

Powering Change

Technologies fuelling the future

Chapter 1 | Technologies

February 2024

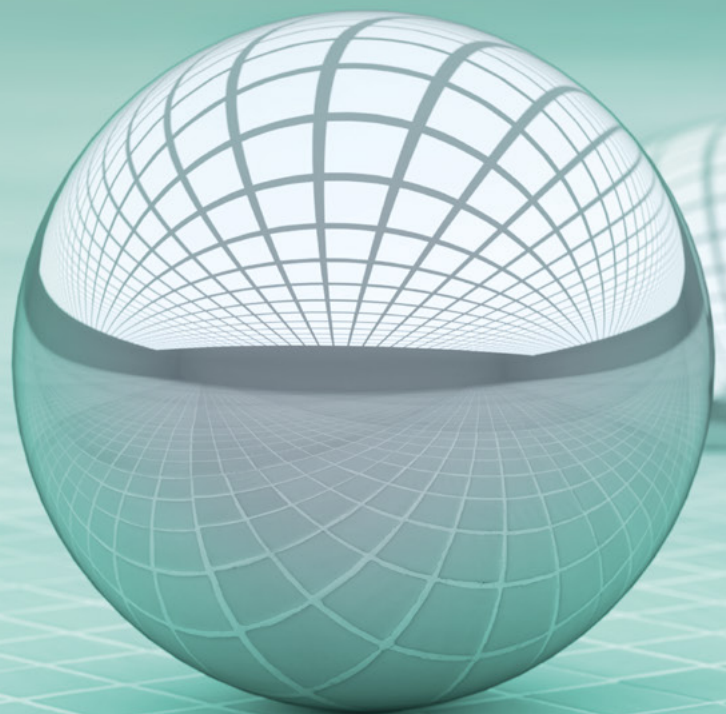


Outpacing change

Ashurst

Powering Change

Technologies fuelling the future



A fountain pen and a protractor are visible on the left side of the page, resting on a green surface with a white grid pattern. The pen is black and the protractor is white with black markings.

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Introduction

The need to rapidly accelerate the transition to cleaner energy is now more important than ever.

At last year's COP28 conference in Dubai, member states agreed a deal that called on all nations to make the transition away from fossil fuels. The topic continues to feature prominently at other international summits, and, owing to significant public pressure, it will no doubt remain high on the agenda long into the future.

A much greater focus on cleaner energy is imperative to achieve the goal of reducing carbon emissions, and the business community plays a critical role in facilitating this transition.

Now in its fourth edition, Ashurst's **Powering Change** report clearly demonstrates the extent to which corporates understand this and are committed to playing their part. As part of our research, we surveyed more than 2,000 senior executives and managers involved in energy decision-making at corporates throughout the G20 nations to uncover the extent to which the energy transition is affecting their businesses. We asked them about the technologies they are currently investing in, where they think the best future opportunities are, and where they expect the funding to come from.



Our survey found that G20 energy sector leaders are hugely optimistic about renewable power. An increasing number of businesses in the sector are setting their own net-zero targets, while the vast majority see investment in renewables as vital to their strategic growth. In addition, respondents expect the pace of their investments to pick up significantly over the next five years.

Overall, our report shows that the renewable energy industry is diversifying, maturing and deepening. The transition is now firmly embedded in strategies. A wide range of new technologies are being explored, both in the renewable power sector and in storage systems, such as batteries and pumped hydro storage. Capital is being made available from a broad range of sources.

“There is no doubt that Directors, CEOs and other senior managers are increasingly focused on the energy transition for two broad reasons. First, the increasing pressure – from a wide variety of stakeholders – on organisations both large and small to transition their own business, as societal attitudes towards carbon emissions continue to evolve. Second, but no less important, is the changing market. Leaders are being forced to adapt their organisations to the evolving market dynamics of a low-carbon economy and reduced use of fossil fuels. Although these dynamics are at play in every sector of the economy, nowhere are they more apparent than in the energy industry.

This is the first in a series of reports we will publish this year based on our research. Later in 2024, we will examine how the fluctuating energy market is challenging existing business models, as well as the barriers that corporates are facing in successfully navigating the energy transition. We will also look in greater detail at the role of governments, and the support they can offer.

This first report examines the diversity that now characterises the energy market. We look at why energy businesses are so positive and compare today's most popular renewable technologies with those expected to be foremost in the future. We also look at some of the barriers that exist when it comes to scaling the technology.

The sense of optimism revealed by this year's Powering Change survey is grounds for hope. There is, after all, a huge appetite for change. It's more important than ever for the energy industry, governments and other stakeholders to embrace the energy transition and work towards this common goal to achieve the best possible outcome.

We hope you enjoy reading this report. If you have any questions, or want to know more about how we can support you with your own transition strategy, please contact your local Ashurst team.

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“We were not surprised to find that those working in the energy industry expect the pace of change and investment in the energy transition to accelerate. What we did find fascinating was the lack of certainty about what the next phase of the transition looks like. As the energy transition progresses and the renewable energy market matures, it's clear that when it comes to meeting the targets being set by governments, there are enormous opportunities for those organisations willing to take a bold and strategic approach.”



Michael Burns
Partner, London



Dan Brown
Partner, Brisbane



Executive summary

Some key findings of the report:



Committed to the transition

62% of respondents expect their own organisation's investment to move away from traditional fuels and towards renewable energy at an accelerated pace over the next 12 months, while a third (34%) expect their investment to continue at current levels. Only 3% of respondents expect a slowdown in their investment in renewable energy or the energy transition.



Investment viewed as essential

The vast majority (81%) of the energy sector respondents see investment in renewables as essential to their organisation's strategic growth.



Corporates are the top investors in renewables

Corporates are the biggest investors in the renewable power sector, with 52% of respondents identifying this category, closely followed by 51% who identified International Oil Companies (IOCs), whose presence has increased in every survey we have done, followed by Government/Public Funding (48%).



Embedding net-zero targets

A total of 71% of respondents say their organisation has committed to a net-zero target, with a further 26% saying that, while they have not yet committed to it, it is under development. The majority (57%) are also pursuing, or proposing to pursue in the short term, reductions in their own emissions through initiatives such as introducing new energy efficiency measures, electrifying production processes and generating more renewable energy on site.



Deploying new technologies is the top opportunity

60% of respondents said that the top priority for their organisations in the energy transition is “Deploying new technologies”.



Solar is on top

When it comes to investment in renewable power sources, solar energy is the most popular current target for respondents, with nearly three-quarters (72%) currently investing in or having decided to invest in solar.





The power generation market is diversifying

Looking ahead, it is clear that the market is diversifying. Respondents expect the focus of power generation to switch to offshore wind (28%), followed by hydro (26%). Meanwhile, a range of emerging technologies are competing for attention, including green fuels, identified by 54% of respondents as a technology that is expected to mature in the next five years, as well as nature-based solutions (48%) and air storage and tidal generation (each at 42%).



Organisations are looking at non-generation options

Investment in the energy transition outside of generation is diversifying. While nearly half of respondents have already invested in electric vehicles (49%), battery energy storage systems (48%) and carbon capture, utilisation and storage (44%), survey respondents also report that they have considered a broad spread of different technologies, including all of the above, as well as pumped hydro storage systems (28%), decentralised energy (27%) and smart meters (26%). Only 4% of respondents were not considering investing in outside generation. There is no consensus among respondents that any single technology solution will emerge as a focus for future investment. This uncertainty, if it is not addressed by the relevant stakeholders (namely government) may result in further delays in commercialising those technologies that are best placed to accelerate carbon reduction.



Scaling technologies is challenging

A series of challenges in relation to scaling these new technologies may frustrate their adoption. The key reasons cited by respondents include a shortage of key inputs or raw materials (identified by 41% of respondents), manufacturing capacity (40%), and regulatory barriers and access to skilled labour (tied at 39%).



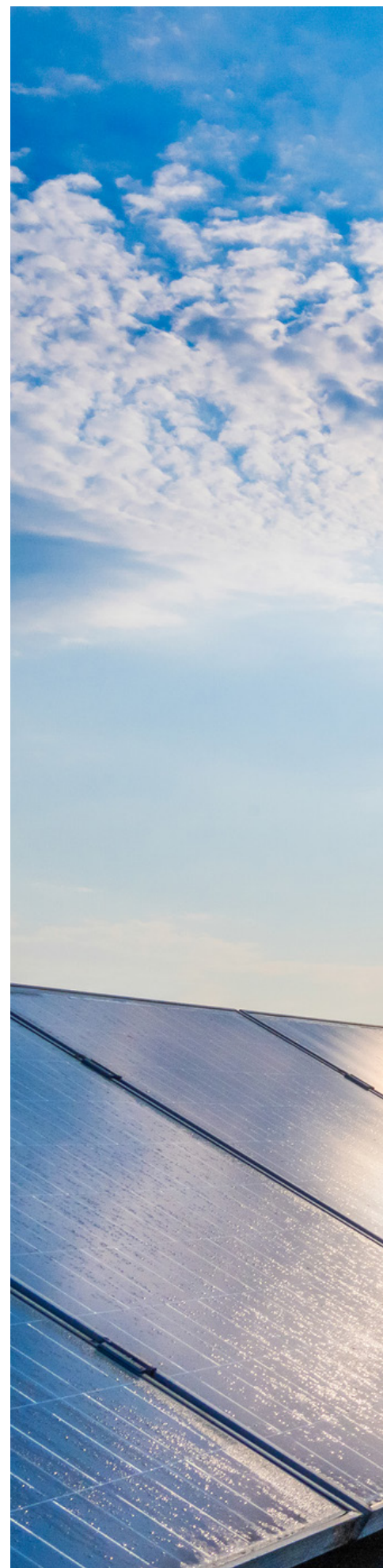
Boards and investors are demanding green investments

The impetus for investment in renewable and energy transition technologies is coming from inside rather than outside the organisations, with more respondents identifying their boards and their own investors as pressurising them to invest compared with their customers, employees, regulators, the media or non-governmental organisations (NGOs). In addition, strong pressure from boards (30% identifying “extreme” pressure in 2023 compared to 25% in 2022) and institutional investors (32% compared to 27% in 2022) has increased by five percentage points in this year’s survey compared to 2022.



More legal disputes are expected

More than two-thirds (68%) of respondents expect to see an increase in legal disputes over the next five years, with only 16% expecting to see a decrease. Over two in five (44%) expect legal disputes to be caused by environmental and social factors.









The state of the energy market this year

Reducing carbon footprints remains as big a priority in our survey this year, as it has in the past. Survey respondents from across the energy sector expect the energy transition to continue apace.

The response is in line with the concerns expressed at COP28, and in the media, that not enough progress is being made in meeting the targets and ambitions of governments and other bodies. In particular, the contrasting (and, at times, competing) approaches to the energy transition from the public sector in the various jurisdictions means the transition roll-out is happening at different speeds around the world.

Our research suggests that the private sector is eager to take up the challenge, with 95% of respondents expecting investments to support the energy transition to increase over the next five years.

Generally speaking, larger companies were more positive about the prospect of rapid adoption of new technology to support the green transition. When questioned about their country's readiness for various energy transition technologies, respondents from larger organisations were overall more optimistic about market preparedness, compared with respondents from SMEs. While 80% of large corporates felt the transition would speed up over the next five years, just 66% of small and medium-sized enterprises (SMEs) felt the same.

That optimism about the transition may in part reflect the growing commitment among many energy sector corporates to mitigating the impact of climate change by taking significant steps themselves. A total of 71% have committed to a net-zero target (an increase of four percentage points since our last survey). In addition, more than a quarter said this was under development. Just 2% told us they had no plans to commit to a target.

As we found in our last survey, the most popular way corporates plan to achieve this is by reducing their own emissions, for example by electrifying production processes, introducing new technology, increasing efficiency and generating more renewable energy onsite; 57% say they are pursuing initiatives such as these. Directly investing in renewable projects ranks second (49%). Once again, the number of organisations who rely simply on acquiring carbon removals to meet their net-zero targets has reduced. Just over a third (34%) are now pursuing this as a way of meeting their commitments, (a fall of eight percentage points since 2021).

This enthusiasm for renewables is not simply down to a desire to support the global environmental agenda. Many stakeholders in our survey are placing increased emphasis on the transition and the vast majority of respondents believe investing in the transition is vital if they are to thrive financially in the years ahead. Indeed, our survey reveals

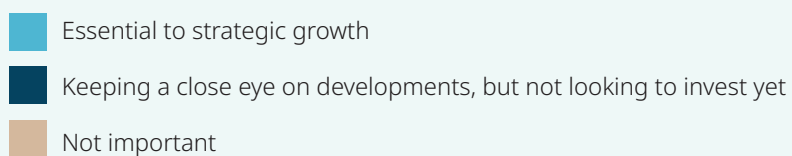
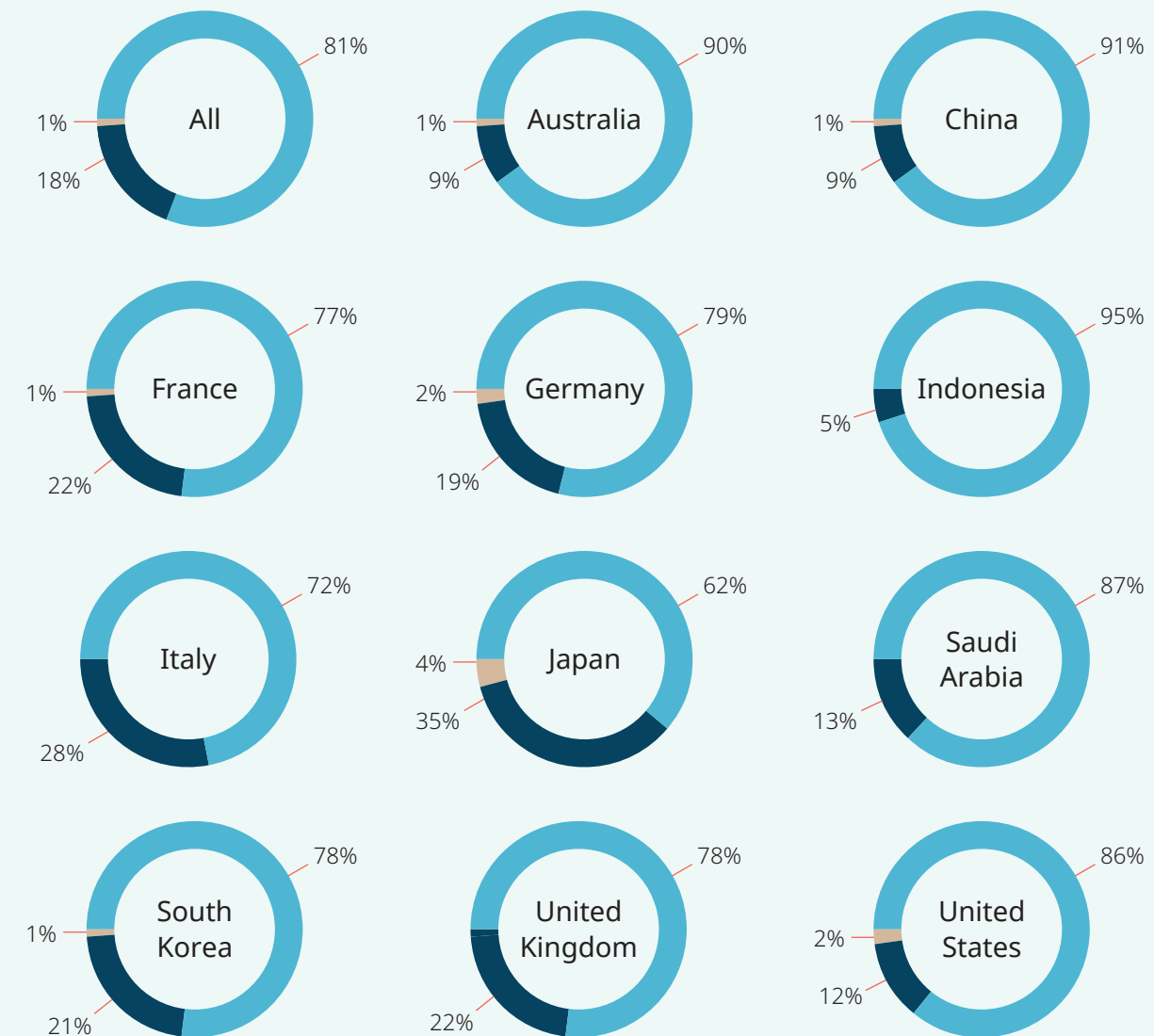
the significance that organisations attach to investments in renewables, the energy transition and decarbonisation as being critical to their future. More than eight in ten (81%) see investments like these as essential to their strategic growth – suggesting it's seen as both environmentally and commercially responsible. Our survey suggests this belief is strongest among the faster-growing markets of Indonesia (95%), China (91%) and Mexico (87%), reinforcing many of the points made at COP28 about the need to transition these major hubs of economic activity towards a low-carbon economy.

It seems that sentiments in more developed countries are not far behind – even in Australia (90%) and the United States (86%), for example, it is seen as vital by a large majority of respondents. In fact, in every G20 country we surveyed, more than 60% of respondents said such investment was essential to growth.



How organisations view investment in renewable energy, energy transition and decarbonisation technologies.

(Selection of responses shown)





Diversifying the energy transition

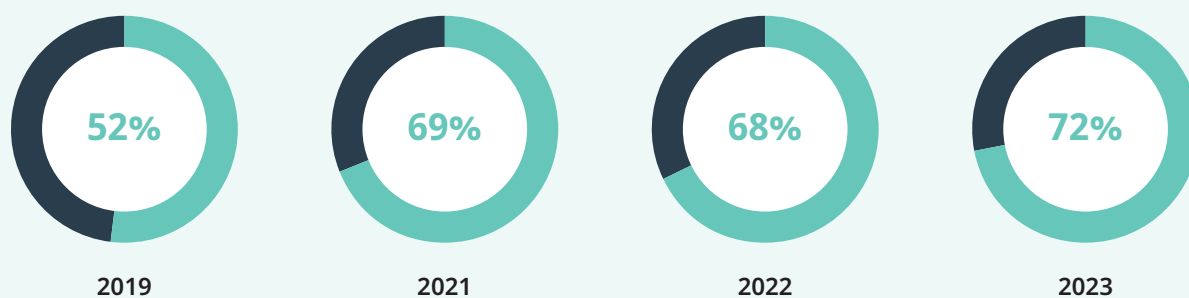
Our research suggests that the core technologies of the energy transition, i.e. solar and wind power, are maturing. Meanwhile, the investor base is diversifying: a wide range of investors look set to enter the market as their understanding of it grows, and the risks and opportunities become better known.

At the moment, investment in solar is dominant. A total of 72% of respondents said they were either currently investing in solar power, or had decided to do so – the highest result ever recorded in our research. This is followed closely by energy from waste (41%). Indeed, in terms of solar thermal power across the G20, respondents in Australia, Argentina, Brazil, Canada, China, Indonesia, Italy, Japan, Mexico, Saudi Arabia, South Africa, South Korea, the United Kingdom and the United States all see solar as the lead or joint number one renewable generation source to invest in.

Despite this increase in investor appetite for solar, the level of investment in solar projects in many markets around the world (and the corresponding impact on electricity markets) continues to have a negative impact on the commercial viability of future solar projects. Solar projects,

being smaller and simpler than many other renewable energy developments, remain popular with smaller investors who are attracted to their simplicity and proven technology. However, in our experience, many larger and more experienced energy investors are seeking higher returns than can be achieved through solar projects. It seems that, in some jurisdictions, the markets provide greater incentives and rewards for investors looking to address “gaps” in energy system generation portfolios – i.e., technologies such as wind, battery storage, pumped hydro, hydrogen or hybrid projects (e.g. solar and storage or wind and storage). Investors with bigger balance sheets and with experience in capital-intensive investment, or project development, are willing to invest in solar only in very specific circumstances, and solar opportunities must compete with the other opportunities in their pipeline.

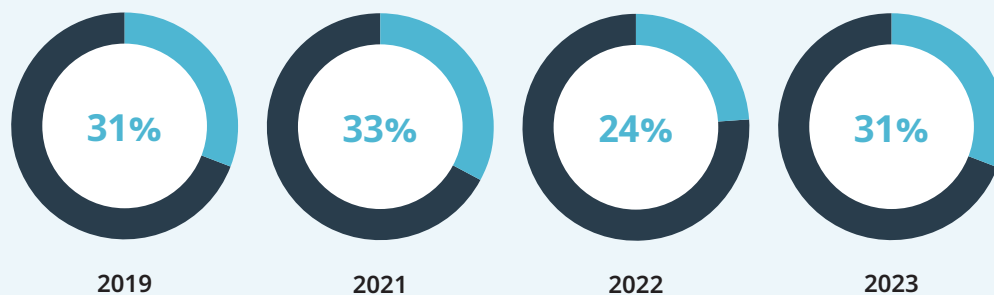
The percentage of organisations currently, or looking to, invest in solar has risen year-on-year since our first survey.

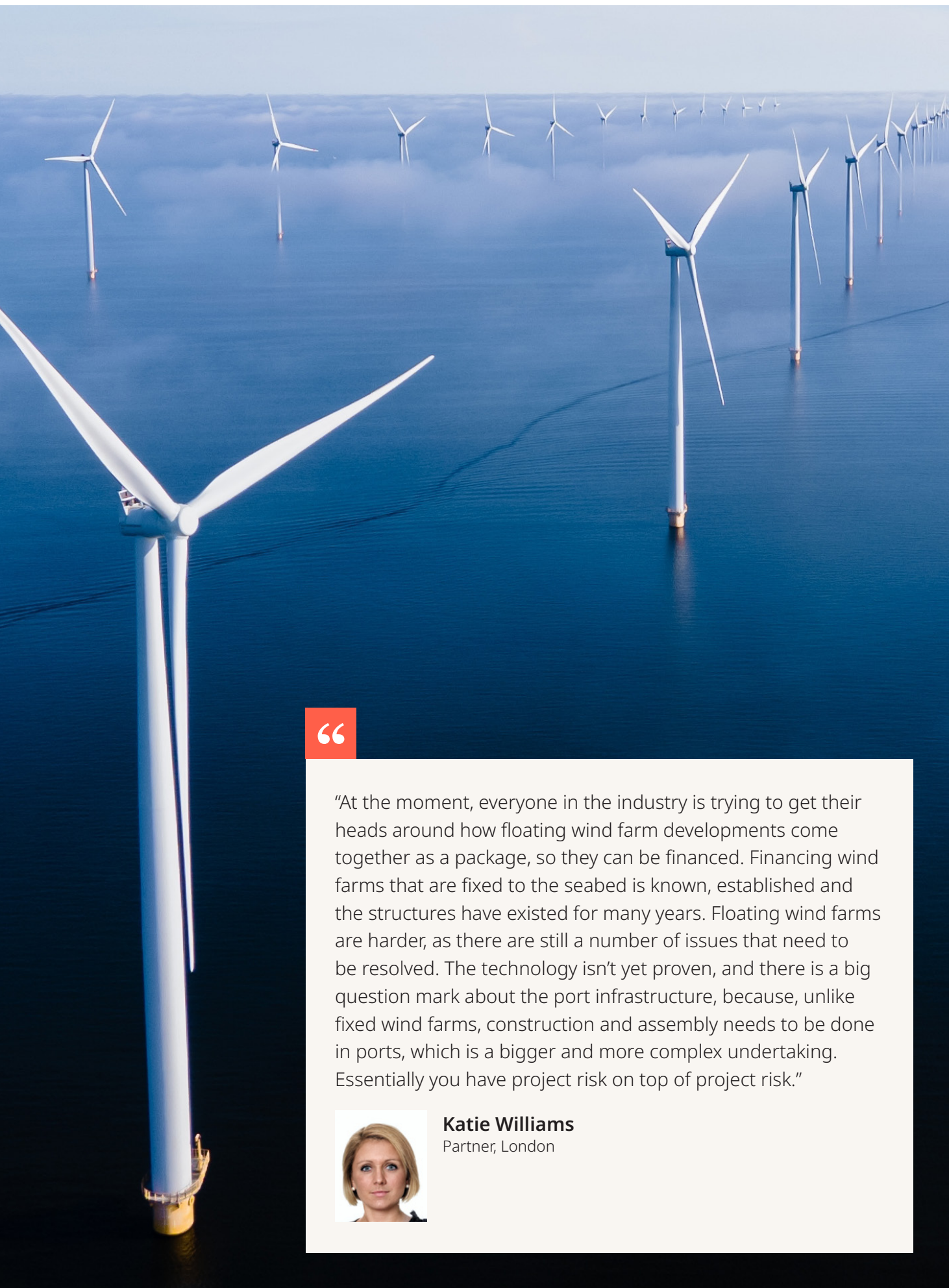


In contrast to solar, utilisation and investment in energy from waste has decreased by ten percentage points since our last survey. This suggests a degree of market saturation with the technology, in places such as the UK, which has seen a number of these plants built in recent years, as well as concerns from some local communities about their potential environmental impacts.

Meanwhile, offshore wind continues to lag behind, and still only garners the levels of enthusiasm seen in our very first survey in 2019 (31%). Despite a significant improvement in sentiment – showing the largest increase of all the technologies since our previous survey (7%) – it is still ranked bottom in terms of current investor appetite (31%), perhaps as a result of the size and complexity of offshore wind projects compared with other renewable investments.

Respondent investment in Offshore Wind is at the same levels today as in 2019.





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“At the moment, everyone in the industry is trying to get their heads around how floating wind farm developments come together as a package, so they can be financed. Financing wind farms that are fixed to the seabed is known, established and the structures have existed for many years. Floating wind farms are harder, as there are still a number of issues that need to be resolved. The technology isn't yet proven, and there is a big question mark about the port infrastructure, because, unlike fixed wind farms, construction and assembly needs to be done in ports, which is a bigger and more complex undertaking. Essentially you have project risk on top of project risk.”



Katie Williams

Partner, London



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“When it comes to offshore wind, in many regions of the world its expansion has often been predicted but hasn’t happened. Part of this is because the regulations keep changing, leading to uncertainty. Supply chains are now an issue thanks to geopolitical uncertainty, and large projects have been halted because they were uneconomic. These issues, in turn, impact banks’ willingness to provide finance, which slows down the process and leads to a slower build-out. Plans have always been ambitious, but it remains to be seen whether they can be implemented across value chains in the future.”



Derk Opitz
Partner, Frankfurt



Recently, the offshore wind industry has faced a number of issues, including supply chain bottlenecks that have led to project cancellations, problems with some critical technology and increased competition for the materials required to build turbines (especially affecting equipment from Asia), as well as difficulties in obtaining environmental approvals. The hope is that the outlook may be about to change. Over the next five years, over a quarter (28%) of respondents are set to consider investing in offshore wind, a higher proportion than for any other type of technology. Survey data suggests that respondents are seeking new opportunities to invest in, with greater numbers prepared to consider investing in hydro assets (26%) and geothermal energy (25%) than is currently the case.

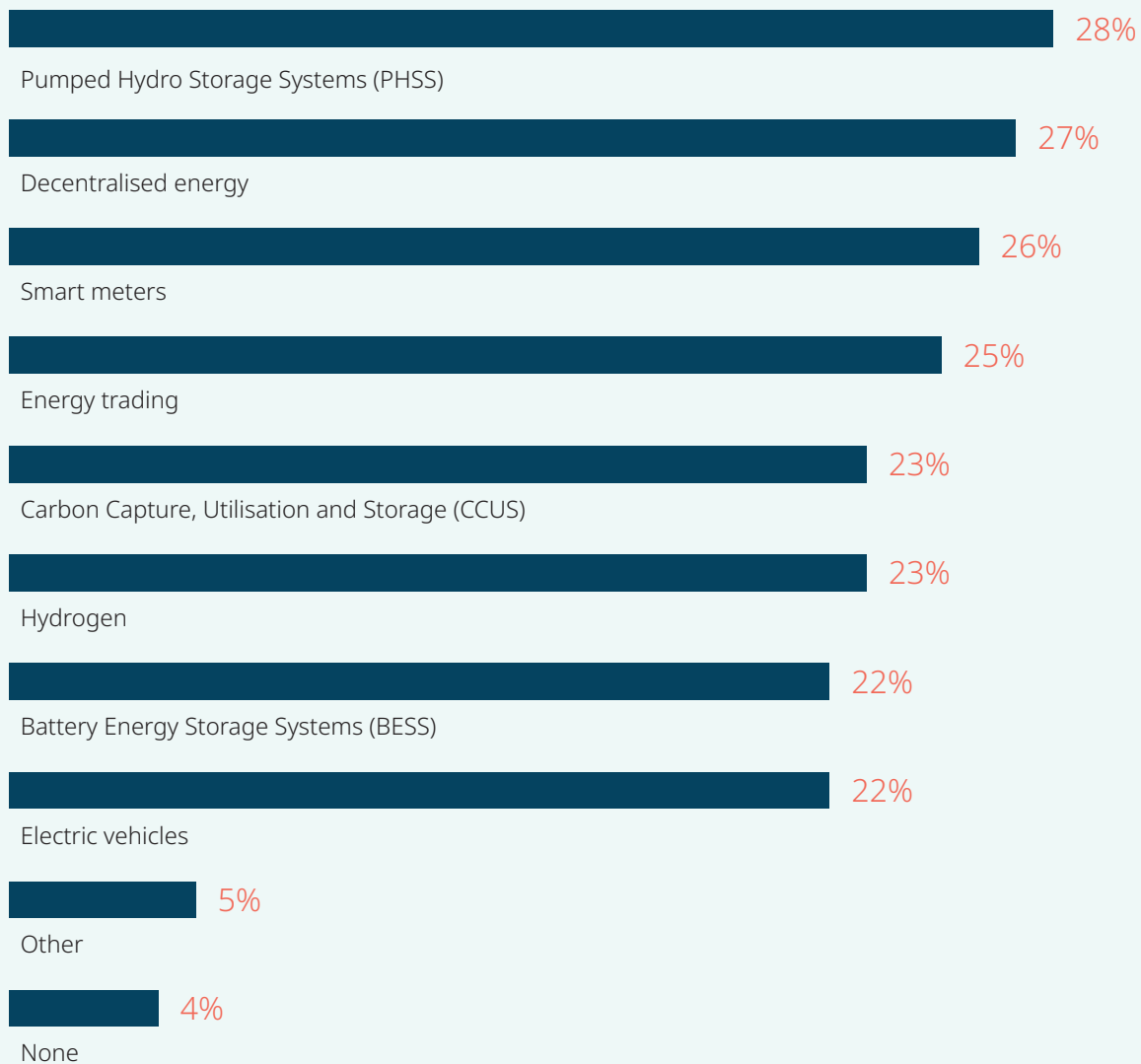
More broadly, there is a lack of consensus about what will prove the most promising technology in the years ahead: no single source of renewable power stood out significantly from any other when respondents were asked which they were considering utilising or investing in over the next five years. This uncertainty may perhaps be due to the different requirements of the various technologies, such as the amount of land or capital required to deploy a new form of renewable power at scale.

One obvious but increasingly challenging requirement for investment in new technologies is that the levels of return must be sufficient to justify the capital outlay. Constraints in supply chain capacity, or the availability of talent, materials and specialised labour, plant and equipment, combined with the seemingly ever-increasing appetite to invest in the sector, are creating competition among investment opportunities across different jurisdictions. (Over four in ten organisations face increasing challenges with manufacturing capacity (40%) and availability of raw materials (41%) in scaling new technologies.) Specific requirements of individual technologies, such as the availability of wind resource, may be largely fixed, but the availability of subsidies and other inducements, such as those provided in the United States' Inflation Reduction Act, variations in the regulatory environment and levels of community support or opposition, all impact the ability to deliver on ambitious investment plans.

Investment in the energy transition, outside of generation, is diversifying. While nearly half of respondents have already invested in electric vehicles (49%), battery energy storage systems (48%) and carbon capture, utilisation and storage (44%), respondents also report that they are considering a broad spread of technologies, including all of the above, as well as pumped hydro storage systems (28%), decentralised energy (27%) and smart meters (26%). Only 4% of respondents are not considering investing in outside generation. There is no consensus among respondents that any one particular technology solution will emerge as the focus for future investment.



Which NEW non-power generation technologies is your organisation considering to utilise or invest in over the next 5 years?



Who is investing in the renewables sector?

The biggest current investors in renewable power generation are corporate entities, including independent power producers and power consumers: 52% of respondents worldwide named them as investing through either debt or equity, in the sector, virtually no change from last year's figure.

Only narrowly behind corporates, however, are International Oil Companies (IOCs). Indeed, respondents observed a steady increase in the presence of these large, traditionally fossil-fuel-focused businesses investing in renewables and emerging technologies; currently, 51% of respondents see them investing in renewables and emerging technologies to support the energy transition (up by 11 percentage points since 2019).

This may reflect boardroom concerns about the viability of such businesses in the context of a long-term reduction in the use of fossil fuels. Fossil-fuel production and related products remain a material part of the business of many IOCs; however, many of these companies face pressure from a variety of stakeholders, including some shareholders, to reduce the reliance of their business on fossil fuels.







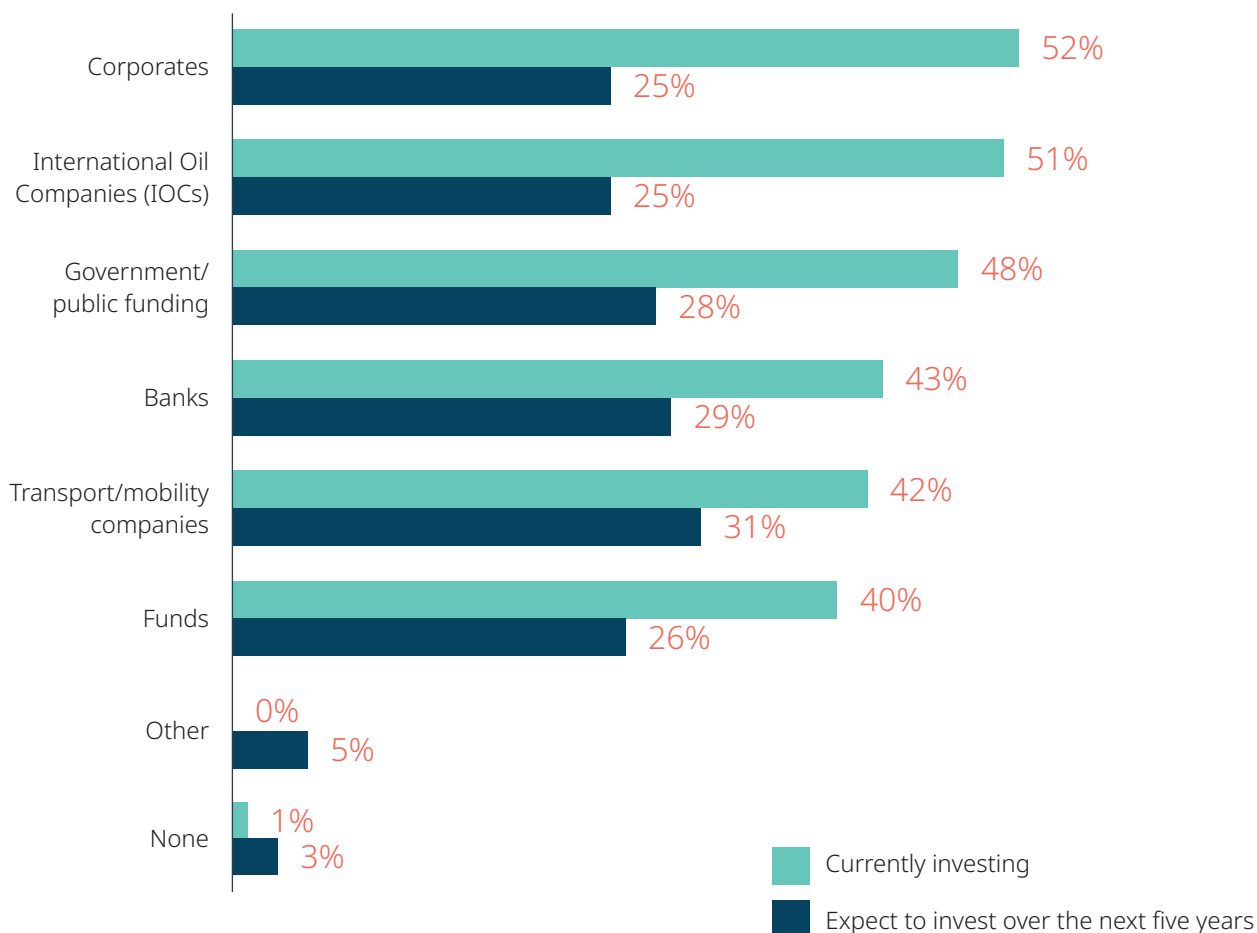
The production of hydrocarbon products can also be a power-intensive process, and renewables have proved an attractive pathway for a number of IOCs. For example, one recent offshore wind auction round in Germany was won by two oil majors who had the capital to spend and the need for power for their own internal energy transition.

Is this trend about to change? We think it's unlikely. It is true that a number of IOCs have begun to cancel projects, but they are not unique in this regard. Their strong balance sheets, deep knowledge of the global energy industry and experience in delivering major capital projects mean IOCs are particularly well-positioned for the larger and more challenging projects that are increasingly seen in the global renewables market. Technologies such as hydrogen and offshore wind also allow these players to draw on their existing specialist knowledge. The most significant challenge facing IOCs is not appetite or capability, but economics.

Where the energy transition is reliant on private sector investment, these opportunities must provide appropriate returns for their sponsors. Respondents in our survey appear to be forecasting continued challenges for IOCs in meeting these returns hurdles in the renewables market; though they are ranked second in terms of current investors, they slip to joint last place (25%) when looking forward five years.

Given the scrutiny these organisations are under from green pressure groups and others – as well as their long-term need to find a viable business model in a world of reduced fossil fuels usage – questions surely remain about whether they will in fact exit the market to the extent our respondents expect.

Who is currently investing / do you foresee investing in, whether by debt or equity, renewable power generation sources in your country?



Energy investors are also focusing their attention on newer technologies, seeing them as the biggest driver of opportunity for their business. With expectations high for an acceleration in the energy transition, six in ten respondents believe that deploying new technologies represents a key opportunity for their organisations.

This is one of the most fascinating findings of our research. Under-used technologies like offshore wind and carbon capture, utilisation and storage (CCUS) have the potential to make a huge impact in the energy transition. Yet, commercially, these projects are challenging; they are typically larger than other renewables, more complex to design and deliver, and place significant pressure on supply chains.

Those renewable technologies that have been widely deployed, such as solar, have seen rapid and substantial improvement in their economic efficiency. They have become substantially more cost-effective over time as a result of a combination of factors, from manufacturing capacity to technological improvements – as well as government support in many jurisdictions. Our survey respondents assume some of these existing technologies like offshore wind will make similar movements along the cost curve or find similar support from governments – and is this leading to complacency in driving their improvement?

In our experience, many of the technologies that are rapidly coming to market are adjacent to technologies deployed elsewhere: offshore wind is of course similar to onshore wind, and chemical battery technologies are technological improvements on existing products. This suggests that scaling these technologies might be a bigger challenge than anyone is anticipating – and a critical obstacle to overcome in efforts to increase the pace of the energy transition.

Historically, one source of frustration for the industry when it comes to new technology has been the tendencies of governments to continually tinker with the rules, for example in relation to subsidies. A degree of nervousness exists about committing to technology that is not yet mature. This could also explain why proven technology remains the biggest factor in driving significant growth in renewable energy, the energy transition, decarbonisation technologies and net-zero commitments for organisations. This has been the case in all our previous surveys. While these changes may be understandable to some extent, given the way the sector is continually evolving and the need for regulatory modernisation in many jurisdictions, the industry is looking for certainty and clearer regulation to facilitate the implementation of new technology.

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“The industry needs certainty from government, but it also needs collaboration. While things are always going to be competitive, to get projects across the line parties need to collaborate. For example, the only hydrogen projects that are making headway are those where people are working together – where you have export offtake market investors partnering with developers on those deals. Industry collaboration is vital to remove friction and bring down costs.”



Bree Miechel
Partner, Sydney







In terms of the drivers of growth, survey responses form a consistent pattern: proven technology is the number one driver of growth. However, attitudes diverge when it comes to corporate opportunities such as mergers & acquisitions (M&A) and equity capital markets (ECM). While large organisations cite a wide variety of drivers as significant, including access to a skilled workforce (41%), political support for investment (40%) and the robustness of legal and regulatory frameworks (35%), the second most frequently cited driver for SMEs was corporate opportunities (36%).

This response suggests that many SMEs are expecting significant consolidation of ownership within the market; ECM opportunities remain limited and, as renewable projects become more complex and an increasingly risky macroeconomic environment raises the cost of finance, M&A starts to become an increasingly important option to finance ambitious projects and sustain corporate growth.

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“There is not much of an ECM market at the moment – globally it has been depressed in a major way – so anyone trying to raise capital is going to have a hard time, unless they are very large and listed. Anyone in the SME category is therefore going to struggle to raise capital publicly. They are going to get more joy raising privately, since there is an overall trend towards private capital replacing a good chunk of what once came from the equity capital markets. For example, they could well be looking at getting private investment from corporates, institutions, or private equity sponsors.”



Jonathan Cohen
Partner, London

Looking to the future

Which of the more-fledgling technologies currently under development do organisations expect to come to fruition over the next five years?

In first place are green fuels: more than half (54%) feel that this is the emerging technology they expect to mature over this period. Once again, the size of a business affects its view of the future. Large companies were especially optimistic about green fuels compared to SMEs.

Green fuels may seem a relatively simple and cost-effective solution to, for example, improving the transport sector's environmental footprint, but the technology's presence has yet to be felt in any significant way, this is likely due to the infrastructure challenges that some green fuels (like hydrogen) represent. Addressing the "last mile" of supply chains is key to efforts to achieve a net-zero outcome and presents an opportunity for green fuels. That said, green fuels face tough competition from other technologies. One example is electrification, which is also well-suited for local delivery transportation by offering sufficient range and zero emissions at the point of use. The viability of green fuels in settings other than transport also remains unclear.

Despite the challenges faced by green fuel solutions, they will still have a part to play in the decarbonisation of the global economy. Increasingly, regulation is creating a need for solutions like green fuels. Carbon border adjustment mechanisms, such as those being introduced by the EU and UK, will put a price on embedded carbon in some products. The cost of complying with such mechanisms is sure to drive demand for less carbon-intensive alternative means of power generation and, green fuels could play their part here.





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“How new energy technology can benefit the transport sector in the UK is not being sufficiently thought through. There is a big problem in joining up the green energy producers and end users, such as bus or rail companies. From the rail side, for example, hydrogen power will be part of the answer to getting diesel trains off the network by 2040. However, not enough people in the value chain – producers, the regulators, the end users – are putting their heads together and working out how to make things happen. No one wants to be the first mover. What we really need is investment and projects that are creatively put together, the right people to fund them, and the regulatory side to catch up.”



Naomi Horton
Partner, London

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“Some of the [offsetting] solutions we’ve seen brought to market in recent years are facing challenge, questions as to whether they achieve what they set out to do, comply with their publicly stated performance, or even, if they are appropriate to form part of the energy transition at all. As new solutions become part of the energy transition, it will be critical they don’t rely solely on goodwill and that any stated characteristics of those solutions are provable in the face of potential legal challenges.”



James Clarke
Partner, Melbourne



The accuracy of respondents' predictions on green fuels as an emerging technology over the next five years remains to be seen. But an equally important issue is how technological advancements with green fuels will determine what will be considered green by then.

As a whole, nature-based solutions are ranked second (at 48%) as the emerging technology most expected to mature over the next five years, despite the use of offsets being subject to high levels of scrutiny and legal challenges.

Strikingly, however, a wide range of other technologies also receive a degree of support, suggesting considerable optimism about the future, but a lack of clarity about where exactly the best opportunities lie. For example, 42% expect air storage and tidal generation to mature over the next five years, with gravity generation only slightly behind (39%). Even embryonic technologies such as flywheels or pyrolysis attracted interest (27% and 29% respectively).

Despite their optimism, organisations are well aware of the challenges to scaling these new technologies. Globally, more than two in five (41%) think the availability of key inputs or raw materials will hold them back when building out new energy technology over the next five years. The problem is particularly acute in Latin America and the Asia Pacific region, with 46% mentioning this as an issue. Manufacturing capacity ranked next (40%), while access to a skilled labour force was joint third, alongside regulatory barriers (tied at 39%).

In other parts of the world, respondents expressed different concerns. In North America, 43% saw access to capital as the main challenge for the future, while uncertain or insufficiently profitable revenue models ranks alongside manufacturing capacity (tied at 35%) as the biggest constraint facing western European firms.

Legal disputes related to the energy transition – a growing concern for businesses

Across the G20, more than two-thirds (68%) expect to see an increase in legal disputes related to the energy transition over the next five years.

European organisations do not fall far behind the average as 64% are also expecting to see this increase over the next five years. French organisations particularly stand out, with nearly three in four (73%) anticipating more legal disputes during this time. Over four in ten French organisations attribute this to environmental and social factors (41%). Additionally, they believe that supply chain issues (40%), a concern also shared by nearly half (49%) of German organisations, will be an issue for them. Over a third (37%) of Italian organisations instead believe that technology problems will be the number one cause while four in ten in the UK think that issues with downstream infrastructure, such as electricity grids, will be the main driver of legal disputes.

Areas of dispute include claims of greenwashing (where companies are accused of misleading regulators or the public about their green credentials), as well as litigation to prevent the approval of energy projects due to their potential environmental, archaeological/cultural or other societal impacts, and issues surrounding the decommissioning of assets at the end of their useful life.





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“More than two-thirds of respondents are expecting to see an increase in legal disputes related to the energy transition over the next few years, and this is also being reflected in queries about this important issue from some of our own clients. It is vital that organisations review their operations for potential legal risks and make plans to mitigate or eliminate such risks in the future.”



Tom Cummins
Partner, London



Elena Lambros
Partner, Brisbane

Keeping the transition going

Businesses face headwinds on many fronts. Inflation, though falling, continues to be a problem around the world and geopolitical tensions are negatively impacting the global economy.

An inability to access a workforce with the right skills is a persistent challenge for many employers, while elevated interest rates are impacting borrowing costs.

In such an environment, the transition might be expected to move down the corporate agenda. In fact, as our survey this year has found, the reverse is true. Businesses and other organisations are embracing it as never before. There is guarded optimism about what it will mean for them.

There is no question that the energy transition is here to stay. Respondents report feeling a high degree of pressure from a range of stakeholders to invest in renewable energy and energy transition and decarbonisation technologies. For example, a total of 75% of respondents report that pressure from their own corporate boards was either “extreme” (30%) or “significant” (45%). The numbers for institutional investors were similar at 32% “extreme” and 43% “significant”, which exceeds the perceived pressure from regulators (31% and 43%, respectively), customers (29% and 44%), the media (27% and 43%), employees (28% and 38%) or even NGOs (27% and 41%).

The renewables sector is evolving, maturing and diversifying. Organisations from across the sector are looking for new areas in which to invest. A wider range of capital is becoming available. Existing technologies are being scaled rapidly, even as new technologies are being urgently explored.

Jurisdictions that are able to develop the right regulatory frameworks will be the ones likely to benefit the most from the significant investment appetite of the private sector. Our research indicates, however, that there is still significant work for governments to do in creating the most effective environment for this to happen. As is almost always the case, it is likely that additional support will be required to facilitate the deployment of newer technologies.

The COP28 agreement called on countries to transition away from fossil fuels, the first time there had been an explicit agreement to limit their use. This transition presents every business in the energy sector with challenges to overcome and opportunities to seize in pursuit of this goal.

The energy industry needs to navigate the future more carefully than ever. The businesses in this sector that are best placed to succeed are those which understand the trends driving the market – and which are prepared to act on them as confidently and decisively as possible.



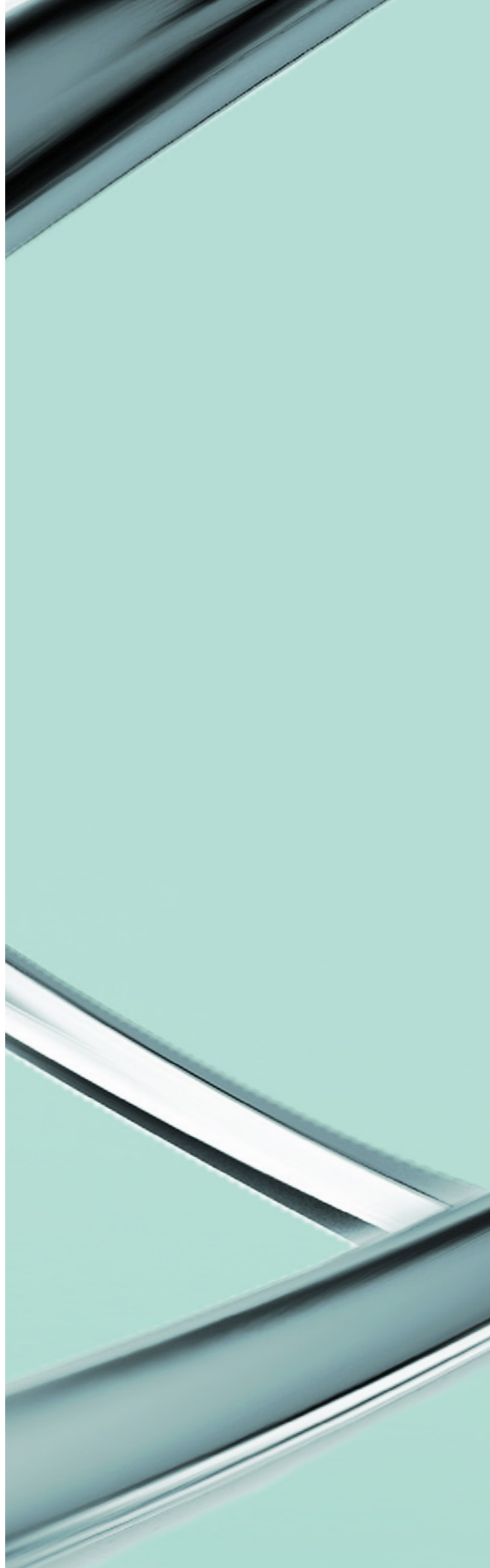
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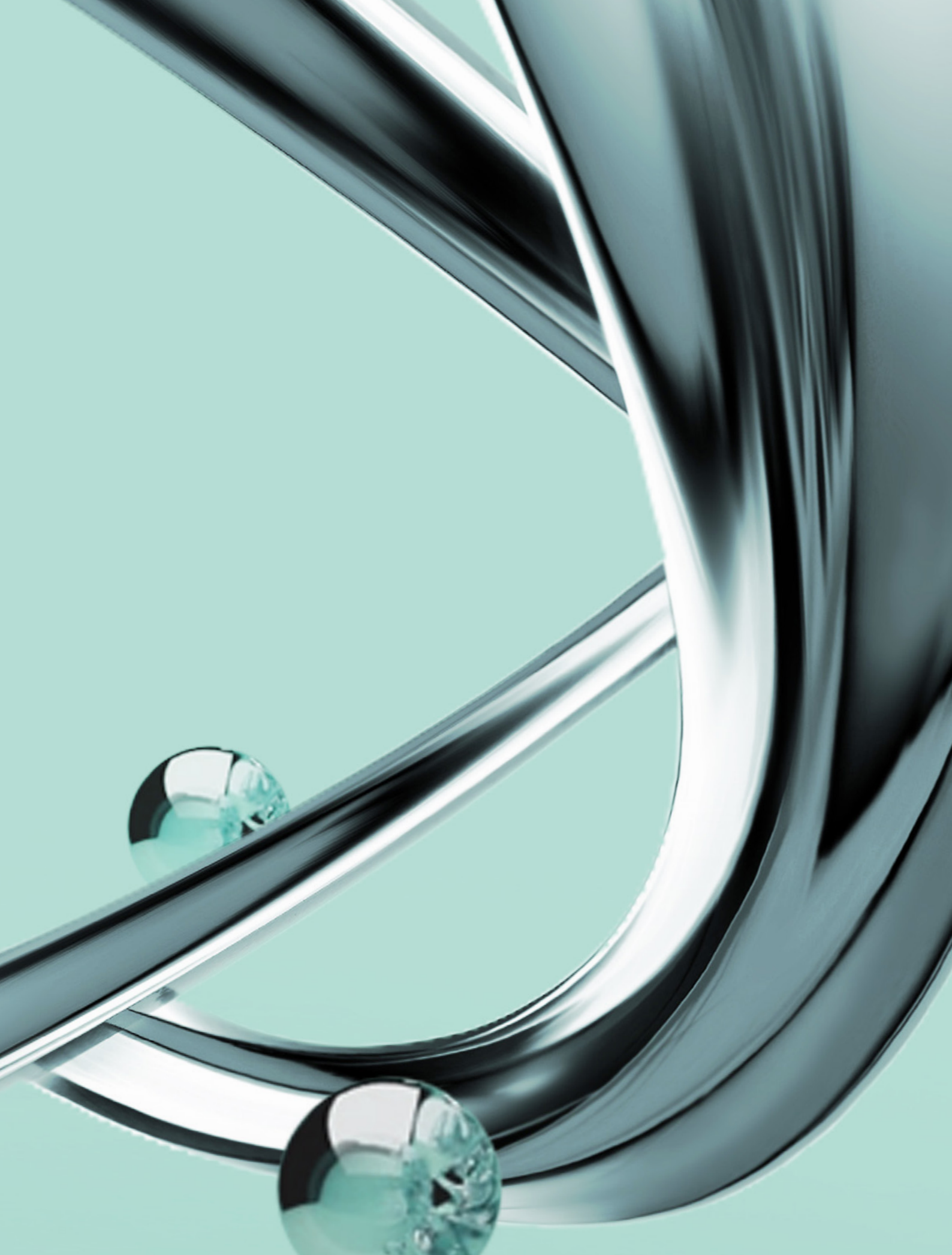
A note on methodology

We surveyed a total of 2,140 senior executives and managers who are involved in energy decision-making in businesses across the G20 nations between 29 October and 3 November 2023. The average annual global turnover of the companies whose executives we surveyed was US\$15.1 billion.

What we mean by the energy transition

For the purposes of this research, we define the energy transition in the following way: the transition of the global energy sector away from fossil-based fuels to net-zero carbon emissions from energy and industrial systems. This comes through a combination of improvements in energy efficiency and digitalisation of electricity grids (e.g. smart grids and meters), decarbonising the energy mix through lower carbon fuels (including gas and hydrogen) and higher levels of renewable energy sources, integration of batteries and other storage technologies, as well as the electrification of other economic sectors (e.g. transport, heavy industries, manufacturing, agriculture and buildings).





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