# Institution of Engineering and Technology (IET)

***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**

In October 2019, the Institution of Engineering and Technology approved an ESG policy for its investments[2].

According to the IET's 2020 annual report[3], "the Trustees believe that Environmental, Social and Governance (ESG) factors can have a material impact on investment risk and return outcomes and that good stewardship can create and preserve value for companies and markets. The Institution is committed to the principles of good governance and sustainability and reflects that in its investment policy." The IET requires its investment managers to have an ESG policy in place but has not excluded any asset types or individual investments. The 2020 annual report adds that "within its allocation to private markets, the IET considers that funds which focus on sustainable investment strategies will positively impact the application of science, engineering and technology to achieve public benefit".

The investment policy paper presented at the IET Board of Trustees meeting in October 2020[4] says that the IET's Finance and Investment Committee agreed that the IET's investment policy will be published on the IET website. SGR has been unable to find the IET investment policy on its website.

**Investments**

IET's annual report[5] indicates that at 31st December 2020, the IET held £133.2 m in listed investments - equities, bonds and mixed funds.

The report listed three investment managers - Mercer Global Investments Europe Ltd, BlackRock Advisors (UK) Ltd and Oak Hill Advisors - but did not detail the specific investment funds or assets in which these management companies invested. The report does, however, mention the BlackRock Dynamic Diversified Growth Fund and the BlackRock Fixed Income Global Opportunities Fund (Unconstrained Bonds).

The BlackRock Dynamic Diversified Growth Fund invests in thermal coal, oil sands, nuclear weapons and controversial weapons such as cluster munitions, landmines, depleted uranium weapons, biological/chemical weapons, blinding lasers, non-detectable fragments and incendiary weapons.[6] It

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[1] https://www.sgr.org.uk/publications/irresponsible-science

[2] Investment Policy paper downloadable from https://www.theiet.org/about/governance/board-of-trustees/board-of-trustees-papers-and-minutes/thursday-1-october-2020/

[3] https://www.theiet.org/media/8073/iet-2020-annual-report.pdf

[4] Investment Policy paper downloadable from https://www.theiet.org/about/governance/board-of-trustees/board-of-trustees-papers-and-minutes/thursday-1-october-2020/

[5] https://www.theiet.org/media/8073/iet-2020-annual-report.pdf

[6] https://www.blackrock.com/uk/individual/products/229428/blackrock-dynamic-diversified-growth-fund-class-a-inc-fund

is not possible to ascertain how much money the IET holds in this fund but as an example, a holding of £30 m could potentially involve investment of £64,000 in controversial weapons, £59,000 in nuclear weapons, £7,000 in thermal coal and £2,400 in oil sands (these figures account for the business involvement information only being available for 82.63% of the fund).

The 20% of the BlackRock Fixed Income Global Opportunities Fund (Unconstrained Bonds) for which information is available invests in civilian firearms.[7]

It appears from the investment policy paper presented at the IET Board of Trustees meeting in October 2020[8] that Mercer manages the IET's Emerging Market Debt whilst Oak Hill Advisors manages the IET's Multi-Asset Credit portfolio. The paper also says that the IET's Finance and Investment Committee approved an initial commitment of £10 m to Mercer's Private Markets PIP VI Sustainable Opportunities Fund. SGR has been unable to find confirmation that the commitment to the Mercer Private Markets PIP VI Sustainable Opportunities Fund went ahead.

**Transparency**

Whilst IET does disclose its three investment managers and a couple of the funds in which it invests, we were not able to ascertain the amounts of these investments or full details of all the IET's holdings. This limited the extent to which we could ascertain the IET's investments in fossil fuel and arms companies. However, it is clear that the IET does invest in both fossil fuel and arms companies, including controversial weapons and nuclear weapons.

**Corporate links**

The IET has more than 100 corporate partners, including arms companies AWE, Babcock, BAE Systems, Boeing Defence UK, Dassault Systemes, Jacobs, L3Harris, Leonardo, Lockheed Martin, MBDA, Raytheon, Rolls Royce and Thales, and fossil fuel companies BP and Shell. Corporate partners do not pay a fee to the IET.

In 2020, the IET received donations from arms companies Airbus, BAE Systems, Chemring Group and Thales.[9]

**Education programmes**

The IET runs several school education programmes. Supporters for these programmes include arms company Thales.[10]

IET is also a supporter of the Big Bang Fair[11], alongside arms companies Thales and Rolls Royce.

**Events sponsorship**

The IET's conference on Milsatcoms in June is sponsored by arms companies Airbus and Lockheed Martin.[12]

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[7]https://www.blackrock.com/americas-offshore/en/products/271096/blackrock-fixed-income-global-opportunities-fund

[8] Investment Policy paper downloadable from https://www.theiet.org/about/governance/board-of-trustees/board-of-trustees-papers-and-minutes/thursday-1-october-2020/

[9] https://www.theiet.org/media/8073/iet-2020-annual-report.pdf

[10] https://www.theiet.org/involved/support-future-generations/our-generous-supporters/

[11]https://www.thebigbang.org.uk/the-big-bang-fair/supporters/

[12] https://milsatcoms.theiet.org/

**Environmental policy**

The IET does not appear to have an environmental policy accessible via its website, apart from one for its events.[13]

In its 2020 annual report the IET says that "Climate change is one of the most significant challenges humankind has ever faced". In 2020 the IET set a target for net-zero greenhouse gas emissions from its own operations within the next ten years. It is working towards accreditation with Investors in the Environment and has set a baseline for its carbon footprint based on data from 2019. "In the year ahead we are looking to refine the measurement of our carbon footprint, ensure our refurbishment of Michael Faraday House achieves a BREEAM rating of Excellent, investigate opportunities in our supply chain and embed some of the carbon savings from reduced travel to work as the COVID-19 pandemic recedes," adds the report.

**Other relevant information**

One of the IET's values is "Integrity - Operate professionally and ethically to gain trust. Be open and honest with each other. Respect everyone and value each other's contribution."[14]

The IET's purpose is "working to engineer a better world" and it notes that "climate change and the global pandemic are currently, without doubt, the most difficult and important engineering challenges of our time".[15] The IET has chosen five societal challenges "where the engineering profession and the IET can make an impact", one of which is sustainability and climate change. By 2030, the IET says it will "accelerate the pace of development and adoption of technology that supports the move towards a zero-carbon future".

In its 2020 annual report, the IET elaborates on this societal challenge - "Addressing global warming quickly and effectively requires urgent, clear and decisive leadership, both politically and within industry, and will rely on establishing the infrastructure, systems and governance for long term sustainability".

A member asked a question about the IET's commitment to sustainability at the Members' Annual Information Event in May 2021.[16]

The IET sees itself as a thought leader on decarbonisation.[17]

The IET's Rules of Conduct[18] include the statements that members shall:

- support colleagues or others to whom they owe a duty of care who in good faith raises any concern about a danger, risk, malpractice or wrongdoing which affects others;
- at all times take all reasonable care to limit any danger of death, injury or ill-health to any person that may result from their work and the products of their work;
- take all reasonable steps to avoid waste of natural resources, damage to the environment, and damage or destruction of man-made products. Lawful work undertaken by members in

[13] https://nuclear.theiet.org/media/1720/iet-environmental-statement.pdf
[14] https://www.theiet.org/about/
[15] https://www.theiet.org/about/vision-and-strategy/the-iet-strategy/
[16] https://www.theiet.org/media/8231/maieminutes2021.pdf
[17] https://www.theiet.org/impact-society/thought-leadership/decarbonisation/
[18] https://www.theiet.org/about/governance/rules-of-conduct/

connection with equipment intended for the defence of a nation will not infringe this rule… or [the preceding] rule.

**SGR comments**

SGR acknowledges that IET has made considerable efforts since 2020 to monitor and improve its sustainability and carbon footprint.

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

*Transparency*

IET's transparency on its investments is low. This makes it difficult to ascertain the extent to which IET is conducting its investments in a manner that doesn't compromise the IET's self-assessed role as a thought leader around decarbonisation, and complies with the spirit of its rules of conduct for members, including by taking all reasonable steps to avoid damage to the environment, limiting risks, danger of death and ill-health due to climate change, limiting danger of death, injury or ill-health or destruction of man-made products through use of weapons (especially where the lawfulness of the weapons or their use is debatable, for example when arms are sold to Saudi Arabia despite overwhelming evidence of violations of International Humanitarian Law in Yemen[19], the UK breaches the Nuclear Non-Proliferation Treaty, or where controversial weapons are banned - see below for more details). What is clear is that the IET has not excluded any asset types or individual investments from its investments, and that the IET holds investments in some of the most carbon-emitting fossil fuels - thermal coal and oil sands - as well as in controversial weapons and nuclear weapons.

The lack of transparency also means that it is difficult to ascertain in which types of controversial weapons the IET is investing - cluster munitions, landmines, depleted uranium weapons, biological/chemical weapons, blinding lasers, non-detectable fragments, incendiary weapons, or a combination of these. The UK is a party to the 2008 Convention on Cluster Munitions[20], which "prohibits all use, production, transfer and stockpiling of cluster munitions". The UK signed the Convention on the Prohibition of the Use, Stockpiling, Production and Transfer of Anti-Personnel Mines and on their Destruction in 1997.[21] The UN has serious concerns about the use of depleted uranium weapons.[22] Biological weapons have been banned since the 1970s.[23] The Chemical Weapons Convention, which strives to make the world safe from the threat of chemical warfare, entered into force in 1997.[24] Blinding laser weapons were banned in 1995.[25] Weapons injuring by non-detectable fragments[26] are not permitted by the Convention on Certain Conventional Weapons drawn up in Geneva in 1980. The same convention restricts the use of incendiary weapons.[27] IET's investment in controversial weapons such as these raises considerable legal and ethical worries and is highly concerning. Similarly, nuclear weapons are now illegal under international law, following the entry into force of the Treaty on the Prohibition of Nuclear Weapons (TPNW) on 22nd January 2021 (see

[19] https://caat.org.uk/homepage/stop-arming-saudi-arabia/caats-legal-challenge/
[20] https://www.clusterconvention.org/
[21] https://www.un.org/disarmament/anti-personnel-landmines-convention/
[22] https://www.un.org/disarmament/convarms/depleted-uranium/
[23] https://www.un.org/disarmament/biological-weapons
[24] https://www.opcw.org/chemical-weapons-convention
[25] https://pubmed.ncbi.nlm.nih.gov/8925488/
[26] http://www.weaponslaw.org/assets/downloads/1980_Protocol_I.pdf
[27] https://geneva-s3.unoda.org/static-unoda-site/pages/templates/the-convention-on-certain-conventional-weapons/PROTOCOL%2BIII.pdf

below for more details). Again, the IET's investment in nuclear weapons raises considerable legal and ethical concerns.

In January 2020, the Charity Commission launched an investigation into factors holding charities back from responsible investments.[28] 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 December 2021, the IET issued a press release about a recent poll showing that engineers are one of the most trusted professions.[29] It would seem appropriate for the IET to provide full transparency with regards to its investments in order to enhance and uphold the trust that its professional members receive from the public and its own value of "Integrity - Operate professionally and ethically to gain trust. Be open and honest with each other". 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.[30]

*Links to corporations*

The IET holds investments in arms companies involved in controversial and nuclear weapons. SGR was unable to ascertain if the IET holds investments in conventional arms companies too, although given the lack of exclusions in its investment policy, that seems likely.

More generally, we have identified that the IET has recent links with the following companies in the arms sector through its corporate partners scheme, donations, events sponsorship and education programme sponsorship:

- AWE
- Babcock
- BAE Systems
- Boeing Defence UK
- Dassault Systemes
- Jacobs
- L3Harris
- Leonardo
- Lockheed Martin
- MBDA
- Raytheon
- Rolls Royce

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[28]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/

[29] https://www.theiet.org/media/press-releases/press-releases-2021/press-releases-2021-october-december/7-december-2021-engineers-one-of-the-most-trusted-professions/

[30]https://www.cazenovecapital.com/sysglobalassets/wmmediaassets/uk/charities/documents/reports/intentionalinvestingreportpdf.pdf

- Thales

Rolls Royce is part of the consortium manufacturing the UK's new nuclear-armed Dreadnought submarines.[31] Indeed, from the above list, only Dassault Systemes and L3Harris are not involved with nuclear weapons. Nuclear weapons are now illegal under international law, following the entry into force 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 IET – and hence we urge the IET to sever its formal links to and investments in 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 companies[32].

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

- IET's value of "Integrity - Operate professionally and ethically to gain trust…Respect everyone". 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.[33] There is significant public concern about the arms industry, including nuclear weapons[34] and the use of exported arms against civilians[35]. In addition, holding financial ties to the arms trade may alienate some sections of society more than others, raising concerns about equity and diversity;
- the statement in the IET's rules of conduct that members shall "support colleagues or others to whom they owe a duty of care who in good faith raises any concern about a danger, risk, malpractice or wrongdoing which affects others", given the dangers that legal or illegal use of weapons impose. ;
- the statement in the IET's rules of conduct that members shall "at all times take all reasonable care to limit any danger of death, injury or ill-health to any person that may result from their work and the products of their work". Although this rule includes the proviso that "lawful work undertaken by members in connection with equipment intended for the defence of a nation will not infringe this rule", SGR would argue that in many cases the arms invested in by IET are likely not to be used either in defence or lawfully, particularly the controversial and nuclear weapons;

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[31] https://www.rolls-royce.com/products-and-services/defence/submarines.aspx
[32] https://www.sgr.org.uk/sites/default/files/2021-06/Data_on_arms_companies.pdf
[33] 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
[34] https://www.icanw.org/change_natwest
[35] https://hansard.parliament.uk/Commons/2021-04-20/debates/2C08829E-5B71-49D8-BC7B-302453BAA3FC/ArmsTradeYemen

- the statement in the IET's rules of conduct that members shall "take all reasonable steps to avoid waste of natural resources, damage to the environment, and damage or destruction of man-made products. Although this rule also includes the proviso that "lawful work undertaken by members in connection with equipment intended for the defence of a nation will not infringe this rule", SGR would argue that in many cases the arms invested in by IET are likely not to be used either in defence or lawfully, particularly the controversial and nuclear weapons;

- The IET's purpose of "working to engineer a better world". 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.[36] 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.[37]

More generally, 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.[38] These are nations where "the worst, or greatest number of, human rights violations take place".[39] Since 2017, the situation has arguably worsened despite successful legal challenges.[40]

- 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.[41] 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

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[36] https://www.sgr.org.uk/resources/brexit-britain-s-security-policy-cutting-aid-spend-weapons
[37] Holden, P. (2016) *Indefensible: Seven myths that sustain the global arms trade*, London: Zed Books
[38] Action on Armed Violence (2018) "UK arms exports examined."
https://aoav.org.uk/201/uk-arms-exports-examined/
[39] Foreign and Commonwealth Office (2016) *Human Rights and Democracy, 2015.*
https://www.gov.uk/government/publications/human-rights-and-democracy-report-2015
[40] Court of Appeal finds government broke law over Saudi Arabia arms sales
https://caat.org.uk/news/2019-06-20-2/
[41]https://www.independent.co.uk/news/uk/politics/boris-johnson-uk-nuclear-weapons-international-law-b1817827.html

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 industry[42]. Furthermore, a series of recent academic research studies have warned of the devastating climatic effects of even a small nuclear war.[43] 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.[44] 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 media[45] 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.

- 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 spending[46] whilst offering most NHS staff a 1% pay rise described as "pitiful" and "insulting".[47] 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 engineering 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."

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[42] https://www.icanw.org/101_investors_say_no_to_nuclear_weapons
[43] https://www.nature.com/articles/d41586-020-00794-y
[44] https://www.sgr.org.uk/index.php/publications/uk-nuclear-weapons-catastrophe-making
[45] https://www.independent.co.uk/news/uk/politics/arms-companies-fairy-tale-stories-bae-b1780982.html
[46] 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.
[47] https://www.bbc.co.uk/news/uk-56313199

- 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.[48] SGR estimates that the UK military carbon footprint is equivalent to that of 6 million average cars.[49] National emission targets routinely exclude military carbon emissions, and even data on current emissions is sparse and unreliable for the vast majority of nations. [50]

- 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 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".[51] 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.

The IET has investments in fossil fuel companies involved in thermal coal and oil sands and, given the lack of exclusions in its investment policy, is likely to hold investments in other fossil fuel companies too.

The IET also has links with the following companies in the fossil fuels sector through its corporate partnership scheme:

- BP
- Shell

See SGR's *Data on fossil fuels companies* document for more information on individual fossil fuels companies[52].

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

- They appear to be at odds with theIET's self-assessed role as a thought leader around decarbonisation[53] and its moves to reduce its own carbon footprint.
- They appear to be at odds with the IET's purpose of "working to engineer a better world".

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[48] Crawford, N (2019) *Pentagon Fuel Use, Climate Change, and the Costs of War* https://watson.brown.edu/costsofwar/papers/ClimateChangeandCostofWar
[49] https://www.sgr.org.uk/publications/environmental-impacts-uk-military-sector
[50] https://www.sgr.org.uk/publications/under-radar-carbon-footprint-europe-s-military-sectors
[51] Feinstein, A., Holden, P. and Pace, B. (2011) Corruption and the arms trade: sins of commission in *SIPRI Yearbook 2011,* Oxford, Oxford University Press
[52] https://www.sgr.org.uk/sites/default/files/2021-06/Data_on_fossil_fuel_companies.pdf
[53] https://www.theiet.org/impact-society/thought-leadership/decarbonisation/

- They appear to be at odds with the statement in the IET's rules of conduct that members shall "support colleagues or others to whom they owe a duty of care who in good faith raises any concern about a danger, risk, malpractice or wrongdoing which affects others", given the risks that climate change imposes on us all ;
- They appear to be at odds with the statement in the IET's rules of conduct that members shall "at all times take all reasonable care to limit any danger of death, injury or ill-health to any person that may result from their work and the products of their work", given the dangers that climate change posesl;

- They appear to be at odds with the statement in the IET's rules of conduct that members shall "take all reasonable steps to avoid waste of natural resources, damage to the environment, and damage or destruction of man-made products";

- Investment advisers Lane Clark and Peacock have a blog article entitled "Responsible trustees aim for net zero"[54]. We at SGR agree but it appears that the IET 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 Change[55] 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 solutions [56]. Research indicates that divestment reduces the price of fossil fuel shares. According to a team at the University of Waterloo in Canada[57], "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℃' target, only one-fifth of known fossil fuel reserves can be burned, putting these assets at risk of becoming stranded[58]. The fraction is even smaller when considering how to meet the 1.5℃ 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

[54] https://www.lcp.uk.com/our-viewpoint/2021/01/responsible-trustees-aim-for-net-zero/
[55] ukhealthalliance.org/divestment
[56] https://www.divestinvest.org/11-trillion-counting-divestinvest/
[57] https://theconversation.com/how-divesting-of-fossil-fuels-could-help-save-the-planet-88147
[58] https://www.banktrack.org/download/unburnable_carbon/unburnablecarbonfullrev2.pdf

that divestment had become a material risk to its business[59]. In 2020 fund manager CCLA, which invests on behalf of charities including Church of England dioceses and the IMechE, dropped its investments in oil giants Shell and Total[60] 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 reports[61].

- Many fossil fuel companies are relying on carbon capture technology and nature-based solutions being deployed at a huge scale to offset their planned emissions[62]. 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 scientists[63], 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".

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 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*[64].

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.ON[65], 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℃ 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.

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[59]https://www.theguardian.com/commentisfree/2019/oct/13/divestment-bank-european-investment-fossil-fuels

[60] https://www.divestinvest.org/church-of-england-fund-drops-remaining-fossil-fuel-investments/

[61]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

[62] https://insideclimatenews.org/news/16072020/oil-gas-climate-pledges-bp-shell-exxon/

[63] https://www.climatechangenews.com/2020/12/11/10-myths-net-zero-targets-carbon-offsetting-busted/

[64] 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

[65] Siemens has committed to the 1.5℃ target under the SBTi and E.ON's carbon emissions are aligned with the below 2℃ pathway according to TPI.

*Institutional Benchmarking*

Since the release of the *Irresponsible Science?* report, several of the IET'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 - and is going further than this by not currently investing in any form of fossil fuel, the Institute of Materials, Minerals and Mining does not currently hold investments in the most carbon-emitting fossil fuels or ams, 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 IET has not introduced any exclusions to its investment policy or introduced a formal 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.

SGR March 2022