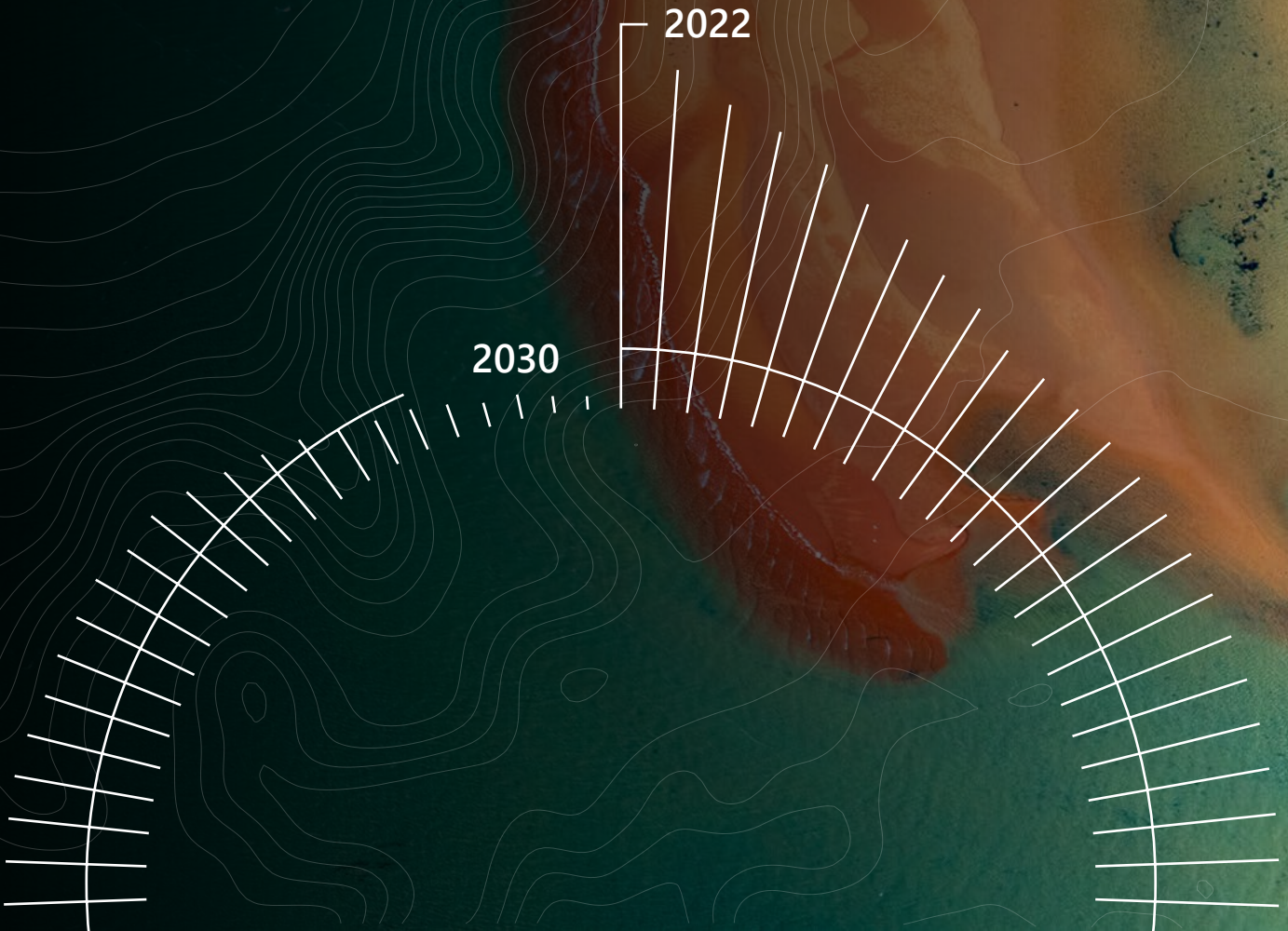


ACCELERATING THE JOURNEY TO NET ZERO

A blueprint for Australia



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Cover: Francois Peron National Park,
Western Australia.

FOREWORD

In 2021, Australia committed to achieving net zero emissions by 2050. The country plans to reach this goal through technology-led sustainability strategies, meaning that innovation in business – with government support – will be a key driver of emissions reduction.

Experts agree that the years leading up to 2030 will be crucial in determining whether Australia delivers on its targets. Which is why it's never been more vital to take a pulse check on how Australian organisations are tracking on the innovation-led road to net zero.

Where are they excelling? Where are they struggling? And what more needs to be done if Australia is to meet or even exceed its 2050 commitments?

Microsoft has a deep interest in these questions as the employer of thousands of Australians, as a technology provider delivering some of the solutions that will underpin the country's net zero future, and as an organisation with a deep and longstanding commitment to tackling climate change.

We hope this report – developed in partnership with a team of researchers led by Dr Chris Brauer from Goldsmiths, University of London – will go some way towards answering them.

Based on surveys of hundreds of business leaders and thousands of employees, *Accelerating the journey to net zero: A blueprint for Australia* aims to be a comprehensive overview of organisations' progress on sustainability.

But the report is more than a pulse check.

Our research team conducted in-depth interviews with industry experts, sustainability consultants and academics, analysing their findings against survey results to develop a roadmap to net zero that's tailored to the opportunities and challenges unique to Australian industries. In this way, we hope to offer a blueprint for action that organisations can use to accelerate their own sustainability strategies.

We believe that the more information we have about where we are at and where we can go, the better. Only by sharing our insights, our learning and our setbacks, can we make the transformative changes Australia needs to reach a net zero future.



Steven Worrall
Managing Director, Microsoft Australia



ABOUT THIS RESEARCH

Accelerating the journey to net zero

Led by Dr Chris Brauer, Director of Innovation at Goldsmiths, University of London, and commissioned by Microsoft, this research provides a blueprint for sustainability for Australian organisations.



senior decision makers questioned



employees questioned



global subject matter experts and customers consulted

Research questions

- 1 How advanced are companies in Australia in achieving sustainability goals and carbon reduction?
- 2 What are the key challenges?
- 3 How can technology drive sustainability goals?
- 4 Are there any key differences between sectors in pursuing sustainability goals?
- 5 What sustainability expectations do employees have for companies?

Dr Brauer was supported by a team of economists, psychologists, data scientists and social scientists from Smoothmedia Consulting Ltd, including Research Director Dr Jennifer Barth, Dr Eurydice Fotopoulou and researchers Areej Ahsan and Emily Naylor.

The researchers used a mixed-method approach, beginning with a detailed review of academic, industry and media data sources to inform their initial thinking, expand their research hypothesis and uncover the seven key dimensions of sustainability in Australia. They then conducted in-depth interviews with subject matter experts including the following industry experts, sustainability consultants and academics:

Bill Hare
CEO and Senior Scientist,
Climate Analytics

Dr Alan Finkel
Special Adviser to the Australian
Government on Low Emissions Technology

Dr Emma Aisbett
Associate Director, Research,
Zero-Carbon Energy for the Asia-Pacific
Grand Challenge, Australian National
University

Dr Fiona J Beck
Senior Lecturer and Research Fellow,
Research School of Electrical, Energy
and Materials Engineering, Australian
National University

Professor Andrew Blakers
College of Engineering and Computer
Science, Australian National University

Wei Sue
System Lead, Sustainable Corporates,
ClimateWorks Australia

A kangaroo in Gresford in the Hunter Valley in NSW, Australia.



They also interviewed Dr Larry Marshall, Chief Executive of the Commonwealth Scientific and Industrial Research Organisation (CSIRO); Ros Harvey, Founder and Managing Director of the Yield; and David Gall, Group Chief Executive of Corporate and Institutional Banking at National Australia Bank (NAB), to learn more about some of the organisations leading Australia's path to net zero.

From there, the research team developed a seven-dimension scorecard to measure organisations' progress in the most critical areas of sustainability. Using the scorecard as a guide, the team surveyed 686 organisational leaders and 1,030 full-time employees. Because smaller firms are less likely to employ sustainability managers and tend to account for a smaller proportion of emissions, the research sample was limited to organisations with more than 200 employees.

To extrapolate results from the scorecard to the economy, they were weighted by the share of organisations in the total economy, assuming a standard normal distribution of the population, and the veracity of responses. These results are within statistical confidence and have been rounded for simplicity.

The research in this report was conducted in late 2021.

EXECUTIVE SUMMARY

Australia's road to net zero is paved by good intentions. But for the country to reach its goals, it must be paved by action as well.

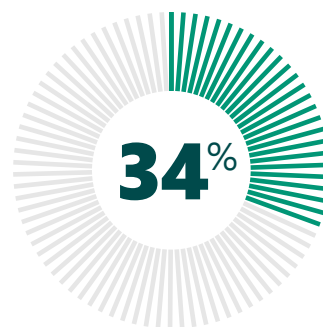
Australian organisations have a deep and genuine commitment to building a better tomorrow. This research found evidence of a strong desire among large organisations in every sector to usher in a more sustainable future, with three-quarters setting 2050 net zero targets. And, as the country works towards a lower-carbon future, organisations are taking big strides along their sustainability paths in many areas.

The research found that sustainability performance is improving in areas such as energy use, with organisations using solar and other renewables to meet an average of 66% of their energy needs. In addition, more than half are also working to improve their supply chain sustainability, while an impressive 88% are undertaking the crucial task of embedding their sustainability goals into their broader business strategies.

Momentum is gathering, but it's not happening fast enough.

Soberingly, the research found that more than a third of large Australian organisations with net zero by 2050 targets are poised to miss their goals.

The research shows that despite strong performance in renewable energy adoption, sustainable supply chains and connected sustainability, Australian organisations are lagging in the equally critical areas of decarbonisation, technological innovation, funding, skills and natural capital accounting.



34% of Australian organisations are poised to miss their target of achieving net zero by 2050.

Technological investment is a prime example. Eighty per cent of business leaders surveyed believe technological innovation is key to achieving net zero, yet just 50% are investing in the technology they need to measure emissions across their products, services and operations. As well as struggling to access the right technology, it emerged that organisations are also struggling with significant skills gaps.

But as well as highlighting these and other challenges, the research also explored ways that Australian organisations can steer a more sustainable course.

The findings show that sustainability leaders – those organisations where execution is on par with ambition – are meeting their goals by prioritising innovation and collaboration.

They understand that you can't manage what you can't measure, which is why they are taking a systematic approach to quantifying their own emissions. They are investing in technological solutions that will enable them to transition to lower-carbon ways of operating, and they are exploring the possibilities of carbon removal. They are also transparent, sharing their setbacks and learnings with others in the hope of driving collective change.

Drawing on the example of these organisations, as well as expert insights from environmental scientists, academics and sustainability consultants, this report outlines seven steps organisations can take to address the aforementioned challenges, align action to ambition and accelerate their path to a sustainable tomorrow.



Menindee Lakes in Outback NSW, Australia.

THE DELIVERY DEFICIT: WHAT'S HOLDING AUSTRALIA BACK?

Some Australian organisations are speeding ahead on the road to net zero, while others are falling far behind. The vast majority, however, occupy the middle ground.



10%

Stragglers

This group achieved a mark of less than three against our seven-dimension sustainability scorecard. Stragglers' scores are low because they have failed to set appropriate environmental targets or because they are making exceptionally poor progress against their green goals. They make up the smallest proportion of companies in our study.



68%

Aspirers

By far the largest group in our study, Aspirers scored between three and 12. These companies tend to perform well when it comes to setting environmental targets and designing sustainability strategies, but fall down in the areas of execution and measurement.



22%

Leaders

These organisations scored 12 or higher, indicating their excellence not just at setting strong targets but also at meeting and exceeding them. The most distinctive feature of organisations in this group is their commitment to investing in technology that accelerates their sustainability goals and enables them to measure progress.

“Business leaders need to be looking over the horizon ... There are many different ways of looking at that, but the overall thinking is: are business leaders giving the right direction to their companies? And are they making the right critical, strategic choices about preparing for the future?”

Bill Hare, CEO and Senior Scientist, Climate Analytics

FROM SKILLS TO STRATEGY: KEY CHALLENGES FOR ORGANISATIONS

From a shortage of sustainability expertise to an inability to access the right technology, organisations are hitting many bumps in the road to net zero.

Skills

40%

40% of business leaders say that finding in-house expertise to implement their sustainability strategies will be a key challenge on their road to net zero. From environmental engineers to sustainability advisers, many organisations simply do not have access to the skills they need.

Mindset

36%

36% identify the slow evolution of company culture as a hurdle to progress on sustainability. While their organisations may be taking some initiatives and 'talking the talk', there can be a cultural lag when it comes to recognising the centrality of sustainability and embedding it in all aspects of operations.

Strategy

38%

38% say their organisation's efforts are held back because a clear, enterprise-wide sustainability strategy has not been developed. This could be due to a lack of strong leadership, difficulty gaining organisation-wide buy-in, or an inability to access the expertise needed to develop a sound strategy.

Government guidance

32%

32% cite a lack of clear government guidance for action as a challenge for their sustainability efforts. Without certainty on future regulations, these organisations struggle to develop and implement appropriate sustainability strategies, and remain unsure about where to invest.

Technology

35%

35% say their organisations do not have the technology they need to support their sustainability initiatives. Technological tools are vital in order to measure and map emissions, accelerate sustainability initiatives and track an organisation's progress against its goals. Without the funding for sustainability-focused innovation, many organisations will struggle to operationalise sustainability in a meaningful way.

SPOTLIGHT

The sustainability skills shortage

Data collection and visualisation expertise.

Environmental consulting skills.

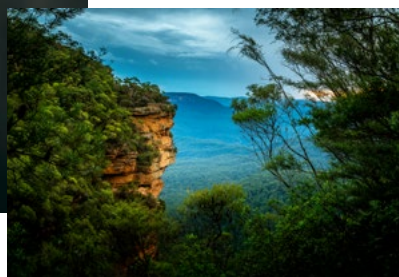
A comprehensive awareness of environmental, social and governance conventions.

A deep understanding of responsible procurement.

These are just some of the skills that Australian organisations need to put their sustainability plans into practice, and at the moment – like many other essential skills – they are in short supply.

Australia faced a major engineering and technical shortage even before COVID-19, with the share of tertiary graduates completing IT courses gradually falling over the decade to 2020.

While skilled migrants have historically helped to stop this gap, pandemic-related border closures have seen it widen exponentially. In fact, the impact of travel restrictions means the nation may be short of 830,000 workers by 2024.



Clockwise: The sandstone cliffs and bushland valleys of the Blue Mountains in NSW, Australia. Golden wattle (*Acacia pycnantha*), Australia's national flower.

HOW ORGANISATIONS CAN DO BETTER: LESSONS FROM LEADERS

Leadership, measurement and innovation – these are three areas setting sustainability Leaders apart from the rest.

Leaders in our survey, who are making significant progress against their net zero goals, are distinct from Aspirers and Stragglers in several ways.

First, as their name implies, Leader organisations do not wait for others in their industry to set ambitious targets and then follow suit. They recognise the importance of self-driven sustainability initiatives, giving themselves a head start that enables them to tailor net zero strategies to their own unique priorities and advantages.

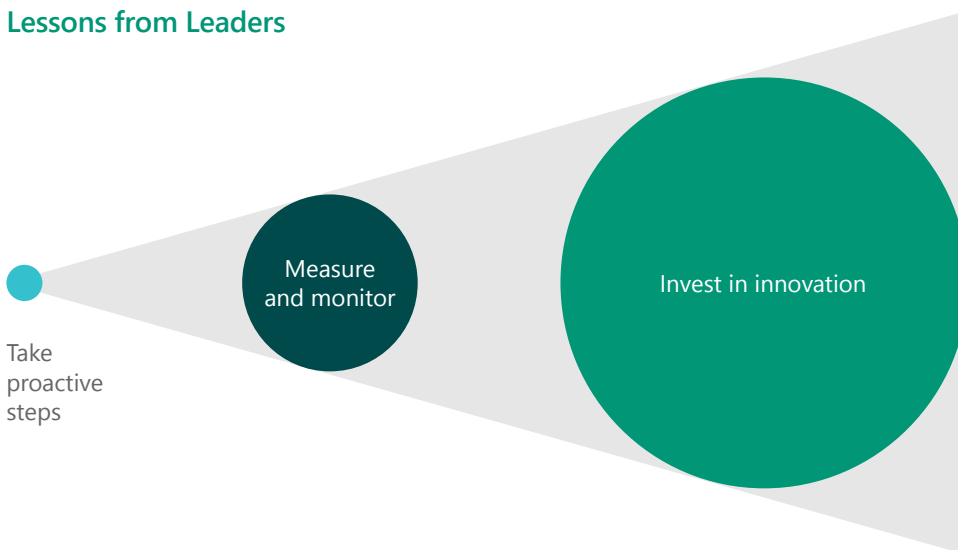
Second, they recognise that you can't manage what you can't measure. This is why Leaders invest in solutions that enable them to quantify, map and monitor emissions across their products, services and operations. Having a strong understanding of their own carbon footprints, Leaders can clearly see where they need to take action.

“

You want to be making the right decisions today with the best net zero emissions technology that we know of ... Consider net zero options in any investment or capital that's being deployed today so they are future proofed, especially when it's about long-lived asset turnover.”

Wei Sue, System Lead, Sustainable Corporates, ClimateWorks Australia

Lessons from Leaders



Because of this transparency, Leaders are better positioned to monitor their progress against targets, which in turn unlocks motivation and enables accountability.

In addition, their ability to quantify their emissions and understand the necessary changes means that Leaders also find it easier to accurately cost their organisations' sustainability plans.

Finally – and unsurprisingly given that the Australian approach to sustainability is dependent on technological ingenuity – Leaders prioritise innovation above all else.

Organisations in this group place the most emphasis on innovations and collaborations that enable them to remove carbon from the atmosphere and swap out carbon-intensive processes and products.

These organisations regularly substitute products and services with newer, more sustainable alternatives. They partner with others in their industries and beyond, to share and discover best practices.

And crucially, they invest in the innovations they know will power their future progress. Whether as customers, investors or donors, Leaders make a point of spending their dollars on the technology solutions they will rely on to reach net zero.



Walls of China, Mungo National Park in Outback NSW, Australia.

“

Australia is investing in clean hydrogen with a target to get hydrogen to under \$2 per unit by 2030; we have the world's highest per capita installed solar capacity and generation per year; we have a billion-dollar clean tech venture capital fund announced by the government; and we now have a commitment to invest in the electric vehicle industry things are really changing in Australia, but it will take two or three years before the world recognises the change. When a kid with behavioural problems in class suddenly sees the light, it takes a long time for their schoolmates to trust them again.”

Dr Alan Finkel, Special Adviser to the Australian Government on Low Emissions Technology

SPOTLIGHT

Cracking the secret to sustainable business

As Australia's national science agency, CSIRO is on the frontline of sustainability innovation. CSIRO partners with business, government and academia to find practical solutions to lay a path to low emissions and help Australia to mitigate the impacts of climate change.

"It's about getting scientists and engineers together with people who are running real businesses to figure out how to solve problems," says Dr Larry Marshall, Chief Executive of CSIRO.

This approach informs the partnership between Microsoft ANZ and CSIRO, which has seen the two organisations work together to tackle environmental challenges from plastic waste in oceans to feral cattle.

In recent years, agricultural organisations in particular have become more interested in the potential of emerging technologies to accelerate their sustainability efforts – an interest that CSIRO is determined to harness through collaboration.

A key joint achievement from CSIRO, James Cook University, Australian cattle farmers and a consortium of investors is an innovative feed supplement that reduces cows' methane emissions called FutureFeed. The supplement is now being used in the US and Europe as well as in Australia, and Marshall says its success is likely because it doesn't disrupt farmers' business activities. The methane-reducing supplement costs the same as other feed supplements and has no adverse impact on cattle health – in fact, it seems to improve it.

"All the cattle industry wanted was something that cost the same and didn't make things worse," says Marshall. "It was easy to get farmers to adopt that, and I think there's a secret in that for driving change."

In fact, Marshall says the profit motive can be a key driver of sustainability initiatives in any industry. CSIRO is currently working with banks to help them quantify climate risks for their enterprise clients.

"It means they can then go out to their client base, help them get their heads around the risk, and then use mitigation strategies to reduce it," says Marshall. "Again, the bank is doing that because they know it's in their long-term best interests as a business to figure that out. And that's been a theme in most of the interventions we've done that have been successful."



THE SEVEN DIMENSIONS OF SUSTAINABILITY: HOW ORGANISATIONS SCORE & NEXT STEPS

Australia’s approach to sustainability, in its strong reliance on innovation to reduce emissions, is unique. Therefore, any measurement of its progress demands a unique approach.

To understand the Australian approach to sustainability, and find out how the nation’s organisations are tracking against their net zero goals, the research team developed a seven-dimension scorecard tailored to the Australian context. Each dimension reflects the priorities, opportunities and challenges specific to Australian organisations.

Considering each of the seven dimensions in more detail provides a clearer picture of how organisations across sectors are tracking on their sustainability journeys, and a deeper understanding of the actions needed to bring a net zero future into reach.

- 
1. Decarbonisation
 2. Technological innovation
 3. Skills and funding
 4. Connected sustainability
 5. Natural capital accounting
 6. Sustainable infrastructure
 7. Supply chain resilience

1 Decarbonisation

While organisations are amplifying their sustainability efforts through carbon offsetting, carbon capture and storage, and the use of hydrogen and other innovative solutions, the research found little evidence of significant efforts to transition to low-carbon products, services and operations.

Where organisations are embracing lower-carbon ways of working, their efforts tend to be concentrated in areas such as energy efficiency and renewable energy adoption.

Nine in 10 organisations have already taken steps to decarbonise by reducing their use of energy, water and raw materials for production; reducing their business travel; recycling in their supply chains; and using renewable energy.

Renewable energy adoption is strong overall, although it varies widely across industries. Construction is a leader here, with 90% of firms using renewables. Consulting and professional services businesses are lagging noticeably behind, with just 43% of organisations adopting solar or other renewables.

But in general, industry is making good progress in clean energy adoption. A full 70% of organisations have adopted solar, wind, blue energy, biofuels or hydrogen to power at least some part of their operations. Trends like these could contribute to another key finding, that 58% of organisations have already reduced their emissions.

Unfortunately, this achievement does not go far enough. The research found that although 75% of organisations plan to reach net zero emissions by 2050, 34% of them are on track to miss this goal.

One reason may be that most organisations do not yet have the insights into their own carbon footprint that they will need to decarbonise. While 66% plan to map their carbon emissions by 2050, the proportion of those already doing so is just 11%.

Clearly, a stronger focus on decarbonisation is necessary if Australia is to reach its net zero goals.



BLUEPRINT FOR ACTION

Set clear goals

Australian organisations should raise their ambitions to set clear net zero targets where they have not done so, including explicit, science-backed and quantitative commitments for emissions reduction and removal.

These commitments should align with the organisation's strategy and risk appetite. They should contain clean interim targets, they should be reviewed periodically and progress against them should be reported regularly. They should also be socialised across the organisation. Only by ensuring leaders, employees and other stakeholders are aligned on these goals and the efforts required to execute them, can organisations start taking active steps to reach net zero.

Measure and monitor emissions

What gets measured, gets managed. To shift to a lower-carbon way of operating, organisations need to begin with a comprehensive understanding of their emissions across every scope, and an awareness of how they change over time. Reliable carbon calculators and standards like the [Greenhouse Gas Protocol](#) enable leaders to get a better view of their organisation's environmental footprint.

When calculating emissions, it's also important to carefully manage quality control issues and provide the activity data required for accurate calculation.



Walkaway Wind Farm in remote Western Australia.

Understanding every scope

Scope 1 emissions are direct emissions a business's activities create, such as exhaust from industrial equipment or fleet vehicles.

Scope 2 emissions are indirect emissions associated with a business's activities, such as emissions from the production of the electricity a business uses.

Scope 3 emissions are indirect emissions associated with all other business activities that originate from sources the organisation doesn't own or control. These emissions can be extensive and must be accounted for across an organisation's entire supply chain. They include the materials in its buildings and the full upstream and downstream life cycle of its products.

Adopt the right carbon accounting practices

To increase their chances of reaching net zero, organisations should adopt metrics that reflect their particular requirements, values and strategies. There are many resources available to help with this process, such as the Task Force on Climate-related Financial Disclosures, which has developed a set of recommendations on climate-related financial disclosures that's useful to organisations across sectors and jurisdictions. Using the carbon accounting practices that are appropriate for their organisation or industry, organisations can become more transparent and better informed about the task ahead.

It's also important for leaders to ensure their organisations have the technologies and data collection tools they need to track the metrics that matter to them.

“

Step number one is always to get a decent carbon accounting system in place along the adage of what gets measured, gets managed. Solid carbon accounting practices and to actually understand where your emissions are coming from is critical.”

Dr Emma Aisbett, Associate Director, Research, Zero-Carbon Energy for the Asia-Pacific Grand Challenge, Australian National University

An aerial view shows the flora and textures of Nangudga Lake in NSW, Australia.



SPOTLIGHT

Empowering Australians to tackle climate change

As the largest provider of renewable energy financing in Australia and the nation's biggest agribank, National Australia Bank (NAB) is on the frontline of the country's shift to a low-carbon future.

NAB has set its own ambitious decarbonisation targets, committing to reduce operational greenhouse gas emissions by 51% on 2019 levels by 2025 – a target it's on track to meet.

"Big financial institutions need to lead by example," says David Gall, Group Chief Executive of Corporate and Institutional Banking at NAB. "We can't ask the businesses that bank with us to do things we wouldn't be prepared to sign up to."

At the same time, Gall acknowledges that one of the bank's biggest impacts will come from the support it provides to clients. Right now, NAB is working with 100 of its high-emissions clients to help them develop their own net zero strategies, and finance the innovation they need to get there. The bank is also supporting agricultural producers to develop the technology for soil carbon measurement, which will open up an additional revenue stream in verifiable carbon credits.

Sustainable innovation is good for NAB's customers, but it's also good for the bank. "As our clients grow and succeed and take advantage of the transition to a low-carbon economy, their banks benefit alongside them," says Gall.

To help their clients succeed, NAB's people need deep sustainability expertise as well as financial skills. So, the bank is recruiting sustainability experts, and has partnered with the Melbourne Business School to roll out in-depth climate change classes to employees.

"It's giving our bankers a lot more confidence in knowing what questions to ask clients, and understanding how to support them in their transition," says Gall. "The technology is crucial, but there is no substitute for human interaction, and that's why we're building up those skills and capabilities."



2 Technological innovation

Australian organisations recognise that technology is central to their net zero journeys. But the research shows that while 80% of business leaders say technological innovation has a key role to play in improving environmental sustainability, a surprisingly small number of organisations are actually making the necessary investments.

Just 51% are spending on R&D to develop new technologies that will improve the sustainability of their products, services and/or operations, and only 50% are buying the technology they need to measure their emissions.

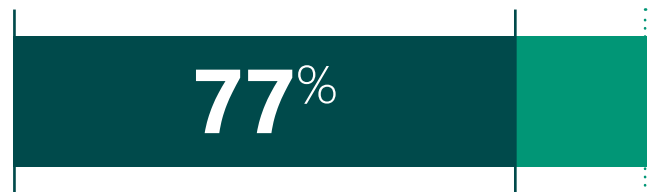
Encouragingly, most organisations (54%) are taking advantage of innovation by regularly substituting unsustainable products and processes with newer, greener options. And where they are investing, the research reveals that business leaders are especially interested in unlocking the sustainability benefits of robotic process automation, emissions measurement tools, machine learning and digital twins (digital counterparts of physical objects or processes).



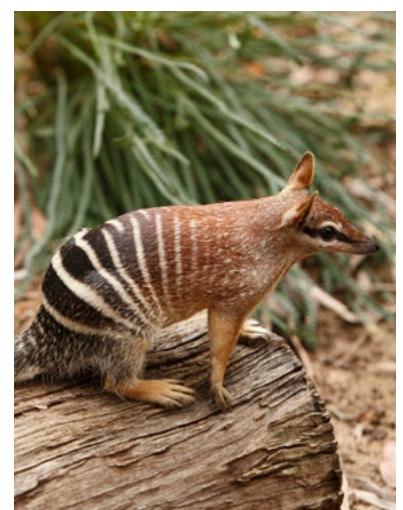
54% of organisations are taking advantage of technological innovation.

The research also found that 77% of organisations are collaborating with academic and research institutions, non-government organisations, charities and others on developing technologies to progress their sustainability efforts. This could indicate that, although many organisations lack the resources to invest in green innovation on their own, they hope to make up the difference by pooling their efforts.

While there is a strong recognition of technology's role in every organisation's sustainability journey, more must be done if Australia is to innovate towards a net zero future.



77% of organisations are collaborating with academic and research institutions, non-government organisations and charities.



An endangered numbat searches for food in the Dryandra Woodland in Western Australia.

BLUEPRINT FOR ACTION

Embrace low-emissions technologies

Organisations can take advantage of developments in offsetting, carbon capture and hydrogen technologies to optimise their operations, increase efficiency across their processes and reduce their carbon footprints. By deploying technological solutions to meet the net zero challenge, they can encourage ingenuity within their workforces and build stronger, values-led pathways to their future growth.

If necessary, organisations can start small and steadily increase their adoption of sustainability-focused technologies. There are many ways to support innovation, from becoming a customer of new solutions through to investing in the emerging technologies that will power the country's net zero future.

Become an energy citizen

Organisations can encourage innovation in Australia's energy market by adopting new renewable energy sources and expanding their existing use of renewables.

They can start by electrifying as many processes as possible, switching to existing and emerging clean electricity sources, and investing in storage systems for wind and solar energy. Where appropriate, they can also support the growth of the lithium, copper and nickel sectors, which will power the batteries and electric vehicles of Australia's future.

By becoming clean energy customers and investors, organisations can ensure their own operations are sustainable – and support the growth of a more sustainable energy industry.



An aerial view of Willie Creek in Broome, Western Australia.

“

We have a leading position in managing a high-variable renewable electricity grid. We have very high penetration rates of solar and wind now in Australia and in fact, South Australia has the world's highest penetration of solar and wind combined – for six days last December, 100% of its electricity was produced from these sources.”

Dr Alan Finkel, Special Adviser to the Australian Government on Low Emissions Technology

Reinvent existing systems

Developing new products and services is one way to innovate. But innovating to improve existing operations and offerings can effect an equally powerful transformation.

Unnecessary waste, for instance, is a common by-product of poorly designed systems. By re-evaluating existing products, services and processes from the ground up, organisations can design waste out of the way they work, reducing their carbon footprint and accelerating the journey towards a more sustainable future. Leaders should look for opportunities where technology can simplify and streamline existing processes, to improve overall productivity and reduce waste and emissions.



The Pinnacles in Nambung National Park, Western Australia.

SPOTLIGHT

Australia's unique advantage

The wide brown land leads the world in household uptake of solar energy systems, which can be found in over a quarter of Australian homes. Yet residents and businesses are still not making the most of solar's potential.

Australia receives an average of 58 million petajoules of solar radiation every year – a figure more than 100,000 times the country's total annual energy consumption. The reach of renewables is only expected to grow, with the federal government predicting that 50% of Australia's energy will come from wind and solar by 2050.

“

One of the interesting things in Australia is that solar power is cheap – a lot of our growth of renewable energy has been rooftop solar that individuals bought. And they did that because it was financially sensible. So, if you haven't put solar panels on, you're wasting a good opportunity.”

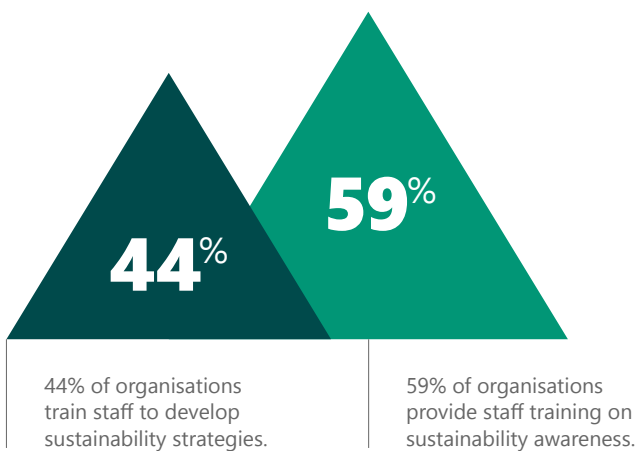
Dr Fiona J Beck, Senior Lecturer and Research Fellow, Research School of Electrical, Energy and Materials Engineering, Australian National University

3 Skills and funding

Australia is facing a skills shortage in many dimensions, and sustainability is no exception. In 43% of cases, organisations lack the in-house skills and expertise they need to put their sustainability strategies into practice.

More than half of organisations do already employ people in roles specifically relating to sustainability, including professionals in sustainable finance, responsible sourcing and environmental risk assessment. A further 44% are hiring personnel with expertise in technological solutions to design, lead, implement or support their sustainability plans, and 26% more have plans to do so.

Yet most still lack the internal resources they need to operationalise sustainability, which is a key driver of the upskilling efforts evidenced in the research. Some 44% of organisations train staff to develop the skills necessary to implement their organisational sustainability strategies, while 59% provide staff training on environmental awareness and sustainability more generally.



The good news is that more than half of Australian organisations report that they have the funding they need to implement their sustainability strategies. Yet a significant minority still lacks the financial resources to operationalise sustainability, with many more battling against a major skills gap in this space.



Whether it's hiring environmental consultants or purchasing technologies to measure emissions, it costs money to put sustainability into practice – money that 34% of organisations are currently unable to access. While almost half of organisations have received government funding to support their transition to more sustainable operations, the research suggests that the funding gap remains a significant hurdle for many.

There are a number of further steps business can take to upskill their workforces and unlock the funding needed to reach a net zero future.

BLUEPRINT FOR ACTION

Empower the workforce

As well as widening their talent pools to find suitable candidates for sustainability-focused roles, organisations can also invest more time and funding to train their existing employees in the skills they need to innovate for a more sustainable future. One way to accelerate this process is by providing incentives that encourage internal talent to upskill on sustainability.

Leaders can also build cross-functional teams within their existing workforces, investing each with responsibility for a different aspect of the overarching sustainability strategy. Whether teams are responsible for emissions reduction or innovation, regular and transparent progress reporting across teams will enable accountability, broad buy-in and faster progress to net zero.

“

I've been stunned at the technology capabilities within the mining industry. You think of it as just digging stuff out of the ground and selling it, but the level of AI, robots, material science and chemistry capability is quite amazing. And once CSIRO started working with them, it brought out this latent skill set in these workforces – people started coming up from places we didn't expect, to work with us on really cracking these problems.”

Larry Marshall, Chief Executive, CSIRO

Practise bold leadership

With a solid understanding of their organisation's environmental impact, and an awareness of how that impact can change over time, leaders can get the insights they need to drive sustainability efforts forward.

As well as executive and board direction, it's important for organisations to empower middle managers, engineers and technologists to become sustainability champions in their own spheres of influence. It's equally important to build accountability mechanisms to keep leaders and employees on course and make sustainability a key priority for everyone.

Invest in tomorrow

The innovation-led road to net zero will require short-term investment for long-term results. Organisations can collaborate within and across industries, as well as with government, to create more funding opportunities for sustainable innovation and infrastructure.

By pooling their platforms and resources, they can support the flow of private investment towards climate-positive initiatives; contribute to conversations about environmental policies and budgets; help to grow the green finance market; and ensure our communities and smaller businesses can access the finance they need to transition to a low-emissions future.



Aerial view of the Mount Martha coastal drive on the Mornington Peninsula, Victoria, Australia.

SPOTLIGHT

Employee perspectives

Employers are doing well ...

74%

of Australian employees say their employers educate individuals on what actions they can take on sustainability within their role.

57%

say their employers implement their organisation's environmental sustainability plan efficiently.

But they could be doing better

17%

of employees have received training on environmental sustainability, with 77% agreeing that businesses need to improve training programs to increase sustainability skills and environmental expertise in their workforces.

39%

say their employer offers no incentives for sustainable practices such as using low-emissions vehicles or recycled goods.

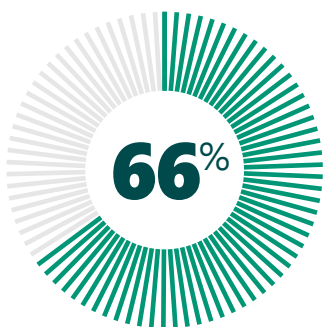
4 Connected sustainability

Business and government leaders serious about reaching net zero emissions understand that sustainability cannot be an add-on initiative – it must become hardwired into every dimension of an organisation’s operations.

By ensuring their sustainability efforts are coordinated across each line of business, organisations can amplify their impact and accelerate their progress to net zero.

The research found that more and more Australian organisations are embracing connected sustainability, with 88% having embedded sustainability strategies into their broader business strategies. This indicates that sustainability is now seen not as a distinct dimension of operations, but as a central driver of each business function’s current and future success.

Alignment between the private sector and government is another important dimension of connected sustainability, easing the way for collaboration and funding opportunities.



66%
of organisations
have implemented
sustainability
ambitions.

When it comes to business–government alignment, the research shows that 66% of organisations have implemented sustainability ambitions in line with the Australian Government’s environmental goals. South Australia is significantly ahead in this respect, with 84% of the state’s organisations implementing government-aligned sustainability goals.

But while the research indicates that many organisations are thinking about the environment in a more holistic way, there are still many steps needed to drive a connected, enterprise-wide embrace of sustainability in business.

BLUEPRINT FOR ACTION

Be transparent

Sustainability strategies are iterative, and unlikely to be foolproof from day one. If they are to reach net zero, organisations need to be open – internally and externally – about what’s working and what’s not. By sharing their setbacks and learnings within and across industries, organisations can avoid reinventing the wheel and therefore accelerate nationwide progress to net zero. Communication is key here, and organisations should disclose their net zero strategies and speak about their progress candidly where possible, for instance as part of environmental, social and governance reporting.

Collaborate to drive change

Monopolies within industries can lead to unsustainable and inefficient practices, such as unnecessary duplication of physical infrastructure. The focus on maintaining monopolies may prevent organisations from collaborating with others on sustainability initiatives like regional renewable energy grids, which benefit all. Instead, organisations should look within and across their industries to build sustainability-focused alliances and networks between businesses, non-government organisations and policy bodies, and similar entities.

These collaborative platforms can provide a space for organisations to speak to each other about their sustainability challenges, facilitating peer-to-peer learning and the faster movement of critical insights. By pooling their resources, members of these groups can amplify the impact of their collective sustainability efforts.

“

It can be valuable to learn from other companies that are experiencing similar challenges, that are on similar journeys transitioning towards net zero. Importantly, also learning from other companies along your supply chain in order to work together and resolve some of these supply chain issues around reducing emissions right across the whole supply chain.”

Wei Sue, System Lead, Sustainable Corporates, ClimateWorks Australia

Karlu Karlu (Devils Marbles) Conservation Reserve, Northern Territory, Australia.



Export sustainably

Connected sustainability is about more than organisational, industry or even governmental alignment. In a connected global economy, Australia's climate impact hinges heavily on its export industry. The country is the world's largest exporter of coal, liquefied natural gas and iron ore, which means that organisations in primary industries especially must account for the emissions embedded in the products they export. By taking a holistic view of the connected supply chain, organisations will be able to more accurately measure, monitor and mitigate their environmental impacts.

Business can also work with government to develop embedded emissions accounting schemes and uniform product certification schemes, streamlining the process of meeting global sustainability requirements and simplifying their own carbon accounting.

SPOTLIGHT

Feeding the world without wrecking the planet

As the global population continues to grow, demand for agricultural produce is increasing every day. Yet the need to curb emissions, preserve biodiversity and conserve natural resources is putting growers under pressure to do more with less.

For Ros Harvey, Founder and Managing Director of Australian agritech company The Yield, the answer lies in data.

The Yield uses data and AI to help growers know the exact right time to spray, irrigate and harvest crops – leading to better yields while using fewer resources.

By gathering data from growers, as well as sensors, satellites and robots, and feeding it into Microsoft's Azure cloud, The Yield's solution empowers farmers with accurate recommendations and harvest predictions that benefit the entire value chain. This degree of precision enables growers to spray and irrigate crops when conditions are optimum, minimising runoff and reducing waste.

"Greater precision gives you greater accuracy, which means you can do more with less and effectively reduce the impact on the environment," says Harvey. "And it also takes the risk out of investments in environmentally friendly infrastructure," she adds, referring to the way The Yield enables microclimatic predictions for glasshouse, tunnel and substrate agriculture.

By giving farmers the tools to optimise growing in these low-impact environments, The Yield enables them to ramp up production without increasing their environmental impact.

Harvey is optimistic about the potential of further innovations to decarbonise Australia's economy. "There are so many employment and investment opportunities in the new, low-carbon economy, particularly in a country like Australia with enormous renewable energy resources and infrastructure that could be repurposed to support this," she says. "We should be an absolute leader in this transition."

Aerial view of the Adelaide River during the wet season, in the Northern Territory, Australia.



5 Natural capital accounting

From timber and livestock to fossil fuels and gas, Australia's wealth of natural capital assets is a cornerstone of the country's prosperity.

Organisations working with these assets understand that the continuation of this prosperity depends, in large part, on industry adopting more sustainable ways of managing the natural environment. But the research reveals that while more organisations are taking the value of natural assets into account, there is still work to do to future-proof Australia's natural wealth.

While 39% of organisations own natural capital assets, and 43% use these assets in their operations, over a third do not consider the role and value of these assets in their planning and operations. The construction industry is a notable exception, with 87% of firms accounting for natural capital, followed closely by agriculture, mining, utilities and energy (86% of firms).



The agricultural sector is one of the most interesting ones, because there are a decent proportion of farmers who are realising that climate change is absolutely deadly for them, because it is going to destroy their natural capital. And they are really pushing for change and for climate action."

Dr Emma Aisbett, Associate Director, Research, Zero-Carbon Energy for the Asia-Pacific Grand Challenge, Australian National University



NEED TO KNOW

What is natural capital?

While most of us take 'capital' to mean money or other financial assets, natural capital is just as important for the functioning of our economy. The International Institute for Sustainable Development defines natural capital as the land, air, water, living organisms and all formations of the Earth's biosphere that provide us with the resources we need to survive and produce goods and services.

Of those organisations that do consider the value of their natural capital assets, the focus for most is on the cost of maintaining them and their effect on stakeholders and communities – rather than on their preservation for future generations.

Worryingly, more than half of organisations do not monitor the carbon or methane emissions of their natural capital assets. Again, however, some industries perform better: 62% of agriculture, mining, utilities and energy organisations monitor these emissions, and are thus better positioned to manage and mitigate them.

There are several strategies organisations can adopt to better monitor and more sustainably manage the natural resources on which their future success depends.

BLUEPRINT FOR ACTION

Take a more holistic view

By simply relying on offsets and avoided emissions to balance out negative environmental impacts from their natural capital use, organisations risk moving forward with a business model that, in being overly simplistic, is unsustainable not just environmentally but financially as well.

For a more holistic approach to sustainability, organisations should recognise the role of natural capital in their business operations, account for the monetary value these assets represent, and make their sustainable management a key priority within broader business strategies.

“

There are issues associated with offsets, which is the other reason we have to focus on directly reducing emissions. Carbon offsets and sequestration will be important for us to limit global warming to 1.5 degrees but there are issues such as land availability, competing land uses, and other environmental concerns which can impact the duration of time and quantity of emissions that are sequestered, and which need to be resolved in the near future.”

Wei Sue, System Lead, Sustainable Corporates,
ClimateWorks Australia

Monitor for change over time

Natural capital assets are not fixed in their value. Like all assets, their worth and condition can appreciate or depreciate – they can become a burden or a source of revenue. It's becoming increasingly essential to include these costs and depreciations in business accounting systems. With climate change, biodiversity loss and natural disasters affecting Australia's natural capital assets in significant and long-term ways, organisations relying on natural capital need to account for these changes in their business plans.

Organisations like CSIRO can support businesses to develop objective methods for quantifying the state of ecosystems, the value that flows from them and trends that need to be considered.

Make measurements more inclusive

One of the main weaknesses of gross domestic product (GDP) as a metric is that it does not fully account for the depreciation of capital. An alternative is to use net domestic product (NDP), which is GDP minus the depreciation of produced capital, human capital and natural capital.

While this is of course a macroeconomic tool, the same shift can help organisations reframe their understanding of natural capital assets, and gain a more accurate view of the impact of these assets' depreciation on their business performance and outlook.

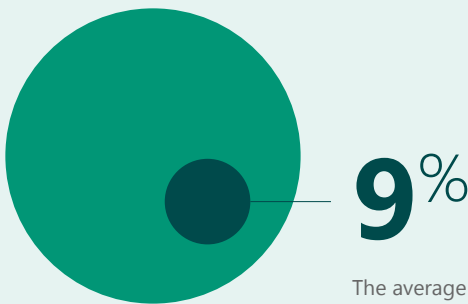


A lavender farm at Nabowla, Tasmania, Australia.

SPOTLIGHT

The cost of sustainability

Sixty-seven per cent of Australian organisations have attempted to estimate the cost of implementing their environmental sustainability strategies.



The average Australian organisation expects that implementing their sustainability strategy will cost them 9% of their current revenue annually.

On average, a typical Australian organisation expects that implementing their strategy will cost them 9% of their current revenue annually. The cost for greenhouse gas-intensive industries such as transport, logistics, agriculture, energy and utilities, and mining is 10% of revenue, whereas retail has the lowest average cost, at 7%.

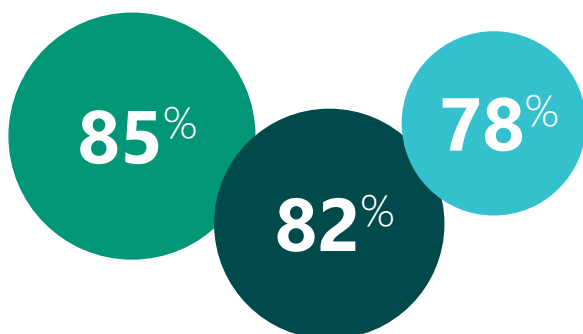
Yet scientific modelling done by CSIRO suggests these estimates may not tell the whole story. "Modelling has shown that we could increase the GDP of the country in the net zero scenario, pre-2050, by about 36%," explains Larry Marshall, Chief Executive of CSIRO. "The counterfactual was that if we didn't do anything about emissions, energy would continue to get more expensive as the world shifts. And that would make our industries uncompetitive, and our economy would slide."

6 Sustainable infrastructure

The shift to remote working as a result of COVID-19 restrictions has had inadvertent sustainability benefits for many Australian organisations. With a smaller physical office footprint and significantly curbed business travel, emissions fell in a number of industries.

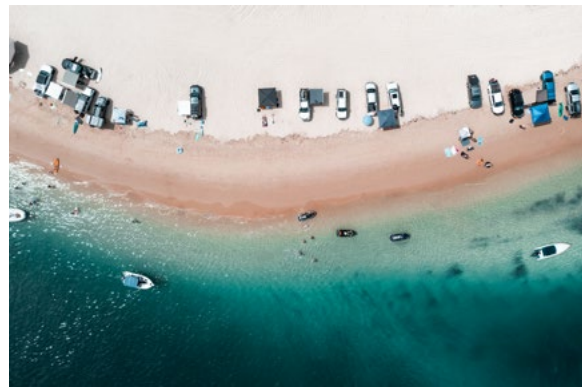
The research reveals that the shift to working from home has helped 84% of organisations reduce their carbon emissions, with 29% saying this reduction has been significant. It's also clear that some industries have been more impacted than others – notably manufacturing, where emissions fell for 92% of firms.

In sectors like manufacturing and aviation, emissions are of course expected to rise as social distancing orders and travel restrictions ease. And even in the case of professional services and other largely office-based industries, where remote work is likely to continue, it's important to note that emissions from on-premises energy use have often simply been transferred to employees' homes.



Organisations adopting renewable energy to power their premises are particularly strong in construction (85%), manufacturing (82%) and IT (78%).

Yet there are some signs of longer-term positive change worth acknowledging. The research shows that 66% of Australian organisations are using renewable energy to power their premises. Adoption is particularly strong in construction (with 85% of firms using renewables), manufacturing (82%) and IT (78%).



Aerial view of the coastline in the Tangalooma region of Moreton Island, Queensland, Australia.

Over 70% of organisations are also reducing their on-premises energy use with adaptive measures such as improved glazing, draught-proofing, shutters, reflective surfaces, green cover, green space and ceiling fans.

There is still much more to be done, however. As organisations develop new, hybrid ways of working for the longer term, there are several steps they can take to ensure their office buildings, manufacturing plants and other infrastructure assets are as sustainable as possible.

BLUEPRINT FOR ACTION

Take a smarter approach to on-premises power

Australia is a global leader in the installation of new renewable energy systems and the management of high-variable renewable electricity grids, with a very high penetration of solar and wind across the nation. Yet there is still enormous scope for organisations to make more of the country's natural advantages.

By using solar and other increasingly affordable renewable energies to power their offices, plants and warehouses, organisations can accelerate their path to net zero while investing in the clean energy of the future.

Use energy more efficiently

While many organisations have already embraced adaptive measures such as solar energy storage and green cover to cut down on their power bills and environmental impact, more can be done. Whether it's installing ceiling fans or improving window glazing, organisations should adopt as many energy-saving measures as possible to maximise their cumulative impact.



Bay of Fires on the east coast of Tasmania, Australia.

Don't reinvent the wheel

Organisations unsure how to make their physical infrastructure assets more sustainable can benefit from work that's already been done in this area. One helpful resource is Infrastructure Australia's Sustainability Principles. The principles balance social, economic, environmental and governance considerations to articulate a framework that helps organisations in every sector to meet their sustainability goals.

“

It's all about private people putting solar on their own roof. And companies putting solar farms and wind farms in and then emissions go down simply as a collective action. It's not coordinated at all. It's a total free market for people doing the right thing because it's economically a good thing. And then accidentally, we reduce greenhouse emissions.”

Professor Andrew Blakers, College of Engineering and Computer Science, Australian National University

7 Supply chain resilience

As Australian organisations reassess the workings of their supply chains in the wake of COVID-19 disruptions, the research found the majority are also taking measures to make their supply chains more environmentally sustainable.

Across sectors, 58% of organisations apply environmental standards in their supply chains to enforce sustainability. A further 54% are working to ensure the activities in their supply chains don't deplete natural resources, whether through the use of recycled materials, the adoption of low-emissions vehicles or other measures.

Encouragingly, over 55% of organisations monitor their supply chains for sustainability impacts, with most using new technologies to do so. The same proportion is mitigating negative environmental impacts from their supply chain through measures like sourcing locally and adopting sustainable technologies.

But although many organisations are developing more sustainable supply chains, a significant proportion are not yet working towards this goal. Many more are yet to account for emissions across every link of the supply chain – one of several steps that need to be taken if organisations are to meet their net zero ambitions.

“

Australia is really different to the UK and to Europe because we are at the absolute opposite end of most of those supply chains. So, we are at the very upstream. Australia really uses the signals coming from downstream that drive change. So rather than supply chain resilience, I might say supply chain responsivity is very important.”

Dr Emma Aisbett, Associate Director, Research, Zero-Carbon Energy for the Asia-Pacific Grand Challenge, Australian National University



Sunset over the Murray River, South Australia.

“A lot of our supply chains are actually global. We’re not very good at carbon accounting across jurisdictions. We’re used to doing it on a company level or country level. We don’t even count shipping at the moment globally. In the case of green steel, the hydrogen could be made in one place, and steel can be processed in another country and then shipped to another country to be made into something. It’s very complex, and we don’t have the structures for certification.”

**Dr Fiona J Beck, Senior Lecturer and Research Fellow,
Research School of Electrical, Energy and Materials
Engineering, Australian National University**

Stringybark Forest Reserve,
Tasmania, Australia.

BLUEPRINT FOR ACTION

Go beyond visibility to create transparency

Organisations need systems for collecting data on environmental impacts, including the emissions from each activity within their supply chains. This data should be shared across the organisation to help decision makers identify and mitigate negative environmental impacts, and track positive progress over time.

Take an end-to-end approach

Although it can be challenging to monitor every link of globally connected supply chains, there are several steps organisations can take to make their supply chains more transparent and sustainable. These steps include incentivising suppliers to reduce emissions, building smart supply chain ecosystems among suppliers and creating more agile and responsive supply chain mechanisms.

Account for every link

The supply chain can be the site of many organisations' most emissions-intensive activities, from raw materials extraction to manufacturing and processing. When measuring emissions across their supply chains, organisations should be able to benefit from the measurement and accounting work done by their suppliers. By incorporating their supply chain emissions into their carbon accounting, organisations can develop a more accurate and holistic view of their cumulative environmental impact.

“

There are digital solutions that are absolutely necessary for supply chain transparency, which is going to be critical as we look to decarbonise our supply chains.”

Wei Sue, System Lead, Sustainable Corporates, ClimateWorks Australia



A paperbark swamp with waterlilies, Northern Territory, Australia.

BLUEPRINT FOR NET ZERO: STEPS FOR A SUSTAINABLE TOMORROW



Decarbonise products, services and operations

- Set clear goals
- Measure and monitor emissions
- Adopt the right carbon accounting practices



Upskill and invest

- Empower the workforce
- Practise bold leadership
- Invest in tomorrow



Connect sustainability to the broader business strategy

- Be transparent
- Collaborate to drive change
- Export sustainably



Account for natural capital

- Take a more holistic view
- Monitor for change over time
- Make measurements more inclusive



Innovate with technology

- Embrace low-emissions technologies
- Become an energy citizen
- Reinvent existing systems



Build sustainability into the supply chain

- Go beyond visibility to create transparency
- Take an end-to-end approach
- Account for every link



Design sustainable infrastructure

- Take a smarter approach to on-premises power
- Use energy more efficiently
- Don't reinvent the wheel

FURTHER RESOURCES

The Australian Government's Technology Investment Roadmap

Read the strategy to learn more about efforts to accelerate the development and commercialisation of low-emissions technologies in Australia. Access it [here](#).

The Australian Government's National Carbon Offset Standard (NCOS)

The NCOS helps organisations reach net zero by setting minimum requirements for calculating, auditing and offsetting the carbon footprint of an organisation or product to achieve carbon neutrality. It provides guidance on what is a genuine, additional voluntary offset. Access it [here](#).

The Business Council of Sustainable Development (BCSD) of Australia

Accelerate your green goals by exploring the resources on offer at the BCSD. The council includes many leading names in Australian business and has a strong track record for action on sustainable development.

The Australian Government's Clean Energy Finance Corporation

Learn about Australia's largest dedicated cleantech investor, backing cleantech entrepreneurs through the Clean Energy Innovation Fund, with \$AU10 billion to invest on behalf of the Australian Government. Find out more [here](#).

The Commonwealth Scientific and Industrial Research Organisation (CSIRO)

Find ways to account for natural capital by exploring CSIRO's resources. CSIRO works with government, industry and communities to assess and account for natural capital such as water, soil, plants and animals. Find out more [here](#).

