



WOMEN LEADING THE ENERGY TRANSITION
OUR BRIGHT FUTURE

HFW acknowledges the Traditional Custodians of country throughout Australia and their connections to land, sea and community.

As an organisation committed to being part of a just and sustainable energy transition, we acknowledge the significance of engaging with traditional owners alongside our clients and community.

Drawing from the profound knowledge of our First Nations people is how we as a society gain invaluable insights on sustainability and long-term impact.



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“The enormity of the energy transition and climate challenge can often seem overwhelming, leaving us wondering how to make significant change... We must keep thinking big and dreaming big and attract high-quality capital to help solve the issues. By adopting this approach, we can really start tackling the challenges in front of us.”

Introduction

Jo Garland, Partner at HFW & leading the firm's Energy Transition projects

“This publication brings together the career paths, perspectives and goals of seven women leaders in energy transition. I hope their stories will spark ideas, ambition and action. Thank you to our wonderful contributors. I am so proud to know such great and leading women.”

We have many remarkable leaders in energy doing great things here in Australia – especially in energy transition and those working hard and innovatively to tackle climate change. And many are women. I wanted to explore why this is, the unique and valuable skillsets and insights they bring and – most of all – how we can continue to inspire the next generations of women to build on this bright decarbonised future.

I'm inspired and energised by the incredible women leaders we have in energy transition. A lot are close contacts, and we also have the privilege of advising many. Working alongside them, we have been exposed to some highly innovative, often the 'first' and consistently the most interesting energy transition projects in Australia.

I started working as a lawyer in private practice some 20 years ago in New Zealand, always gravitating towards the energy sector. In 2010, as a world-first and leading nation, New Zealand was preparing to introduce an emissions trading scheme. I jumped at the chance to pivot from my traditional energy background and work for the Ministry for the Environment to help implement their emission trading scheme from a legal perspective. Re-igniting my climate awareness and desire to be involved in something that drove positive and lasting change, I then moved to Australia, just as the Carbon Pollution Reduction Scheme was about to come in. I was actively involved in preparing clients for its introduction and was disappointed when it was repealed, and Australia turned from a potential climate leader to a laggard.

Despite the political gap in climate action, the solution by private enterprise and driven individuals began to bridge this gap in the form of the energy transition. My team and I focus on renewable energy, decarbonisation projects and new energy technology systems and trials (such as virtual power plants and distributed energy). Smarter, cleaner and more innovative ways to harness technology to meet our energy demands. It's been such a rewarding role, working with talented people internally

and at clients. Working on some of the first – or the biggest. Like a recent properly Indigenous-owned East Kimberly Clean Energy Project, and Project Symphony, one of the first and most ambitious virtual power plant deployments, with substantial ARENA backing.

In recent years, I have been thrilled to see a convergence of both energy transition and climate policy. Projects being approached with stronger whole-of-life climate considerations, leading to more holistic solutions.

So, I wanted to bring some of the leading women in energy transition, climate and science together to hear about their careers, the ways in which their roles are contributing to the energy transition, ideas they have to better promote diversity and their advice for others considering this career path.

Through speaking to these wonderful women, there have been different career paths taken. But there have also been common themes:

- Taking a seemingly unconventional role.
- Being brave.
- Saying yes to an opportunity that came from left-field.
- Valuing the ideas of others.
- Sharing stories.
- The power of collaboration.
- Seeking the unique perspectives of women and people with diverse backgrounds.

It is no coincidence that so many women are doing remarkable things in energy transition. It's because of these diverse perspectives, inclusive mindsets and different lenses that we are seeing great successes in this sector.

Brigette McDowell from Cheeditha Energy said it best: 'the planet is screaming for nurturers, and women are typically natural nurturers'. Women don't need to emulate traditional roles or skills to add value to energy transition – we need to be ourselves.

I could quote the remarkable women we spoke to all day here, but another sentiment that resonated with me as a lawyer was from Natalie Drew, the Legal and Commercial Manager at Yara Pilbara. That our role as lawyers is designed to manage risk. To mitigate it. To

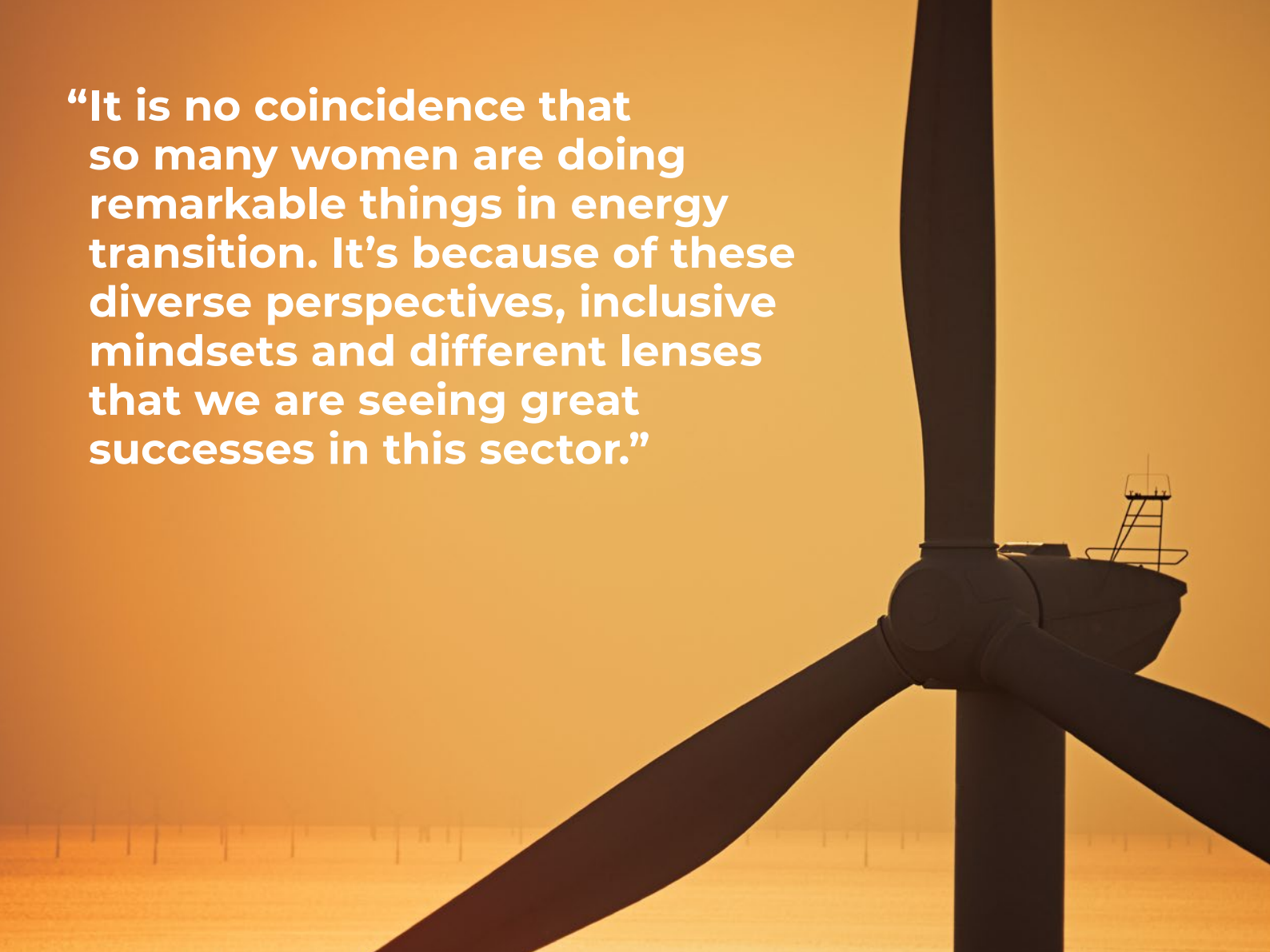
“It is no coincidence that so many women are doing remarkable things in energy transition. It’s because of these diverse perspectives, inclusive mindsets and different lenses that we are seeing great successes in this sector.”

spot red flags. But the greater risk is not embracing green energy. The risk of not throwing new ideas into the mix and trying new and innovative (and often unknown) paths is the greater risk to the world.

The very nature of energy transition in many ways is about ‘new’ and ‘firsts’ – but it also isn’t. It is often actually going back to what our First Nations people can teach us about a fair, equitable and sustainable transition. So, it was pleasing to know all our leaders look to traditional owners for their knowledge, insights and their opinions.

And a final theme that emerged from these interviews is the talent and technology we have in energy transition here in Australia. We interviewed women leaders in utilities, oil and gas, hydrogen, solar, Indigenous-owned businesses, start-ups and social impact organisations, NFP and financiers. What everyone is working on is cutting-edge, often the first-time done, making a big difference and always with such potential.

So, while I hope people from all walks of life, all parts of the world and from different training feel inspired to explore a career contributing to the energy transition, I also hope for businesses to see the ideas and innovations shared.



Stephanie Unwin

CEO at Horizon Power

Stephanie Unwin, a lawyer turned energy trailblazer, has embarked on an extraordinary career journey with leadership roles across the energy and research sectors. Not only does she sit on a number of Boards, including ARENA, Energy Networks Australia and the Energy Advisory Group for CSIRO, she is also CEO of Horizon Power. As leader of Western Australia's regional and remote energy provider (the world's largest service territory!), Stephanie faces the complex task of balancing the demand for affordable and reliable power with a commitment to cleaner, greener solutions. Guided by a deep sense of responsibility, unwavering innovation and a drive for positive impact, Stephanie and her teams work hard to ensure everyone can have access to the benefits of renewable energy, wherever they live in WA.



I've been in the CEO role for four years and I really do love my job. There's a real sense of purpose that drives and connects us to our customers and the community every day.

Yes, we've been asked to deliver safe and reliable energy – but it's our commitment to making it cleaner and greener that energises us. And at heart, I'm an energy transition nerd, so I get to play in a role that brings me joy every day.

I'm proud of many projects. One milestone that stands out is my involvement in the first solar farm in the Southern Hemisphere a decade ago. It was 10 megawatts – this seems so small now – but it marked a turning point and set the stage for the sector's growth.

Energy equity, no matter where you live


I'm passionate about energy equity. Transitioning to renewable sources – and the savings achieved – shouldn't just be for those who have their own rooftops to install solar. It creates a barrier for renters and those in social housing. Our team developed a product that allows renters and hardship customers to tap into a centralised solar farm subscription. It's about to be launched and will bring tangible benefits to those who need it most. We would like to take it further and apply it to remote communities like in the Dampier Peninsula and hope customers can experience energy bill savings of around 10 per cent.

Innovation for a renewable nation

At Horizon, we strive daily for a balance between reliability and sustainability. It's relatively easy to provide reliable energy with centralised energy systems when demand is constant and predictable. Challenges arise when managing multi-directional systems with many contributing energy sources. We bring everything together in a distributed energy management system, using weather forecasts and available generation, big and small. It's not always perfect, but it's pretty good and is only getting better. That's how we achieve energy transition – using our smarts so every source can contribute and play its role.

Fuelling the future with hydrogen

We recently commissioned a demo plant for green hydrogen in Denham. Globally, there are loads of plans but not many have been developed. So, to build it has been exciting. The location is close to our operating depot, so we can experiment and play with it. We've built an oversized solar farm that supplies green energy for electrolysis. Then we compress it, store it and distribute it when needed.



We need to resolve storage for successful transition – it's a challenge everywhere. Lithium ion batteries are excellent for short-term storage. But we need to explore other technologies to address days of storage and intermittency. We believe hydrogen can be one of the answers.

A sensible – and swift – move to power

I'm proud of the electrification work in Esperance. When the incumbent gas company could no longer provide commercial supply – and gave customers exactly six months warning – the State Government asked us to help the community transition to an alternative energy source. Through a human-centered design process, we engaged customers, worked with trades, covered costs and made the transition happen for the effected customers.

A full knowledge sharing report will be made available later this year, including case studies with bill and emissions savings.

This is a great example for others wanting to move away from gas sensibly, carefully and alongside gas and energy experts. With the added bonus of dollars savings for customers.

Powering diversity with gender, disability and cultural focuses

Diversity is vital in our sector, and we have made progress in attracting women engineers and apprentices who align with our clean and green values and purpose. I'm pleased to see the number of women joining our ranks.

“Skills in energy transition have evolved significantly. Sometimes you can feel things move slowly and then suddenly change is upon us and you need to brace yourself.”

I'm focused too on how we now look to people with disabilities across all aspects of our business. Creating opportunities for a diverse workforce to contribute to and thrive in our amazing workforce is a priority.

Our First Nations people drive all our decisions and projects. We've worked hard to unlock changes within our business that draws on cultural intelligence, partnerships, employment opportunities and community initiatives. It's important our workforce intimately understands the land we walk on. Around 15 per cent of our customers are Aboriginal and, in some communities, its closer to 100 per cent. It's our

responsibility to contribute to all our communities respectfully and positively.

Cultural awareness and landscape stewards

Australia's vast landscapes present unique opportunities for wind and solar energy production at scale. However, we need to be mindful of the impact on our precious flora, fauna and biodiversity.

We must be careful guardians of our landscapes, and we can do that with R&D. Getting better efficiencies from our solar panels, for instance, could see us using a third of the footprint with greater the output. Look at the technology around concentrated solar thermal. If we can get it at scale, we'll get more and store it longer. This is how we can be less invasive on our landscapes and achieve our climate change targets.

Essential skills for a sustainable, successful future

Skills in energy transition have evolved significantly. Sometimes you can feel things move slowly and then suddenly change is upon us and you need to brace yourself.

Engineering is no longer about static systems. Instead, it's orchestrating many parts of a diverse and dynamic framework. Adaptability, being comfortable with ambiguity and uncertainty, and the willingness to take leaps of faith have become crucial qualities. We need people who understand how to integrate different energy sources, set protection settings and ensure reliability in the face of changing conditions. Take batteries for instance. How can we scale it? How do we integrate it? What happens if it's too hot? What other conditions should we try? We need those who can implement protection systems, spot issues and work out plans before they happen.

Hydrogen is its own skillset and we've invented it along the way. It combines understanding, practical integration, navigating complex regulatory environments, spotting the risks and navigating around them.

We also need experts in data and cyber. Those that can unlock the power of data we have and translate them into actionable insights to drive decisions. Disasters will inevitably occur, but our ability to recover and bounce back is crucial.

I look forward to supporting and seeing how we step up our innovation. We're such a smart country and have so much we can harness for a global impact. Look at green iron and green steel. We export the ore, but there are opportunities to value add to it even more. By using the tech we have and deploying it at scale using hydrogen, we can move a bunch of carbon economy roles to the new economy. As a country, we'll be unstoppable.

Natalie Drew

Legal and Commercial Manager at Yara Pilbara

Natalie Drew is a corporate lawyer turned in-house professional with a diverse background working across resource organisations, from oil and gas to mining. Now as Legal and Commercial Manager for Yara Pilbara, she brings her passion for climate action to this global ammonia-producing company. With projects operating out of the Pilbara, the mineral-rich region in Western Australia, Natalie's role sees her looking to the horizon to navigate uncharted – and often not-yet regulated – terrain, but also contributing to the goal of securing global food supply in a sustainable way.

There are so many reasons I enjoy my job. I head both the legal and commercial functions for Yara Pilbara, and I'm also Company Secretary for our JV and three Australian subsidiaries. I work with all parts of the business, and no two weeks are the same.

Beginning in private practice as a corporate lawyer, a turning point was a secondment to a lithium mining ASX-listed organisation. This led to an in-house role in oil and gas, before coming to Yara Pilbara in 2021.

Yara Pilbara is part of Yara International, a global crop nutrition company. Yara Pilbara operates in the Pilbara region of Western Australia and utilises natural gas to produce ammonia, which is the key ingredient for fertilisers used in agriculture. We're dedicated to minimising our carbon footprint with green ammonia, innovative technologies, carbon capture and storage, and other decarbonisation initiatives.

Building a sustainable future – now and in the long-term

Yara's projects run to a range of time frames, as we are focused on immediate-term emissions reductions as well as longer-term viability.

For instance, I predominantly focused on Project Yuri when I started with Yara. It's dedicated to the development of green hydrogen and green ammonia – one of the only industrial-scale plants in development globally. It's a pilot project with a solar panel array and a 10-megawatt electrolyser. The plan is to tie the project into Yara's existing ammonia plant in Karratha, serving as a good proof of concept. Construction is underway with our partners ENGIE and Mitsui.

Carbon capture and storage is part of our short- to medium-term planning. Decarbonisation in the ammonia sector is challenging, as ammonia production is a hard-to-abate sector. So, we need to capture and sequester these emissions. We're fortunate that our ammonia production process generates a clean CO₂ source, ideal for carbon capture and storage.

And looking ahead, we've just been allocated land in the Maitland industrial estate by the WA Government. This is exciting as it helps us work towards our medium-to-long-term plan of establishing a large-scale green ammonia facility.

So, a lot happening!

Safeguarding risk when pushing boundaries

Being a lawyer in an innovative business is interesting. It's a complex and global landscape to navigate. Yara International has set ambitious, voluntary climate targets and, in Australia, we have the Safeguard Mechanism reforms which have recently come into force. This will require large industrial facilities like ours to control and reduce greenhouse gas emissions.

There are some other developments that are yet to be finalised – like the certification of low and no carbon products. The market outlook for green and blue ammonia and other products is also difficult to predict. While we wait, these uncertainties can create commercial risk.

However, when weighing this all up – the risk, the regulation, the targets – the greater risk is not embracing decarbonisation. Conventional ammonia production relies on natural gas as its primary feedstock, whereas green ammonia production utilises renewables. Moving away from a reliance on fossil fuels would mitigate our climate impact, and also improve our energy (and importantly food) security. It's complex but we need to forge ahead – the risk is too great if we don't.

Solving global problems with diverse minds

To achieve transformational change – like energy transition – we must break away from the status quo and embrace creativity. We need a wide range of perspectives and ideas. We also need diverse interests represented in decision-making bodies. Global energy transition is the key to our shared future on a global scale. We can't have a small number of people making decisions that will impact the entire world.

If Australia is going to become a renewable energy superpower, we have to improve upon the way we have done things in the past. A notable example is the important change in attitude towards Traditional



Owner consultation since our previous mining booms. We must meaningfully engage with all key stakeholders to ensure a just and equitable energy transition for all.

My personal journey navigating diversity challenges

I have often found myself in industries and roles where I'm the only woman, the youngest, or have a different cultural background to everyone else in the room. The sense of being different can lead to imposter syndrome. This can be amplified by a personal tendency towards perfectionism – which is me as well!

One helpful approach to combat these feelings is to seek inspiration from diverse leaders who share their own experiences with imposter syndrome. Also, recognising that the critical voice in our heads may not always be the best judge of our abilities. Building a collection of positive feedback is really powerful – for me, this is saving a folder of positive feedback and emails that I can revisit on those challenging days.



Unlocking Australia's competitive potential

We have immense potential for gaining a competitive edge globally with critical minerals. For example, we're fortunate to possess world-class lithium resources, yet we have limited downstream capabilities which means we rely heavily on other countries for chemical processing and battery manufacturing. By improving the downstream sector, we can position ourselves as a leading player throughout the critical minerals value chain.

“To achieve transformational change – like energy transition – we must break away from the status quo and embrace creativity. We need a wide range of perspectives and ideas.”

We also have significant opportunities in the manufacturing of solar panels. Increasing our Australian onshore capabilities will not only address global supply chain bottlenecks, but also help to ensure ethical workplace conditions.

Lastly, the emerging markets for clean hydrogen and ammonia present outstanding potential for investment and growth. Australia is well-placed to supply customers in Asia and, with ongoing support from Australian governments, we can position ourselves as a leading producer and exporter of clean hydrogen and ammonia.

Starting out

For those who want to get into sustainability roles and make their mark, my advice is to seek out roles where you can make a meaningful contribution to climate action – there are lots of opportunities! This may lead you to sectors that are commonly tied to sustainability, like non-profit organisations, government agencies or renewable energy companies. But some of the best opportunities lie in sectors that are traditionally harder to decarbonise. These are the teams that are tackling complex problems and have the potential to make the most significant difference in reducing environmental impact. Embrace these challenging fields, contribute to finding innovative solutions, and drive real change.

Surena Ho

Senior Commercial Manager at Osaka Gas

Surena Ho, an accountant by trade, loves to apply her financial know-how to future-focused projects within the future fuels industry. Surena works for Osaka Gas, one of the largest natural gas utility companies in Japan, and a business with more than a century-long history. With a delicate balance of safety, soundness and sustainability, she helps lead the charge towards energy transition while navigating the challenges of modernising traditional infrastructure. Surena is energised by the power of collaboration and embracing the unique strengths of every participant to propel the energy transition towards success.

I'm a Senior Commercial Manager at Osaka Gas. I have an accounting background and a drive to understand how accounting is practiced across various sectors. I've focused on financial and management accounting in agriculture, manufacturing, mining, oil and gas, hospitality and consulting. An interest in strategy and analytics drew me to Osaka Gas. I initially focused on M&A and operational projects, but soon knew I could add most value in long-term vision and strategy work.

Now, I lead business development initiatives, execute strategic plans and pursue opportunities in future fuels, renewables and carbon offsetting.

Osaka Gas values Australia's richness in renewable resources, like our sunlight and wind capacity. And Australia is close to Southeast Asia – another plus. By utilising hydrogen, or a form of a hydrogen compound, as a transportation medium for the electrons we generate, Australia can supply renewable energy to countries like Japan, Korea and Singapore. These countries generally have an inability to produce the renewables at the same level as Australia, due to having less land that can be used for large scale renewables.

There's so much potential for renewable energy in Australia and I love working on these projects.

A glimpse at Osaka Gas's renewable projects

We have some exciting projects underway. One of our most recent acquisitions was AI Carbon, which is focused on human-induced regeneration projects and the development of carbon offsets.

“I'm really excited about the idea of a think tank that brings everyone together, from different industries and all along the value chain and to have open discussions about the challenges we face. It's important for, say, producers to understand the infrastructure changes that end-users need to implement for their new products.”

Another project we're working on is a collaboration with Santos. We're conducting a feasibility study to explore the possibilities of producing e-methane from green hydrogen in Australia to export to Japan and other markets. In addition, my focus is on e-methane projects in Australia, specifically in partnership with ATCO. We're in the pre-feasibility stage, evaluating the potential for a domestic e-methane project. Unlike the Santos project, which is geared towards exporting e-methane, the ATCO project caters a domestic market.

The role of e-methane for resilient energy transitions

Perhaps not a lot is known about e-methane and why we see e-methane as part of our transition path. E-methane is synthetic methane and combines existing or recycled CO₂ and hydrogen.





Our existing infrastructure heavily relies on fossil fuels. So, a transition to a hydrogen-ready gas network in the immediate future is difficult. For us to maintain the same product we need to change the upstream side, rather than extracting fossil fuels or drilling for gas. This benefits both our infrastructure and customers' infrastructure. Our customers don't need to make any changes to accommodate for our changed product but are still able to participate in decarbonising their operations.

Seeing e-methane as a transitional step, we keep the possibility open for a future switch to hydrogen if it becomes more cost-effective and the infrastructure aligns. We're not saying e-methane is the solution, but part of it.

Collaboration transcends siloed approaches

Generally, the future fuels industry has many siloed solutions. We need diversity and collaboration, as well as open-mindedness when considering the entire value chain.

We've seen a lot of positive change recently. Flexible working due to COVID-19 created a new workforce in the future fuels industry. We need to continue this collective effort involving producers, users, manufacturers – and all stakeholders, especially governments. Governments have an opportunity to bring businesses, communities and grassroots together, and support innovation and not just subsidise projects. Meaningful progress requires discussions involving all genders, cultures, races. But diversity also means involving all operational and commercial aspects – even finance.

I'm really excited about the idea of a think tank that brings everyone together, from different industries and all along the value chain and to have open discussions about the challenges we face. It's important for, say, producers to understand the infrastructure changes that end-users need to implement for their new products.

It'll get busy and loud, but I truly believe that we need this level of cross-industry collaboration to find holistic solutions and make huge progress.

Artificial Intelligence's impact on the energy sector

AI has so much potential within the sector. Decentralisation and AI can optimise energy distribution where it's needed most. And exploring decentralised approaches will help us to develop microgrids and virtual power plants, supporting energy management and delivery.

AI can help us create knowledge databases and user footprints, predicting better consumption patterns and user maps to build targeted infrastructure plans.

There will be challenges – like IP concerns – but AI offers massive possibilities to fast-track growth. It's exciting.

Women redefining energy

The increasing number of remarkable women in the energy transition is really great to see. Women hold unique abilities to adapt to and thrive in uncertainty, and I think it's these qualities that the energy transition calls for. COVID-19 allowed more women to showcase increased flexibility with efficiency, which aligned with the ongoing energy transition.

“I'm inspired and energised by the changes we're seeing and am motivated to contribute to shaping – and being – a role model for women by being what I wanted to see more of in my early years. Empowering women, changing dynamics and promoting genuine equality will drive not only an inclusive energy transition, but a successful one.”

Diversity in the industry must be inclusive for all and goes beyond gender. However, women in this industry are in a unique position to raise their voices, advocate for women's needs and re-shape the industry's future. We don't need to hide our home lives and family commitments or attempt to emulate the way men have traditionally operated. We can demonstrate that productivity should be measured by outcomes and results.

I'm inspired and energised by the changes we're seeing and am motivated to contribute to shaping – and being – a role model for women by being what I wanted to see more of in my early years. Empowering women, changing dynamics and promoting genuine equality will drive not only an inclusive energy transition, but a successful one.

Kirsten Rose

Executive Director: Future Industries at CSIRO

Kirsten Rose is the Executive Director: Future Industries at CSIRO, Australia's national science agency and is currently acting in the Chief Executive role. With a career spanning the USA and UK, Kirsten has brought her experience to Australia to lead teams tackling some of the country's greatest challenges. From harnessing Australia's abundant natural resources to drawing inspiration from unexpected sources like the electric eel, Kirsten and the CSIRO team's creativity knows no bounds when working towards a brighter future.

At CSIRO, I lead our agriculture and food, health and biosecurity, manufacturing, animal health and Science Connect teams, who support our engagement with industry, government and society. I wear two hats: an executive guiding our strategy and investment, and overseeing day-to-day operations. I lead around 2,400 research, science and education professionals and manage half a billion dollars of science investment annually. My teams work closely across CSIRO's other areas of expertise, including in energy, which pervades every aspect of our work.

From USA and UK... to Australia

My career's taken a winding, less traditional path to end up in this sector, because I am not a scientist or engineer.

In the first half of my career, I worked in professional services and technology across the USA and UK.

The second half has been focused on energy, climate, sustainability and innovation in Australia.

I'm inspired by purpose-driven organisations. So, to have a leadership role at CSIRO has been incredibly fulfilling over the past three years.

A snapshot of some innovative initiatives

It's hard to pick just a couple of projects to share. CSIRO focuses on applied and translational science. We take innovative ideas from the lab and make them useful to industry. I'm a believer in the power of technology and science for solving Australia's greatest challenges. We also have a strong focus on climate change and sustainability.

For example, I'm excited by our recent Renewable Energy Storage Roadmap. It explores the necessary infrastructure for storing energy effectively.

We also have multiple missions underway, bringing together various ecosystems, including academia, industry and research institutions to address significant environmental challenges. One is our Hydrogen Industry Mission. This underpins the development of both domestic and export markets for hydrogen. We also have the Toward Net Zero Mission, focused on energy transition pathways, particularly for the hard-to-abate sectors.

We work extensively across many energy sectors, including in Carbon Capture, Utilisation and Storage, research and the hard-to-abate industries. One fascinating pilot involves a low-cost and low-energy chemical system for direct air capture, removing CO₂ from the atmosphere. It's modulable and scalable so we're excited about its potential.

Energy innovation fuelling every industry

We know the significance of energy issues relating to transition, climate adaptation and mitigation. And how energy can serve as both a risk and an opportunity for all industries. We approach all challenges and ideas from the perspectives of different sectors. For instance, agriculture and farming is navigating a future where diesel may no longer be an option, there's methane emissions to manage, and a need to adapt to changing climate patterns in cropping systems. Matching that with science, our teams are looking at genetic modification of crops to enhance climate resilience, and engineering oilseeds to produce more efficiently.

“We always have a broad outlook for ideas, including for energy storage solutions. One team is looking at – believe it or not – eel batteries. It's part of our horizon projects – those that are possible, but still a bit out of the box.”

Revolutionary ideas inspired by nature's wonders

We always have a broad outlook for ideas, including for energy storage solutions. One team is looking at – believe it or not – eel batteries. It's part of our horizon projects – those that are possible, but still a bit out of the box.



The electric eel has a remarkable capability for storing and releasing energy. The team is looking at how we can mimic this natural system for bio-batteries. Can we replicate with 3D printing, or lab-grown technologies? We intersect diverse fields and explore unconventional avenues.

The power and synergy of diversity

The relationship between innovation and diversity is truly symbiotic. CSIRO places great value and focus on fostering a diverse workforce that encompasses a wide range of perspectives and experiences. We take huge pride – and see real success – in embracing diversity, including diversity of abilities, cultures and languages.

We acknowledge and honour the contributions of Indigenous communities too, and their ideas and knowledge. Our First Nations people are Australia's first scientists.

We have set an ambitious, yet achievable, recruitment plan to attract talent from all walks of life. We aspire to be an employer of choice and firmly believe that diversity is critical to our success. Our impact wouldn't be possible without the inclusion of diverse minds.

Energising the future by supporting STEM

The energy sector can still be somewhat male-dominated and engineering-focused. Yet the energy transition is a very purpose-driven pathway that appeals to younger generations. To attract diverse candidates, we must emphasise the importance of this purpose, along with skills they need to build to make an impact. We'll always need great engineering minds and electrical systems experts. By highlighting our purpose and the opportunities early on – particularly to STEM students – we can inspire them to pursue renewable energy careers.

Boosting Australia's competitive edge

Australia holds a unique advantage that sets us apart. We have abundant resources in wind, solar, marine, and geothermal energy. We must continue to capitalise on this advantage. Other countries are progressing rapidly in energy reduction and transition, so we must quickly and strategically develop our industries in this area. We're at a pivotal moment to seize this competitive edge. By harnessing and maximising our renewable energy potential, we can position ourselves at the forefront of the global energy transition and propel our industries to great successes internationally.

The power of saying 'Yes' to unconventional career paths

When it comes to career decisions, think carefully before saying 'no'. Often taking a calculated risk can lead to transformative experiences. I said 'yes' to what was potentially a risky job in clean tech early in my career. It was a turning point for me, and I'm so glad I did.

So, before saying 'no', take a moment to weigh the potential benefits. Be open to taking considered risks. It may lead to life-changing experiences.

“The relationship between innovation and diversity is truly symbiotic. CSIRO places great value and focus on fostering a diverse workforce that encompasses a wide range of perspectives and experiences. We take huge pride – and see real success – in embracing diversity, including diversity of abilities, cultures and languages.”



Brigette McDowell

Chief Executive Officer at Cheeditha Energy

Brigette McDowell has taken her decade-long experience in renewable energy to the Pilbara in Western Australia, where she co-founded Cheeditha Energy alongside the Cheeditha community. This female-founded Aboriginal business designs and installs solar projects and other energy saving programs. There's a lot to be learned from this organisation. Their vision – which looks out to some 1000 years ahead – creates long-term opportunities for the people of Cheeditha and their business partners. Drawing from the profound knowledge of our First Nations people, Brigette has contributed to the development of this distinctive, sustainable and commercially-viable model, empowering the community to achieve financial independence.

The beginnings

I co-founded Cheeditha Energy with the Cheeditha Community in 2018. The community is made up of around 100 people living outside of Roebourne at Mount Welcome Station. They've been there since they were displaced from their land in the late 60s and early 70s. The community owns 400 hectares of freehold land in the heart of the Pilbara and don't receive any government support.

“Having been involved in renewables for almost a decade, I now have this grandiose vision. I've moved beyond renewables and now look towards the ultimate goal of regeneration.”

The community has experienced significant challenges, socio-economic issues and found themselves in a position of hardship. When I was introduced to the community, they shared their wish to start a business and to commercialise their land. I initially joined as the general manager, and eventually transitioned to CEO.

At first, we planned to build a solar farm but, due several factors, we started as a rooftop solar company.

Like any business, we've faced numerous typical hurdles. But being a female-founded Aboriginal business in an emerging market in the Pilbara, we've had to overcome even more challenges.

A 1000-year mindset

I've learnt so much from the Aboriginal people I work with who are so deeply connected to their culture and land. I now step back with everything I do and apply a 1000-year mindset. Many people think about the impact they can make within the scope of their own careers or project life cycles. Aboriginal people have a much broader, longer-term view.

We can all learn from this outlook, especially during the energy transition. We can see the negative impact of not adopting this perspective – such as clearing biodiversity to build renewable infrastructure. I truly value this unique learning experience.

A powerful partnership to learn from

Recently, we established a joint venture with a company called Triodia, a 100 per cent Aboriginal-owned and operated civil and rail maintenance company. It's a collaboration that combines our renewable energy expertise with their civil work capabilities.

Our JV is based in Kalgoorlie, and we undertake projects across the state. Our mission is to become the largest regional solar installer. Also, we're actively involved in off-grid portable solutions, which is an exciting area of focus for us.

Like any group, the Aboriginal groups we work with have different aspirations, demographics, capabilities and drivers. For instance, Triodia sought a business partnership that would empower them with the necessary capabilities to perform the work themselves. On the other hand, Cheeditha Energy aimed to leverage our land to establish a commercial venture and achieve independence. These aspirations may differ, but they both present remarkable opportunities for each group. It's important to actively listen to all our stakeholders. This has been a very successful and beautiful partnership because of that.

From renewables to regeneration

Having been involved in renewables for almost a decade, I now have this grandiose vision. I've moved beyond renewables and now look towards the ultimate goal of regeneration.



Whenever we embark on a renewables project, I consider its outcomes at the end of its life cycle. Will there be opportunities for recycling? What will the condition of the land be? Will the biodiversity remain unspoiled, or will rehabilitation be needed? Can we optimise land usage by tweaking panel spacing or raising them?

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Unfortunately, we see a lack of attention to this in the Pilbara. It’s why I established my own consulting company. I worry that in our keenness to achieve the fastest route from point A to B, we may cause more damage than benefit. This is why a 1000-year outlook is so important.

Natural nurturers and a sustainable culture

Diversity is not only essential, the world is demanding it.

The planet is screaming for nurturers, and women are typically natural nurturers – we look at projects with empathy. That’s why we must encourage and support women’s involvement in this area.

Also, our First Nations people have a deep connection to the land and understand the importance of biodiversity for the long-term sustainability of the planet. Their insights and knowledge are invaluable to us. Aboriginal people represent sustainability after all. They have sustained their culture for over 60,000 years.

Empowering international Indigenous communities

Globally, we can learn many lessons from Canada – they are 10 years ahead of us and have become a remarkable example for engaging First Nations in renewable projects. Also, many countries are technologically more advanced than us in the renewable sector, so there’s potential for growth and innovation.

I’m also inspired by the successful implementation of land co-use practices seen internationally. It isn’t just about electrifying a country. It focuses on regenerating the soil and vegetation. This should be our focus, where we open the eyes of project developers about the risks involved. Maybe not immediate risks to their generation, but a risk to their kids’ generation, definitely.

Career advice – be guided by the fire within

My career took a turn when my sense of purpose outweighed my self-doubt. I’d witnessed something profound, and I couldn’t turn a blind eye to it.

Renewables cannot exist in a silo, and we need experts who take a more holistic approach. We need people who are brave enough to challenge a capitalist mindset. To start the conversation early in new developments so we don’t consider renewables at the umpteenth hour.

If you have that burning passion in your belly, it will drive you forward, even when there are sleepless nights and hurdles. There are so many opportunities to contribute and to make a meaningful impact.



Gina Bozinovski

Managing Director and CEO of LINE Hydrogen

Gina Bozinovski's career path has been far from conventional, and it's a road she encourages others to embrace. With three unique careers under her belt, including working for a former Prime Minister and in law, she is now Managing Director and CEO of LINE Hydrogen. Her leadership drives the organisation's goal to revolutionise large-scale hydrogen production and distribution in Australia and they have their sights set on the world.

LINE Hydrogen is an incredibly innovative organisation, where we're simplifying hydrogen and its production processes, and closing the loop between producers and end-users. One of the most exciting parts of my role is being at the forefront of the energy transition and driving change not only in Australia but globally, driving ground-breaking projects.

Each day brings new and unique challenges, much like when I was a lawyer. There's a lot of good training when you're a lawyer for being a CEO. The days are all different, and you need to always think creatively about solving problems and delivering solutions. Project work is complex and non-linear, so you have to have the ability to respond quickly while maintaining the longer term objectives.

“I think we need to do more work to increase the representation of women and other diverse communities in STEM fields. We must focus our efforts on encouraging, promoting and supporting women engineers. Renewable energy represents a shift away from traditional thinking. The whole regime is unconventional. So, we also need unconventional thinking and different perspectives to contribute to its success.”

You could say that this is my third career. I started out working for Paul Keating when he was Prime Minister in his office at Parliament House straight out of university. It was an extraordinary opportunity and training – it set me up for a legal career and my current role too. I spent several years in politics and global communications before pursuing law. And I did this a bit in reverse order too, starting in-house before moving into private practice. There I led the corporate law practice in Brisbane. I have always been drawn to corporate law and the thrill of being involved at the coalface of deals and M&A across various industries.

Brendan James, the founder of LINE Hydrogen, and I crossed paths through his mining ventures. Supporting him through parts of this, he then invited me to join the mining operation and then LINE Hydrogen.

Hydrogen – the power of energy carrying

Hydrogen is often misunderstood. It's not an energy source itself – it's an energy carrier, with the fundamental role of diesel fuel replacement. By capturing renewable energy in hydrogen, we can power various vehicles and machinery that currently rely on diesel or other fuels. Take heavy vehicles – the transport industry contributes around 20 per cent of our greenhouse gas emissions. Each litre of diesel releases 2.68 kilos of CO₂ directly into the atmosphere. Match that with Australians' use of 84 million litres of diesel per day, and the contribution to green house gases is substantial. We're focused on hydrogen adoption for heavy vehicles, and our George Town project in Tasmania is a testament to its success. The production of 1.6 tonnes of green hydrogen per day is equivalent to powering around 22 heavy vehicles on a standard 24/7 operation. The potential for wider applications is enormous.

Expanding horizons

We just reached a momentous milestone in receiving the development approvals for our site. We're the first hydrogen project in Tasmania to receive DA approvals! I also believe that we're the first diesel replacement project to receive approvals in Australia. It's a testament to our vision, our strategy and our ability to deliver. Our strategy and approach is further supported by the recent announcement of our proposed listing on the London Stock Exchange (LSE) through a reverse takeover of Net Zero Infrastructure PLC (NZI). NZI is a Special Purpose Acquisition Company, dedicated to identifying growth companies. Listing on the LSE opens up the world to us, which is vital for raising capital and expanding into overseas markets.



Embracing the multifaceted dimensions of diversity

I think of diversity in this sector in a couple of ways – diversifying what we do and achieving this with diversity.

There isn't a single solution that can address all our energy needs – we need to diversify. For the past 150 years, coal has been the dominant energy source, despite its inefficiencies. It's time to embrace a diverse range of energy solutions. This includes wind, solar, battery backup systems, electric vehicles and hydrogen. Each of these options play a role in delivering energy solutions into the various sectors, such as power generation, transportation, diesel fuel replacement. Transitioning to new energy sources will come with challenges and bumps in the road, but it's a necessary step toward a sustainable future. It will also take a collaborative approach through partnerships and leveraging each strengths. It's a significant transition to a new energy solution and new way of thinking and by working together we will achieve this – the sum of the parts will be greater than the whole.

“By continuously seeking knowledge, stepping out of your comfort zone and being receptive to new ideas, you can unlock exciting opportunities, expand your horizons and contribute to positive change in your field.”

Secondly, I think we need to do more work to increase the representation of women and other diverse communities in STEM fields. We must focus our efforts on encouraging, promoting and supporting women engineers. Renewable energy represents a shift away from traditional thinking. The whole regime is unconventional. So, we also need unconventional thinking and different perspectives to contribute to its success.

I strongly encourage women engineers and individuals from diverse backgrounds to step forward, embrace this unconventional path – and, honestly, to get in touch.

Starting out – take the risks!

I wouldn't limit this advice to early career lawyers, but to all in any field. Stay open to learning, take risks, and embrace new ideas. By continuously seeking knowledge, stepping out of your comfort zone and being receptive to new ideas, you can unlock exciting opportunities, expand your horizons and contribute to positive change in your field.

I understand that that can sometimes take an enormous leap of faith without a safety net. My move to LINE Hydrogen – from a stable role in corporate law – was a risk but it is now the most rewarding, challenging and extraordinary opportunity of my career.

Sometimes you've got to take the risk and jump because you'll never know where you'll land if you don't.



Antonia Peart

Investment Director at C-Quest Capital

While her days are focused on capital raising, financing and investments, Antonia Peart from C-Quest Capital is not your typical investor. Antonia's investments focus on funding carbon asset projects that serve two purposes: the empowerment and social mobility of women in the least developed countries and tackling climate change. These projects operate as a catalyst. They help the environment at the outset, but they also enable vulnerable women, who bear the brunt of climate change risk, to reclaim their time, improve their health, and foster lasting socio-economic impacts. Antonia and C-Quest Capital show how grassroots programs can have a profound ripple effect on the environment, families, communities, countries, business partners and the world at large.



In my role as Investment Director at C-Quest Capital, I focus on raising capital for our carbon reduction and removal projects. What sets us apart is that we focus on empowering women through these projects. Our projects not only combat climate change but also improve the lives of women in developing countries.

I wasn't always in the world of capital raising and investments, but I have been around clean energy and addressing climate change in some capacity for a while. I started as a lawyer in London, specialising in global energy and infrastructure and later moved to Australia. It was here that I gained exposure to renewable energy, particularly solar and wind farms. I left private practice and worked for a solar developer, focusing on project development and raising capital for large-scale solar and battery projects. I spent some time in hydrogen development, before coming to C-Quest Capital two years ago.

Over time, I've been inspired by the transformative power of carbon projects in the energy transition – not just the environmental benefits, but also their pivotal role in driving socio-economic development.

Driving emission reductions and empowering change

C-Quest Capital is an award-winning global carbon asset developer and investor. We implement projects that reduce or remove carbon emissions and generate carbon credits. Our global teams operate in over 25 countries across Sub-Saharan Africa, Central America, South Asia and South-East Asia.

We're primarily focused on collaborations with individuals and communities in developing countries. These people – most often women – are the most vulnerable to the risks of climate change, yet they are not citizens of the nations that have largely benefited from industrialisation that has led us to where we are today. These women are real change agents, enabling the behavioural changes that we need to tackle climate change.

What I find most fulfilling about this work is the opportunity to use my skills to drive positive environmental and socio-economic change in these regions. We can make a meaningful difference by helping some of the most underserved and vulnerable communities while also advancing our climate goals. There is a strong shared motivation among our team members, which drives me every day.

Clean cookstoves initiative

Billions of people around the world – predominantly women - rely on open fires for cooking. These open fires emit huge amounts of damaging carbon dioxide into the atmosphere, and they can be harmful to people's health.



Our clean cookstoves initiative involves distributing and installing high-efficiency cookstoves across Sub-Saharan Africa, South-East Asia, South Asia and Central America. These cookstoves not only have significant health and environmental benefits through the reduction of harmful smoke, but an amazing co-benefit is the additional free time they give back to these women. With reduced cooking and wood collection time, they can engage in other activities – for instance, working on small farming plots. This not only reduces carbon emissions, but dramatically improves their socio-economic status too.

“What sets us apart is that we focus on empowering women through these projects. Our projects not only combat climate change but also improve the lives of women in developing countries.”

Our entire business model and mission is around how carbon markets can facilitate an energy transition by involving – and supporting – those from the least developed countries in the world. It’s crucial that we all avoid a scenario where we have advanced technology to remove carbon emissions from our atmospheres, while people continue to rely on inefficient and polluting cooking methods.

Measuring impact and empowerment

At its simplest, we equate long-term success with permanent behavioural changes.

For example, our cookstove projects generally have a 10-year life span, where we can claim carbon emission reductions. If, after 10 years, people revert to using inefficient cooking methods, we see that as a failure. This is why hiring local people from the communities we serve is important in our projects. We train them to support the use and maintenance of the cookstoves we deploy, as well as collect data on how our stoves are being used. This sort of support means we have an exceptionally high success rate and the data to ensure the ongoing success and learnings from our projects.

We also track our impact against external reporting metrics such as the 17 UN Sustainable Development Goals (SDGs), our projects supporting up to 10 SDG’s and we aim for independent verification through Sustainable Development Verified Impact Standards.

A crucial measure of our success relates to how we help our partner companies achieve their emission reduction targets. There is compelling evidence that for companies wanting to manage their emissions, a combination of early action, offsetting and reducing own emissions leads to faster progress towards overall decarbonisation.

We must also ensure healthy and sustainable returns for our partner investors. It’s the way we can finance future projects on a larger scale.

Achieving a greater impact together

Collaboration is at the heart of our work. We rely on the commitment of the communities we work with, as well as the commitment of local implementing partners, be they local businesses or NGOs. We can’t just walk in and hand out cookstoves. These groups are crucial for ensuring effective engagement with communities.

We have not-for-profit relationships, too, like with the For Women Foundation. These relationships play a fundamental role in maximising success, and we contribute a portion of project proceeds to support their community development initiatives, going beyond the benefits of the projects themselves.

My role involves raising external capital from those who want to participate in our projects. Investors help us enhance our programs and attract additional affordable capital for further expansion.

Government collaboration has also become increasingly important as we see the implementation of mechanisms under the Paris Agreement for country-to-country mitigation obligations. This allows us to access carbon financing from other governments and private companies globally, particularly for projects in least developed countries. It’s important to us that governments view our work as beneficial and drive positive changes in their countries.

Reaching our global climate goals with boldness

Figures like Elon Musk – whether you love or hate him – remind us that we must be ambitious and, at times, extreme in order to achieve our goals. The enormity of the energy transition and climate challenge can often seem overwhelming, leaving us wondering how to make significant changes.

When I joined C-Quest Capital, the task of deploying millions of cookstoves in some of the most remote and rural areas of the world seemed daunting. Yet, through a shared vision and resolve, we were able to achieve it.

We must keep thinking big and dreaming big – and attract high-quality capital to help solve the issues. By adopting this approach, we can really start tackling the challenges in front of us.

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Thank you to these exceptional energy leaders for sharing their stories. Their experiences and perspectives are sure to spark ideas, ambition and action. Their extraordinary career paths serve as inspiration, empowering future generations of women to continue to contribute to a decarbonised future with clever, creative and uniquely adept approaches. The outlook is bright.

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