

JUN 2023  
REPORT



MINDFUL MONEY REPORT

# Fossil Fuel Investment

In Transition or in Denial?

## ABOUT MINDFUL MONEY

Mindful Money is a consumer-facing charity that aims to make money a force for good. We achieve change by empowering consumers, engaging investment providers and advocating for change. These actions are playing a role in shifting investment towards a more positive impact, as shown in our [annual impact report](#).

A starting point is transparency. Consumers want to know where their money goes. The website Fund Checker analyses portfolio holdings for all New Zealand KiwiSaver and retail investment funds, showing both direct and indirect holdings. These are related to the key public concerns revealed in annual surveys (such as weapons or violations of human rights) so users can understand the potential harm from their investments. Users can then find a fund that most closely aligns with their values using the Fund Finder tool. These tools are free and easy to use.

Mindful Money's public awareness and education includes an [Ethical Investment Guide](#), [online seminars](#) and [workplace seminars](#). We partner with allied organisations and networks that share our aims for action on climate change, social equity and environmental regeneration.

Mindful Money is committed to working with all fund providers on the responsible investment journey, through initiatives such as the Net Zero investor coalition and annual progress reports; the Ethical and Impact Investment Conference and Awards, which celebrate the leading fund managers, financial advisers and media; and research on mainstreaming impact investment, carbon transition and investment trends.

### Contact us:

info@mindfulmoney.nz  
www.mindfulmoney.nz

© Mindful Money, 2023

On track: Fossil Fuel companies in transition © 2023 by Barry Coates is licensed under CC BY-NC-SA 4.0. To view a copy of this license, visit <http://creativecommons.org/licenses/by-nc-sa/4.0/>

This report has been prepared by Mindful Money, with thanks for the assistance of research undertaken by Shannen Barns, Zac Dickson and Adam McDonald Ball. We would welcome any comments and feedback on this briefing to [barry@mindfulmoney.nz](mailto:barry@mindfulmoney.nz).

The suggested citation for this report is Coates, B. 2023, On Track: Identifying Fossil Fuel Companies on a 1.5°C Pathway, Mindful Money, Auckland, New Zealand.



# CONTENTS

<b>ABOUT MINDFUL MONEY . . . . .</b>	<b>2</b>	<b>INVESTMENT CHOICES. . . . .</b>	<b>10</b>
<b>EXECUTIVE SUMMARY . . . . .</b>	<b>4</b>	Avoiding fossil fuel investment . . . . .	10
<b>THE URGENCY OF NOW . . . . .</b>	<b>6</b>	Financial risks . . . . .	10
<b>EXPANSION OF FOSSIL FUEL PRODUCTION. . . . .</b>	<b>7</b>	Engagement strategies . . . . .	11
Slow progress . . . . .	7	Investing in climate solutions . . . . .	11
Most fossil fuel producers are expanding exploration and production . . . . .	7	<b>NEW ZEALAND INVESTMENT IN FOSSIL FUEL COMPANIES . . . . .</b>	<b>13</b>
<b>FOSSIL FUEL COMPANIES IN TRANSITION. . . . .</b>	<b>8</b>	New Zealand investment trends. . . . .	13
Methodology for identifying companies on a 1.5°C pathway . . . . .	8	Investment in companies that are expanding their production . . . . .	13
No fossil fuel producers are aligned with a 1.5°C pathway . . . . .	8	Investment in companies on a 1.5°C pathway . . . . .	14
<b>THERMAL GENERATION . . . . .</b>	<b>9</b>	<b>INVESTING FOR A SAFE CLIMATE . . . . .</b>	<b>15</b>
A growing number of utilities are switching to renewable energy sources . . . . .	9	<b>APPENDIX 1: CASE STUDIES OF OIL AND GAS COMPANIES INVESTING IN EXPANSION . . . . .</b>	<b>16</b>
		<b>APPENDIX 2: CASE STUDIES OF FOSSIL FUEL COMPANIES ON A 1.5°C PATHWAY . . . . .</b>	<b>20</b>



## EXECUTIVE SUMMARY

Fossil fuel companies are coming under more scrutiny and challenges than ever before. They face expectations that they will invest heavily in the transition to renewable energy, as the era of declining demand and stranded assets becomes ever closer. However, this has not been the case. The climate commitments made when oil prices were low have been cast aside by a drive for profits after oil prices rose as a result of Russia's invasion of Ukraine.

This has been accompanied by a massive spending spree on exploration and field development, even though the world's leading climate scientists and energy agencies point out that there is already enough production capacity available. The majority of fossil fuel exploration and production companies that are still expanding their production are incurring huge risks, and so are their investors.

This report uses a unique international database to identify the expansion plans of the world's largest oil and gas companies. The research identifies the companies that are still expanding oil, gas and coal production, and are clearly off track in reference to climate targets.

This data paints a picture of an industry that is prioritising profits over an orderly transition towards a low-emissions, renewable energy system. The risks to the climate and the financial system are unprecedented. A significant decline in fossil fuel use is inevitable and further expansion is increasing the chances of a damaging disruption.

As UN Secretary General António Guterres [concluded](#): *"Fossil fuel industry transition plans must be transformation plans that chart a company's move to clean energy and away from a product incompatible with human survival. Otherwise, they are just proposals to become more efficient planet-wreckers."*

There are also companies making good progress, with serious commitments to the climate transition. The report identifies companies within the fossil fuel

sector that are making credible efforts to transition to net zero, referring to the International Energy Agency's 1.5°C pathway. The analysis is drawn from leading research undertaken by Climate Tracker Initiative, Science Based Targets initiative (SBTi) and Transition Pathway Initiative (TPI), based on the science and analysis from the Intergovernmental Panel on Climate Change and the International Energy Agency.

Mindful Money provides a listing of eight thermal generators that are on the pathway to transition to renewable energy sources by 2040, including New Zealand's Contact Energy. There are currently no major fossil fuel producers who meet the criteria for alignment with a 1.5°C pathway.

The report then uses these classifications of 'expansion' and 'in transition' to characterise New Zealand investments. Mindful Money's extensive database of portfolio holdings traces those investments in fossil fuel production and thermal power generation that are off track and still expanding, and those that are on track for a net zero transition. The results are analysed for all 349 KiwiSaver (superannuation) funds and 453 retail investment funds.

Mindful Money is using this research to enable individual New Zealand investors to understand more about their investments in fossil fuels. Over the past four years, Mindful Money has listed on its website the fossil fuel producers in each KiwiSaver and NZ retail investment portfolio, recently supplemented by a list of the electricity generators using fossil fuels. The listing of fossil fuel companies, which is free and easy to access, informs investors about the extent of their investments in fossil fuel companies and lists the companies. As a result of this research, the companies expanding and those in transition will be identified for each fund available to retail investors. This will provide investors with an analysis of the different approaches of fossil fuel companies and their impacts on the global climate.

Mindful Money's analysis of New Zealand investments to end September 2022 shows that many KiwiSaver and other investment providers are chasing short-term profits by investing more in fossil fuel companies that are expanding production. The ongoing conflict in Ukraine led to a bumper year for the oil and gas industry in 2022 and major companies such as ExxonMobil, Shell, and Chevron reported record profits. New Zealand KiwiSaver and retail fund investment in fossil fuel production companies showed a significant increase in the year from September 2021 to September 2022.

The growth in fossil fuel investment is short sighted. Much of the fund management industry remains wedded to short-term returns, despite the poor returns for fossil fuel companies over the past decade. The US Oil and Gas Index has substantially underperformed against the overall market.

The risks in future are even greater. Even if they accept the likelihood of declining demand and stranded assets, some fund providers think they can 'time the market,' so that they sell before the inevitable downturn. This is a reckless gamble. Similar unwillingness to act on the basis of well-documented risks saw huge financial losses during the Global Financial Crisis and, more recently, from the collapse in the value of Russian investments after the invasion of Ukraine.

The growth is inconsistent with a large number of New Zealand fund managers professing to

use Environmental Social and Governance (ESG) management and making Net Zero pledges. This report shows that there has been an 80% increase over the year in Kiwisaver and retail investment in the fossil fuel companies that are expanding production and clearly off track on the Paris Agreement targets. Around NZD \$3 billion is being invested in the companies that are expanding their exploration and field development. These companies are doubling down on their core fossil fuel business models, often backtracking on previous commitments to transition towards renewable energy. There is little evidence to show that pressure from investors through voting and engagement is making a difference.

By contrast, analysis in the report shows far less investment in the companies that are aligned with a 1.5°C pathway. Investment in those companies totals NZD \$1.7 billion, and the growth of investment to end September 2022 was far lower at 25%.

Distinguishing between the climate impacts from the range of fossil fuel companies is important and is an aim of this research. We hope that this report contributes to a deeper understanding of the risks from fossil fuel companies that are doubling down on their core business and the benefits of investing in the transition to a low-emissions, renewable energy system. It is time for investors to decide whether they want their funds to be invested in companies that are recklessly developing more fossil fuel production or whether they want to be part of investing in renewable energy and companies in transition.



## THE URGENCY OF NOW

A former Saudi Arabian Foreign Minister observed that the Stone Age did not end because people ran out of stones, and the oil age will not end because we run out of oil. It will end because of climate change, as the consequences of continuing to burn more fossil fuels are unthinkable. Alternatives to fossil fuels are available at competitive prices for a growing range of applications, and change is happening. But a more rapid *pace of change* is crucial to avoid potentially catastrophic tipping points, and the fossil fuel industry is a key driver of the transition pathway. Major companies are now having to choose whether to be either part of the climate overshoot problem or part of the climate transition solution.

The impacts of global warming are already being felt worldwide, with severe consequences. The year 2022 witnessed unprecedented heatwaves and rising sea temperatures simultaneously across all continents, leading to a surge in heat-related fatalities, catastrophic wildfires, devastating floods, and widespread agricultural failures.

The most severe climate impacts have been experienced in the tropics and polar zones, but New Zealand is also starting to count the cost of cyclones, heavy rainfall, drought and impacts on natural systems. The consequences of climate change will intensify and exacerbate the severity of future events unless greenhouse gas emissions are significantly and urgently reduced, as underlined by the recent [Sixth Assessment Report](#) from the Intergovernmental Panel on Climate Change (IPCC).

The 2015 Paris Agreement's long-term temperature goal is to keep the rise in mean global temperature to well below 2°C above pre-industrial levels, and preferably limit the increase to 1.5°C, recognising that this would avoid the most catastrophic impacts of climate change.

With global temperatures already more than 1.1°C above pre-industrial levels and new fossil fuel investments continuing, keeping temperatures below 1.5°C is a major challenge. The available carbon budget for emissions requires 90% of discovered fossil fuel reserves and resources around the world, including those listed on stock exchanges, to remain in the ground as [unburnable carbon](#).

In 2021, the International Energy Agency (IEA) [reported](#): "*Beyond projects already committed as of 2021, there are no new oil and gas fields approved for development in our pathway [for 1.5°C], and no new coal mines or mine extensions are required.*"

[Analysis](#) from Oil Change International shows that projected emissions from coal, oil and gas fields already in production would push us not just beyond 1.5°C, but even 2°C. Other studies have reached similar findings for midstream and downstream fossil fuel infrastructure, like pipelines and power plants, underlining the conclusion that any expansion of fossil fuel extraction, or building of new infrastructure that drives continued extraction, is incompatible with the Paris Agreement.

However, despite the IEA's analysis, the majority of fossil fuel companies are still increasing exploration and production beyond 2021 planned developments. The research institute, Carbon Tracker initiative, estimates that most of the major oil and gas companies are planning to undertake development to expand the production of oil and gas.

[Oil Change International research](#) reveals the risk of a major surge in new oil and gas expansion between now and 2025. New oil and gas production approved to date in 2022, and at risk of approval over the next three years, could cumulatively lock in 70 billion tonnes of new greenhouse gas emissions.

## EXPANSION OF FOSSIL FUEL PRODUCTION

### Slow progress

Since the beginning of the 2000s, large fossil fuel producers have attempted to rebrand themselves as transitioning into renewable energy. For example, BP changed its name from British Petroleum to “*Beyond Petroleum*” but subsequently back-pedalled on the transition to renewable energy. Other international oil and gas companies like Shell, Exxon, Chevron, and TotalEnergies have claimed to be investing their money into renewable projects, such as solar power and biofuel, but have remained wedded to an oil and gas exploration and production business model.

In 2018, 26 years after the UN Framework Convention on Climate Change was signed, an [analysis](#) by the Carbon Disclosure Project showed that the oil and gas sector spent just 1.3% of its total capital expenditure on low-carbon assets. By 2021, [the IEA revealed](#) this had increased to only 5%. Actions speak louder than marketing claims. Most of the major companies have failed to adapt, and much of the growth in renewable energy provision has come from industry newcomers.

### Most fossil fuel producers are expanding exploration and production

Analysis of recent data shows there are no fossil fuel producers currently aligned with a 1.5°C pathway. No fossil fuel producers are phasing out fossil fuels and ramping up clean energy with sufficient urgency to meet the transition criteria. Of even more concern is the fact that most are [still sanctioning new projects](#) for exploration and field development. Two thirds (66%) of fossil fuel companies have short-term expansion plans that are inconsistent with limiting global warming to less than 1.5°C.

The primary source of these estimates is a unique database, developed by the nonprofit environmental and human rights organization, Urgewald. The Global Oil and Gas Exit List ([GOGEL](#)) gathers information on companies in the oil and gas sector. It lists 901 oil

and gas companies operating in the upstream and midstream subsectors. For upstream companies, the GOGEL database provides annual updates on companies' short-term expansion plans by depicting the amount of oil and gas resources that companies intend to add to their production portfolios over the coming years (1–7 years depending on the type of asset). For midstream companies, the GOGEL database draws from the Global Energy Monitor, and lists companies responsible for pipelines and liquefied natural gas (LNG) terminal capacity under development.

GOGEL allows for the analysis of companies' short-term expansion plans against the IEA's Net Zero Emissions by 2050 Scenario (NZE) by providing precise figures on the share of short-term expansion which overshoots the IEA's 1.5°C modelling (short-term expansion approved after 31<sup>st</sup> December 2021). Besides short-term expansion, GOGEL also sheds light on companies' exploration activities by including a 3-year average of each company's capital expenditure on exploration. New exploration is not needed in any science-based 1.5°C scenario. All in all, the database, drawing on research from Rystad Energy, covers more than 90% of global exploration, expansion and production.

Those with expansion plans comprise the world's major oil and gas producers: Saudi Arabian Oil Company (Saudi Aramco), PJSC Gazprom, National Iranian Oil Company (NIOC), PetroChina Company Ltd, Exxon Mobil Corporation, PJSC Rosneft Oil Company, Shell plc, Chevron Corporation, Kuwait Petroleum Corporation (KPC) and BP plc. Case studies of the expansionary companies that attract the most New Zealand investment are included in Appendix 1 of this report.

Alarmingly, according to [The Energy Monitor](#), the projected carbon dioxide emissions from operating and planned fields of just 25 of these major companies will account for the whole of the world's remaining carbon budget for a 1.5°C temperature rise.

## FOSSIL FUEL COMPANIES IN TRANSITION

### Methodology for identifying companies on a 1.5°C pathway

The analysis used to compile the list of fossil fuel companies on a climate change pathway aligned with 1.5°C draws on research and analysis from a range of sources, including the IPCC, IEA and NGOs such as Oil Change International, but relies primarily on research undertaken by the Carbon Tracker Initiative, the Transition Pathway Initiative and the Science-Based Targets initiative.

The 1.5°C pathway model is drawn from the IEA Net Zero Emissions by 2050 Scenario (NZE) – a pathway consistent with limiting warming to 1.5°C (50% probability) without any temperature overshoot, with the global energy sector achieving net zero carbon dioxide emissions by 2050. The [1.5°C pathway](#) requires global greenhouse gas emissions to peak by 2025 at the latest and fall by around 43% by 2030 compared to 2019 levels. Production data from [Carbon Tracker Initiative](#) and [Rystad Energy's](#) UCube database was used to examine the production plans of the largest 20 oil and gas producers.

### No fossil fuel producers are aligned with a 1.5°C pathway

The upstream coal, oil and gas sector is still far from transitioning to a 1.5°C pathway. [Analysis of reports](#) from the Climate Action 100+ for the second round of Net Zero Company Benchmark assessments reveals the largest corporate emitters have shown insufficient progress and need to step up actions to be aligned with the ambitions of the Paris Agreement to limit temperature rise to 1.5°C against pre-industrial levels.

Several energy companies have made commitments to net zero greenhouse gas emissions by 2050,

with interim emissions reduction targets. However, many of these do not include scope 3 emissions (e.g., from the use of the company's products), which account for around 85% of the company's overall emissions. They are also inconsistent with their specific field development plans. For example, after agreeing with investors at its 2022 AGM to scale down fossil fuel production, [BP doubled its profits](#) and backed away from its climate commitments.

Other European companies, such as Eni, Shell and TotalEnergies have made vague undertakings to reduce production, at least in oil, but [analysis](#) by Climate Tracker Initiative shows they fall far short of that required for a 1.5°C pathway. Even those climate claims have been rolled back in recent months. For example, Shell has announced they will backtrack on their commitment to cut annual oil production by 2030, meaning emissions of an additional 29m tonnes of carbon dioxide per year. That is almost as much as New Zealand's annual emissions of carbon dioxide. Instead of cutting back on emissions, this report shows that Shell has plans to massively expand its production in the short term.

Meanwhile, North American companies are all targeting near-term production growth. Chevron, for example, expects its production to grow by over 3% a year to 2026, equivalent to a 16% increase from 2019, whilst Exxon's expected production in 2027 is an increase of 8% compared to 2019. These increases in investment and production have been accompanied by political pressure from fossil fuel producers to maintain fossil fuel subsidies and minimise regulation, which further will exacerbate the challenges of achieving a low-emissions future. A profile of the major companies expanding their exploration and field development is included in Appendix 1 of this report.

## THERMAL GENERATION

### A growing number of utilities are switching to renewable energy sources

The majority of the companies leading in this transition are electricity utilities switching to solar, wind, geothermal and hydropower as the main inputs into their electricity production. Analysis into generation plans by the Transition Pathway Initiative outlines the emissions intensity in the near and medium term.

The IEA's expectation in their Net Zero by 2050 report is that electricity must achieve net-zero emissions in advanced economies by 2035 and globally by 2040 in order to maintain at least a 50% chance of staying within a 1.5°C global temperature pathway. Plans from the generating sector currently fall far short. Renewables generation needs to more than triple from 2020 levels, to account for 60 per cent of total electricity generation by 2030, which means wind and solar will need to grow six-fold.

In terms of where companies are along this pathway, the most credible sources of analysis, based on

Mindful Money's research are the [Transition Pathway Initiative](#) (TPI) and the [Science-Based Targets Initiative](#) (SBTi), together with the IEA's analysis. These sources can be used to identify the companies that are on a 1.5°C pathway. The SBTi's pathway specifies that *"at a minimum, SBTi power sector pathways aligned with 1.5°C approach zero emissions around 2040."*

As an example, Ørsted (a Danish power company formerly known as DONG Energy) produced 85% of their electricity from coal in 2009. They are now the world's largest offshore wind power producer and by 2020 over 90% of their energy generation came from renewable energy sources. This remarkable transformation by Ørsted demonstrates that a transition to renewable energy is not only feasible but also a compelling opportunity for companies within the energy sector.

The list of companies identified as being on a 1.5°C pathway is as follows: Contact Energy, EDP Energias de Portugal SA, EnBW Energie, Endesa, Enel, Iberdrola, Ørsted, and Verbund AG. Case studies of each of these companies are included in Appendix 2 of this report.



## INVESTMENT CHOICES

### Avoiding fossil fuel investment

*“Investing in new fossil fuels infrastructure is moral and economic madness. Such investments will soon be stranded assets – a blot on the landscape, and a blight on investment portfolios.” – [UN Secretary General Antonio Guterres, António](#).*

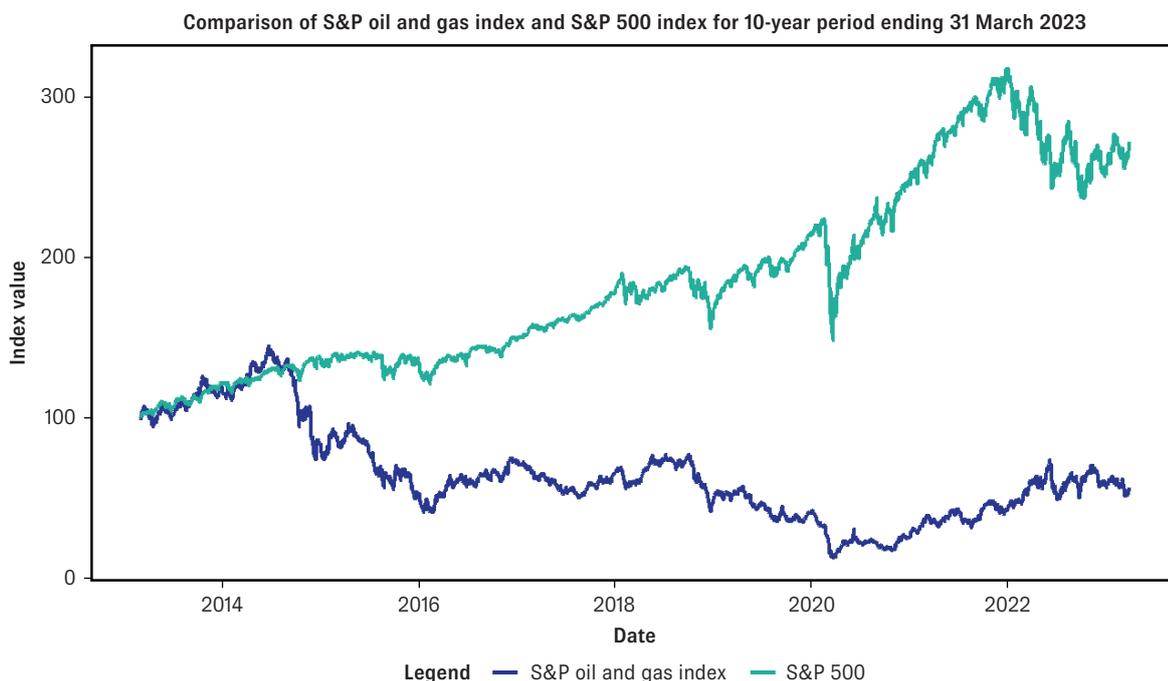
The expansion plans of fossil fuel producers are still being supported by the investment sector, even those that have pledged to adopt a net zero target for their investment portfolios. [A recent report](#) found that, of the 161 members of the Glasgow Alliance for Net Zero, only one (La Postale France) had a robust policy to end the financing for companies developing new oil and gas expansion projects. Investors with a commitment to supporting a 1.5°C pathway cannot retain credibility while continuing to invest in fossil fuel companies that are continuing to expand their oil and gas production.

Investors have choices to make. Some investors will take the decision to avoid investing in any fossil fuel companies and support the global divestment movement. There are [commitments to divest](#) from

fossil fuels covering over US\$40 trillion of assets under management. Frustrated over broken promises and inaction, Norway's US\$1.4 trillion sovereign wealth fund [says](#) it is prepared to start dropping companies for mismanaging climate risk starting next year, adding to the decarbonisation pressure that activist shareholders are already piling on firms. At this scale, divestment has an impact, raising the cost of capital for fossil fuel producers and, where funds are diverted to renewables, lowering the costs of capital for clean energy. [Annual surveys](#) show that this avoidance approach is one of the main ways that investors choose to align their investments with their values.

### Financial risks

Avoidance is also a risk management approach. Investors that choose to invest in companies that are increasing their oil and gas production are likely to face the financial risks from their investment in a declining sector. Despite higher returns from the sector in 2022, a comparison between the fossil fuel sector and the share market as a whole over the past decade shows losses of 5.6% per year for the



US Oil & Gas Index and annual returns of 10.5% in the S&P 500 Index. This is strong evidence of climate risk impacting financial returns. It serves as a powerful reminder that investing in fossil fuel companies not only harms the planet but also undermines the potential for long-term financial growth, making it a detrimental choice for both the environment and financial portfolios.

In addition, investment in companies doubling down on the fossil fuel-oriented business model further increases the financial risks of 'stranded assets' – the reserves and infrastructure that will be no longer needed as the fossil fuel sector winds down. In 2011, Carbon Tracker Initiative warned that around 80% of declared reserves owned by listed fossil fuel companies were at risk of stranding if the world should stay below a 2°C temperature rise.

Ten years after its initial warnings, Carbon Tracker Initiative has [updated its estimates](#). They quantify the [stranded asset](#) risk exposure for oil and gas assets at over US\$1 trillion, including around US\$600 billion held by listed companies. The scale of risk in the fossil fuel transition is of concern to central banks and regulators globally. Now, 90% of all known fossil fuel reserves and resources held by all companies must stay in the ground as [unburnable carbon](#) if we are to have a 50% chance of limiting global warming to 1.5°C.

*"I, myself, wouldn't do it,"* said Fatih Birol, head of the International Energy Agency, when asked whether he would invest his own personal pension in fossil fuel firms.

### Engagement strategies

Some investors will be selective in their fossil fuel investments, seeking to influence companies through active shareholder engagement, including through collaborative initiatives such as Climate Action 100+. The promise of engagement as a powerful tool was highlighted when coordinated action, led by a hedge fund, Engine No. 1, forced [the replacement of three directors](#) of Exxon-Mobil in 2021. Despite the euphoria, little has changed. This year, the shareholder resolution for Exxon to set targets that are consistent with the

Paris Agreement was opposed by management and [gained support](#) from only 11% of shareholders.

Collaborative engagement is important for those investing in high-emissions companies, and Climate Action 100+ has made progress in encouraging target companies to make long term pledges to net zero. But their [2022 progress report](#) concluded that this is not matched by the implementation of credible decarbonisation strategies, citing a large number of companies still expanding their production.

The extent of greenwashing and empty promises from the major oil companies is shown by the data on expansion plans, highlighting the extent of their backtracking from climate commitments. In addition to Exxon, Shell is aggressively expanding natural gas production and BP has backtracked on its climate transition targets. The impacts of these changes are significant.

The oil giants are not acting alone. They have been encouraged by their investors, eager to cash in on record profits that have resulted from the Russian invasion of Ukraine. [BP spent](#) 14 times as much on shareholder payouts as investments in low carbon initiatives over the past year, while Exxon, Chevron and ConocoPhillips [spent](#) virtually none of their capital expenditure on renewable energy in 2022.

Rather than engagement being a force for climate action, it appears that much of the funds management industry as a whole has been complicit in this greenwash and has profited hugely from it. Even the funds labelled ESG (Environment, Social and Governance) [include more](#) than \$1.5bn in the bonds of top coal, oil and gas companies.

### Investing in climate solutions

Investors may also choose funds that invest solely or primarily in the companies that are taking tangible steps towards decarbonisation and transition to renewable energy sources. This research paper identifies those companies in transition to a 1.5°C pathway. In most cases, these companies have upside potential from investments in renewable

energy and a lower climate risk than the fossil fuel sector as a whole.

Investment in renewable energy is crucial for the transition, and for our future on a liveable planet. Increasingly, exposure to energy markets is available through investment in funds or directly in companies that produce renewable energy and other climate solutions. The recent surge in oil prices has tilted

competitiveness even further towards renewable energy. When combined with enablers such as battery storage, renewable systems have the solution to the energy trilemma of clean, affordable, and secure energies. Investors seeking exposure to the energy sector now more than ever have choices to invest in funds that focus on renewable energy or other climate solutions.



## NEW ZEALAND INVESTMENT IN FOSSIL FUEL COMPANIES

### New Zealand investment trends

Mindful Money's analysis of New Zealand investments shows a significant increase in investment in fossil fuel companies over the past year, despite the losses to shareholder value over the past decade. New Zealand KiwiSaver and retail fund investment in fossil fuel production companies has increased significantly from September 2021 to September 2022.

It appears that many KiwiSaver and other investment providers have been chasing short-term profits resulting from the Russian invasion of Ukraine. This is not just a New Zealand phenomenon – [a recent analysis](#) of the major global asset managers (including BlackRock, the largest) shows they are doubling down on oil and gas production.

When this data was revealed, Mindful Money wanted to know the degree to which this increase represents investment in companies in transition, or investment in companies that are continuing to expand their exploration and field development.

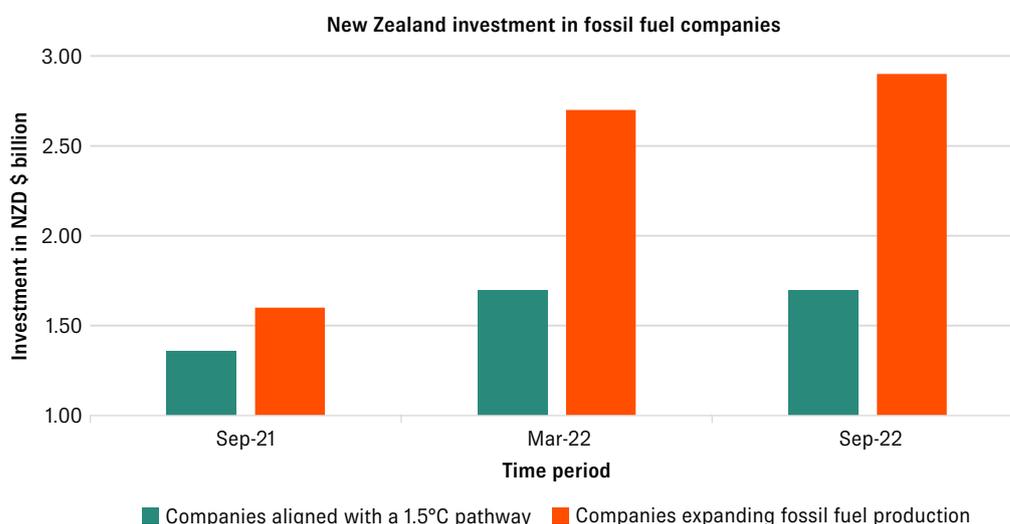
### Investment in companies that are expanding their production

[GOGEL's](#) extensive database of 901 oil and gas companies was used, together with Mindful Money's

analysis of investment holdings for KiwiSaver and retail investment funds, to identify New Zealand investment in 260 upstream and midstream oil and gas companies with planned expansion. Among them, the top five companies with the largest New Zealand investment are BHP Group Ltd, Shell Plc, Santos Ltd, Cheniere Energy Inc., and Woodside Energy Corp. Each of these five companies also place amongst the top global expanders.

There is also a significant amount of New Zealand investment in companies that have aggressive expansion plans. For example, QatarEnergy plans to bring an estimated 17.6 billion barrels of oil equivalent into production as a result of their expansion investments over the next 1–7 years, with 43% of this expansion overshooting the IEA modelled oil & gas supply for a 1.5°C world, while PetroChina Company Ltd has spent an average amount of US\$5 billion per year on exploration activities alone (2020–2022).

New Zealand's investment in fossil fuel companies expanding their production far exceeds investment in companies in transition. Over the past year, investment in fossil fuel expanders has increased by over 80% (more than double the average increase in share price) and is currently close to NZD \$3 billion.



The New Zealand investors who are increasing investment in the fossil fuels companies that are expanding their exploration and production are contributing to further climate-induced extreme weather. They are also exposing their investments to the considerable financial risk of stranded assets as the world moves towards decarbonisation.

As previously mentioned, even if oil and gas companies abandon all short-term expansion plans today, currently producing fields would provide more than enough oil and gas for the future. Keeping these oil and gas resources in the ground and ending exploration is the bare minimum of what is needed to keep 1.5°C of warming attainable. The New Zealand investment providers that are continuing to invest in oil and gas expansion are clearly off track with their

investment responsibilities to support the transition to net zero and the Paris Agreement.

### Investment in companies on a 1.5°C pathway

In contrast, New Zealand investment in companies in transition has seen a more modest increase over the past year. Just over one quarter (25%) of New Zealand's retail investment in fossil fuel companies is held in companies in transition. This is primarily in Contact Energy, which currently has around 17% of their generating capacity and 8% of revenue in gas as a fuel for electricity generation. As with other companies in transition, Contact is on a pathway towards phasing out gas and expanding geothermal, wind and solar as energy sources.



## INVESTING FOR A SAFE CLIMATE

Investment managers and advisers must urgently reflect on the degree of climate risk for fossil fuels, and the necessity of the transition. If investments are to be made in the energy sector, there are opportunities in fast growing parts of the renewable energy sector. It is likely that the companies identified as companies in transition will soon be classified as renewable energy producers as the proportion of fossil fuels in their energy mix declines.

In rare cases, fund managers can make significant progress through influencing fossil fuel companies to accelerate their transition to renewable energy. However, stewardship is unlikely to make a substantial difference for companies that have a business model reliant on oil, gas and coal, and particularly those that are still expanding their production.

Investors should also be aware of the risks and consequences of their investments on the climate, including fossil fuels and other high emissions intensive companies. Their investment in KiwiSaver and other funds is, on average, one of the largest components of New Zealanders' climate footprint. The main ways they can reduce that footprint are by choosing funds that avoid fossil fuels and other high emissions companies, and/or by investing in climate solutions such as renewable energy producers or technologies that enable companies to reduce their emissions.

Investors can check their holdings on Mindful Money's [Fund Checker](#) and find a [Fossil Free fund](#). Mindful Money is a charity, and this information is provided as a free service for the public.



## APPENDIX 1: CASE STUDIES OF OIL AND GAS COMPANIES INVESTING IN EXPANSION

### **Saudi Arabian Oil Company (Saudi Aramco)**

Saudi Aramco is the national oil company of Saudi Arabia and holds the exclusive right to explore for, produce, and refine the country's hydrocarbons. It is the largest oil and gas producer in the world, and the world's fourth-largest refiner.

Between 2020 and 2022, the company spent on average US\$2,199 million per year on exploration activities alone. After producing 4,345 million barrels of oil equivalent (including oil, gas, condensate, LNG) in 2021, the company's short-term plans to start extracting resources from new oil and gas fields would add 19,961 million barrels of oil equivalent. This expansion is in both Saudi Arabia and Kuwait.

Despite Saudi Aramco's apparent support for the aims of the Paris Agreement and [ambitious claim](#) to achieve net-zero Scope 1 and Scope 2 emissions across its wholly owned and operated assets by 2050, the company has no clear plans for phasing out, or transitioning away from, fossil fuel production. Evidence shows the company is far from being on a climate change pathway aligned with 1.5°C of global temperature rise, as 57% of the company's planned short-term expansion overshoots the oil & gas supply modelled in the IEA Net-Zero Emissions Scenario.

### **PetroChina Company Ltd**

PetroChina, which inherited the majority of Chinese onshore oil and gas assets, has developed into an international supermajor. The company engages in the exploration and production of oil and natural gas, as well as refining and operating pipelines.

Between 2020 and 2022, the company spent on average US\$4,951 million per year on exploration activities alone. After producing 1,932 million barrels of oil equivalent in 2021, the company's short-term plans to start extracting resources from new oil and

gas fields would add 2,394 million barrels of oil equivalent to this volume. This expansion is across the globe in Australia, Indonesia, China, Kazakhstan, UAE, Niger, Peru, and Canada.

This comes despite PetroChina's announcement of a target to bring its carbon emissions to a peak by around 2025 and reach near zero emissions and have renewables account for [50% of its energy portfolio by 2050](#). Currently, the only major plan the company has announced to achieve this is to raise the output of natural gas to account for 55% of its total oil and gas production by 2025, up from currently 51.6%. Evidence shows the company is far from being on a climate change pathway aligned with 1.5°C of global temperature rise, as the company's planned short-term expansion overshoots the IEA Net-Zero Emissions Scenario by 45%.

### **ExxonMobil Corporation**

ExxonMobil, headquartered in the USA, is an integrated oil and gas company that explores for, produces, and refines oil around the world. Exxon was once the largest company in the world but has fallen to twelfth place. The company has been a symbol of the fossil fuel industry's power and opposition to climate action. Despite evidence from their own scientists, Exxon spent hundreds of millions on funding climate deniers and lobbying for the successive US governments to dismantle climate regulations.

A hostile shareholder resolution in 2021 was supported by some large institutional shareholders, and three of the company directors were replaced. However, despite the euphoria, little has changed. This year, a shareholder resolution calling on Exxon to set targets that are consistent with the Paris Agreement was opposed by management and [gained support](#) from only 11% of shareholders. [Recent research](#) shows that renewable energy was 0% of Exxon's capital expenditure in 2022.

Between 2020 and 2022, Exxon spent on average US\$1,402 million per year on exploration activities alone. After generating 1,581 million barrels of oil in 2021, the company's short-term plans would expand their operations an additional 7,161 million barrels of oil equivalent. This is the largest amount of expansion relative to current operations of any of the major oil and gas companies. The expansion is also proposed to extend far and wide across the globe, including in Australia, Papua New Guinea, Indonesia, Malaysia, Thailand, Kazakhstan, Azerbaijan, Iraq, Qatar, UAE, Yemen, Chad, Angola, Nigeria, Equatorial Guinea, Argentina, Guyana, USA, Canada, the UK, Germany, Netherlands, and Russia. Evidence shows the company's planned short-term expansion overshoots the IEA Net-Zero Emissions Scenario by 51%.

### **Shell plc**

Shell, headquartered in the UK, is an integrated oil and gas company that explores for, produces, and refines oil around the world. Shell recently announced they will backtrack on their commitment to cut annual oil production by 2030, meaning emissions of an additional 29m tonnes of carbon dioxide per year, almost as much as New Zealand's annual emissions of carbon dioxide. In 2021, [Shell spent 7.6 times more](#) on share buybacks than on total investments in low-carbon energies, which includes 'gas-related activities'.

Instead of transitioning out of oil and gas, Shell has plans to massively expand its production in the short term. Between 2020 and 2022, Shell spent on average US\$2,329 million per year on exploration activities alone. After generating 1,376 million barrels of oil in 2021, the company's short-term plans would expand their production by an additional 4,399 million barrels of oil equivalent. The expansion is proposed to extend far and wide across the globe, including in Australia, Malaysia, Brunei, Kazakhstan, Qatar, Oman, Cameroon, Nigeria, Brazil, Argentina, Bolivia, the USA, Canada, the UK, and Norway. Evidence shows the company is far from being on a climate change pathway aligned with 1.5°C of global temperature rise, as the company's planned short-term expansion overshoots the IEA Net-Zero Emissions Scenario by 45%.

### **Chevron Corporation**

Chevron, headquartered in the USA, is an integrated energy company with exploration, production, and refining operations worldwide. The company is the second-largest oil company in the USA and engages in hydrocarbon exploration and production, refining, marketing and transport, chemicals manufacturing and sales, and power generation. The [Climate Action 100+ Net Zero Company Benchmark](#) finds that Chevron meets none of the Benchmark's targets for disclosure – Chevron does not disclose either an ambition to reach 'net zero' or net zero-aligned short, medium and long-term GHG reduction targets which cover all its relevant emissions. [Recent research](#) shows that renewable energy was 0% of Chevron's capital expenditure in 2022.

Between 2020 and 2022, Chevron spent on average US\$1,322 million per year on exploration activities alone. After generating 1,322 million barrels of oil in 2021, the company's short-term plans would expand their operations by an additional 5,422 million barrels of oil equivalent. Aside from ExxonMobil, this is the largest amount of expansion relative to current operations of any of the major oil and gas companies. Chevron's expansion is proposed to extend far and wide across the globe, including in Australia, Malaysia, Brunei, Kazakhstan, Qatar, Oman, Cameroon, Nigeria, Brazil, Argentina, Bolivia, USA, Canada, the UK and Norway. Evidence shows the company is far from being on a climate change pathway aligned with 1.5°C of global temperature rise, as the company's planned short-term expansion overshoots the IEA Net-Zero Emissions Scenario by 52%.

### **BP plc**

BP, headquartered in the UK, is an integrated oil and gas company that explores for, produces, and refines oil around the world. Just over 20 years ago, BP changed its name from British Petroleum to "Beyond Petroleum" but subsequently back-pedalled on their transition to renewable energy. In 2020, BP again announced they would make significant cuts to its production as part of a transition plan to renewable energy, but last year they made record profits from

oil and gas and again backpedalled on their climate commitments. In 2021, [BP spent](#) 14 times as much on shareholder payouts as investments in low carbon initiatives.

BP is now doubling down on its core oil and gas business. Between 2020 and 2022, the company spent on average US\$1,104 million per year on exploration activities alone. After generating 1,066 million barrels of oil in 2021, the company's short-term plans would expand their operations by an additional 3,066 million barrels of oil equivalent. The expansion is proposed to extend far and wide across the globe, including in Indonesia, India, Azerbaijan, UAE, Egypt, Mauritania, Brazil, Argentina, Bolivia, Trinidad and Tobago, USA and the UK. Evidence shows the company is far from being on a climate change pathway aligned with 1.5°C of global temperature rise, as the company's planned short-term expansion overshoots the IEA Net-Zero Emissions Scenario by 35%.

### **QatarEnergy**

QatarEnergy, headquartered in Qatar, provides oil and gas drilling, exploration, refining, and distribution services. Qatar is one of the largest global exporters of LNG, which generates the majority of Qatar's national revenue. Over the last four decades, Qatar's carbon emissions have increased dramatically as its LNG sector has grown. By 2020, Qatar ranked among the highest in the world in terms of carbon dioxide emissions per capita, reflecting a six-fold increase since 1970. With an increased focus on sustainability and climate change issues in recent years, "Qatar Petroleum" was rebranded as QatarEnergy in October 2021.

Between 2020 and 2022, the company spent on average US\$293 million per year on exploration activities. The company's short-term plans would add an estimated 17,691 million barrels of oil equivalent to its production portfolio. This proposed expansion is across Qatar, Congo, Brazil, Argentina and Mexico.

Although Qatar Energy has announced its intent to reduce its emissions by 25% by 2030,

Qatar, unlike Saudi Arabia and the United Arab Emirates last year, has not joined other countries in announcing an overall net zero pledge. Instead, Qatar has announced [aims](#) to become the world's LNG producer by 2030. According to a [new report](#), should Qatar exploit all of its oil and gas reserves it will eventually add more carbon dioxide to the atmosphere than the entire annual emissions of the whole world.

Evidence shows the company is far from being on a climate change pathway aligned with 1.5°C of global temperature rise, as the company's planned short-term expansion overshoots the IEA Net-Zero Emissions Scenario by 45%.

### **Petroleo Brasileiro SA – Petrobras**

Petrobras is a state-owned Brazilian multinational corporation in the petroleum industry headquartered in Rio de Janeiro, Brazil. Between 2020 and 2022, the company spent on average US\$632 million per year on exploration activities. The company's short-term plans would add an estimated 8,043 million barrels of oil equivalent to its production portfolio. This proposed expansion is in Brazil.

While Petrobras has pledged a 30% reduction in carbon emissions by 2030 and an [ambition to be net zero by 2050](#), in December 2020 Petrobras' now-former CEO, Roberto Castello Branco, dismissed pledges by peer companies to completely neutralise their carbon footprints by 2050, [calling net-zero a fad](#). This CEO has since been removed, along with the resignation of five Board members. Despite President Lula's pledge to [recast Petrobras' role in the country's energy transition](#), giving it a much sharper focus on investment in renewable energy, Petrobras' commitments to renewable energy or a transition remain vague and fossil fuel production is set to increase.

Evidence shows the company is far from being on a climate change pathway aligned with 1.5°C of global temperature rise, as the company's planned short-term expansion overshoots the IEA Net-Zero Emissions Scenario by 45%.

### **Abu Dhabi National Oil Company (ADNOC)**

ADNOC, headquartered in the UAE, engages in the provision of energy services, and specialises in exploration and production, processing and refining, and marketing and distribution of oil and gas. ADNOC is the world's 11th biggest oil and gas producer and delivered 1,035 million barrels of oil equivalent in 2021. The company's short-term plans would result in an additional 7,562 million barrels of oil equivalent. This expansion is focused on the UAE.

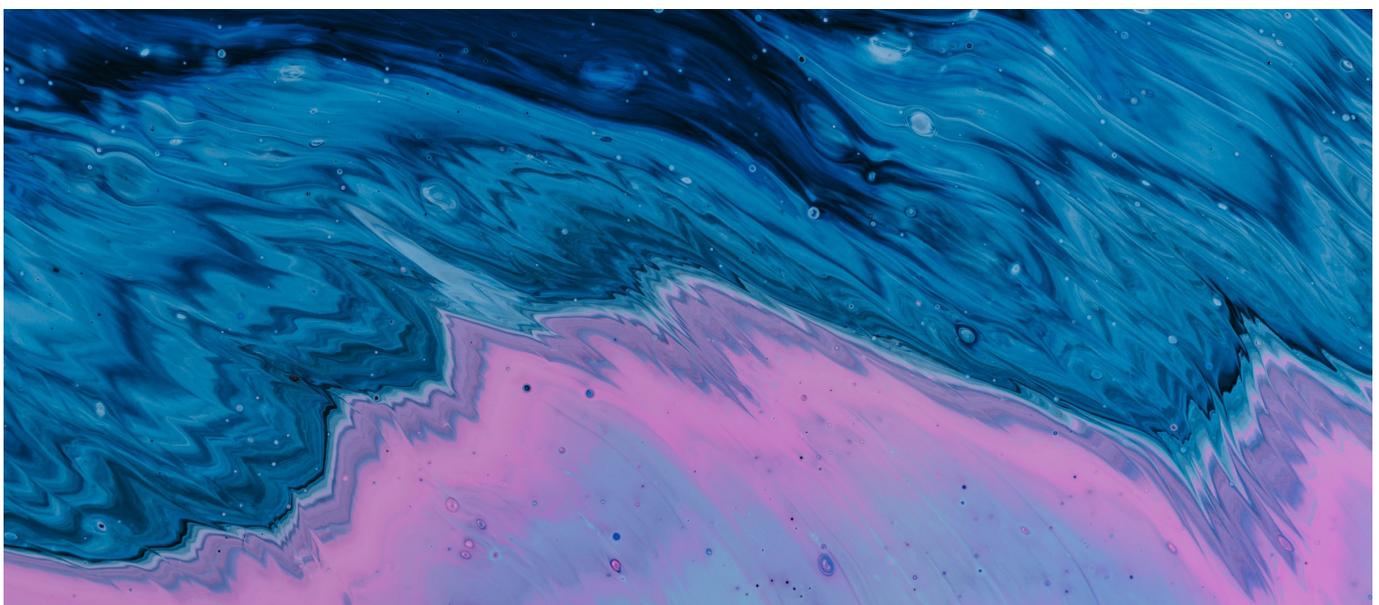
The company has pledged to reduce its carbon intensity by 25% by 2030 and [move towards net zero by 2050](#). Controversially, the CEO of ADNOC, Sultan Al Jaber, has been [appointed president of the United Nation's COP28 summit](#) in the UAE this December, which is seen as crucial with time running out to act on the climate crisis. This comes despite Al Jaber overseeing ANOC's planned expansion over the next 1–7 years, of which 90% of which would have to remain in the ground to meet the IEA Net-Zero Emissions Scenario, the third largest overshoot of the scenario in the world.

### **TotalEnergies SE**

TotalEnergies, headquartered in France, is an integrated oil and gas company that explores for,

produces, and refines oil around the world. Despite making pledges on net zero, TotalEnergies' main approach is to switch fossil fuel sources. By 2030, TotalEnergies [plans](#) to reduce oil sales but to increase its fossil gas sales – from 33% of its sales in 2019 to 50% in 2030. The overall proportion of fossil fuel sales in its revenues is projected to rise. In 2020, the CEO [said](#) that LNG *"is at the core of our ambitions"*. Like many other oil and gas companies, TotalEnergies is facing multiple lawsuits, citing insufficient action on climate change, greenwashing and damage from controversial projects in developing countries.

Between 2020 and 2022, TotalEnergies spent on average US\$1,013 million per year on exploration activities alone. The company's short-term plans would produce an estimated additional 6,854 million barrels of oil equivalent, compared with their production of 998 million barrels of oil equivalent in 2021. This proposed expansion is spread far and wide across the globe, including in Uganda, Australia, Papua New Guinea, Azerbaijan, Iraq, Qatar, UAE, Oman, Egypt, Libya, Kenya, Mozambique, Angola, Congo, Cameroon, Nigeria, Brazil, Argentina, USA, Norway, Denmark and Russia. Evidence shows the company is far from being on a climate change pathway aligned with 1.5°C of global temperature rise, as the company's planned short-term expansion overshoots the IEA Net-Zero Emissions Scenario by 48%.



## APPENDIX 2: CASE STUDIES OF FOSSIL FUEL COMPANIES ON A 1.5°C PATHWAY

### **Contact Energy**

Contact Energy is one of Aotearoa New Zealand's largest electric utilities companies, generating 20% of the country's electricity and supplying nearly 600,000 customers. The company has invested in a network of seven geothermal and hydro stations that have a generating capacity of 87% from renewable sources. Contact has publicly reported its emissions since 2018. Since it began these reports, the company estimates it has reduced its greenhouse gas emissions by 33%. However, this was primarily the result of fluctuating demand for thermal power generation rather than permanent improvements to its emissions profile.

Contact operates three thermal power stations that employ gas and diesel. Contact reports that these fossil fuel-powered facilities generated 8% of its total revenue in FY 2022. Two of Contact's thermal power stations are slated for closure over forthcoming years. Once both plants close, an estimated 95% of Contact's energy supply will be generated from renewable sources.

Contact has set two emissions reduction targets. By 2026 it aims to have reduced Scope 1 and 2 emissions by 45% and Scope 3 emissions by 34%. To help achieve its targets, Contact has announced plans for further investment in renewable generation. This includes NZD \$1.2 billion in geothermal power, by constructing a new station and expanding capacity at an existing station, along with early developments in wind and solar generation.

### **EDP Energias de Portugal SA**

EDP is a Portuguese energy company that has committed to being carbon neutral by 2030. The company is Portugal's largest generator and distributor of electricity. It also has sizeable operations in Spain and Brazil and owns a subsidiary in the United States that is the world's third-largest

generator of wind power. Sustainalytics, which rates the sustainability of listed companies based on their ESG performance, estimates 12.5% of the company's revenue was generated from fossil fuels in FY 2021, including 5% from coal-fired plants and 7.5% from oil and gas.

Underpinning the company's carbon neutral ambition is a EUR €24 billion investment plan from 2021 to 2025. According to EDP, 80% of this investment will be in renewable energy (with the remainder in distribution, client solutions, and energy management). The company intends to use this capital to double its solar and wind capacity from 12 GW to 25 GW over the five-year period.

To help become carbon neutral by 2030, EDP is aiming to be coal-free by 2025. The company plans to shut down the three coal-fired plants that it still operates across the Iberian Peninsula. One site is slated for conversion to green hydrogen production, and another may be used for energy storage. The decision to shut down rather than offload fossil fuel assets contrasts with many other energy companies who instead choose to sell up when faced with falling profits or a need to improve their sustainability credentials.

### **EnBW Energie**

EnBW Energie is a German energy company that is transitioning to renewables with a goal of becoming carbon neutral by 2035. It supplies 5.5 million customers and operates throughout Europe. The company's carbon neutral goal is part of Germany's Energiewende. This is a legislated but stalled plan to transition Germany to renewable energy with a goal of reducing greenhouse gas emissions by 80–95% by 2050 relative to 1990 levels.

EnBW has made progress since it set its transition target in 2012, having invested EUR €5 billion in renewable energy. This capital funded a network

of wind, solar, and hydro projects across Europe. As a result, since 2012 EnBW has increased the share of renewables in its energy generation portfolio from 18.9% to 40.1%. This has helped the company to reduce its carbon emissions by 18% over the same period.

Further investment is proposed, and EnBW has announced plans to commit [an additional EUR €6 billion](#) to renewable energy and fuel-switch projects over the next 3 years. This is forecasted to increase the share of renewable energy generation in its portfolio to over 50% by 2025.

Alongside investment in renewables, EnBW plans to phase out its coal-fired plants by 2028. This is 10 years ahead of the legal deadline set as part of the Energiewende. As of FY 2021, coal plants still provided 15% of the company's total revenue (according to an estimate by Sustainalytics), however these plants are slated to eventually be decommissioned or converted. EnBW has stated it will [rely on natural gas](#) as a bridging technology, with these coal plants ultimately running on green hydrogen by the mid-2030s. Although the conversion from coal-fired power plants to gas-fired power plants is only an intermediate step during their transition, we recognise EnBW's investment in natural gas is set to increase in the short-term, with [EUR €1.6 billion invested in these fuel-switch projects](#).

### **Endesa**

Endesa is an energy company that has committed to being carbon neutral by 2040. It is the largest electric utilities company in Spain and the second largest in Portugal, supplying electricity to around 22 million people. Endesa generates electricity from a mix of hydropower, nuclear, coal, gas, oil, solar, and wind. It also supplies gas.

As of 2021, Endesa was Spain's second-largest emitter of greenhouse gas emissions. The company generated 32.15% of its electricity from oil and gas that financial year, which brought in 22.09% of its revenue, according to an estimate by Sustainalytics. Coal-fired plants accounted for 7.78% of its capacity

in FY 2021 but only 1.34% of production, generating 0.93% of its revenue that year.

To transition away from fossil fuels, Endesa has announced plans to abandon coal by 2027 and gas by 2040. It also plans to exit the retail gas market. Alongside divestment from fossil fuels, Endesa plans to expand its renewable energy capacity. Kicking off this plan is EUR €8.6 billion in capital to be invested over 2023 to 2025. Around half of the capital will go toward expanding renewable capacity, and much of the remainder will be used to digitise its distribution network, enabling more efficient and resilient energy supply across the grid. Endesa forecasts this initial investment will result in 91% of its electricity generation in the Iberian Peninsula becoming emissions free by 2025, up from 72% in 2022.

### **Enel**

Enel is Europe's largest electric utilities company by market capitalisation and serves over 74 million customers. Enel holds a 70.1% stake in Endesa and is reducing emissions in step with its Spanish acquisition, having set a goal of reaching net-zero emissions by 2040.

Enel set out its plan to meet the 2040 target in a roadmap released last year. The roadmap focuses on transitioning from fossil fuels to renewables by phasing out all coal-fired plants by 2027 and gas generation by 2040. The company also plans to exit the retail gas market. According to estimates from Sustainalytics, in FY 2021 Enel received 15.34% of its revenue from power generated from fossil fuels.

Enel plan to [sell their stake in coal and gas assets](#). Alongside divestment from fossil fuels, Enel's transition involves a sizeable commitment of capital to renewable energy projects. By 2030, the company expects to have invested a total of EUR €70 billion in renewable energy over the preceding decade. However, Enel plans to switch out some coal-fired power generation for gas-fired power generation during their transition. This includes the proposal to [revive an LNG project in Sicily](#), which has secured approvals but remains suspended, and the approval

to convert soon-to-be-retired coal plant in the Brindisi region [to a gas-fired power station](#), although neither project has gone ahead at this stage.

The company has long had a sustainable record. In 1981 it built the world's first grid-connected solar field, and in 2008 it launched the renewable energy-focused subsidiary Enel Green Power. More recently, in 2019 Enel committed to develop a business model in line with the Paris Agreement (COP 21) objective to limit the average global temperature increase to 1.5°C. This was shortly followed by the decision in 2021 to aim for net-zero emissions by 2040.

### **Iberdrola**

Iberdrola is a Spanish energy company that has committed to achieving net-zero emissions by 2040. It supplies energy to nearly 100 million customers across parts of Europe and the Americas. Iberdrola currently generates 80% of its electricity from renewable sources and received 15% of its revenue from oil and gas power generation in FY 2021, according to an estimate by Sustainalytics.

Much of Iberdrola's renewable energy is provided by wind power. In 2022, their wind farms provided 20,700 MW out of a total capacity of 60,761 MW, with a further wind capacity 4,000 MW under construction. Powering this capacity are 15,000 wind turbines, primarily onshore, in 415 sites across 14 countries. This has positioned the company as the world's second-largest generator of energy from wind.

Alongside Iberdrola's net-zero goal, it has set an interim objective to be carbon neutral in electricity generation by 2030. Meeting these goals is the driver of much of its planned investment, with EUR €17 billion capital earmarked for renewable energy over 2023 to 2025. The company reports a total investment of EUR €150 billion is planned for this decade to enable its energy transition.

### **Ørsted**

Ørsted is a Danish power company and Europe's largest producer of electricity from offshore wind power. The company was previously named Danish Oil and Natural Gas, having been founded to manage the country's fossil fuel resources in the North Sea. It has now transitioned to generate 91% of its power from renewable sources, a change it marked in 2017 with the rebrand to Ørsted, a reference to a Danish scientist whose discoveries included electromagnetism.

Ørsted has set an overall target of net-zero emissions by 2040 with an interim goal of generating 100% renewable electricity by 2025. The company also plans to increase its capacity to generate renewable electricity from 30.7 GW to 50 GW by 2030. One of Ørsted's most recent steps in this direction has been the development of the GBP £8 billion Hornsea 3, which will be the world's largest offshore wind farm when completed.

Ørsted is also focused on tackling its Scope 3 emissions, including decarbonising the supply chain for its renewable energy generation. It has set a goal of a 50% reduction in Scope 3 emissions from 2018 to 2032. Recent steps to achieve this include a commitment to grow the use of 'near-zero' concrete in construction, an expectation that its suppliers use 100% renewable electricity, and the development of a 100% green-powered ship to service its offshore wind farms.

The company had previously set a target of ending coal generation by 2023. However, the Danish government recently required the company to extend the operation of its two remaining coal plants to June 2024, along with one oil plant. This was mandated to ensure the country's energy security in the face of shortages following Russia's invasion of Ukraine. The directive had already required Ørsted to resume coal use at one of its stations (which had previously transitioned to wood pellets) which increased the company's Scope 1 and 2 emissions by 17% in 2022.

**Verbund AG**

Verbund is an Austrian electricity and natural gas company that generates 96% of its electricity from renewable sources. The company has invested in a network of 129 hydropower sites which provide most of its renewable electricity (92% of total generation). A further 4% of Verbund's electricity generation is provided by wind and solar; this is expected to grow to up to 25% by 2030 under the company's investment plans.

The remaining 4% of Verbund's electricity generation is thermal. The company ceased coal generation in 2020. However, in 2022 Verbund was ordered by the Austrian government to prepare its mothballed Mellach coal plant to reopen in case the country faced energy shortages. Verbund also retains a single gas plant to even out fluctuations in its supply. Verbund intends to improve the sustainability of its natural gas supply by converting to green hydrogen, which it plans to power from its sizeable hydroelectric capacity.



