

Institution of Mechanical Engineers

Update on financial links with fossil fuels and arms corporations, March 2022

This document provides an update on information gathered for the report, *Irresponsible Science?: How the fossil fuel and arms industries finance professional engineering and science organisations*¹, published by Scientists for Global Responsibility (SGR) in October 2019. Information sourced from the Institution's publicly available documents is provided first, followed by commentary by SGR.

Investment policy

The Institution of Mechanical Engineers has not made any significant changes to its investment policy since the time of the *Irresponsible Science?* report.

We found no evidence of an ethical investment policy in any of IMechE's online documents.

The IMechE's Statement of Investment Principles for its staff pension states that "The Trustees have considered long-term financial risks to the Scheme and ESG factors as well as climate risk are potentially financially material and will continue to develop its policy to consider these, alongside other factors, when selecting or reviewing the Scheme's investments in order to avoid unexpected losses".

Investments

At 31st December 2020, IMechE's accounts² listed three investment managers: Schroder & Co, BlackRock Investment Managers, and CCLA Investment Management – but did not detail the specific investment funds or assets in which these management companies actually invested.

SGR's calculations based on the report indicate that Schroder manages £8.7 m on behalf of the IMechE whilst Blackrock manages £6.5 m and the IMechE is likely to hold £3.1 m with CCLA through what the report describes as Charities Official Inv. Fund Income Units.

Schroder & Co (UK)

Shroder & Co recently put together an Environmental, Social and Governance (ESG) policy for its listed assets.³ Within its screening and exclusions policy, the company excludes investment in any security 'involved in the production, stockpiling, transfer' of a range of weapons, including cluster munitions, anti-personnel landmines, chemical weapons, and biological weapons.

It does not, however, exclude companies 'whose business activities or products only have the potential to be used for these purposes, or where these activities or products have not been undertaken or created with these uses in mind.' Nuclear weapons are only excluded from its locally managed assets in Australia and SGR found no evidence of an ethical investment policy around environmental issues or other arms.

BlackRock Investment Managers

¹ <https://www.sgr.org.uk/publications/irresponsible-science>

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https://www.imeche.org/docs/default-source/1-oscar/about-us/governance/imeche-annual-report-2020.pdf?sfvrsn=f4719512_0

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<https://www.schroders.com/en/sysglobalassets/global-assets/english/campaign/sustainability/integrity-documents/schroders-esg-policy.pdf>

In 2020, BlackRock became a participant of the United Nations Global Compact (UNGC).⁴ As a participant of the UNGC, BlackRock is committed to supporting the Ten Principles of the UNGC, and the United Nations Sustainable Development Goals (“SDGs”). While the UNGC encourages a precautionary approach across a range of global issues, there was no evidence found in BlackRock’s online documents of an internal ethical investment policy that explicitly precluded investment in companies involved in the manufacture of weapons, or fossil fuel exploration and extraction.

CCLA Investment Management

CCLA manages funds for charities, religious organisations and the public sector. The CCLA does not invest in cluster munitions or land mines⁵ and says it “received the highest possible grade (A+) in the most recent Principles for Responsible Investment (PRI) survey for our approach to stewardship, ESG integration, in both listed equity and property, and our wider responsible investment strategy and governance”⁶. The organisation has committed to “seek to achieve net-zero emissions portfolios for all our assets under management no later than 2050” and is a founding signatory of the IIGCC Net Zero Asset Managers Initiative. The CCLA does not invest in companies involved in thermal coal and extracting oil sands and its COIF Charities Ethical Fund restricts direct investment in oil and gas extraction companies⁷. SGR was unable to ascertain whether the IMechE’s investments managed by CCLA are held in this ethical fund and so exclude fossil fuel companies.

Transparency

Whilst IMechE does disclose its three investment managers, we were not able to ascertain which funds the Institution invests in through these managers. This limited the extent to which we could ascertain the IMechE’s investments in fossil fuel and arms companies. All that we can tell from the publicly available information is that £11.8 m of the IMechE’s holdings is not invested in cluster munitions or landmines and that £3.1 m is not invested in thermal coal or oil sands.

Corporate links

Since the initial report, the membership of IMechE’s ‘Company Based Registration’ scheme has remained the same. The scheme gives companies a “supported route to membership for [their] engineers and technicians”. In 2021, the IMechE website listed examples of seven of the corporations involved, including two linked to the arms trade - Meggitt and Rolls Royce - and fossil fuel company Fugro.⁸

Education programmes

IMEchE does not appear to run its own school education programmes. Instead, it promotes and supports schemes run by other engineering and science organisations such as Tomorrow’s

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<https://www.blackrock.com/corporate/literature/continuous-disclosure-and-important-information/blackrock-2020-sasb-disclosure.pdf>

⁵ <https://www.ccla.co.uk/our-policies/cluster-munitions-and-landmines-policy>

⁶ <https://www.ccla.co.uk/our-approach/how-we-approach-stewardship-and-ethics>

⁷ https://www.ccla.co.uk/sites/default/files/A_Climate_for_Good_Investment_0.pdf

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[https://www.imeche.org/membership-registration/support-for-employers/company-based-registration#:~:text=Company%20Based%20Registration%20\(CBR\)%20is,need%20to%20leave%20the%20workplace.](https://www.imeche.org/membership-registration/support-for-employers/company-based-registration#:~:text=Company%20Based%20Registration%20(CBR)%20is,need%20to%20leave%20the%20workplace.)

Engineers⁹, STEM Ambassadors, and Primary Engineer.¹⁰ IMechE has also, in the past, been a regular supporter of the Big Bang Fair¹¹; there is, however, no evidence publicly available that indicates current links with the fair.

Events sponsorship

Unlike previous IMechE annual dinners, both the 2018 and 2019 events had no evidence of corporate ties to either arms or fossil fuels companies.¹² We were unable to find any publicly available information about corporate sponsors of the 2020 or 2021 annual dinners if these took place.

Environmental policy

IMechE's 2020 annual report¹³ includes a 'commitment to environmental sustainability'.

The IMechE has made efforts to conserve energy by converting 90% of the lighting of its headquarters on Birdcage Walk, to low energy LEDs. Beyond this, IMechE states that it will 'continue to monitor and record our energy consumption and have put systems in place to be able to report against the requirements of the Streamlined Energy and Carbon Reporting (SECR) policy from January 2021.'¹⁴

IMechE will also be looking to reduce unnecessary travel for employees and members:

'Post COVID-19 restrictions, we will continue our aim to reduce the impact of travel by employees and members (on IMechE business) by promoting the use of lower impact modes of transport, holding telephone and videocall meetings and encouraging flexible working where possible, and in 2021 we will be investing in technology to equip many of our meeting rooms with enhanced video conferencing facilities'.

Other relevant information

IMechE's vision¹⁵ highlights its position as a thought leader when it comes to climate change, stating that:

"we are committed to ensuring that the views of engineers are well represented in the public domain. Thanks to its internationally recognised thought leadership around energy, climate change and future transport, the global press trusts the Institution as a source of expert opinion. With a proven track record for understanding the needs of government, our expert knowledge is sought by politicians to shape policy."

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<https://www.imeche.org/careers-education/supporting-teachers/resources-and-activities/tomorrows-engineers>

¹⁰ Tomorrow's Engineers receive a large amount of sponsorship income from arms and fossil fuel corporations.

¹¹ One of the world's largest arms manufacturers, BAE Systems, has been a sole lead sponsor of the Big Bang Fair across a number of years.

¹² <https://events.imeche.org/ViewEvent?code=ADL6912> and <https://events.imeche.org/viewevent?code=ADL6702>

¹³

https://www.imeche.org/docs/default-source/1-oscar/about-us/governance/imeche-annual-report-2020.pdf?sfvrsn=f4719512_0

¹⁴

<https://www.gov.uk/government/publications/environmental-reporting-guidelines-including-mandatory-green-house-gas-emissions-reporting-guidance>

¹⁵ <https://www.imeche.org/about-us/our-vision>

IMechE's code of conduct¹⁶ for members includes the statements that members shall:

- take all appropriate measures to assess and limit risk in all aspects of their work for others to whom they owe a duty of care;
- identify and quantify all risks and hazards associated with their work and manage them in conformity with accepted engineering and environmental standards and in a manner which does not compromise the welfare, health and safety of society. They shall inform those for whom they work of all matters relating to risks and hazards in a full and timely fashion.
- embrace the needs of the community and future generations and adopt practices that have minimal adverse effects on social, cultural, archaeological and ethnic heritage, and the broader interests of humanity as a whole.
- comply with the obligations for health, safety and environmental protection in relation to both organisational and legislative requirements and must be aware of the purpose of the legislation and be prepared to respond to future legislative demands.
- promote the wise use of non-renewable resources through waste minimisation, recycling and the development of alternatives where possible.
- never knowingly or deliberately cause the environment to be damaged or nuisance to be created by the discharge of unacceptable quantities of any substance or energy in any form, while minimising any adverse effects on its associated flora and fauna and wherever possible give positive benefits.
- promote the concepts of integration of the management of the wider environment and foster environmental awareness within the engineering profession and among the public.

SGR comments

SGR acknowledges that IMechE has made considerable efforts over the last year to improve its sustainability and has impressed the importance of environmental awareness to its members within its code of conduct.

SGR has continuing concerns, however, on the following aspects.

Transparency

IMechE's transparency on its investments is very low. This makes it difficult to ascertain the extent to which IMechE is conducting its investments in a manner that complies with the spirit of its code of conduct for members and that doesn't compromise its self-assessed role as a thought leader around energy, climate change and future transport. Given that many members of the public are deeply concerned about climate change and that those involved in the development of new energy and transport technologies have a background in engineering, any investment by the IMechE in fossil fuels companies, the full extent of which is unclear, risks compromising this role. The "Respect for others" section of IMechE's code of conduct highlights the importance of acting responsibly in accordance with societal challenges, asking members to "embrace the needs of the community and

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[https://www.imeche.org/docs/default-source/governance-documents/code-of-conduct-regulations-\(5-12-18\).pdf?sfvrsn=2](https://www.imeche.org/docs/default-source/governance-documents/code-of-conduct-regulations-(5-12-18).pdf?sfvrsn=2)

future generations and adopt practices that have minimal adverse effects on social, cultural, archaeological and ethnic heritage, and the broader interests of humanity as a whole". The lack of transparency found within IMechE's investments does not, however, demonstrate that the organisation is acting to the same standards that it expects of its members.

In January 2020, the Charity Commission launched an investigation into factors holding charities back from responsible investments¹⁷. With regards to transparency, the regulator said that "people place increasing value on transparency, which research shows is a key driver of public trust in charities". In its "Our Vision" page, IMechE highlights its position as "the largest network of mechanical engineering knowledge, skill and opportunity in the world". With such an esteemed role in the engineering community, it would seem appropriate for IMechE to provide full transparency with regards to its investments in order to enhance and uphold the trust it receives from its members around the globe. Others believe that an increased demand for "transparency, accountability and information about the impact of investments on society" arose after the financial crash of 2008.¹⁸

Since the release of the *Irresponsible Science?* report, several of IMechE's peers mentioned in the report – academic bodies, learned societies and professional institutions in other subject areas – have tightened up their policies on fossil fuels and arms. For example, the Royal Meteorological Society no longer invests in arms or fossil fuels, the Geological Society has introduced investment policies that exclude arms and the most carbon-emitting fossil fuels – thermal coal and tar sands, the Institute of Materials, Minerals and Mining does not currently hold investments in the most carbon-emitting fossil fuels, and the Energy Institute brought in an investment policy that excludes arms and presses for alignment with Paris goals.

It is disappointing that during this time period the IMechE has not introduced any exclusions to its investment policy or introduced an environmental policy.

The British Psychological Society, Royal College of Physicians, British Medical Association, the Royal College of General Practitioners, the Faculty of Public Health, the Royal College of Emergency Medicine and the Royal College of Paediatrics and Child Health have all now fully divested from fossil fuels, are in the process of doing so, or have committed to do so. The British Medical Association took the lead, beginning its journey back in 2014. All these organisations also exclude investment in arms companies.

Links to corporations

Due to the IMechE's lack of transparency, it was not possible to ascertain if it has any investments in arms companies.

More generally, we have identified that IMechE has recent links with the following companies in the arms sector through its Company Based Registration scheme:

- Meggitt
- Rolls Royce

Rolls Royce is part of the consortium manufacturing the UK's new nuclear-armed Dreadnought submarines.¹⁹ Nuclear weapons are now illegal under international law, following the entry into force

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<https://charitycommission.blog.gov.uk/2020/01/15/how-do-charities-approach-investing-in-line-with-their-purpose-and-values-we-want-to-know-and-we-want-to-help/>

¹⁸<https://www.cazenovecapital.com/sysglobalassets/wmmediaassets/uk/charities/documents/reports/intentionalinvestingreportpdf.pdf>

¹⁹ <https://www.rolls-royce.com/products-and-services/defence/submarines.aspx>

of the Treaty on the Prohibition of Nuclear Weapons (TPNW) on 22nd January 2021. Although this law only strictly applies in nations that have ratified the treaty, there are significant ethical and legal implications for the IMechE – and hence we urge the IMechE to sever its formal links to companies involved with these weapons of mass destruction. Indeed, looking ahead, the TPNW will increasingly restrict investment in the companies which make nuclear weapons and their associated components and will ultimately lower the value of their shares, increasing the risk of investing in them and the long-term sustainability of accepting money from them as an income source. See SGR's *Data on arms companies* document for more information on individual arms companies²⁰.

These links with, and any investments in, arms companies appear to be in contradiction of a number of IMechE policies and strategies including:

- the statement in the IMechE's code of conduct that members shall “embrace the needs of the community and future generations and adopt practices that have minimal adverse effects on social, cultural, archaeological and ethnic heritage, and the broader interests of humanity as a whole”. SGR thinks that the prioritisation given to military spending and the international arms trade compromises the welfare, health and safety of society and has major adverse effects on social, cultural, archaeological and ethnic heritage worldwide. The UK government's recent decision to markedly increase its military spending - with a particular focus on weapons technologies - while implementing large cuts to overseas aid spending is a particular striking example of this.²¹ There is an ongoing debate about the extent to which increases in military spending lead to arms races and increased risks of armed conflict rather than, as the industry claims, improved security.²²
- the statement in the IMechE's code of conduct that members shall “identify and quantify all risks and hazards associated with their work and manage them in conformity with accepted engineering and environmental standards and in a manner which does not compromise the welfare, health and safety of society.” SGR thinks that associating with the arms industry – the only industry whose work is used to intentionally injure or kill humans - is in direct contravention of these points, particularly given the export of UK arms which have then been used against civilians by the Saudi Arabian military in Yemen and elsewhere. The number of deaths in Yemen – both in combat and indirectly due to lack of food and basic services – was projected to pass 230,000 by the end of 2019, with children accounting for more than half the deaths.²³ There is significant public concern about the arms industry, including nuclear weapons²⁴ and the use of exported arms against civilians²⁵. In addition, holding financial ties to the arms trade may alienate some sections of society more than others, raising concerns about equity and diversity.

²⁰ https://www.sgr.org.uk/sites/default/files/2021-06/Data_on_arms_companies.pdf

²¹ <https://www.sgr.org.uk/resources/brexit-britain-s-security-policy-cutting-aid-spend-weapons>

²² Holden, P. (2016) *Indefensible: Seven myths that sustain the global arms trade*, London: Zed Books

²³ UN Development Programme (2019) *Assessing the impact of war on development in Yemen*
<http://www.arabstates.undp.org/content/rbas/en/home/library/crisis-response0/assessing-the-impact-of-war-on-development-in-yemen-.html>

²⁴ https://www.icanw.org/change_natwest

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<https://hansard.parliament.uk/Commons/2021-04-20/debates/2C08829E-5B71-49D8-BC7B-302453BAA3FC/ArmsTradeYemen>

SGR has concerns about investments in and ties to arms companies by professional science and engineering organisations for these reasons:

- The arms industry exports weapons that fuel conflict and human right abuses. For example, over the decade to 2017, the UK government licensed exports of arms and other military equipment worth £12 billion to 29 of the 30 nations classed as “Human Rights Priority Countries” by the British Foreign Office.²⁶ These are nations where “the worst, or greatest number of, human rights violations take place”.²⁷ Since 2017, the situation has arguably worsened despite successful legal challenges.²⁸
- Nuclear weapons have become even more controversial in recent years. The UK government’s decision in March to increase the size of the nation’s nuclear warhead stockpile by 44% - as announced in the integrated review of defence and security - has been widely condemned. The UN Secretary General’s office has stated that it is a breach of Article VI of the Nuclear Non-Proliferation Treaty.²⁹ In addition, nuclear weapons have become illegal under international law, following the entry into force of the Treaty on the Prohibition of Nuclear Weapons (TPNW) on 22nd January 2021. As discussed above with regard to specific corporate links, although this law only strictly applies in nations that have ratified the treaty, there are significant ethical and legal implications for organisations with ties to companies involved with these weapons of mass destruction. The treaty prohibits ratifying nations from providing assistance – including financial – for corporations involved in the development, manufacture or deployment of nuclear weapons. This will increasingly restrict investment by international banks and other financial institutions in such corporations, potentially making it harder for them to fund their activities and enhancing the risk of investment on financial grounds alone. Indeed, 101 financial institutions representing more than \$3.9 trillion now have strict and comprehensive policies preventing any type of financial support for companies involved in the nuclear weapons industry³⁰. Furthermore, a series of recent academic research studies have warned of the devastating climatic effects of even a small nuclear war.³¹ SGR’s own analysis shows that, if the nuclear warheads carried by just one UK Trident submarine were launched, devastating global climate impacts could result.³² The possibility of a nuclear war by accident - due to human or technical error - remains a very real threat.
- Many members of the public strongly object to arms company sponsorship of educational materials. We note, for example, the recent adverse publicity in the media³³ regarding the videos featuring employees and armed forces personnel reading fairy-tales and asking questions about engineering that BAE Systems released for primary school children. Engaging with arms companies seems likely to alienate significant sections of the public from a professional science organisation’s mission and goals.

²⁶ Action on Armed Violence (2018) “UK arms exports examined.”

<https://aoav.org.uk/201/uk-arms-exports-examined/>

²⁷ Foreign and Commonwealth Office (2016) *Human Rights and Democracy, 2015*.

<https://www.gov.uk/government/publications/human-rights-and-democracy-report-2015>

²⁸ Court of Appeal finds government broke law over Saudi Arabia arms sales

<https://caat.org.uk/news/2019-06-20-2/>

²⁹<https://www.independent.co.uk/news/uk/politics/boris-johnson-uk-nuclear-weapons-international-law-b1817827.html>

³⁰ https://www.icanw.org/101_investors_say_no_to_nuclear_weapons

³¹ <https://www.nature.com/articles/d41586-020-00794-y>

³² <https://www.sgr.org.uk/index.php/publications/uk-nuclear-weapons-catastrophe-making>

³³ <https://www.independent.co.uk/news/uk/politics/arms-companies-fairy-tale-stories-bae-b1780982.html>

- The arms industry removes resources – financial, human, scientific and technological – from efforts to improve the human condition through the pursuit of knowledge. In his ‘Chance for Peace’ speech in April 1953, US President Dwight D. Eisenhower said: “Every gun that is made, every warship launched, every rocket fired signifies, in the final sense, a theft from those who hunger and are not fed, those who are cold and are not clothed. This world in arms is not spending money alone. It is spending the sweat of its laborers, the genius of its scientists, the hopes of its children.” Eisenhower goes on to compare the relative costs of a bomber and a hospital; these comments seem particularly apposite at a time when the UK has dramatically increased its military spending³⁴ whilst offering most NHS staff a 1% pay rise described as “pitiful” and “insulting”.³⁵ It’s also become apparent that UK hospitals were underprepared for a pandemic due to lack of funding, whereas the UK was the second highest spender on defence in NATO in 2019, to the tune of some \$59.4 billion. UK plans to send an aircraft carrier to the South China Sea in 2021 highlight that this spending is not for territorial defence alone. The pandemic also heightened awareness that as a nation we are not spending enough to alleviate poverty and health inequality within our own borders let alone internationally. Every child experiencing poverty and health inequality is a child less likely to pursue physics as a career.
- The arms industry perpetuates power imbalances and has the potential to harm democracy. In his farewell address, in 1961, Eisenhower warned against the economic, political and “even spiritual” influence of the immense military establishment and large arms industry that had arisen as a result of the Second World War with grave implications for the structure of society. “In the councils of government, we must guard against the acquisition of unwarranted influence, whether sought or unsought, by the military-industrial complex,” he said. “The potential for the disastrous rise of misplaced power exists and will persist. We must never let the weight of this combination endanger our liberties or democratic processes.”
- Financial ties to arms companies make it more difficult for professional science and engineering organisations to raise ethical and other concerns, including in educational materials and public discussion, about the use of science and engineering within the arms industry.
- Warships, combat planes, transport planes and tanks are heavy consumers of fossil fuels. The US Department of Defense is the world’s largest institutional consumer of petroleum, with annual greenhouse gas emissions greater than that of whole European nations such as Sweden.³⁶ SGR estimates that the UK military carbon footprint is equivalent to that of 6 million average cars.³⁷ National emission targets routinely exclude military carbon emissions, and even data on current emissions is sparse and unreliable for the vast majority of nations.³⁸
- A large number of companies involved in the international arms trade have been linked to major corruption, fraud and other malpractice scandals. A review by the Stockholm

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<https://www.gov.uk/government/news/pm-to-announce-largest-military-investment-in-30-years#:~:text=The%20Government%20has%20already%20pledged,compared%20to%20last%20year's%20budget.>

³⁵ <https://www.bbc.co.uk/news/uk-56313199>

³⁶ Crawford, N (2019) *Pentagon Fuel Use, Climate Change, and the Costs of War*
<https://watson.brown.edu/costsofwar/papers/ClimateChangeandCostofWar>

³⁷ <https://www.sgr.org.uk/publications/environmental-impacts-uk-military-sector>

³⁸ <https://www.sgr.org.uk/publications/under-radar-carbon-footprint-europe-s-military-sectors>

International Peace Research Institute (SIPRI) found that “studies suggest that corruption in the arms trade contributes roughly 40 per cent to all corruption in global transactions”.³⁹ Given that many professional engineering and science organisations include strong wording on corrupt behaviour in their codes of conduct, it appears that such organisations should be extremely careful concerning links of a financial or promotional nature with corporations found guilty of such behaviour, or else risk their reputation and the reputation of the wider science and engineering community.

Due to the IMechE’s lack of transparency, it was not possible to ascertain if it has any investments in fossil fuels companies.

More generally, we have identified that the IMechE has links with the following companies in the fossil fuels sector - through its Company Based Registration scheme:

- Fugro

See SGR’s *Data on fossil fuels companies* document for more information on individual fossil fuels companies⁴⁰.

These links to, and any investments in, fossil fuel companies are concerning for a number of reasons:

- They appear to be at odds with the IMechE’s environmental theme⁴¹ and its moves to reduce its own carbon footprint.
- They appear to be at odds with the IMechE’s mission to improve the world through engineering.
- Investment advisers Lane Clark and Peacock have a blog article entitled “Responsible trustees aim for net zero”⁴². We at SGR agree but it appears that the IMechE does not have an investment policy that incorporates this approach.

More generally, SGR has concerns about investments in and ties to fossil fuel companies by professional science and engineering organisations for these reasons:

- Such organisations have considerable influence with politicians and the public and it’s crucial that they put in place robust science-based targets and plans that are compatible with the goals of the Paris Agreement - and end lobbying behaviour that could undermine it - particularly in a year that the UK continues to hold the presidency for the COP26 climate negotiations.
- As the UK Health Alliance on Climate Change⁴³ puts it, “engaging with companies whose business model relies on fuel extraction is of limited use—only divestment will stop extraction”. Worldwide, according to the Alliance, over 1,000 organisations with £7 trillion assets have committed to divesting from fossil fuels and instead investing in climate

³⁹ Feinstein, A., Holden, P. and Pace, B. (2011) Corruption and the arms trade: sins of commission in *SIPRI Yearbook 2011*, Oxford, Oxford University Press

⁴⁰ https://www.sgr.org.uk/sites/default/files/2021-06/Data_on_fossil_fuel_companies.pdf

⁴¹ <https://www.imeche.org/policy-and-press/from-our-perspective/environment-theme>

⁴² <https://www.lcp.uk.com/our-viewpoint/2021/01/responsible-trustees-aim-for-net-zero/>

⁴³ ukhealthalliance.org/divestment

solutions⁴⁴. Research indicates that divestment reduces the price of fossil fuel shares. According to a team at the University of Waterloo in Canada⁴⁵, "lower share prices increase the costs of capital for the fossil fuel industry, which in turn decreases their ability to explore new resources and exploit proven resources". The greater the likelihood of these fossil fuel resources staying in the ground, the more likely we are to meet the international climate change targets agreed under the Paris Agreement in order to prevent potentially catastrophic climate change.

- In order to keep to the 'well below 2°C' target, only one-fifth of known fossil fuel reserves can be burned, putting these assets at risk of becoming stranded⁴⁶. The fraction is even smaller when considering how to meet the 1.5°C target. According to the UK Health Alliance on Climate Change, fossil fuels are an increasingly risky investment and fossil fuel free indexes equalled or outperformed unsustainable alternatives for 5-10 years. "Divestment announcements by prominent investors signal financial risks to the market, which in turn depress share prices," say the University of Waterloo researchers. "Therefore, divestment announcements can have a measurable impact on the fossil fuel industry." Shell said in 2018 that divestment had become a material risk to its business⁴⁷. In 2020 fund manager CCLA, which invests on behalf of charities including Church of England dioceses and IMechE, dropped its investments in oil giants Shell and Total⁴⁸ for financial reasons. On January 27th 2021, ratings agency S&P warned 13 oil and gas companies, including Royal Dutch Shell and Total, that it is considering downgrading their credit ratings. The agency has increased its risk rating for the oil and gas sector as a whole from "intermediate" to "moderately high" because of the move away from fossil fuels, poor profitability and volatile prices, according to news reports⁴⁹.
- Many fossil fuel companies are relying on carbon capture technology and nature-based solutions being deployed at a huge scale to offset their planned emissions⁵⁰. Heavy reliance on the global scale deployment of carbon capture and storage technologies is misplaced given the lack of progress in this area for the last 20 years. According to scientists⁵¹, such technologies are being developed but are "expensive, energy intensive, risky, and their deployment at scale is unproven. It is irresponsible to base net zero targets on the assumption that uncertain future technologies will compensate for present day emissions".
- Use of fossil fuel sponsors for educational materials is likely to alienate young people and present them with difficult ethical choices, particularly given the high participation in the Youth Strike 4 Climate movement.

Recently, a team from the University of Augsburg, Germany, found that when equity mutual funds decarbonize by selling climate-damaging shares, the resulting "decarbonization selling pressure" pushes the price of these stocks downwards. What's more, when divested firms experience a stock price decline, they reduce their carbon emissions more than non-divested firms do. The research is

⁴⁴ <https://www.divestinvest.org/11-trillion-counting-divestinvest/>

⁴⁵ <https://theconversation.com/how-divesting-of-fossil-fuels-could-help-save-the-planet-88147>

⁴⁶ https://www.banktrack.org/download/unburnable_carbon/unburnablecarbonfullrev2.pdf

⁴⁷ <https://www.theguardian.com/commentisfree/2019/oct/13/divestment-bank-european-investment-fossil-fuels>

⁴⁸ <https://www.divestinvest.org/church-of-england-fund-drops-remaining-fossil-fuel-investments/>

⁴⁹ https://www.theguardian.com/business/2021/jan/27/rating-agency-sp-warns-13-oil-and-gas-companies-they-risk-downgrades-as-renewables-pick-up-steam?CMP=Share_iOSApp_Other

⁵⁰ <https://insideclimatenews.org/news/16072020/oil-gas-climate-pledges-bp-shell-exxon/>

⁵¹ <https://www.climatechangenews.com/2020/12/11/10-myths-net-zero-targets-carbon-offsetting-busted/>

the first empirical evidence on the effectiveness of divestment. "Overall, our findings support the divestment movement's hope that a critical mass of investors is able to reduce carbon emissions," write the researchers in their paper in the *Journal of Banking and Finance*⁵².

For those keen to retain support for the energy sector, there are plenty of companies that are much more progressive than fossil fuel companies in which to invest. For example, Orsted (formerly DONG, Danish Oil and Natural Gas) has shifted from being a fossil fuel dominated company to one heavily focused on renewable energy. Similarly, some large German engineering companies, such as Siemens and E.ON⁵³, have also made major shifts away from fossil-fuel related work.

There is, of course, a narrow window of opportunity to keep global temperature rise below 1.5°C that warrants a fast transition away from fossil fuel dependency. We think that investment in the renewable energy and energy storage sectors would meet demand for energy more cost-effectively and more sustainably whilst continuing to provide jobs for those in the energy sector, investment in green chemistry would promote the use of alternative renewable feedstocks, and investment in energy conservation measures would reduce the energy demand.

SGR March 2022

⁵² Rohleder, Martin and Wilkens, Marco and Zink, Jonas, The Effects of Mutual Fund Decarbonization on Stock Prices and Carbon Emissions, *Journal of Banking and Finance*, Volume 134, January 2022, 106352, <http://dx.doi.org/10.2139/ssrn.3612630> See also author explainer at <https://www.youtube.com/watch?v=dorMMn2BBn4>

⁵³ Siemens has committed to the 1.5°C target under the SBTi and E.ON's carbon emissions are aligned with the below 2°C pathway according to TPI.