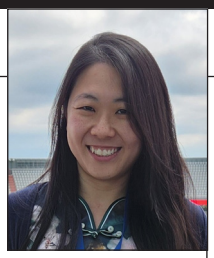
# New Voices in Energy and Carbon Management

**As the energy and carbon management landscape continues to evolve, so too does the workforce driving it forward. In this feature, we explore the energy and carbon management with the newest professionals - those just embarking on their careers in a field defined by urgency, innovation and impact.**

**Whether motivated by a passion for sustainability, a technical curiosity or the drive to make a tangible difference, these early-career professionals offer invaluable insights into the reality of entering, improving and thriving in energy and carbon management today.**

By Esther Chow, Sustainability Officer/Assistant Energy Manager at Newcastle upon Tyne Hospitals NHS Foundation Trust



# Energy Management Through My Eyes: Connecting Engineering, People, Behaviour and Impact

**BACKGROUND AND MOTIVATION**

My journey into energy management has been less of a detour and more of a convergence; where my desire for meaningful work aligned with a growing awareness of how deeply energy is embedded in the systems shaping our world. I began my career in Malaysia, working in healthcare medical devices within clinical environments focused on patient wellbeing. Even then, I found myself asking deeper questions about the systems behind care, the processes we followed and the unintended consequences they brought.

Working on the frontline gave me a close-up view of healthcare's hidden environmental costs. Hospitals are places of healing, yet they are complex, resource-intensive ecosystems. I noticed the volume of packaging discarded during surgeries - layers of plastic wraps, cardboard boxes and single-use tools. Infection control protocols were rightly rigorous, but I questioned whether sustainability had to be sacrificed in the process. Sometimes reusable items sat alongside single-use alternatives with little consistency or clarity. This made me reflect on the balance between risk, safety and sustainability, and who decides where that line is drawn.

These observations marked the start of a systems thinking mindset; I began recognising that everything from procurement choices to staff behaviour was part of a larger ecosystem of decisions and trade-offs. Environmental sustainability is inherently linked to healthcare quality, operational efficiency and even health inequalities. This early exposure gave me a real sense of how technical systems and human factors collide, and how decision-making ripples across environments in ways that are often invisible but incredibly impactful.

Eventually, I stepped away from clinical practice but retained this questioning mindset. Exploring broader structural issues led me into corporate sustainability and Corporate Social Responsibility (CSR), which initially started as side projects that grew to excite me more than my day-to-day role. These initiatives weren't mere add-ons, they challenged core operations, supply chains and stakeholder relationships. The work was strategic and purposeful, requiring evidence, persuasion, negotiation and vision - and I loved it.

To deepen my knowledge and grow my capability in the field, I pursued a master's degree in sustainability, supported by a scholarship that brought me to the UK. Balancing family, work and study was challenging but transformative, sharpening my analytical skills and broadening my understanding of the interconnected levers of change. This experience solidified both my technical understanding of environmental systems and my commitment to making a meaningful contribution.

Now, as a Sustainability Officer/Assistant Energy Manager at Newcastle Hospitals, I see how central energy is to every sustainability conversation, particularly within the NHS. Energy management is more

than a technical necessity; it's a lever for impact, risk management and innovation. I view energy management as a space for cross-sector learning and leadership, demanding systems thinking, data fluency, stakeholder engagement and a commitment to long-term impact. It's where operational detail meets strategic importance and where the opportunity for real change lies.

**EARLY EXPERIENCES IN THE SECTOR**

When I moved into my current role, stepping into energy management was both exciting and humbling. Though I arrived with a solid grounding in sustainability, the specifics of energy systems here in the UK were largely new to me. Coming from Malaysia where energy systems are more centralised, regulated differently and shaped by a tropical climate, I had to quickly learn about gas heating, energy markets and seasonal demand shifts. Joining one of the UK's largest NHS Trusts, with a multi-million-pound energy spend, brought immediate scale and depth to the work.

What's struck me most is the complexity and interconnectedness of it all. Decisions are rarely made in isolation. Even technical projects depend on collaboration and buy-in across diverse teams: finance, procurement, clinical services, infection control and so on. In an organisation as vast and complex as the NHS, engaging these stakeholders is essential.

I'm grateful to be part of a team with national and international impact, surrounded by experts from many sustainability disciplines. It has been a rich environment for learning and growth.

While I'm still building my technical expertise, I've found practical skills like Excel have been invaluable for handling data and supporting reporting. Foundational tools, when applied thoughtfully, can move things forward more than expected.

> ***"Energy management is more than a technical necessity; it's a lever for impact, risk management and innovation."***

My previous experience in healthcare and data management gives me a unique perspective. I understand the importance of bringing the right voices to the table, especially in a sector governed by strict policies around infection control, patient safety, procurement routes and resilience. Energy projects must navigate all of these in order to succeed.

The biggest challenge has been adapting to new systems and ways of working that are standard here but unfamiliar from my background. The volume of data, rapid pace of change and complexity can sometimes be overwhelming. Imposter syndrome is real, especially in such a specialised and technical field. But over time I've learned that asking the "obvious" questions often brings clarity to others too – and that curiosity, humility and persistence are powerful tools for progress.

**PERSPECTIVES ON THE SECTOR**

One of the most misunderstood things about energy management, especially from the outside, is the assumption that it's all about installing shiny new tech. Solar panels, electric vehicle (EV) chargers, air-source heat pumps (ASHP); these are important tools, but they're only one part of the picture.

The bigger, and very often overlooked, opportunity lies in optimisation. It's about how we manage what already exists. Understanding how buildings are actually used, identifying load profiles, drilling down into data gaps and reducing waste — these are some of the most impactful levers we have. Often the real challenge isn't technical, it's about behaviour changes, engagement and bringing people along for the journey. No change happens in isolation.

Energy management, to me, isn't just a technical field. It's a sector rooted in systems thinking, problem-solving and people. What drew me to it, and what keeps me here, is the knowledge that the work we do carries tangible value - financially, environmentally and socially. It is a space where culture, engineering and behavioural science all intersect, making it deeply human as well as highly technical.

That doesn't mean it's easy, the work is multifaceted and intellectually demanding. You don't just need to understand about kilowatts, emission factors or pounds and pence. You need to understand how organisations function, what the barriers to change are and how to turn data into decisions. Sometimes that means navigating legacy infrastructure. Other times it means translating technical engineering language into terms a procurement officer or board director can

understand. Every project seemingly lives at the intersection of strategy, practicality and diplomacy.

Another common misconception is that renewables are a straightforward fix. Solar PVs, for instance, generate the least when heating demand peaks in winter. Wind energy can be intermittent. Energy storage has its own limitations. A resilient strategy requires thinking beyond any single solution - we need a whole-systems approach that considers variability, grid stability and demand-side flexibility. Context matters more than novelty.

What excites me most is how interdisciplinary this field is. My background in biology and healthcare may seem unrelated, but there are clear parallels. In both we're managing complex, interdependent systems that demand precision and adaptability. Nature-based solutions, in particular, really inspire me — from algae-derived fuels and seawater batteries to building designs that mimic or incorporate ecosystems. It feels almost poetic that nature might guide us back to balance.

That said, the sector still has work to do in terms of diversity and accessibility. Many people, especially those from outside the UK or without engineering degrees, have never even heard of energy management as a career path. That is a missed opportunity. Broadening representation isn't just about equity, it's about enriching the field with new perspectives. I've seen how women, in particular, often bring distinct strengths to stakeholder engagement and problem-solving. Representation opens doors and shifts the narrative of who belongs here.

There's also often a disconnect between ambition and capability. Organisations may set bold Net Zero targets, but legacy buildings, budget constraints and misaligned priorities can hold them back. In the NHS, many sites are old, fragmented and difficult to retrofit. Progress relies on aligning people not just systems. We need to frame energy not only as a climate issue, but as a resilience, patient care and operational efficiency issue. Reducing exposure to volatile markets, improving thermal comfort and future-proofing our estates; these are real, material benefits that affect everyday outcomes.

***"Stay curious. Ask questions. Find mentors. Energy management isn't just a technical field — it's a space where logic meets empathy, and where creative thinking is just as valuable as data."***

**LOOKING AHEAD**

Success for me is twofold: impact and advocacy. Professionally, I want to contribute meaningfully to lowering our energy use and emissions. Not in abstract terms, but through tangible interventions that make our estate more efficient, our bills more manageable and our operations more resilient. Personally, I want to play a role in opening this field to others, especially for women and underrepresented groups who may not yet see themselves as part of the energy story.

Over time, I see myself developing into someone who can bridge the gap between technical detail and strategic decision-making; able to speak to engineers, executives and everyone in between who can advocate for both operational efficiency and long-term transformation.

To those just starting out, my message is simple: "don't wait to feel ready". You don't need to have all the answers to take the first step. Stay curious. Ask questions. Find mentors. Energy management isn't just a technical field — it's a space where logic meets empathy, and where creative thinking is just as valuable as data.

While I'm rooted in my current role and organisation, I do see a broader calling to contribute to a global conversation. The UK is doing exciting work in energy management, and I am fortunate to be part of a team that is closely connected to academia, innovation and policy-making, allowing us to shape not just internal operations but sector-wide transformation. My hope is that we can bring others along with us, not because we have all the answers but because we're committed to a shared goal - a secure, sustainable and healthy planet for generations to come, wherever they may be.

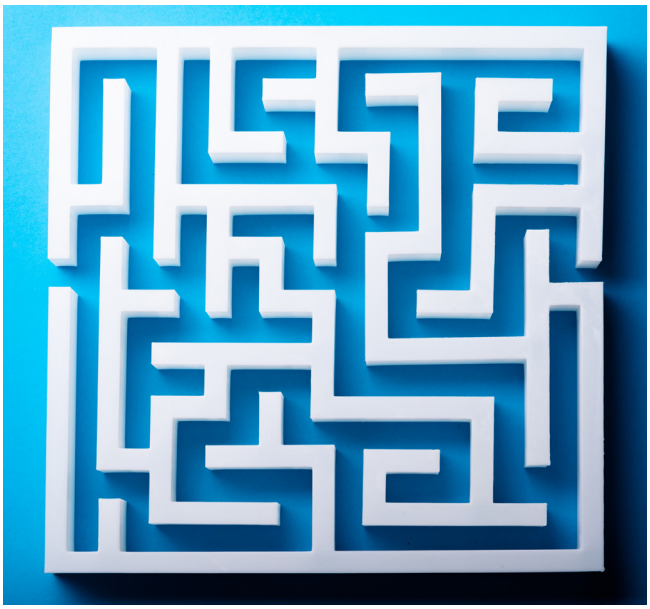
The path ahead is uncertain, but also full of promise. This work challenges me, grounds me and gives me hope. And while I may not always know exactly where it will lead, I know I'm moving in the right direction - with purpose, with conviction and with a deep belief that change is not only possible but already underway.

By Eleanor Wiltshire, Graduate Analyst at Mott MacDonald

# Carbon and Energy Management Through My Lens: The Connection Between High-Level Climate Policy and On-The-Ground Action

**BACKGROUND AND MOTIVATION**

I've always been driven by a desire to understand the systems that shape our environment and build a more sustainable future. This curiosity led me to study Environmental Science at the University of Plymouth. Wanting to dive deeper, I stayed on at the university for a further year to complete an MSc in Sustainable Environmental Management, refining my focus and learning to approach sustainability through a strategic lens. During my masters, I joined an innovative green hydrogen company as a placement student. The firm developed membrane-less electrolysis technology capable of transforming impure water, including seawater, into clean energy. Working at the cutting edge of renewable innovation was thrilling and gave me a glimpse into what's possible when bold ideas meet practical science. Following a successful placement and upon completion of my master's in September 2023, I joined the company full time as an environmental consultant.



Even amid the excitement of green hydrogen, I found myself increasingly drawn to carbon – how it's measured, managed and ultimately reduced. There's something uniquely compelling about it – it touches every sector, every decision and every challenge we face in reaching net zero. It's the story behind our choices, and the bridge between policy, engineering and real-world impact. After a year full-time in the world of green hydrogen, I decided it was time for a change.

In September 2024, I joined Mott MacDonald as a graduate analyst in Decarbonisation. Here, I've had the opportunity to support national infrastructure projects where good carbon decisions can ripple outward and create lasting change. Whether it's integrating whole life carbon assessments into early design stages or supporting the development of decarbonisation strategies, it's incredibly rewarding to see how technical analysis and strategy can influence the design and delivery of major projects.

**EARLY EXPERIENCES IN THE SECTOR**

What's surprised me the most since beginning a career in carbon management is the genuine enthusiasm I've seen from other stakeholders in prioritising carbon. I expected more resistance or compromise, but instead, there's been a clear willingness to embed low-carbon thinking into decision making from the outset. It's shown me how far the conversation has come: carbon is no longer a sidenote or tick-box exercise for organisations, but a central part of how the industry is shaping resilient, future-ready infrastructure.

One of my most rewarding experiences so far has been contributing to the wider Mott

MacDonald team as an Early Career Professional (ECP). The ECP network is for professionals in their first 10 years of their respective industry. I successfully applied to be the global climate change ECP lead in April 2025, supporting the global practice lead with improving internal decarbonisation training and communicating our progress with the wider Climate Change Practice. This role has opened entirely new dimensions of impact. Facilitating global discussions, learning from peers across regions and elevating early-career voices in decarbonisation strategy has been an incredible honour.

However, navigating the complexity of integrating carbon considerations into fast-paced, multi-disciplinary projects often requires balancing rigour with practicality and learning how to communicate carbon in ways that resonate with diverse audiences. Integrating carbon considerations isn't just a technical challenge. It involves aligning environmental goals with project timelines, cost constraints and differing levels of carbon literacy among stakeholders. Rigour is necessary to ensure decisions are evidence-based and aligned with science-based targets. In fast moving projects, it's not always feasible to perform a full lifecycle assessment, especially if datasets aren't up to scratch. Factors that influence the quality and usefulness of datasets include limited data availability or inconsistent data collection. This means knowing when to apply best practice assumptions to maintain momentum without compromising the credibility of the assessment output.

In my current role, communication has evolved from a general skill to a strategic tool – it's especially important in stakeholder engagement. Since university, I've understood how crucial it is to connect with people across disciplines and backgrounds. That foundation has helped me navigate complex conversations and foster trust across the teams I work with. Communicating carbon effectively requires tailoring language depending on the audience. A technical deep dive that resonates with an engineer may not land with a client focused on a project's finances. The challenge is making carbon visible and relevant across disciplines, showing how it connects with a client's goals.

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**PERSPECTIVES ON THE SECTOR**

The energy and carbon management sector has a dynamic and forward-thinking culture, one that's both purpose-driven and collaborative. What struck me early on was how open and interdisciplinary it is. People come from a wide range of backgrounds and that diversity creates a culture of learning and innovation. There's a shared sense of urgency around climate goals, but also a practical mindset about how to get there.

One of the things the sector does particularly well in attracting and retaining new talent is giving people meaningful, visible work from the outset. Even early in your career, you can contribute to projects that have real-world impact. There's also a genuine effort to empower early career professionals, especially at Mott MacDonald. This is done in many ways, from fostering a positive and inclusive culture, to targeted training on both technical and soft skills. This way, the approach can suit the individual and rather than being a one-size-fits-all solution.

That said, there's still room to improve across the industry, which could do more to demystify what a career in carbon or energy management looks like. There's sometimes a perception that these roles are either overly technical or abstract, when the role often requires both technical fluency and strong communication, systems thinking and creativity. Better outreach, visible role models and clearer entry points could help widen the talent pool and make the sector more inclusive.

As for its importance, carbon and energy management are central to the broader sustainability and net zero agenda. These areas are the connection between high-level climate policy and on-the-ground action. Whether it's designing low-carbon infrastructure or identifying efficiency opportunities in existing systems, carbon and energy professionals play a critical role in making net zero achievable, measurable and durable. It's one of the few fields where you get to see the direct link between data, decisions and long-term environmental impact.

**LOOKING AHEAD**

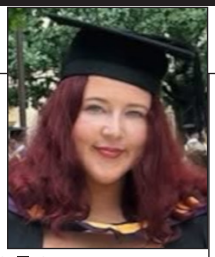
Having only recently started my career in carbon management, I'm still very much in the learning phase, having only joined Mott MacDonald just under a year ago – but that's what makes this stage so exciting. In the next few years, I see myself continuing to build knowledge around carbon, policy and technology. I'm interested in how we translate carbon data into action; how insights from whole life carbon assessments can directly influence the way infrastructure is designed and operated. Ultimately, I'd like to be part of the bridge between technical analysis and high-level decision-making, helping organisations embed carbon thinking at a strategic level.

For anyone starting out in this field, my biggest piece of advice is to stay curious and open to learning from different disciplines. You don't need to know everything on day one, what matters more is being willing to ask questions, engage with complexity and connect the dots between fields. Also, don't underestimate the value of communication. Being able to explain the 'why' behind carbon decisions in a way that resonates with different audiences is a real skill, and one that makes your technical knowledge more impactful. The sector is full of passionate professionals who want to support the next generation – take advantage of that.

***"You don't need to know everything on day one, what matters more is being willing to ask questions, engage with complexity and connect the dots between fields."***

The field is changing fast, but that's part of what makes it so rewarding. You're not just building a career, you're helping shape the future of how we live, build and adapt.

By Chloe Cheadle, Energy and Sustainability Officer at Denstone College and Woodard Schools, Stoke-on-Trent



# Energy Management and Sustainability Insights: Sustainability is Everyone's Business – They Just Need to See Where They Fit In

**BACKGROUND AND MOTIVATION**

I am a recent graduate, currently working in my first industry-specific role in energy management and sustainability. My journey into energy management was not automatic but instead it was shaped by my deep-rooted interest in sustainability and a desire to contribute to the low-carbon transition. From early on, I knew that whatever path I pursued needed to reflect my core values: improving society and protecting the environment. This alignment is ultimately what led me to energy management.

I come from a political background, having studied Politics and International Relations at Nottingham Trent University (NTU). During my studies, I became increasingly aware of the environmental challenges facing our world and how deeply they intersect with our political systems. My dissertation examined climate change denial through the lens of Donald Trump's presidency, which deepened my understanding of how political narratives influence environmental discourse.

Whilst at NTU, I completed an environmental and energy policy internship with Think Pacific and I was also a successful applicant onto the NTU international volunteering scheme, in which I volunteered in Greece at Archelon - a turtle conservation charity. I was heavily involved in the NTU sustainability team, and contributed to a range of energy reduction and sustainability initiatives across campus. All these opportunities helped me to connect theory with practice, which ultimately meant that sustainability evolved into a clear professional ambition.

To build on this, I pursued an MSc in Environmental Governance at the University of Manchester, a course that explored the complex relationships between environmental policy, institutions and society. My MSc dissertation focused on the role of indigenous communities in the 'sacrifice zone' of Boca Chica, Texas, through the lens of environmental justice. It provided me with a strong foundation in understanding how governance frameworks can drive sustainability, and it deepened my commitment to working in a field where I could influence both strategic and operational change.

During my MSc, I worked as a Legal Energy Advisor for Citizens Advice, supporting individuals with energy-related issues and helping citizens navigate the complexities of energy efficiency and the legalities of the industry. This hands-on experience provided me with a real-world perspective on the impact of energy policy and reinforced my desire to work in a role where I can make a tangible difference.

Ultimately, it led me to my current role as an Energy and Sustainability Officer, where I now have an opportunity to contribute directly to energy management initiatives and support the transition to a more sustainable future. I work in a split role across both compliance and procurement, which allows me to engage with a broad range of stakeholders and influence both operational practices and strategic decisions. This role has allowed me to connect my

academic foundations with practical energy initiatives, reinforcing why I chose this path in the first place.

**EARLY EXPERIENCES IN THE SECTOR**

The energy sector is undergoing rapid transformation with the global drive towards decarbonisation and net zero, and the increased use of renewable sources. The way we consume and manage energy is being reimagined. This brings exciting challenges and opportunities.

My early experiences in the energy sector combined academic study with practical, people-focused work. My role of a Legal Energy Advisor showed me how energy policy impacts people in their everyday lives, especially vulnerable citizens already facing fuel poverty and poor building infrastructure. This underscored my belief that energy is not just a technical or environmental issue; it is a deeply social one. For sustainability to be effective, it must be inclusive.

When I transitioned into my current role as an Energy and Sustainability Officer for an academy trust, I quickly realised that working in sustainability and/or energy can be challenging. Driving change is not just about knowing the data, policies and legislation, it is more about getting people on board with the changes required, and that does not always come easily. Not everyone prioritises sustainability and often that is not out of resistance, but due to a difference in priorities such as budgets, operations and service delivery. You must learn to speak the language of the team you are engaging with. For finance, that might mean focusing on cost savings (both short and long term) and the return on investment. For estate management, it may be about compliance and maintenance. For marketing, it may be about brand reputation and demonstrating climate leadership. What excites me about this field is exactly that, the need to connect the dots. There are opportunities to embed sustainability into every department but spotting them and getting others to see the value takes persistence and communication. However, when you get a project over the line and can track tangible progress, it becomes even more worthwhile.

What has made the transition to this industry particularly smooth is the incredible sense of community within the sector. Networking and collaborating with other energy professionals have provided me with invaluable knowledge and advice to navigate the world of energy. There are so many fantastic networks and peer groups out there and being part of them has been both inspiring and energising.

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Some of my early work involved supporting audits, contributing to procurement decisions and navigating compliance frameworks. But more than anything, it involved building relationships by showing how energy decisions create ripple effects far beyond just carbon savings. From reducing costs, improving workplace conditions to enhancing social impact and meeting stakeholder expectations, there's both a business case and a moral case to be made.

In terms of audits, I've found that preparation is key. One of the most valuable skills I've developed, particularly through the EMA Energy Auditing course, is the ability to analyse energy data prior to conducting the audit. This allows me to identify inefficiencies, target areas for deeper investigation and structure the audit around meaningful questions. It ensures the process is focused, efficient and tailored to the specific context of the site.

Beyond technical analysis, I've also found that clear communication, active listening and the ability to translate technical findings into accessible insights are essential. These skills help build trust with stakeholders and ensure that audit outcomes lead to actionable improvements. Whether it's engaging facilities teams, finance departments or senior leadership, I aim to connect energy performance with broader organisational goals — from cost savings and compliance to wellbeing and social value.

In procurement, I've learned to think holistically about the lifecycle of products and services. This means considering not just the upfront cost, but also how long items will last, how they'll be maintained, where they've travelled from and how they'll be disposed of. These considerations help ensure that

procurement decisions support sustainability, reduce waste and deliver long-term value.

I also take into account supply chain impacts such as embodied carbon, transportation emissions and ethical sourcing to support decisions that align with environmental and social responsibility. By embedding these principles into procurement processes, I've contributed to choices that are not only cost-effective but also aligned with broader sustainability and equity goals.

These formative experiences have shaped how I view the sector today, both in terms of its strengths and the areas where it must evolve.

**PERSPECTIVES ON THE SECTOR**

If I were to describe the culture of the energy management sector to someone considering a role in it, I would say it is collaborative, fast-paced and constantly evolving. It sits at the intersection of data, policy, technology and human behaviour, which means you are always learning and adapting. There is also a strong sense of purpose; you know that you are contributing to a more sustainable future.

One thing I think the sector does well is that you do not need to come from a traditional technical background to thrive. The sector is a real mix of individuals from engineering, politics, law and science (not exhaustive). The diversity of voices within the sector means that you are constantly learning new skills through collaboration.

That being said, one thing that I think the sector should improve on is recruiting and retaining female talent. It is a space that has been historically dominated by a male workforce, with only 16% of traditional energy roles being filled by women. Recruiting and retaining female talent should be a top priority for energy companies and organisations moving forward. This means ensuring that the environment is inclusive and supportive. Initiatives like Equal by 30 show the sector is moving in the right direction, and I would like to see more organisations put those commitments into practice, day to day.

**LOOKING AHEAD**

Over the next few years, I see myself stepping into a pivotal role where I can help shape the UK's journey towards net-zero carbon emissions. My ambition is to work at the intersection of energy management, sustainability education and strategic energy policy. I aim to drive change not just through technology, but through empowering people and organisations to think differently about energy and sustainability. I want to be a catalyst for identifying opportunities for energy reduction and savings across every sector, whether it is business, education or within communities. We must embed sustainable practices in every area of society to accelerate the transition to a low-carbon future.

***"To be part of this journey comes with responsibility, which is a privilege, and I feel as though I am not just pursuing a career, but I am committed to a cause."***

Ultimately, I aspire to be a leader and changemaker in energy management, contributing to national and global sustainability goals. I aim to encourage diverse voices and perspectives within the field. I am particularly passionate about sustainability and energy education, ensuring that businesses, communities and individuals understand the power they hold to make meaningful change. I believe that energy management is not just about technology, and I would like to contribute to a people-centred approach.

I am committed to staying at the forefront of policy developments, whilst also advocating for greater diversity and accessibility within the energy sector. I also believe that the most effective solutions will come from collaboration across disciplines and communities.

We are living in an incredibly exciting time. Technology is evolving at a rapid pace, and with constant advancements, it brings a new wave of possibilities for how we manage energy, reduce emissions and build a more sustainable world. What makes this journey even more exciting and meaningful is that, hopefully, my career will span the entire net-zero transition leading up to 2050 and beyond. It is thrilling to imagine the progress we can make over the coming decades, from groundbreaking technologies to cultural shifts in how we think about energy and sustainability. To be part of this journey comes with responsibility, which is a privilege, and I feel as though I am not just pursuing a career, but I am committed to a cause.