019



Source: Energy Information Administration (STEO, March 2019).

The global energy transition to lower cost, zero emission renewable energy has continued to undermine the capital value of the global thermal coal mining industry, particularly in the U.S. Yet BlackRock has been a leading investor in those thermal coal mining firms most exposed, doubling down on investments despite the terminal outlook should the world collectively act to address growing climate risks.

In December 2018, BlackRock was reported by InfluenceMap as the largest investor in the world in terms of its fossil fuel holdings, in addition to having the highest exposure to thermal coal of the top 15 global investors.[92] (See Figure 3.6.2.)[93]

[92] InfluenceMap. Who Owns the World's Fossil Fuels? December 2018.
[93] Figure 3.6.2 details InfluenceMap's finding that BlackRock has the highest thermal coal intensity (TCI) metric, defined as the tonnage of thermal coal held per dollar million of AUM, which allows for the like-for-like comparison. BlackRock's passively managed funds had an exposure twice the level evident in BlackRock's actively managed funds.

Figure 3.6.2: Thermal Coal Intensity of the Largest Fund Managers

Source: InfluenceMap, Who Owns the World's Fossil Fuel?, December 2018.

Peabody Energy

Peabody Energy is a U.S. coal mining company with operations in the U.S. and Australia.

It once had a market value of over US$18bn in 2011. There onwards, the share price fell 100% by the time Peabody Energy filed for bankruptcy in 2016. It is one of more than 50 U.S. coal mining companies to have filed for bankruptcy since 2012.[94]

Peabody Energy is one of more than 50 U.S. coal mining companies to have filed for bankruptcy since 2012.

PEABODY ENERGY FAILED TO FORESEE THE IMPACT OF CHEAPENING GAS AND RENEWABLE ENERGY ON COAL DEMAND GLOBALLY and especially in the U.S. (Figure 3.6.3). The outlook for thermal coal in the U.S. continues to look grim[95] with production of coal in the first quarter of 2019 (1Q2019) down 9% year-on-year.[96]

Rather than seeing the risks in climate change and the opportunities in alternative technologies, Peabody Energy instead borrowed billions, leveraging up at the top of the commodity cycle to acquire coal mining companies, while also investing in new

[94] SNL. Update: 'End of an Era': Arch joins list of nearly 50 coal bankruptcies since 2012. 11 January 2016.
[95] IEEFA. Coal Outlook 2019: Domestic Market Decline Continues. 26 March 2019.
[96] US Energy Information Administration (EIA). Coal. 7 May 2019.

mine developments in preparation for its entirely mistaken expectation of increasing global thermal coal demand.[97] As gas and ever lower cost renewables grew as competitors to thermal coal, demand fell in domestic and overseas markets.

In the end, Peabody Energy could not generate enough cash to service its debts or pay its worker pension entitlements.

Figure 3.6.3: Peabody Share Price Performance 2010-2015

Source: Financial Times, Thomson Reuters.

In 2011, BlackRock was Peabody's top shareholder with 2 million shares (adjusted for Peabody's 2015 1-for-15 reverse stock split), totaling 11% of Peabody's total common shares.[98]

The share price fell 95% between January 2011 and July 2015.

As a result, BlackRock's investment saw a value loss of US$2.3bn in just four and a half years (Refer to Appendix II, Figure II.4).[99] The shareholder value loss could have been even worse, if BlackRock had not reduced its position in the company from 2

[97] *Mining.com*. Peabody Energy completes acquisition of Macarthur Coal. 20 December 2011.
[98] IEEFA notes our analysis of BlackRock's shareholding and hence total loss may be incorrect, given Peabody's bankruptcy meant our access to Peabody annual reports was limited.
[99] The calculations are based on shareholder information available until July 2016 based on SEC filings by the company.

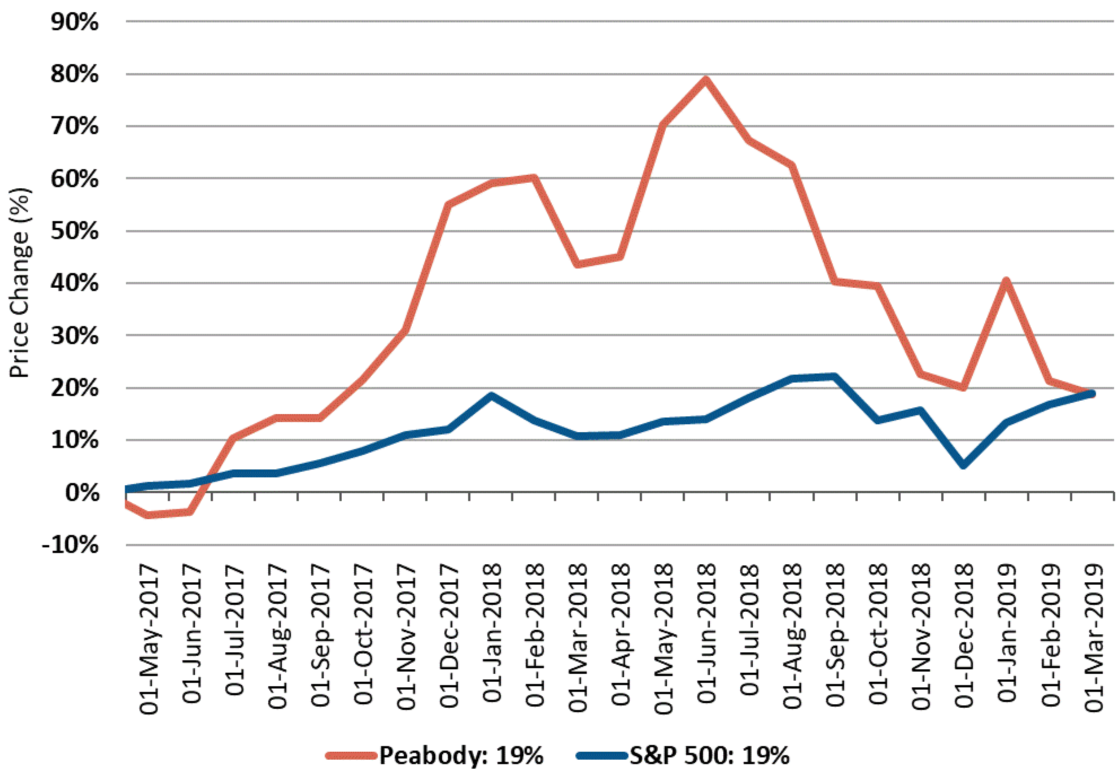
million shares to 1.2 million shares during this period, taking its shareholding from 11% to 6%.[100]

In addition to shareholders' losses, Peabody Energy's coal mining workforce also lost out. A US$75m deal struck between the company and the mine workers union retirement plan was far below the US$643m that had been sought.

IEEFA would note that the board entirely funded a massive senior executive and board member pension plan, but left a separate workers' pension plan with almost zero funds. This was an abject failure of corporate governance in plain sight, however BlackRock's shareholder engagement failed to detect nor act on this inconsistency. Such behavior appears to contradict BlackRock CEO Larry Fink's call for companies to make a "positive contribution to society"[101] and we could find no evidence of BlackRock's engagement strategy having a positive impact.

Since Peabody Energy's stock began trading again in April 2017 following its bankruptcy and restructuring, it has continued to underperform the market (Figure 3.6.4).

Figure 3.6.4: Peabody (Orange) vs. S&P 500 (Blue), May '17 - May '19



Source: Thomson Reuters.

[100] United States Securities and Exchange Commission. Peabody Energy Schedule 14 A. 2011.
[101] BlackRock. Larry Fink's Letter to CEOs: A Sense of Purpose. January 2018.

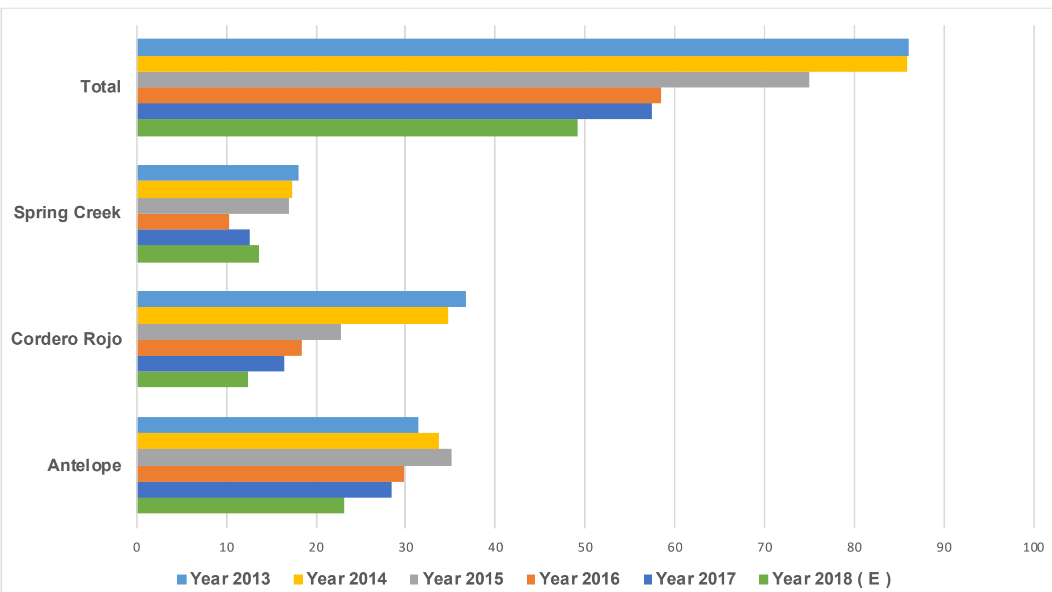
Cloud Peak Energy

U.S. coal miner Cloud Peak Energy filed for chapter 11 bankruptcy in May 2019.[102] The coal miner had failed to make interest payments of US$17.4m, despite being granted extensions on the interest payment.[103]

Cloud Peak Energy's three mines had been experiencing progressively declining production from 2013 (Figure 3.6.5). Its exports-orientated Spring Creek Mine saw a slight production increase in 2017 and in 2018 according to estimates as thermal coal exports from the U.S. picked up in a period of higher international coal prices. However, this was too little to offset the decline in its domestic market orientated mines—Cordero Rojo and Antelope.

Adding to this, U.S. thermal coal exports are likely to have already peaked in 2018/19 and are set to trend downwards as destinations like Europe and India continue to reduce thermal coal imports.[104]

Figure 3.6.5: Cloud Peak Mine-wise Production from 2013



Source: Cloud Peak Energy.
Note: 2018 numbers are estimated based on first three quarters' production numbers.

Blackrock's holding in Cloud Peak Energy has seen a value loss of US$199m between January 2011 and March 2019 (BlackRock did not have a material position pre-2011 in Cloud Peak).

BlackRock increased its holdings in Cloud Peak Energy from 4 million shares in January 2011 to 10.5 million shares in January 2019, an increase of 163%, taking its

[102] *The Intercept*. A major coal company went bust. 17 May 2019.
[103] *S&P Platts*. US coal miner Cloud Peak receives second debt extension, payment due by May 1 or faces default. 15 April 2019.
[104] IEEFA. Coal Outlook 2019: Domestic Market Decline Continues. 26 March 2019.

shareholding from 7% to 14% of the company, while its share price fell 98% from US$22.50 to US$0.40 during the same period.

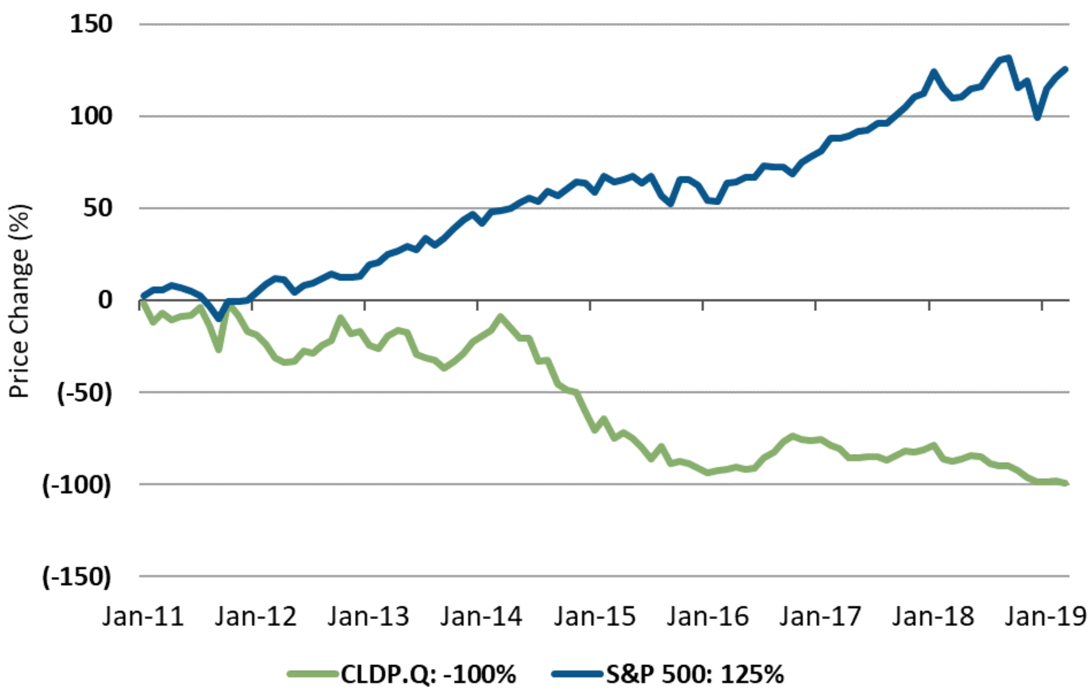
BlackRock then sold off its entire stake in the company in March 2019. However, this was too late, as it had already cost BlackRock's investors a considerable amount of value. (Refer to Appendix II, Figure II.5)

IEEFA notes BlackRock's preference for engaging privately with Cloud Peak Energy on issues of governance and the social license to operate does *not* seem to have been very effective, nor did it protect BlackRock clients.

Court disclosures following the company's filing for chapter 11 bankruptcy show Cloud Peak Energy was busy funding climate denialists like the "Center for Consumer Freedom," "Americans for Prosperity" and the "Montana Policy Institute," plus fossil fuel lobbyists like the "American Legislative Exchange Council" that promotes scientific uncertainty over climate change.[105]

Responsible investors have increasingly been holding those firms to account that claim to accept the Paris Agreement.

Figure 3.6.6: Cloud Peak (Green) vs. S&P 500 (Blue), Jan. '11 - Mar. '19



Source: S&P Global Market Intelligence.

[105] *The Intercept*. A major coal company went bust. Its bankruptcy filing shows that it was funding climate change denialism. 16 May 2019.

Responsible investors have increasingly been holding those firms to account that claim to accept the Paris Agreement. For instance, Rio Tinto has been active in divesting its entire exposure to coal over the last five years and is now also warning trade associations that its ongoing membership requires active alignment "consistent with our own public position and the Paris Agreement."[106]

IEEFA notes that six of the ten largest U.S. coal companies have gone bankrupt since 2014.

Further, one month after Cloud Peak Energy went bankrupt, coal company Blackjewel LLC filed for Chapter 11,[107] impacting another 1,700 workers[108] and leaving US$500-1,000m of bad debts.

IEEFA notes company engagement has failed to protect investors, it has failed to protect communities and workers, and it has permitted these firms to continue to fund climate denialists.

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[106] *The Guardian*. Rio Tinto ready to quit Minerals Council if it doesn't support Paris climate targets. 12 April 2019.
[107] *S&P Global*. Blackjewel 'liquidity crisis' continues as financing deal falls apart. 2 July 2019.
[108] *Voice of America*. Another Coal Company Bankruptcy Leaves 1,700 Workers Facing Layoffs. 5 July 2019.

4. Major Financial Institutions Pivot

114 globally significant financial institutions have divested from thermal coal, including 45% of the top 40 global banks and 24 globally significant insurers. Investors are increasingly aware that global thermal coal forecasts are terminal, with renewables inevitably emerging as the low-cost economic solution. Renewable technology and financials have moved on, and climate-energy policy shifts are on the upswing. There are growing concerns over the increasing risks of stranded assets and environmental costs in the thermal coal power industry. BlackRock has yet to heed these concerns of its investors.

A significant number of global financial institutions have begun to pivot away from fossil fuels with coal facing the greatest impact to date.

As of June 2019, 114 globally significant financial institutions have divested from thermal coal, including 45% of the top 40 global banks and 24 globally significant insurers.[109]

Since January 2018, a bank or insurer have announced their divestment from coal mining and/or coal-fired power plants every month, and a financial institution who had previously announced a divestment/exclusion policy tightened up their policy to remove loopholes, every two weeks.

New announcements have accelerated to one every week in 2019. Global capital is fleeing the thermal coal sector—this is no passing fad.

Global capital is fleeing the thermal coal sector—this is no passing fad.

When the World Bank Group moved to exit coal in 2013, the ball started rolling. Following this, Axa and Allianz become the first global insurers to restrict coal insurance and investment respectively in 2015, and their policies have subsequently been materially enhanced.

Next, some 35 export credit agencies (ECA's) released a joint statement agreeing to new rules restricting coal power lending. In the same year, the China-led Asian Infrastructure Investment Bank trumpeted its global green credentials with the Chairman confirming the Bank was 'in practice' ruling out finance for coal-fired power plants.

One of the strongest moves in 2015 came when the world's second largest sovereign wealth fund based in Norway (US$1 trillion) stepped up its exclusion criteria and started divesting from coal.

When such a significant investor acts, global momentum increases.

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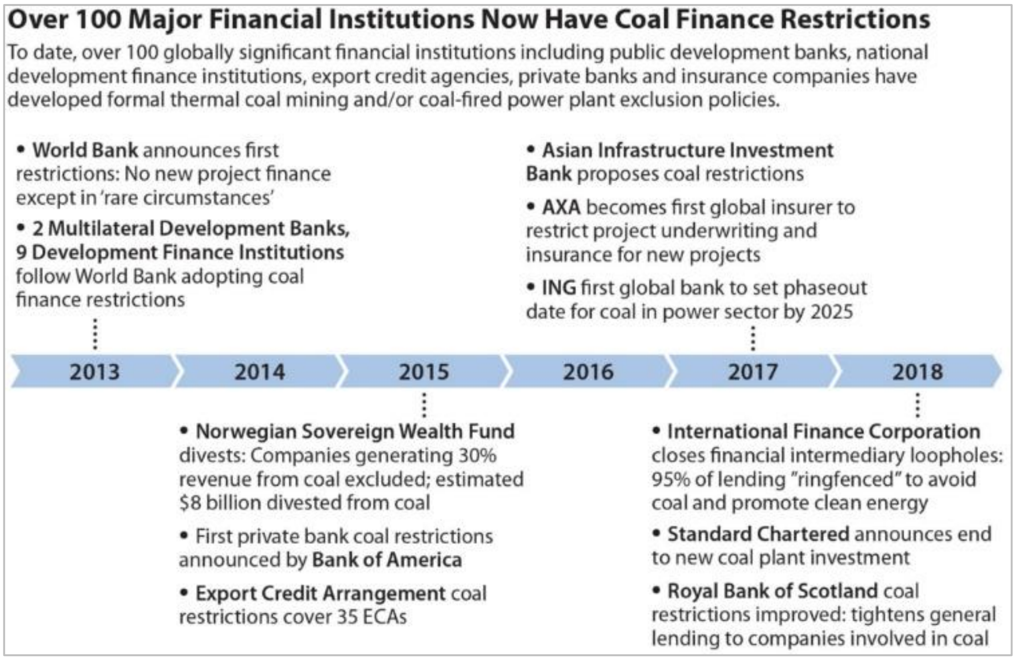
[109] IEEFA. Over 100 Global Financial Institutions Are Existing Coal, With More to Come. 26 February 2019.

Figure 4.1: Global Coal Finance Restriction Momentum is Building



Source: IEEFA.

In April 2019, Norway proposed a step-up of its restrictions on coal by adding absolute caps on thermal coal production or coal-fired power generation, which would see the fund divest from companies such as Glencore and RWE. It also proposed that the fund would be able to invest in unlisted renewable energy infrastructure for the first time.

The fund would be able to invest in unlisted renewable energy infrastructure for the first time.

In May 2018, Dai-ichi Life of Japan issued a new policy announcing it would no longer insure coal. Soon after, Sumitomo Mitsui Trust Bank ruled out coal-fired power plant lending. In September 2018, Standard Chartered announced the end of lending for new coal plants, anywhere in the world.

To close the year 2018, some 415 global investors managing a collective US$32 trillion called for a complete thermal coal phase-out by 2030 across the OECD.

By the start of 2019, over 30 global banks had ceased project financing for thermal coal mines and/or coal-fired power plants worldwide, without geographic loopholes.

The procession away from coal did *not* end there.

In January 2019 GMO founder Jeremy Grantham stated thermal coal is "dead meat."[110] During that month, Export Development Canada (EDC) and Barclays both announced their exit from coal project finance, with EDC's commitment comprising all thermal coal infrastructure, including ports and rail links.

Also in January, Varma of Finland announced its cessation from investing in coal while Nedbank of South Africa withdrew financing for two major coal-fired power plant projects in South Africa. In February 2019, VIG of Austria ceased coal insurance.

In March 2019, five globally significant financial institutions—one leading Chinese financier, two European insurers, one Australian insurer and one French asset manager—brought in new restrictions on thermal coal financing, insurance and/or investments.[111] BNP Paribas of France excluded thermal coal in its funds management business whilst two major European insurers, UNIQA of Austria and MAPFRE of Spain, excluded coal.

Also in March, Australian insurer QBE, the most significant coal insurer in Australia which is itself the world's second largest thermal coal exporter, made its move away from coal, no longer insuring new thermal coal mines and coal-fired power plants as of 1st July 2019, and ceasing its thermal coal underwriting business by 2030.[112]

Then, the State Development & Investment Corporation (SDIC) became the first major domestic Chinese financial institution to exit coal. SDIC is the largest Chinese investment holding company with US$1.5 trillion assets under management. Over the last decade, coal-related investments have been one of SDIC's leading profit contributors.

In April 2019, the Chairman of SDIC stated the corporation had accelerated its 2016/17 five-year plan to exit coal in order to align with national energy structure adjustment measures. It planned to redeploy capital into growth areas of new energy, including renewable energy, energy storage and biofuels. SDIC has now finalized its complete withdrawal from the coal industry and will no longer invest in thermal power plants.

During April 2019, the wave of financial institutions leaving coal behind continued.

During April 2019, the wave of financial institutions leaving coal behind continued.

[110] Australian Financial Review. GMO's Jeremy Grantham says thermal coal is 'dead meat'. 24 January 2019.
[111] IEEFA. First Chinese major joins over 100 global financial institutions restricting coal finance. 19 March 2019.
[112] *Australian Financial Review*. QBE to abandon thermal coal by 2030. 30 March 2019.

Mitsubishi UFJ, the largest bank outside of China, stated that it would no longer offer new loans to coal-fired power plants and would scale back existing loans to the coal-fired power sector by up to half by 2030. Mitsubishi UFJ is amongst the major Japanese banks that made up three of the top four lenders to coal-fired power from 2016 to 2018.[113]

In May 2019, the Development Bank of Singapore, the United Overseas Bank and the Oversea-Chinese Banking Corp (OCBC) of Singapore, three of Southeast Asia's largest lenders, said that two coal-fired power plants they are funding in Vietnam will be the last they will collectively finance anywhere in the world.[114]

In June, a new leader emerged as Credit Agricole committed to not only stopping all financial services to companies expanding their activity in the coal sector but to fully phasing out coal assets from its financing and investment portfolio.

The financial institutions leaving coal behind are no ethically minded minnows—they are some of the largest across the globe. As extreme weather increases in frequency and extremity the list will continue to grow, while the lending exclusions and divestments will increasingly be delivered upon.

[113] *Asahi Shimbun*. MUFG moves to drastically cut coal-power loans by fiscal 2030. 12 April 2019.
[114] *Bloomberg*. OCBC Says Coal Plants It's Financing in Vietnam Will Be Its Last. 16 April 2019.

5. BlackRock's Steps Towards Decarbonization

> *Where governments are flailing, global capital is already facilitating the energy transition. BlackRock has enormous capacity to be the world leader in transitioning the energy sector to renewable and alternative technologies on behalf of investors. Instead, BlackRock is failing to invest in support of the Paris Agreement targets. With less than 1% in ESG dedicated funds, BlackRock is misrepresenting both its ESG products, and its well-publicised intent to address climate risk, to everyone—shareholders, companies and the general public.*

Global capital is a critical facilitator of the energy transition.[115]

BlackRock started to mobilize capital towards renewables in 2015 in the wake of institutional investor demand for investments in real assets.

BlackRock's renewable energy platform operates four investment vehicles which manage equity assets worth US$4.8bn. The Paris Agreement requires this to rise a hundredfold.

Global capital is a critical facilitator of the energy transition.

We also note that BlackRock reports its dedicated ESG funds exceed $50bn globally but note that this commitment represents only 0.8% of the global total.

IEEFA notes that as a global leader comparable in value to being the third largest economy in the world, BlackRock's less than 1% dedicated ESG funds is insufficient, lacks ambition, and falls embarrassingly behind other leaders in the sector.

Renewable Energy Funds

In August 2016, BlackRock Real Assets created the Renewable Income Europe Fund (RI-Europe) with €650m (US$750m) in commitments secured from more than 25 institutional investors in Europe and Asia. This exceeded the initial fund's target size of €500m (US$576m) reflecting strong investor demand in Europe for long-term income from the renewable power asset class.[116]

In July 2017, BlackRock Real Assets reached financial close for the world's largest global renewable fund (Global Renewable Power Fund II) of US$1.65bn, a follow-on fund to its US$617m fund (Global Renewable Fund I).[117] BlackRock's original target

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[115] For instance, the global capital endorsement of India's energy transition is underpinning the flow of potentially US$20-40bn annually into Indian corporate/infrastructure vehicles and green bonds; this will facilitate India's transition at least cost to consumers as the country moves to implement its 275GW by 2027 renewables target.
[116] FTSE Global Markets. BlackRock European Renewable Power Fund Completes Financial Close. 8 August 2016.
[117] IJ Global. BlackRock Global Renewable Power II fund: The largest of its kind. 20 July 2017.

of $1bn was well exceeded by commitments from 67 institutions, confirming increasing interest among investors in the asset class in search of attractive risk adjusted returns through cash yields as well as capital appreciation on exit.

In July 2017, BlackRock also reached financial close on a third re-opening of its Renewable Income UK Fund. The fund stood at a total of US$1.41bn, following a first capital raise of US$642m and a second of US$176m.[118] UK pension funds were major subscribers of the 19 investors in the latest round.

Other Renewable Energy Transactions

EverPower U.S. Wind Portfolio

In December 2017, UK-based private equity firm Terra Firma Capital Partners agreed to sell the operational portfolio of U.S. wind energy developer EverPower to BlackRock Real Assets' funds.[119] BlackRock acquired 752MW of wind assets across seven sites in Pennsylvania, Illinois, California and New York. The portfolio comprised seven assets and the transaction concluded in February 2018. Terra Firma had owned EverPower since 2009 and claimed the business had grown "12-fold" to become one of the top 25 wind power producers in the U.S.

Taiwan's Solar Portfolio

In August 2018, the BlackRock Renewable Power fund acquired a 75MW solar portfolio of 28 assets across Taiwan, buoyed by the 20-year feed-in-tariff and Taiwan's ambitious but achievable target for 25GW of renewable energy facilities by 2025. This was followed up in May 2019 with the acquisition of a 115MW solar portfolio. BlackRock Renewable Power portfolio manager Charlie Reid flagged keen interest to partake in the ambitious program for 5GW of offshore wind being tendered in the second half of 2018.[120]

As of March 2019, the BlackRock Renewable Power fund had deployed over $500m of equity capital across Taiwan (190MW of solar), Japan (300MW of renewables), and Australia (owning a 90% stake in 200MW of solar in partnership with Edify Energy), with plans to increase this potentially tenfold in the next five years.[121]

Financing to NextEra

BlackRock Global Energy & Power Infrastructure facilitated one of the largest renewable energy infrastructure transactions in the U.S. in September 2018 when NextEra Energy US sold a 1.4 GW portfolio of U.S. wind assets to NextEra Energy

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[118] IJ Global. BlackRock concludes UK renewables fund's third capital raise. 18 July 2017.
[119] Terra Firma. Terra Firma Sells EverPower to a Fund Managed by BlackRock Real Assets. 5 December 2017.
[120] ASiANPower. Sun's out for Taiwan's Renewables. September 2018.
[121] *The Business Times*. BlackRock unit aims to boost Asian renewable-energy portfolio to US$5bn. 26 June 2019

Partners for US$1.275bn. BlackRock provided a US$750m three-year facility with a pre-tax return of 7.75% pa.[122]

Small-Scale Renewables

In April 2019, BlackRock agreed to invest in CleanCapital which owns and manages a US$300m small-scale solar portfolio in the U.S. Although the size of the investment was not disclosed, it is reportedly on par with a previous, US$250m partnership that CleanCapital disclosed in 2018 with CarVal Investors.[123]

As renewables become increasingly mainstream, institutional investors are targeting smaller scale renewables in addition to utility-scale installations.

BlackRock and CleanCapital have an existing relationship; the two acquired a 47MW solar portfolio in 2018. CleanCapital is now targeting an expansion into solar-plus-storage projects in Mexico and Canada.

[122] NextEra Press Release. "NextEra Energy Partners, LP announces agreement to acquire approximately 1,388 megawatts of contracted renewables projects and enters into a $750 million convertible equity portfolio financing". 5 September 2018.
[123] *Bloomberg*. BlackRock Beefs Up Its Bet on Renewables With Small-Scale Solar. 3 April 2019.

6. Case Studies: Shifting Capital Out of Fossil Fuels

The energy transition is well underway and astute financial managers and investors are increasingly shifting to low-carbon investments to maximise returns. Leadership today has many faces and BlackRock is yet to become a rallying team member of this expanding group of financial institutions that are in fact global pioneers, treading a path that must be worn to meet the needs of investors and the global community. Unlike BlackRock, these institutions are backing rhetoric with action. Should BlackRock decide to really lead, it would be the beginning of the end, financial markets would trip over themselves to follow, knowing the laggards would be left holding the stranded assets.

The shift to low-carbon investments is gaining significant momentum driven by increasing analytical evidence showing it does not damage returns, and can even enhance them.

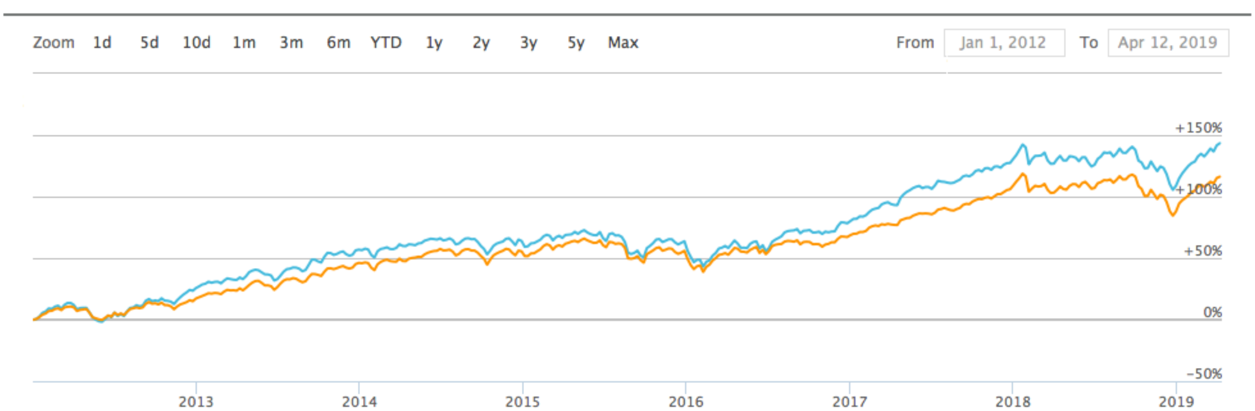
The shift to low-carbon investments is gaining significant momentum.

STOXX Global Climate Change Leaders Index

The STOXX Global Climate Change Leaders index includes carbon leaders who are publicly committed to reducing their carbon footprint. It is comprised of companies included on CDP's "A" List, indicating they are considered pioneers on climate change. As of 2018, CDP gave 139 companies with an "A" rating.[124]

This index has outperformed the STOXX Global 1800 index, which represents the world's most developed markets across 1,800 components, since the formers inception in December 2011 (Figure 6.1).

Figure 6.1: STOXX Global Climate Change Leaders vs. STOXX Global 1800 (Jan. 2012 - Apr. 2019)



Source: STOXX.

[124] CDP. The A List 2018.

Investing in Low Carbon Portfolios

Amundi

Europe's largest asset manager Amundi, with US$1.6 trillion AUM, stated that global investment has reached a clear "tipping point" with regard to climate risk, noting major investors are increasingly taking the issue seriously in their decision-making.

Amundi created low-carbon indexes that are outperforming the market as a whole. Major investors, including Japan's Government Pension Investment Fund, are moving their portfolios into such indexes.

Amundi created low-carbon indexes that are outperforming the market as a whole.

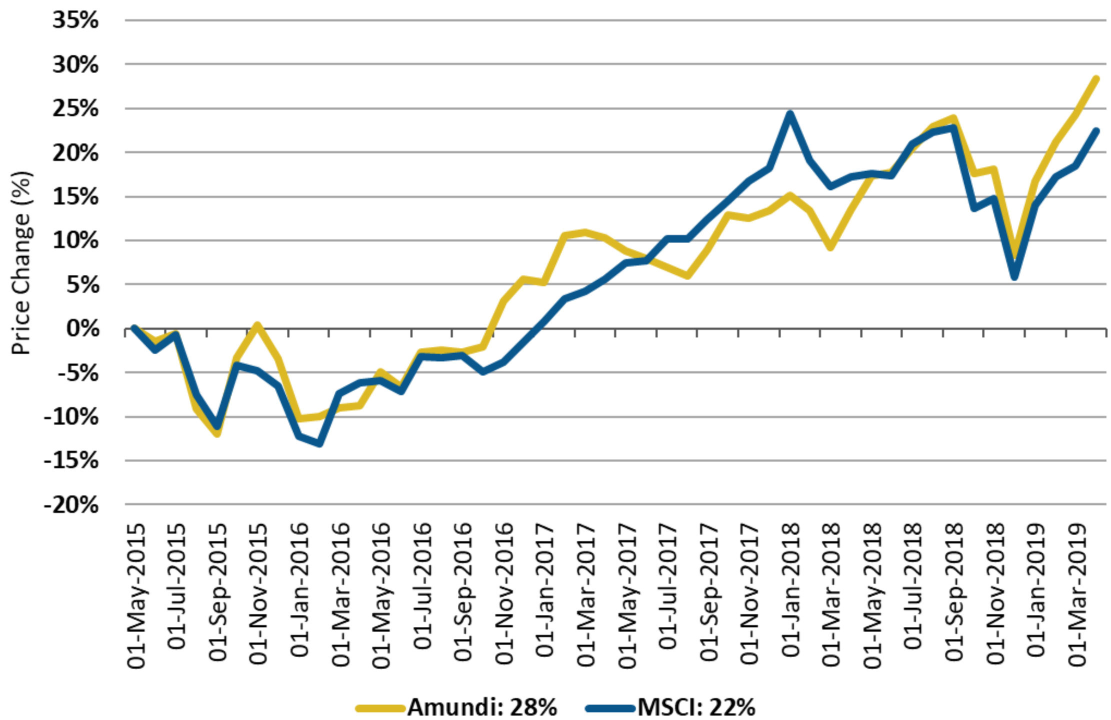
Following the Paris Agreement in December 2015, Amundi co-founded the Portfolio Decarbonization Coalition (PDC), a multi-stakeholder initiative that seeks to support and catalyze the transition to a low-carbon economy by mobilizing institutional investors to decarbonize their investment portfolios.

Amundi's Index Global Low Carbon equity fund, issued December 2015, has outperformed its benchmark since listed (refer Figure 6.2). The fund tracks the MSCI Low Carbon Leaders Index, a sub-index of the MSCI World Index with high carbon-emitting companies removed. The MSCI World Index consists of large and mid-cap stocks across 23 developed market countries.

Amundi's co-head of institutional clients, Frédéric Samama said they are seeing major international investors, such as the California State Teacher's Retirement System and Japan's Government Pension Investment Fund increasingly shift their portfolios to low carbon indexes.[125]

[125] *Bloomberg*. Europe's Largest Asset Manager Sees Tipping Point on Climate. 31 May 2018.

Figure 6.2: Amundi Low Carbon Fund (Yellow) vs. MSCI World Index (Blue) 2015-2019



Source: Thomson Reuters.

In June, a new leader emerged as Credit Agricole became the first massive financial institution to commit to not only stopping all financial services to companies expanding their activity in the coal sector but to fully phasing out coal assets from its financing and investment portfolio. The policy will apply to the full suite of Credit Agricole's business activities, including its asset management branch Amundi and all passively managed assets.[126] Coal-free defaults in passive products have now become the acceptable bar for the sector.

Japan's Government Pension Investment Fund

The world's largest sovereign wealth fund (US$1.6 trillion) is Japan's Government Pension Investment Fund (GPIF).

Since taking over in 2014, Chief Investment Officer Hiromichi Mizuno has insisted the fund take ESG factors into account in its investment analysis.[127] According to Mizuno, the long-term investment horizons of pensions funds are particularly well-suited to ESG-influenced investing, as taking such concerns into account tends to pay off in the longer term. At an April 2019 discussion, Mizuno noted that a failure

[126] Friends of the Earth. Phasing out coal: Crédit Agricole leads by example, Other financial institutions lag behind. June 2019.
[127] *Barron's*. How the World's Largest Pension Manager is Trying to Make ESG Investment Popular. 12 April 2019.

to reach sustainable development goals would result in future investment portfolios being faced with huge global risk.

In 2017, GPIF requested applications of environmental indices for global equities and in September 2018, announced it had selected the S&P/JPX Carbon Efficient Index for Japanese stocks, and the S&P Global Ex-Japan LargeMidCap Carbon Efficient Index for non-Japanese equities.[128]

Both of these indices overweight companies that have a high carbon efficiency compared to other companies within their industry.

GPIF's analysis found that the S&P/JPX Carbon Efficient Index gave almost the same risk and return profile since 2009 as its parent index (TOPIX) whilst reducing the carbon-to-revenue footprint by 24.5%. With the S&P Global Ex-Japan LargeMidCap Carbon Efficient Index, the carbon-to-revenue footprint was reduced by nearly 41% with a broadly similar risk/return profile since 2009 as its parent index.

In March 2019, GPIF announced it had hired Legal & General Investment Management as a new manager for its passive foreign equities investments. Legal & General Investment Management is one of the highest rated asset managers in the AODP Global Climate Index.

As on 31st March 2018, GPIF reported that management of its passive foreign equity investments was split between six managers: four of them Japanese and two Japanese operations of overseas asset managers—State Street and BlackRock. It is not clear if the appointment of Legal & General Investment Management replaces or adds to the existing asset managers.

Legal & General Investment Management

The largest asset manager in the UK, Legal & General Investment Management (LGIM) has £1 trillion AUM. It is also one of the highest rated asset managers in AODP's rankings, placing second ("AA") in AODP's 2017 Global Climate Index—Asset Managers list, behind APG Asset Management.

In April 2019, LGIM placed a column in the Financial Times calling for investors to play a bigger part in the global energy transition.[129] In the same month, LGIM published research highlighting the trillion-dollar investment opportunity that the global energy transition provides.[130]

LGIM called for investors to play a bigger part in the global energy transition.

[128] GPIF. GPIF Selected Global Environmental Stock Indices. 25 September 2018.
[129] *Financial Times*. Investors must play a bigger part in the world's energy transition. 11 April 2019.
[130] Legal & General. LGIM research into the energy transition reveals trillion dollar investment opportunity. 12 April 2019.

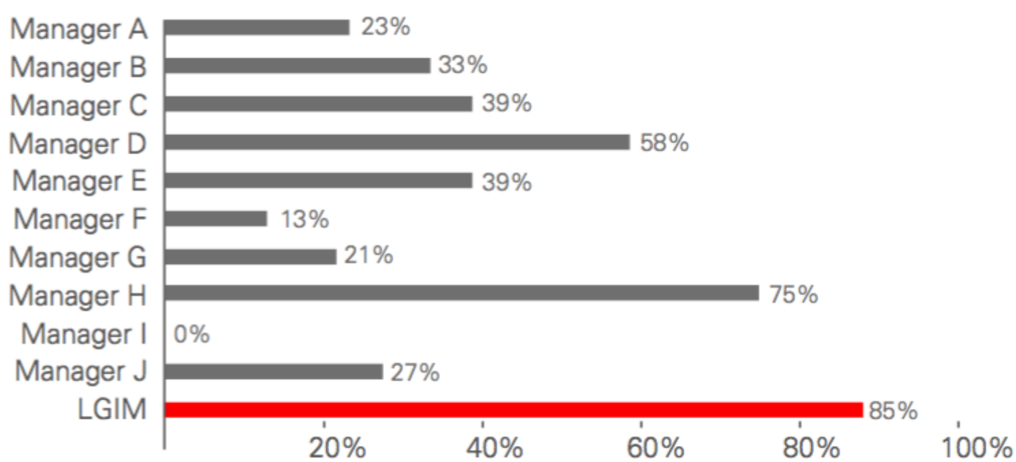
LGIM IS BACKING UP ITS RHETORIC WITH ACTION.

Following strengthening of its voting policies, LGIM voted against a record number of company directors of the companies it invests in during 2018, with a 37% increase over the prior year.[131] LGIM voted against directors on concerns including gender diversity, audit issues, and executive remuneration, as well as their approach to climate risk.

The 50/50 Climate Project's 2018 Asset Manager Climate Scorecard found that LGIM supported more U.S. shareholder resolutions on climate than any of the world's ten largest asset managers (Figure 6.3). Whilst LGIM supported 85% of such resolutions, BlackRock supported only 23%.[132] LGIM notes climate change is the top priority in its engagement strategy.[133]

Climate change is the top priority in its engagement strategy.

Figure 6.3: LGIM Supported More U.S. Shareholder Resolutions on Climate than the World's 10 Largest Asset Managers



Source: 50/50 Climate Project, Legal & General Investment Management.

Launched in February 2017, LGIM's Future World equity index fund has matched the performance of its benchmark to 31 December 2018. The fund invests in companies which are less carbon-intensive or earn "green revenues," and which also display characteristics which have historically led to higher returns or lower risk then the rest of the market.[134]

During 2018, LGIM launched 14 new funds under its Future Fund range, using this as an opportunity for "publicising the global corporate leaders and laggards on

[131] LGIM. Active Ownership Report. 2018.
[132] 50/50 Climate Project. 2018 Asset Manager Climate Scorecard.
[133] *BBC*. UK's biggest money manager warns on climate catastrophe. 15 April 2019.
[134] Legal & General Investment Management. Future World Fund.

climate change."[135] It also announced that eight companies would no longer be held in its Future Funds due to their inaction when it comes to addressing climate change. These include Rosneft Oil and China Construction Bank.[136] In June 2019, LGIM announced divestment plans for major listed firms from its ethical investment funds that it deemed as climate crisis laggards (citing KEPCO and ExxonMobil), tying investor engagement with divestment so as to link consequences into this strategy.

Norwegian Sovereign Wealth Fund

The world's second largest sovereign wealth fund, Norway's Government Pension Fund Global, also sometimes known as the Oil Fund, has $ 1 trillion AUM.

The fund, managed by Norges Bank Investment Management, has outperformed its reference index by 0.25% annually since initiated more than 20 years ago.[137]

Since 2006, exclusions from the fund have been made on ethical considerations. When companies are excluded from the fund, they are also excluded from the reference index. Conduct-based exclusions over issues such as environmental damage, corruption, and human rights have increased the cumulative return on the equity reference index by 0.7% or 0.03% annually.

Since 2006, exclusions from the fund have been made on ethical considerations.

In 2016, new exclusion criteria were introduced which excluded companies responsible for unacceptable levels of greenhouse gas emissions, and allowed the exclusion of mining companies and power generators that derived 30% or more of their revenue from thermal coal, or based 30% or more of their operations on thermal coal.

In April 2019, the fund took the decision to allow investment in a new asset class—unlisted renewable energy infrastructure, with an initial allocation cap of 2% or $14bn to reflect the liquidity constraints and initially limited investment universe available.[138]

At the same time, the fund tightened its coal restrictions. In addition to the 30% limit, the Norwegian government is proposing that the fund introduce absolute limits on thermal coal production and coal-based power generation of 20 million tons and 10GW respectively, which could see the exclusion of diversified miners and power generators like Glencore and RWE from the fund.[139]

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135 Legal & General Investment Management. LGIM's Climate Impact Pledge: The results so far.
136 LGIM. Legal & General Investment Mgmt takes action on climate change risks. 11 June 2018.
137 Norges Bank Inv. Mgmt. Return and risk: Government Pension Fund Global. March 2019.
138 IEEFA. Norway's GPFG sovereign fund to invest up to $14bn in unlisted renewables. 5 April 2019.
139 The Norwegian Ministry of Finance. The Government Pension Fund 2019. 5 April 2019.

Swedish Pension Fund (AP4)

The Fourth Swedish National Pension Fund (AP4), a co-founder of the CDP, was one of the first movers amongst the world institutional investors to decarbonize its investment portfolio.

At the end of 2017, AP4 had 22% of its global equity portfolio in low carbon strategies with an aim to decarbonize its entire global equity portfolio by 2020.

The fund was in first place ("AAA") in AODP's 2018 Global Climate Index Pension Funds ranking. AODP ranked 500 of the world's largest investors on the basis of their effort towards mitigating climate related risk.[140]

In 2018 the fund divested from companies in which thermal coal accounts for more than 20% of sales.[141] And effective January 2019, the fund divested from nuclear weapons and oil sand companies.[142]

AP4 is another prime example of how decarbonizing a portfolio can provide attractive returns. As of end of 2017, even with a 50% reduction in carbon footprint, the decarbonized index that AP4 had adopted outperformed the S&P 500 by 14 basis points (bps) since 2012, despite the fact that carbon is currently under-appraised as a risk factor to investments.[143] The average return for the fund in the last 10 years has been 9.9% with just two years with negative annual return since 2008.[144]

AP4 is another prime example of how decarbonizing a portfolio can provide attractive returns.

Storebrand Asset Management

Storebrand Asset Management is Norway's second largest asset manager with US$85bn AUM.

It offers three sustainable global equity index funds that invest in companies ranked highly on Storebrand's sustainability metrics. The three funds are Storebrand Global ESG Plus (NOK), Storebrand Global ESG and Storebrand Global Solutions. These funds do *not* invest in companies which contribute to: the violation of human rights, corruption, harming the climate and environment, the production of landmines, cluster munitions, or nuclear weapons, as well as the production of tobacco, and

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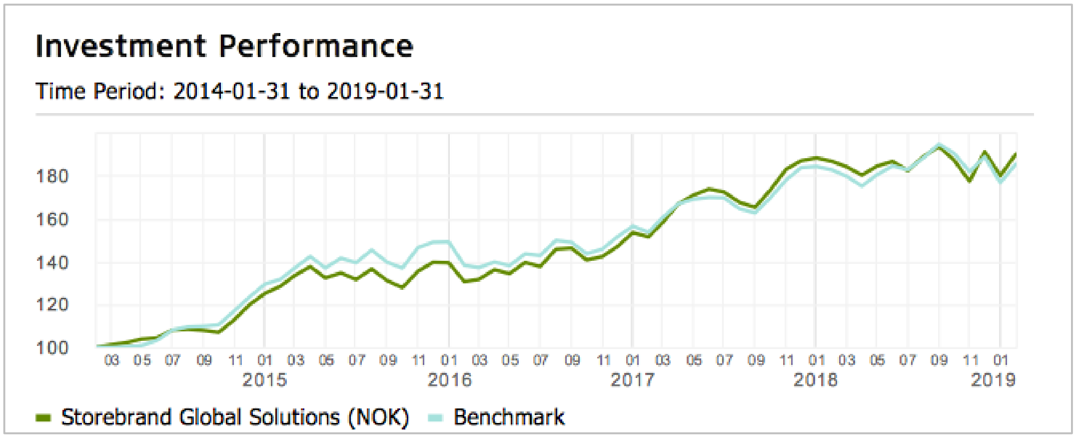
[140] AP4. AP4 ranked first in the AODP global analysis of pension funds' approach to climate change. 26 September 2018.
[141] AP4. 2018 Interim Report.
[142] AP4. AP4 increases sustainability ambitions – divests from nuclear weapons and oil sand. 16 January 2018.
[143] *Fortune*. Why Now Is the Perfect Time to Invest in a Low-Carbon Index. 14 February 2018.
[144] AP4. A turbulent year, but active management delivered. 22 February 2018.

companies with a low sustainability rating.

Storebrand Global Solutions has existed the longest of the three funds. It is essentially a global fossil fuel free fund that invests in global stock markets, including emerging markets. Figure 6.4 exhibits the fund's most up-to-date performance analysis. In more than five years of its existence, the fund has marginally out-performed its benchmark MSCI All Country World Index NR.

Figure 6.4: Storebrand Global Solutions (NOK) vs. Benchmark Index



Source: Storebrand.

Storebrand has progressively excluded a wider range of fossil fuel companies since first introducing restrictions in 2013. In 2017, Storebrand excluded firms still developing new coal-fired power plants.[145] In November 2018, the fund announced it would progressively exit all coal exposure by 2026 (defined as firms with a more than 5% revenue exposure to coal).

In November 2018, the fund announced it would progressively exit all coal exposure by 2026.

New York State Pension Fund

The third largest pension fund in the U.S., New York State Pension Fund has AUM of about US$200bn. The pension fund pledged US$5bn in sustainable investment in early 2016 of which US$2bn was committed to a low carbon index fund designed in partnership with Goldman Sachs Asset Management.[146]

In January 2018, the fund reported achieving returns on the low carbon index fund

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[145] *Bloomberg*. An $85 Billion Asset Manager Is Planning a Total Exit From Coal. 30 November 2018.
[146] Office of the New York State Comptroller. State Comptroller DiNapoli Positions New York Pension Fund For Low Carbon Future. 04 December 2015.

comparable to that of its benchmark index Russell 1000—an index of approximately 1,000 of the largest companies in the U.S. equity market.

The fund made a return of 19.93% from its inception in January 2016 to January 2018, compared to 20.14% for the Russell 1000, achieving tracking error of less than 1%.[147]

Following this, New York State Comptroller Thomas DiNapoli announced further commitments of US$4bn to the low carbon index fund. To date, the fund's low emission index has reduced by 75% the carbon emission intensity within its holdings.[148]

Local Government Super

The Australian-based fund manager Local Government Super (LGS), currently with US$7.6bn (AU$11bn) of retirement savings funds under management, was the top rated asset owner by AODP in its 2017 Global Climate Index.[149]

LGS is taking its portfolio to net zero operating carbon emissions by 2030, and is pushing for all building stock to be net zero by 2050. LGS joined 50 other global signatories to the World Green Building Council's global net zero buildings commitment. LGS is committed to decarbonizing its property portfolio.[150]

LGS is taking its portfolio to net zero operating carbon emissions by 2030.

According to LGS, an ESG sustainable portfolio is important for the long-term financial returns of its investment. The asset owner puts great emphasis on ESG performance regulation of its investments.

147 *The Wall Street Journal*. New York Pension Fund Doubles Bet on Low-Carbon Companies. 30 January 2018.
148 Office of the New York State Comptroller. 2018 Corporate Governance Stewardship Report. January 2019.
149 AODP. AODP Global climate Index Rating 2017/Asset Owners.
150 The Fifth Estate. Local Government Super commits to net zero emissions. 28 May 2019.

Conclusion

BlackRock is the world's largest investor. With this comes the opportunity, and we would also argue the fiduciary responsibility, to shape global financial markets and capital flows in a way that is more sustainable, accountable and forward-looking.

The risks relating to climate change are universal, and the financial market implications are profound, as has already been clearly demonstrated with the investor wealth destruction over the last decade evident at GE, and in leading thermal power dominated utilities like RWE, E.ON, Duke Energy, KEPCO and NTPC.

More than any other investor, BlackRock can lead global financial markets in driving capital towards a common global goal of resolving the to-date externalized cost of carbon emissions. Its views are authoritative, not merely advisory.

If the world's largest investor makes it clear the rules have changed, other globally significant investors like Fidelity, Vanguard and Japan's Sovereign Wealth Fund (SWF) will rapidly replicate and reinforce these moves, reducing stranded asset risks for all.

A transition is necessary and will take time, and as investors and shareholders would agree, should start immediately to limit shareholder value destruction.

IEEFA does not purport to have all the solutions at hand, but we advocate several key steps as a start:

- **Blackrock should adopt an all-encompassing engagement strategy** with transparency when it addresses individual company issues. Shareholder engagement should consist of a series of actions that investors use as they assess company responses to their issues. Investor letters, meetings and corrective action agreements are only the start of an engagement process. When investors are met with recalcitrance, as is the almost universal case with fossil fuel companies, shareholders have additional tools. These tools vary by country but generally consist of shareholder resolutions, votes for or against individual board members, shareholder discovery litigation, class actions lawsuits and divestment. A host of less formal measures also exist to strengthen engagement efforts.

- **An unwillingness to utilize all engagement tools weakens those that an investor chooses to deploy**. Each step in the engagement process needs to add to the effort to secure company compliance. Making each step accountable, time limited, transparent and with clear and certain next steps strengthens the effort.

- **Proxy voting must be accountable, principled and effective**. BlackRock needs to show demonstrable progress toward principled, accountable and effective use of the shareholder voting process.

- **Blackrock needs to follow through on ESG rhetoric.** On the issue of climate change, Blackrock executives have made many admirable statements regarding the company's concern. Those statements of principle have not found their way into specific votes on shareholder resolutions.

- **Proxy voting is more than just checking a box and returning a ballot.** In certain instances, when investors single out an issue as a priority, it is a springboard to action. It is a tool for the mobilization of discussion and debate within the investment community. Votes on critical issues like climate change that are not backed by mobilization actions within the bound of security laws compromise the integrity of the resolution and the shareholder proxy process. Strong follow-ups to monitor compliance and hold companies to account extends the dialogue.

- **Blackrock needs to adopt a strategic use of divestment from fossil fuels**. Divestment is a tool of engagement. There comes a time when an engaged shareholder must weigh the benefit and cost of its engagement strategy against the actual and potential value of holding the stock. The Norwegian SWF has led the world on Divest-Invest in a very transparent way, with the Council of Ethics reporting publicly its engagement and financial, fiduciary and climate risk analysis in a considered and fair process. These deliberations attest to the fiduciary soundness of their decisions to divest from thermal coal, as well as oil and gas exploration companies. Their continued deliberations will inform next steps with respect to their invest and divest decisions. For all the rhetoric, the oil and gas majors need a similar holding to account, as leading European funds are doing.[151]

- **The Norwegian example demonstrates the degree of flexibility that is available to large institutional investors.** The Fund is also supported by the fact that its oil and gas divestment is moving forward based on clear long-term financial analysis. This flexibility is based on the fiduciary judgement of the fund's trustees, the Fund's governing philosophy and its market position.

- **Blackrock has wide discretion on how it might shape a divestment strategy.** For example, it could select the 10, 20 or 50 globally significant firms that are absolutely the worst deniers of science and/or that choose to invest new capital in multi-decade projects to develop fossil fuel reserves in direct contradiction of the Paris Agreement e.g. **Adani**'s Carmichael proposal.[152] **Marubeni Corp** is a perfect example of a firm's ability to pivot, when pushed.

- **If companies like Exxon, Peabody and Cloud Peak will not transform**, they will face bankruptcy or significant shareholder wealth destruction (beyond those already incurred over the last decade), and often much faster than is anticipated, and with dire implications for investors, company employees and communities.

[151] *Financial Times*. Asset manager Sarasin cuts Shell stake over climate worries. 9 July 2019
[152] IEEFA Update: Adani Stumbles Toward the Last-Chance Saloon. 19 January 2018

- **Blackrock needs to lead the way on investing in low carbon indexes.** Blackrock needs to work with index and ratings providers to develop a clear and transparent rating of companies. It needs to develop credible low carbon indexes that are already available—as **Moody's** announced in May 2019. Progressively incorporating these as the default option for investors then sets a pathway to decarbonization for passive index investors.

- **This financial strategy takes advantage of the gains taking place in the broader economy and stock market.** The strategy also isolates the fossil fuel energy sector, already justified by its decade-long market-lagging performance, negative outlook and failure to find a way to use fossil fuels in climate- and environmentally- safe manners.

- **Advocating for a national price on carbon, globally**. A carbon price sets the parameters through regulatory policy, then leaves it to the market to find the least cost solution. BlackRock has already signed a statement supporting a carbon price but this needs to be vigorously and repeatedly recommended at the state, national and international level. As a global leader, they must publicly advocate for it. BlackRock should advocate for this optimal market-based solution to internalize the costs—polluters should pay. As part of this, BlackRock should ensure its investments like **Rio Tinto** are both aligned with the Paris Agreement and hold their lobbyists to account to align, or alternatively just cease funding denialist organizations like the Minerals Council of Australia.

- **Blackrock needs to increase its investments in new energy investments**. The IEA estimates the global energy market already undertakes annual investments approaching $2 trillion. Directing those capital flows away from the worst offenders and towards those corporates offering solutions that are commercially available today, will only become more viable as markets price in carbon emissions externalities. BlackRock has already invested $4-5bn in global renewable energy infrastructure, and achieved strong risk-adjusted return performances as a result. Aggressively increasing these global investment allocations helps create and build a liquid new product class entirely aligned with the long duration, cashflow-certain nature of these assets, but also with the low risk, steady, inflation-linked cashflow needs of pension asset owners.

Firms like **Marubeni** of Japan, **ENGIE** of France and **Tata Power** of India have shown how radically a firm can transform its portfolio and decarbonize when the urgency and leadership is clear.

When BlackRock chooses to lead, global capital will follow.

NextEra and **ENEL** clearly illustrate how an alignment with long-term shareholder interests is to the benefit of all stakeholders.

A clear commitment to a long-term transition strategy is key.

A progressive, well-articulated closure plan is preferable to divestment. This can harvest the cashflows from historic investments, ensure rehabilitation and worker protections, whilst redirecting the freed-up capital to industries of the future. **Shell** articulated such a strategy in June 2019, a potentially innovative move relative to its lagging peers.

Transition is entirely needed and economically feasible. Thermal coal is not evil, it is just technologically obsolete and inconsistent with a livable planet.

China Shenhua and **Coal India** are the two largest thermal coal miners globally, and both have started upon a potentially radical shift; both have plans to be two of the largest investors in renewables in China and India respectively.

Saudi Arabia has already acknowledged the 'writing is on the wall' for the oil market. Not today, but inevitably. Energy security, air pollution and technology convergence make this so.

China has already determined that electric vehicles will win this new race. And in alignment with **SoftBank**, Saudi Arabia in 2018 articulated a visionary $200bn plan to become the king of solar—a plan that remains entirely feasible and viable.

Under Prime Minister Narendra Modi and other visionary leaders, India has entered the world stage with its 523GW of renewables by 2030 ambition, probably the singularly most important transformation target in the world. Renewables are 20% below grid parity versus existing domestic thermal power generation. Firms like **NTPC**, **Adani Green**, **Tata Power** and **SoftBank** are investing billions to make this a reality.

Blackrock's leadership on both the divestment and investment side of the equation will bring global capital investments one step closer to aligning capital markets with the Paris Agreement.

When BlackRock chooses to lead, global capital will follow. And then the game is truly over, the vision of the Paris Agreement will be achieved, and climate risk will have been drastically reduced for investors and shareholders.

Until that time, BlackRock is failing in its fiduciary duty, and due to its enormous size and impact, we will all be impacted by the damage it is causing financially, socially, environmentally and economically.

This is not a price the world should have to pay.

Annexure I: AODP Global Climate for Index Asset Managers 2017

2017 RATING	2017 RANK	ASSET MANAGER NAME	COUNTRY
AAA	1	APG Asset Management	Netherlands
AA	2	Legal & General Investment Management	UK
BBB	3	Aviva Investors	UK
BBB	4	M&G Investments	UK
BBB	5	Schroders Investment Management	UK
BB	6	Allianz Global Investors	Germany
BB	7	Natixis Global Asset Management	France
BB	8	AXA Investment Managers	France
B	9	Deutsche Asset Management	Germany
B	10	HSBC Global Asset Management	UK
CCC	11	UBS Global Asset Management	Switzerland
CC	12	Aegon Asset Management	Netherlands
CC	13	Standard Life Investments	UK
CC	14	BNP Paribas Investment Partners	France
C	15	Goldman Sachs Asset management	USA
C	16	BlackRock Inc	USA
C	17	Aberdeen Asset Management	UK
C	18	J.P. Morgan Asset Management	USA
C	18	Morgan Stanley	USA
C	20	Amundi	France
C	21	PIMCO	USA
C	22	Credit Suisse	Switzerland
C	23	AllianceBernstein	USA
D	24	Dimensional Fund Advisors	USA
D	25	State Street Global Advisors	USA
D	26	Columbia Threadneedle Investments	USA
D	27	Generali Investments Europe	Italy
D	28	RBC Global Asset Management	Canada
D	29	Northern Trust Asset Management	USA
D	30	Franklin Templeton Investments	USA
D	31	Insight Investment	UK
D	32	MFS Investment Management	USA
D	33	Macquarie	Australia
D	34	Sumitomo Mitsui Trust Group	Japan
D	35	BNY Mellon Invest Management, EMEA	USA
D	36	Mellon Capital Management	USA
D	37	T. Rowe Price	USA
D	38	Wellington Management	USA
D	39	Vanguard	USA
D	39	Invesco	USA
D	39	Legg Mason	USA
D	42	Principal Global Investors	USA
D	43	Wells Capital Management	USA
D	44	Federated Investors	USA
D	45	PGIM (formerly Pramerica Investment Management)	USA
D	46	Capital Group	USA
D	46	Nomura Asset Management	Japan
X	48	Fidelity Investments	USA
X	48	Affiliated Managers Group	USA
X	48	New York Life Investment Management	USA

Annexure II: BlackRock's Shareholdings, Share Prices, Market Performance and Value Lost

Column (a) in the below figures accounts for value gained (or value lost) as per share price performance between 30th Jan 2009 and 1st Feb 2019. Column (b) represents gross opportunity cost as per market performance during the period. Net of (a)and (b) accounts for the net loss of value of BlackRock's investors for the given company as shown in column (C).

Figure II.1: Oil Companies

	BlackRock's Shareholdings (No. of Shares in Millions)		Change	Share Price (USD)		Change	Value Gained/Lost Through Share Price Performance (in Millions)	Opportunity Cost of Market Performance (in Millions)	Shareholder's Value Destruction (in Millions)	
	Jan-09	Mar-19	%	Jan-09	Mar-19	%	Jan-09 to Mar-19	Jan-09 to Mar-19		
				Share Price (USD)						
Exxon Mobil	266	280	5%	79.83	80.80	1%	257.9	45,373.8	**45,116**	**USD**
Chevron	113	127	72%	73.97	123.18	67%	5,585.2	17,949.2	**12,364**	**USD**
S&P500				**903**	**2,834**	**214%**				
				Share Price (EUR)						
Royal Dutch Shell	134	352	163%	18.75	27.98	49%	1,234.5	3,090.1	**1,856**	**EUR**
Amsterdam Exchange Index				**245.94**	**548.98**	**123%**				
				Share Price (GBP)						
BP	849	1,725	103%	5.26	5.59	6%	276.0	2,866.2	**2,590**	**GBP**
FTSE 100				**4,434**	**7,279**	**64%**				

Source: Thomson Reuters, IEEFA calculations.

Figure II.2: European Power Utilities

	BlackRock's Shareholdings (No. of Shares in Millions)		Change	Share Price (EUR)		Change	Value Gained/Lost Through Share Price Performance (in Millions)	Opportunity Cost of Market Performance (in Millions)	Shareholder's Value Destruction (in Millions)	
	Jan-09	Mar-19	%	Jan-09	Mar-19	%	Jan-09 to Mar-19	Jan-09 to Mar-19		
E.ON	39	192	395%	24.94	9.91	-60%	-582.8	1,350.3	**1,933**	**EUR**
RWE	8	44	452%	60.51	23.9	-61%	-291.5	672.6	**964**	**EUR**
Dax Performance Index				**4,810**	**11,526**	**140%**				
Iberdrola	65	455	601%	4.72	7.82	66%	201.2	1.5	**-200**	**EUR**
IBEX Composite Index				**9,195**	**9,240**	**0.5%**				

Source: Thomson Reuters, IEEFA calculations.

Figure II.3: U.S. Utilities

	BlackRock's Shareholdings (No. of Shares in Millions)		Change	Share Price (USD)		Change	Value Gained/Lost Through Share Price Performance (in Millions)	Opportunity Cost of Market Performance (in Millions)	Shareholder's Value Destruction (in Millions)	
	Jan-09	Mar-19	%	Jan-09	Mar-19	%	Jan-09 to Mar-19	Jan-09 to Mar-19		
NextEra	25	36	43%	50.3	193.3	284%	3,614.5	2,720.5	**-894**	**USD**
Duke Energy	19	50	157%	45.0	90.0	100%	869.8	1,862.1	**992**	**USD**
PG&E	17	13	-21%	38.7	17.8	-54%	-347.2	1,374.3	**1,722**	**USD**
S&P 500				**903**	**2,834**	**214%**				

Source: Thomson Reuters, IEEFA calculations.

Figure II.4: Asian Utilities

	BlackRock's Shareholdings (No. of Shares in Millions)		Change	Share Price (KRW) South Korean Currency		Change	Value Gained/Lost Through Share Price Performance (in Millions)	Opportunity Cost of Market Performance (in Millions)	Shareholder's Value Destruction (in Millions)	
	Jan-09	Mar-19	%	Jan-09	Jan-19	%	Jan-09 to Mar-19	Jan-09 to Mar-19		
				Share Price (JPY)						
Chubu Electric	6	14	119%	2,735	1,728	-37%	-6,539	15,139	**21,679**	**JPY**
Tokyo Stock Exchange				859	1,592	85%				
				Share Price (HKD)						
China Light & Power	33	115	251%	53	91	73%	1,262	1,473	**211**	**HKD**
Hong Kong Stock Exchange				859	1592	85%				
				Share Price (HKD)						
KEPCO	2	9	335%	29,600	29,900	1%	641	57,217	**56,575**	**KRW**
Korea SE KOSPI Index				1,124	2,141	90%				
				Share Price (CNY)						
Huaneng Power International	9	1	-88%	7	7	-5%	-3	43	**46**	**CNY**
Shanghai Stock Exchange				1821	3091	70%				
				Share Price (INR)						
NTPC	18	155	759%	138.3	134.7	-3%	-66	7,321	**7,387**	**INR**
National Stock Exchange				2,959	11,624	293%				

Source: Thomson Reuters, IEEFA calculations.

Figure II.5: U.S. Coal Mining Companies

	BlackRock's Shareholdings (No. of Shares in Millions)		Change	Share Price (USD)		Change	Value Gained/Lost Through Share Price Performance (in Millions)	Opportunity Cost of Market Performance (in Millions)	Shareholder's Value Destruction (in Millions)	
	Mar-11	**Jul-15**	**%**	**Mar-11**	**Jul-15**	**%**	**Mar-11 to Jul-15**	**Mar-11 to Jul-15**		
Peabody Energy	2	1	-40%	1,000.0	46.6	-95%	-1,900.4	1,178.5	**2,316**	**USD**
S&P 500				1,321	2,102	**59%**				
	Jan-11	**Mar-19**	**%**	**Jan-11**	**Jan-19**	**%**	**Jan-11 to Mar-19**	**Jan-11 to Mar-19**		
Cloud Peak	4	0	-100%	23.2	0.1	-100%	-93.1	105.6	199	**USD**
S&P 500				1,271	2,706	**113%**				

Source: Thomson Reuters, IEEFA calculations.

About IEEFA

The Institute for Energy Economics and Financial Analysis conducts research and analyses on financial and economic issues related to energy and the environment. The Institute's mission is to accelerate the transition to a diverse, sustainable and profitable energy economy. www.ieefa.org

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