Ashurst

Powering Change

Technologies fuelling the future

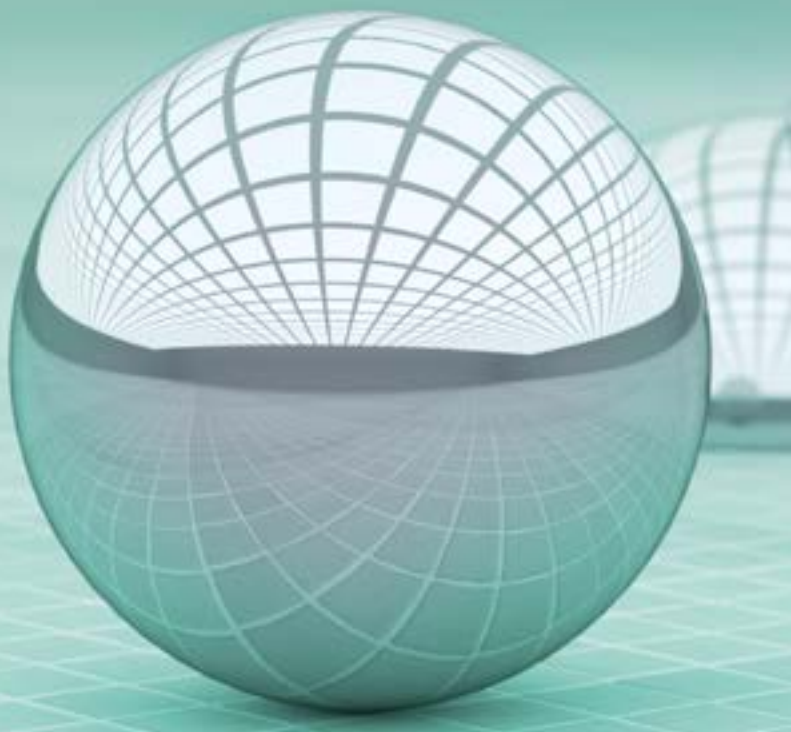
2024

Outpacing change

Ashurst

Powering Change

Technologies fuelling the future



contents

5 Introduction

9 Executive summary

14 Chapter 1 – Technologies

17 The state of the energy market this year

21 Diversifying the energy transition

28 Who is investing in the renewables sector?

36 Looking to the future

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

42 Keeping the transition going

44 Chapter 2 – Regulatory readiness

47 Introduction

50 Barriers to change

57 Role of governments

67 Conclusion

68 Chapter 3 – Financing the transition

71 Introduction

75 The barriers to be overcome to make the most of this flow of capital

80 A new range of investors

87 Conclusion

88 Endnotes

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.

"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.

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Chapter 1

Technologies

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.

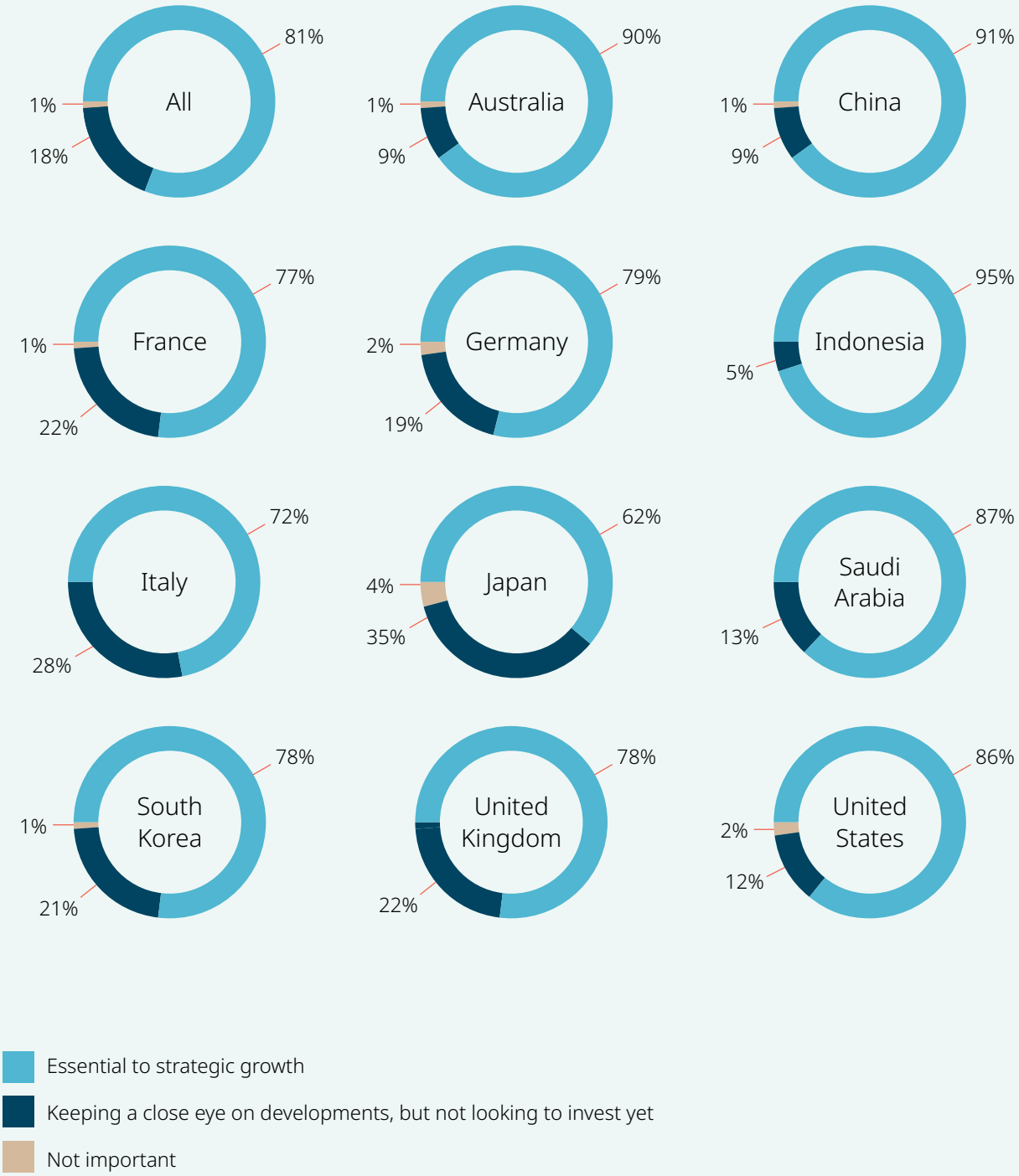
As we found in our last survey, the most popular way corporates plan to achieve this is by reducing their own emissions, for example by electrifying production processes, introducing new technology, increasing efficiency and generating more renewable energy onsite; 57% say they are pursuing initiatives 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)



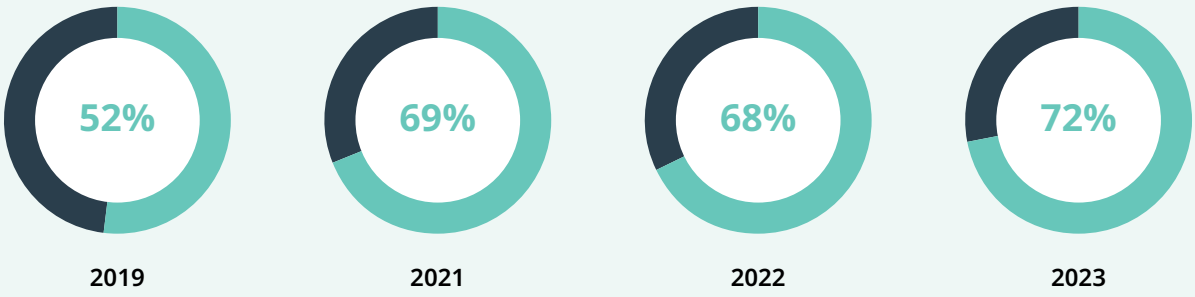
Diversifying the energy transition

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.

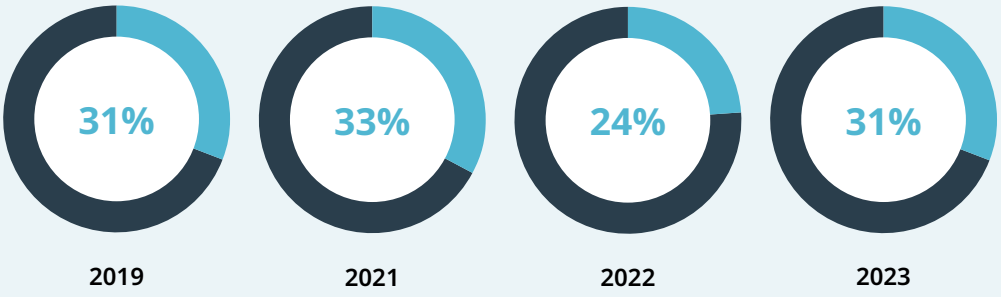
The percentage of organisations currently, or looking to, invest in solar has risen year-on-year since our first survey.



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.



“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

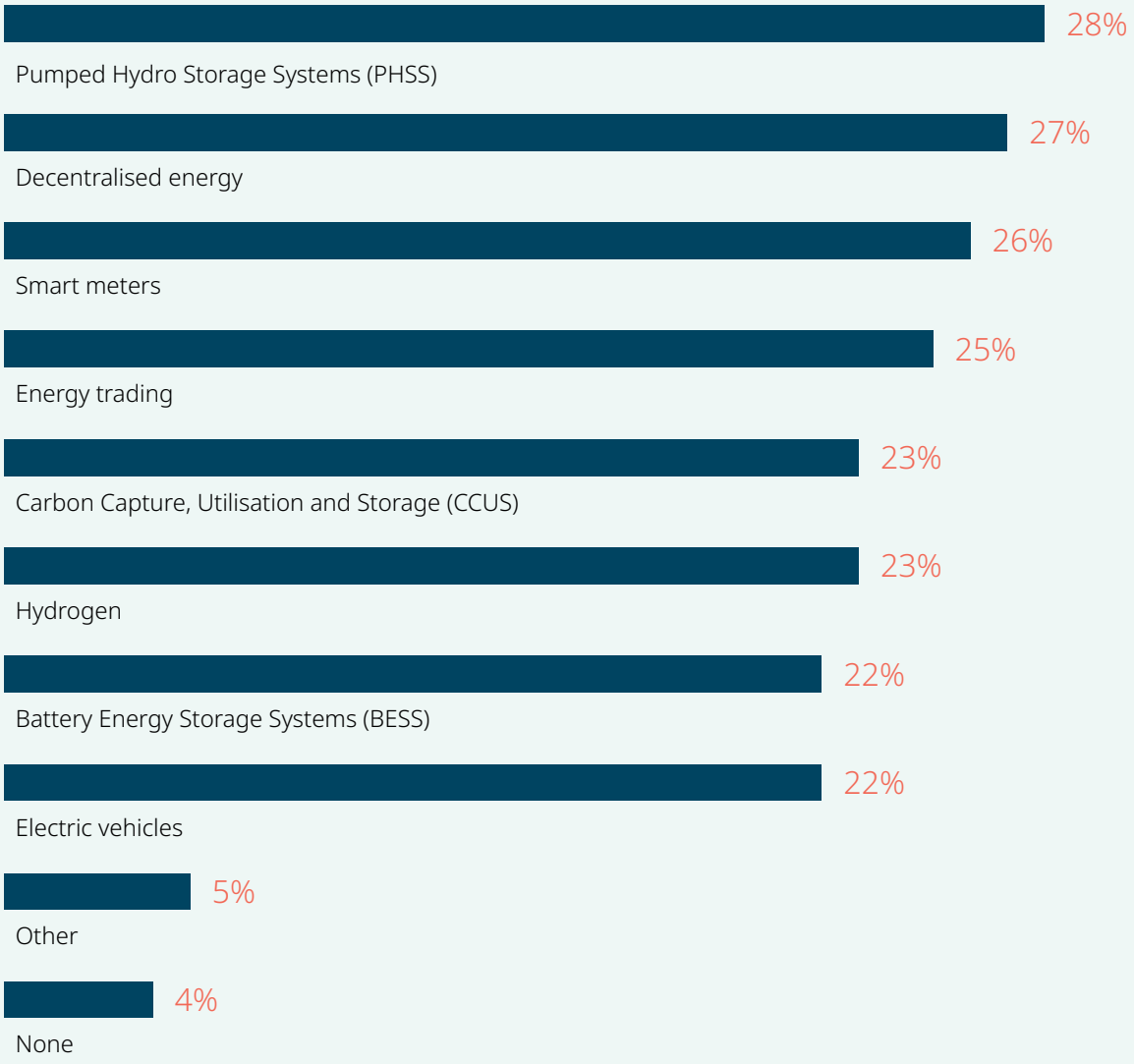
Recently, the offshore wind industry has faced a number of issues, including supply chain bottlenecks that have led to project cancellations, problems with some critical technology and increased competition for the materials required to build turbines (especially affecting equipment from Asia), as well 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.

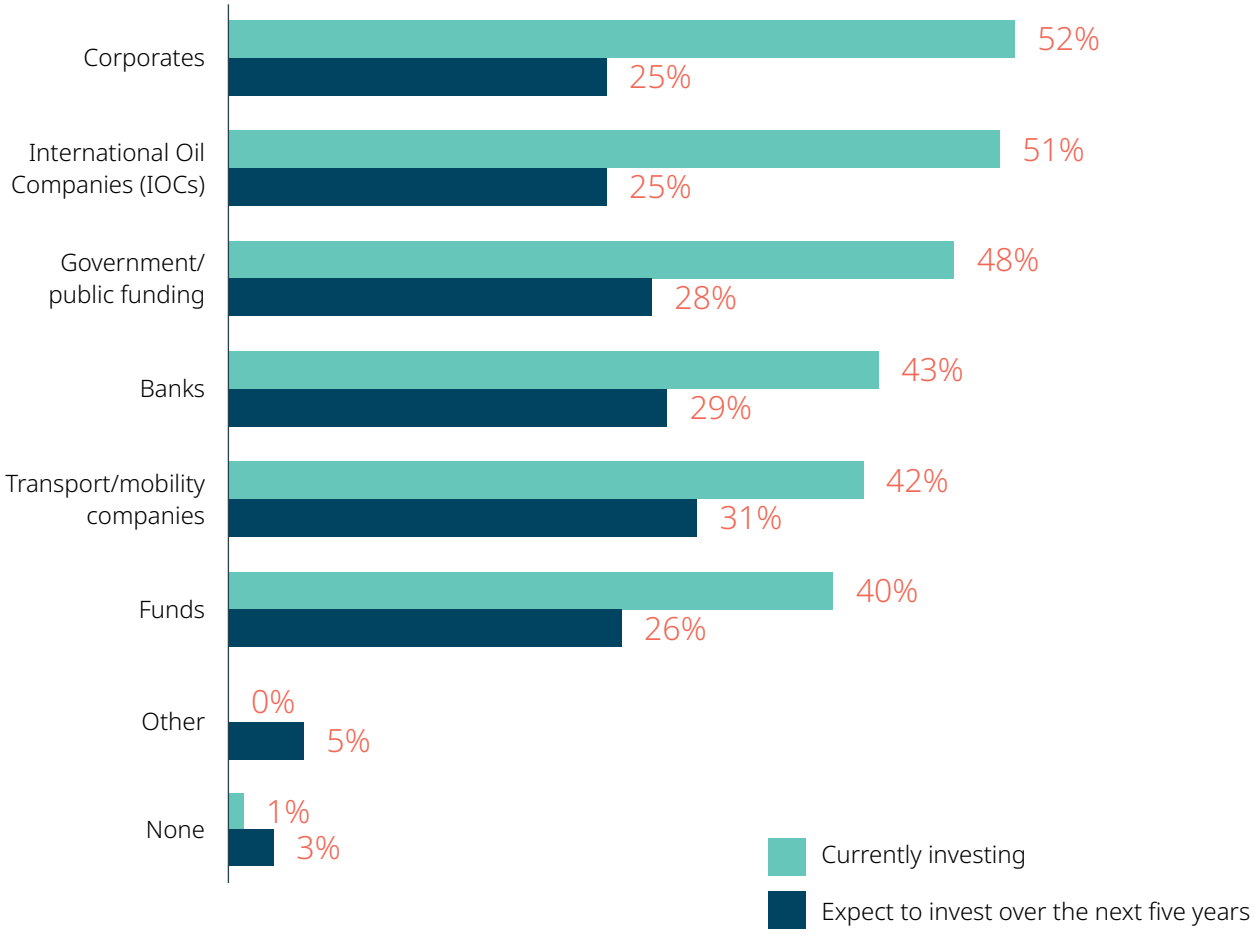
The production of hydrocarbon products can also be a power-intensive process, and renewables have proved an attractive pathway for a number of IOCs. For example, one recent offshore wind auction round in Germany was won by two oil majors who had the capital to spend and the need for power for their own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

"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?

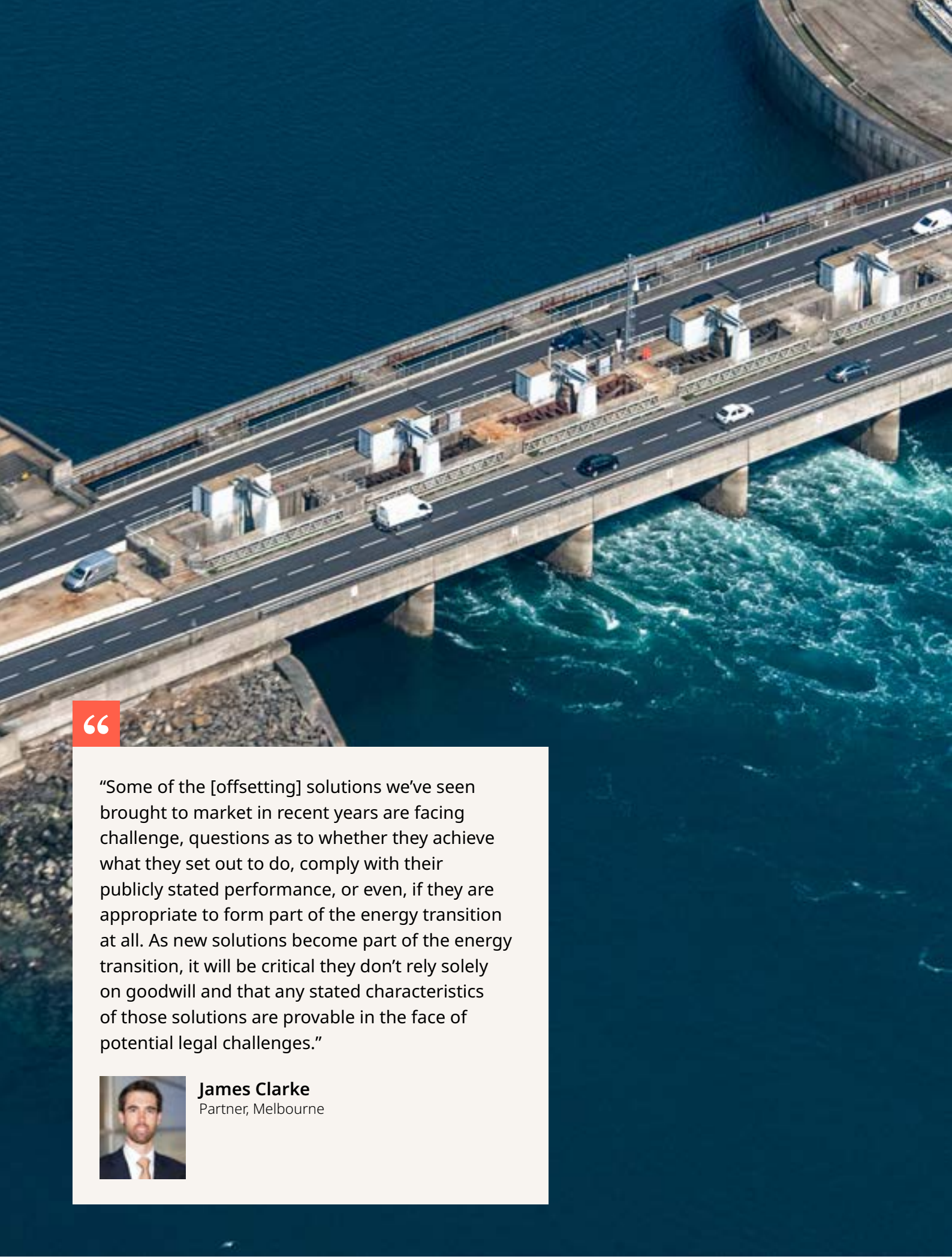
In first place are green fuels: more than half (54%) feel that this is the emerging technology they expect to mature over this period. Once again, the size of a business affects its view of the future. Large companies were especially optimistic about green fuels compared to SMEs.

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.

“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



“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.

“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, Risk Advisory, 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.

02

Chapter 2

Regulatory readiness

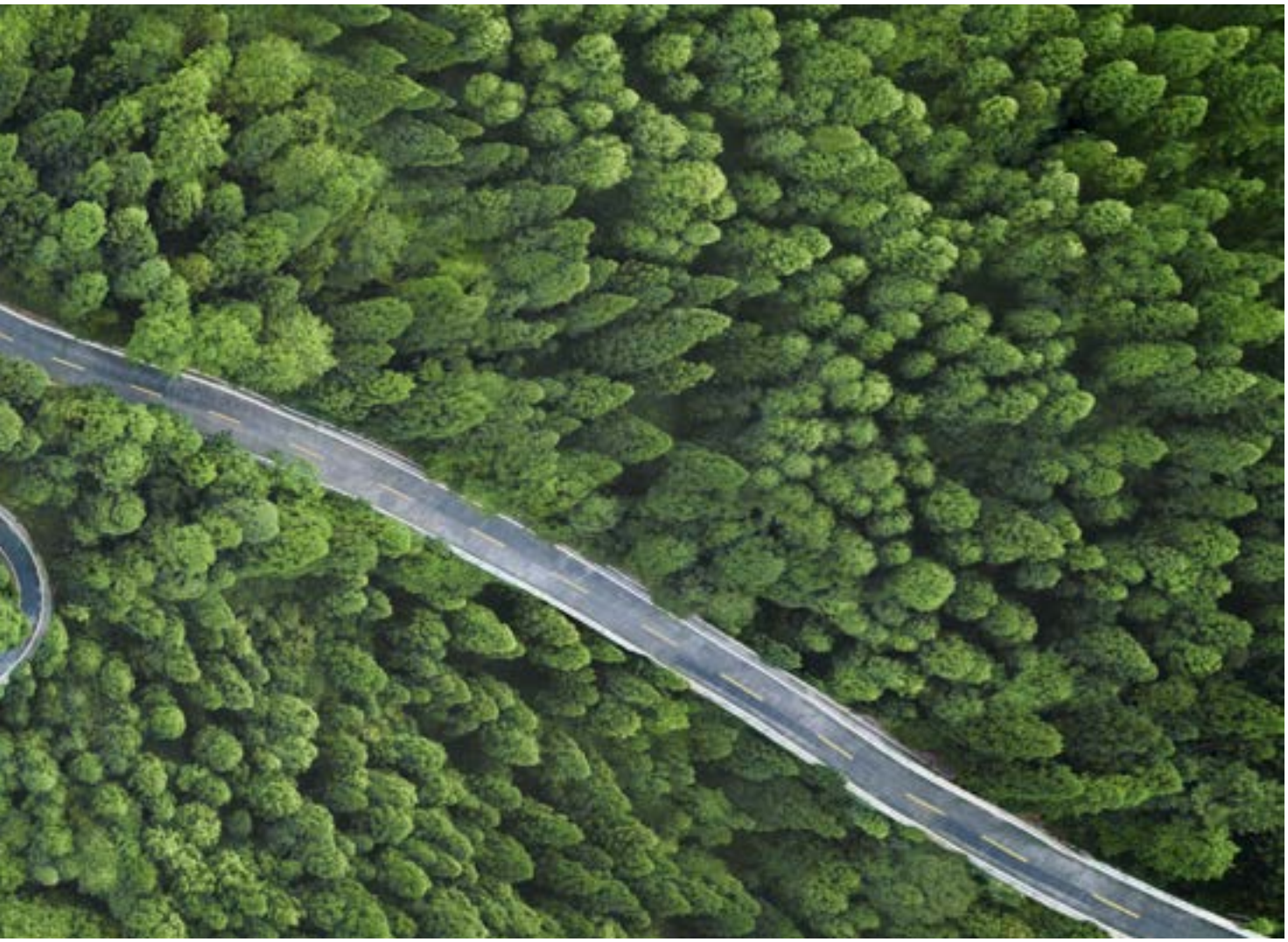
Introduction

In chapter one of Powering Change: Technologies fuelling the future, published earlier this year, we identified high levels of optimism about the prospects for carbon emissions among those executives surveyed.

This impetus towards reducing emissions is reflected in the ways in which businesses are maturing and diversifying in terms of how they are seeking to contribute to the energy transition. A wide range of technologies – both in renewable energy and storage systems – are being explored to help the world meet its climate goals. Many of these, such as wind and solar, are already well established. Others, such as batteries, are ramping up rapidly. Still more, including technologies like hydrogen, pumped hydro and decentralised energy that have previously not had significant capital deployed to them, are now moving forward.

However, our survey also uncovered increasing levels of concern among corporates that the goals of the transition are being hindered by a series of barriers preventing quicker adoption of less progressed technologies.

In particular, in many jurisdictions, regulation was thought to be getting in the way of the faster growth of clean energy production. Many respondents felt, as a whole, governments were insufficiently committed to playing their part in the transition.



This second chapter of Powering Change examines those barriers in detail, and identifies ways in which they can be overcome. It looks at how legislation (or lack of new legislation) risks stymying further development, but also offers examples of the way rules can be adapted to better facilitate the transition. It highlights instances where regulatory change has already led to positive outcomes, and it asks what actions governments need to take if they are to overcome the scepticism we found.

It is increasingly clear that corporates need more certainty about what the regulatory landscape will look like over the years to come, to help them plan and build out their businesses and their supply chains. In order to access the full potential of private capital to support the world's decarbonisation objectives, greater liberalisation and modernisation of certain energy markets around the globe will be critical. Governments will need to focus on rethinking legislation – much of which is rooted in the energy landscape of the past – so it is fit for clean energy production and emissions reduction targets.

As ever, we hope you enjoy reading this chapter of Powering Change, and find it informative and useful. If you have any questions, or want to know more about how we can support your own transition strategies, please get in touch with your local Ashurst team.

Barriers to change

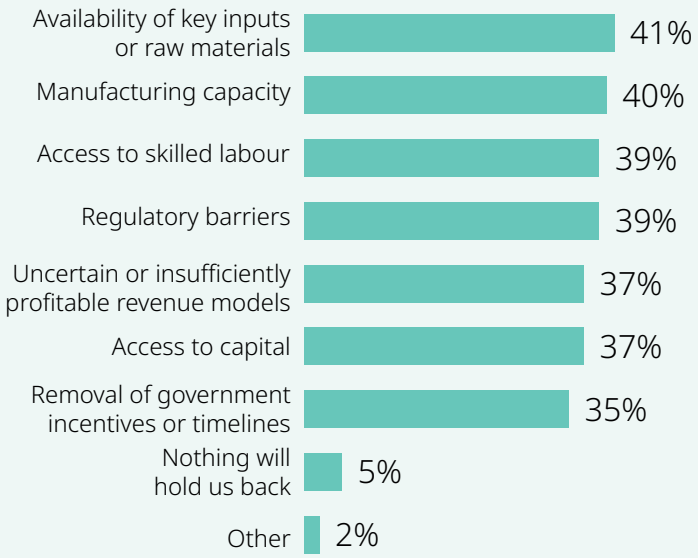
This year's responses confirm the findings of our previous surveys, that the energy transition is now a core feature of business strategies.

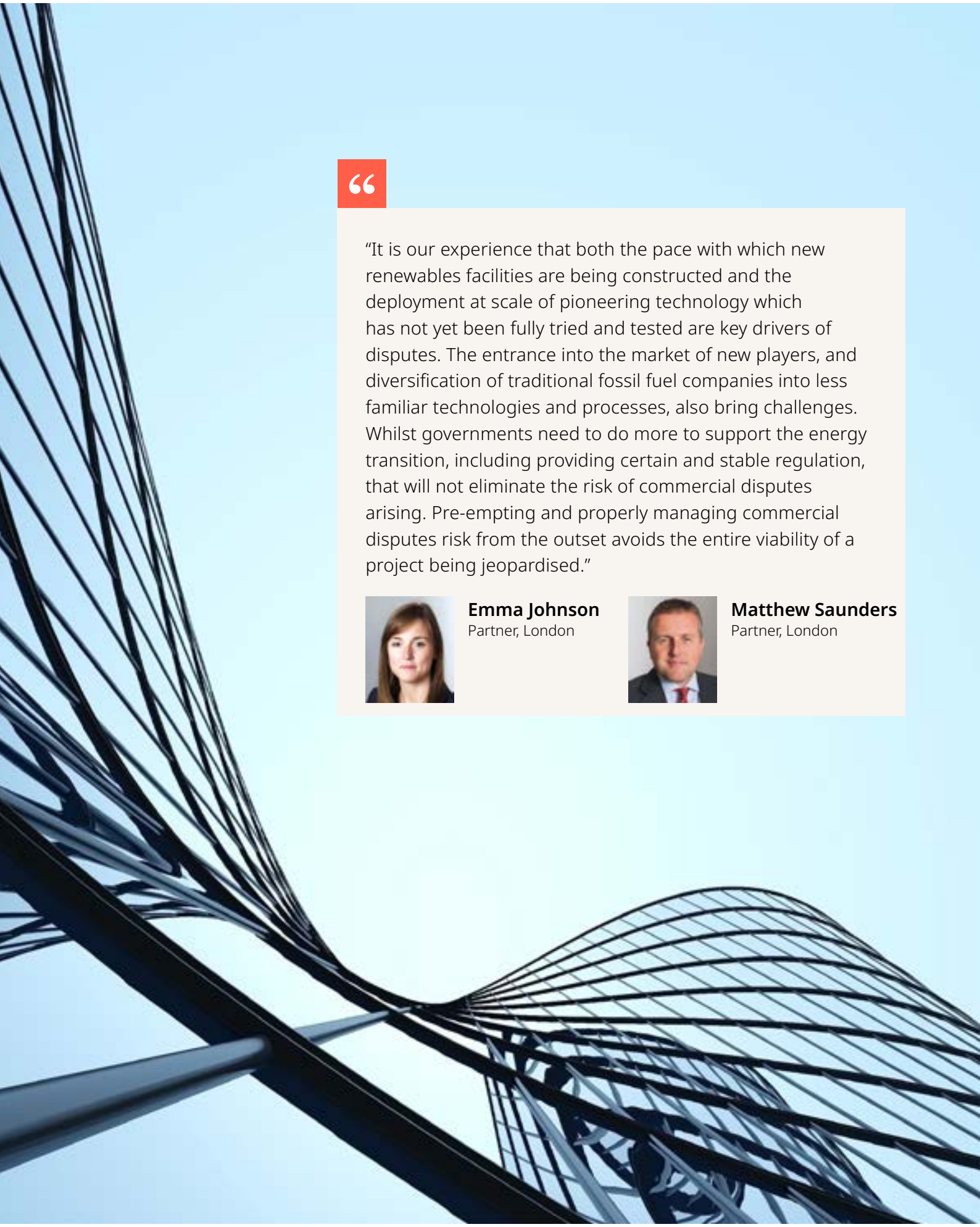
However, while some of the technologies are well understood in terms of how they can support the energy transition, there is less certainty around others, leading to differing views about where investment should be allocated. Part of the reason for this uncertainty may be that a series of barriers are perceived by corporates to be preventing them from investing more.

Some of these barriers may simply be linked to the prevailing economic climate and the growing pains of what are relatively new industries. For example, reflecting the issue of supply shortages which still impact many sectors, the top concern our survey found was the availability of key inputs or raw materials. Globally, more than two in five organisations found access to such materials was holding them back when scaling new energy technology over the next five years. Issues affecting manufacturing capacity ranked second.

However, the regulatory burden was also a significant concern, ranking joint third as a barrier to scaling new energy technologies. A total of 39% of respondents named this as an issue for them.

What do you believe could hold your organisation back when scaling new energy technology/technologies over the next 5 years?





“It is our experience that both the pace with which new renewables facilities are being constructed and the deployment at scale of pioneering technology which has not yet been fully tried and tested are key drivers of disputes. The entrance into the market of new players, and diversification of traditional fossil fuel companies into less familiar technologies and processes, also bring challenges. Whilst governments need to do more to support the energy transition, including providing certain and stable regulation, that will not eliminate the risk of commercial disputes arising. Pre-empting and properly managing commercial disputes risk from the outset avoids the entire viability of a project being jeopardised.”

Emma Johnson
Partner, London

Matthew Saunders
Partner, London

What, though, are the main regulatory issues corporates tell us they face? What needs to change to mitigate the problems they cause, and create a better climate for corporates to operate in?

First, many say they feel existing regulations are often not fit for purpose, and need to be updated. In a number of markets around the world, much of the current rulebook was designed for the traditional, fossil fuel-based energy market, and is not appropriate for higher penetration of more intermittent generation. Nor is it appropriate for the associated revenue models. Planning regimes, for example, often add years to the delivery of clean energy assets, simply because they have not evolved to accommodate technological change. Regulations need to foster an environment that allows for speedier and more efficient development and deployment of technology – without sacrificing environmental, social or other policy considerations.

Second, corporates feel there remains a lack of regulatory impetus in driving greater market liberalisation. Many governments are still reluctant to cede control of their power infrastructure for national security reasons, a fact only reinforced by the invasion of Ukraine. On a more global note, the standoff between Spain and France over the MidCat pipeline linking the two countries is one example of how energy policies, economic considerations and national interests can impact key energy infrastructure projects.

There are a number of ways in which greater liberalisation often leads to positive outcomes. State-owned enterprises can be slower to embrace change, since they are often not incentivised to operate more efficiently, while business cultures in the public sector are sometimes less suited to innovation than elsewhere. The private sector also offers a wider pool of human capital, often with greater experience than the public sector. When it comes to carbon capture for example, oil and gas companies already have an abundance of offshore expertise which will need to be harnessed when developing carbon storage. Embracing liberalisation and allowing a greater role for the private sector has been shown on many occasions to increase efficiency, and speed up the development of renewable energy.

Case Study

How outdated environmental legislation in Asia can frustrate the growth of renewables

"Certain legislation in Asian jurisdictions, in particular in respect of permitting and consents, is not fit for purpose for renewable energy projects. In Japan, Korea and other markets like the Philippines and Vietnam, consistent feedback from developers is that the permitting and consenting regimes require urgent attention by policymakers. In certain jurisdictions it can take anywhere between five and eight years to procure the environmental impact assessment approval for example – this is not a sustainable timeframe if the ambitious renewable energy targets of various governments in Asia are to be met within the desired timeframes. The policy makers know that the situation needs to improve, but the position is quite slow moving which is creating stakeholder frustration in industries such as offshore wind, which in turn is delaying investment. Asking developers to apply to around 20 different government departments to get their permits is not a status quo that can be allowed to continue. By contrast, there are a number of places where permitting is a one-stop shop – you apply to just one government department who then take the application forward. So it can be done."

Peter Grayson
Partner, Tokyo

Case Study

A multi-nation solution to the push for greater liberalisation in Southern Africa

"Across Africa, energy transition projects play a very different role than in western countries. We are seeing many decentralised power projects there. For example, for our part, we have advised on mini grids in the Democratic Republic of the Congo, and are also financing a number of solar home systems across the continent.

"Looking at energy regulation, some countries and regions are ahead of the game. In a renewables context, Morocco is significantly ahead of a number of countries, which is why it has been successful. Meanwhile, Southern Africa benefits from the Southern African Power Pool, (which spans a number of countries in the region) and, as a result, we are starting to see independent power trading and Corporate Power Purchase Agreements (PPAs), which are effectively passing national utilities. One of the impediments in those jurisdictions has been national power companies, who have stifled liberalisation and not been effective enough when it comes to putting projects in place. The quicker the region can allow energy traders to buy and sell power, the quicker it will be able to transition from fossil fuels to lower carbon energy production."

Mark Barges
Partner, Paris

Yann Alix
Partner, London

Third, changing market dynamics are impacting the way energy systems need to function, especially when they involve cross-border supply. The regulatory environment therefore needs to reflect the different infrastructure which the decentralisation of energy will require, particularly an increased transmission capability across energy grids. In our survey however, 84% of respondents felt a lack of investment in such infrastructure was likely to stall the development of renewable projects.

Renewable sources of energy such as solar and wind means power generation can take place far from where it is required, sometimes even in different countries. Improved infrastructure that better reflects these evolving market dynamics and increasing connectivity will be critical in bringing down barriers and ensuring a more effective energy transition.

Case Study

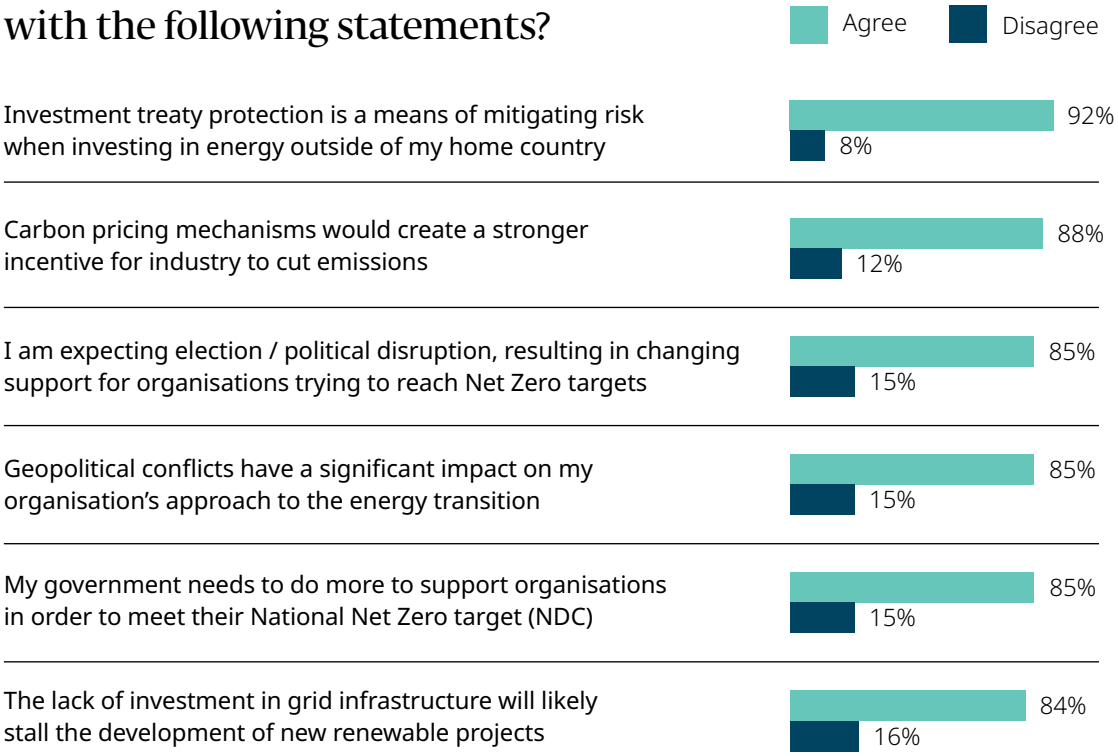
How Singapore is embracing renewables

"Power systems in Singapore aren't set up for renewables. It's a small country, so there just isn't enough room for sufficient solar panels or wind turbines. Virtually every single electron that is produced in the country comes from gas. The power market has, therefore, been based on the assumption that power can be dispatched as and when necessary, and with generation always there as a back-up.

"Now, however, the country is looking to integrate intermittent solar power, installing huge amounts of it in the sparsely-populated islands of Indonesia just across the Singapore Strait. But there are issues: trying to get a solar project to work like a gas-fired project is very challenging. So, a lot of work we are doing is getting the two to match, aiming to come up with a sensible approach that means you are not being too hard on the solar projects, and making sure the risk is appropriate. There needs to be enough upside for both the country where the power is being used, and for the country where it is generated. The private sector is another party that needs to be considered, so there needs to be the right investment climate for it to take part. Creating a framework that has the right incentives for all parties is key."

Jean-Louis Neves Mandelli
Partner, Singapore

How strongly do you agree or disagree with the following statements?



"In many markets, the desire to embrace renewable and alternative energies is often coupled with a need for foreign investment. Foreign investment offers more than funding – it can offer relevant experience, expertise and specialist infrastructure. It can also allow states to mitigate the political and financial risks attached to energy transition technologies and projects.

In this context, it is noteworthy that 92% of those surveyed agree that investment treaty protection is a means of mitigating risk when investing in energy outside of their home country. Investment treaties offer foreign investors protection against regulatory change or other government interference that might otherwise deprive those investors of the full benefit of their investment. We regularly advise clients on how best to structure their investments to secure maximum international law protection, including a right to arbitrate should a host state seek wrongfully to interfere with a foreign investment."

Myfanwy Wood
Partner, London

Arne Fuchs
Partner, Frankfurt

Role of governments

Many of the current barriers around availability of raw materials, constrained supply chains, and lack of manufacturing capacity are linked to global forces, and may ease as the industry further matures.

Others, though, are more within the power of industry and governments to control. For that to happen however, governments will have to play a more positive role in creating the right environment in which industry can thrive.

That is likely to require a significant change in government mindsets. At the moment, the perception among many corporates is that governments are failing to pull their weight. Our survey found that, around the world, more than a third felt a lack of government support was a barrier to their organisation investing in renewable energy, the energy transition or decarbonisation technologies, or making net-zero commitments.

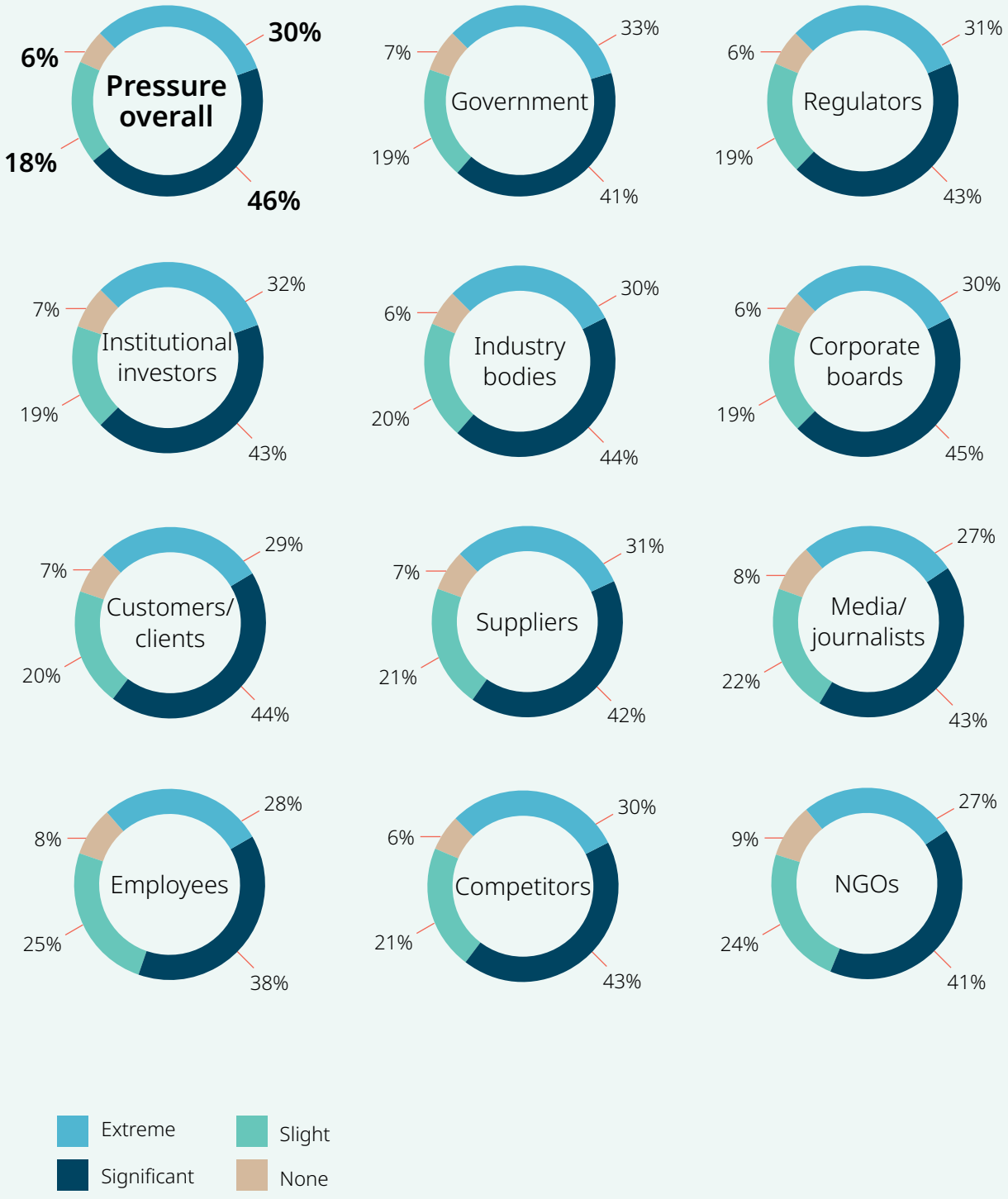
However, corporates also see governments as the stakeholder most likely to put extreme pressure on them to invest in the transition. Politicians, then, are viewed as piling the pressure on the private sector to deliver net zero, while at the same time providing insufficient support for them to do so. This paradox may explain why 85% of our survey respondents agreed their governments needed to do more to support organisations in order to meet their national net-zero targets.

This concern about the role of governments is also reflected in our survey findings on how prepared countries were felt to be about making the most of the opportunities offered by the transition. Indeed, the results demonstrate that many believe their jurisdictions are ill-prepared to reap the benefits. For example, although pumped hydro was the top new non-power generation technology organisations were considering utilising or investing in over the next five years, it came joint last when organisations were asked whether their country was fully prepared to adopt the technology.

Hydrogen, decentralised energy and carbon capture fared little better. Meanwhile, the full-scale development of even relatively mature technologies also appears to be at risk. Globally, just 44% of corporates believed their country was fully prepared for electric vehicles, while only 43% felt it was completely ready for smart meters. Indeed, just 41% considered their government was fully prepared for the adoption of batteries, a technology viewed as fundamental to a successful energy transition.

Overcoming this preparedness gap will require significant changes. What opportunities do governments need to embrace in order to improve the landscape, and what steps can they take to create more supportive frameworks?

In your country, how would you rate the pressure from the following stakeholders in your country to invest in renewable energy, energy transition and decarbonisation technologies?



Case Study

The UK's 2023 Energy Act: "A real landmark in the development of energy transition.

"The UK Energy Act of 2023 is a very broad piece of legislation that looks across a whole host of technologies. There's a lot on carbon capture and storage, hydrogen and nuclear, as well as other new developments in the energy market. It's an attempt to bring together all the different pieces of the energy transition agenda.

"It's a real landmark in the development of energy transition. It deals with a new licensing regime for carbon transport and storage. It also deals with revenue support across the capture, transport and storage of carbon dioxide and the production and transport of hydrogen. It has set the groundwork for future subsidy support and business model structures. Policy-wise, the UK Government is on the front foot. Other governments around the world will be watching developments in the UK with interest, as they seek to develop their own models for energy transition."

Philip Vernon
Partner, London

Samuel Outtridge
Partner, London

Case Study

How changing the regulatory regime around offshore wind fostered the growth of offshore wind in the UK

"The way that the UK government swapped from Renewable Obligation Certificates (ROCs) to Contracts for Difference (CFDs) several years ago is a good example of where regulatory change has driven investment. Under the original regime for developing renewables where providers obtained ROCs, a project had two revenue streams: one from its power price, the other from its green certificate. The government took the view that this wasn't sufficiently attractive to drive the volumes of investment needed, because although the ROC revenue was a fixed stream, the generators were still exposed to a fluctuating power price. The introduction of the CFD – which offered a top-up to a fixed strike price over the market price – stabilised the revenue stream, and that in turn offered both equity and debt investors greater comfort on the viability and financeability of a project. As a result, the UK is now one of the world's leading offshore wind markets."

David Wadham
Partner, London

Peter Grayson
Partner, Tokyo

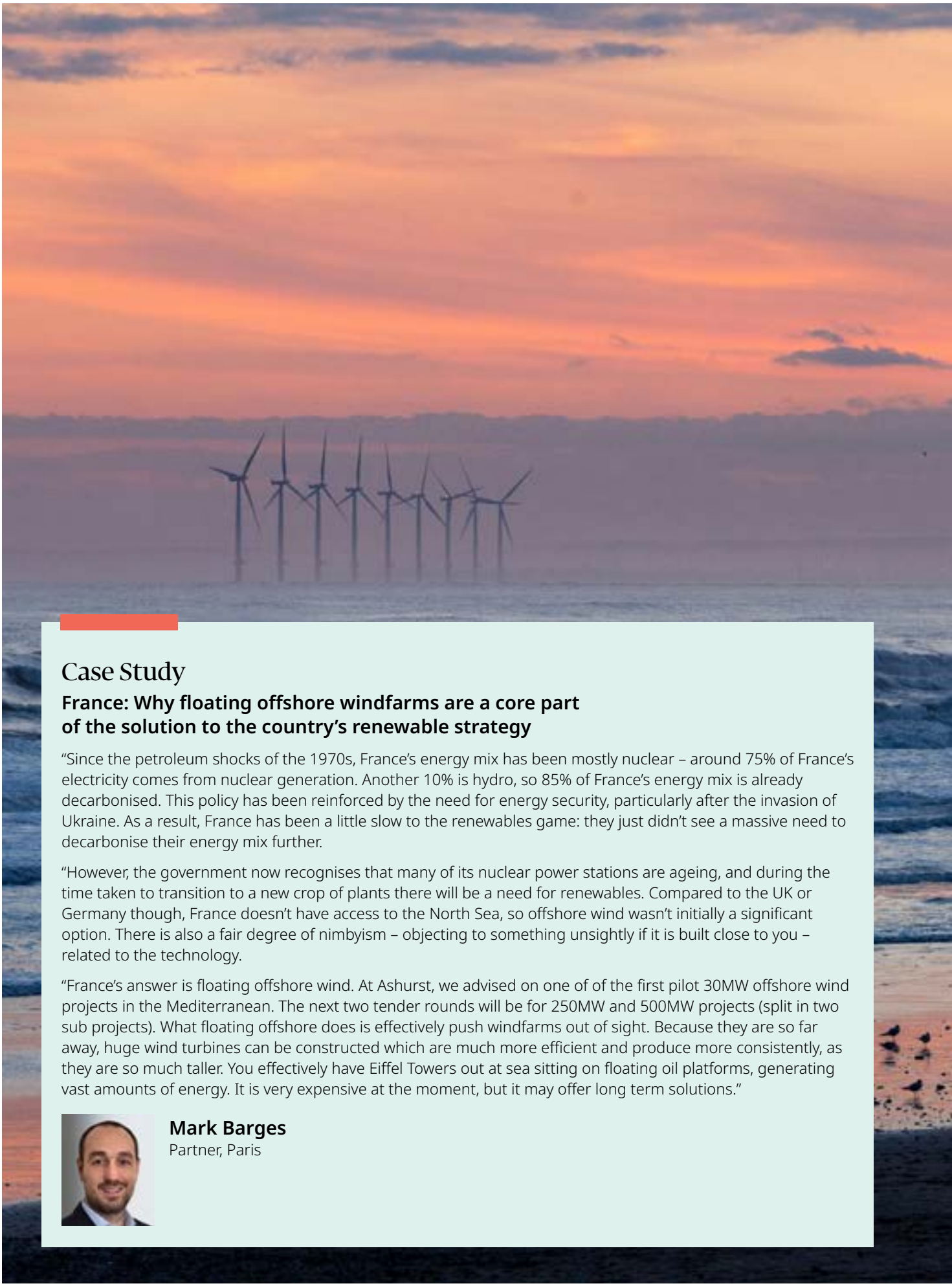
Continuous shifts in policy which stifle the development of renewable technology are a common complaint. So, first, governments should aim to provide the greatest possible certainty in what are high-change environments. Numerous cases exist in which such a mindset has led to positive market impacts. In the UK for example, the landfill tax – introduced in 1996 – has helped drive behaviours and support better outcomes across the energy-from-waste industry. Its success is due, at least in part, to the government decision to give long-term policy direction about the tax many years into the future, enabling corporates to build their plans around it. The challenge will be to replicate this success in other areas, such as emissions trading schemes and carbon capture.

Such certainty is vital not least because of the growing international competition for the capital required to fund the transition. Investors will baulk at allocating capital to a market that might not exist in the future.

Second, more robust legislation focused on supporting newer technologies will be required. In Africa, Mauritania has been one of the leaders engaged in putting together a code to help facilitate the development of green hydrogen. In other countries, change is also happening, albeit sometimes too slowly for many. The need for clearer rules dealing with standalone battery storage are a particular concern. In Japan, for instance, huge interest exists in the technology because of the country's significant levels of solar power, yet legislation to regulate and permit the use of battery storage has been slow in coming into effect. The country is also now putting in place more suitable rules around offshore wind. It has recently announced legislation outlining plans to develop its Exclusive Economic Zone (EEZ) beyond its 12-mile limit. As a result, the sector is already attracting international investment.

Third, balance sheets should be better leveraged to deliver good policy outcomes. Often this is not a case of just how much money governments need to offer as incentives and subsidies: rather, it is about timing, and the processes that are set up to deliver the support.

Governments must strike a difficult balance. Legislation and support mechanisms can drive the energy transition, but decarbonising the power supply has to happen at an acceptable cost. Governments are therefore aiming to develop subsidy schemes which stimulate investment, but do so at an affordable price for consumers while also not landing taxpayers with an overly expensive bill. Meanwhile, governments also need to ensure the processes they put in place are clear and transparent: many projects fail not because of the size of a subsidy, but because of the administratively onerous way in which it needs to be accessed.



Case Study

France: Why floating offshore windfarms are a core part of the solution to the country's renewable strategy

"Since the petroleum shocks of the 1970s, France's energy mix has been mostly nuclear – around 75% of France's electricity comes from nuclear generation. Another 10% is hydro, so 85% of France's energy mix is already decarbonised. This policy has been reinforced by the need for energy security, particularly after the invasion of Ukraine. As a result, France has been a little slow to the renewables game: they just didn't see a massive need to decarbonise their energy mix further.

"However, the government now recognises that many of its nuclear power stations are ageing, and during the time taken to transition to a new crop of plants there will be a need for renewables. Compared to the UK or Germany though, France doesn't have access to the North Sea, so offshore wind wasn't initially a significant option. There is also a fair degree of nimbyism – objecting to something unsightly if it is built close to you – related to the technology.

"France's answer is floating offshore wind. At Ashurst, we advised on one of of the first pilot 30MW offshore wind projects in the Mediterranean. The next two tender rounds will be for 250MW and 500MW projects (split in two sub projects). What floating offshore does is effectively push windfarms out of sight. Because they are so far away, huge wind turbines can be constructed which are much more efficient and produce more consistently, as they are so much taller. You effectively have Eiffel Towers out at sea sitting on floating oil platforms, generating vast amounts of energy. It is very expensive at the moment, but it may offer long term solutions."

Mark Barges
Partner, Paris

There are other dangers inherent in the way governments leverage their balance sheets. They can try to go too far, too fast, or not take account of the changing market. In Japan for example, switching to a feed-in premium regime for offshore wind has left many struggling with their supply chains. Meanwhile the UK offshore wind auction in 2023 highlighted that even the most successful schemes need to take account of changing market conditions – in this case, elevated interest rates and restricted supply chains. Clean energy is a dynamic market: the costs of projects change frequently, and governments need to ensure their support mechanisms respond to market requirements.

Finally, once the right legislation is in place, governments should decide how best to harness private sector capital. Private sector businesses are often more adept at delivering outcomes appropriate for a country's needs. In Southern Africa, for instance, the region's dependency on older, less efficient diesel generators could be more rapidly overcome if the private sector were better able to provide electricity using cheaper, more efficient, solar and wind power. Such a policy would also help with the region's balance of payments, by reducing imports of oil and gas.

Not every country will follow the same path when it comes to the energy transition. Governments will still need to work out how best to bring the private sector along for the transition journeys they are on.

Case Study

Hydrogen in Asia-Pacific: Why global investors are attracted by a cross-border approach

"In Asia, there has been a focus on whether hydrogen or hydrogen-related products, such as ammonia, can be used to decarbonise generation, rather than just be a substitute for gas heating as is the case for much of Europe. For example, co-firing of ammonia with coal can reduce the carbon intensity of generation.

"In Asia we are now seeing the potential for cross-border flows of green hydrogen. This involves, for example, developing large-scale renewable projects in Australia where there is abundant wind and solar resource, and producing a product such as green ammonia which is then available to be transported across the region. We are seeing a significant interest in the subsidy regimes that places like Japan and Korea are looking to put in place for green hydrogen, and we are assisting with a number of projects in Australia where part of the underpinning economic rationale is developing green ammonia for export precisely to qualify for those support regimes. The subsidy regimes therefore facilitate international cross border investment. It's still early days, and green hydrogen has to prove its cost competitiveness, but there is a concerted drive in North Asia to put in place mechanisms which can support the development of large-scale green hydrogen."

David Wadham
Partner, Tokyo

Case Study

Australia: Different States, different approaches to meeting the demands of the energy transition

"The governments of the three States along Australia's east coast are pursuing very different paths when it comes to driving the energy transition. They face different challenges, and have developed distinct roles for both government and the private sector in order to overcome them. The way the policies have unfolded has important lessons not just for the country, but for the wider global drive to net zero.

"To the north, Queensland – a traditional extractive industry state – has been able to move quickly on the transition because the government has retained ownership of energy generation assets rather than privatising them as was done in other parts of Australia. This has helped the government put its stamp on how it wants the energy transition to happen. While there is an acknowledgment of the need for private capital, the government has legislated a state ownership strategy requiring 100% ownership of transmission, 100% ownership of deep storage (being pumped hydro over 1,500MW) and 54% ownership of generation. The government has also struck offtake arrangements under which it is the offtaker, which has helped resolve one of the major challenges facing renewable energy: finding a secure and stable revenue arrangement that makes private sector investments financially viable. The policy has unlocked capital for projects which might not have had routes to market without a government sponsored offtake.

"In the south, in Victoria, where there are fewer wind and solar sources than in Queensland, there has traditionally been a focus on fossil fuels, which the government is now addressing. Indeed, the state government was an early mover in renewable energy, focussing initially on offtake as its means of participating in the market. Now, however, the low-hanging fruit has been taken, so further steps are underway. The government has given new responsibilities to the revived State Electricity Commission (SEC), most of whose assets were privatised years ago. The SEC made its first investment last year, and is now looking at a number of additional projects. Victoria is also the place that has leaned most strongly into the opportunity from offshore wind, being the only State which has announced plans to offer revenue support to the sector.

"Situated between Queensland and Victoria, the government in New South Wales has focussed on network infrastructure and long-term revenue contracts. This reflects the recognition of the fact that the State's

– and the nation's – existing network infrastructure and regulation are not future fit to accommodate a significant and swift uptake of renewable energy. The "State government is aiming to create a more competitive and efficient environment by creating Renewable Energy Zones (REZs), a policy attracting significant interest from both Australian energy participants and international investors. The State's tenders for long term revenue underwriting contracts have been successful, with this model adopted in the Federal government's Capacity Investment Scheme. A relatively similar offtake product is now being rolled out nationally and on a larger scale.

"The transition strategies in all three States are viewed not just as a way of driving net zero. They are also seen as an opportunity to achieve other, wider community, employment and social goals. Victoria, for example, is using them as a way to better involve First Nation people in the design and benefits of projects, while also resetting what has traditionally been a male-dominated industry into one that is more diverse.

"The three governments have taken very different approaches to the transition. This is often a challenge for the private sector, since it can be expensive to work out how to best engage and harness opportunities in each market. There is an opportunity for governments to better co-ordinate with each other – as well as with the private sector – and take a more clear and consistent approach. These efforts are increasing (including through G2G agreements), but more is needed to help reduce some of the costs of the energy transition which ultimately will be borne by consumers and tax payers.

"Governments have a significant role to play in the transition. However, they need to be clear about where that help should be focussed and the level of involvement they should have. Change is complex, but governments need to concentrate their attention on where the market risk or failure is, and practically how this can be overcome alongside industry."

Ratha Nabanidham
Partner, Brisbane

Kylie Lane
Partner, Melbourne

Cassandra Wee
Partner, Sydney

Conclusion

The speed of the energy transition will be driven by a number of factors. A strong global economy will, for example, help enable greater investment and support the unblocking of supply chains. However, a robust commitment from private sector corporates will also be key.

This year's Powering Change survey demonstrates the extent to which corporates are keen to play their part. What is holding them back is not their own ambition. Rather, a series of external barriers are preventing them from taking even greater steps towards developing, implementing and managing renewable energy projects.

Of these barriers, improved regulation is the most obvious change that is within the power of governments to deliver. More appropriate rules that encourage the use of both private and public funds, support liberalisation, and pave the way for better infrastructure will be critical if the industry is to thrive.

At a wider level, governments need to better understand what corporates will require if they are to maximise the impact of the energy transition. Providing greater certainty, and using their balance sheets in a smarter way, will be critical in this regard.

Powering Change demonstrates just how optimistic energy sector corporates are about the transition. But also shows the depth of their frustration that they are not able to deliver more.

The overwhelming consensus at the recent COP28 summit was that the world was not doing enough to prevent climate change. More than ever the energy transition will rely on all the stakeholders involved – businesses, governments and others – pulling in the same direction to create a positive environment for the development of clean energy around the world. The energy industry may be ready, but regulations will need to be overhauled and governments become more engaged if the world is to make the most of the benefits the transition offers.

03

Chapter 3

Financing the transition

Introduction

If the energy transition is to succeed at the pace needed to meet the challenges posed by climate change, a wide range of stakeholders will need to work together.

Governments will be required to set the right legislative framework, with an eye to incentivising corporates to drive the innovation that the new technologies will require if their full potential is to be harnessed. Meanwhile – and perhaps most crucially – the necessary capital must find the right investments.

Case Study

Korea: Moving the grid from coal to renewable energy

"Renewable projects in Korea have tended to be small scale solar and wind projects onshore. The geography of mainland Korea poses challenges for large renewable projects. However, the offshore wind sector has been growing for the past few years, and has attracted significant foreign investment as well as Korean domestic players. While Korea continues to be reliant on thermal power including coal, from the government down to the private sector, there is a definite push to decarbonise and increase the development and use of low carbon energy."

Anna Chung
Partner, Korea JV

Case Study

The Middle East: A growing, government-driven focus on renewables

"The investor base is substantially diverse now across the Middle East. It's a combination not just of the interesting energy assets that exist here, but also the way the government has boosted capital market activity across the region. While oil is of course big in the region, there is a growing interest in renewable energy, and there is definitely encouragement to invest in the sector, with the region building itself up as a global player. Countries here are also focussed on innovation and technology, and are constantly looking at new areas that they can invest in. So it's not just solar and wind: they have started looking into hydrogen and other technologies too. There is a lot of work still to be done, but they are very ambitious in terms of where they want to end up in the next few years."

Simon Rahimzada
Partner, Dubai

Vasi Papadopoulos
Partner, Dubai

In previous chapters of this year's *Powering Change: Technologies fuelling the future*, we found a significant degree of optimism about the prospects for reducing carbon emissions among those corporates we surveyed, but we also heard about the regulatory barriers that were hampering a quicker uptake of the technologies involved. We examined ways in which different countries were seeking to overcome these hurdles, to help accelerate the process.

This chapter – the third and final for this year – looks at some of the other, non-regulatory obstacles preventing a faster transition. But it also looks at how – once those impediments are overcome – more sources of capital are available to be deployed into the clean energy sector, thanks to a wide range of new investors who are set to enter the industry.

What we have found is that, if the right landscape can be created, investors are as willing as ever to play their part. Different markets are coming up with different solutions to the barriers blocking progress. However, there are concerns about whether the technology is currently sufficiently mature to meet the transition's ambitious goals. And there are fears many governments have not yet provided the right legislative framework, nor concentrated their support in the most effective direction, for those goals to be met.

Nevertheless, there are also encouraging signs that the lessons learned in some countries and regions are being applied elsewhere, to try to make the transition as speedy and effective as possible. We hope you enjoy reading this chapter – as well as the previous ones – and find it informative and useful. If you have any questions, or want to know more about how we can support your own transition strategies, please get in touch with your local Ashurst team.

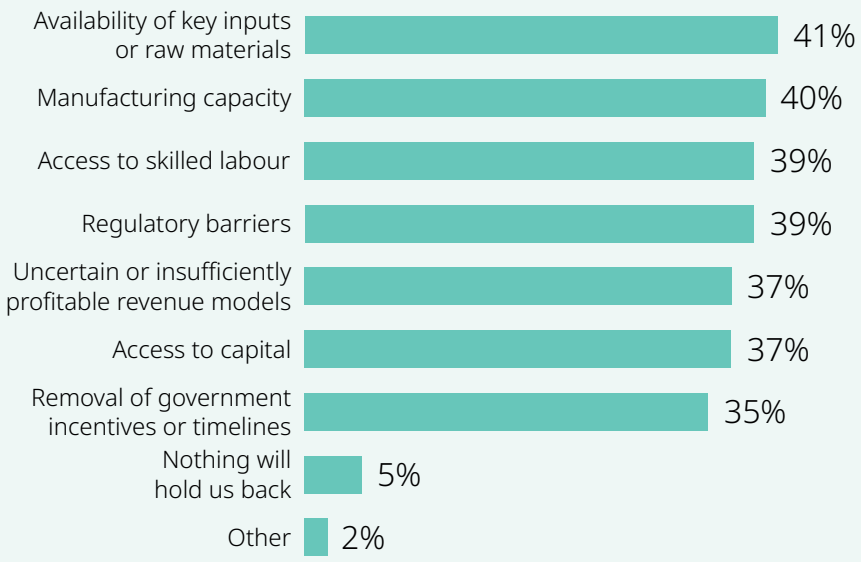
The barriers to be overcome to make the most of this flow of capital

There is a huge push at both governmental and intergovernmental levels for greater efforts to achieve net zero.

Corporates are enthusiastic about the prospects for change, and are eager to play their part. To make the most of the opportunities from the transition however, the barriers which are preventing them scaling new energy technologies over the next five years will need to be overcome.

Chapter Two of Powering Change, which you can read here, looked at how one of those barriers in particular – inappropriate regulation – was causing concerns. Corporates told us existing rules were often not fit for purpose, were designed for the traditional, fossil fuel-based energy market, did not promote greater market liberalisation, and failed to reflect the new structures which the decentralisation of energy will require. However, as well as the need for better regulation, our survey also found that other barriers will need to be overcome if the transition is to be successful.

What do you believe could hold your organisation back when scaling new energy technologies over the next five years?



Case Study

Europe: The three technologies attracting growing interest across the region

"The three hot spots in energy and infrastructure we see across Europe are electric vehicles (EVs), batteries and floating offshore wind. EVs are obviously still a big focus for funds, driven largely by government initiatives across Europe to reduce the amount of combustion engine vehicles on the roads. Although there has already been significant investment in electric vehicle infrastructure, we see that as still having a funding gap and utilising technology that is still developing. A second big sector where we expect continued interest is battery storage – it's an emerging technology that is yet to reach scale, but which many investors are focusing on as a key means of decentralising energy distribution and softening out energy demands on the distribution systems – something that has posed specific challenges to the UK and EU markets in recent months. It is also relevant in the context of the increasing focus on energy security in the region, this will obviously remain important. The other area I think we will see a lot of investment in over the next few years in the UK and EU is floating offshore wind. Offshore wind is a proven technology in the UK and EU, and we are starting to see floating projects that are being developed. And while infrastructure funds may currently struggle to deploy meaningful amounts of capital into floating offshore wind as the technology remains relatively unproven, we are seeing other players, like corporates and strategics looking at these sorts of projects."

Dallan Pitman
Partner, London

The availability of key inputs or raw materials ranked top as the obstacle corporates believe could hold their organisation back when scaling new energy technologies over the next five years, with 41% naming it as a problem they faced. A number of constraints are currently impacting the supply of raw materials. For example, while demand for minerals such as lithium and nickel has been rising, the price of these commodities has been falling – due in part to an overcapacity across the battery value chain and, in the case of nickel, the impact of large, low cost supply from China – making it uneconomic to progress some mining projects. In addition, perceived doubts about whether governments will stick to their carbon emission goals and target dates – notably for electric vehicles – are also impacting investment in the sector. These issues suggest that the supply constraints affecting some of the raw materials that are most critical to the energy transition may persist for some time. This in turn creates uncertainty both for the industry and for investors.

Coming second behind availability of raw materials as a barrier to the transition was manufacturing capacity. Other regulatory obstacles ranked joint third. Corporates are facing a wide variety of issues in this regard. For example, the greater availability of data, increased demands for transparency, and the growth of sustainability reporting, means regulators, as well as activists, shareholders and consumers, are placing more scrutiny on issues such as greenwashing and 'social' washing – in fields such as human rights, employment conditions, impacts on communities, and health. In Australia and elsewhere, this also extends to other issues, such as Native Title. This impacts not just the businesses involved: it can also influence the decisions of investors, who want to know what material risks exist throughout the entire supply chain when deploying capital.

Also joint third alongside regulatory risk were skill shortages. These are becoming more complex, as a new generation of employees who place greater value on the need for the companies they work for to demonstrate their social purpose makes its voice heard.

Viewpoint

How governments are reacting to the turbulent market conditions for some raw materials

"In the face of a volatile market environment, around the world governments are rolling out policies to support the critical minerals sector. In Australia, for example, we have both federal and state level programs designed to support the role of critical minerals projects in the energy transition and to capture further value onshore. At the moment however, it's not yet moving the dial, and there is more to be done across a range of policies and initiatives to ensure that companies, large and small, are sufficiently incentivised and supported to develop new and existing critical minerals projects, whether that be upstream, downstream or midstream. The government, and some corporates, are looking at creating hubs, so there can be a common use of infrastructure to share the costs and risks of projects. It is a step in the right direction, but a lot of detailed work needs to be done. Beyond that, governments around the world need to adapt to the new world of these projects. Approvals processes, for example, take longer than industry would like."

Ben Stewart
Partner, Perth

Viewpoint

What a new generation of employee wants from their company

"For corporates, sustainability is increasingly a question of balancing commercial objectives with a need to protect your people and your assets for the longer term. And doing it in a way that continues to be acceptable to customers, communities, and consumers. We know for example that the generation coming through is far more influenced by – and places a greater importance on – their employer being aligned with their own personal values. And they think it is vital that boards manage the impacts of what they do not just on their company, but at a wider societal level. So how do businesses attract that talent? There's a need to build a greater connection between what they do and how it drives what their employees want. They need to link their activities back to that the broader purpose of building a sustainable future."

Kate Wilson
Partner, Perth

Case Study

The Middle East: 'If there is seen to be a barrier to foreign investment, governments will remove it'

"In the last few years, the GCC has shown a significant interest in foreign investment into the region. The UAE, for example, has actively taken steps recently to facilitate and encourage foreign capital into the region. What they have done is amend legislation to lift many of the foreign ownership restrictions across a number of industries – other than for what are viewed as strategically important sectors, such as security and banking for entities located on-shore. Generally speaking, governments in the GCC have taken positive strides towards encouraging foreign investment into the region, which has also contributed to substantial growth across all major sectors."

Simon Rahimzada
Partner, Dubai

A new range of investors

Access to capital was another impediment seen as a significant challenge. Indeed globally, more than a third told us it could be holding their organisation back when scaling new energy technologies over the next five years.

The good news is that our survey suggests a wide range of fresh investors are keen to allocate more funds to renewable energy as their understanding of it grows – if the right landscape can be created for them.

A broad variety of motivations may lie behind the decision by players investing in renewable energy and other green technologies for the first time. Businesses need clean energy in their operations and are increasingly willing to invest in the development of renewable energy projects to supply that clean energy. Industrial businesses, mining operations and tech companies, such as data centre operators, are partnering up with renewable developers to build the facilities that will supply them. Some are being pushed by their investor base to move into greener sources of energy, in sharp contrast to the past, when those investors would not have supported the company in moving out of its core business.

This continued appetite for investment – in the UK and the rest of Europe at least – comes in spite of the United States' Inflation Reduction Act, which aims to attract investment into domestic power production there, while also promoting clean energy. While the Act has made investors who would typically look at European assets consider if there is a more attractive alternative market elsewhere, it does not appear to have significantly impacted investment in Europe. While some investment managers have established a presence in the US as a result of the legislation, it has – so far at least – failed to stop the inflow of finance into the UK and Europe.

Viewpoint

The growth of specialist funds targeting emerging technologies

"Energy investing in the UK and the rest of Europe has undergone a seismic shift over the past several years as the energy transition has gained pace. Historically, a lot of investment has come through government / government initiatives and from Private Finance Initiative (PFIs), but over time there has been an increasing move towards private pools of capital to bridge the funding gap required to meet expected investment required to deliver on energy transition goals and targets. However, even within the shift towards private capital, private capital itself is seeing evolution in their approach to investing in the energy transition. More and more infrastructure funds and private equity houses are raising more specific, next generation funds which look to specifically focus on investment in 'core plus' or emerging technologies in the infrastructure and energy space where their main / flagship funds would not traditionally have been able to house those sorts of investments. Though the main / flagship funds are also shifting their own parameters to reflect emerging technologies that have shifted to proven technologies, and to increase exposure to development and geographical risk. The investor base of nextgen / emerging technology funds tend to have a slightly higher risk profile, and the funds have a broader investment mandate that allows their managers to deploy capital in the ever increasing range of emerging technologies that are developing within the energy transition."

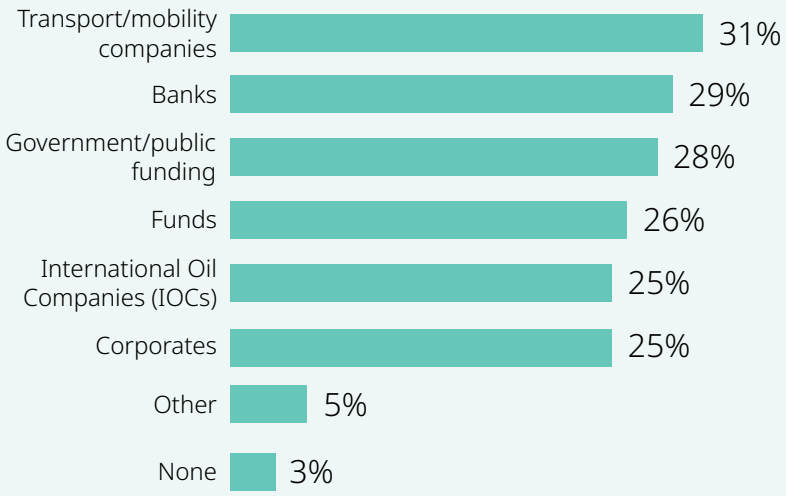
Dallan Pitman
Partner, London

When it comes to renewable power generation, the three most significant new generation sources corporates said they were considering utilising or investing in over the next five years were offshore wind, hydro and geothermal. The new investors expected to drive this push into renewable power were led by transport and mobility companies, followed by banks and governments. However, funds, international oil companies and corporates were also seen as new entrants into the market.

For non-power generation technologies, a broader range of capital sources seems set to become critical in the future. Indeed, three in ten organisations say they expect new entrants to become investors in non-power generation technology in their country over the next five years.

The top three new non-power generation technologies being considered by corporates over this period were pumped hydro storage systems (PHSS), decentralised energy and smart meters. However, a number of other technologies were also expected to attract investment, including hydrogen and carbon capture, utilisation and storage (CCUS). Technologies like these are rapidly moving up corporate mindsets, and early lessons gleaned in first-mover markets are increasingly being shared elsewhere.

Which new investors in renewable power generation sources do you expect to see in your country over the next five years?



Viewpoint

The investors set to drive the expansion of renewable power

"When it comes to the greenfield development of projects, while we are seeing increasing appetite from some funds to take development and construction risk and even in some cases new technology and new market risk, strategic investors continue to be key drivers in the energy transition and green technology sectors as their expertise is critical in getting these projects from the drawing board to full operation. Once proof of concept has been demonstrated, there is a wider universe of funds willing to invest in operating assets with a proven revenue stream.

International Oil Companies are investing huge resources into developing renewable and energy transition projects but finding that the returns on these investments are significantly lower than the returns they can make on their traditional core businesses. One reason for this is the competitive investment environment for such projects. We often hear that there is no shortage of funds for such investments, rather there is a scarcity of properly structured projects in markets with predictable regulatory environments.

Leveraging projects using project financing techniques can improve rates of return for equity investors and this is often critical where competition has driven margins down. It can also provide key risk mitigation in emerging markets where financing is offered by development finance institutions and export credit agencies that have quasi-government to government relationships with host states and where their participation can provide a level of political risk cover for all investors."

Sonny Udovicic
Partner, London

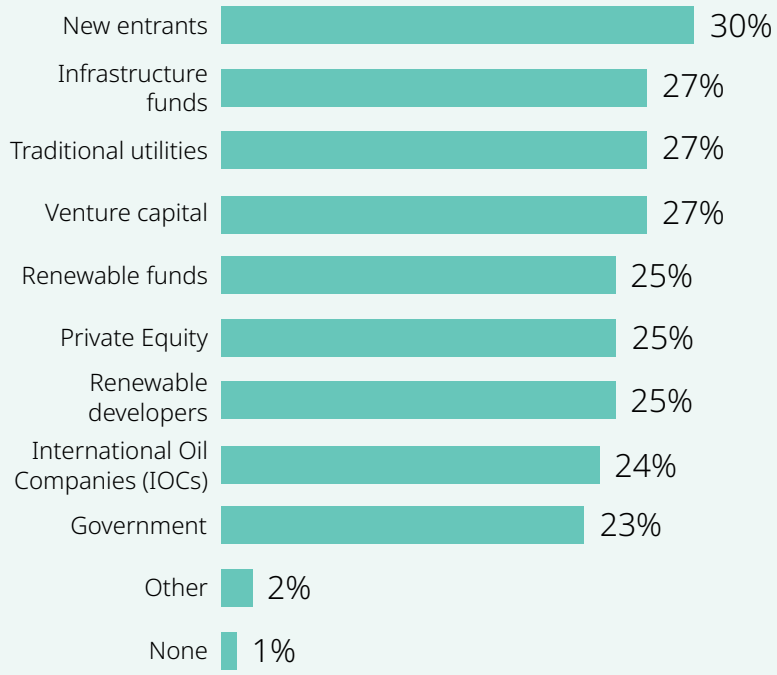
Viewpoint

How the lessons of carbon capture are influencing new projects around the world

"We have been supporting our clients at the forefront of energy transition projects in developed markets such as the UK, the rest of Europe and Australia. New technologies including hydrogen, carbon capture and batteries are being exported to other nations. For example, we organised a full-day workshop in Australia, where, we provided an overview of the carbon capture regimes for a senior delegation from Korean companies, alongside speakers from Australian industry and government. We are also working on a mandate with a client in Asia to help craft carbon capture legislation in their country, because the legal regime there didn't anticipate this new technology. So there is a need to craft and create the legal regime along with the government, to enable the development of the sector."

Anna Chung
Partner, Korea JV

Which new investors in non-power generation technologies do you expect there to be in your country over the next five years?



Viewpoint

Unlocking investment from private capital

"There is a lot of optimism in the market around how much capital is available for the transition here in Australia, however, there are a few key levers we need to have in place to unlock that capital. Private capital investors, for example, are not fully unleashing themselves on the market because they need scale to achieve the desired returns. There are ways this can be overcome, for example, by aggregating small scale decentralised energy assets into platforms that give them greater operational flexibility, which in turn allows them to maximise returns. More embedded challenges however will require active thought and management from government and regulators. For instance, in order to attract the foreign capital critical for renewable energy projects, we need more certainty around permitting issues, approval processes (including FIRB) and, in the case of the offshore wind industry, thoughtful targeted skilled workforce initiatives to compete on the global market."

Jo En Low
Partner, Sydney

Case Study

Australia: "we need to work in a collaborative and coordinated way going forward"

"In Australia there is no shortage of investors in the energy transition space. There are the big energy companies, wealthy individuals with a particular interest in clean energy, impact funds, private equity funds and infrastructure investors. But what people are finding is that the energy transition is actually a lot harder than it looks. Some projects are not commercially viable at this stage, Government policy can be hard to navigate – especially permitting on projects and incentives. There is also a shortage of skilled labour in the space. We've seen some high profile players pull back on their investments given the massive cost involved in developing new low emissions energy, like hydrogen, and decarbonising in hard to abate industries. It's a really complex playing field: there is no shortage of investors or money, but of course its about how investors can make a commercial return. All stakeholders need to work in a collaborative and coordinated way going forward, with public and private partnerships."

Neil Pathak
Partner, Melbourne

Conclusion

At the next global climate summit – the COP29 meeting in Azerbaijan in November – there are likely to be calls for even more urgent action to accelerate the transition. There may be demands that stakeholders work more closely together to achieve it as quickly as possible. But, as with previous summits, it will be vital for substantive actions to take place once the delegates have returned home. Although, this does not appear to have happened following COP28, notwithstanding the apparent consensus that more must be done and quickly.

This year's Powering Change survey found that corporates are fully engaged in the debate. They are optimistic about the transition, and are willing to finance and develop both existing and new technologies to help the world move at a faster pace.

What they require is certainty from governments and regulators, as well as a clear pathway into the future. Only by working together can barriers be overcome, new sources of capital exploited, and new technologies brought to fruition, to help the world meet its climate goals.

Endnotes

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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