Revealed: the 20 firms behind a third of all carbon emissions

Chevron's Kern River oil field in Bakersfield, California. Photograph: Guardian Design

New data shows how fossil fuel companies have driven climate crisis despite industry knowing dangers

by Matthew Taylor and Jonathan Watts

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The Guardian today reveals the 20 fossil fuel companies whose relentless exploitation of the world's oil, gas and coal reserves can be directly linked to more than one-third of all greenhouse gas emissions in the modern era.

New data from world-renowned researchers reveals how this cohort of state-owned and multinational firms are driving the climate emergency that threatens the future of humanity, and details how they have continued to expand their operations despite being aware of the industry's devastating impact on the planet.

The analysis, by Richard Heede at the Climate Accountability Institute in the US, the world's leading authority on big oil's role in the escalating climate emergency, evaluates what the global corporations have extracted from the ground, and the subsequent emissions these fossil fuels are responsible for since 1965 – the point at which experts say the environmental impact of fossil fuels was known by both industry leaders and politicians.

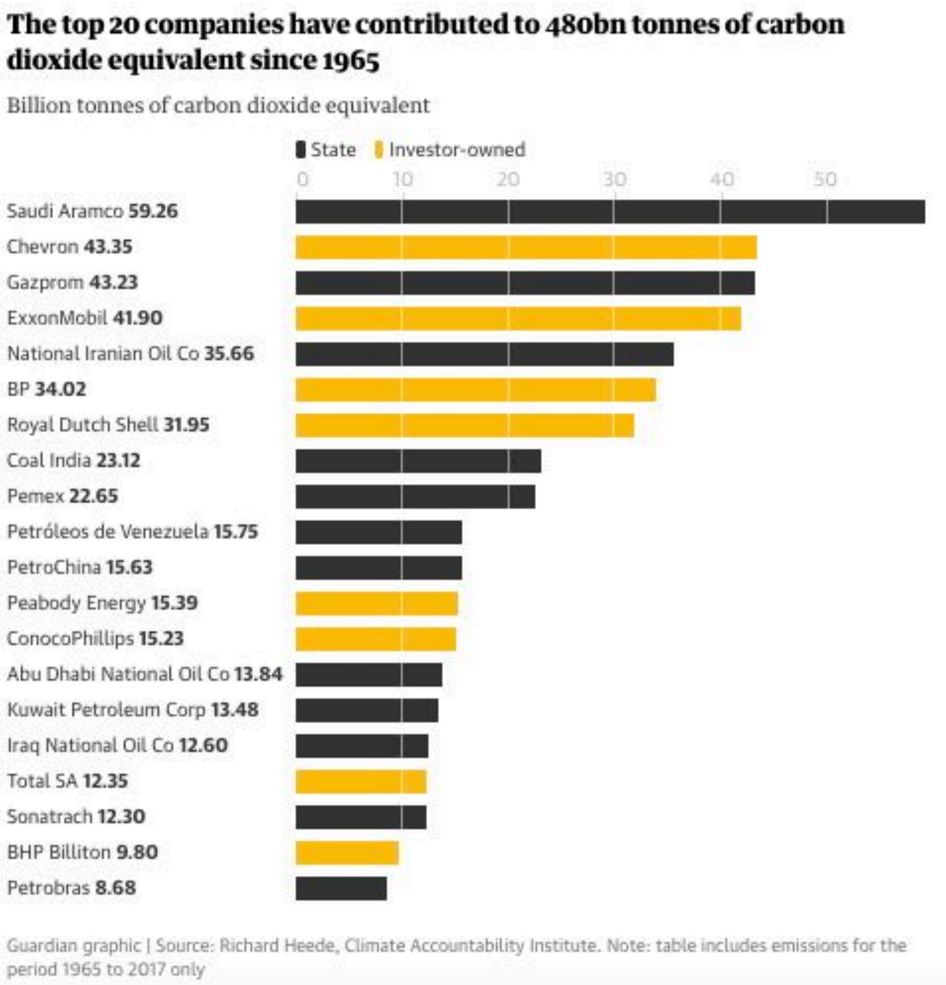
The top 20 companies on the list have contributed to 35% of all energy-related carbon dioxide and methane worldwide, totalling 480bn tonnes of carbon dioxide equivalent (GtCO2e) since 1965.

Those identified range from investor-owned firms – household names such as Chevron, Exxon, BP and Shell – to state-owned companies including Saudi Aramco and Gazprom.

Chevron topped the list of the eight investor-owned corporations, followed closely by Exxon, BP and Shell. Together these four global businesses are behind more than 10% of the world's carbon emissions since 1965.

Twelve of the top 20 companies are state-owned and together their extractions are responsible for 20% of total emissions in the same period. The leading state-owned polluter is Saudi Aramco, which has produced 4.38% of the global total on its own.

Michael Mann, one of the world's leading climate scientists, said the findings shone a light on the role of fossil fuel companies and called on politicians at the forthcoming climate talks in Chile in December to take urgent measures to rein in their activities.



"The great tragedy of the climate crisis is that seven and a half billion people must pay the price – in the form of a degraded planet – so that a couple of dozen polluting interests can continue to make record profits. It is a great moral failing of our political system that we have allowed this to happen."

The global polluters list uses company-reported annual production of oil, natural gas, and coal and then calculates how much of the carbon and methane in the produced fuels is emitted to the atmosphere throughout the supply chain, from extraction to end use.

It found that 90% of the emissions attributed to the top 20 climate culprits was from use of their products, such as petrol, jet fuel, natural gas, and thermal coal. One-tenth came from extracting, refining, and delivering the finished fuels.

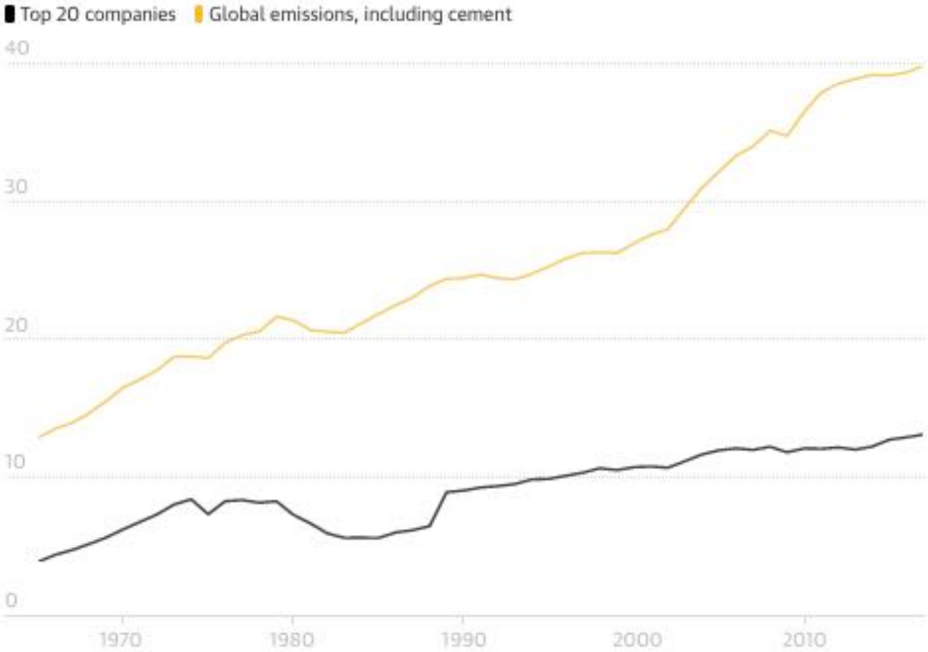
The Guardian approached the 20 companies named in the polluters list. Seven of them replied. Some argued that they were not directly responsible for how the oil, gas or coal they extracted were used by consumers. Several disputed claims that the environmental impact of fossil fuels was known as far back as the late 1950s or that the industry collectively had worked to delay action.

Most explicitly said they accepted the climate science and some claimed to support the targets set out in the Paris agreement to reduce emissions and keep global temperature rises to 1.5C above pre-industrial levels.

All pointed out efforts they were making to invest in renewable or low carbon energy sources and said fossil fuel companies had an important role to play in addressing the climate crisis. PetroChina said it was a separate company from its predecessor, China National Petroleum, so had no influence over, or responsibility for, its historical emissions. The companies' replies can be read in full here.

The top 20 companies have contributed to 35% of all carbon dioxide and methane since 1965

Billion tonnes of carbon dioxide equivalent



Guardian graphic | Source: Richard Heede, Climate Accountability Institute

The latest study builds on previous work by Heede and his team that has looked at the historical role of fossil fuel companies in the escalating climate crisis.

The impact of emissions from coal, oil and gas produced by fossil fuel companies has been huge. According to research published in 2017 by Peter Frumhoff at the Union of Concerned Scientists in the US and colleagues, CO_2 and methane emissions from the 90 biggest industrial carbon producers were responsible for almost half the rise in global temperature and close to a third of the sea level rise between 1880 and 2010. The scientists said such work furthered the "consideration of [companies'] historical responsibilities for climate change".

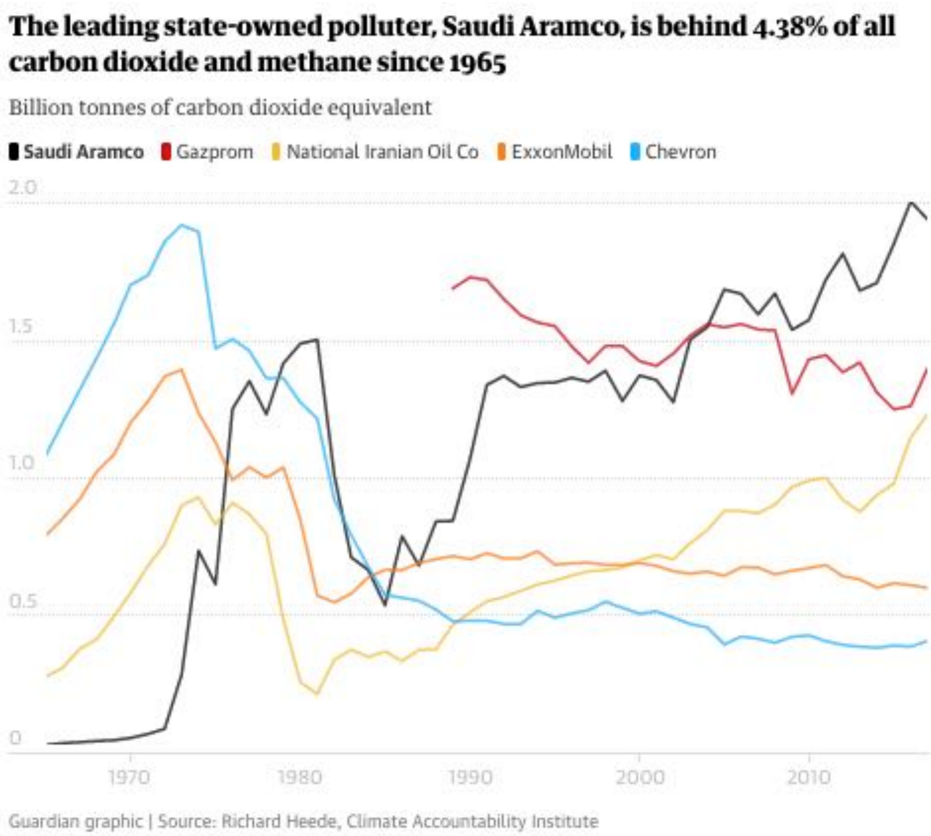
Heede said: "These companies and their products are substantially responsible for the climate emergency, have collectively delayed national and global action for decades, and can no longer hide behind the smokescreen that consumers are the responsible parties.

"Oil, gas, and coal executives derail progress and offer platitudes when their vast capital, technical expertise, and moral obligation should enable rather than thwart the shift to a low-carbon future."

Heede said 1965 was chosen as the start point for this new data because recent research had revealed that by that stage the environmental impact of fossil fuels was known by industry leaders and politicians, particularly in the US.

In November 1965, the president, Lyndon Johnson, released a report authored by the Environmental Pollution Panel of the President's Science Advisory Committee, which set out the likely impact of continued fossil fuel production on global heating.

In the same year, the president of the American Petroleum Institute told its annual gathering: "One of the most important predictions of the [president's report] is that carbon dioxide is being added to the Earth's atmosphere by the burning of coal, oil and natural gas at such a rate by the year 2000 the heat balance will be so modified as possibly to cause marked changes in climate beyond local or even national efforts."



Heede added: "Leading companies and industry associations were aware of, or wilfully ignored, the threat of climate change from continued use of their products since the late 1950s."

The research aims to hold to account those companies most responsible for carbon emissions, and shift public and political debate away from a focus just on individual responsibility. It follows a warning from the UN in 2018 that the world has just 12 years to avoid the worst consequences of runaway global heating and restrict temperature rises to 1.5C above pre-industrial levels.

The study shows that many of the worst offenders are investor-owned companies that are household names around the world and spend billions of pounds on lobbying governments and portraying themselves as environmentally responsible.
A study earlier this year found that the largest five stock-market-listed oil and gas companies spend nearly $200m each year lobbying to delay, control or block policies to tackle climate change.

Heede said the companies had a "significant moral, financial, and legal responsibility for the climate crisis, and a commensurate burden to help address the problem".

He added: "Even though global consumers from individuals to corporations are the ultimate emitters of carbon dioxide, the Climate Accountability Institute focuses its work on the fossil fuel companies that, in our view, have their collective hand on the throttle and the tiller determining the rate of carbon emissions and the shift to non-carbon fuels."

Political polarisation over climate crisis has surged under Trump

Revealed: divide exacerbated by fossil fuel industry's record contribution to Republicans

Why we need political action to tackle the oil, coal and gas companies - video explainer

Oliver Milman

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Fri 11 Oct 2019 14.00 BST

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Republican national convention delegates hold signs reading 'Trump digs coal' in 2016. Photograph: Andrew Harrer/Bloomberg/Getty Images

Donald Trump's presidency has ushered in an era of unprecedented polarisation between Republican and Democrat lawmakers when it comes to voting on measures to tackle the climate crisis, while the fossil fuel industry now almost entirely favours Republicans in campaign contributions.

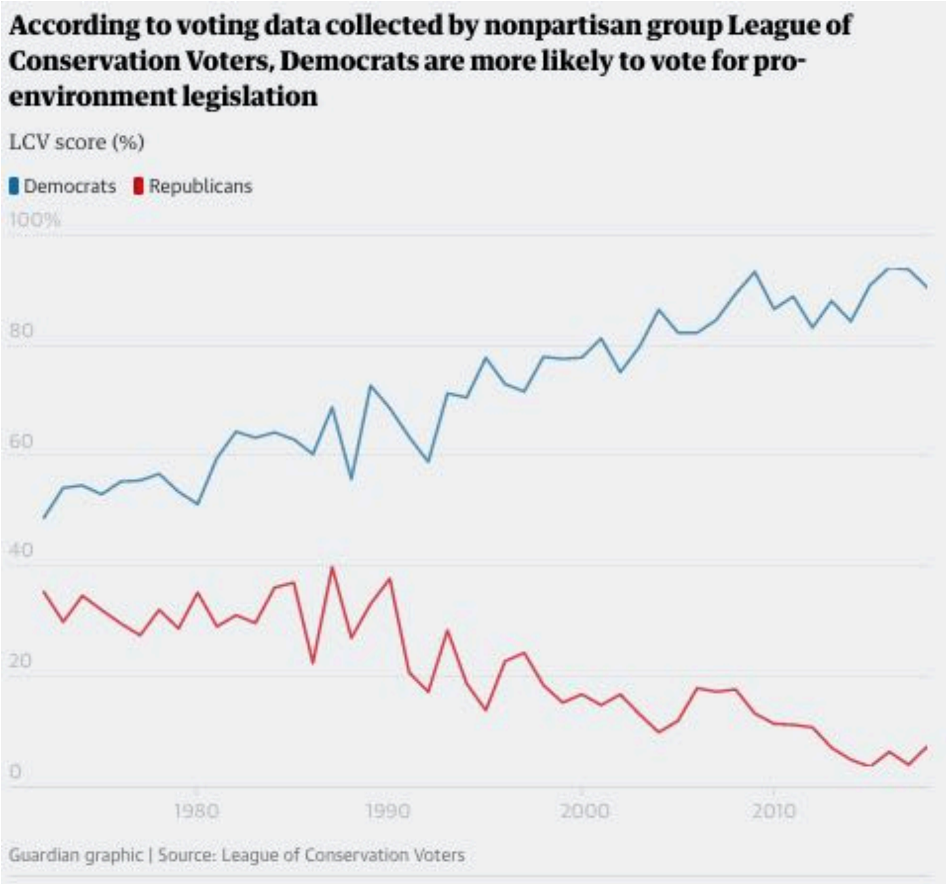
The two main US political parties regularly voted along the same lines on clean air and clean water provisions in the 1970s but started to diverge in the 1990s. They now occupy opposite ends of the spectrum, according to data collated by the nonpartisan group the League of Conservation Voters (LCV).

Amid Trump's zeal for environmental deregulation and an unfolding climate crisis that is now more divisive than abortion for many Americans, this polarisation is at record levels.

Since Trump's election, Democrats across Congress have voted for pro-environment legislation 92% of the time on average, compared with 5% for Republicans, according to an analysis by LCV.

It said 2017 was a particularly extreme year, with Republicans in the Senate voting for environmental protections just 1% of the time. Forty-six Republican senators voted against environmental protections at every single opportunity.

"The average scores between parties used to be much closer with a lot of variation depending on regionalism," said Sara Chieffo, vice-president of government affairs at LCV, which uses a panel of about 20 conservation organisations to score key votes on issues such as global heating, fossil fuel production on public lands and wildlife conservation. "Now it's hyper-partisan. From 2010 it really accelerated and now we see that the difference has really ballooned."

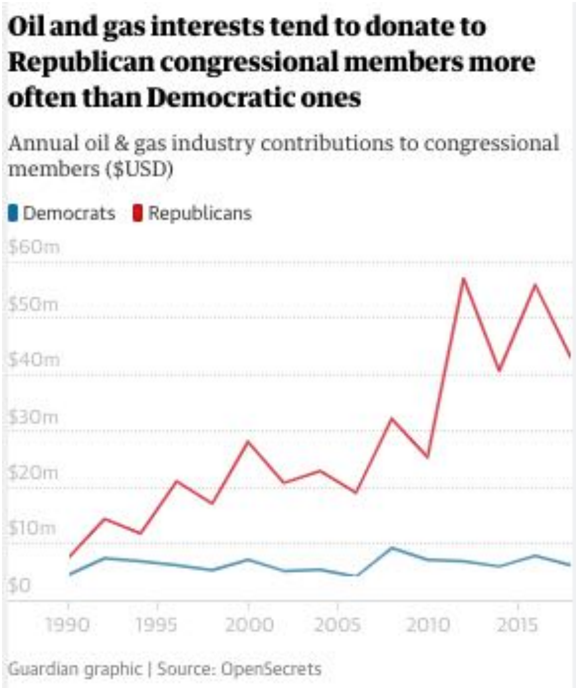


As recently as George HW Bush's presidency, Republicans in Congress were voting for environmental protections about one-third of the time on average. That support rapidly ebbed and has virtually vanished under Trump.

Meanwhile, Democrats, steered by a base that increasingly sees the climate crisis as an urgent priority, have become far more pro-environment in their voting.

The divide has been exacerbated by funding from the fossil fuel industry, which now firmly backs Republicans.

Data collected by the transparency group OpenSecrets shows donations from oil and gas interests were split relatively evenly between the parties until the 2000s. By the 2018 election cycle, 87% of industry contributions went to Republicans, with the proportion in the 2020 cycle, which is yet to be completed, reaching a record 89%.



Republican lawmakers once led environmental protection in the establishment of national parks and then landmark clean air and water laws in the 1970s, before the Ronald Reagan presidency began a fundamental shift, according to Naomi Oreskes, a historian of science at Harvard University.

“This was linked to a change in Republican thinking, inspired by Reagan, to see the federal government as ‘the problem’ and to roll back federal regulations in a range of domains,” Oreskes said. “Republican leaders in the US do not merely prefer market-based solutions, they refuse even to acknowledge problems that cannot be solved by markets. Climate change is the case in point.”

Environmental groups have pointed to the influence of major energy companies, which knew about the dangers of the climate crisis for decades only to fund groups that spread misinformation and denial of the problem, while backing those who helped stymie action.

This has helped create an unusual level of denial about the climate science among Republicans, compared with leading political parties in other democracies. “Behind closed doors politicians will tell you they believe in climate change but they are terrified of saying that because they will get primary challenged for their position,” Chieffo said.

Polling has shown that younger Republicans are more willing to accept climate science, with many worrying about the climate crisis and the party’s unwillingness to address it.

“The Republican party has refused to accept the severity of most environmental issues, including climate change,” said Benji Backer, the president of the American Conservation Coalition, a group of conservatives who support action on the climate crisis. “Instead of being for different environmental policies, many in the GOP have solely become anti-every policy.”

The Democratic congresswoman Alexandria Ocasio-Cortez, centre, at a press conference to announce Green New Deal plans this year. Photograph: Saul Loeb/AFP/Getty Images

Backer said Democrats and environmental groups were also to blame for the divide by supporting policies that “unnecessarily inflate the size of the US government, don’t follow the science and are focused on non-environmental issues”.

The Green New Deal, a resolution passed by progressive Democrats that calls for the rapid elimination of planet-warming gases as well as a jobs guarantee, has drawn particular ire from Republicans.

Chieffo said the division in Washington was in contrast to the growing public appetite for action on the climate crisis, as well as policies in ostensibly conservative states such as Idaho and South Carolina to bolster renewable energy.

“I think we are going to start seeing a greater diversity in voting and a move to sensibility,” she said. “We may well have hit rock bottom. But it’s really too soon to tell.”

World's top three asset managers oversee $300bn fossil fuel investments

The CEOs of BlackRock, Vanguard and State Street, which together oversee assets worth more than China’s entire GDP. Illustration: Guardian Design

Data reveals crucial role of BlackRock, State Street and Vanguard in climate crisis

by Patrick Greenfield

Sat 12 Oct 2019 12.00 BST

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The world’s three largest money managers have built a combined $300bn fossil fuel investment portfolio using money from people’s private savings and pension contributions, the Guardian can reveal.

BlackRock, Vanguard and State Street, which together oversee assets worth more than China's entire GDP, have continued to grow billion-dollar stakes in some of the most carbon-intensive companies since the Paris agreement, financial data shows.

The two largest asset managers, BlackRock and Vanguard, have also routinely opposed motions at fossil fuel companies that would have forced directors to take more action on climate change, the analysis reveals.

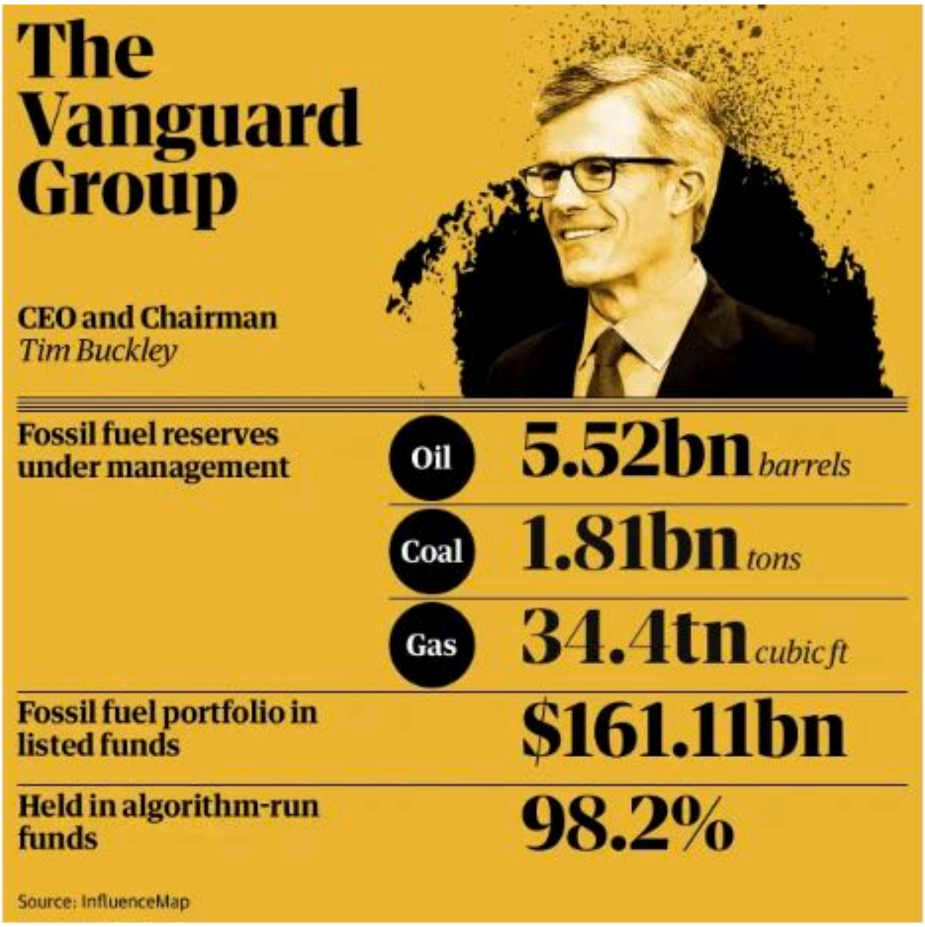


Illustration: Guardian Design

The investment rise is driven by the success in the last decade of tracker funds that use algorithms to follow major stock exchange indices such as the FTSE 100 and S&P 500.

The Guardian has worked with the thinktank InfluenceMap and the business data specialists ProxyInsight to analyse the role played by asset managers in the financing and management of some of the world's biggest fossil fuel companies.

Figures compiled by InfluenceMap show how Blackrock, Vanguard and State Street – known as the big three – have become crucial climate actors in the financial world. They are the largest money managers in the $74tn industry.

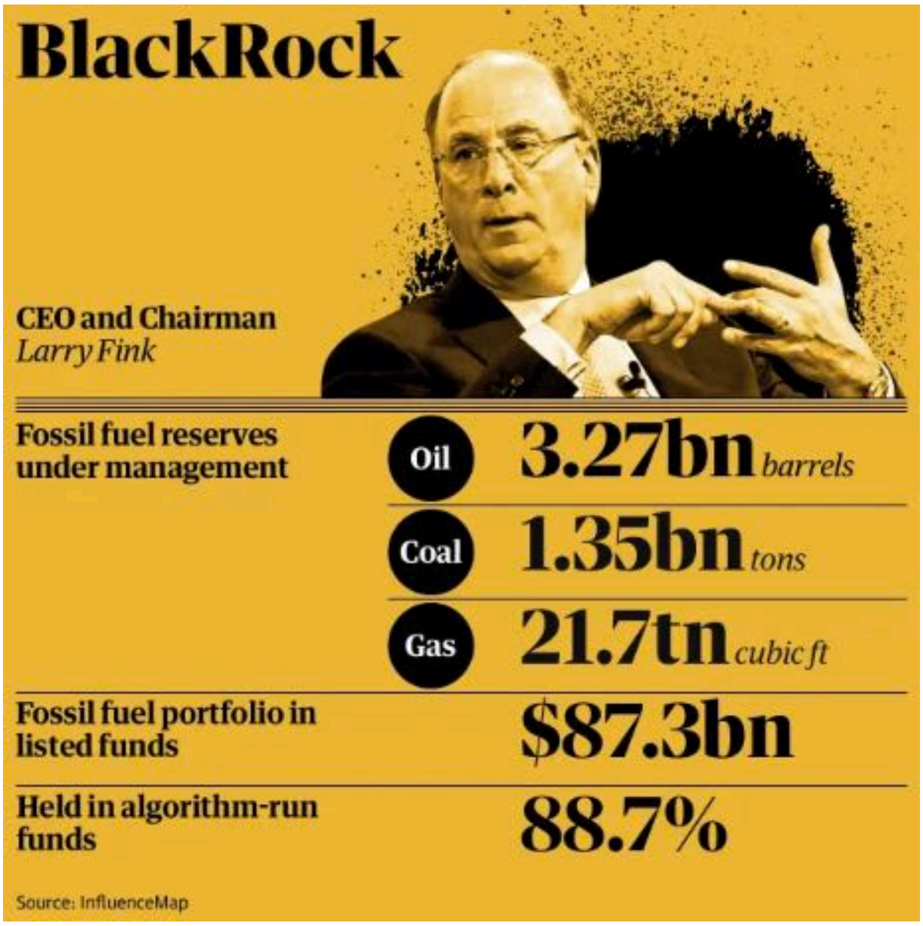


Illustration: Guardian Design

According to an analysis of the data, their effective thermal coal, oil and gas reserve holdings through the companies they manage have surged 34.8% since 2016.

This means they are now the largest investors in public oil, gas and coal companies, managing funds for large pension funds, university endowments and insurance companies.

While asset managers do not own the companies in which they invest, they often exercise shareholders rights on behalf of clients to vote on board members and company policy issues.

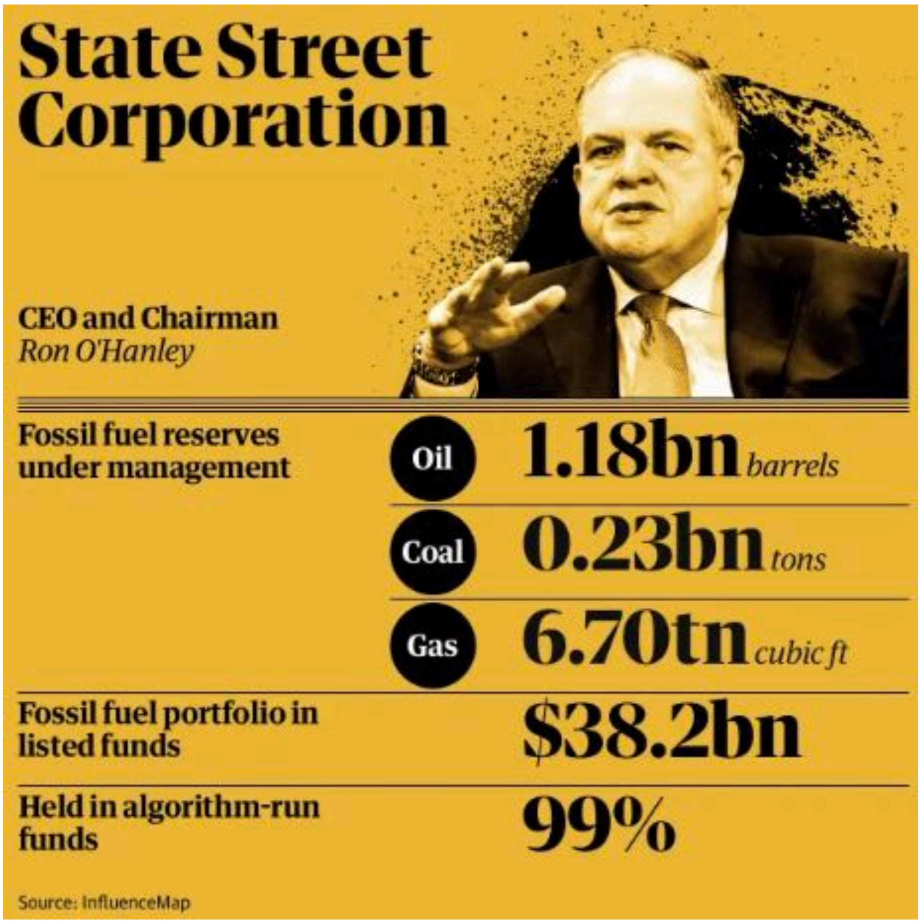
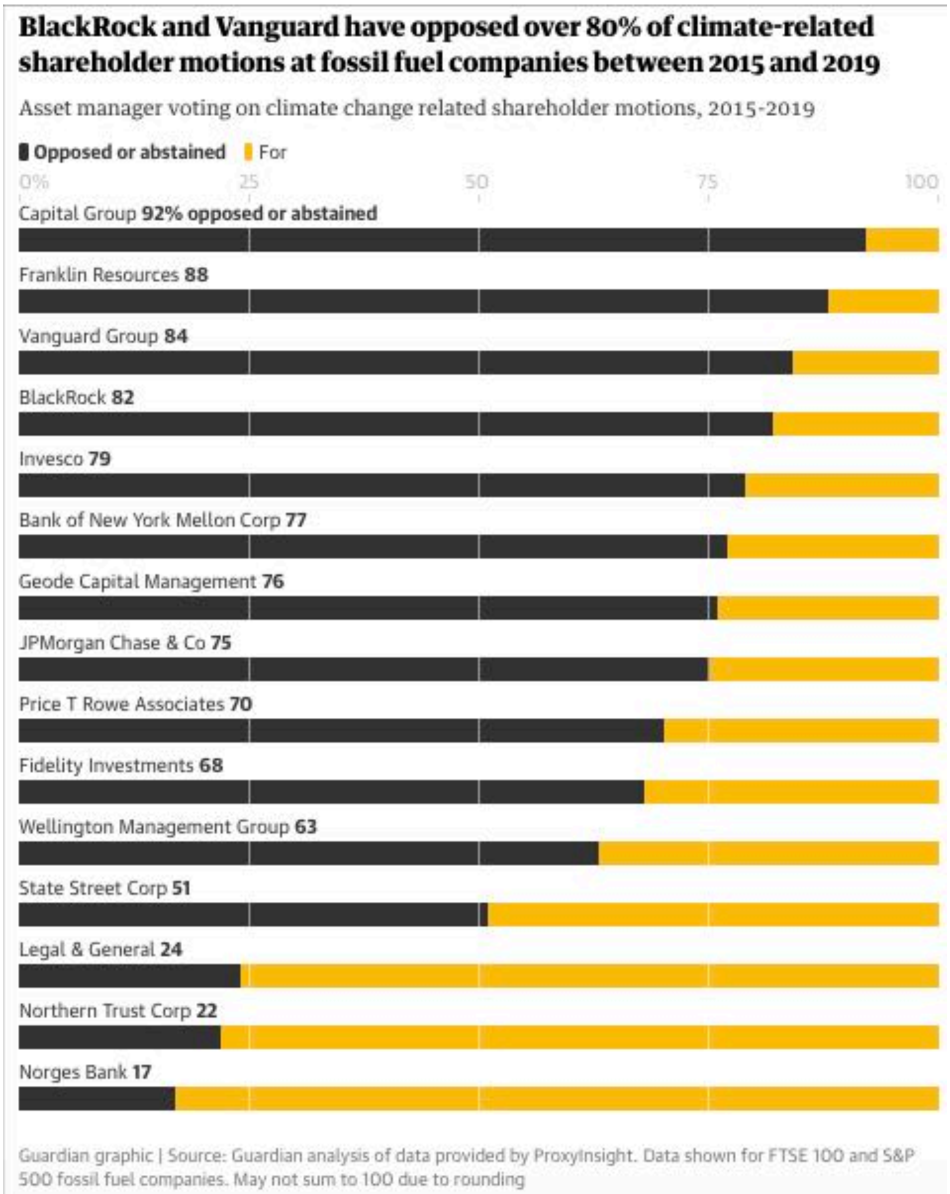


Illustration: Guardian Design

Disclosures for publicly available company reports show that from 2015 to 2019 Vanguard and BlackRock used their votes to frequently oppose efforts to improve climate-related financial disclosures.

The investigation by the Guardian has found:

- Vanguard ($161.1bn), BlackRock ($87.3bn) and State Street ($38.3bn) oversee a combined $286.7bn of shares in oil, coal and gas companies through 1,712 funds. Their total combined portfolio is likely to be higher as the calculation excludes direct holdings and non-listed fund holdings.
- The potential CO_2 emissions from the investments have increased from 10.593 gigatonnes (Gt) to 14.283Gt since the Paris agreement, equivalent to 38% of global fossil fuel CO_2 emissions last year.
- BlackRock and Vanguard opposed or abstained on more than 80% of climate-related motions at FTSE 100 and S&P 500 fossil fuel companies between 2015 and 2019, according to data provided by ProxyInsight.
- The big three are among a number of asset managers that offer “climate-friendly” and “sustainable” investment funds that have substantial holdings in fossil fuel companies.



Guardian graphic | Source: Guardian analysis of data provided by ProxyInsight. Data shown for FTSE 100 and S&P 500 fossil fuel companies. May not sum to 100 due to rounding

BlackRock, Vanguard and State Street did not challenge the findings.

They told the Guardian they prioritised private engagements with company boards, where the climate crisis was regularly discussed. They said they had increased the size of their teams responsible for investment stewardship, opting to use their votes as a final resort.

Vanguard said it neither managed the companies in which it invested nor sought to influence their business strategy. “As a steward of lifetime savings for more than 20 million people around the world, and a practically permanent investor in more than 10,000 companies, Vanguard is concerned about the long-term impact of climate risk,” a spokesman said.

“While voting at shareholder meetings is important … it is only one part of the larger corporate governance process. We regularly engage with companies on our shareholders’ behalf and believe that engagement and broader advocacy, in addition to voting, can effect meaningful changes that generate long-term value for all shareholders.”

BlackRock said it “offers investors a wide range of environmentally sustainable investment options …

[and] is also a leading investor in renewable power generation globally. Our award-winning climate research helps investors understand and mitigate the impact of climate change on their portfolios."

State Street said: "If an investor wants to buy an ETF [exchange-traded fund] that tracks the FTSE 100, we would purchase the shares (proportionately) of all the companies in that FTSE 100 index in order to meet the objective of that strategy. That will today undoubtedly include energy companies.

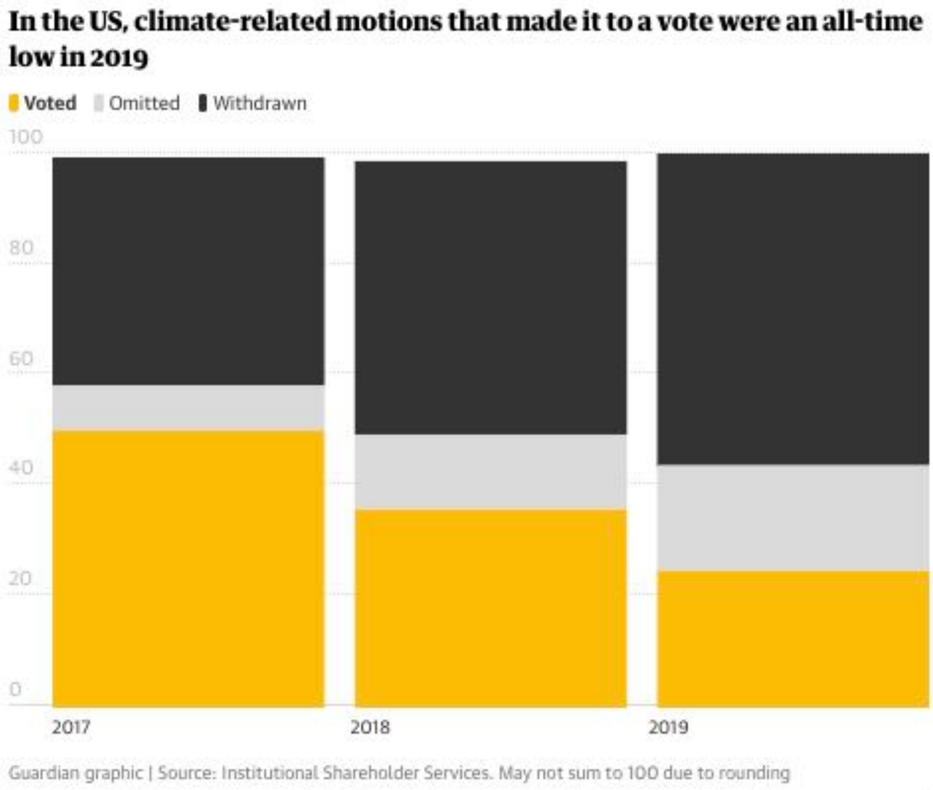
"We do not proactively determine whether to exclude a particular company or sector since it would be inconsistent with the stated ETF objective. If an investor did want a strategy that considered climate issues or other ESG [environmental, social and governance] factors, that would be a different product with a different index; we can provide that too."

Asset managers are increasingly finding themselves at the heart of social and environmental issues, and corporate governance experts have raised concerns about conflicts of interest in their business models.

Campaigners are demanding asset managers vote out company directors who are not deemed to be taking sufficient action.

In June, the London-based Legal & General, formerly a top 20 investor in ExxonMobil, announced it was selling a $300m stake in the company and would use remaining shares to vote against the chief executive, Darren Woods.

But environmental shareholder proposals face increasing challenges from the management of fossil fuel companies, which are being sustained by the American regulator, the Securities and Exchange Commission. The SEC declined to comment.



Guardian graphic | Source: Institutional Shareholder Services. May not sum to 100 due to rounding

In April, ExxonMobil shareholders were denied a vote on whether the company should set targets for cutting greenhouse gas emissions by the SEC, which called the proposal an attempt to "micromanage" the company.

Data for the 2019 season of annual general meetings for shareholders, provided by Institutional

Shareholder Services, shows that only a quarter of proposals made it to a vote at companies in the US, with 79 of the 105 motions either withdrawn or omitted.

Top investment banks provide billions to expand fossil fuel industry

The polluters
Banks and building societies

Exclusive: analysis reveals lenders provided $700bn to expand sector since Paris climate pact

Patrick Greenfield

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Sun 13 Oct 2019 12.00 BST

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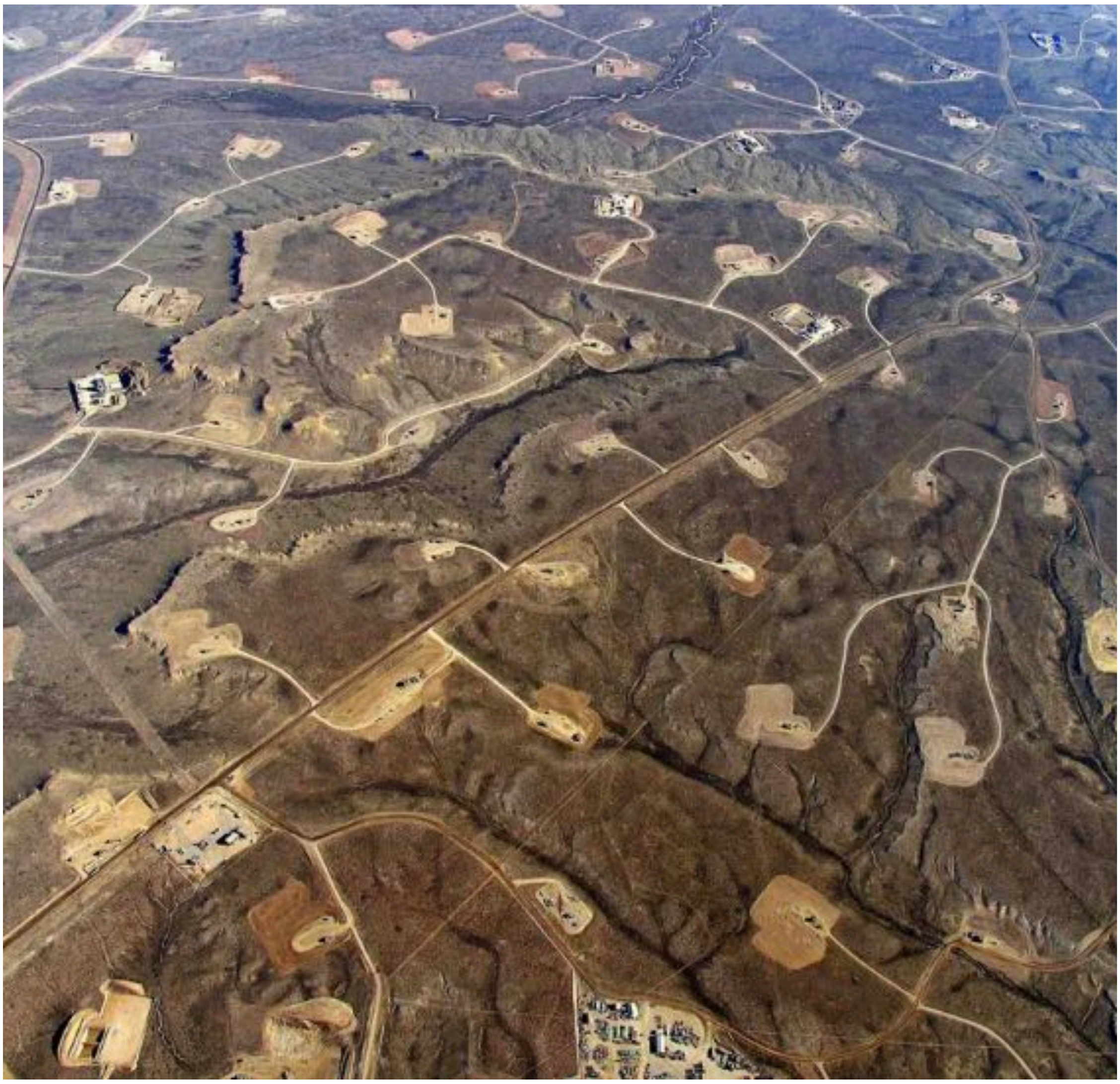


Jonah Field gasfields in Wyoming, US. Photograph: Courtesy of Simon Fraser University

The world's largest investment banks have provided more than $700bn of financing for the fossil fuel companies most aggressively expanding in new coal, oil and gas projects since the Paris climate change agreement, figures show.

The financing has been led by the Wall Street giant JPMorgan Chase, which has provided $75bn (£61bn) to companies expanding in sectors such as fracking and Arctic oil and gas exploration, according to the analysis.

The New York bank is one of 33 powerful financial institutions to have provided an estimated total of $1.9tn to the fossil fuel sector between 2016 and 2018.

The data shows the most aggressively expanding coal-mining operations, oil and gas companies, fracking firms and pipeline companies have received $713.3bn in loans, equity issuances and debt underwriting services from 2016 to mid-2019.

Other top financiers of fossil fuel companies include Citigroup, Bank of America and Wells Fargo.

Using Bloomberg financial data and publicly available company disclosures, the analysis was compiled exclusively for the Guardian by Rainforest Action Network, a US-based environmental organisation.

The figures update the group's Banking on Climate Change 2019 report from April, which showed the practices of key investment banks were aligned with a climate disaster.

Figures show fracking has been the focus of intense financing, with Wells Fargo, JPMorgan Chase and Bank of America providing about $80bn over three years, much of it linked to the Permian basin in Texas.

A bird deterrent system in a tailings pond in the Athabasca oil sands, Alberta, Canada. Photograph: Bloomberg via Getty Images

The financing of the tar sands crude oil projects in Alberta, Canada, is dominated by the Canadian banks, led by the Royal Bank of Canada and Toronto Dominion.

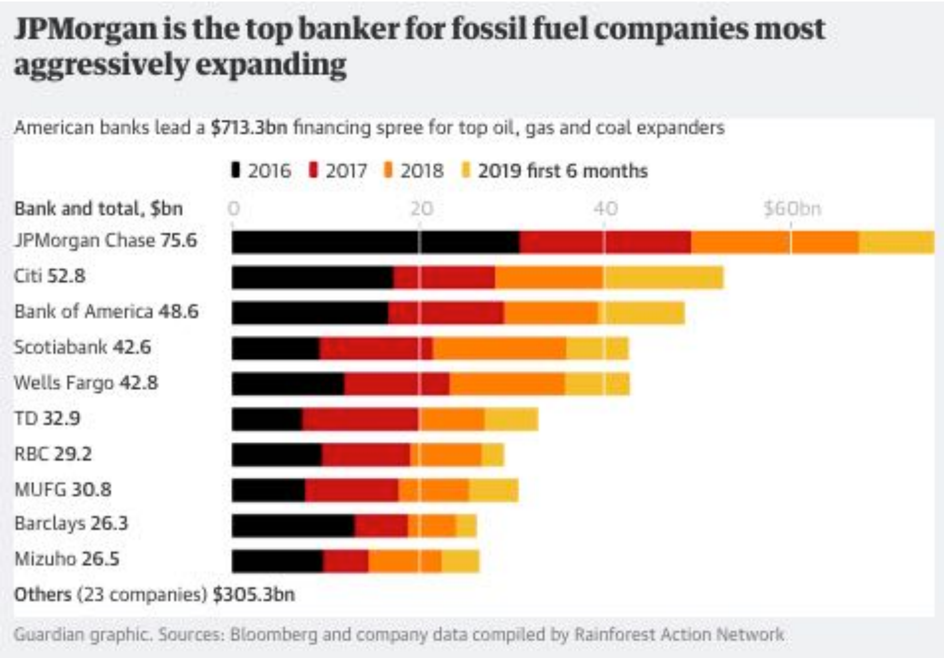
The tar sands fields in north-west Canada are the third-largest known reserves of crude oil in the world, but extraction has caused widespread damage to ecosystems and forced indigenous communities from their homes.

Although financing levels are on a smaller scale than other parts of the fossil fuel industry, in the years since the Paris climate agreement there has been increased financing for oil and gas projects in the Arctic, led by JPMorgan Chase, which provided $1.7bn in 2016-18.

Extraction in the region is typically dominated by Russian firms such as Gazprom and Rosneft, about which there is less transparency in business data.

The largest American banks – JPMorgan Chase, Citi and Bank of America – lead financing for ultra-deepwater oil and gas projects that extract fossil fuels from 1,500 metres and below.

Deepwater projects have been the site of several disasters, including the BP Deepwater Horizon spill in 2010, in which 11 people died and billions of dollars' worth of damage was done to local communities and businesses.



Barclays is one bank showing signs of change. While it remains a significant banker for the fossil fuel industry, its business with the companies most aggressively expanding in the sector has fallen sharply, from $13.1bn in 2016 to $5.2bn in 2018. The first-half figure for 2019 shows the bank is on track to record another annual decrease.

In response to the figures, JPMorgan, which has faced growing protests over its fossil fuel banking activities, said it recognised the complexity of climate change and actively engaged with stakeholders on the issue.

Wells Fargo said it carried out enhanced checks on its energy clients, which represented a small part of its overall business.

Several investment banks contacted by the Guardian said they were expanding quickly in renewable industries and had tightened lending policies on financing for Arctic oil and gas, coal and tar sands fossil fuel projects.

Elsa Palanza, Barclays' global head of sustainability and citizenship, said: "We can all sit around pointing fingers at each other, but that doesn't help solve what is a really complex and multifaceted problem. What can help solve the problem is, firstly, the voluntary mechanisms we are working on, like the Task Force on Climate-related Financial Disclosures, and then the new attention from regulators like the PRA [Prudential Regulation Authority].

Greenpeace activists put up a banner showing the Barclays logo dripping with oil at its office in London. Photograph: Chris J Ratcliffe/Getty Images

“The new requirements make people working in banks think about climate change as a double-sided coin, to look at the risks within our portfolio, but also thinking about the opportunity side in terms of financing renewable energy. That’s leveraging the best of what a bank would offer.”

The big four state-owned Chinese banks, which have no fossil fuel financing policies, have dominated services for coalminers and coal power companies since 2016.

The figures come amid growing uncertainty about the long-term viability of the oil and gas industry amid fears of a climate “Minsky moment”, a sudden crash in fossil-fuel-related asset prices as investors and money managers rush for the door when climate risks materialise abruptly.

Ensuring a managed decline of the oil and gas industry while also financing the next wave of renewable energy products is deemed to be vital.