Universal Owner

Vanguard and Universal Ownership

September 2021

Contents

Executive Summary

Vanguard is the world's second-largest asset manager, controlling assets worth $7.2tn spread across 10,500 companies, or a sum equivalent to well over twice the annual GDP of the United Kingdom. It stands at the crest of an unprecedented concentration of equity ownership in the hands of leading asset managers. Its decisions about where to allocate capital and what shareholder resolutions to support have a tectonic influence on the real economy.

Vanguard is what is known as a 'universal owner'. The scale and diversification of its holdings expose it to a representative slice of the entire market. Its interests are therefore not confined to any particular company, sector or region, but coincide with the market as a whole. The aggregate interest of its portfolio is in the net growth of the market, including the ecological conditions that underpin stable value creation.
Individual companies profit from carbon-intensive projects because the overwhelming majority of the costs are borne by third parties: they are spread around the world and across generations. But if Vanguard holds equity in that company, those costs are not simply borne by third parties, but to a significant degree, by the rest of its portfolio. In principle, this means that universal owners like Vanguard have a deep-seated interest in decarbonization.

In this report, we examine whether Vanguard behaves like a universal owner, whether it recognizes that it is in its enlightened self-interest to prevent the market from inflicting catastrophic climate change on itself. We break down Vanguard's vast equity and bond holdings in the fossil fuel economy, assess its divestment policy and ESG funds, and benchmark its stewardship against two widely-recognized standards, the FRC's 'UK Stewardship Code 2020' and UNPRI's 'Active Ownership 2.0'.

Key Findings

- Vanguard neither sees itself as a universal owner nor acts like one. Its policies fall well short of what is necessary to align its portfolio with the objectives of the Paris Climate Agreement and help avert catastrophic climate change. Vanguard is a financial intermediary responsible for managing assets that ultimately belong to individual beneficiaries. It is these beneficiaries whose funds are exposed to the whole market and who – taken collectively – have an interest in allaying the systemic risk that climate change poses to stable market activity. In failing to act as a universal owner, Vanguard is therefore abdicating its fiduciary responsibility to act in the best interests of its beneficiaries.
- Vanguard considers itself to be a 'practically permanent owner' because the decisive majority of its assets are held in funds designed to passively replicate indexes rather than in funds in which it actively picks stocks. Most of its assets are therefore locked into these indexes over the long term. Vanguard boasts that its portfolio is invested 'in just about every public company, and every industry, practically forever'. However, rather than inferring that it therefore has an interest in the systemic health of the market, Vanguard draws the opposite conclusion. Vanguard's stated aim is to reduce the risk that individual companies in its portfolio face from climate change, and to do so by asking companies to disclose their climate risks so that the market can price this information into their valuation.

- This approach has two crushing flaws. First, reducing the risk that individual companies face from climate change is not the same as reducing the risk that individual companies pose to the climate. For example, a company can quash the risk of carbon quotas by relocating or selling its assets to a foreign firm, neither of which would stem aggregate emissions. Second, companies' climate disclosures are often vague, while the criteria that investors use to screen climate risk are wildly inconsistent. Even when screening depresses the share-price of emitters, there is no evidence that this moves companies to change their business models.
- As an indication of the scale of damages that Vanguard risks helping to unleash upon its own portfolio, we estimate how much its US equity - the bulk of its holdings - could lose from a 2C temperature rise by 2050. With middle-of-the-road assumptions, we find that Vanguard could lose $3tn. At higher temperatures, it would lose proportionally still more.
- Vanguard's equity and bond holdings are deeply enmeshed in thermal coal and the Alberta tar sands. Its equity gives it effective ownership of assets responsible for the production of 40m tons of coal a year, and 1.5bn barrels of oil from the Alberta tar sands. It has lent at least $7.6bn to coal companies through its outstanding bonds. Crucially, $3.6bn of these bonds are due to mature in the next ten years, confronting the firm with a pivital decision: it will either cease to finance these companies or recapitalize them and inject billions of dollars into the heart of the fossil fuel economy. If it were to 'roll over' these bonds, it would run against the IEA's conclusion that if global net-zero is to be reached by 2050, there can be 'no investment in new fossil fuel supply projects, and new further final investment decisions for new unabated coal plants'.
- These investments conflict with the stated values of many of Vanguard's clients and beneficiaries. We highlight this misalignment by looking at the pension funds of leading American tech companies entrusted to Vanguard, whose employees have often clamored for strident action on climate change. We find that, through Vanguard, the employees of these firms effectively own assets responsible for the production of 10m barrels of Albertan tar sands oil a year, and have provided at least $15m to pure-play tar sands companies via the bonds market.
- Vanguard's capital allocation is not effectively transitioning funds from brown to green assets. Unlike its peers BlackRock and LGIM, it has no policy to divest its discretionary funds from coal companies. It could also reconfigure its passive funds to track indices tweaked to screen against carbon-intensive companies on a firm-wide scale, but it is not. We find that, despite Vanguard's new ESG funds, 94% of the capital flowing into the firm is still going to conventional funds.
- We benchmarked Vanguard's stewardship against the 'UK Stewardship Code 2020'. We found that Vanguard's climate engagement lacks ambitious objectives and a coherent escalation policy. Its ESG team is also under-resourced. It has only 1 member of staff for every 300 portfolio companies, making the research, engagement and monitoring necessary to effective climate stewardship untenable. We calculate that its stewardship budget is equivalent to just 0.16% of its gross asset management fees, a figure the firm could easily multiply several times over.

Universal Ownership

What is universal ownership?

Universal owners are institutional investors whose portfolios encompass a representative slice of the market. This reflects both the size of an investors' holdings, and the modern use of portfolio diversification to manage risk.[1] James Hawley and Andrew Williams originally described public pensions as universal owners, noting that whereas in the 1970s individuals held 75% of stocks in the United States, by 2000 institutional investors owned 60%.[2] It is clear today, however, that the locus of this secular concentration of equity is not public pensions, but asset managers. Indeed, the 'Big Three' asset managers - BlackRock, Vanguard, and State Street - together own 21% of the average S&P 500 company.[3] They also hold significant stakes in European and Japanese markets, while BlackRock and Vanguard alone hold 10% of the average FTSE100 company.[4] What accounts for this remarkable concentration of equity? Three factors are paramount: (1) the sector benefitted from the damage the 2008 financial crisis inflicted on traditional banks; (2) asset managers have reaped the benefits of the increasing transfer of capital from active to passive investing; (3) passive asset managers operate like 'digital platforms' benefitting from economies of scale and network effects.[5]

Climate change is the greatest market failure in the history of the world. Its costs are not priced into market transactions because third parties overwhelmingly bear them – they are 'externalities'. The average individual will bear only 1/n of the costs of climate change, where 'n' is the population now and in the future who will feel its impact. If, for the same reason, companies only bear a minuscule share of the costs of their emissions, then they will have little direct financial incentive to do anything about it. There is a fatal misalignment between the interests of the economy, and what is in the interests of the individual companies that compromise it.

Universal owners do not confront the same collective action problem. Their exposure to a representative slice of the market gives them an interest in the net growth of the market, including the ecological conditions which make stable market activity possible in the first place. If a company in their portfolio engages in GHG-intensive activities, from the point of view of the universal owner, those costs are not simply borne by 'third parties'. Instead, they are felt by the rest of their portfolio. Indeed, in theory, universal owners should make a cost-benefit calculus of whether a given GHG-intensive project contributes to the net health of the market (and so to its portfolio): do the economic benefits derived by that company from the project, exceed the costs borne by the market as a whole? Where it does not, the universal owner has a strict financial interest in bringing it to a stop.

How much does Vanguard stand to lose across its portfolio from climate change? This will give us a basic indication of its stakes in mitigating climate change as a universal owner. We can arrive at a rough figure by combining a forecast of how much its existing equity will increase in value, with an estimate of the GDP cost of a given rise in the average global temperature. Both figures are highly uncertain, so we opt for middle-of-the-road estimates. A further complication is that Vanguard's holdings, the rate of equity

1 See Quigley's, unpublished, Universal Ownership in the Anthropocene (May 13, 2019).

2 Hawley & Williams, 2000, The Emergence of Universal Owners: Some Implications of Institutional Equity Ownership, Challenge, 43(4), p.43.

3 Fichtner & Heemskerk, 2020, The New Permanent Universal Owners: Index Funds, Patient Capital, and the Distinction Between Feeble and Forceful Stewardship, Economy and Society, 49(4), p.510.

4 Buller, 2021, 'Goliath and Goliath: Asset Management and Ownership in the UK Economy', Commonwealth.

5 Braun, forthcoming, Asset Manager Capitalism as a Corporate Governance Regime, in J.S. Hacker et al., American Political Economy: Politics, Markets, and Power. Cambridge University Press: New York, USA.

growth, and climate damages are all unevenly distributed across the world. The most elegant solution to this is to concentrate on Vanguard's US equity holdings, which constitutes the bulk of its overall AUM. We calculate that Vanguard holds US equity worth at least $5.7tn[6]. The S&P 500 has a historical annualized return of around 10% since its inception in 1927, but stagnant growth and the expectation that the market will fall from its current all-time high have led to many predictions of downcast equity returns over the next decade. We borrow our middle-of-the-road figure of 7.5% from market experts at MorningStar and BlackRock. Applying this compound rate up to 2050 projects a rise in Vanguard's US equity holdings to no less than $46tn. A recent analysis by Swiss Re, the world's largest reinsurer, estimates that a temperature rise of 2C (a plausible 2050 scenario) would incur a 6.9% loss of North American GDP. If we take a 'Buffet indicator' of 1:1, in which the value of the market cap and GDP are in parity, this would suggest that at 2C warming, Vanguard will lose 6.9% of the value of its equity. That equates to $3tn.

In many respects, this is a conservative estimate. The economic costs of climate change – to say nothing of the social and ecological cost – increase super-linearly with the rise in global temperatures. The jump from 1C to 2C, for example, will incur far greater human costs than the rise we have already seen to 1C from the pre-industrial baseline of atmospheric carbon dioxide. If we were to model Vanguard's losses at higher temperatures, it could therefore lose proportionally greater amounts – until eventually losing 100% of its AUM.

One of the defining challenges of climate change is uncertainty.[7] We do not know how much CO2 emissions humanity will expel into the atmosphere, or exactly how sensitive the earth's climate is to increases in atmospheric carbon dioxide. The IPCC estimates that a doubling of atmospheric CO2 would lead to a global temperature rise of somewhere between 2.5C and 4C, a factor of uncertainty of 1.6. But even this is only canvassed as 'likely', and is accompanied by the assertion that the 'very likely' range of climate sensitivity lies somewhere between 2C and 5C.[8]

Even more uncertain still is what the cost of a given rise in temperature will be, and the deeper axiological question of how to value costs in the first place. How humans will respond to increasingly severe temperature rises – from geopolitics to migration and sovereign debt – is not susceptible to reliable estimation for the simple reason that climate change is a disaster of enormous proportions without any precedent in the history of humankind. These layers of uncertainty compound to produce a wide range of possible outcomes, and a 'fat-tail' distribution of risks reflecting a low but definite chance of civilization-ending outcomes.

All these reasons advise in favour of treating Swiss Re's figures as conservative point estimates. It is particularly conspicuous in this regard that Swiss Re, by its own admission, excludes the possibility that a rise in global temperatures up to 2C could trigger tipping points in the earth's climate system.[9] But as a group of scientists writing in the pages of Nature last year warned, there is disturbing evidence that even a modest rise on global temperatures could trigger dangerous tipping points – like the breakdown of the Amazon rainforest, or the melting of the West Antarctic ice sheets – and that in some cases, these tipping points may already be in motion.[10] There are also fears that different feedback loops may interact,

6 This is publicly available information, taken from the funds available on Vanguard's website.

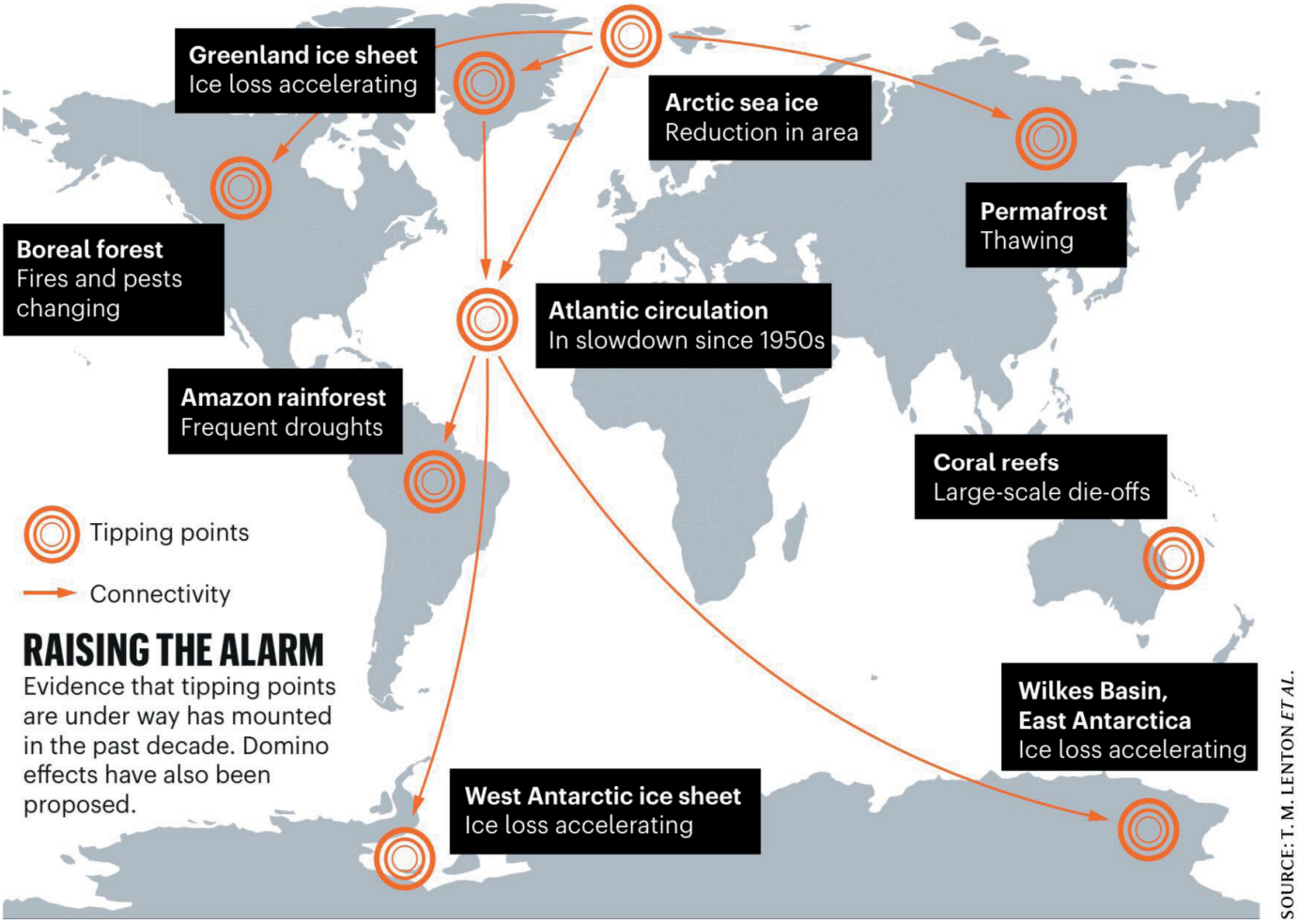
7 Pindyck, forthcoming, Climate Future: Averting and Adapting to Climate Change.

8 IPCC, 2021, Climate Change 2021: The Physical Science Basis. Summary for Policymakers,

9 Swiss Re, 2021, The Economics of Climate Change: No Action Not an Option, p.30.

10 Lenton et al., 2019, 'Climate tipping points – too risky to bet against', Nature, Vol. 575.

creating a fatal cascading effect across the world's biosphere. As the authors note, 'the latest IPCC models projected a cluster of abrupt shifts between 1.5 °C and 2 °C', with the body estimating 'that tipping points could be exceeded even between 1 and 2 °C of warming'.



The problem with climate risk mitigation

A universal owner's interests diverge from the form of 'climate risk mitigation (CRM) that often prevails among investors. On this view, climate change has created a whole ensemble of risks for companies. Governments will take steps to curtail emissions, the price-point of renewables will continue to fall, and the physical effects of climate change may strike. Investors should therefore factor these risks into their valuation of companies and strategically hedge against climate risks. However, it is crucial to recognize that CRM is insufficient to achieve 'aligned climate outcomes' (ACO), for two reasons.

One reason is intrinsic. CRM concerns the risk posed by climate change to the financial returns of individual companies, not the risk which these companies pose to climate change. They are not equivalent, as a few choice examples illustrate.[11] A company may respond to the climate risk they face due to rising sea levels or government carbon quotas by relocating to a territory where they face neither. In undertaking this move, they could keep their emissions constant or increase them. Similarly, it may be in the interests of a company to continue emitting an egregious volume of greenhouse gasses right up to the moment at which regulation prohibits it, e.g., by bringing fossil fuel-powered plants online with a lifetime designed to expire at the last possible moment before key climate regulation dates. As for investors, they may reduce their exposure to climate risk by underweighting carbon-intensive sectors in their equity portfolio. But those shares will likely just fall into the hands of neutral investors, an exchange that is usually of no consequence.

This is not to suggest that the two kinds of risk are antithetical. A company may face climate risks so significant that the insurance premium for constructing new fossil fuel infrastructure becomes prohibitively expensive, for instance. The point is, instead, that the connection between the two is *incidental* rather than *inherent*. Sometimes they converge, but often they do not. Another reason is a failure of practical implementation. For the proponents of CRM, investors should encourage companies to disclose their climate risks, which the market can use to update their valuations. Companies will thereby face mounting market pressure to act upon the risk. But there are serious questions about whether disclosure actually functions in this way. For climate disclosure to achieve its stated objectives, it requires:

- The standardization and universalization of climate risk disclosure
- For investors to screen their holdings using common ESG criteria
- For this screening to depress the share prices of carbon-intensive companies
- For these revaluations to lead companies to reform their real-world activities

Yet, these criteria do not hold. When surveyed, the overwhelming majority of investors confess that existing 'quantitative and qualitative disclosures on climate risks are uninformative and imprecise'.[12] ESG ratings are wildly inconsistent. One study found that 'companies with a high score from one rater often receive a middling or low score from another rater', another that it is 'practically impossible to find two rating agencies that measure the exact same attribute for the same firm'.[13] While there is evidence that ESG screening can depress the share price of companies under specific conditions, there is no empirical evidence that these price fluctuations lead companies to change their real-world activities to meet ACO.[14]

11 A point well articulated by Caldecott, 2020, Aligning Finance for the Net Zero Economy: Achieving Alignment in Finance. UNEP Finance Initiative. We are also using Caldecott's 'CRM' and 'ACO' terminology.

12 Ilhan et al., 2020, 'Climate Risk Disclosure and Institutional Investors', Swiss Finance Institute Research Paper Series No. 19-66.

13 Dimson et al., 2020, Divergent ESG Ratings, The Journal of Portfolio Management, 47(1) pp.75-87; Florian Berg et al., 2020, Aggregate Confusion, The Divergence of ESG Ratings, MIT Sloan School Working Paper 5822-19

14 Kölbel et al., 2020, Can Sustainable Investing Save the World? Reviewing the Mechanisms of Investor Impact, Organization & Environment, 33(4), pp.554-574.

UNPRI's Active Ownership 2.0

Vanguard's guiding interest is not individual company risk. Its holdings are not confined to any particular company or sector, but cut across the market as a whole. The size of Vanguard's holdings, the transaction costs of moving capital, and its reliance on passive funds, mean that it cannot hedge against climate risk. It follows from these two observations that Vanguard's interests coincide with those of the market, and that it cannot escape from this predicament. Its only option is to use its capital and leverage to help power an ambitious programme of decarbonization across its portfolio.

In all of these respects, its interest dovetail with ACO and not CRM, suggesting that Vanguard misperceives its own position. This more expansive view of climate risk aligns with two recent shifts in corporate governance: (1) the recognition that shareholder interests should encompass environmental considerations and that it is clearly in the best interests of beneficiaries to avoid catastrophic climate change; (2) the counterbalancing of shareholder interests with stakeholder interests, i.e., a company's duties to its workers, community and supply chain.[15]

In light of these considerations, UNPRI has released a new 'aspirational standard' of stewardship for institutional investors, 'Active Ownership 2.0'. It argues that a preoccupation with the short-term returns of individual companies has led to a failure to redress systemic market problems. Stewardship should be 'less focused on the risks and returns of individual holdings, and more on addressing systemic or "beta" issues such as climate change [...] it means prioritizing the long-term, absolute returns for universal owners'.[16]

This transformation cannot be achieved by increased disclosure. Investors need to focus their efforts on 'real-world outcomes' instead of fixating on 'inputs or processes'.

UNPRI also emphasizes the importance of collaboration given the dynamics of the 'free-rider' problem.[17] This is especially important in the case of engagement. If an individual investor pushes a company to reduce the costs that it is externalizing onto the rest of the market, this benefits the market as a whole. Yet this investor will be worse off comparatively, as the other investors will recoup the same share of the benefits in proportion to their stake in the market, without the cost of engagement.

Only if investors engage together will there be a full alignment of costs and benefits for each investor. Collaboration not only lowers the cost of engagement because those costs are shared among investors: by bringing their holdings together, investors strengthen their bargaining position, lowering the cost of success in the first place.

In summary, the three key lessons of 'Active Ownership 2.0' are:

- Focuse on systemic problems
- Prioritize real-world outcome
- Collaborate with other investors

15 See, for example, Allianz, 2017, The Complex and Changing World of Fiduciary Duty; Cydney S. Posner, 2019, 'So Long to Shareholder Primacy,' Harvard Law School Forum on Corporate Governance.

16 UNPRI, 2019, Active Ownership 2.0: The Evolution Stewardship Urgently Needs, p.7.

17 UNPRI, Active Ownership 2.0, p.7.

Vanguard and fossil fuels

By any measure, Vanguard is a universal owner. In 2021 its assets under management reached US$7.2tn. Unsurprisingly, given that more than 80% of its equity is held in passive funds[18], Vanguard's portfolio is heavily diversified. By 2019 it had stakes in over 10,500 companies, more than any other asset manager.[19] Vanguard holds a 3% stake in more than 3350 companies and a 5% stake in more than 1900 companies. By contrast, in the 1990s, even the largest public pension funds rarely held company stakes of more than 1%.[20] These stakes give Vanguard enormous leverage over thousands of publicly listed companies. Vanguard's voting power at company annual general meetings (AGMs) is also greater than its holdings might suggest. Many individual shareholders decline to vote at AGMs, increasing the effective vote share of asset managers like Vanguard. Majority Action notes that while the 'Big Three' held an average of 20.5% of the shares of S&P 500 companies in 2017, they cast 25.4% of proxy votes at those companies.[21]

Does Vanguard act as a universal owner, recognize its enlightened self-interest in the systemic health of the market, and take the steps necessary to drive decarbonisation in line with the Paris Agreement? We answer this question in two steps. In this section, we look at Vanguard's holdings in two of the most potent fossil fuels, thermal coal and Alberta tar sands. We ask whether it should be divesting, whether it can transition its passive funds from brown to green assets, and whether its ESG funds are making a mark on its portfolio. In the next section, we benchmark Vanguard's stewardship against the 'UK Stewardship Code' and the UNPRI's 'Active Ownership 2.0'.

Vanguard and divestment

The impact of divestment

Vanguard can influence the fossil fuel companies in its portfolio in two principal ways: divestment and engagement. Divestment can directly affect the share price of a company, and indirectly effect a company by contributing towards its stigmatization. In the stock market, divestment can depress a company's share price, increasing its cost of capital and – in doing so – reducing its solvency. This can damage the company's growth, decreasing its market share. But does this happen? Divestment does not dissolve a stock, it simply trades it to neutral investors. Whether it depresses the share price of a company, therefore, depends upon what proportion of the company's stock is sold, and how liquid the market is, or the level of demand among neutral investors for the stock.[22] Oil and gas majors enjoy enormous capitalization in highly liquid markets, meaning that any single divestment of funds is likely to represent a smaller share of its total capitalization, and that there will be a large number of neutral investors willing to buy the divested stock. But the converse is true of the coal sector. While Exxon Mobil has a market capitalization of $232bn, the world's largest private coal producer, Peabody Energy, has a market capitalization of just $359m. Divestment is more likely to succeed here. One study found that BlackRock's January 2020 announcement that it would divest from companies for whom thermal coal made up >25% of its revenue, led to a pronounced dip in the share prices of large coal mining companies in the United States.[23]

18 Fichtner et al., 2017, Hidden Power of the Big Three? Passive Index Funds, Re-Concentration of Corporate Ownership, and New Financial Risk. Business and Politics, 19(2), p.304.

19 Fichtner & Heemskerk, 2020, The New Permanent Universal Owners, especially pp.502-503.

20 A point noted in Buller, Goliath and Goliath, p.3.

21 Majority Action, 2020, Climate in the Boardroom: How Asset Manager Voting Shaped Corporate Climate Action in 2020, p.17.

22 Ansar & Caldecott & James Tillbury, 2013, Stranded Assets and the Fossil Fuel Divestment Campaign: What Does Divestment Mean for the Valuation of Fossil Fuel Assets?, Smith School of Enterprise and the Environment, University of Oxford, p.12.

23 Alexander Bassen, Thomas Kaspereit & Daniel Buchholz, 2021, The Capital Market Impact of BlackRock's Thermal Coal Divestment Announcement, Finance Research Letters, 41 (101874).

But whether divestment depresses a company's share prices is one thing; whether this, in turn, leads the company to actually change its practices, is another. This is a crucial empirical question. At present, there is little evidence that divestment leads company's to change the activity that prompted divestment in the first place.[24]

Divestment's direct impact is greater in the primary markets, where securities are created through the issuance of bonds, initial stock offerings, and loans. This does not involve trading a security, it involves denying a company new capital. Fossil fuel production is highly capital-intensive and requires a constant lifeline of financing. In recent years, capital has become increasingly scarce for thermal coal producers given the financial risk of stranded assets, and the growing recognition that coal production is incompatible with the protection of the earth's climate. As Ellen Quigley reasons, while universal owners can only have a limited impact upon fossil fuel firms by divesting from the secondary market, they should 'apply a strict decarbonization mandate to all primary market investments'.[25] This would be in line with the IEA's recommendation that there should be no new investments in oil, gas, and coal projects to reach net zero by 2050.

It is generally recognized that the principal impact of divestment – at least in the stock market – is not direct, but indirect.[26] By divesting from an activity, an investor effectively declares it illicit. The cumulative effect of a divestment movement is to stigmatize an activity, which can harm targeted firms in a wide variety of ways. It can affect neutral investor's estimation of a company's future cash flow, and alienate employees, subcontractors and customers. It can motivate governments to legislate against the activity, and drive other investors who can have a material effect on a company's finances – through loans, bonds and insurance – to divest.[27] Coal has incurred this kind of stigma over the last decade, and divestment has been pivotal in driving this trend. Over one-hundred global financial institutions have adopted thermal coal divestment or exclusion policies since 2013. Twenty-three insurers have ended or limited their coverage for coal projects, representing some 12.9% of the primary insurance market, and an enormous 48.3% of the reinsurance market.[28] Arch Coal, one of America's largest coal producers, recently went so far as to rebrand itself as 'Arch Resources' and to market itself anew as a metallurgical coal company. Similar dynamics have informed the stigmatization and declining fortunes of the Alberta tar sands.

Should Vanguard have a divestment policy?

Vanguard holds over 80% of its equity in index-tracking funds. Across the market, the rise of passive investing threatens to severely limit divestment's scope, with dangerous consequences for the climate crisis. Take the case of Encana, the Canadian oil and gas company. Placed on the Carbon Underground 200 divestment list, the company simply decided to relocate its headquarters to Denver so it could enter into large U.S. indices. By default, it received a huge inflow of money from passive funds. Companies often take advantage of the fact that they will enjoy huge passive demand if they meet baseline criteria. In bond markets where this is the case, companies will tend to issue more bonds, with lower spreads, longer maturities, and weaker covenants.

24 Koelbel et al., 2020, Can Sustainable Investing Save the World? p. 564; Truzaar Dordi & Olaf Weber, 2019, The Impact of Divestment Announcements on the Share Price of Fossil Fuel Stocks, Sustainability, 11(11), 3122, p.1-20.

25 Quigley, Universal Ownership in the Anthropocene, p.21

26 Ansar et al. What Does Divestment Mean for the Valuation of Fossil Fuel Assets?, pp.13-14; Ellen Quigley, Emily Bugden & Anthony Odgers, Divestment: Advantages and Disadvantages for the University of Cambridge, University of Cambridge, p.89.

27 Green, 2018, Anti-Fossil Fuel Norms, Climate Change, 150 (1-2), p.103-116.

28 Insuring Our Future, 2020, 2020 Scorecard on Insurance, Fossil Fuels and Climate Change, p.4.

Yet it is not strictly true that Vanguard can do nothing to alter the composition of its index funds. Firslty, in principle, Vanguard could apply a standard of exclusion to its index funds that is low enough to meaningfully impact egregious emitters, but high enough that it does not lead to serious tracking error. Secondly, Vanguard as the second largest asset manager in the world, is not a passive taker of market forces. It has power to influence the leading index providers to tweak indicies to screen against carbon-intensive emitters. S&P/JPX Carbon Efficient Index tracks, for example, the performance of the TOPIX while weighting companies according to their carbon emissions per unit of revenue. FTSE Russell has designed a range of indices that track markets while excluding companies engaged in illicit activities, and indeed, Vanguard's ESG offering uses them. Vanguard could significantly widen this practice to, for example, exclude pure-play thermal coal companies or tar sands companies from all its marketed funded. This would no doubt be a major – and market-leading – shift and its impact would be enormous.

Vanguard has other options available. It can divest through its actively managed funds. As we have seen, divestment is most impactful when the companies targeted have a modest capitalization, operate in illiquid markets, and where it can contribute to a wider divestment movement that stigmatizes the activity withdrawn from. These conditions hold for thermal coal and the Alberta tar sands, and Vanguard therefore has good reason to exclude these activities from its active funds. BlackRock and LGIM have both committed to divesting their discretionary funds from companies that generate a certain percentage of their revenue from thermal coal: for BlackRock, that is 25%; for LGIM, it is 30%.

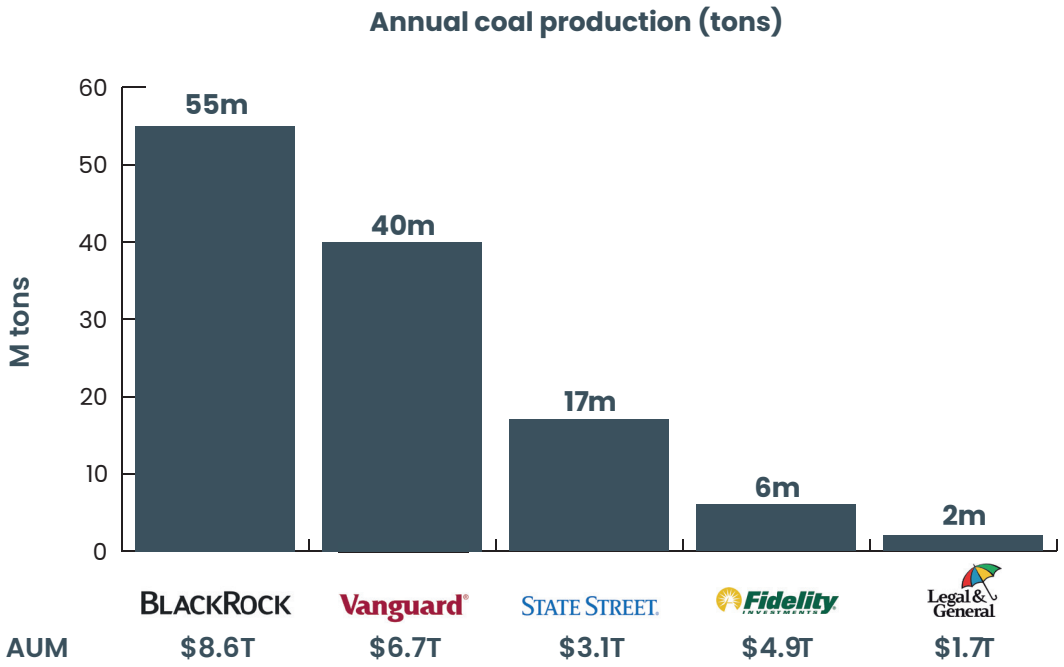
Vanguard can also engage across its portfolio, active and passive. Vanguard can leverage its considerable stakes in thousands of companies to demand that they decarbonize. Unlike divestment, a flat policy applied across funds, engagement is qualitatively varied: it can draw on a range of tactics and changes on a case-by-case basis. It therefore requires a more granular analysis than divestment, which we provide in the section benchmarking Vanguard's stewardship.

How much coal does Vanguard own?

By looking at Vanguard's equity stakes in publicly listed coal companies, we can calculate its effective ownership of coal production. We were able to do this by cross-referencing its disclosed fund (mutual and ETFs) holdings with the company-level coal production data that UrgeWald publishes in its annual Coal Exit List.[29] UrgeWald's methodology is designed to track all companies that play a significant role in the thermal coal value chain, excluding steel and cement makers. It includes companies for which thermal coal makes up at least 20% of their revenue or power production, or that produces at least 10Mt of thermal coal a year or own at least 5GW of coal-fired generation capacity, or are actively expanding their coal infrastructure. Any one of these criteria is sufficient for inclusion.

We found that, among institutional investors, Vanguard holds the second-most equity in thermal coal. The assets it owns are responsible for the production of 40 million tons of coal every year. Given than the majority of this equity is held in passive funds designed to replicate market indexes, the share of coal in its portfolio is roughly proportional to other large passives like BlackRock and State Street. LGIM, notably, has a significantly lower share of thermal coal assets. But the crucial difference is that BlackRock and LGIM engage with their portfolio to demand that companies transition in line with the Paris Agreement, and have divested their active funds from all companies for which thermal coal makes up a substantial share of revenue. Vanguard is doing neither of these things.

29 Urgewald publishes companies' annual coal production figures based upon their own research, which relies upon company disclosures.



Vanguard's thermal coal equity is concentrated in a small number of companies, with more than half ofthe thermal coal it owns held through equity in just five companies. Two of the largest, Arch Resources and Peabody Energy, have both declared bankruptcy in recent years. Peabody has warned that it may be forced to do so again. The result is that these companies have had to relist on the stock market, giving investors a prime opportunity to decline recapitalizing them. Vanguard has no policy in place to stop this, helping to revive these zombified coal giants. It now holds a staggering 9.4% stake in Arch Resources.

Vanguard has many other opportunities to impact coal producers. It owns assets responsible for producing 5.2m tons of thermal coal every year through its equity in Coal India. BlackRock has already shown that huge state-owned companies like Coal India are not beyond influence. In 2020, it helped to warn the State Bank of India against underwriting a $1bn loan to Adani to finance the Carmichael coal mine in Australia. As of the time of writing, the State Bank of India has stayed its decision. Investors have pressured AGL to retire its fleet of coal-fired plants, and the company has since committed to retiring its Liddell coal plants in 2023 despite pressure from the Australian government to extend their lifetime. Nevertheless, it remains AGL's goal to continue producing coal until 2048. Vanguard has remained silent during this debate.

BHP provides an instructive case of the gap between reducing climate risk, and achieving Paris-aligned outcomes. With a commitment to transitioning in line with a 1.5C scenario, BHP has sold its stake in Colombia's Cerrejon coal mine to Glencore, and is currently searching for a buyer for its Mt Arthur mine in Australia. If it were to sell both, this would effectively seal its exit from thermal coal. By offloading assets that are at risk of becoming stranded, this would reduce the risk that climate change poses to BHP. But this does not necessarily lead to any reduction in emissions. BHP sold its Colombian mine to Glencore, a company with no intention of divesting from thermal coal, and with a chequered record on obstructing climate legislation. In order to help attract buyers for Mt Arthur, BHP has sought to extend the mine's lifetime by 20 years. As a universal owner, Vanguard has an interest not just in moving around fossil fuel assets in the market, but winding them down in line with the Paris Agreement. With a 10% stake in BHP, it has the material leverage to help steer these decisions.

Company	Thermal coal production (m tons)[30]	Vanguard holding (2021 %)	Vanguard coal production owned
Arch Resources	55	9.4%	5.2m
Coal India	573	0.91%	5.2m
Peabody Energy	124	3%	3.7m
Glencore	94	3%	2.8m
BHP	23	10%	2.3m
RWE	65	2.5%	1.6m
AGL Energy	30	6.3%	2m
Vistra Corp	13	9.3%	1.2m
Thungela Resources	36	2.8%	1m
CONSOL Energy	19	5.6%	1m

Vanguard's bond financing of coal

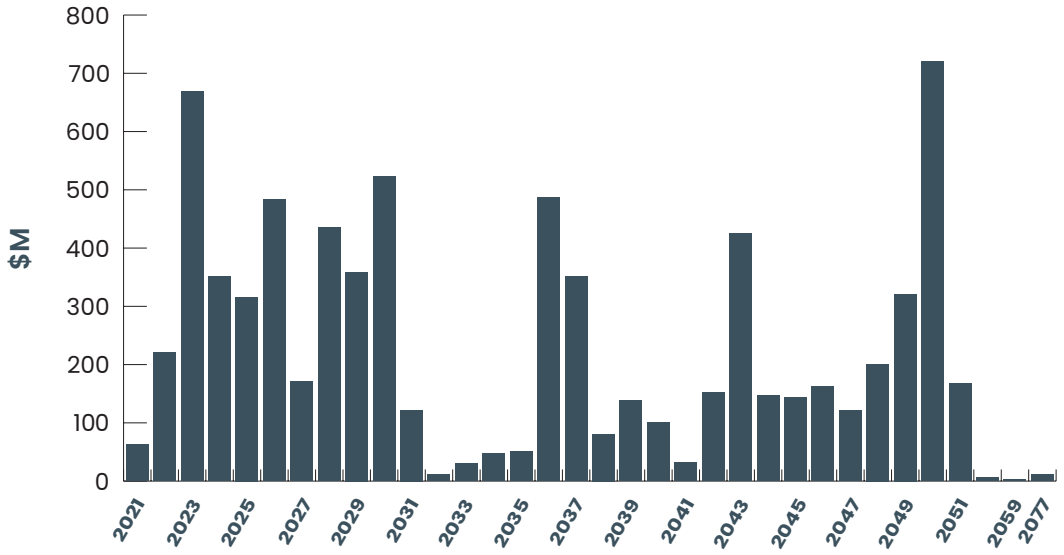
Arguably, the bond market is the lifeline of the carbon economy. Unlike the exchange of equity on the secondary markets, bonds provide companies with the primary financing they need to service debt and maintain and develop their fossil fuel infrastructure. At present, 90% of the fossil fuel sector's refinancing comes from bonds and loans.

Vanguard's equity gives it effective ownership over assets responsible for the production of 40m tons of coal a year. Through the bond markets, it has lent at least $7.6bn to coal companies. The dates at which Vanguard's coal bonds are due to mature are crucial. If humankind is to avert catastrophic levels of climate change, the IPCC concludes that emissions need to fall by 45% from 2010 levels by 2030. Given how carbon-intensive coal is, it is therefore imperative that it is rapidly phased out of the energy mix. Vanguard, however, is providing huge levels of bond financing to coal companies incompatible with this schedule. Indeed, we can see peaks in its maturity dates at the end of the 2020s, in the middle of the 2030s, and around 2050.

A significant share of these bonds will mature over the next few years. This presents Vanguard with a pivotal decision: will it roll over these bonds and inject hundreds of millions of dollars into coal production, or will it cut off this capital to the coal sector? If Vanguard does buy these bonds, it will gift $3.6bn of fresh capital to the cash-strapped coal industry over the next ten years. This free-flowing bond finance may worry asset owners concerned to reduce their exposure to GHG-intensive activities in general and coal in particular.

30 The figures displayed in this table were updated in August 2021 to account for recent changes. For example, Anglo American sold its thermal coal to Thungela in April 2021. Vanguard holds an equal stake in both companies, meaning Vanguard's effective coal production remained the same.

Vanguard coal bond maturity dates



It is notable that 32% of these coal bonds are held via active funds over which Vanguard has complete discretion. It could introduce a policy to exclude coal companies that make a certain percentage of their revenue from coal, or that meet an absolute threshold of coal production, from its active bond holdings. Given the scale of capital involved, this alone could be highly impactful. But Vanguard can also engage across its bond holdings, active and passive. In this respect, it is worth stressing that the period immediately before a corporate bond is maturing and rolled over is when institutional investors have the most leverage, as they can use the threat of exit to demand change. Like most institutional investors, however, Vanguard does not appear to harness these bond cycles to power its engagement.[31] The graphic below illustrates the considerable sums of capital flowing through Vanguard funds to companies heavily involved in coal production. To cite just one striking example, Vanguard has supplied $1,565m to American Electric Power, a major producer and combustor of coal.

Annual coal production and capacity (tons & USD)

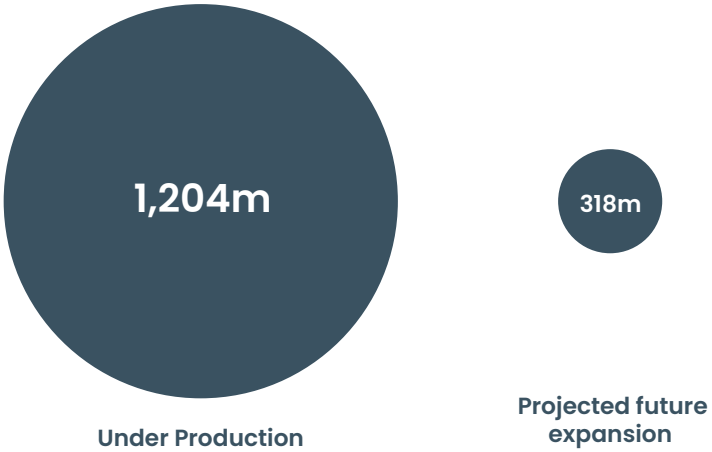
	American Electric Power	PacifiCorp	Vale	BHP	Black Hills Corporation	Glencore
Vanguard bond finance	$1,565m	$1,179m	$536m	$418m	$164	$79m
Coal capacity	13,230MW	13,249MW			384MW	
Coal production (tons)	1.2m	3.1m	2.8m	23m	3.4m	94m

31 This conclusion is based on all the information we can derive from Vanguard's public disclosures. We cannot exclude the possibility that it does not enter into Vanguard's private engagements undisclosed.

Vanguard's bond financing of the tar sands

Alberta's vast deposits of tar sands give it the third-largest oil reserves in the world, after only Venezuela and Saudi Arabia. Tar sands are a mixture of sand, clay, water and a thick oil called bitumen. It is difficult to extract bitumen from this composite, requiring either the excavation of surface deposits or, more commonly, pumping hot water deep into the ground to liquify oil that can then be pressured to the surface. This elaborate process for isolating bitumen is highly energy-intensive, meaning that the 'energy returned for energy invested' for tar sands stands at around just 4:1.[32] It also produces copious amounts of waste, channelling the sand, contaminated water and clay leftover from extraction into huge tailing ponds, laying ruin to a pristine boreal forest the size of England that sustains the local indigenous population. On top of this, tar sands produce 14% more emissions than the average oil used in the U.S., though recent atmospheric measurements taken from aircraft flying over Alberta suggest that this may be a severe understatement.[33] The overwhelming majority of these costs (whether in terms of land, water, people, emissions) are externalized and any investment in tar sands is difficult to justify from the perspective of a universal owner.

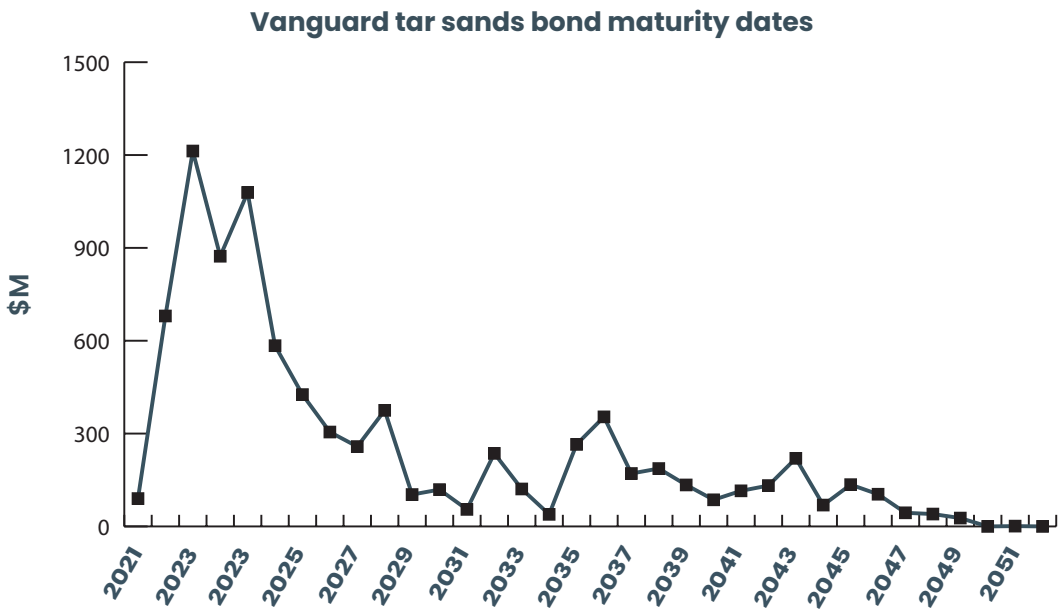
Vanguard tar sand bond financing ($M)



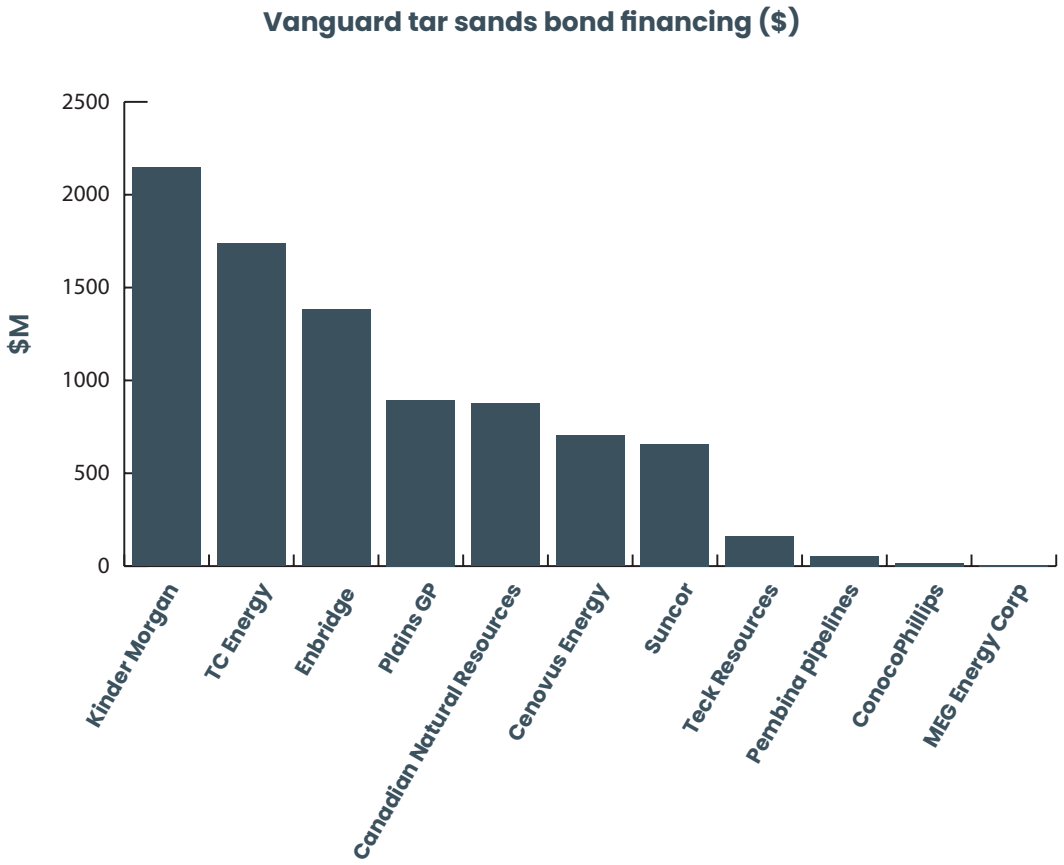
We investigated Vanguard's financing of the Alberta tar sands operations through the bonds market. The companies included in this study are pure-play tar sands companies or the on-site subsidiaries of larger companies (e.g., ConocoPhillips's Canadian operation). They are the leaders in extracting, refining and transporting Alberta's tar sands oil. Kinder Morgan, for example, is embarking on a controversial expansion of its trans-mountain oil pipeline linking Alberta to Vancouver's docks, with the ambition of tripling its capacity. Canadian Natural Resources and Suncor are the two largest tar sands producers, pumping out 7 billion barrels of oil a year. Across the sector, Vanguard bonds have provided at least $8.6bn dollars to tar sands companies.

32 Hall et al., 2014, EROI of different fuels and the implications for society, Energy Policy, 64, p.143.

33 Liggio et al., 2019, Measured Canadian oil sands CO2 emissions are higher than estimates made using internationally recommended methods, Nature Communications, 10(1863), p.1-9.



If we look at the maturity dates for Vanguard's bonds, we discover that the decisive majority are due to mature over the next few years. This lends added urgency to Vanguard's position on the tar sands. Vanguard faces a choice. It will either cease funding these companies or roll over its bonds and funnel billions of dollars of new capital into the Alberta tar sands by 2025. Refinancing the tar sands in the middle of the 2020s is diametrically opposed to the IPCC's recommendation that, if we are to avoid catastrophe, emissions levels need to fall 45% from 2010 levels by 2030. Vanguard is also one of the largest holders of equity in tar sands. Through its stakes in the sector, it effectively owns production responsible for 1.2 billion barrels of oil a year.



Tech employees' tar sand financing through Vanguard

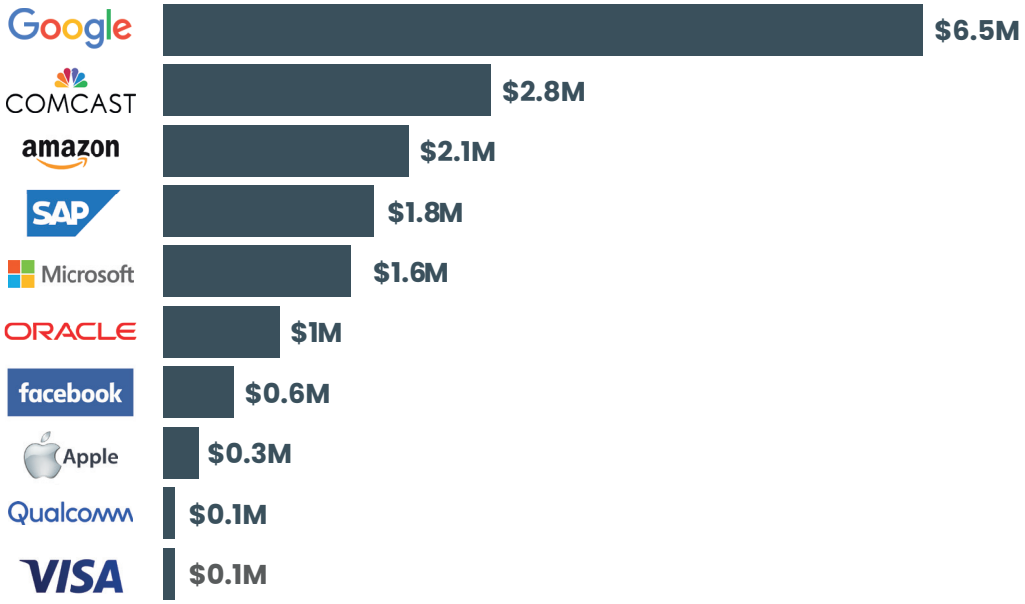
Vanguard's climate stewardship is often out of step with its clients. Vanguard's refinancing of the Alberta tar sands is a case in point. It conflicts not only with the IPCC climate science, but with the values and best interests of many of Vanguard's clients: the asset owners and beneficiaries who have placed their money in Vanguard's trust. At the same time, tech firms like Amazon, Google and Microsoft have taken increasingly bold steps to address climate change, while their employees have often played a catalytic role as climate activists. Google uses carbon offsets to neutralize its legacy emissions, intends to become carbon-free by 2030, and has issued $5.75bn in sustainability bonds. Its workers have been pivotal in pushing for these measures. An employee letter calling on the company to adopt a 2030 net-zero target attracted 1,000 signatures in 2019. Similarly, the group 'Amazon Employees for Climate Action' has lead climate walkouts among other actions.

Company Pension Fund	Pension Fund 401K value ($bn)	Managed by Vanguard ($bn)	% of 401K managed by Vanguard
Google (Alphabet)	17.3	16.3	94
Comcast	13.1	7.4	56
Microsoft	27.5	7.2	26
Oracle	17.4	7.1	41
Amazon	8.3	6.2	74
SAP America	5.2	4.8	90
Apple	10.2	3	30
Qualcomm	4.1	2.8	68
Intel	21.1	2.7	13
Facebook	3.2	2	65
Visa	2.6	1.1	42

For these reasons, we chose to look at the U.S. 401k pension funds of leading tech employee pensions that are invested through Vanguard, and investigated whether their capital is financing the tar sands. We traced the chain of Vanguard trusts, funds, and funds of funds in which tech pensions funds have placed their pension plans, through to the underlying securities they are holding. This process allowed us to identify the flow of capital from pension funds down to companies extracting from the tar sands.

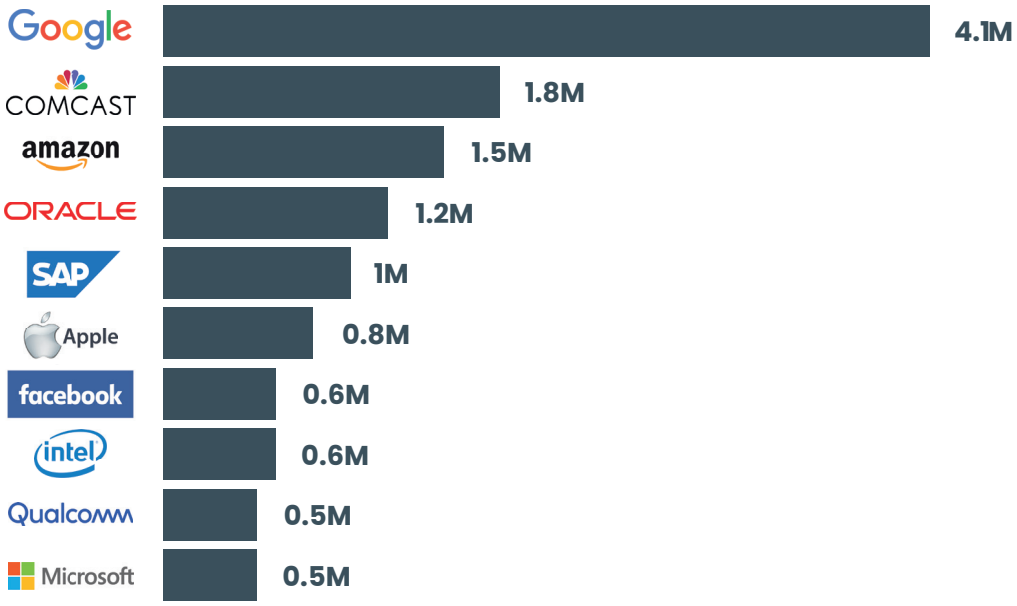
We discovered that leading tech employees have significant investments in the tar sands. In contrast to its corporate policies and employee activism, Google's pension fund has more money invested in the tar sands than any other tech company examined – providing over $6.5m through the bond markets to tar sands companies.

Tech employee tar sand bond finance through Vanguard



We also looked at the equity holdings of these pensions through Vanguard to establish their effective ownership of tar sands companies. We found that U.S. tech employees are the beneficial owners of significant tar sands production. Google employees, for example, effectively owns assets responsible for 4.1 million barrels of tar sands oil a year. It is entirely possible that these pension funds are unaware of where their money is being invested, or have no policies in place that prevents them from using their beneficiaries' money in this way. But there is little doubt that it flatly contradicts the public commitments of many of these tech companies and the stated interests of their employees..

Tech employee tar sand production via Vanguard (barrels per year)



Vanguard's ESG funds

We looked at the holdings of Vanguard's ESG-labelled funds to determine if they effectively exclude fossil fuels. Looking for coal, oil and gas equity, or tar sands bonds, we found only meager traces of these assets. For example, around 0.03% (three in ten thousand) of the equity portfolio of Vanguard's ESG funds are held in companies that produce coal, representing an ownership stake responsible for the annual production of 45 tons of coal a year. This reflects Vanguard's small holdings in a handful of companies, such as Capital Power, which have a mixed energy portfolio. Given the almost negligible scale of these assets, we believe it is reasonable to conclude that Vanguard has successfully excluded fossil fuels from its ESG funds.

Vanguard ESG Funds	Total net assets ($million, 2021)[34]
ESG Developed World All Cap Equity Index Fund (U.K.)	$107
ESG Developed World All Cap Equity Index Fund	$752
ESG Emerging Markets All Cap Equity Index Fund	$49
ESG Global All Cap UCITS ETF	$47
ESG International Stock ETF	$2,400
Vanguard ESG U.S. Corporate Bond ETF	$180
Vanguard ESG U.S. Stock ETF	$4,900
Global ESG Select Stock Fund	$632

Another solution to Vanguard's fossil fuel financing is to roll out funds tracking indices tweaked to under-weight or exclude fossil fuel companies. Its ESG funds already do this, but the question is one of scale. Vanguard's ESG funds represent a tiny fraction of its business. In March 2021 ESG assets were worth around $6.8bn, representing just 0.1% of Vanguard's total AUM. We also looked at the rate of increase in these ESG funds' assets compared to similar non-ESG funds in Vanguard's offering. This gives us a sense of whether they are on course to represent a substantial share of Vanguard's business in the near future. In the table below, funds 1A and 1B track the same FTSE index, while funds 2A and 2B essentially track the same basket of U.S. companies. But in both of these cases, the first of the pair are conventional funds, the second of the pair are ESG-titled. Although a modest sample, it is indicative. We find that almost 94% of the capital inflows into these four funds over the last year entered into the standard funds. This suggests either a lack of demand for ESG products or that Vanguard is not doing enough to push its ESG products - for example by turning them into their default offerings to its clients. Certainly on its current trajectory, these ESG funds will not decarbonise its portfolio.

No.	Name of Fund	Total Net Asset inflow over past 12 months	ESG lag on asset increase
1A	Vanguard Total International Stock Index Fund	10 bn	90%
1B	ESG International Stock ETF	1 bn	
2A	Total Stock Market ETF	100 bn	97%
2B	Vanguard ESG US Stock ETF	2.7 bn	

34 Conversions from GBP to dollars were made on April 12 2021: £1 GBP = $1.37 US.

Vanguard and stewardship

Vanguard is a universal owner, but how does it see itself? It styles itself as what it calls a 'practically permanent owner' of its portfolio because of the share of its assets held in funds designed to passively replicate market indexes.[35] Vanguard is effectively locked into indexes over which it has no control, and which represent entire markets. On the one hand, Vanguard concludes that because it cannot divest these funds it cannot hedge against climate change, and must therefore decarbonise across its portfolio. On the other, its recognises the breadth of its interests. Vanguard boasts that it is invested 'in just about every public company, and every industry, practically forever'.[36] These two facts are key to Vanguard's status as a universal owner. But it draws precisely the opposite inference. Vanguard concludes from these observations that it must focus on how individual companies are setting themselves up for the long-term. Its stewardship is, as a result, built around encouraging its portfolio companies to disclose their climate risks, in the hope that the market will be able to use this information to update their valuation. It elides systemic market risk in favour of the individual company risk, fundamentally mistaking both its own interest and the aggregate interests of its own beneficiaries.[37]

Benchmarking stewardship

In what follows, we benchmark Vanguard against two standards. First, the U.K. Stewardship Code, the most comprehensive mainstream framework for assessing stewardship. Each of the criteria that we judge Vanguard against is derived from the principles of this code. Second, in doing so, we also evaluate Vanguard against the expectations for how a universal owner ought to act, as exemplified in UNPRI's Active Ownership 2.0 programme. By way of contextualization, we frequently compare Vanguard to three of its prominent competitors: BlackRock, State Street, and Legal & General (LGIM).

A. Stewardship values

How do Vanguard's avowed stewardship values contrast to those of its competitors? State Street frames the challenge of climate change in much the same way as Vanguard, as a financial risk to individual companies to be addressed through increased disclosures to the market.[38] But BlackRock comes somewhat closer to the ideal of universal ownership. It recognizes its fiduciary responsibilities as pertaining not just to shareholders, but to stakeholders as well.[39] BlackRock claims to act upon the interests of employees, business partners, consumers, governments, and the communities in which it operates. It attests that this is a concession to the 'collective nature of long-term values creation' and gives it a 'social license to operate'. In theory, this should mean that BlackRock acts in the interests of society, including helping to address climate change as a systemic threat. BlackRock undermines these claims to the extent that its stewardship focuses so heavily upon disclosure. It has, however, recently begun to demand

35 See, for example, Vanguard, 2019, Investment Stewardship Annual Report, p.20; Vanguard, 2018, Investment Stewardship Annual Report, p.11.

36 Vanguard, 2019, Investment Stewardship Annual Report, p.12.

37 Vanguard, June 2020, Investment Stewardship Insights, p.1.

38 State Street, 2020, Annual Climate Stewardship Review, p.1-2.

39 BlackRock, January 2021, Global Principles for Investment Stewardship, p.10; BlackRock, 2020, Annual Stewardship Report, p.12.

Paris-aligned transition plans from its portfolio companies.[40] LGIM goes further still, exemplifying the values of a universal owner. It expressly claims to allocate capital to create 'long-term value not just for our clients and beneficiaries, but also for the economy, the environment and society', and to work with regulators to resolve 'market-wide issues'.[41] In other words, it aims to reduce the risk which companies pose to the climate, and not the other way round.

B. Stewardship resources

The resources that an asset manager assigns to stewardship is a crucial proxy for how seriously it takes its responsibilities, and limits what it can feasibly achieve. Perhaps the single best index available to judge this question is the number of staff on an asset manager's stewardship team. State Street alone does not publicly disclose this data. Nevertheless, the trendline of the table below is clear. Vanguard's stewardship team has only 1 member of staff per 300 portfolio companies, a figure significantly below that of BlackRock. It is not plausible for each member of staff to monitor and engage with 300 companies. If we calculated that one Vanguard stewardship employee costs around $300,000 annually, we can infer that its stewardship team has a budget of approximately $10.5 million.[42] While this may seem like a significant figure, it is equivalent to just 0.16% of Vanguard's gross asset management fees. It is well within Vanguard's means to multiply its stewardship team several times over.

	Stewardship staff	Total AUM ($trillion)	Staff / Total AUM	No* of portfolio companies	Staff / No* of portfolio companies
Vanguard	35	7.1	1 per $203bn	10,500	1 per 300 companies
BlackRock	50	8.7	1 per $174bn	10,000	1 per 200 companies

C. External Managers

Vanguard's active funds are managed by external advisors. In 2019 it announced that it would go a step further and delegate its proxy voting powers for these funds to its advisors. In effect, it has outsourced the stewardship of $471 billion of its equity holdings. This is not without reason: it ensures that investment and stewardship powers rest with the same portfolio managers. It is worth emphasizing by way of comparison, however, that external managers control only 3% of BlackRock's holdings.[43] Vanguard is clear that these firms should follow their own in-house policies and guidelines when voting, yet at the same time Vanguard attests that it endeavours to select managers 'whose principles and processes align with the objectives of the funds they manage'. Indeed, Principle 8 of the U.K. Stewardship Code advises asset managers that in dealing with external advisors, they should 'ensure, as far as can be reasonably achieved, that voting has been executed according with the manager's policies'.

40 BlackRock, January 2021, Global Principles for Investment Stewardship, p.9.

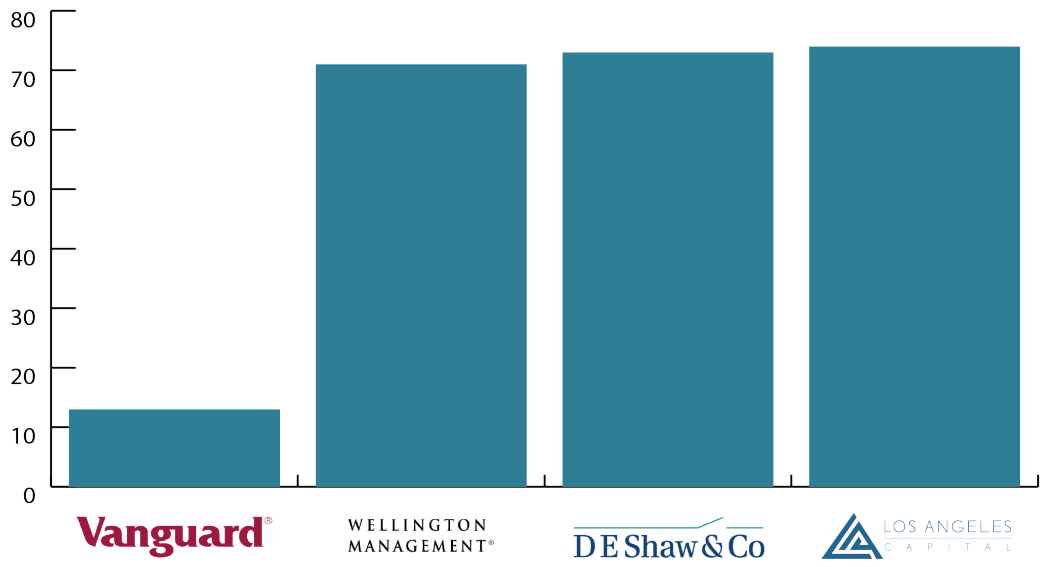
41 LGIM, 2019, Active Ownership Report 2019, p.6.

42 We borrow this methodology from Lucian A. Bebchuk and Scott Hirst, 2020, 'Index Funds and the Future of Corporate Governance: Theory, Evidence and Policy, Columbia Law Review, 119 (8), pp.2077-2078. Figures for BlackRock and Vanguard's number of portfolio companies are taken from Fichtner et al., The New Permanent Universal Owners, p.502. Vanguard gross fees were calculated by multiplying its assets under management by its fee ratio, as reported by Morningstar.

43 BlackRock, 2020, Responsible Investment Transparency Report, p.4.

Are Vanguard's internal and external funds aligned? Taking the key climate resolutions highlighted by Ceres and Majority Action in 2020, we compared how Vanguard's internally managed funds voted, to how three of its leading external managers did: Wellington, D.E. Shaw and L.A. Capital. We discovered a sharp divergence.[44] Vanguard supported just 13% of these resolutions, yet Wellington supported 71%, D.E. Shaw supported 73%, and L.A. Capital supported 74%. In short, Vanguard's externally managed funds consistently supported key climate resolutions, while Vanguard's internally managed funds rarely did.

Votes for climate resolutions (2020 %)



Engagement objectives

Vanguard's engagement objectives follow from its stewardship values. It believes its role is to minimize the risk that climate change poses to its portfolio companies. Vanguard claims to do this through three interlocking engagement asks: encouraging companies to disclose their climate risk to the market, ensuring that those risks are being managed at the board-level, and inviting companies to set emissions reduction targets.[45] In order to understand what Vanguard tends to engage on in practice, we studied every climate resolution that it voted in support of from 2015 to 2020. We found that it voted for resolutions that requested increased climate disclosure – of climate policy, climate risk, or scenario analyses – some sixteen times, but supported just six resolutions asking companies to set emissions targets during the last five years.

Vanguard is therefore not engaging as a universal owner. It is not directly attempting to compel companies to curtail emissions whose benefits will be outweighed by the systemic costs to the rest of its portfolio. Contrary to the UNPRI's recommendation, it is focusing on process, not on real-world outcomes. This stands in sharp contrast to both BlackRock and LGIM. In 2021, BlackRock announced that it would engage across its portfolio to demand the publication of Paris-aligned transition plans.[46] LGIM, meanwhile, brought its Climate Impact Pledge online in 2019, vowing to take aggressive steps to push the largest GHG-emitters in its portfolio to transition towards Paris alignment.

44 We chose Wellington, D.E. Shaw and LA Capital because they were the three external managers to submit the most votes for these climate resolutions.

45 Vanguard, 2020, Investment Stewardship Annual Report 2020

46 BlackRock, January 2021, Global Principles for Investment Stewardship, p.9.

E. Escalation policy

Asset managers should have a clear escalation policy that sets out the increasingly forceful steps that it will take to steward uncooperative companies, informed by a process to monitor their performance over time. As Principle 9 of the U.K. Stewardship Code advises, asset managers should have 'well-informed objectives for escalation'. Vanguard does not have a standardized process defining when and how it will escalate, claiming that it simply takes a 'case-by-case' approach. Its primary escalation measure is to engage in direct discussion with company boards, and if this fails, 'in select situations', it 'may' vote against management at the company's annual general meeting. In the case of climate change, at least, it rarely takes this step. In comparison, BlackRock has fixed demands of companies on climate disclosure, monitors their performance against these criteria, and puts laggards 'on watch'.[47] It announced that if these laggards did not make significant improvements by 2021, that it would take voting action against them. LGIM also monitors companies on climate change through its Climate Impact Pledge, ranks their performance, and takes escalating steps against the most egregious emitters.[48]

F. Shareholder voting

A significant amount of research has detailed Vanguard's consistent opposition to climate resolutions. Majority Actions' 2020 report, 'Climate in the Boardroom', found that Vanguard voted for no less than 100% of company-proposed directors at oil, gas, banking, and automotive companies in 2020, and in favor of 99% at utility companies. Of the thirty-six 'climate-critical resolutions' identified by Majority Action for the year, Vanguard voted in support of only four. BlackRock's voting record is comparable to Vanguard's. LGIM, in sharp contrast, voted for 85% of company-backed directors at utilities, 75% of directors at oil and gas companies, and 88% at banks and automotive companies. Vanguard is failing to lend its enormous voting power to resolutions demanding decarbonization.

G. Collaboration

In light of free-rider problems, collaborative engagement is imperative. In its absence, asset managers who engage on climate change bear considerable costs that will often exceed the benefits which they – as a single firm, among thousands affected by climate change – will derive from their efforts. Meanwhile, free riders will recoup the same benefits at no cost. If asset managers collaborate, however, the costs of engagement per investor can fall dramatically.

Therefore, it is highly auspicious that asset managers have coalesced around the Climate Action 100+, which now represents investors with more than $55 trillion assets under management. The coalition pushes for the adoption of net-zero targets among the world's leading carbon-emitters and has recently released a benchmarking system to monitor these companies' progress. BlackRock, State Street, and LGIM are all members of the Climate Action 100+. Vanguard is not.

47 BlackRock, 2020, Our Approach to Sustainability, p.4, 8, 13.

48 LGIM, 2020, Renewing our Climate Impact Pledge, p.4.

Conclusion

With $7.2tn assets under management, and stakes in over 10,000 companies, Vanguard is one of the most powerful financial institutions in the world. As we have shown, Vanguard's holdings in perhaps the two most ecologically destructive fossil fuels, coal and the Alberta tar sands, are considerable. Unavoidably, Vanguard is deeply entangled with the growing climate crisis. Vanguard could use its financial influence to steward its portfolio in line with the Paris Agreement, by increasing the funding of its stewardship team, focusing its engagement on real-world results, and divesting from coal and tar sands. But it is not.

Vanguard has good reason to change. As a universal owner, it is in Vanguard's own enlightened self-interest to curtail emissions. If the benefits a company derives from a GHG-intensive project are less than the costs this imposes on the rest of the market, Vanguard has a financial interest in bringing it to a stop. Vanguard's stewardship falls short of many of the principles enumerated by the UK Stewardship Code, and the premise of its engagement – mitigating the risk that climate change poses to individual companies by asking them to decrease their exposure – runs counter to UNPRI's Active Ownership 2.0. It also conflicts with the interest and values of many of its own clients, as we saw in its funnelling of tech pension funds into the Alberta tar sands. More than this, it is falling behind its peers. LGIM, and to an increasing extent, BlackRock, are engaging in line with the Paris Agreement, and divesting their active funds from coal. Both go beyond the paradigm of climate risk, and conceive of climate change as a systemic risk to the health of the market as a whole.

Vanguard is increasingly cognizant of the need to upscale its ambition. In March of this year, Vanguard joined the 'Net Zero Asset Managers Initiative'. As a member, within a year, Vanguard will have to define the proportion of assets that it intends to manage in line with the goal of reaching net-zero emissions by 2050, and set an interim target matching this goal for 2030. Over time, members review their targets, 'with a view to ratcheting up the proportion of AUM covered until 100% of assets are included'. This, if pursued, would be a major statement of intent. But if Vanguard is serious about transitioning its portfolio towards net-zero, it will have to adopt stewardship policies that are commensurate with the scale of this task. This includes:

1. Reorienting its stewardship away from company climate risk, and towards reducing the systemic risk which emissions impose on the market.
2. Going beyond disclosure, and demanding that its portfolio companies enact real-world change to decarbonize their business models.
3. Divesting its active funds from companies that make a significant share of their revenue from thermal coal or tar sands.
4. Repackaging its passive funds to track market indexes that exclude egregious fossil fuel companies.
5. Adopting well-defined escalation and voting policies to proportionally increase the pressure on companies that fail to respond to demands for decarbonization.
6. Boosting the funding of its stewardship team such that it is practicable for Vanguard to engage effectively across its whole portfolio.
7. Voting in favour of key climate-critical resolutions, even when it is privately engaging with the targeted company.
8. Partaking in collaborative engagement with other institutional investors, such as the CA100+ coalition.

Appendix: Companies and report calculations

Our research establishes Vanguard's ownership of fossil fuel assets by cross-referencing its disclosed fund holdings with databases of coal and tar sands companies. We determine Vanguard's stakes in these companies, and then attribute to them a corresponding proportion of the companies' coal or tar sands production. For example, if an investor owned 10% of Suncor, which produces 7 billion barrels of oil a year, then it would effectively own assets responsible for 700 million barrels of oil a year. We apply a similar calculation to establish the proportion of Vanguard's bond financing that individual asset owners are responsible for. If a listed fund has provided $1 billion dollars of finance to a company through the bond markets, and a pension fund owns 10% of this fund's assets, the pension fund effectively owns $100 million of the company's bonds.

A brief clarification of how we classified 'tar sands' companies. We looked at pure-play companies, whose business models are based on the tar sands, and the onsite subsidiaries in Alberta that belong to larger companies – for example, ConocoPhillips' Canadian operations. All of these companies are involved in the extraction, refinement or transportation of tar sands oil. While it is not an exhaustive list of companies involved in the Alberta tar sands, it accounts for the vast majority of oil production in the region. We then reduced that list down to those companies in receipt of Vanguard funds. We could not, however, chart the complete flow of bond financing through several oil and gas majors. BP and Royal Dutch Shell, for instance, issue bonds centrally through special purpose vehicles that are entirely opaque from the outside: we cannot evidence whether any of this capital is routed into their Canadian operations. It therefore stands to reason that our analysis of Vanguard's bond financing of the tar sands likely under states the real figure.

Below is the complete list of tar sands companies used:

Pure-play tar sand company	Parent company
Athabasca Oil Corp	Athabasca Oil Corp
Black Pearl Resources	Black Pearl SA
BP Canada Energy	BP
Canada Imperial Oil	Exxon Mobil Corp
Canadian Natural Resources	Canadian Natural Resources
Canadian Oil Sands	Canadian Oil Sands
Cenovus Energy	Cenovus Energy
Cenovus FCCL	Cenovus Energy
Chevron Canada	Chevron Corp
Chevron Canada Resources	Chevron Corp
CITIC Canada Petroleum	CITIC Canada Petroleum
CNOOC	People's Republic of China
Connacher Oil and Gas (Pre-Merger)	Connacher Oil and Gas (Pre-Merger)
ConoCo Phillips Canada Resources Corp	ConocoPhillips
ConocoPhillips Western Canada Partnership	ConocoPhillips
Devon Canada Corp	Devon Energy Corp

Enbridge	Enbridge
EOG Resources Canada	EOG Resources
ExxonMobil Canada	ExxonMobil Corp
Greenfire Oil & Gas	Greenfire Oil & Gas
Grizzly Oil Sands ULC	Grizzly Oil Sands ULC
Husky Energy	Cenovus Energy
Imperial Oil	Exxon Mobil Corp
International Petroleum Corp	International Petroleum Corp
Kinder Morgan Canada	Kinder Morgan
Kinder Morgan	Kinder Morgan
MEG Energy Corp	MEG Energy Corp
Mocal Energy Limited	Eneos Holdings
Murphy Oil Corp Canadian Oil	Murphy Oil Corp
Murphy Oil Corp Western Canada	Murphy Oil Corp
Nexen Oil Sands Partnership	People's Republic of China
Oilsands Quest	Oilsands Quest
Osum Oil Sands Corp	Osum Oil Sands Corp
Paramount Resources	Paramount Resources
Pembina Pipeline Corp	Pembina Pipeline Corp
Pengrowth Energy Corp	Strathcona Resources
Plains All American Pipeline	Plains GP Holdings
Prosper Petroleum	Prosper Petroleum
Repsol Canada Energy Partnership	Repsol
Repsol Oil & Gas Canada (pre-merger)	Repsol
Shell Canada Energy	Royal Dutch Shell
Shell Canada Exploration	Royal Dutch Shell
Southern Pacific Resource Corp	Southern Pacific Resource Corp
Strathcona Resources	Strathcona Resources
Suncor Energy	Suncor Energy
Sunshine Oilsands	Sunshine Oilsands
Syncrude Canada	Suncor Energy
TC Energy Corp	TC Energy Corp
Total Canada	Total SE
Trans Mountain Corporation	Canadian Government
Value Creation	Value Creation

The company-level tar sand production data used is that published by RAN in its 2021 Banking on Climate Change report. These figures originate from Oil Change International and Rystad Energy.

Company name	Tar sands reserves under production (million barrrels)	Projected expansion (million barrels)
Suncor Energy	7607	1401.6
Canadian Natural Resources	7350.4	2857.7
Exxon Mobil	5457.8	1071
Cenovus Energy	4150.1	1520
Imperial Oil	1766.2	399.6
CNOOC (China National Offshore Oil Corporation)	1729	349.4
Husky Energy	1308.3	966.4
Total SE	1299.5	276.7
MEG Energy Corp	1207.3	1014
ConocoPhillips	674.8	242.5
Chevron Corp	569	83.7
Teck Resources	541.6	29.6
Connacher Oil and Gas	416.7	70.3
PetroChina	362.8	618.8
Athabasca Oil Corp	307.4	415.3
Royal Dutch Shell	284.5	41.9
BP[49]	281.5	459.6
Osum Oil Sands Corp	250.3	266.6
China Petroleum & Chemical Corp	247.7	32.2
Japan Petroleum Exploration Co (JAPEX)	172.8	35.9
Korea National Oil Corp	132.8	64.5
Stathcona Resources	106.7	98
Sunshine Oilsands	88.7	144
International Petroleum Corp	2.89	291.2
Everest Canadian Resources	0	28.5
Grizzly Oil Sands	0	79.3
Paramount Resources	0	117.2
Prosper Petroleum	0	30.6

49 BP has publicly disagreed that it has tar sands production. Rather, it's CEO Bernard Looney states 'We don't operate any production in Alberta, or plan to expand production capacity there. But, we do have interests in a producing project operated by one of our partners'. BP's 2019 annual report states: 'We hold interests in three oil sands lease areas through the Sunrise Oil Sands and Terre de Grace partnerships and the Pike Oil Sands joint operation [...] BP is in the exploration and appraisal phase in certain Canadian oil sands assets that require further advancement of low-carbon extraction technology in order to achieve optimum development'. Under the 'Exploration for and evaluation of oil and natural gas resources', p.181: '2019 includes approximately $2.5 billion relating to Canadian oil sands'.