



# **STRANDED ASSETS: FOSSIL FUELS**

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CARBON STORES IN ENVIRONMENT AGENCY PENSION FUND



## ABOUT TRUCOST

Trucost has been helping companies, investors, governments, academics and thought leaders to understand the economic consequences of natural capital dependency for over 12 years. Our world leading data and insight enables our clients to identify natural capital dependency across companies, products, supply chains and investments; manage risk from volatile commodity prices and increasing environmental costs; and ultimately build more sustainable business models and brands. Key to our approach is that we not only quantify natural capital dependency, we also put a price on it, helping our clients understand environmental risk in business terms. It isn't "all about carbon"; it's about water; land use; waste and pollutants. It's about which raw materials are used and where they are sourced, from energy and water to metals, minerals and agricultural products. And it's about how those materials are extracted, processed and distributed. [www.trucost.com](http://www.trucost.com)

## ABOUT THE ENVIRONMENT AGENCY PENSION FUND

The Environment Agency Pension Active Fund (the Fund) is a defined benefit Local Government Pension Scheme with over 23,000 members and assets of £2.2 billion. There is a 93 per cent participation rate of eligible members. The current funding level is around 90 per cent. The fund's fiduciary responsibility is to act in the best interest of its members. The Fund management recognises that financially material environmental issues e.g. climate change, can adversely impact on the Fund's financial risks and investment returns and thus should be taken into account in the investment strategy. Accordingly, the Fund has integrated the consideration of environmental, social and governance (ESG) issues throughout the funding and investment decision making process.



## STRANDED ASSETS: FOSSIL FUELS

### SUMMARY

Stranded assets are those which suffer unanticipated or premature write-offs, downward valuations, or are converted to liabilities. Assets may become stranded by one-off transformational shifts in valuation, or over time, as a result of appropriate risks not being analysed and priced into the future anticipated value of the assets. In the case of fossil fuels, the concept of asset stranding first came to light in 2011, when Carbon Tracker released their seminal *'Unburnable Carbon'* report.<sup>1</sup> Following on from work by the Potsdam Institute for Climate Impact Research in 2009, concerning the idea of a carbon budget,<sup>2</sup> the Unburnable Carbon report developed the investment thesis that, should we wish to avoid catastrophic climate change, and thus limit maximum global atmospheric temperature rise to 2°C, the majority of fossil fuel reserves listed on global stock markets would be unburnable.

Fossil fuel extractives companies form a significant portion of global stock markets, and as a consequence feature ubiquitously throughout global investment funds. In addition, the supply chain reach of fossil fuels is inescapable in several other economic sectors, including primary industry, energy and transport. This exacerbates the extent to which very many investment funds, and by distillation very many more investors, are exposed to the consequences of fossil fuel asset stranding.

Trucost used its extensive database of environmental impacts to analyse the extent to which the Environment Agency Pension Fund (EAPF) investment portfolios are exposed to the carbon stores embedded within globally listed fossil fuel reserves. None of the EAPF portfolios is significantly more exposed to embedded carbon stores than their benchmark index, suggesting that the management of these portfolios already incorporates material environmental analysis.

**This public report summarises the commissioned research, which substantiates the following recommendations:**

- Engage with legislators and reporting bodies for comprehensive fossil fuel reserves data to be disclosed in publicly available corporate reports. Ensure reserves are split out by each type of fossil fuel, accompanied by industry accredited emissions factors.
- Engage management of fossil fuel extractives companies, asking them to explain their Capex programme regarding the development of new fossil fuel reserves and what plans they have in place to make a transformational shift to a lower carbon economy.
- Divestment from the fossil industry is neither an industry-leading nor progressive strategy. Reducing investment exposure to the fossil industry does not precipitate a reduced prevalence of that industry. Be part of the conversation to influence the discussion.
- Raise awareness of the stranded assets issue developing within the fossil industry; one of the most effective tools in encouraging governments to legislate is gaining wider social acceptance of the business case for a transition to a low carbon economy.

1 <http://www.carbontracker.org/wp-content/uploads/downloads/2011/07/Unburnable-Carbon-Full-rev2.pdf>

2 <http://www.pik-potsdam.de/news/press-releases/archive/2009/on-the-way-to-phasing-out-emissions-more-than-50-reductions-needed-by-2050-to-respect-2b0c-climate-target>



## THE TASK

The Environment Agency Pension Fund (EAPF) have undertaken environmental and carbon footprinting of their active portfolios over a number of years. The questions surrounding stranded assets focus specifically on the fossil fuel reserves of fossil fuel extractive companies within the EAPF portfolios. The EAPF commissioned Trucost to assess and analyse sixteen of their investment portfolios, active and passive, listed equities and bonds, with regard to their exposure to the embedded carbon emissions within fossil fuel reserves held in their funds.

### The analysis aimed to identify:

- The absolute level of embedded carbon in the investment portfolios.
- The relative level of embedded carbon for the active portfolios.
- The most emissions intensive companies across the consolidated portfolios.
- The capital expenditure of the largest fossil fuel companies in the portfolio.
- Issues for funds in addressing carbon risk in investment portfolios.
- Areas for engagement with companies and regulators.

In assessing the relative exposure to fossil reserves of their investment portfolios, they were benchmarked against globally recognised investment indices. Trucost therefore carried out the same fossil reserves analysis for two indices: the FTSE 100 and the MSCI All World Developed.

Trucost mapped the proven and probable reserves<sup>3</sup> of all 218 fossil fuel extractives companies within its environmental impacts database. The mapping universe included all companies within the Trucost database which derived a proportion of their revenue from one of five fossil fuel extraction sectors available when companies are mapped by economic activity. This allowed Trucost to isolate those companies which will potentially list fossil reserves on their balance sheet, and who are therefore liable to downward valuations in the event of a stranding event. The five sectors which the fossil fuel extractives companies were mapped to were:

- Crude Petroleum and Natural Gas Extraction
- Tar Sands Extraction
- Natural Gas Liquid Extraction
- Bituminous Coal and Lignite Surface Mining
- Bituminous Coal Underground Mining

Figure 1 shows the relative exposure of each active portfolio to fossil fuel extractives companies. For the EAPF investment portfolios this is reflected by the value of holdings apportioned to fossil fuel extractives companies as a proportion of total portfolio value. For the benchmark indices this is reflected in the aggregated market capitalisations of fossil fuel extractives companies as a proportion of total benchmark value.

<sup>3</sup> 2P reserves combine both Proven and Probable reserves, and are defined as those reserves which have a >50% chance of being present, consequent to a seismic survey. It is this metric which is used by both fossil fuel companies for accounting purposes, and by investment analysts when establishing financial valuations.

**FIGURE 1: EXPOSURE TO FOSSIL FUEL EXTRACTIVES COMPANIES BY VALUE OF HOLDING/MARKET CAPITALISATION**

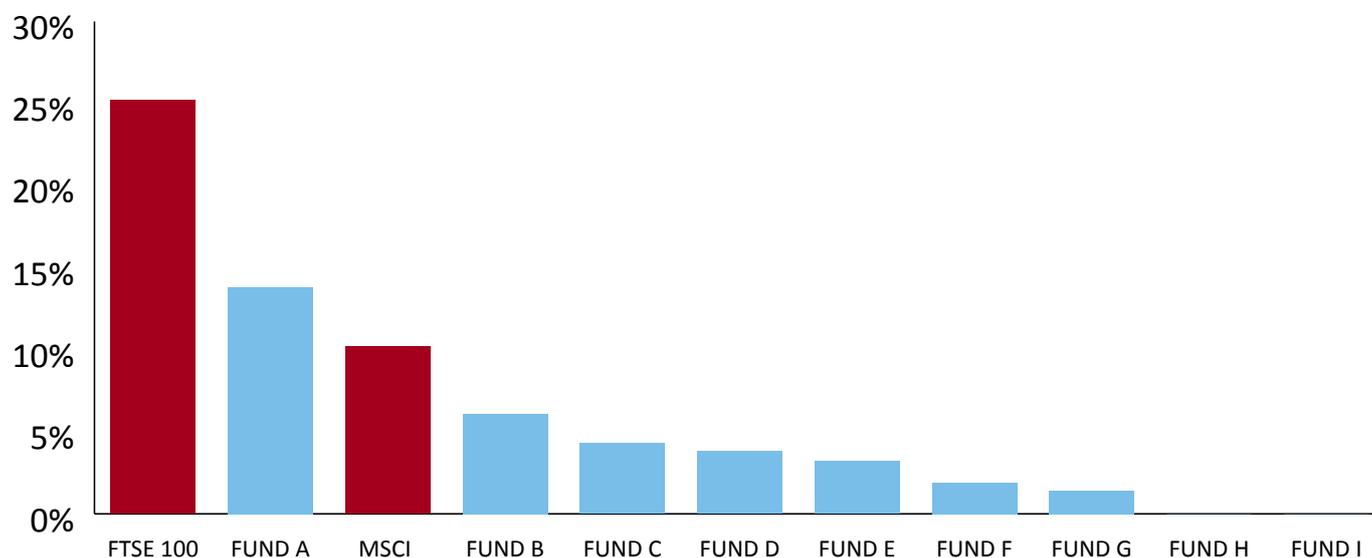


Table 1 provides the relative performance of each portfolio against its appropriate benchmark, with regard to exposure to fossil fuel extractives companies. Fund A was benchmarked against the FTSE 100 index, which has emerged in recent years as the global centre for mining and extractives listings, and illustrates the worrying reliance the UK economy has on this industry. The situation is only intensifying. In Carbon Tracker’s follow up report in 2013, entitled ‘*Unburnable Carbon 2*’, they report that the volume of CO<sub>2</sub> embedded within listings on the London Stock Exchange had increased by 7%.<sup>4</sup> The remaining funds were benchmarked against the MSCI All World index. The performance of the EAPF portfolios demonstrates the active carbon risk mitigation strategies employed by their investment managers. Two portfolios have no exposure to fossil fuel extractives companies.

**TABLE 1: RELATIVE EMBEDDED CARBON EXPOSURE OF PORTFOLIOS AGAINST BENCHMARK**

PORTFOLIO	EMBEDDED CARBON EXPOSURE RELATIVE TO BENCHMARK
Fund A	-45.2%
Fund B	-40.2%
Fund C	-57.8%
Fund D	-62.7%
Fund E	-68.6%
Fund F	-81.4%
Fund G	-86.3%
Fund H	-100%
Fund I	-100%

Despite the headline performance figures illustrating clearly the relative exposures to carbon stores associated with fossil fuel reserves within the EAPF portfolios, and their relevant benchmarks, there were several limitations to the data mapping exercise, which naturally curtailed the extent of the subsequent analysis. Broadly, these limitations manifested in two ways: an insufficient number of fossil fuel extractives companies disclose data in a way which makes the analysis robust and standardised, and; only a distinct minority of companies disclose reserves data satisfactorily at the fossil fuel type level (e.g. shale gas, oil sands), rendering accurate emissions profiling of companies and portfolios statistically inadequate.

<sup>4</sup> <http://carbontracker.live.kiln.it/Unburnable-Carbon-2-Web-Version.pdf>



Reporting of standardised and robust reserves must be encouraged by all stakeholders within the fossil fuel industry. In order to assess and manage the risks associated with embedded carbon emissions, it is essential to ensure transparency of reporting by the extractives companies.

## RECOMMENDATION

Engage with legislators and reporting bodies for comprehensive fossil fuel reserves data to be disclosed in publicly available corporate reports. Ensure reserves are split out by each type of fossil fuel, accompanied by industry accredited emissions factors.

Although the lack of available standardised data did restrict a full examination of specific risks, there remained a wealth of analysis that could be produced, based on the data that was mapped. It became quickly apparent that an asset owner the size of the EAPF, with AUM of approximately £2.2bn,<sup>5</sup> would be unable to affect the values put on the future cash flows of fossil companies simply by divesting its holdings in those companies. In fact, as extrapolated in the report 'Stranded Assets and the Divestment Campaign: What does Divestment mean for the Valuation of Fossil Fuel Assets?', published in October 2013 by the Smith School of Enterprise and the Environment at The University of Oxford, the likely universe of divestment candidates of university endowments and public pension funds, following a well exercised history of divestment campaigns, would have, at the upper limit, between \$240-600 billion of possible equity divestment for fossil companies.<sup>6</sup> To demonstrate the magnitude of fossil behemoths, the current market capitalisation of the largest 10 global oil and gas companies exceeds \$2 trillion. Even a coordinated action by the entire universe of university endowments and public pensions funds would unsurprisingly be rapidly corrected by neutral investors eager to take advantage of a temporary depression in market sentiment. The result would be that fossil companies would be even further in the hands of non-disposed, indifferent investors.

## RECOMMENDATION

Divestment from the fossil industry is neither an industry-leading nor progressive strategy. Reducing investment exposure to the fossil industry does not precipitate a reduced prevalence of that industry. Be part of the conversation to influence the discussion.

Returning to the theme of a global carbon budget, an additional area of analysis focuses on how fossil companies are employing the capital reserves they have on their balance sheets. Whether the more conservative figures from Carbon Tracker's Unburnable Carbon 2 are employed, or the slightly more generous figures from the IPCC's recent 5th Assessment Report, which used slightly different methodology, the message is abundantly clear: there are already more fossil fuel reserves identified and accessible than can possibly be burned before 2050 if we are to restrict the maximum global atmospheric temperature rise to 2°C. It is quite likely that more fossil fuel reserves have already been identified than can be burned if we want to remain within a 6°C limit.<sup>7</sup>

It appears quite logical that the need to scour the earth in search for further fossil reserves is already redundant. Fossil fuel extractives companies do not appear to be following that logic. The aggregated spends on both capital expenditure (Capex) searching for new reserves of fossil fuels, and the return of capital to shareholders in the form of dividends were calculated by Trucost for the largest 10 fossil fuel extractives companies across the active EAPF investment portfolios. In the instances when one of the constituents was a conglomerate or integrated miner, the Capex solely for new fossil fuel reserves has been extracted.

Across the active portfolio, the largest fossil companies are spending almost four times as much capital searching for and developing new fossil fuel reserves – which are not required and most likely will never be burned – than they are returning to shareholders. This equates to more than \$200bn annually.

<sup>5</sup> <https://www.eapf.org.uk/>

<sup>6</sup> <http://www.smithschool.ox.ac.uk/research/stranded-assets/SAP-divestment-report-final.pdf>

<sup>7</sup> <http://carbontracker.live.kiln.it/Unburnable-Carbon-2-Web-Version.pdf>



This analysis unveils one of the fundamental flaws of traditional financial analysis within the mining and extractives sector. The desire of the sustainable investment community for Environmental, Social and Governance (ESG) considerations to be integrated into traditional financial analysis is, in part, driven by the conviction that long term investment horizons help to reduce volatility in investment markets and to mitigate future risks by factoring in various future scenarios. Traditional financial analysis of fossil companies may glance in to the future, but only because of the conviction that the current status quo is the sole future scenario to be applied. It is because of this blinkered approach - the refusal to countenance a landscape that is not business as usual – that one of the key analytical metrics within fossil company valuations is the Reserves Replacement Ratio (RRR). A substantial part of a fossil company's valuation is down to its ability to demonstrate that it will continue to exist as a going concern, in the business as usual scenario, for as long as an analyst may wish to apply a discounted cash flow value to their calculations. The RRR describes the scale of reserves discovered and potentially developed by a fossil company, relative to their current rates of production. A value over 100% indicates that, in the business as usual scenario, a fossil company is well placed to continue as a going concern in the future. This is why the magnitude of Capex devoted to realising new fossil reserves is so large. Relative to their market capitalisations, which for a considerable number of fossil fuel extractives companies run in to the hundreds of billions of dollars, Capex diverted to demonstrating the ability to continue in the business as usual scenario, even if the reality points to anything but the business as usual scenario, is a price worth paying.

## RECOMMENDATION

Engage management of fossil fuel extractives companies, asking them to explain their Capex programme regarding the development of new fossil fuel reserves and what plans they have in place to make a transformational shift to a lower carbon economy.

At a company specific level, Trucost was able to identify those constituents which indicated a heightened risk of potential stranding in a carbon constrained economy. The emissions intensity of each company which disclosed suitable data was calculated by dividing the apportioned emissions of each constituent by the value of holding within each portfolio. This resulted in a ranking of companies by their associated emissions per GBP invested. The report identified the 8 companies that had greater than one tonne of carbon emissions per 1GBP invested. These most emissions intensive companies are in fact outliers across the universe of analysed companies. No other company in the sample of 166 which disclosed suitable and standardised data has an intensity greater than one tonne of carbon emissions per 1GBP invested. The consolidated portfolio average was just over 0.4 tonnes CO<sub>2</sub>/£1 invested, and the vast majority of companies had intensities significantly below that level. None of these most emissions intensive companies features in any of the active portfolios, which reinforces the assertion that active carbon mitigation strategies are in evidence among the active managers.

During the research and analysis of this report, it became abundantly clear just how engaging the issue of potential fossil asset stranding has become. Stakeholders of all persuasions – brokers, NGOs, investors, activists – have published their own perspective on the issue, and it makes for a fascinating debate on how society, including asset owners, will move to mitigate the most serious risks that fossil asset stranding may propose.

## RECOMMENDATION

Raise awareness of the stranded assets issue developing within the fossil industry; one of the most effective tools in encouraging governments to legislate is gaining wider social acceptance of the business case for a transition to a low carbon economy.